


KANSAS

Healthy People 2000: State Summary for Kansas Vital Statistics Data

A decorative graphic consisting of approximately 15 horizontal lines of varying lengths, creating a stepped effect. The lines are light gray and serve as a background for the text.

Research Summary

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Introduction

For two decades, the U.S. Public Health Service (PHS) has used health promotion and disease prevention objectives to improve the health of the American people. The first set of national targets was published in 1979 in *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* and expanded with publication in 1980 of *Promoting Health/Preventing Disease: Objectives for the Nation*. In 1991, PHS published *Healthy People 2000* (HP2000) whose purpose was to commit the nation to the attainment of three broad goals;

- , Increase the years of healthy life for Americans,
- , Reduce health disparities, and
- , Achieve access to preventive services for all Americans

The major objective of HP2000 was the creation of a set of measurable and understandable Health Status Indicators that would allow outcome-oriented assessment of community health at federal, state, and local levels. It contains 319 health objectives covering 22 priority areas. The report is deliberately comprehensive to allow local communities and States the opportunity to focus on their own highest priority needs. For further information visit the Healthy People 2000 Web site at <http://odphp.osophs.dhhs.gov/pubs/hp2000>.

Priority Areas of Healthy People 2000

1. Physical Activity and Fitness
2. Nutrition
3. Tobacco
4. Substance Abuse: Alcohol and Other Drugs
5. Family Planning
6. Mental Health and Mental Disorders
7. Violent and Abusive Behavior
8. Educational and Community-Based Programs
9. Unintentional Injuries
10. Occupational Safety and Health
11. Environmental Health
12. Food and Drug Safety
13. Oral Health
14. Maternal and Infant Health
15. Heart Disease and Stroke
16. Cancer
17. Diabetes and Chronic Disabling Conditions
18. HIV Infection
19. Sexually Transmitted Diseases
20. Immunization and Infectious Diseases
21. Clinical Preventive Services
22. Surveillance and Data Systems

The purpose of this report is to identify those indicators that are measured through vital statistics and evaluate Kansas' standing against the national year 2000 objectives. For each indicator (Appendix: Table 3), a figure presents Kansas resident statistics for 1991 through 2000 and the national year 2000 objective. For some indicators, special population breakouts are provided to show disparities between population groups.

Age-adjusted death rates for HP2000 data are based on the 1940 U.S. standard population (see Technical Notes). Therefore, they will differ from rates shown in Healthy People 2010, which adjusts rates to the 2000 U.S. standard population. The change to the year 2000 standard has implications for the interpretation of mortality trends and comparisons. The age-adjusted rates based on the 2000 standard are often substantially higher than those based on the 1940 standard, since more weight is given to older age groups. In comparing the deaths which occurred in Kansas in 2000, using both standards, the age-adjusted death rate for total deaths using the 2000 standard (849.0 per 100,000 population) was almost twice as high as the rate using the 1940 standard (441.4). The age-adjusted rate using the 2000 standard more closely approximates the average risk of death reflected in crude death rates.

This means that age-adjusted death rates calculated for HP2000 cannot be used in trend comparisons with rates calculated for Healthy People 2010. Health objectives for 2000 will have to be recalculated in terms of age-adjusted death rates by the 2000 standard. To assist with this transition we have included a table showing Kansas age-adjusted death rates for the applicable mortality objectives, in the year 2000, using both standards (Appendix Table 4).

Also noteworthy, causes of death for 1999-2000 are classified using the International Classification of Disease, 10th Revision (ICD-10). Prior to 1999, Kansas used ICD-9 to report mortality statistics. For more information on this topic, please see the Technical Notes (Appendix Table 5).

The Health Status Indicators presented in this report are:

- , Death rates per 100,000 population:
 - , Total deaths for individuals aged 1-14, 15-14, and 25-64
 - , Cirrhosis deaths: total and for black males
 - , Chronic obstructive pulmonary disease deaths
 - , Cancer deaths, including deaths from breast cancer, colorectal cancer, lung cancer, and cancer of the uterine cervix
 - , Deaths from diabetes as an underlying or contributing cause: total and for blacks
 - , Drowning deaths: total, for individuals aged less than 5 years, and for males ages 15-34
 - , Drug related deaths
 - , Deaths from falls: total and for individuals aged 65-84 and 85 and above
 - , Firearm related deaths: total and for blacks
 - , Heart disease deaths: total and for blacks
 - , Homicide deaths: total, for black males aged 15-34, and for Hispanic males aged 15-34

- , Motor vehicle deaths: total and for individuals aged less than 15 years, 15-24 years, and 70 years and above
- , Suicide deaths: total , for individuals aged 15-19, for males aged 20-34, and for white males aged 65 and above
- , Stroke deaths: total and for blacks
- , Unintentional injury deaths: total, for black males, and for white males
- , Family Planning and Maternal and Infant Health
 - , Pregnancies per 1,000 females aged 15-17, black females aged 15-19, and Hispanic females aged 15-19
 - , Infant mortality rate per 1,000 live births: total and for blacks
 - , Neonatal mortality rate per 1,000 live births: total and for blacks
 - , Fetal death rate per 1,000 total births: total and for blacks
 - , Maternal mortality rate per 100,000 live births
 - , Percent of babies born with low or very low birth weight: total and for blacks
 - , Cesarean delivery rate per 100 deliveries
 - , Percent of pregnant women abstaining from tobacco use
 - , Percent of pregnant women receiving prenatal care in the first trimester: total and for blacks

Progress toward obtainment of these goals is illustrated in Figures 16 and 27. The methods used in determining indicator progress are described in detail in the Technical Notes.

Comparisons of rates or percents have been tested for statistical significance, and a statement that one is higher or lower than another indicates that the difference is indeed statistically significant. Information on the methods used to test for statistical significance, as well as additional information on cause of death coding, age-adjusted death rate, residence data, rate reliability, and race/ethnicity, is presented in the Technical Notes.

Mortality Indicators

Table 1
Death Rates* for Cause of Death Indicators, Kansas, 1991-2000
and U.S. Year 2000 Objectives

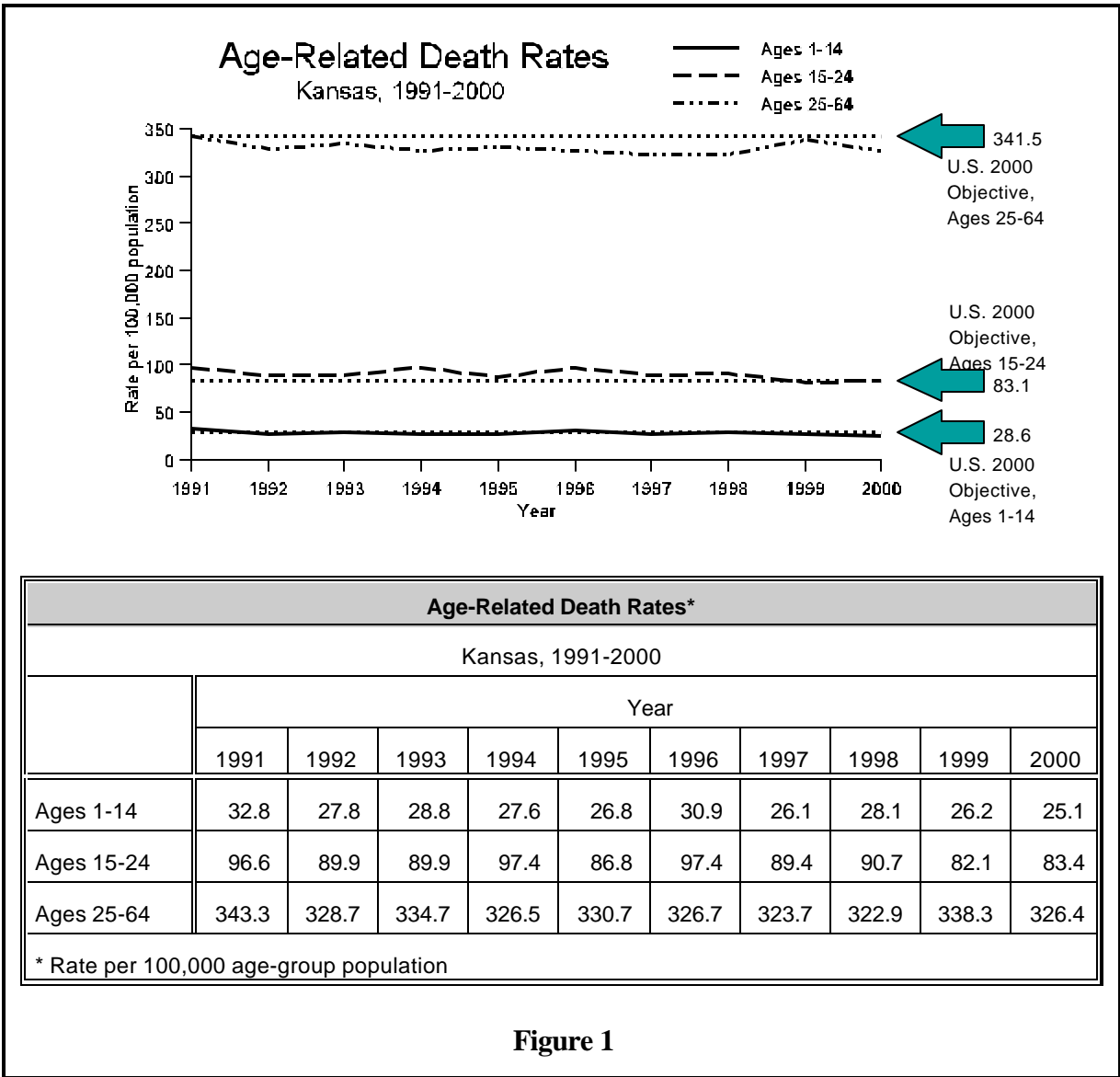
Indicators	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	% Change 1991-2000	U.S. 2000 Objective
Ages 1-14	32.8	27.8	28.8	27.6	26.8	30.9	26.1	28.1	26.2	25.1	-23.5	** 28.6
Ages 15-24	96.6	89.9	89.9	97.4	86.8	97.4	89.4	90.7	82.1	83.4	-13.7	** 83.1
Ages 25-64	343.3	328.7	334.7	326.5	330.7	326.7	323.7	322.9	338.3	326.4	-4.9	** 341.5
Cirrhosis	4.9	4.6	4.9	5.6	5.0	5.0	4.8	5.5	5.2	4.8	-2.0	6.0
Black Males	13.4	16.1	12.8	26.3	8.3	14.0	9.0	10.5	5.8	6.2	-53.7	12.0
COPD	20.6	18.8	22.5	21.1	22.7	21.7	23.9	22.1	25.3	24.5	18.9	25.0
Cancer	124.3	119.8	120.5	125.0	119.6	119.9	116.7	112.5	117.7	112.1	-9.8	130.0
Breast (Female)	20.4	19.3	17.5	21.1	19.6	17.9	17.1	17.2	17.7	18.9	-7.4	20.6
Colorectal	12.8	11.7	12.5	12.4	11.6	11.3	11.9	10.8	11.6	10.5	-18.0	13.2
Lung	37.1	35.1	34.7	36.7	35.3	36.0	36.9	34.6	35.2	32.5	-12.4	42.0
Uterine Cervix	1.5	1.2	1.6	1.2	1.0	1.0	1.3	0.9	0.7	0.8	-46.7	1.3
Coronary Heart Disease	93.1	89.7	92.0	83.3	84.6	79.2	78.1	75.5	75.3	74.4	-20.1	100.0
Blacks	102.1	104.1	99.1	94.9	99.5	98.5	93.5	82.9	84.1	106.8	4.6	115.0
Diabetes***	30.9	32.4	32.0	31.9	34.7	34.4	33.6	34.7	35.8	36.7	18.8	34.0
Blacks	76.0	73.2	77.7	69.2	73.5	89.1	73.8	76.5	82.8	99.5	30.9	58.0
Drowning	1.7	1.5	1.6	1.5	1.2	1.5	1.0	1.9	1.2	1.2	-29.4	1.3
Ages < 5	2.7	6.4	6.5	1.6	1.7	2.8	3.3	3.3	2.7	1.6	-40.7	2.3
Males Aged 15-34	4.7	2.6	4.2	3.4	3.2	3.5	1.6	3.2	2.4	2.6	-44.7	2.5
Drug Related	2.2	2.2	2.4	2.3	2.3	2.4	2.7	3.4	3.4	4.4	100.0	3.0
Falls	2.1	1.7	2.8	2.4	3.2	2.7	2.8	3.0	3.0	3.0	42.9	2.3
Ages 65-84	18.5	16.4	18.0	19.6	25.4	21.8	26.8	23.3	22.5	23.6	27.6	14.4
Ages 85+	151.1	146.1	194.5	162.8	245.0	222.8	149.0	220.8	160.7	146.8	-2.8	105.0
Firearm Related	13.8	13.3	15.0	13.5	12.9	12.3	11.7	12.6	10.3	10.8	-21.7	** 11.6
Blacks	38.9	42.7	51.7	55.1	47.5	39.8	40.2	43.5	31.9	34.5	-11.3	** 30.0
Homicide	6.5	6.5	8.3	7.7	7.1	5.9	6.4	6.6	5.5	5.7	-12.3	7.2
Black Males 15-34	108.6	126.9	176.8	205.8	185.4	119.9	158.0	152.3	95.7	107.9	-0.6	72.4
Hispanic Males 15-34	38.7	23.5	27.4	22.0	29.6	33.0	47.8	26.7	29.5	43.6	12.7	** 33.0
Motor Vehicle	17.0	16.5	17.0	18.0	16.8	19.6	18.7	19.4	19.3	17.3	1.8	** 14.2
Ages < 15	5.3	5.4	5.0	5.7	4.9	6.4	4.2	6.8	6.3	5.3	0.0	** 4.4
Ages 15-24	32.1	34.0	29.0	37.4	29.1	41.0	34.5	31.0	33.9	31.0	-3.4	** 26.8
Ages 70+	23.6	22.7	37.5	29.7	30.5	29.6	32.5	34.5	38.2	30.1	27.5	20.0
Suicide	11.8	11.9	12.4	10.7	11.4	12.1	11.7	12.0	10.9	11.8	0.0	10.5
Ages 15-19	18.4	16.3	15.8	13.0	14.6	16.2	11.7	15.7	8.0	10.5	-42.9	8.2
Males 20-34	25.1	23.1	26.3	28.4	29.2	26.0	30.1	28.8	31.6	27.0	7.6	21.4
White Males 65+	36.8	32.6	47.7	29.2	36.9	44.6	37.4	28.0	28.8	34.2	-7.1	39.2
Stroke	24.1	24.8	24.5	24.6	25.1	25.4	23.1	24.4	24.9	23.7	-1.7	20.0
Blacks	46.7	45.6	48.5	41.1	42.6	45.6	40.2	47.5	41.4	41.6	-10.9	27.0
Unintentional Injuries	32.5	28.6	30.4	30.8	29.0	32.4	30.8	34.0	33.2	32.2	-0.9	29.3
Black Males	48.0	35.6	38.9	59.2	49.2	52.4	44.5	58.4	50.2	41.5	-13.5	51.9
White Males	46.4	41.9	43.7	43.5	40.4	44.8	44.4	46.9	46.1	49.9	7.5	42.9

* Rates age-adjusted per 100,000 1940 U.S. standard million population, except for deaths within age groups, where rates are age-specific.

** Revised in *Healthy People 2000 Midcourse Review and 1995 Revisions*.

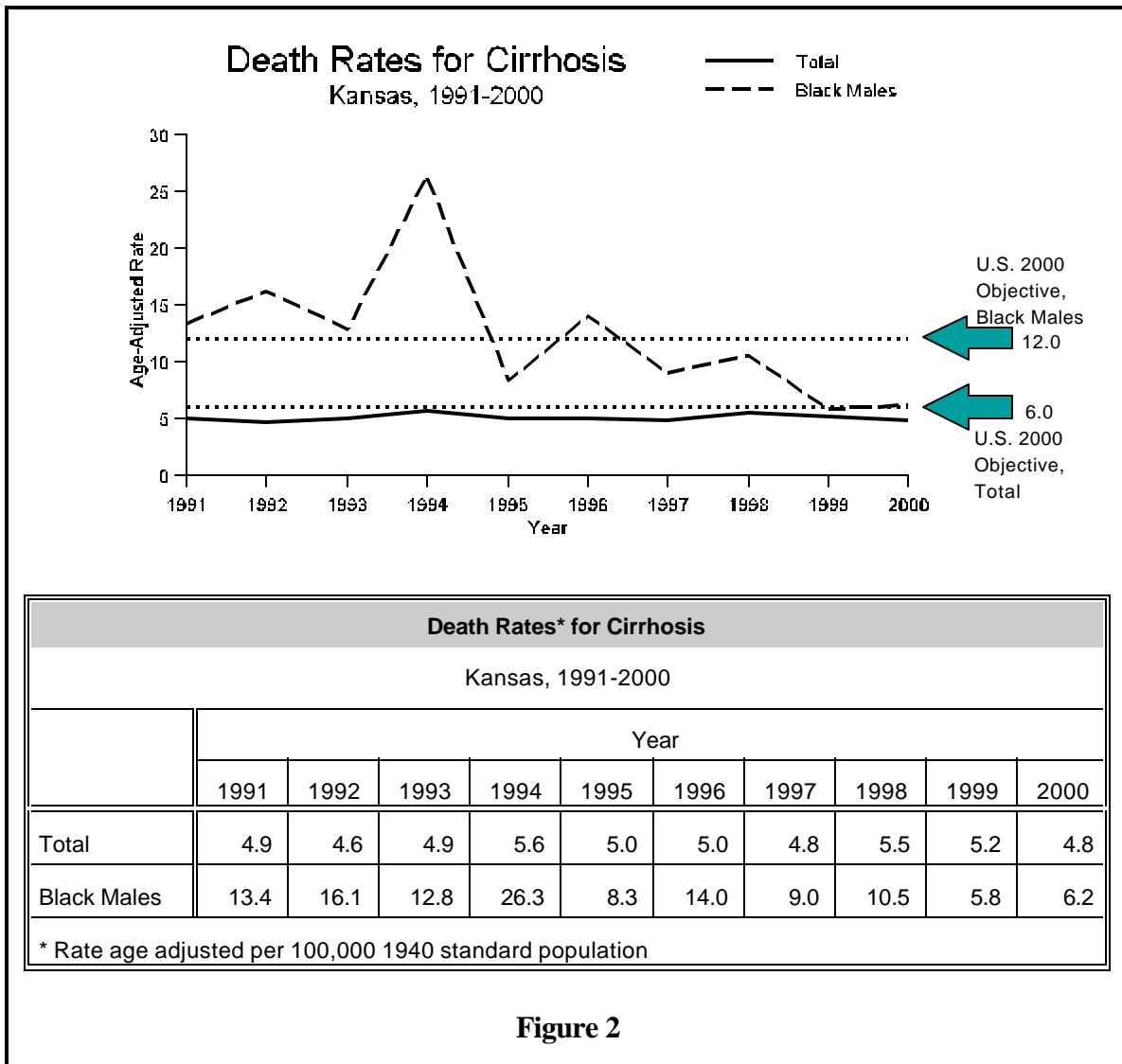
*** Diabetes rates are for deaths from diabetes as an underlying or contributing cause.

Residence data



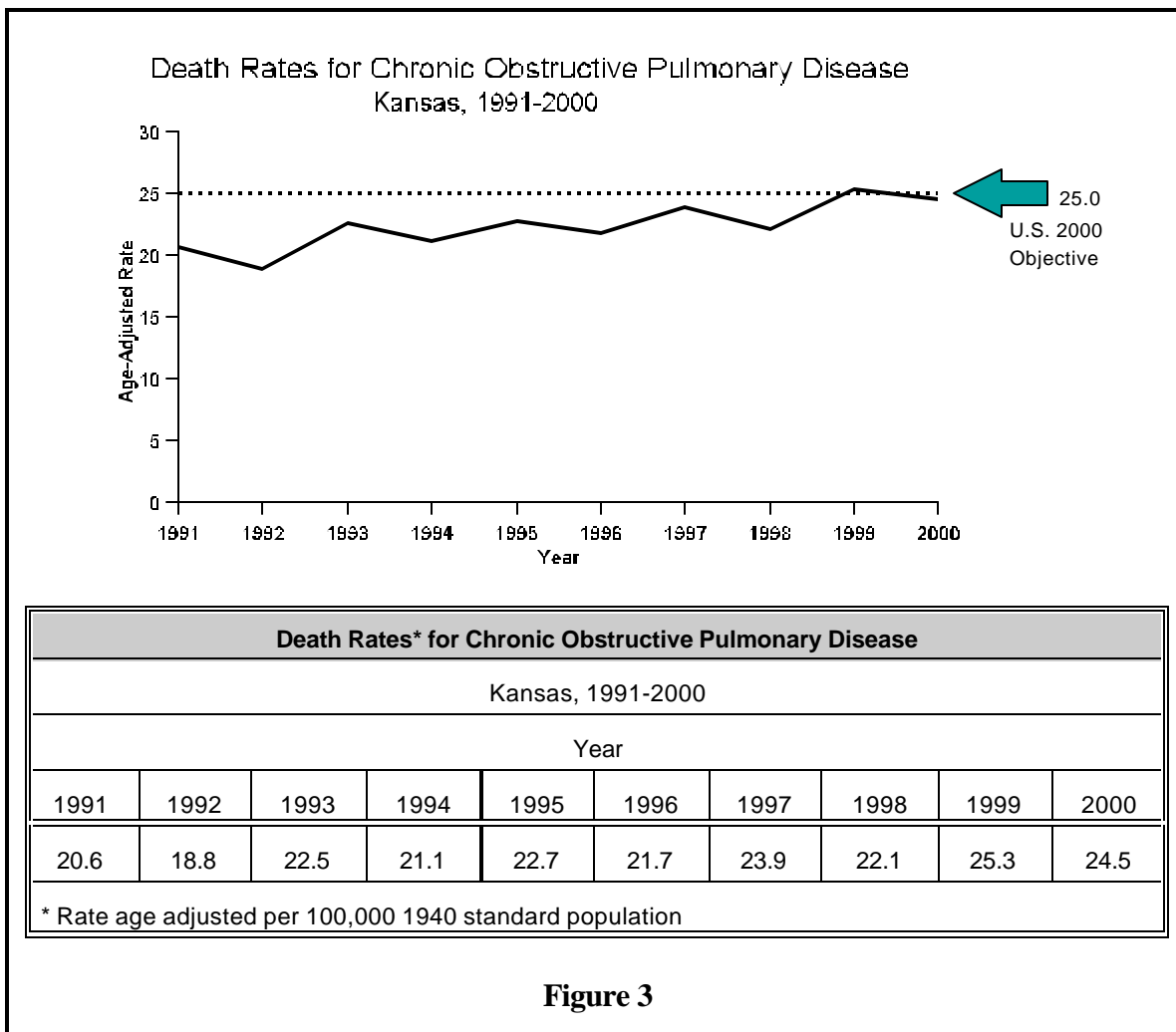
Healthy People 2000 objectives include goals for reducing the death rate for children aged 1-14 to no more than 28.6 per 100,000 age-group population, reducing the rate for individuals aged 15-24 to no more than 83.1, and reducing the rate for adults aged 25-64 to no more than 341.5 (HP 2000 Midcourse Review p. 269).

For Kansas residents, the death rate for children aged 1-14 fell significantly from 1991 to 2000 and was below the national target rate (28.6) for seven of the years from 1991 to 2000. For individuals aged 15-24, the rate fell significantly, to below the national target (83.1) for the first time in 1999, then rose slightly above it again in 2000. Rates for adults aged 25-64 were below the target rate (341.5) for every year after 1991 and did not change significantly from 1991 to 2000.



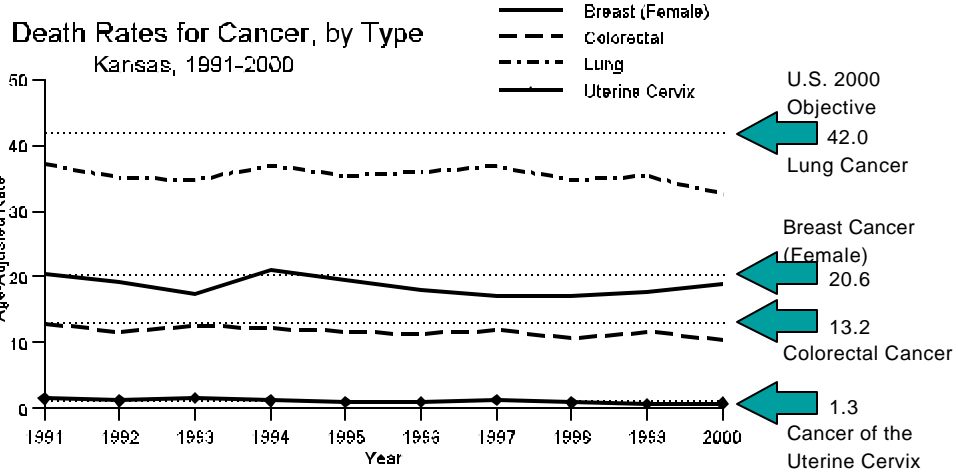
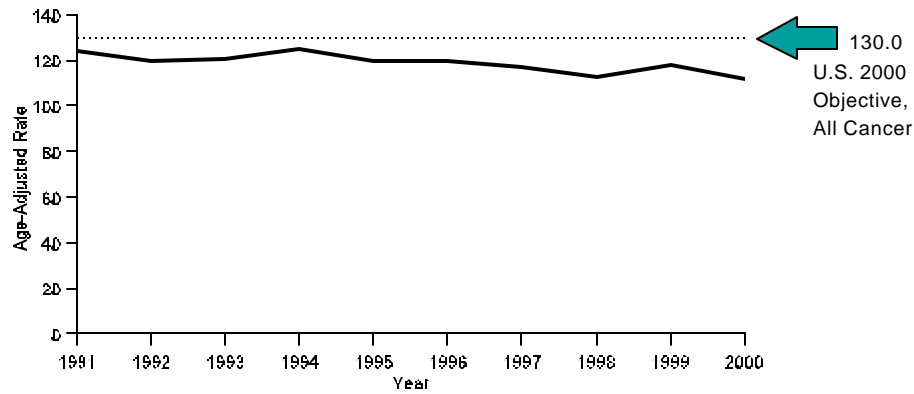
Nationwide, cirrhosis death rates have historically been higher for black men than for the total population, even though rates have dropped more rapidly for the former group in the past three decades. Therefore, Healthy People 2000 targets were set for a 34.8 percent decrease from the baseline for the overall rate and a 46.9 percent decrease in the rate for black males, from 1987 to 2000, in the expectation that the gap between rates for the two groups will continue to narrow (HP 2000, p. 167).

For Kansas residents, age-adjusted death rates for cirrhosis were slightly below the national 2000 target rate of 6.0 deaths per 100,000 1940 standard U.S. population for the entire period of 1991-2000, and did not vary significantly. The differences between cirrhosis death rates for black males over the same time period were also not statistically significant, due to the small number of events upon which they were based. Those rates were near or below the target of 12.0 from 1997 to 2000 (Table 1). In 1999 the rate for black males (5.8) fell below the targeted rate (6.0) for all cirrhosis deaths.



Nationwide, death rates for chronic obstructive pulmonary disease (COPD), called “chronic lower respiratory disease” in the International Classification of Diseases, Tenth Revision (ICD-10), have been on the rise (HP 2000 p. 138). In Kansas, there was a significant increase in the age-adjusted death rate, from 20.6 deaths per 100,000 1940 standard population in 1991 to 24.5 in 2000. Although the death rate for COPD for Kansas residents continued to rise during the decade, the national 2000 target was met.

Death Rates for All Cancer Kansas, 1991-2000



Death Rates* for Cancer										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All Cancer	124.3	119.8	120.5	125.0	119.6	119.9	116.7	112.5	117.7	112.1
Breast Cancer (Female)	20.4	19.3	17.5	21.1	19.6	17.9	17.1	17.2	17.7	18.9
Colorectal Cancer	12.8	11.7	12.5	12.4	11.6	11.3	11.9	10.8	11.6	10.5
Lung Cancer	37.1	35.1	34.7	36.7	35.3	36.0	36.9	34.6	35.2	32.5
Cancer of the Uterine Cervix	1.5	1.2	1.6	1.2	1.0	1.0	1.3	0.9	0.7	0.8

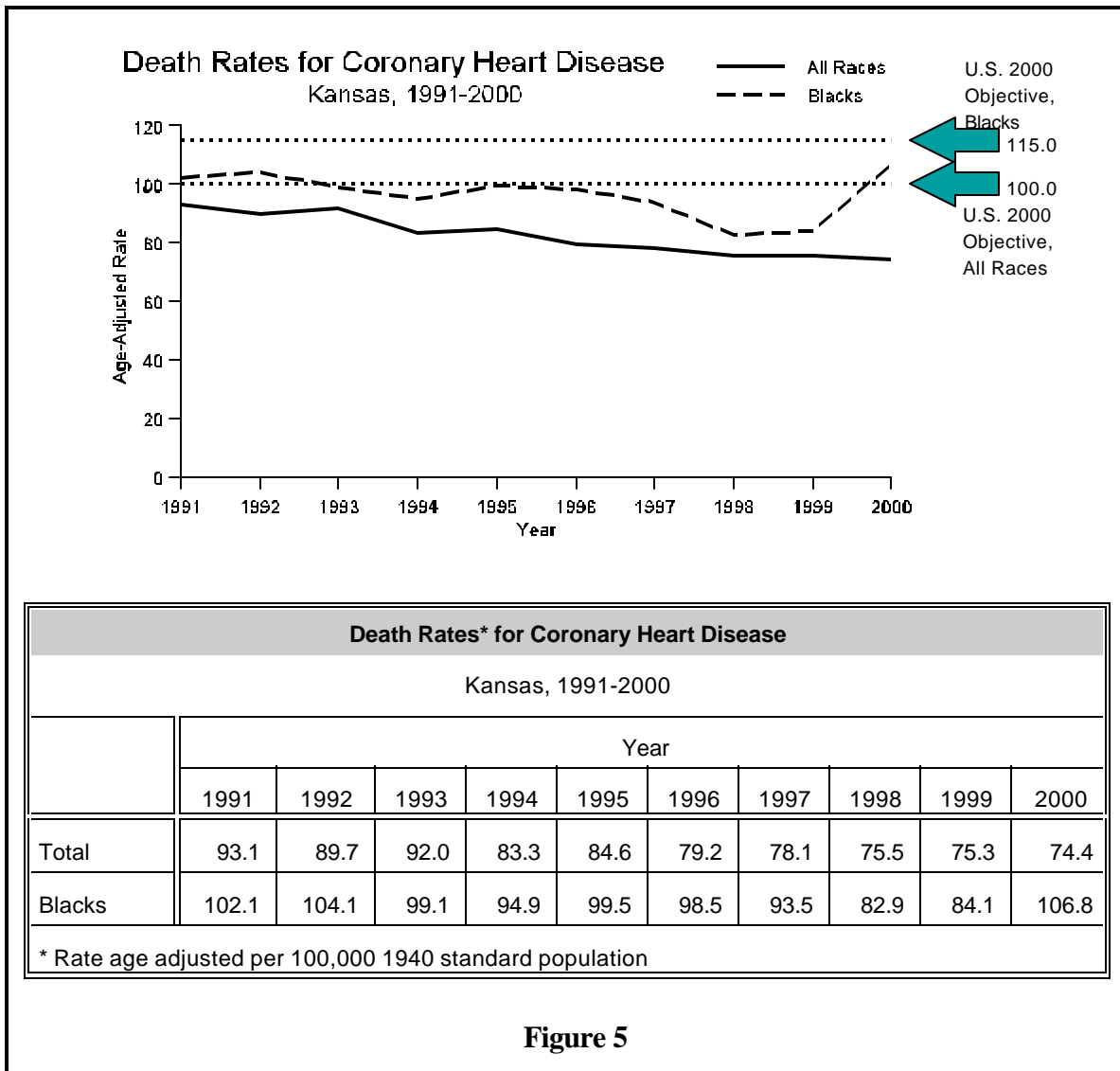
* Rate age adjusted per 100,000 1940 standard population

Figure 4

Cancer

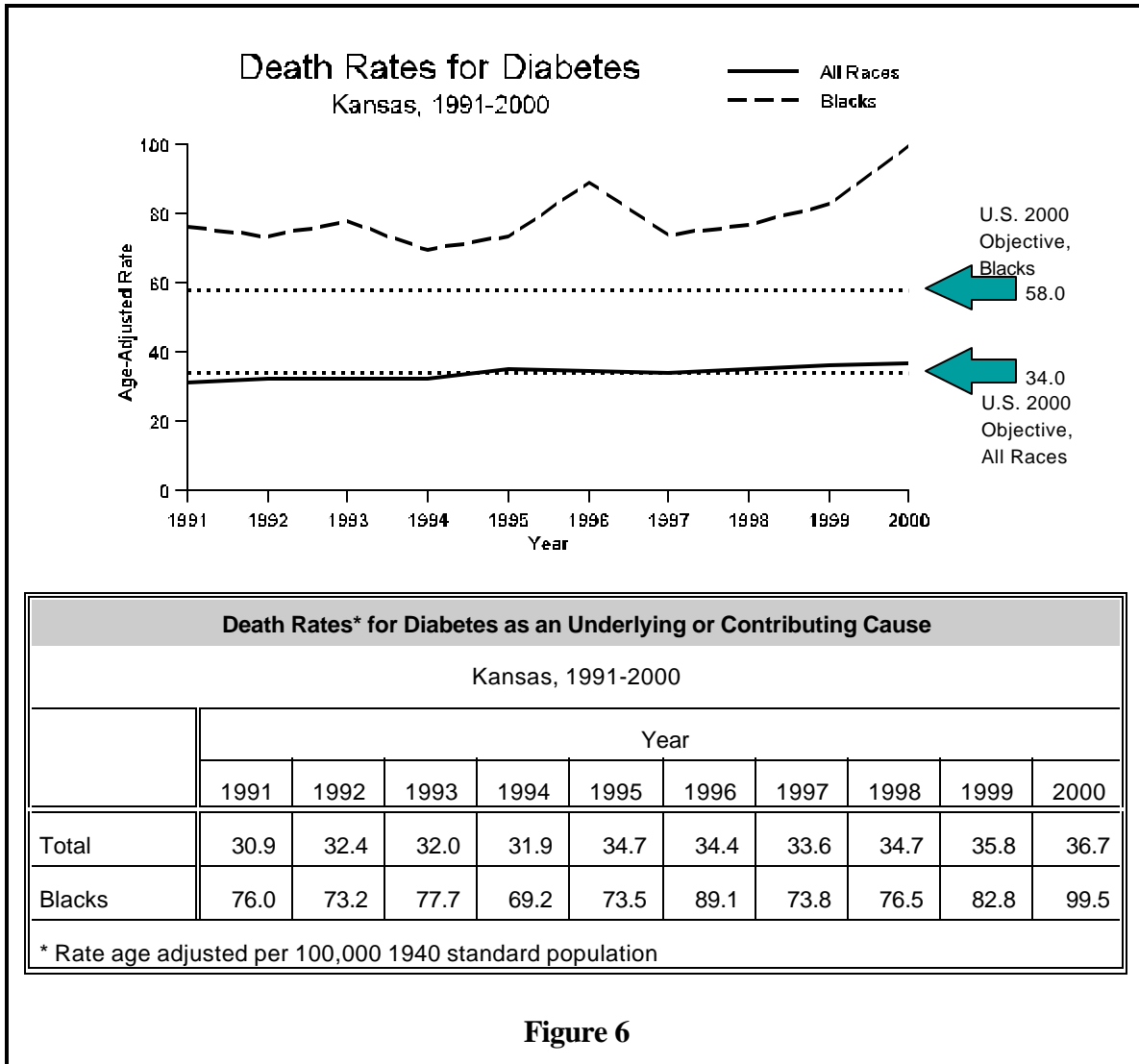
Healthy People 2000 objectives for cancer reflect the results of studies showing that overall cancer death rates have been rising largely because of rising rates for lung cancer deaths. The objectives are to slow the rise in lung cancer death rates to no more than 42.0 per 100,000 1940 standard U.S. population, and to reverse the rise in overall cancer death rates to achieve a rate of no more than 130.0. Objectives for other major types of cancer are to decrease death rates to 20.6, 13.2, and 1.3 for female breast cancer, colorectal cancer, and cancer of the uterine cervix, respectively (HP 2000 pp. 418-421).

For Kansas residents, the rates for overall cancer and for each of the considered types met the national year 2000 objectives by 1994 and showed a decline from 1991 to 2000. A significant drop in the rate of lung cancer, from 37.1 in 1991 to 32.5 in 2000 contributed to a significant drop in the overall death rate for all cancers, from 124.3 in 1991 to 112.1 in 2000.



While rates for death from coronary heart disease have been declining nationwide for the past 20 years, it continues to be the number one cause of death. Healthy People 2000 objectives are to decrease the rate to no more than 100.0 per 100,000 1940 standard U.S. population, and to decrease the rate to no more than 115.0 for blacks (HP 2000 pp 394-5).

The death rates for coronary heart disease for Kansas residents were below national objectives for the entire 1991-2000 time period, both overall and for blacks. There was a significant decrease in overall rates, which fell from 93.1 in 1991 to 74.4 in 2000. For blacks, the rate fell to a low of 84.1 in 1999, but rebounded to 106.8 in 2000. However, because of the small number of deaths involved (less than 200 per year) the net result was no significant change in death rates for blacks for coronary heart disease from 1991 to 2000.

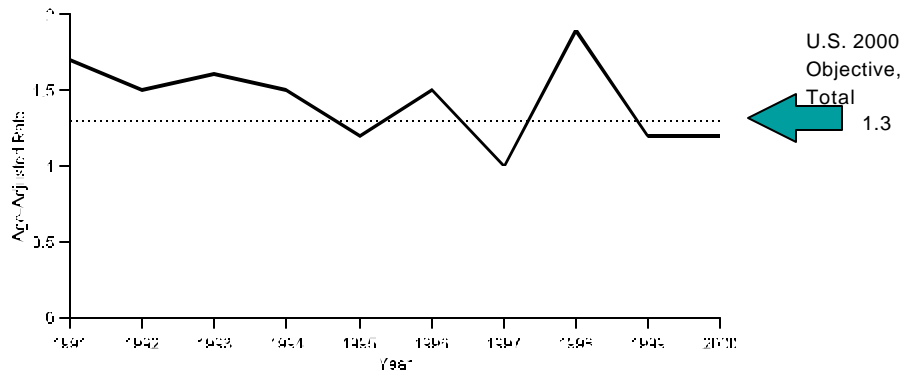


“In 1987 diabetes was the underlying cause of death for more than 37,000 Americans and contributed to over 100,000 additional deaths” (HP 2000 p. 457). The national objective is to reduce the rate of diabetes-related deaths (in which diabetes is either an underlying or contributing cause) to no more than 34.0 per 100,000 1940 standard U.S. population. For blacks, who are at higher risk of death from diabetes or diabetes-related causes, the objective is to reduce the rate to 58.0.

For Kansas residents, the rate for diabetes-related deaths was below the Healthy People 2000 target rate of 34.0 in 1991 but rose significantly, to 36.7 in 2000. For blacks, rates were above the target of 58.0 for the entire period from 1991 to 2000 and, because of the small number of deaths involved (less than 200 per year), did not vary significantly.

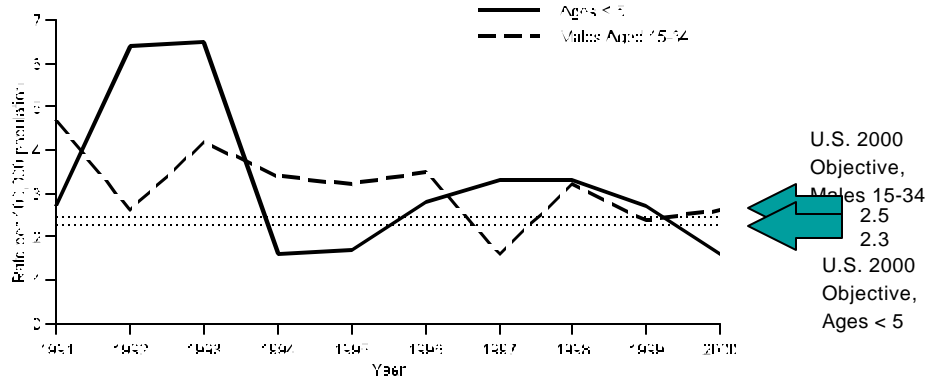
Death Rates for Drowning

Kansas, 1991-2000



Age-Specific Death Rates for Drowning

Kansas, 1991-2000



Death Rates* for Drowning										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	1.7	1.5	1.6	1.5	1.2	1.5	1.0	1.9	1.2	1.2
Ages < 5	2.7	6.4	6.5	1.6	1.7	2.8	3.3	3.3	2.7	1.6
Males Aged 15-34	4.7	2.6	4.2	3.4	3.2	3.5	1.6	3.2	2.4	2.6

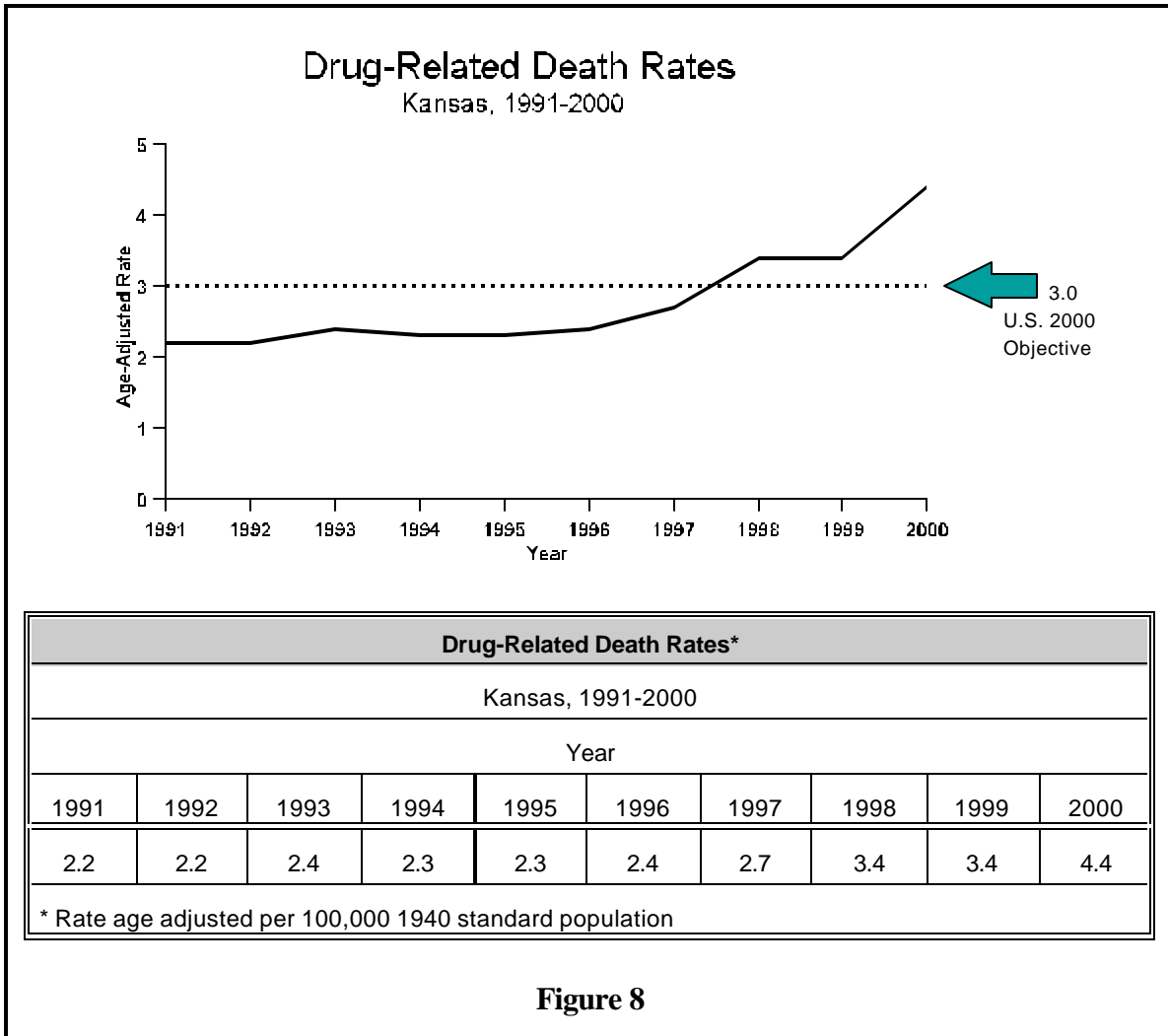
* Rates for total are age adjusted per 100,000 1940 standard population.
Age-Group rates are per 100,000 age-group population.

Figure 7

Drowning

The national objectives are to reduce the death rate for drowning to 1.3 per 100,000 1940 standard U.S. population, to reduce the drowning death rate for children aged less than five to 2.3, and to reduce the rate for males aged 15-34 to 2.5 (HP 2000 pp. 277-8).

Death rates for drowning among Kansas residents were near or below the national objectives for all years from 1991 to 2000, and did not vary significantly. During the ten-year period of 1991-2000 the death rate for children aged less than five fluctuated between 1.6 and 6.5 and the rate for males aged 15-34 varied from 1.6 to 4.7. Such variations in rates were due to the small numbers of events (fewer than 20 deaths by drowning per year) and resulted in no significant change in the rates from 1991 to 2000.

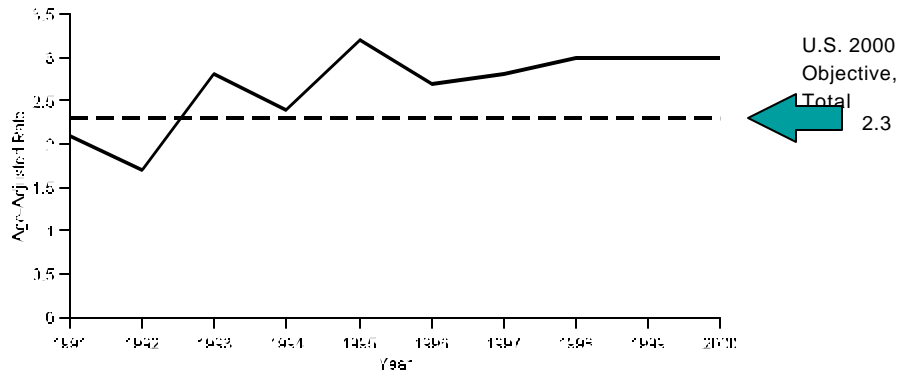


One of the Healthy People 2000 objectives is to reduce the drug-related death rate to no more than 3.0 per 100,000 1940 standard U.S. population (HP 2000 p. 168).

For Kansas residents, the rates for drug-related deaths rose above the national target rate (3.0) in 1998, and the 2000 rate (4.4) was double the 1991 rate of 2.2, a significant increase.

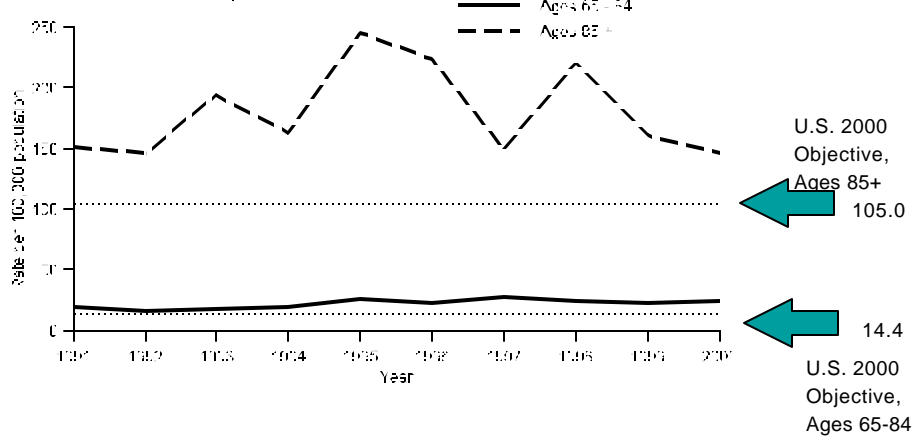
Death Rates for Falls

Kansas, 1991-2000



Age-Specific Death Rates for Falls

Kansas, 1991-2000



Death Rates* for Falls										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	2.1	1.7	2.8	2.4	3.2	2.7	2.8	3.0	3.0	3.0
Ages 65-84	18.5	16.4	18.0	19.6	25.4	21.8	26.8	23.3	22.5	23.6
Ages 85+	151.1	146.1	194.5	162.8	245.0	222.8	149.0	220.8	160.7	146.8

* Rates for total are age adjusted per 100,000 1940 standard population .
Group rates are per 100,000 group population.

Figure 9

Falls

One of the Healthy People 2000 objectives for deaths from falls is to reduce the rate to no more than 2.3 per 100,000 1940 standard U.S. population. Special target populations include the elderly, since "falls are the leading cause of death from injury for people aged 65 and older and are particularly common among those who are over age 85" (HP 2000 p. 276). Target rates for individuals aged 65-84 and for those aged 85 and over are 14.4 and 105.0 respectively.

Rates for deaths from falls for Kansas residents rose from 2.1 in 1991 to 3.0 in 2000, not a statistically significant increase, but rising above the Healthy People 2000 target rate. Death rates for falls in the 65-84 and 85-and-over age groups were above the target rates from 1991 to 2000 but did not increase or decrease significantly.

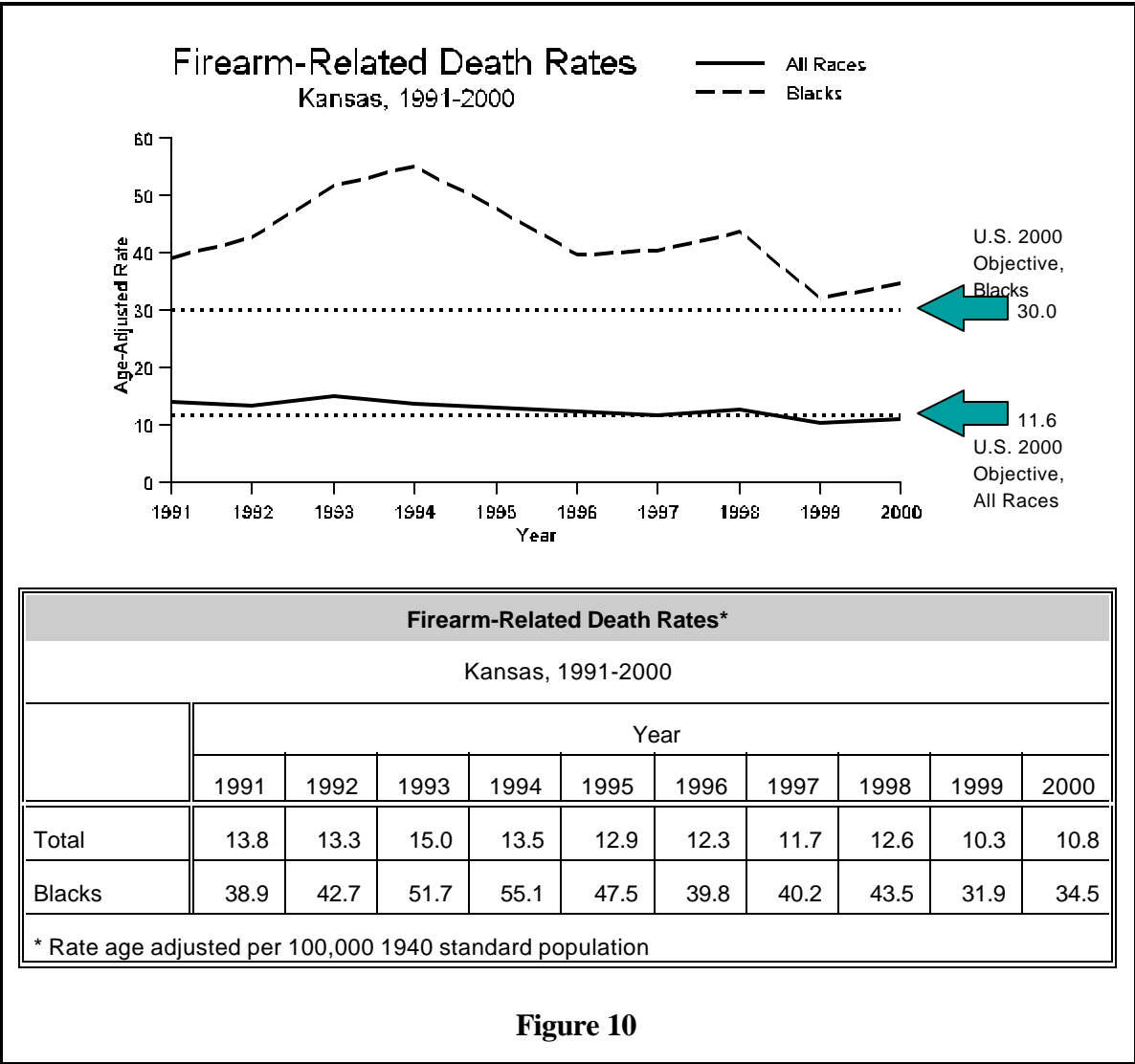


Figure 10

Healthy People 2000 objectives for firearm-related deaths are to reduce rates to 11.6 per 100,000 1940 standard U.S. population overall, and to 30.0 for blacks (HP 2000 Midcourse Review p. 194).

For Kansas residents, overall firearm death rates fell significantly, from 13.8 in 1991 to 10.8 in 2000, meeting the national objective. Rates for blacks were above the national objective (30.0) from 1991 to 2000, though approaching it, at 31.9, in 1999. However, the decrease in rates for blacks from 38.9 in 1991 to 34.5 in 2000 was not statistically significant.

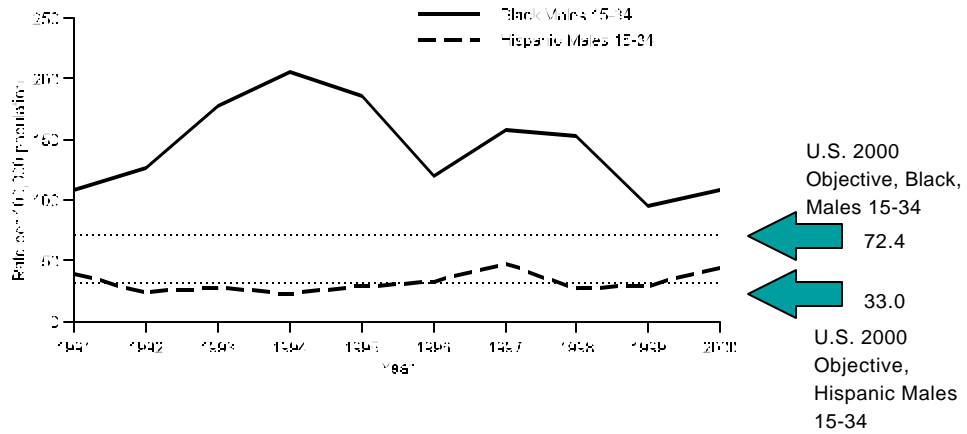
Death Rates for Homicide

Kansas, 1991-2000



Age-Specific Death Rates for Homicide

Kansas, 1991-2000



Death Rates* for Homicide										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	6.5	6.5	8.3	7.7	7.1	5.9	6.4	6.6	5.5	5.7
Black Males 15-34	108.6	126.9	176.8	205.8	185.4	119.9	158.0	152.3	95.7	107.9
Hispanic Males 15-34	38.7	23.5	27.4	22.0	29.6	33.0	47.8	26.7	29.5	43.6

* Rates for total are age adjusted per 100,000 1940 standard population. Group rates are per 100,000 group population.

Figure 11

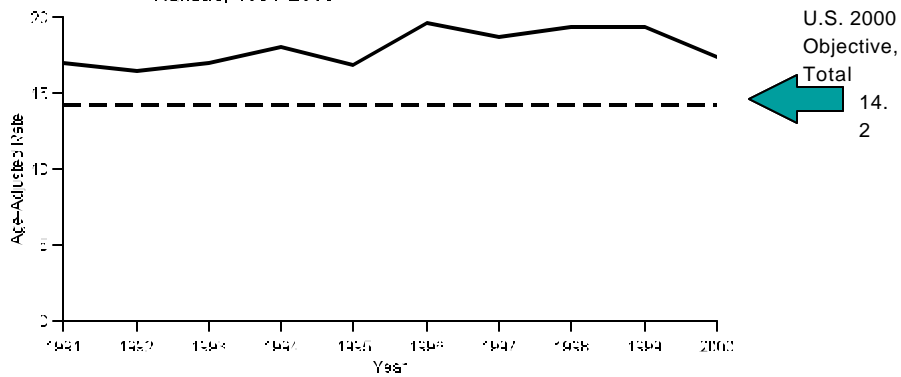
Homicide

The Healthy People 2000 objectives for homicide include the reduction of the death rate to no more than 7.2 per 100,000 1940 standard U.S. population. Also targeted are reductions in the rate of homicide deaths for black males aged 15-34 to 72.4 and for hispanic males aged 15-34 to 33.0 per 100,000 population in the same group (HP 2000 p. 228 and HP 2000 Midcourse Review p. 194).

For Kansas residents, homicide rates were below the national target rate of 7.2 for eight of the years from 1991 to 2000, finishing at 5.7 in 2000 which was not a significant decrease. For black males aged 15-34, rates were above the national objective (72.4) for the entire period 1991-2000 and varied widely. However, the ending rate of 107.9 in 2000 was not significantly different from the beginning rate of 108.6 in 1991. For hispanic males aged 15-34, rates were below the national target rate (33.0) for seven of the ten years and, because of the small number of deaths involved, did not show a significant increase from 1991 (38.7) to 2000 (43.6).

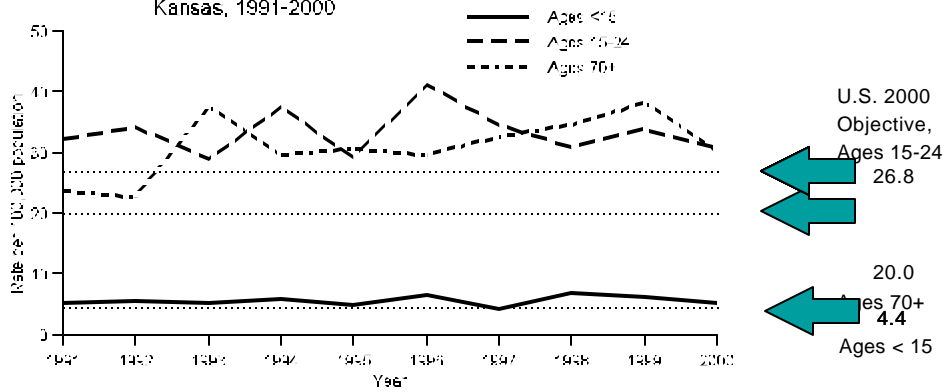
Motor Vehicle Death Rates

Kansas, 1991-2000



Age-Specific Motor Vehicle Death Rates

Kansas, 1991-2000



Motor Vehicle Death Rates*										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	17.0	16.5	17.0	18.0	16.8	19.6	18.7	19.4	19.3	17.3
Ages < 15	5.3	5.4	5.0	5.7	4.9	6.4	4.2	6.8	6.3	5.3
Ages 15-24	32.1	34.0	29.0	37.4	29.1	41.0	34.5	31.0	33.9	31.0
Ages 70+	23.6	22.7	37.5	29.7	30.5	29.6	32.5	34.5	38.2	30.1

* Rates for total are age adjusted per 100,000 1940 standard population.
Group rates are per 100,000 group population.

Figure 12

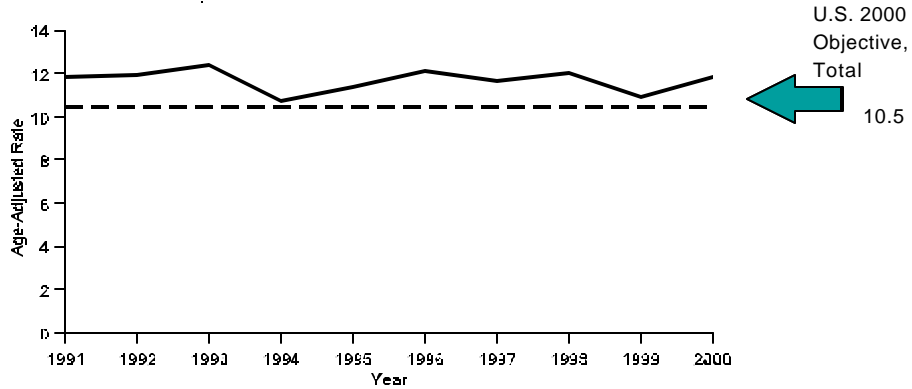
Motor Vehicle

The national objective for Healthy People 2000 is to reduce the deaths caused by motor vehicle crashes to no more than 14.2 per 100,000 population. Special populations targeted are children aged less than 15 (4.4), young adults aged 15-24 (26.8), and older adults, aged 70 and above (20.0) (HP 2000 Midcourse Review p. 201).

For Kansas residents, rates for motor vehicle deaths were above national objectives and showed no significant change overall or for any of the targeted groups from 1991 to 2000. Rates for older adults, aged 70 and above, were farthest above the Healthy People 2000 objective and also showed the greatest percentage increase (27.5%) from 1991 to 2000 (Table 1)..

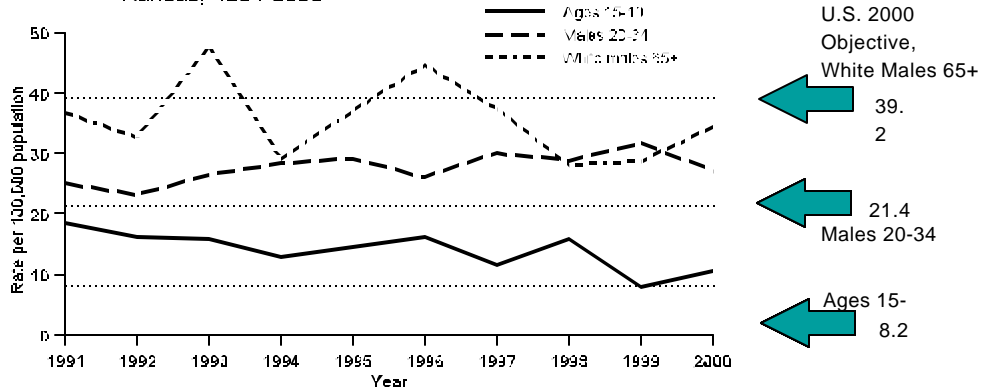
Death Rates for Suicide

Kansas, 1991-2000



Age-Specific Death Rates for Suicide

Kansas, 1991-2000



Death Rates* for Suicide										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	11.8	11.9	12.4	10.7	11.4	12.1	11.7	12.0	10.9	11.8
Ages 15-19	18.4	16.3	15.8	13.0	14.6	16.2	11.7	15.7	8.0	10.5
Males 20-34	25.1	23.1	26.3	28.4	29.2	26.0	30.1	28.8	31.6	27.0
White Males 65+	36.8	32.6	47.7	29.2	36.9	44.6	37.4	28.0	28.8	34.2

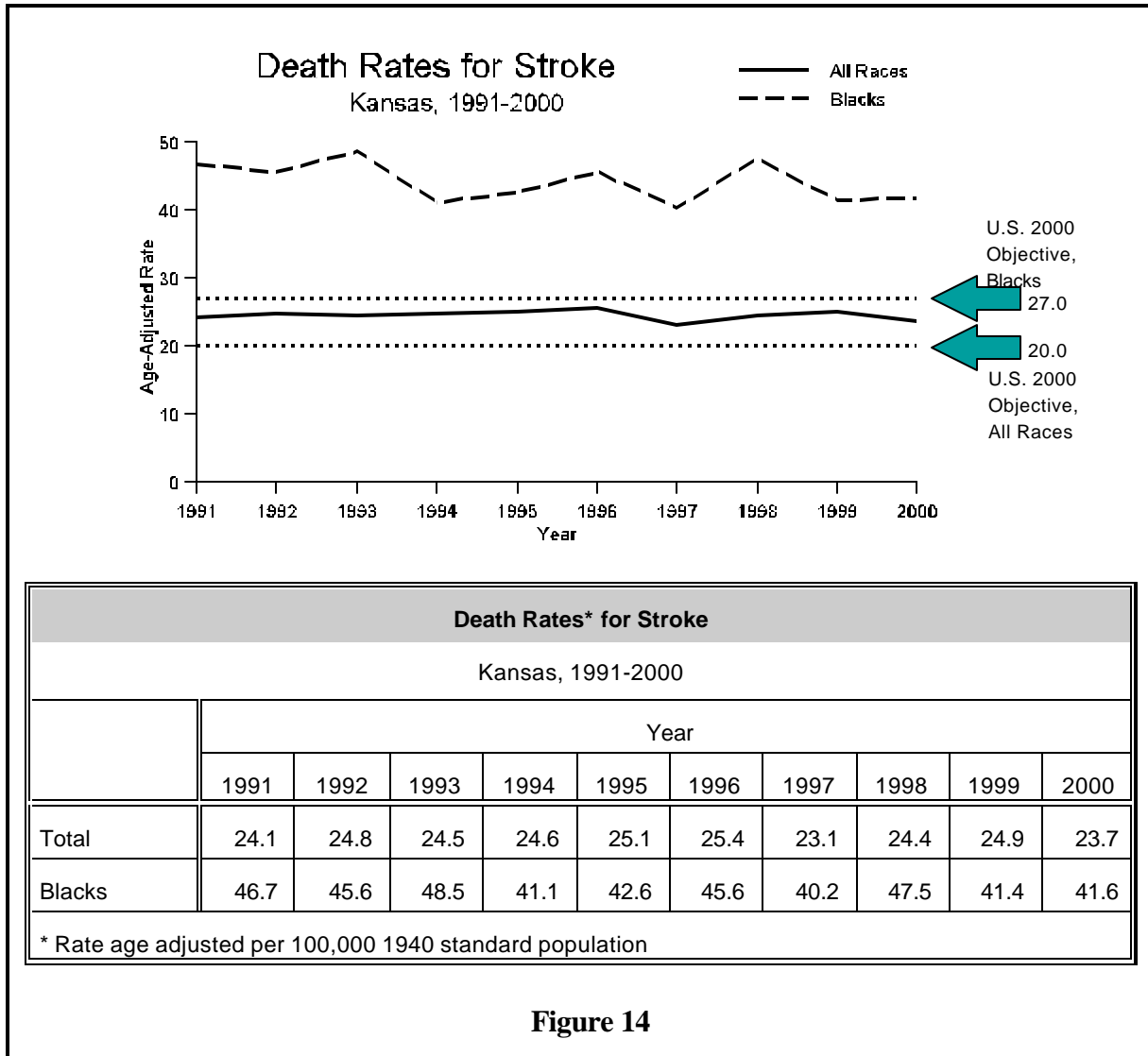
* Rates for total are age adjusted per 100,000 1940 standard population.
 Group rates are per 100,000 group population.

Figure 13

Suicide

Nationwide, “the overall suicide rate has changed relatively little since 1950.” Meanwhile, rates for teenagers and young adult males have risen dramatically, and rates for white males aged 65 and older have become especially high. Therefore, as part of the Healthy People 2000 objective to reduce deaths by suicide to no more than 10.5 per 100,000 population, additional objectives were set to reduce rates for youths aged 15-19 to no more than 8.2, for males aged 20-34 to no more than 21.4, and for white males aged 65 and above to no more than 39.2 (HP 2000 pp. 210-11).

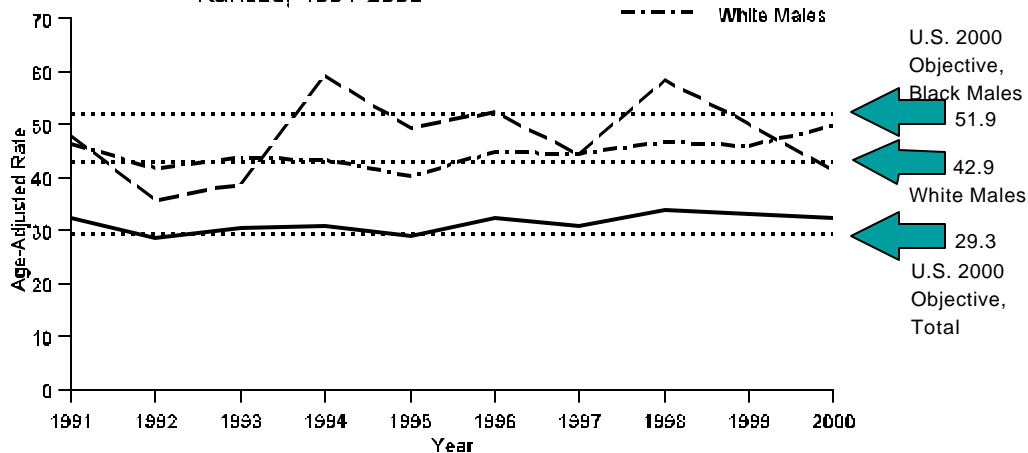
For Kansas residents, rates for suicide deaths showed no significant difference from 1991 to 2000 overall or for any of the targeted groups. Rates for white males aged 65 and above were below the national objective for eight of the years from 1991 to 2000, and the rate for teenagers, aged 15-19, reached the objective in 1999 before rising slightly in 2000.



Nationwide, stroke death rates have generally been declining, due largely to improved control of high blood pressure. Therefore, the ambitious goal of a 34-percent reduction (from 1987 to 2000) in the rate, to 20.0 deaths per 100,000 population, was set. Additionally, the objective for blacks, who have historically died of stroke at a higher rate, was set proportionally lower, at 27.0, in the expectation that the racial gap would narrow (HP 2000 p. 396).

Death rates for stroke for Kansas residents have shown little change from 1991 to 2000, remaining above national objectives both overall and for blacks. The difference in rates for both groups during this time period were not statistically significant.

Death Rates for Unintentional Injuries
Kansas, 1991-2000



Death Rates* for Unintentional Injuries										
Kansas, 1991-2000										
	Year									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	32.5	28.6	30.4	30.8	29.0	32.4	30.8	34.0	33.2	32.2
Black Males	48.0	35.6	38.9	59.2	49.2	52.4	44.5	58.4	50.2	41.5
White Males	46.4	41.9	43.7	43.5	40.4	44.8	44.4	46.9	46.1	49.9

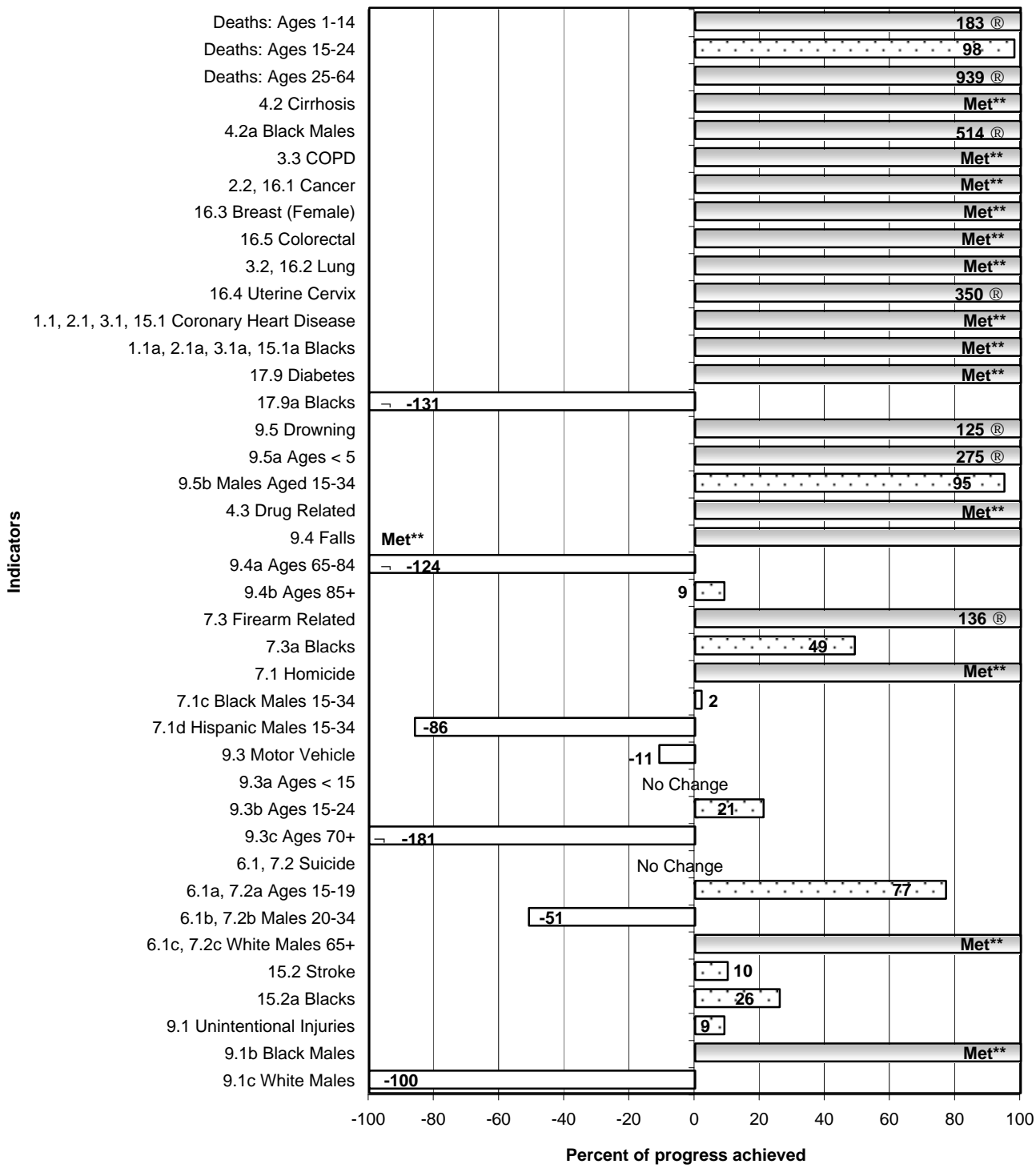
* Rates for total are age adjusted per 100,000 1940 standard population.
Group rates are per 100,000 group population.

Figure 15

Healthy People 2000 objectives are to reduce death rates for unintentional injuries to no more than 29.3 per 100,000 population, and to reduce rates for black males and for white males to no more than 51.9 and 42.9, respectively (HP 2000 p. 273).

Rates for Kansas residents showed no significant difference from 1991 to 2000 overall or for the targeted groups. Rates for black males were below the national objective for seven years, while rates overall and for white males were below their objectives for two of the years from 1991 to 2000.

Status of mortality indicators, percent of progress achieved from the baseline year* to 2000, Kansas



*Baseline 1991

**This objective has met its target.

A progress measure could not be calculated.

Figure 16

Summary of Progress

As shown in Figure 16 (see Technical Notes for explanation of how indicator progress was determined), death rates for Kansans compared favorably with the Healthy People 2000 objectives. A majority either met, exceeded or moved toward their targets. Of the 40 mortality indicators cited in this report, 14 had already achieved the national target at the beginning of the ten year period (1991-2000). Seven Indicators have exceeded the year 2000 targets. Data showed progress toward the year 2000 targets for an additional 10 indicators. Seven indicators moved away from their targets. No change was recorded for two indicators. A progress indicator could not be calculated for objectives that had already met the target in the baseline year (1991), and in these cases the bar chart (Figure 16) labels the measure as “Met”.

Over the course of the decade some mortality indicators showed statistically significant trends (see explanation of significance tests in the Technical Notes) toward or away from the target. There was significant improvement in the death rate for children aged 1-14 from 32.8 per 100,000 age-group population in 1991 to 25.1 in 2000 (Figure 1). A decrease in the age-adjusted death rate of lung cancer, from 37.1 per 1,000 1940 standard population in 1991 to 32.5 in 2000 contributed to a significant drop in the overall age-adjusted death rate for cancers (Figure 4). For heart disease there was a significant decrease in the overall rate, which fell from 93.1 in 1991 to 74.4 in 2000 (Figure 5). For Kansas residents, the overall age-adjusted firearm death rate fell significantly from 13.8 to 10.8 during the decade (Figure 10).

Although the rates of diabetes related deaths and drug related deaths were below the Healthy People 2000 targets rates of 34.0 and 3.0, respectively, in 1991; rates rose significantly above the national target, to 36.7 and 4.4 in 2000. The 2000 drug related rate (4.4) was double the 1991 rate of 2.2 (Figure 6 and Figure 8). For chronic obstructive pulmonary disease, the national target was also met in 1991. Although Kansas stayed below the target in 2000 (24.5), there was a significant rise in the age adjusted death rate from 20.6 deaths per 100,000 1940 standard population in 1991 (Figure 3).

Family Planning and Maternal and Infant Health Indicators

Table 2
Family Planning and Maternal and Infant Health Indicators
Kansas, 1991 - 2000

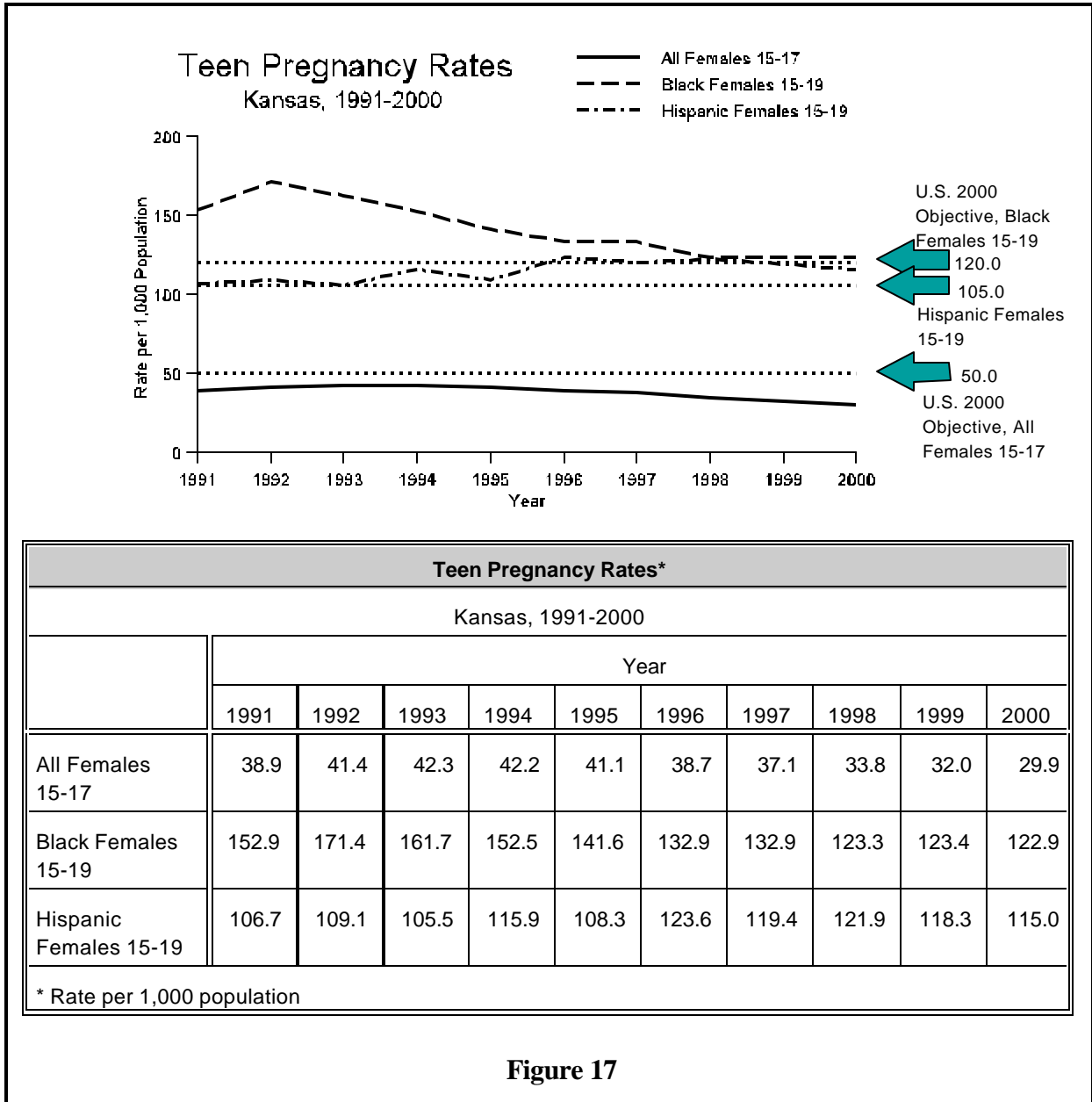
Indicators	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Percent Change 1991-2000	U.S. 2000 Objective
Pregnancies* per 1,000 population:												
Females 15-17	38.9	41.4	42.3	42.2	41.1	38.7	37.1	33.8	32.0	29.9	-23.1	50.0
Black Females 15-19	152.9	171.4	161.7	152.5	141.6	132.9	132.9	123.3	123.4	122.9	-19.6	120.0
Hispanic Females 15-19	106.7	109.1	105.5	115.9	108.3	123.6	119.4	121.9	118.3	115.0	7.8	105.0
Infant Mortality Rate per 1,000												
Live Births)	9.0	8.8	8.7	7.6	6.9	8.2	7.4	6.9	7.3	6.7	-25.6	7.0
Blacks	20.0	21.8	23.5	15.6	17.8	22.9	16.5	9.7	14.8	11.5	-42.5	11.0
Neonatal Mortality Rate (per 1,000												
Live Births)	5.1	5.3	5.4	4.7	4.5	5.4	4.7	4.5	4.9	4.4	-13.7	4.5
Blacks	11.7	13.0	14.6	8.6	10.8	15.6	9.7	5.4	8.4	8.4	-28.2	7.0
Fetal Death Rate (per 1,000												
Live Births + Fetal Deaths)	5.4	5.7	5.9	6.2	4.9	4.9	5.4	5.2	4.5	4.4	-18.5	5.0
Blacks	10.0	8.7	9.5	11.0	6.6	6.1	12.7	8.9	10.1	8.3	-17.0	7.5
Maternal Mortality Rate (per												
100,000 Live Births)	2.7	5.3	8.0	5.4	5.4	5.5	13.4	7.8	10.3	10.1	274.1	3.3
Percent of Live Births < 2,500 Grams ..	6.2	6.5	6.6	6.5	6.4	6.9	6.9	7.0	7.1	6.9	11.3	5.0
Blacks	12.0	11.7	12.8	12.6	12.3	13.5	13.0	12.9	12.1	12.3	2.5	9.0
Percent of Live Births < 1,500 Grams ..	1.1	1.3	1.2	1.2	1.2	1.4	1.2	1.4	1.3	1.4	27.3	1.0
Blacks	2.4	3.2	3.3	3.1	3.2	3.5	2.7	3.1	2.5	3.3	37.5	2.0
Cesarean Delivery Rate (per												
100 Deliveries**)	21.4	20.0	19.3	18.8	17.8	17.4	16.7	16.5	19.7	20.8	-2.8	15.0
Percent of Pregnant Women**												
Abstaining from Tobacco	86.2	87.1	87.7	87.7	87.9	87.8	87.2	87.5	87.4	87.5	1.5	90.0
Percent of Pregnant Women***												
Receiving Care in the First												
Trimester	81.9	83.4	83.6	84.6	85.7	85.4	85.6	85.7	85.8	86.9	6.1	90.0
Blacks	67.8	71.2	71.4	73.0	74.8	76.3	75.8	76.1	77.1	79.2	16.8	90.0

* Live Births + Fetal Deaths + Abortions

** Live Births + Fetal Deaths

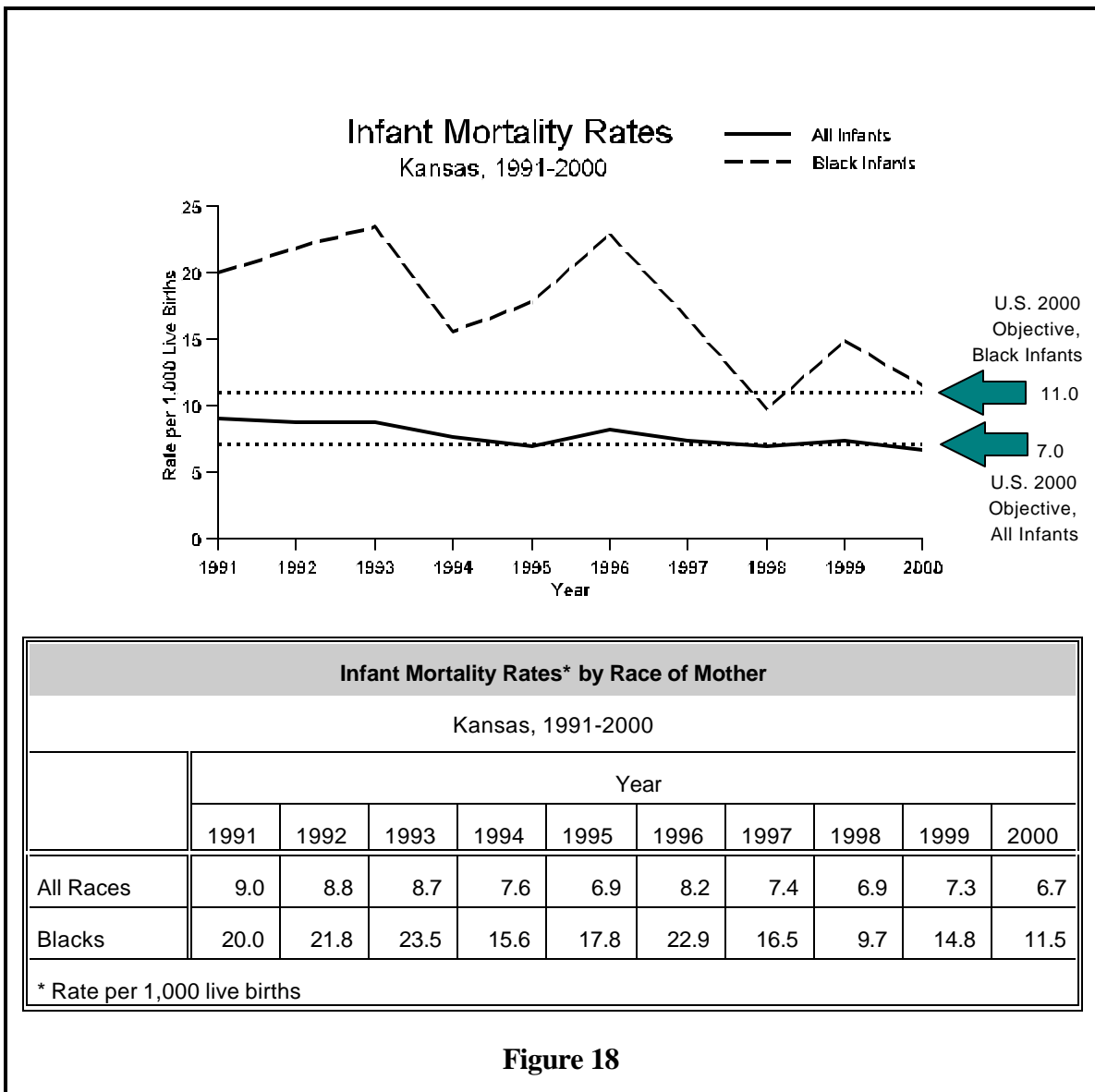
*** Live Births

Residence data



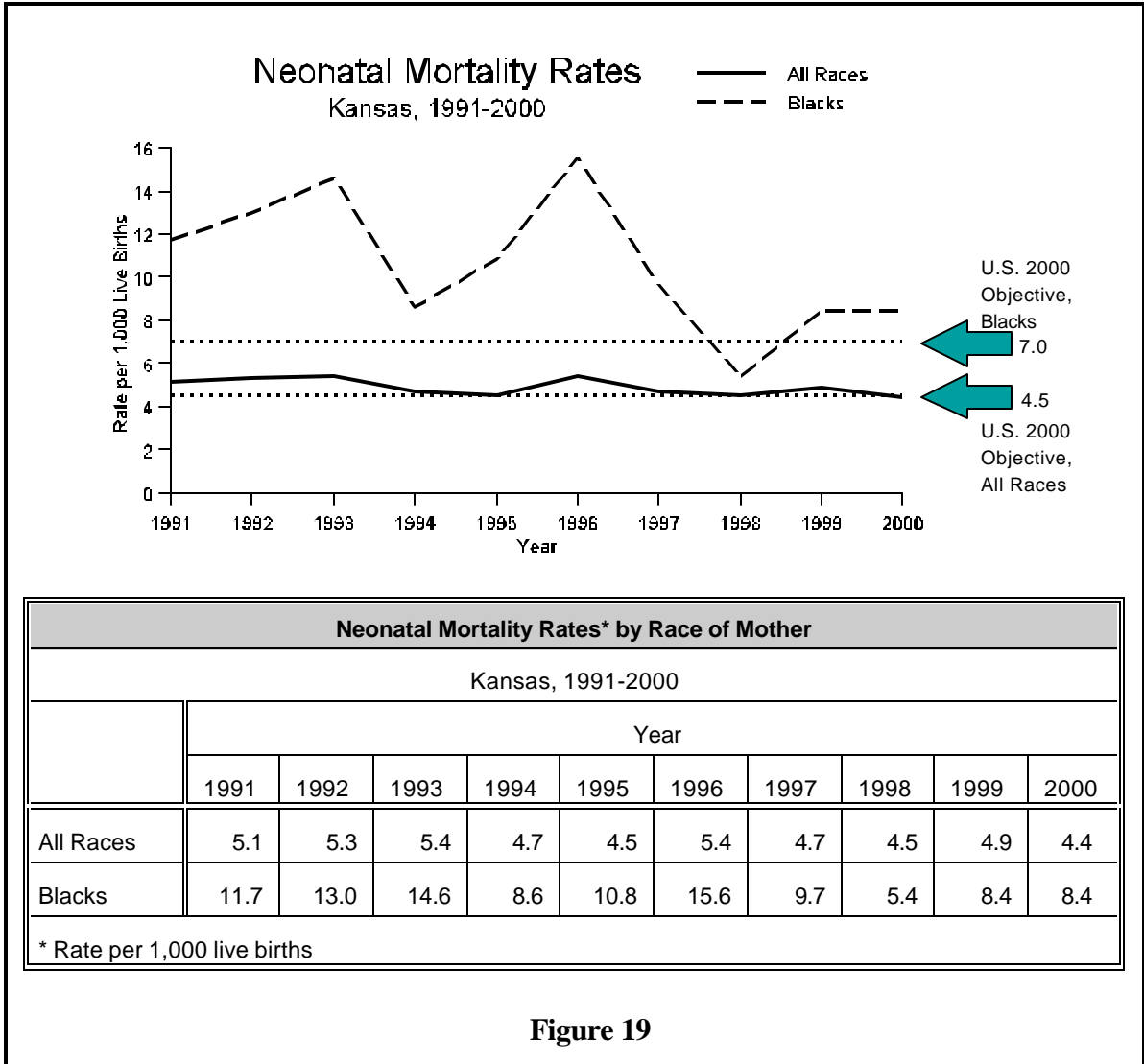
The Healthy People 2000 objective for teen pregnancies for all females aged 15-17 is to reduce the pregnancy rate to no more than 50 per 1,000 population in the same group. Additional objectives are to reduce the pregnancy rate for black females aged 15-19 to no more than 120.0 and to reduce the rate for Hispanic females aged 15-19 to no more than 105.0 (HP 2000 p. 189).

For Kansas female residents aged 15-17, the pregnancy rate was below the national objective for the entire period from 1991 to 2000 and was significantly lower in 2000 than in 1991. There was also a significant drop in the rate for black females aged 15-19, to near the national objective in 2000. The rate for hispanic females aged 15-19 showed a slight, but not statistically significant, rise from 1991 to 2000 and was above the national objective for the entire period.



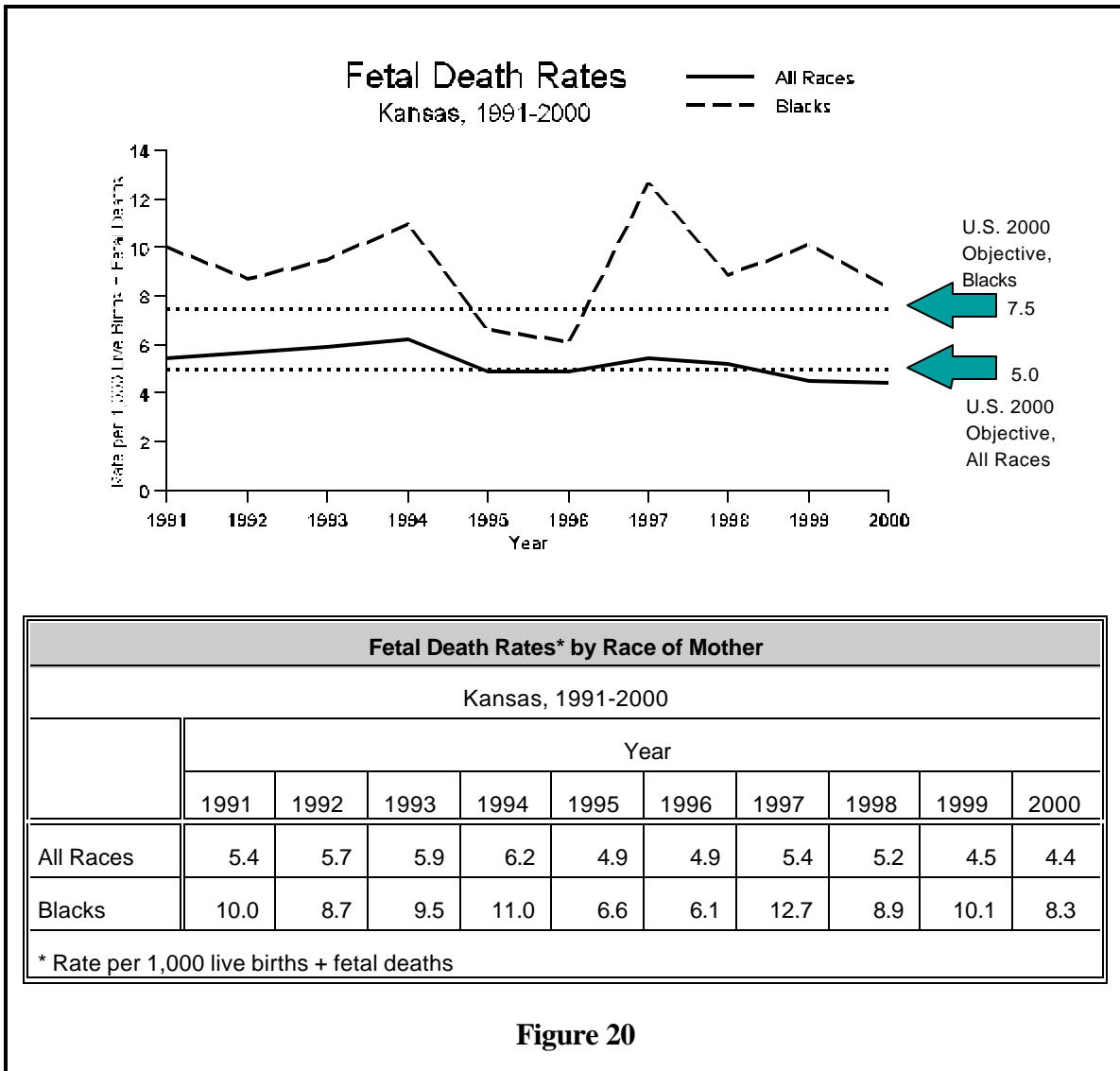
Nationally, the infant mortality rate had been declining for 25 years before Healthy People 2000 objectives were set. The objective of 7.0 infant deaths per 1,000 live births reflects the expectation of a continuing decline in the rate. Also targeted is a decline, to 11.0, in the rates for black infants (HP 2000 p. 368).

Infant death rates for births to Kansas residents met the 2000 objective, falling below 7.0 in 1995, 1998, and 2000, and showing a significant decline from 1991 to 2000. For black infants, rates dropped, but not by a significant amount, due to the small number of events (less than 100 per year).



Healthy People 2000 objectives are to reduce the neonatal mortality rate to no more than 4.5 per 1,000 live births and to reduce the rate among blacks to no more than 7.0 (HP 2000 p. 368).

For Kansas residents, the national objective was met, with rates at or below 4.5, in 1995, 1998 and 2000. The rate for blacks was below the target rate of 7.0 in 1998. However, there was not a statistically significant change in the rate from 1991 to 2000 overall or for blacks.



Healthy People 2000 objectives for fetal death rates, set before 1990, reflect the expectation that the decrease in rates from 1970 would continue to 2000. The objective for all fetal deaths was set, accordingly, at no more than 5.0 per 1,000 live births plus fetal deaths. The objective for blacks, who have historically experienced a higher rate, is 7.5 (HP 2000 p. 372).

For Kansas residents, the fetal death rate dropped significantly from 1991 to 2000, meeting the national objective in 1995, 1996, 1999, and 2000. For blacks, rates varied, and did not change significantly from 1991 to 2000, due to the small number of events (fewer than 50 per year). However, rates for fetal deaths among blacks were below the national objective in 1995 and 1996.

Maternal Mortality Rates Kansas, 1991-2000

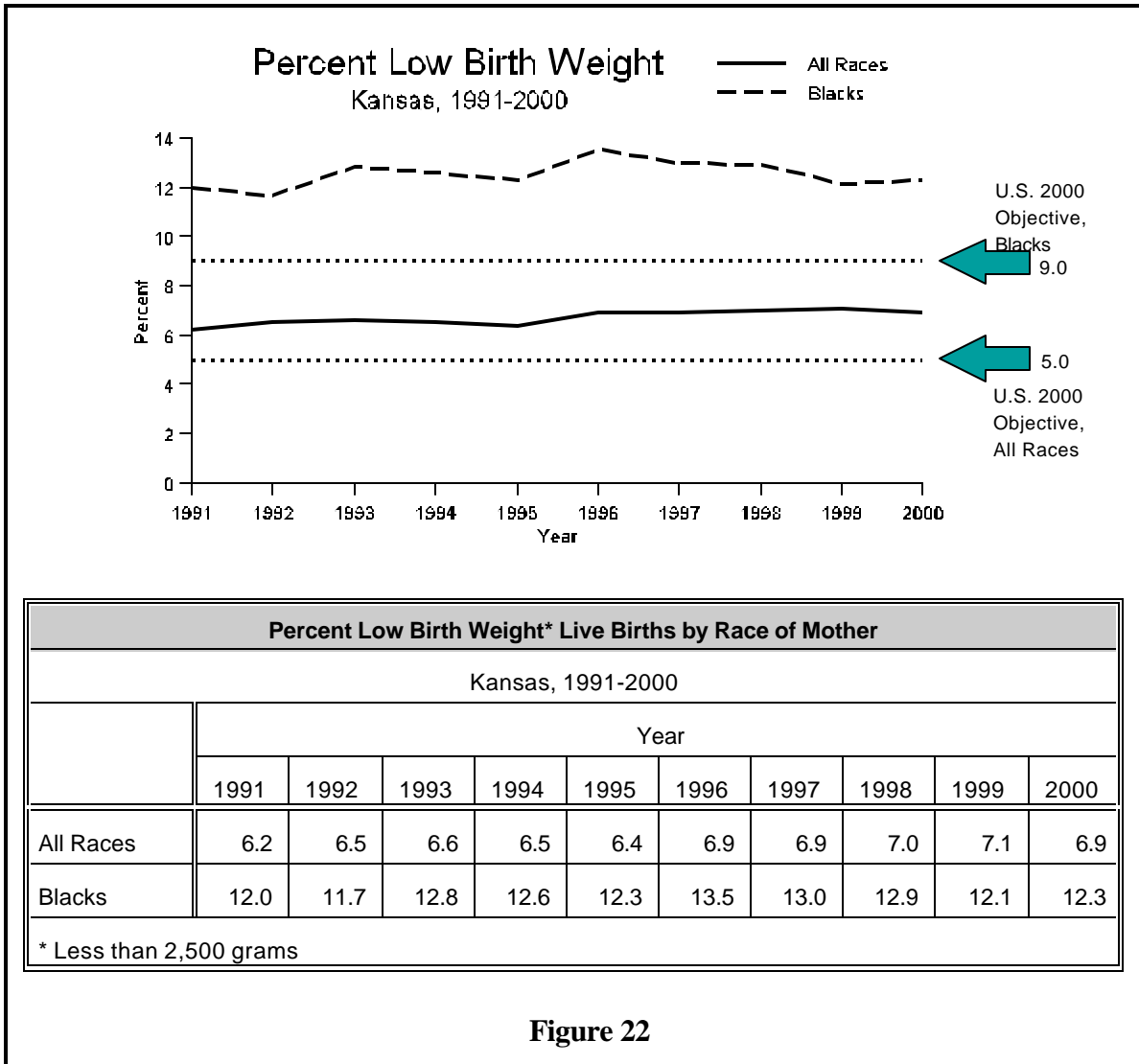


Maternal Mortality Rates*									
Kansas, 1991-2000									
Year									
1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
2.7	5.3	8.0	5.4	5.4	5.5	13.4	7.8	10.3	10.1
* Rate per 100,000 live births									

Figure 21

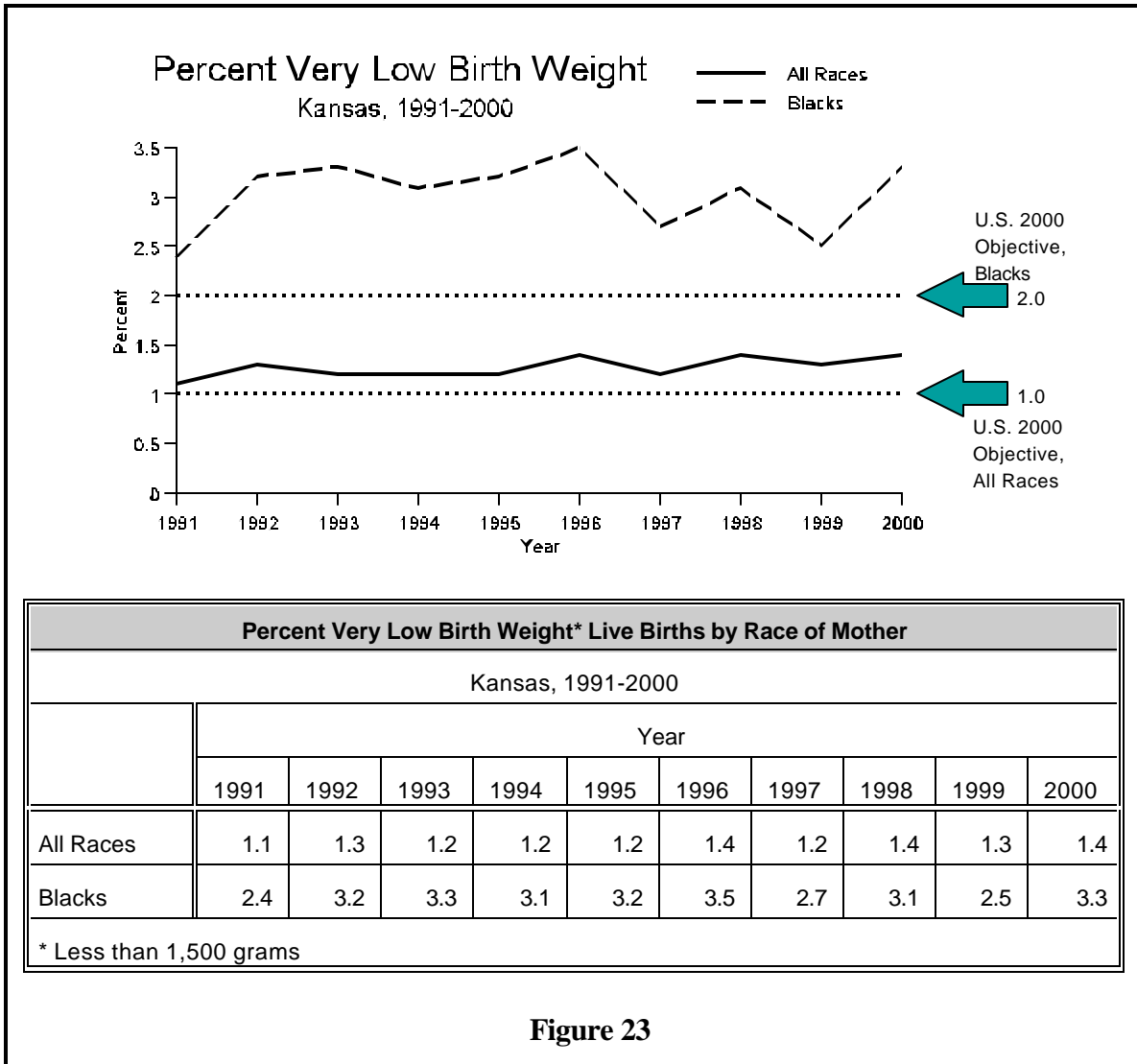
For maternal mortality, the Healthy People 2000 objective is set at 3.3 deaths per 100,000 live births. However, a cautionary note is added that this objective should apply only if national vital statistics figures are used, since various independent studies have resulted in differing rates which will influence the rate to be achieved by 2000. In any case, Healthy People 2000 calls for a reduction of 50 percent (1987 to 2000) in the maternal mortality rate (HP 2000 pp. 373, 374).

While rates for Kansas residents appear to have increased from 1991 to 2000, it must be remembered that these rates are based on extremely small numbers (5 or fewer deaths per year). According to the Healthy People 2000 report, the very small number of maternal deaths at the state level, make it impossible to draw conclusions (HP2000 p. 374). The change from 1991 to 2000 was not statistically significant.



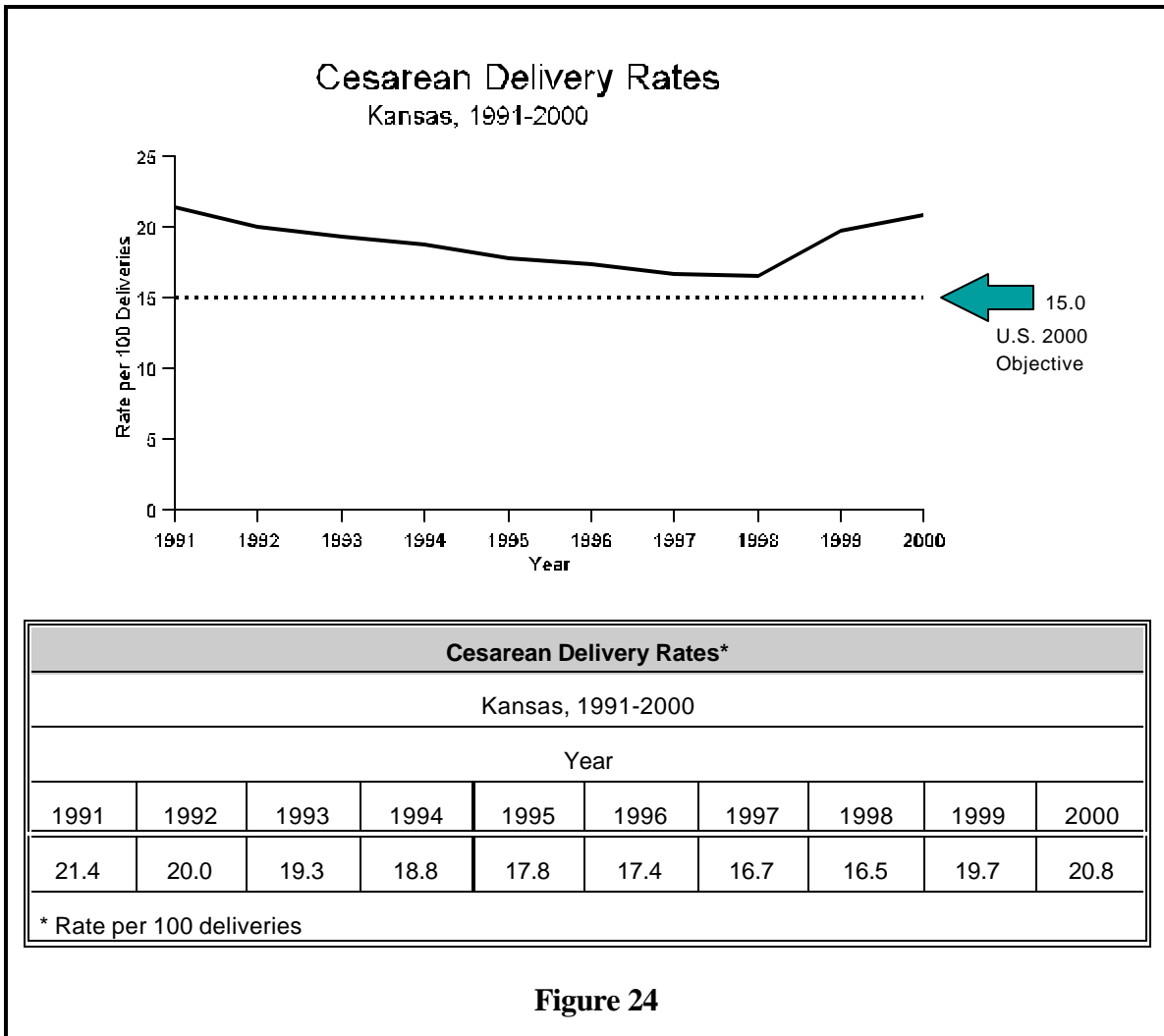
The national objective is to reduce the incidence of low birth weight (less than 2,500 grams) to no more than 5.0 percent of live births. For blacks, the target is no more than 9.0 percent (HP 2000 p. 375).

For all Kansas residents and for black Kansas residents, percentages of low birth weight have been higher than national targets for the entire period from 1991 to 2000, and have shown little change.



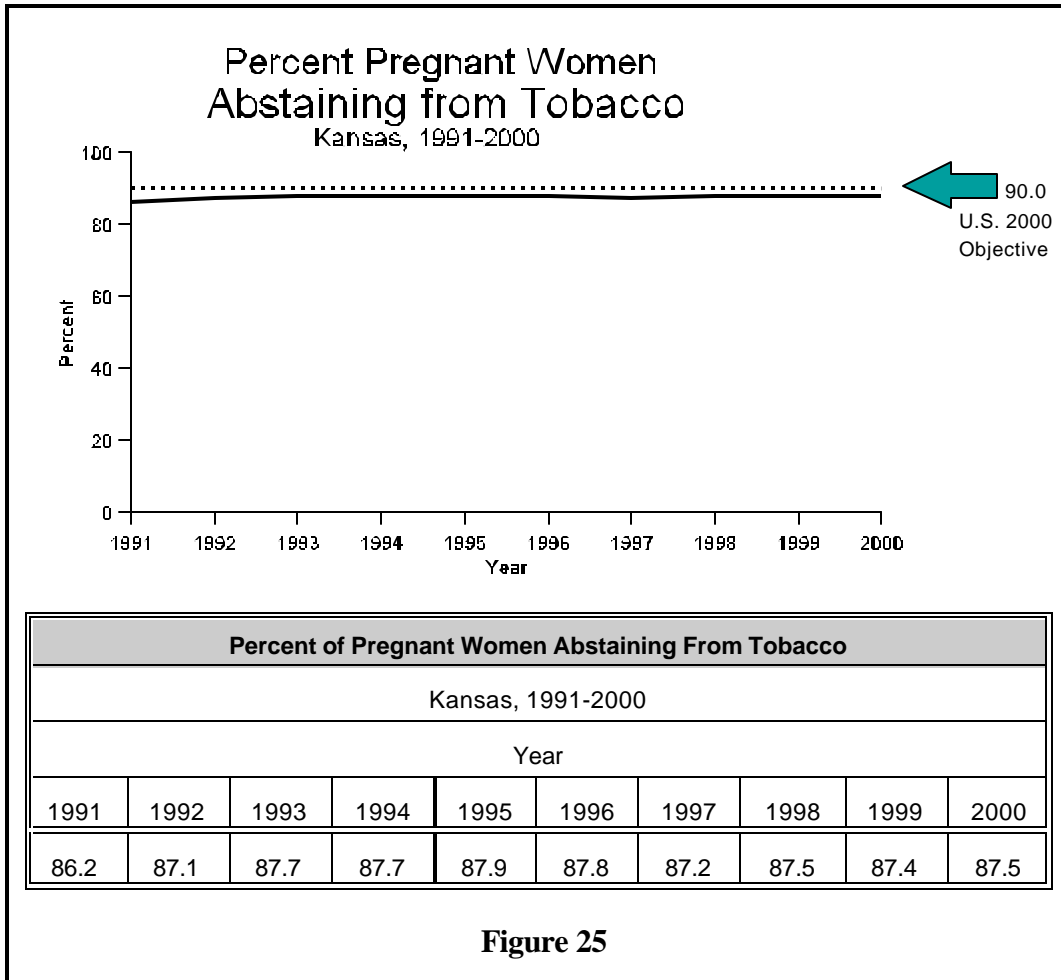
The national objective is to reduce the incidence of very low birth weight (less than 1,500 grams) to no more than 1.0 percent of live births. For blacks, the target is no more than 2.0 percent (HP 2000 p 375).

For all Kansas residents and for black Kansas residents, percentages of very low birth weight have been higher than national targets for the entire period from 1991 to 2000, and have shown little change.



The Healthy People 2000 objective is to reverse the rise in the cesarean delivery rate from 1970 to 1986 and reduce the rate to no more than 15 per 100 deliveries (HP 2000 p. 378).

For Kansas residents, rates declined from 1991 to near the national objective in 1998 before rising in 1999 and again in 2000. The net effect was a rate in 2000 which differed little from the one for 1991. For a further discussion of cesarean delivery rates for Kansas residents, see the report “Cesarean Section Rates and Vaginal Birth After Previous Cesarean Rates, Kansas, 1990-1999” at www.kdhe.state.ks.us/ches/.



One of the Healthy People 2000 objectives is for 90.0 percent of pregnant women to abstain from the use of tobacco during their pregnancy, because of studies showing the danger of maternal smoking to the developing fetus (HP 2000 p. 380).

For Kansas residents, the percentage of pregnant women abstaining from tobacco use was slightly lower than the national objective and showed little change from 1991 to 2000.

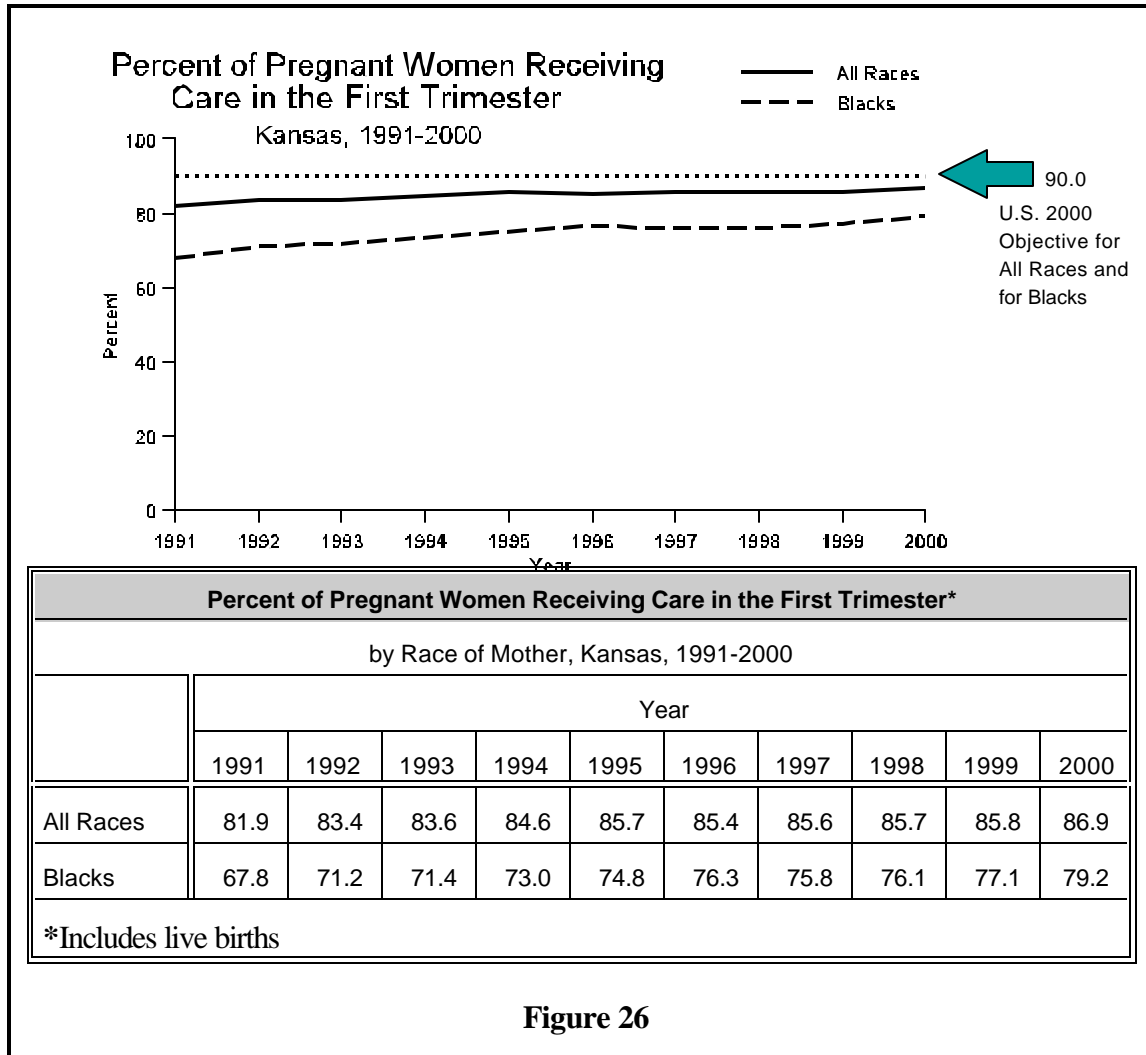
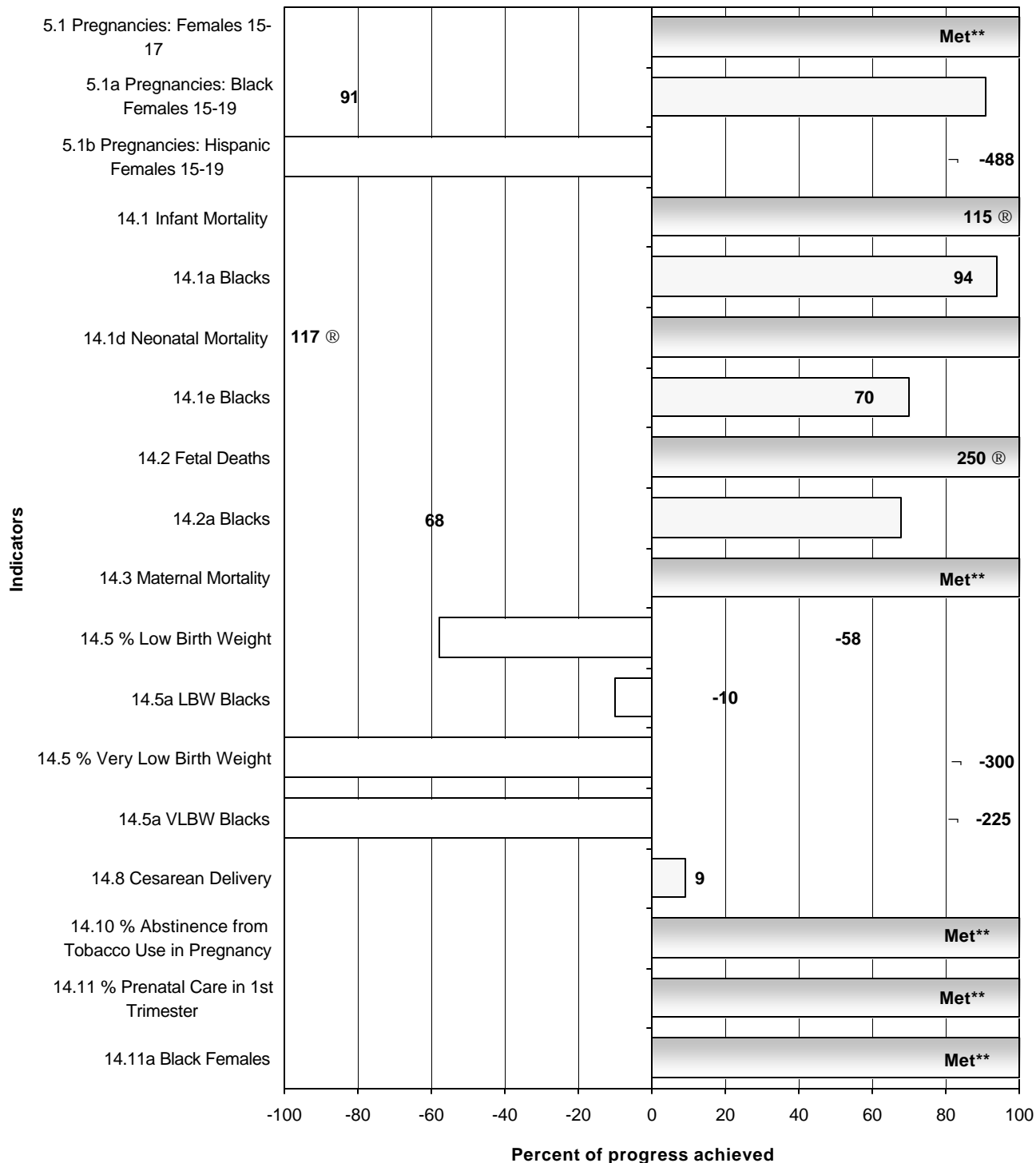


Figure 26

The Healthy People 2000 objective is to “increase to at least 90 percent the proportion of all pregnant women who receive prenatal care in the first trimester of pregnancy,” including black women (HP 2000 p. 381).

The percentage of Kansas resident women receiving care in the first trimester rose significantly from 1991 to 2000, continuing to approach the national target. Furthermore, the percentage of black women receiving such care showed a proportionally greater increase, narrowing the racial gap.

Status of family planning and maternal and infant health, percent of progress achieved from the baseline year* to 2000, Kansas



*Baseline 1991

**This objective has met its target.

A progress measure could not be calculated.

Figure 27

Summary of Progress

By the end of the decade most indicators of family planning and maternal and infant health, with the exception of birth weight, met or made progress toward their target goals (Figure 27). Five had already achieved the national target at the beginning of the period (1991-2000) and three more targets were surpassed by 2000. Five progressed toward the year 2000 targets. All four of the birth weight indicators moved away from the *Healthy People 2000* targets, as did one of the adolescent pregnancy indicators. A progress indicator could not be calculated for those objectives that had already met the target in the baseline year (1991) and in those cases the bar chart (Figure 27) labels the measure as “Met” (see Indicator Progress in the Technical Notes).

Eleven of the eighteen family planning and maternal and infant health indicators showed statistically significant trends (see explanation of significance tests in the Technical Notes). All of these, except the four birth weight indicators, showed significant improvement. The teen pregnancy rates for females aged 15-17 were below the national target for the entire period and were significantly lower in 2000 than in 1991. There was also a significant drop in the rate for black females aged 15-19, to near the national target in 2000 (Figure 17). A major achievement for the maternal and infant health indicators was the significant decline in infant mortality rates from 1991 to 2000. This included a significant decrease in the neonatal death and fetal death rates (Figure 18, Figure 19 and Figure 20). The percent of pregnant women abstaining from tobacco was slightly below the national target from 1991 to 2000. There was little change in the percentages during this time period, but the trend was statistically significant (Figure 25). A significant increase in the percentage of all Kansas women, as well as, black women, who delivered a live birth during this time period received prenatal care in the first trimester (Figure 26).

Unfortunately, as infant mortality rates have significantly declined, the rates for low and very low birth weight, for all Kansans and for blacks, increased significantly and were above national targets for the entire period from 1991 to 2000 (Figure 22 and Figure 23).

Table 3
Healthy People 2000 Objectives and Kansas 2000 Data

U.S. Healthy People 2000			Kansas 2000
Objective Number	Indicator	Objective	
	Deaths*		
Age-Related	Ages 1-14	** 28.6	25.1
	Ages 15-24	** 83.1	83.4
	Ages 25-64	** 341.5	326.4
4.2	Cirrhosis	6.0	4.8
4.2a	Black Males	12.0	6.2
3.3	COPD	25.0	24.5
2.2,16.1	Cancer	130.0	112.1
16.3	Breast (Female)	20.6	18.9
16.5	Colorectal	13.2	10.5
3.2,16.2	Lung	42.0	32.5
16.4	Uterine Cervix	1.3	0.8
1.1,2.1,3.1,15.1	Coronary Heart Disease	100.0	74.4
1.1a,2.1a,3.1a,15.1a	Blacks	115.0	106.8
17.9	Diabetes***	34.0	36.7
17.9a	Blacks	58.0	99.5
9.5	Drowning	1.3	1.2
9.5a	Ages < 5	2.3	1.6
9.5b	Males Aged 15-34	2.5	2.6
4.3	Drug Related	3.0	4.4
9.4	Falls	2.3	3.0
9.4a	Ages 65-84	14.4	23.6
9.4b	Ages 85+	105.0	146.8
7.3	Firearm Related	** 11.6	10.8
7.3a	Blacks	** 30.0	34.5
7.1	Homicide	7.2	5.7
7.1c	Black Males 15-34	72.4	107.9
7.1d	Hispanic Males 15-34	** 33.0	43.6
9.3	Motor Vehicle	** 14.2	17.3
9.3a	Ages < 15	** 4.4	5.3
9.3b	Ages 15-24	** 26.8	31.0
9.3c	Ages 70+	20.0	30.1
6.1,7.2	Suicide	10.5	11.8
6.1a,7.2a	Ages 15-19	8.2	10.5
6.1b,7.2b	Males 20-34	21.4	27.0
6.1c,7.2c	White males 65+	39.2	34.2
15.2	Stroke	20.0	23.7
15.2a	Blacks	27.0	41.6
9.1	Unintentional Injuries	29.3	32.2
9.1b	Black Males	51.9	41.5
9.1c	White males	42.9	49.9

Table 3
Healthy People 2000 Objectives and Kansas 2000 Data

U.S. Healthy People 2000			Kansas 2000
Objective Number	Indicator	Objective	
	Family Planning		
	Pregnancies (per 1,000 females in group):		
5.1	Females 15-17	50.0	29.9
5.1a	Black Females 15-19	120.0	122.9
5.1b	Hispanic Females 15-19	105.0	115.0
	Maternal & Infant Health		
14.1	Infant Mortality Rate (per 1,000 live births)	7.0	6.7
14.1a	Blacks	11.0	11.5
14.1d	Neonatal Mortality Rate (per 1,000 live births)	4.5	4.4
14.1e	Blacks	7.0	8.4
14.2	Fetal Death Rate (per 1,000 live births + fetal deaths)	5.0	4.4
14.2a	Blacks	7.5	8.3
14.3	Maternal Mortality Rate (per 100,000 live births)	3.3	10.1
14.5	% Low Birth Weight	5.0%	6.9%
14.5a	Blacks	9.0%	12.3%
14.5	% Very Low Birth Weight	1.0%	1.4%
14.5a	Blacks	2.0%	3.3%
14.8	Cesarean Delivery Rate (per 100 deliveries)	15.0	20.8
14.10	% Abstinence from Tobacco Use in Pregnancy	90.0%	87.5%
14.11	% Prenatal Care in 1st Trimester	90.0%	86.9%
14.11a	Black Females	90.0%	79.2%

* Rates are age-adjusted per 100,000 1940 U.S. standard million population, except for deaths within age groups, where rates are age-specific.

** Revised in *Healthy People 2000 Midcourse Review and 1995 Revisions*.

*** Diabetes rates are for deaths from diabetes as an underlying or contributing cause.

Table 4
 Kansas 2000 Age-Adjusted Death Rates, Selected Indicators*
 1940 and 2000 Standards

Healthy People 2000		Kansas 2000 Age-Adjusted Death Rate	
Objective Number	Cause of Death	1940 Standard	2000 Standard
4.2	Cirrhosis	4.8	6.4
4.2a	Black Males	6.2	6.9
3.3	COPD	24.5	49.1
2.2,16.1	Cancer	112.1	186.7
16.3	Breast (Female)	18.9	28.3
16.5	Colorectal	10.5	18.6
3.2,16.2	Lung	32.5	52.8
16.4	Uterine Cervix	0.8	1.1
1.1,2.1,3.1,15.1	Coronary Heart Disease	74.4	160.1
1.1a,2.1a,3.1a,15.1a	Blacks	106.8	198.2
17.9	Diabetes**	36.7	68.1
17.9a	Blacks	99.5	176.3
9.5	Drowning	1.2	1.1
4.3	Drug Related	4.4	4.6
9.4	Falls	3.0	6.2
7.3	Firearm Related	10.8	11.0
7.3a	Blacks	34.5	31.4
7.1	Homicide	5.7	5.3
9.3	Motor Vehicle	17.3	17.9
6.1,7.2	Suicide	11.8	12.4
15.2	Stroke	23.7	60.6
15.2a	Blacks	41.6	87.3
9.1	Unintentional Injuries	32.2	39.0
9.1b	Black Males	41.5	62.7
9.1c	White Males	49.9	58.3

* Includes only those causes of death for which age-adjusted rates can be calculated.
 Excludes objectives for specific age groups.

** Diabetes rates are for deaths from diabetes as an underlying or contributing cause.

Table 5
Healthy People 2000
Cause of Death
ICD-9 and ICD-10 Comparison

Objective Number	Cause of Death	ICD-9 Code	ICD-10 Code
4.2	Cirrhosis	571	K70,K73-K74
3.3	COPD	490-496	J40-J47
2.2,16.1	Cancer	140-208	C00-C97
16.3	Breast (Female)	174	C50
16.5	Colorectal	153.0-154.3,154.8,159.0	C18-C21,C26.0
3.2,16.2	Lung	162.2-162.9	C33-C34
16.4	Uterine Cervix	180	C53
17.9	Diabetes	250	E10-E14
9.5	Drowning	E830,E832,E910	V90,V92,W65-W74
4.3	Drug Related	292,304,305.2-305.9,E850- E858,E950.0-E950.5,E962.0, E980.0-E980.5	F11.0-F11.5,F11.7-F11.9,F12.0- F12.5,F12.7-F12.9, F13.0-F13.5, F13.7-F13.9,F14.0-F14.5,F14.7- F14.9,F15.0-F15.5,F15.7-F15.9, F16.0-F16.5,F16.7-F16.9,F17.0, F17.3-F17.5,F17.7-F17.9,F18.0- F18.5,F18.7-F18.9,F19.0-F19.5, F19.7-F19.9,X40-X44,X60-X64, X85,Y10-Y14
9.4	Falls	E880-E888	W00-W19
7.3	Firearm Related	E922, E955.0-E955.4, E965.0-E965.4, E970, E985.0-E985.4	W32-W34,X72-X74,X93-X95, Y22-Y24,Y35.0
1.1,2.1,3.1,15.1	Coronary Heart Disease	402,410-414,429.9	I11,I20-I25
7.1	Homicide	E960-E969	X85-Y09,Y87.1
14.3	Maternal Mortality	630-676	O00-O99
9.3	Motor Vehicle	E810-E825	V02-V04,V09.0,V09.2,V12-V14, V19.0-V19.2,V19.4-V19.6,V20- V79,V80.3-V80.5,V81.0-V81.1, V82.0-V82.1,V83-V86,V87.0- V87.8,V88.0-V88.8,V89.0,V89.2
6.1,7.2	Suicide	E950-E959	X60-X84,Y87.0
15.2	Stroke	430-438	I60-I69
9.1	Unintentional Injuries	E800-E949	V01-X59,Y40-Y86,Y88

Technical Notes

Indicator Progress

The determination of whether or not Kansas met the national objectives developed for Healthy People 2000 are illustrated in Figures 16 and 27. For purposes of this report, the 1991 Kansas value will be used as the baseline. Progress was measured for each indicator by:

1. Computing the difference between the Kansas baseline value for the indicator and the national target value for the year 2000.
2. Computing the difference between the Kansas baseline value and the Kansas annual value for 2000.
3. Dividing the second difference by the first to determine the percent of the targeted difference that has been achieved (Keppel et al. p. 2)

The formula for the progress measure is:

$$\frac{\text{Most recent value} - \text{baseline}}{\text{Year 2000 target} - \text{baseline value}} \times 100$$

Movement of an indicator either toward or away from the target is depicted in the bar charts (Figures 16 and 27) in one of the following ways:

- , When the most recent data were the same as the data from the baseline year, there was no progress and this is shown in the bar charts as “no change.”
- , When the most recent data is between the baseline year data and the year 2000 target, there was progress, but the target was not reached. In this case, a bar containing dots is displayed with a progress measure between 0 and 100 percent. .
- , When the most recent data are equal to or better than the year 2000 target, the objective was met or exceeded. In this case, a dark bar is displayed with a progress measure of at least 100 percent. When the progress measure is greater than 100 percent the actual percent is printed on the bar, but the graph is drawn as 100 percent.
- , When the most recent data are worse than the baseline data, progress is away from the target in a negative direction and is displayed as a white bar. If the negative change is more than 100 percent the actual percent is printed on the bar, but the graph is drawn as -100 percent.

A progress measure was not calculated when:

- , The objective had a baseline value that was already better than the target value. In this case, the bar chart labels the measure as “met” (HP 2000 Final Review p. 318).

Cause of Death Coding

Underlying causes of death are established through a system known as the International Classification of Diseases, 10th Revision (ICD-10). This system promotes uniformity and comparability in the collection and presentation of mortality or death data. Prior to 1999, Kansas used ICD-9 to report mortality statistics. Periodically the classification system needs to be updated to address new diseases and reflect a better understanding of causes of death. The World Health Organization maintains ICD-10 and the National Center for Health Statistics (NCHS), which compiles national statistics, modifies ICD-10 for use by Kansas and other states.

One of the challenges in the conversion to a new classification system is comparability with statistics compiled under the old system. Because so much has changed, exact comparison is not possible. Not only have the number of causes of death doubled to over 8,000, but the rules of how a death is coded have changed. Greater knowledge of diseases like Alzheimer's and diabetes has resulted in coding rules changes that will increase the number of cases reported. The rules changes may also lower the number of deaths classified as pneumonia and influenza. NCHS has completed a comparability study to determine the impact of ICD-10 on mortality statistics. By re-coding deaths originally classified under ICD-9, NCHS researchers produced a comparability ratio. By applying that ratio to 1999 Kansas mortality statistics, Kansas officials have been able to assess the impact of the new coding rules on the change in mortality rates. These findings are available in a report entitled *Preliminary Findings , Comparison of Kansas Mortality, ICD-9 vs. ICD-10, 1990-1999*. Copies can be obtained at the Center for Health and Environmental Statistics (CHES) Web site <http://www.kdhe.state.ks.us/ches/>.

Age-Adjusted Death Rates

Mortality rates, the number of deaths per 100,000 population, are a common way to report death statistics so that comparisons can be made from year to year or among geographic areas. Crude death rates compensate for the differences in population within the areas or time periods studied. Crude death rates, however, do not compensate for the different make up of compared populations. For example, some Kansas counties may have more older residents than other counties. To address this, statisticians prepare age-adjusted death rates. The direct method for calculating age-adjusted death rates was used in this report. Age-adjusting is a process by which the age composition of a population is defined as constant so that differences in age composition can be eliminated from the analysis. This is needed because older populations have higher death rates, merely because death rates increase with age. Age-adjusted rates allow for more meaningful comparison of the risk of mortality over time and among groups.

For decades Kansas and many other states have used the 1940 standard population for age-adjusting. Other states have used a 1970 or 1980 population standard. Moving to a 2000 population standard, as recommended by NCHS, will eliminate confusion and misunderstanding created by the use of various population standards. Age-adjusted rates calculated using the 1940 population standard can't

be compared to rates created using the 2000 standard. Since the benefit from age-adjusting rates comes only from researchers using the same population standard, comparison between different standards would produce misleading results. Kansas and many other states will be recalculating prior years' age-adjusted rates to the 2000 population standard. As part of its implementation of the new age-adjusting population standard, the Center for Health and Environmental Statistics produced the report *Age Standardization of Kansas Death Rates: Implications of the Year 2000 Standard*. Copies can be obtained at the CHES Web site <http://www.kdhe.state.ks.us/ches/>.

Residence Data

Residence data is information compiled according to the usual residence regardless of where the event occurred (including events occurring out of state).

Rate Reliability

According to U.S. Census 2000, blacks are the dominant racial minority in Kansas, making up 5.7 percent of the total population. All other racial minority groups made up 8.1 percent of the total population (U.S. Census Bureau, Online). Due to the small minority population, and/or small number of events occurring within these minority groups, rates should be used with caution. Rates based on a relatively small number of events tend to be subject to more random variation than rates based on a large number of events.

Race/Ethnicity

Please note that persons of Hispanic origin are those who classified themselves as Mexican, Puerto Rican, Cuban, Central or South American or other and unknown Spanish in response to questions asked on the Kansas birth certificate. Hispanic origin is not a race. It can be viewed as the ancestry or country of birth of the person or the person's parents or ancestors before their arrival in the United States. Persons of Hispanic origin may be of any race.

Confidence Intervals and Significance Tests

Since more than 99 percent of all births and deaths are registered, the number of vital events reported for Kansas is essentially a complete count. Although these numbers are not subject to sampling errors, they may be affected by non-sampling errors, such as mistakes in recording the mother's residence or age during the registration process.

The potential impact of variation increases as the number of events decreases. This makes resulting rates subject to volatility, and requires caution when comparing them to rates from other populations, geographic areas, and time periods.

The 95 percent confidence interval is the range of values for the number of events, rates or percent of events that you could expect in 95 out of 100 cases (95 out of 100 rule). The confidence limits are the end points of this range of values (the highest and lowest values). Confidence limits for numbers, rates and percents can be estimated from the actual number of events. Procedures differ for rates and percent calculations and also differ depending on the number of events on which the statistics are based.

Confidence limits are important in determining whether one rate is “significantly” different from another. The term “significantly” refers to whether or not the difference between two rates indicates a small probability (< 5%) the difference might have occurred by chance.

Confidence limits specify the degree of certainty that can be placed on a given number or rate. Similarly statistical significance tests try to specify how often a difference between two rates could be expected.

If the difference between two rates would occur due to variability less than 5 times out of 100, the difference is statistically significant at the 95% level. In essence, there is a 95 percent level of confidence the difference is not due to the chance variability in the rates or the number of events on which the rates are based.

On the other hand, if the difference would occur more than 5 times out of 100, then the difference is not statistically significant. If the level of certainty is only 50 percent, or even 94 percent, the difference could not occur by chance, then the difference is not statistically significant. There must be a 95 percent level of confidence when the 95 percent significance test is used.

Computing confidence limits, and ultimately statistical significance, for pairs of rates varies depending on the number of events on which each rate was created. The procedures are listed below.

Confidence limits for rates based on less than 100 events

When the numerator’s number of events is less than 100, the confidence interval for a rate can be estimated using the two formulas which follow and the values in Table 6 .

$$\textit{Lower limit} = R \times L$$

$$\textit{Upper limit} = R \times U$$

where:

- R = the rate (birth rate, mortality rate, etc.)
- L = the value in Table 4 that corresponds to the number N in the numerator of the rate
- U = the value in Table 4 that corresponds to the number N in the numerator of the rate

Confidence limits for rates when the numerator is 100 or more

In this case, use the following formula for the rate R based on the number of events N:

$$\begin{aligned} \text{Lower limit} &= R - [1.96 \times (R / \sqrt{N})] \\ \text{Upper limit} &= R + [1.96 \times (R / \sqrt{N})] \end{aligned}$$

where:

$$\begin{aligned} R &= \text{the rate (birth rate, mortality rate, etc.)} \\ N &= \text{the number of events (births, deaths, etc.)} \end{aligned}$$

Significance test when at least one of the rates is based on fewer than 100 events

To compare two rates, when one or both of those rates are based on less than 100 events, first compute the confidence intervals for both rates. Then check to see if those intervals overlap. If they do overlap, the difference is not statistically significant at the 95-percent level. If they do not overlap, the difference is indeed “statistically significant.”

Significance test when both rates are based on 100 or more events

To compare two rates when both are based on 100 or more events, first calculate the difference between the two rates by subtracting the lower rate from the higher rate. This difference is considered statistically significant if it exceeds the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two rates.

$$1.96 \sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

where:

$$\begin{aligned} R_1 &= \text{the first rate} \\ R_2 &= \text{the second rate} \\ N_1 &= \text{the first number of events} \\ N_2 &= \text{the second number of events} \end{aligned}$$

- If the difference is greater than this statistic, then the difference would occur by chance less than 5 times out of 100. The difference is statistically significant at the 95 percent confidence level.
- If the difference is less than this statistic, the difference might occur by chance more than 5 times out of 100. The difference is not statistically significant at the 95 percent confidence level.

Confidence limits and statistical significance between two percents

When testing the difference between two percents, both percents must meet the following conditions:

$$B \times p \geq 5 \quad \text{and} \quad B \times q \geq 5$$

where:

B = number of births in the denominator

p = percent divided by 100

$q = 1 - p$

When both percents meet these conditions then the difference between the two percents is considered statistically significant if it exceeds the statistic in the formula below. This statistic equals 1.96 times the standard error for the difference between two percents.

$$1.96 \sqrt{p(1-p) \left(\frac{1}{B_1} + \frac{1}{B_2} \right)}$$

where:

B_1 = number of events in the denominator for the first percent

B_2 = number of events in the denominator for the second percent

$$P = \frac{B_1 p + B_2 p}{B_1 + B_2}$$

p_1 = first percent divided by 100

Note:

The National Center for Health Statistics was used as a source for the indicator progress formula, as well as, confidence interval and significance tests.

Table 6. Values of Lower (L) and Upper (U) Limits for Calculating 95 % Confidence Limits For Numbers of Events and Rates When the Number of Events Is Less Than 100

N	L	U	N	L	U
1	0.02532	5.57164	50	0.74222	1.31838
2	0.12110	3.61234	51	0.74457	1.31482
3	0.20622	2.92242	52	0.74685	1.31137
4	0.27247	2.56040	53	0.74907	1.30802
5	0.32470	2.33367	54	0.75123	1.30478
6	0.36698	2.17658	55	0.75334	1.30164
7	0.40205	2.06038	56	0.75539	1.29858
8	0.43173	1.97040	57	0.75739	1.29562
9	0.45726	1.89831	58	0.75934	1.29273
10	0.47954	1.83904	59	0.76125	1.28993
11	0.49920	1.78928	60	0.76311	1.28720
12	0.51671	1.74680	61	0.76492	1.28454
13	0.53246	1.71003	62	0.76669	1.28195
14	0.54671	1.67783	63	0.76843	1.27943
15	0.55969	1.64935	64	0.77012	1.27698
16	0.57159	1.62394	65	0.77178	1.27458
17	0.58254	1.60110	66	0.77340	1.27225
18	0.59266	1.58043	67	0.77499	1.26996
19	0.60207	1.56162	68	0.77654	1.26774
20	0.61083	1.54442	69	0.77806	1.26556
21	0.61902	1.52861	70	0.77955	1.26344
22	0.62669	1.51401	71	0.78101	1.26136
23	0.63391	1.50049	72	0.78244	1.25933
24	0.64072	1.48792	73	0.78384	1.25735
25	0.64715	1.47620	74	0.78522	1.25541
26	0.65323	1.46523	75	0.78656	1.25351
27	0.65901	1.45495	76	0.78789	1.25165
28	0.66449	1.44528	77	0.78918	1.24983
29	0.66972	1.43617	78	0.79046	1.24805
30	0.67470	1.42756	79	0.79171	1.24630
31	0.67945	1.41942	80	0.79294	1.24459
32	0.68400	1.41170	81	0.79414	1.24291
33	0.68835	1.40437	82	0.79533	1.24126
34	0.69253	1.39740	83	0.79649	1.23965
35	0.69654	1.39076	84	0.79764	1.23807
36	0.70039	1.38442	85	0.79876	1.23652
37	0.70409	1.37837	86	0.79987	1.23499
38	0.70766	1.37258	87	0.80096	1.23350
39	0.71110	1.36703	88	0.80203	1.23203
40	0.71441	1.36172	89	0.80308	1.23059
41	0.71762	1.35661	90	0.80412	1.22917
42	0.72071	1.35171	91	0.80514	1.22778
43	0.72370	1.34699	92	0.80614	1.22641
44	0.72660	1.34245	93	0.80713	1.22507
45	0.72941	1.33808	94	0.80810	1.22375
46	0.73213	1.33386	95	0.80906	1.22245
47	0.73476	1.32979	96	0.81000	1.22117
48	0.73732	1.32585	97	0.81093	1.21992
49	0.73981	1.32205	98	0.81185	1.21868
			99	0.81275	1.21746

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