

Statistical Notes

From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

Health Status Indicators: Differentials by Race and Hispanic Origin

Christine Plepys and Richard Klein

Introduction

The Centers for Disease Control and Prevention introduced a set of health status indicators in 1990 in response to a need for health status measures that present a broad overview of health and can be used by various levels of government (1). The indicators include 18 measures of health status and/or factors that put individuals at increased risk of disease or premature mortality. The development and definition of the indicators and the national data used to measure them are described in previous Statistical Notes (1,2).

One of the three broad goals of *Healthy People 2000* (3) is to reduce health disparities among Americans, including disparities between race and ethnic groups. In 1994, Committee 22.1, a group of health professionals who established the Health Status Indicators, recommended that, when possible, States and localities should analyze the indicators for each of the major population groups in their jurisdictions (4). Production of State and local reports by race and ethnicity is encouraged. The first part of this Statistical Note presents updates for previously published trends for the Health Status Indicators for the total population (2). The second part presents comparisons by race and Hispanic origin using the most recent national data. The final section provides a discussion of data issues relating to race and ethnicity.

Recent Trends for the Total Population

National data for the Health Status Indicators for the total population have been published elsewhere (2, 5, 6).

Trend data are generally available for most of the indicators for the total population at the national level. The majority of the rates are declining, indicating that the total population is improving or remaining stable for most of the indicators.

The 1992 infant mortality rate of 8.5 infant deaths per 1,000 live births was the lowest rate ever recorded for the United States. Similarly, the all-cause death rate reached a record low in 1992. The age-adjusted death rate of 504.5 deaths per 100,000 population was about 3 percent below the rate of 520.2 for 1990 and 14 percent below the rate of 585.8 for 1980.

The 1992 age-adjusted death rate for motor vehicle crash deaths was 15.8 in 1992, a 16-percent decline from the 1989 rate. For homicide (including "legal intervention"), the age-adjusted death rate declined about 4 percent to 10.5 deaths per 100,000 population between 1991 and 1992, after increasing an average of nearly 5 percent per year between 1985 and 1991. For cardiovascular disease deaths, the 1992 age-adjusted death rate was 180.4 deaths per 100,000 population. Mortality from this cause, which accounts for nearly half of all deaths in the U.S., has been generally declining for decades. The 1992 age-adjusted death rates for the two major components of cardiovascular disease—heart disease and stroke—were 144.3 and 26.2, respectively. Mortality from heart disease has been declining since about 1950, while stroke mortality has been dropping steadily since U.S. mortality statistics were first published in 1900.

The age-adjusted lung cancer death rate was 39.3 per 100,000 population in 1992, slightly lower than previous years (39.9 in 1990 and 39.6 in 1991). Lung cancer





Public Health Service

Centers for Disease Control and Prevention

National Center for Health Statistics



mortality for the total population had been steadily increasing since at least 1950, however, the rate of increase in lung cancer mortality for men began to slow during the early 1980's and since 1990, the rates for men have declined. In contrast, the lung cancer death rate for women continues to increase. By 1986, lung cancer surpassed breast cancer as the second leading cause of cancer death in women (7). The female breast cancer age-adjusted death rate was 21.9 deaths per 100,000 women in 1992 (compared to 26.4 deaths per 100,000 for lung cancer) and shows a decline from previous years (23.1 in 1990 and 22.7 in 1991).

Infectious disease indicators showing improvement are the incidence of measles, tuberculosis, and syphilis. Measles incidence has decreased to 0.1 per 100,000 in 1993 after increasing during the 1980's. Tuberculosis incidence decreased 7 percent to 9.8 cases per 100,000 in 1993. Tuberculosis had been increasing since 1989, due to many factors including the HIV epidemic, deterioration in the health-care system, and increases in the number of cases among foreign-born persons (8). For syphilis, the total population incidence was 10.4 per 100,000 in 1993, a decrease of nearly 50 percent since 1990. From 1986 through 1990, an epidemic of syphilis occurred with more than 50,000 cases reported in 1990, the highest number since 1948 (9).

Two other indicators showing improvement are prenatal care and air quality. In 1992, 22.3 percent of mothers did not receive prenatal care during the first trimester of pregnancy, a 2-percent decrease from 1991 and the first notable improvement in more than a decade. For air quality, even though the proportion of people living in counties exceeding U.S. Environmental Protection Agency (EPA) standards for air quality has fluctuated from 1988 to 1993, there has been a general decline. In 1993, 23.5 percent of people lived in counties exceeding the EPA requirements, compared to 50.3 percent in 1988.

Health Status Indicators which are not showing improvement for the total population include work-related injury deaths, AIDS incidence, and childhood poverty. Beginning with 1992 data, work-related injury deaths are being tracked by the Census of Fatal Occupational Injuries, Department of Labor, Bureau of Labor Statistics. Previously, the National Traumatic Occupational Fatalities, National Institute for Occupational Safety and Health was used (2). Therefore, pre-1992 data shown in other reports (2) are not strictly comparable to the data shown here. From 1992 to 1993 there was an increase in work-related injury deaths from 2.4 to 3.2 per 100,000 population. For AIDS incidence the national rates are by date of diagnosis corrected for delays in reporting. The 1993 incidence of acquired immunodeficiency syndrome was 31.2 cases per 100,000, up from 30.3 in 1992. Some of this increase may be due to the change in the AIDS case definition implemented in 1993 (see Appendix). For childhood poverty, the proportion of children under age 15 living in families below the poverty level in 1993 was 23.4 percent compared to the 1990 rate of 21.4 percent.

Three indicators have remained relatively stable for the total population: suicide, births to adolescents, and low birthweight. In 1992 the age-adjusted suicide rate was 11.1 per 100,000 population. Suicide mortality has generally fluctuated within a rather narrow range since the late 1970's. Adolescent births comprised 4.9 percent of total live births in 1992, a rate that has been relatively constant since 1983. In 1991 and 1992 the overall percent of live-born infants weighing less than 2500 grams (low birthweight) was 7.1 percent, up only slightly from previous years (7.0 in 1989 and 1990).

The following sections discuss the indicators for the major race groups (white, black, American Indian and Alaska Native, and Asian and Pacific Islander) and for persons of Hispanic origin. Table 1 shows the most recent data by race and Hispanic origin and the Appendix presents a discussion on data issues for the indicators.

White Population

Rates for the majority of the Health Status Indicators for the white population are lower than those for the total population. The 1992 rates for low birthweight, lack of early prenatal care, and tuberculosis incidence are the lowest of all the race/ethnic groups (Figures 1 and 2). The prevalence of low birthweight (5.8 percent in 1992) has remained stable at 5.6 to 5.8 percent since 1980. In 1992, about one-fifth of white mothers did not receive early prenatal care. In 1993, the tuberculosis incidence rate for non-Hispanic whites was 3.6 per 100,000, less than half the total population rate of 9.8 per 100,000 (see Appendix for discussion of race and ethnicity reporting for infectious diseases).

One indicator for the white population, suicide, is higher than that for the total population. Although the age-adjusted suicide rate decreased for whites from 12.1 deaths per 100,000 in 1991 to 11.8 in 1992, this rate is still the highest among all the race/ethnic groups (Figure 3).

Black Population

The black population has lower rates than the total population for two indicators—work-related injury deaths and suicides. For the other indicators, the rates for the black population are greater than those for the total population and are often the highest of any of the race/ethnic groups discussed.

For work-related injury deaths, the 1992 black population rate of 2.9 deaths per 100,000 population is the lowest rate of any of the race/ethnic groups. For suicide, the age-adjusted rate of 6.9 deaths per 100,000 population is almost 40 percent less than the total population rate and second only to Asians and Pacific Islanders as the lowest among the major race/ethnic groups (Figure 3).

In contrast, the black population had the highest age-adjusted total death rate in 1992 compared to the other race/ethnic groups (Figure 4). For five of the other eight mortality Health Status Indicators in 1992, blacks also had the highest rates. Infant mortality rates were almost twice as

Table 1: Health Status Indicators by race and Hispanic origin: United States, 1992

	Health status indicators		Race				
		Total ¹	White	Black	American Indian/ Alaska native	Asian/ Pacific islander	Hispanic origin ²
1	Race/ethnicity-specific infant mortality as measured by the rate (per 1,000 live births)						
	of deaths among infants under one year of age	8.5	6.9	16.8			
	Linked birth and infant death data ³	8.6	7.1	16.6	11.3	5.8	⁴ 7.1
2	Total deaths per 100,000 population. (ICD–9 nos. 0–E999) ⁵	504.5	477.5	767.5	453.1	285.8	6380.6
3	Motor vehicle crash deaths per 100,000 population. (ICD-9 nos. E810-E825) ⁵	15.8	15.9	16.3	32.0	9.9	⁶ 16.3
4	Work-related injury deaths per 100,000 population ^{7,8}	3.2	3.1	2.9	3.2	2.9	3.5
5	Suicides per 100,000 population. (ICD-9 nos. E950-E959)	11.1	11.8	6.9	11.0	6.0	⁶ 7.2
6	Homicides per 100,000 population. (ICD–9 nos. E960–E978) ⁵	10.5	6.1	39.4	10.5	5.7	⁶ 17.6
7	Lung cancer deaths per 100,000 population. (ICD–9 no. 162) ⁵	39.3	38.8	49.8	22.2	17.9	⁶ 14.5
8	Female breast cancer deaths per 100,000 women. (ICD–9 no. 174) ⁵	21.9	21.7	27.0	11.0	9.3	⁶ 13.0
9	Cardiovascular disease deaths per 100,000 population. (ICD–9 nos. 390–448) ⁵	180.4	172.8	265.3	132.8	107.4	
	Heart disease deaths per 100,000 population. (ICD-9 nos 390-398, 402, 404-429) ⁵	144.3	139.2	205.4	107.1	77.8	
	Stroke deaths per 100,000 population. (ICD–9 nos. 430–438) ⁵	26.2	24.2	45.0		23.5	
10							
	immunodeficiency syndrome ^{7,9}	31.2	¹⁰ 17.9	¹⁰ 104.2	¹⁰ 11.9	¹⁰ 7.4	52.6
11	Reported incidence (per 100,000 population) of measles ⁷	0.1					
12	Reported incidence (per 100,000 population) of tuberculosis ⁷	9.8	¹⁰ 3.6	¹⁰ 29.1	¹⁰ 14.6	¹⁰ 44.5	20.6
13	Reported incidence (per 100,000 population) of primary and secondary syphilis ⁷	10.4	¹⁰ 1.2	¹⁰ 76.5	¹⁰ 1.7	¹⁰ 1.0	6.0
14	Prevalence of low birth weight as measured by the percentage of live born						
	infants weighing under 2,500 grams at birth	7.1	5.8	13.3	6.2	6.6	⁴ 6.1
15	Births to adolescents (ages 10–17 years) as a percentage of total live births	4.9	3.9	10.3	8.0	2.0	⁴ 7.1
16	Prenatal care as measured by the percentage of mothers delivering live infants						
	who did not receive care during the first trimester of pregnancy	22.3	19.2	36.1	37.9	23.4	⁴ 35.8
17	Childhood poverty, as measured by the proportion of children under 15 years of age living in families at or below the poverty level ⁷						
	Under 18 years	22.7	17.8	46.1			40.9
	Under 15 years	23.4					
	5–17 years ¹¹	20.8					
18	Proportion of persons living in counties exceeding U.S. Environmental Protection Agency						
	standards for air quality during the previous year 12	23.5	23.1	24.8	17.6	37.2	42.3

¹Includes racial and ethnic groups not shown separately.

12 - Tuberculosis Morbidity Data, CDC, NCPS

SOURCES

high for blacks (16.8 per 1,000 live births in 1992) as those for the total population (8.5 per 1,000). Despite a 6-percent decline in 1992, the age-adjusted homicide rate for blacks (39.4 deaths per 100,000 population) was almost four times that of the total population rate of 10.5 (Figure 3). Homicide rates for blacks have risen dramatically since the mid-1980's. For cardiovascular disease, the 1992 age-adjusted rate of 265.3 deaths per 100,000 is considerably higher than the rate of 180.4 for the total population. Similarly, lung cancer and female breast cancer age-adjusted death rates for blacks are over 20-percent greater than the total population rates (Figure 3).

For several infectious diseases, blacks have the highest incidence rates for any race/ethnic group (Figure 2). AIDS incidence for non-Hispanic blacks was 104.2 per 100,000

population in 1993, over three times that of the total population. The 1993 incidence of primary and secondary syphilis for non-Hispanic blacks (76.5 per 100,000 population) was more than seven times that of the total population incidence (10.4 per 100,000).

Low birthweight prevalence and proportion of births to adolescents were also markedly higher for blacks than for any other race/ethnic group (Figure 1). Between 1980 and 1992, the low birthweight prevalence among infants of black mothers rose from 12.7 percent to 13.3 percent and remained nearly twice that of the total population. The percent of births to black adolescents (10.3 percent of live births in 1992) was more than double that for the total population (4.9 percent). For childhood poverty, blacks also rank the highest of all reporting race/ethnic groups with 46.1 percent

²Hispanic origin can be of any race.

³¹⁹⁹¹ data.

⁴Data are for 49 States and the District of Columbia.

⁵Age adjusted to the 1940 standard population.

⁶Data are for 48 States and the District of Columbia

^{1-3, 5-9, 14-16 -} National Vital Statistics System, CDC, NCHS.

^{4 -} Census of Fatal Occupational Injuries, Department of Labor, Bureau of Labor Statistics.

^{10 -} AIDS Surveillance System CDC, NCID, Data are AIDS cases reported by year of diagnosis, adjusted for reporting delays, Based on cases reported to CDC through September 1993.

^{11 -} National Notifiable Disease Surveillance System, CDC, EPO.

^{13 -} Sexually Transmitted Disease Surveillance System, CDC, NCPS

^{17 -} Current Population Survey, U.S. Bureau of the Census.

^{18 -} National Air Quality and Emission Trends Report, Office of Air and Radiation, U.S. Environmental Protection Agency

⁸Data are for people 16 years of age and older.

⁹By date of diagnosis. Adjusted for delays in reporting; not adjusted for under reporting.

10Data are for the non-Hispanic population.

¹¹Related children in familes

¹²¹⁹⁹³ data based on 1990 county population estimates

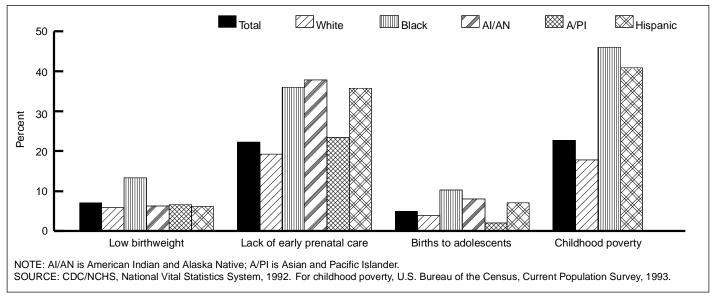


Figure 1. Maternal, infant, and child Health Status Indicators by race and Hispanic origin: United States, 1992

of children under age 18 living in families at or below the poverty level in 1993. This proportion is more than twice that of the total population (22.7 percent). Late or no prenatal care was also high among black mothers (36.1 percent), compared to the total population (22.3 percent).

American Indians and Alaska Natives

The American Indian and Alaska Native population have lower rates than the total population for eight indicators. Because many American Indians and Alaska Natives live in rural areas far removed from the major sources of pollution, their rates are lowest for the proportion of people living in counties exceeding EPA standards for air quality (17.6 percent in 1993) (Figure 5). The other seven indicators that are lower than the total population estimates are: total deaths, lung cancer deaths, female breast cancer deaths, cardiovascular disease deaths, AIDS incidence, syphilis incidence, and low birthweight prevalence. Stroke deaths, a component of cardiovascular disease deaths, are lower for American Indians and Alaska Natives than any other race/ethnic group with an age-adjusted rate of 19.1 deaths per 100,000 population.

The American Indians and Alaska Natives have higher rates than the total population for five indicators: infant mortality, motor vehicle crash deaths, tuberculosis incidence, percent of births to adolescents, and lack of early prenatal care. For two indicators, motor vehicle crash deaths and lack of early prenatal care, the American Indians and Alaska Natives have the highest rates of all the race/ethnic groups. The age-adjusted motor vehicle crash death rate for the American Indian and Alaska Native population was 32.0 deaths per 100,000, more than twice that of the total population rate of 15.8 deaths per 100,000 (Figure 3). The percentage of American Indian and Alaska Native mothers receiving late or no prenatal care was 37.9 percent, only

slightly higher than the proportion for black mothers or mothers of Hispanic origin, but 70 percent higher than the total population (Figure 1).

It should be noted that death rates for American Indians and Alaska Natives (as well as for Asians and Pacific Islanders and persons of Hispanic origin) may be considerably underestimated and comparisons with other groups should be made with caution (see Appendix).

Asians and Pacific Islanders

Among the race/ethnic groups, the Asians and Pacific Islanders have the lowest overall rates for most of the Health Status Indicators. For thirteen of the indicators the Asians and Pacific Islanders are lower than the total population; for ten of these, the Asians and Pacific Islanders rank the lowest of any race/ethnic group. For 1992, Asians and Pacific Islanders had the lowest rates for total deaths, motor vehicle crash deaths, work-related injury deaths (along with blacks), suicides, homicides, female breast cancer deaths, and cardiovascular disease deaths (including heart disease) (Figures 3 and 4). Asians and Pacific Islanders also had the lowest infant mortality rate for 1991 at 5.8 deaths per 1,000 live births (compared with 8.6 for the total population from the Linked Birth and Infant Death File, see Appendix) (Figure 6). They also have the lowest rates for AIDS incidence, primary and secondary syphilis incidence, and percent of births to adolescents (Figures 1 and 2).

The Asians and Pacific Islanders have higher rates than the total population for only three indicators: tuberculosis incidence, residence in poor air quality counties, and lack of early prenatal care. For tuberculosis incidence, the extremely high rate of 44.5 cases per 100,000 in 1993 was nearly five times that of the total population (9.8 per 100,000) and higher than any other race/ethnic group (Figure 2). This high rate of tuberculosis reflects the fact that a large proportion of the Asian and Pacific Islander population (63 percent) are

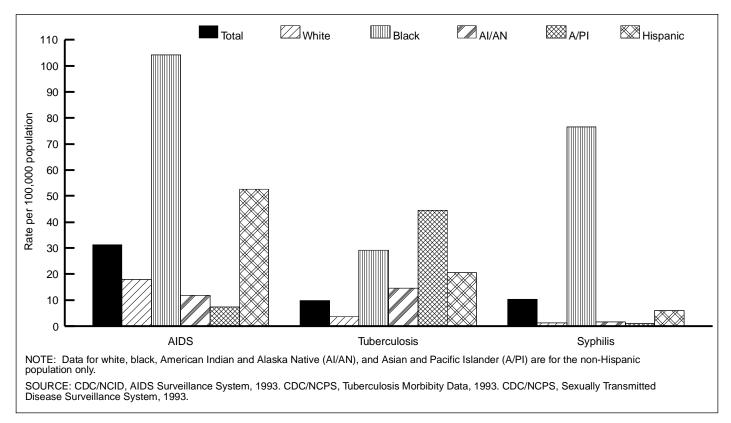


Figure 2. Incidence of selected infectious disease Health Status Indicators by race and Hispanic origin: United States, 1993

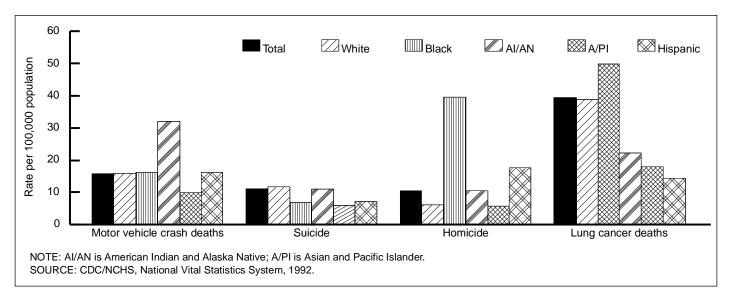


Figure 3. Age-adjusted death rates for selected mortality Health Status Indicators by race and Hispanic origin: United States, 1992

immigrants, many of which are from countries with high rates of tuberculosis (10). In addition, the proportion of people living in counties exceeding EPA standards in 1993 was also high for Asians and Pacific Islanders at 37.2 percent, second only to persons of Hispanic origin (Figure 5). In 1992, 23.4 percent of Asians and Pacific Islanders did not receive early prenatal care, slightly higher than the proportion for the total population (22.3 percent).

Hispanic Origin

For eight of the Health Status Indicators, persons of Hispanic origin have lower rates than the total population. These include infant mortality, total deaths, suicides, lung cancer deaths, female breast cancer deaths, cardiovascular disease deaths, syphilis incidence, and low birthweight prevalence. For lung cancer deaths the Hispanic origin group had the lowest rate of any of the race/ethnic groups

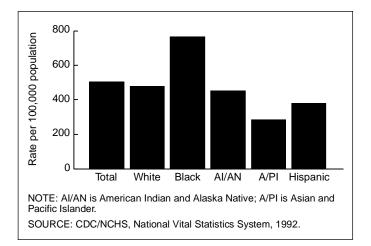


Figure 4. Age-adjusted death rate for all causes by race and Hispanic origin: United States, 1992

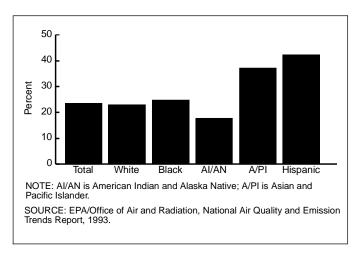


Figure 5. Persons living in counties exceeding EPA standards for air quality by race and Hispanic origin: United States, 1993

(Figure 3). The 1992 age-adjusted rate for this indicator was 14.5 deaths per 100,000, more than 60 percent below the total population rate of 39.3.

For the rest of the indicators for which data are available, the rates for the Hispanic population are higher than those for the total population. For four of these indicators, Hispanics have among the highest rates when compared to the other race/ethnic groups. Work-related injury deaths are highest among workers of Hispanic origin (3.5 per 100,000 in 1993). For AIDS incidence, Hispanics have a 1993 rate of 52.6 per 100,000 (compared to the total population rate of 31.2 per 100,000) (Figure 2). Hispanic mothers were also less likely than all mothers to receive early prenatal care (35.8 and 22.3 percent, respectively in 1992) (Figure 1). Hispanics had the highest proportion of people living in counties exceeding EPA standards for air quality of any race/ethnic group in 1993 with 42.3 percent of Hispanics living in counties exceeding the requirements (Figure 5). This reflects the large number of Hispanics living

in southern California and other places that often exceed EPA requirements.

NCHS publishes the national data for the Health Status Indicators by race and Hispanic origin annually in the Appendix of the *Healthy People 2000* Review (5,6). Comments are welcome. Contact: *Healthy People 2000*, Room 770, National Center for Health Statistics, 6525 Belcrest Road, Hyattsville, MD 20782 Telephone (301) 436–3548, FAX (301) 436–3572.

Appendix Data issues

Mortality

Studies indicate that deaths for minorities other than blacks (American Indians and Alaska Natives, Asians and Pacific Islanders, and Hispanics) from annual vital statistics files based on death certificates have been seriously underestimated (11, 12). The race and Hispanic origin items on the death certificate are generally completed by the funeral director from information supplied by the next-of-kin. Underreporting comes from incorrectly reported race and also from imputing race variables where the race code was left blank (13). Because of this underreporting, death rates may be overestimated for whites and blacks and underestimated for other racial subgroups.

Infant mortality data for American Indians and Alaska Natives, Asians and Pacific Islanders, and Hispanics are obtained from the Linked Birth and Infant Death Files. Data from the linked files are based on the race of the mother as self-reported on the birth certificate and, therefore, do not have the problem of underestimation for minorities noted above for data based on the death certificate.

For Hispanics, an additional concern with mortality data is that not all States are included. More States have been added to the reporting area in recent years and in 1992 Oklahoma and New Hampshire were the only two States not reporting Hispanic mortality data. The mortality reporting area in 1992 encompassed 99.6 percent of the U.S. Hispanic population. In 1991 the Linked Birth and Infant Death file reporting area for infant mortality for Hispanics contained 49 States and the District of Columbia (only New Hampshire was excluded).

All death rates, except infant mortality and work-related injury deaths, are age-adjusted to the 1940 U.S. standard population. Age-adjusting is a technique that allows the user to compare rates among populations with different age distributions by "adjusting" the crude rates in each population to a standard population. Thus the user can compare the rate for a State or county with the nation, compare race and sex groups with different age compositions, or can examine trends over time in populations with a changing age distribution. An in-depth

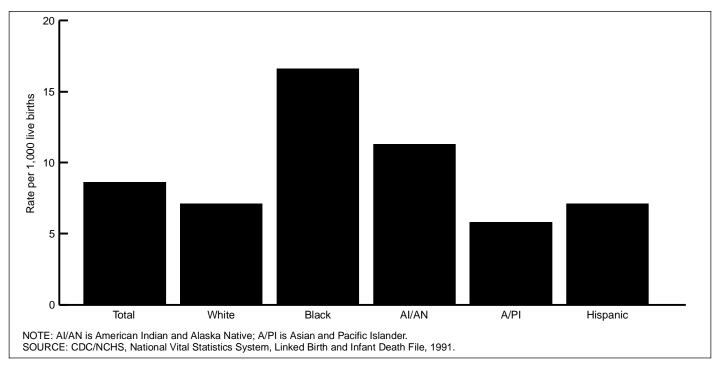


Figure 6. Infant mortality by race and Hispanic origin: United States, 1991

discussion of age-adjustment is given in another Statistical Note (14).

For work-related injury deaths from the Census of Fatal Occupational Injuries, Department of Labor, the actual number of deaths is small for some minority groups, resulting in rates that are highly variable. The rates from the Census of Fatal Occupational Injuries have not been adjusted for age and are limited to persons 16 years of age and older.

Infectious Diseases

Reporting systems for AIDS incidence (AIDS Surveillance System, CDC), tuberculosis incidence (Tuberculosis Morbidity Data, CDC), and syphilis incidence (Sexually Transmitted Disease Surveillance System, CDC) separate non-Hispanic from Hispanic origin. Thus data for whites, blacks, American Indians and Alaska Natives, and Asians and Pacific Islanders from these data systems do not include persons of Hispanic origin.

For AIDS, the national rates are by date of diagnosis corrected for delays in reporting; hence, the numbers for each year change as the reports are compiled and organized by the appropriate year and are not stable until after several years delay. In 1993, the AIDS case definition changed which resulted in cases being diagnosed earlier and a temporary increase in the number of cases reported (5). The current estimates for AIDS cases are reported through September 1994.

Racial and ethnic breakdowns are not available for measles from the National Notifiable Disease Surveillance System because of high rates of nonresponse to the race category (15).

Childhood Poverty

When the indicator for childhood poverty was developed, the under-15 age group was chosen to depict the most family-dependent of children. These data are available annually at the national level from the March Current Population Survey conducted by the U.S. Bureau of the Census. However, except for data from the decennial census, the only data available at the State level for persons under 18 years are percent of related children 5–17 years in families under the poverty threshold. The only race/ethnic breakdowns are for white, black and Hispanic children under 18. Therefore, data are shown for children under 18 years by race and Hispanic origin and total population data for children under 15 years and related children 5–17 years.

Low Birthweight, Births to Adolescents, and Prenatal Care

Data for low birthweight, births to adolescents, and prenatal care are from the National Vital Statistics System and for 1992 include data for Hispanics for 49 States and the District of Columbia. New Hampshire did not report Hispanic origin on the birth certificate in 1992.

For more information on definitions for the Health Status Indicators and data systems used to obtain national data, please see previous Statistical Note by Klein and Hawk (2).

References

- Freedman, MA. Health Status Indicators for the year 2000. Statistical notes; vol 1 no 1. Hyattsville, Maryland: National Center for Health Statistics. 1991.
- 2. 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.
- 3. U.S. Department of Health and Human Services. *Healthy People* 2000: National health promotion and disease prevention objectives for the nation. Washington: Public Health Service. 1991.
- National Center for Health Statistics. Recommendations from Committee 22.1. Statistics and surveillance; no 6. Hyattsville, Maryland: Public Health Service. 1995.
- National Center for Health Statistics. Healthy People 2000
 Review, 1993. Hyattsville, Maryland: Public Health Service.
 1994
- National Center for Health Statistics. Healthy People 2000
 Review, 1994. Hyattsville, Maryland: Public Health Service.
 1995
- Centers for Disease Control and Prevention. Mortality trends for selected smoking-related cancer and breast cancer—United States, 1950–1990. MMWR 42(44): 857. 1993.

- Centers for Disease Control and Prevention. Initial therapy for tuberculosis in the era of multidrug resistance. Recommendations of the Advisory Council for the Elimination of Tuberculosis. MMWR 42 (No. RR-7): 1. 1993.
- Centers for Disease Control and Prevention. Surveillance for Primary and Secondary Syphilis—United States, 1991. MMWR 42(SS-3): 13–19. 1993.
- U.S. Bureau of the Census. We the American...Pacific Islanders.
 U.S. Department of Commerce. Washington. September 1993.
- Frost F, Shy KK. Racial differences between linked birth and infant death records in Washington State. Am J Public Health 70:974–6. 1980.
- 12. Sorlie PD, Rogot E, Johnson NJ. Validity of demographic characteristics on the death certificate. Epidemiology 3:181–4. 1992.
- National Center for Health Statistics. Vital statistics of the United States, 1990. vol II, mortality, part B. U.S. Government Printing Office, Washington: Public Health Service. 1993.
- Curtin LR, Klein RJ. Direct standardization (age-adjusted death rates). Statistical notes; no 6. Hyattsville, Maryland: National Center for Health Statistics, 1995.
- Centers for Disease Control and Prevention. Reporting of race and ethnicity in the National Notifiable Diseases Surveillance System, 1990. MMWR 41(35):653-7. 1992.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service Centers for Disease Control and Prevention National Center for Health Statistics 6525 Belcrest Road Hyattsville, Maryland 20782

OFFICIAL BUSINESS PENALTY FOR PRIVATE USE, \$300

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-436-8500 E-mail: nchsquery@nch10a.em.cdc.gov

Internet: http://www.cdc.gov/nchswww/nchshome.htm

BULK RATE
POSTAGE & FEES PAID
PHS/NCHS
PERMIT NO. G-281