

# REGIONAL DIFFERENCES IN INDIAN HEALTH 1998-99

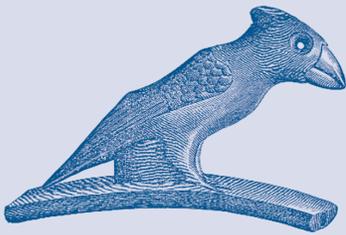
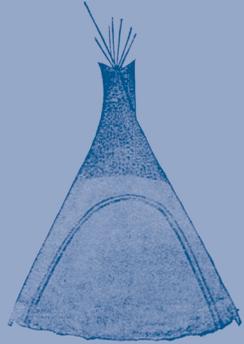
**US Department of Health and Human Services**

Indian Health Service

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# REGIONAL DIFFERENCES IN INDIAN HEALTH 1998-99

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## Preface

*Since 1955, the Indian Health Service (IHS) has had the responsibility for providing comprehensive health services to American Indian and Alaska Native people in order to elevate their health status to the highest possible level. The mission of the IHS is to provide a comprehensive health services delivery system for American Indians and Alaska Natives with opportunity for maximum Tribal involvement in developing and managing programs to meet their health needs.*

*This publication presents tables and charts that describe the IHS program and the health status of American Indians and Alaska Natives. Information pertaining to the IHS structure and American Indian and Alaska Native demography and patient care are included. Current regional differences are presented, and comparisons to the general population are made, when appropriate.*



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# Overview of the Indian Health Service Program

The Indian Health Service (IHS), an agency within the Department of Health and Human Services (HHS), is responsible for providing Federal health services to American Indians and Alaska Natives. The provision of health services to federally recognized Indians grew out of a special relationship between the Federal Government and Indian Tribes. This government-to-government relationship is based on Article I, Section 8, of the United States Constitution and has been given form and substance by numerous treaties, laws, Supreme Court decisions, and Executive Orders.

The Indian Health program became a primary responsibility of the U.S. Department of Health and Human Services (HHS) under P.L. 83-568, the Transfer Act, on August 5, 1954. This Act provides “that all functions, responsibilities, authorities, and duties...relating to the maintenance and operation of hospital and health facilities for Indians, and the conservation of Indian health...shall be administered by the Surgeon General of the United States Public Health Service.”

The IHS is the Federal health care provider and health advocate for Indian people, and its goal is to raise their health status to the highest possible level. The mission is to provide a comprehensive health services delivery system for American Indians and Alaska Natives with opportunity for maximum Tribal involvement in developing and managing programs to meet their health needs. It is also the responsibility of the IHS to work with the people involved in the health delivery programs so that they can be cognizant of entitlements of Indian people, as American citizens, to all Federal, State, and local health programs, in addition to IHS and Tribal services. The IHS also acts as the principal Federal health advocate for American Indian and Alaska Native people in the building of health coalitions, networks, and partnerships with Tribal nations and other government agencies as well as with non-Federal organizations, e.g., academic medical centers and private foundations.

The IHS has carried out its responsibilities through developing and operating a health services delivery system designed to provide a broad-spectrum program of preventive, curative, rehabilitative, and environmental services. This system integrates health services delivered directly through IHS facilities, purchased by IHS through contractual arrangements with providers in the private sector, and delivered through Tribally operated programs and urban Indian health programs.



The 1975 Indian Self-Determination Act, P.L. 93-638 as amended, builds upon IHS policy by giving Tribes the option of manning and managing IHS programs in their communities and provides for funding for improvement of Tribal capability to contract under the Act. The 1976 Indian Health Care Improvement Act, P. L. 94-437 as amended, was intended to elevate the health status of American Indians and Alaska Natives to a level equal to that of the general population through a program of authorized higher resource levels in the IHS budget. Appropriated resources were used to expand health services, build and renovate medical facilities, and step up the construction of safe drinking water and sanitary disposal facilities. It also established programs designed to increase the number of Indian health professionals for Indian needs and to improve health care access for Indian people living in urban areas.

The operation of the IHS health services delivery system is managed through local administrative units called service units. A service unit is the basic health organization for a geographic area served by the IHS program, just as a county or city health department is the basic health organization in a State health department.

A few service units cover a number of small reservations; some large reservations are divided into a number of service units. The service units are grouped into larger cultural-demographic-geographic management jurisdictions that are administered by Area Offices.



## Purpose and Description of Regional Differences in Indian Health

The IHS *Regional Differences in Indian Health* attempts to fulfill the basic statistical information requirements of parties that are interested in the IHS. The tables and charts contained in the IHS *Regional Differences in Indian Health* describe the IHS program and the health status of American Indians and Alaska Natives residing in the IHS service area. The IHS service area consists of counties on and near Federal Indian reservations. The Indians residing in the service area comprise about 60 percent of all Indians residing in the United States. Information pertaining to the IHS structure and American Indian and Alaska Native demography and patient care are included. Current regional differences are depicted, and comparisons to the general population are made, when appropriate. Historical trend information can be found in the IHS companion publication called *Trends in Indian Health*.

The tables and charts are grouped into five major categories: 1) IHS Structure, 2) Population Statistics, 3) Natality and Infant/Maternal Mortality Statistics, 4) General Mortality Statistics, and 5) Patient Care Statistics. The tables provide detailed data, while the charts show significant relationships. A table and its corresponding chart appear next to each other. However, some charts that are self-explanatory do not have a corresponding table. Also, a table may have more than one chart associated with it.



# Summary of Data Shown

## Indian Health Service Structure

The IHS is comprised of 12 regional administrative units called Area Offices. They are listed below.

Aberdeen	Nashville
Alaska	Navajo
Albuquerque	Oklahoma City
Bemidji	Phoenix
Billings	Portland
California	Tucson

As of October 1, 1998, the Area Offices consisted of 151 basic administrative units called service units. Of the 151 service units, 85 were operated by Tribes. The number of service units ranged from 2 in Tucson to 26 in California.

The IHS operated 37 hospitals, 59 health centers, 4 school health centers, and 44 health stations. Tribes have two different vehicles for exercising their self determination – they can choose to take over the operation of an IHS facility through a P.L. 93-638 self-determination contract (Title I) or a P.L. 93-638 self-governance compact (Title III). A distinction is made in this publication regarding these two Tribal modes of operation, i.e., Title I and Title III. Tribes operated 12 hospitals (Title I, 3 hospitals and Title III, 9 hospitals), 155 health centers (Title I, 98 and Title III, 57), 3 school health centers (Title I, 1 and Title III, 2), 76 health stations (Title I, 60 and Title III, 16), and 160 Alaska village clinics (Title I, 16 and Title III, 144). Both California and Portland had no hospitals while Aberdeen and Phoenix had 8 hospitals each. Tucson had the fewest health centers with 3, and Oklahoma the most with 38.

## Population Statistics

In fiscal year (FY) 1997, the IHS user population (count of those American Indians and Alaska Natives who used IHS services at least once during the last 3-year period) was over 1.3 million. Tucson (21,120) and Nashville (42,271) had the smallest user populations while Oklahoma (281,310) and Navajo (234,868) had the largest user populations.



The Indian population is younger, less educated and poorer than the U.S. All Races population. For the IHS user population in FY 1997, 10.2 percent of the persons were under age 5 compared to 7.7 percent for the U.S. All Races population (calendar (CY) 1998). There was considerable variation by Area with Nashville at 8.5 percent and Phoenix at 11.4 percent. According to the 1990 Census, 65.3 percent of Indians (age 25 and older) residing in the current Reservation States are high school graduates or higher compared to 75.2 percent for the U.S. All Races population. For 3 IHS Areas (Tucson, Navajo, and Phoenix), the percentage was less than 60.0 (based on State-level Indian data). The 1990 Census also indicated that the median household income in 1989 for Indians residing in the current Reservation States was \$19,897, while for the U.S. All Races it was \$30,056. Aberdeen had the lowest median household income at \$12,310, and California the highest at \$28,029 (based on State-level Indian data).

### **Natality and Infant/Maternal Mortality Statistics**

The birth rate for American Indians and Alaska Natives residing in the IHS service area was 24.1 (rate per 1,000 population) in 1994-96. It is 1.6 times the 1995 birth rate of 14.8 for the U.S. All Races population. For the period 1994-96, there were 6 maternal deaths in the IHS service area population. Only one IHS Area had more than 1 maternal death, i.e., the Navajo Area with 3 deaths.

The infant mortality rate for American Indians and Alaska Natives residing in the IHS service area was 9.3 (rate per 1,000 live births) in 1994-96 compared to 7.6 for the U.S. All Races population in 1995. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 22 percent higher than the U.S. rate. The infant mortality rate varied considerably among the IHS Areas, ranging from 7.5 in Oklahoma to 14.1 in Aberdeen.

### **General Mortality Statistics**

In 1994-96, the age-adjusted death rate (all causes) for American Indians and Alaska Natives residing in the IHS service area was 699.3 (rate per 100,000 population) compared to 503.9 for the U.S. All Races population in 1995. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 39 percent greater than the U.S. rate. The rates for the Bemidji and Aberdeen Areas both exceed 1,000.0.

The two leading causes of death for the IHS service area population in 1994-96 were diseases of the heart and malignant neoplasms, the same as the U.S. All Races in 1995.



However, five IHS Areas (Alaska, Albuquerque, Navajo, Phoenix, and Tucson) had different top two leading causes. The leading causes of death were determined without any adjustment for age, which is the customary method. However, it should be noted that the age composition of a population does influence its mortality pattern.

For most of the specific causes of death identified in this publication, the 1994-96 Indian age-adjusted death rate (the rate adjusted for miscoding of Indian race on death certificates) was greater than the 1995 U.S. All Races rate. There was also considerable variation in the rates among the IHS Areas. However, some of the Area rates need to be interpreted with caution because of the small number of deaths involved. Following is a comparison of the Indian rate (the rate adjusted for miscoding of Indian race on death certificates) to the U.S. rate where there are significant differences.

- 1) alcoholism - 627 percent greater
- 2) tuberculosis - 533 percent greater
- 3) diabetes mellitus - 249 percent greater
- 4) accidents - 204 percent greater
- 5) suicide - 72 percent greater
- 6) homicide - 63 percent greater
- 7) malignant neoplasms - 10 percent less
- 8) human immunodeficiency virus (HIV) infection - 60 percent less

### **Patient Care Statistics**

In FY 1997 (provisional), there were over 85,000 admissions to IHS and Tribal direct and contract general hospitals. The number of admissions (provisional) ranged from 99 in California to 20,281 in Navajo. The leading cause of hospitalization in IHS and Tribal direct and contract general hospitals was obstetric deliveries and complications of pregnancy. However, there were 9 IHS Areas with a different leading cause; Aberdeen, Albuquerque, Billings, Nashville, Phoenix, and Tucson (respiratory system diseases), California (endocrine, nutritional, and metabolic disorders), Portland (digestive system diseases), and Bemidji (circulatory system diseases).

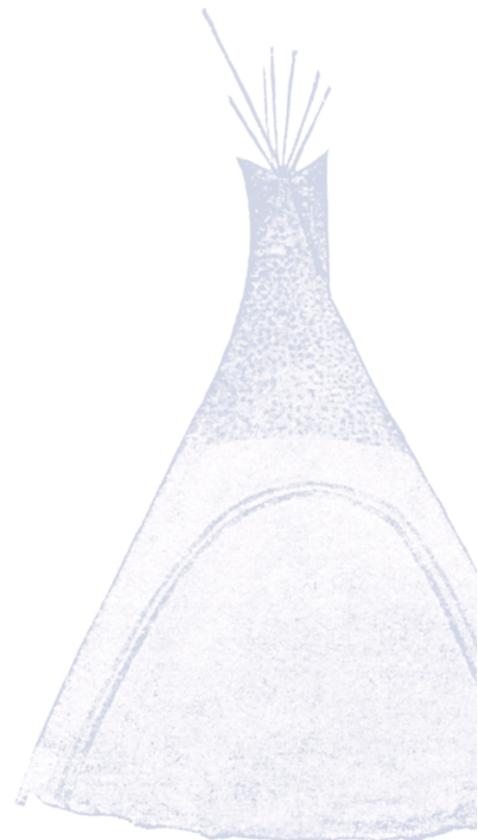
The total number of ambulatory medical visits (IHS and Tribal direct and contract facilities) was over 7.3 million in FY 1997 (provisional). Tucson had the fewest ambulatory medical visits (provisional) with 98,378 and Oklahoma had the most with 1,333,944. The leading cause of ambulatory medical visits in IHS and Tribal direct and contract facilities was supplementary classifications. All IHS Areas had this same lead-



ing cause except for Aberdeen and Portland; respiratory system diseases was their leading cause. The supplementary classifications category includes such clinical impressions as other preventive health services, well child care, physical examination, tests only (lab, x-ray, screening), and hospital, medical, or surgical follow-up.

In FY 1998, 88.0 percent of Indian children, 0-27 months, residing in the IHS service area received all required immunizations. In the general population in CY 1996, 77.0 percent of children ages 19 to 35 months received all required immunizations. The Nashville Area had the lowest IHS rate at 78.0 percent, while the Phoenix Area had the highest rate, 96.0.

In FY 1998, there were nearly 2.1 million dental services provided at IHS and Tribal direct and contract facilities, as reported to the IHS central database. Two IHS Areas provided 37 percent of these dental services, Navajo (391,727) and Oklahoma (378,550).





# Initiative To Eliminate Racial and Ethnic Disparities in Health

## **Initiative**

The HHS is working on an Initiative To Eliminate Racial and Ethnic Disparities in Health. This is part of the President's Initiative on Race and is in response to the President's commitment of the Nation to the goal of eliminating by the year 2010 racial and ethnic disparities in six areas. The six health focus areas are: infant mortality, diabetes mellitus, cardiovascular diseases, human immunodeficiency virus (HIV), deficits in breast and cervical cancer screening and management, and deficits in child and adult immunization rates.

The American Indian and Alaska Native population is being addressed, along with other racial/ethnic minority groups as part of this disparities initiative. There is information in this publication that relates to each of the six health focus areas.

## **Infant Mortality**

The American Indian and Alaska Native population had an infant mortality rate in 1994-96 that was 22 percent greater than the U.S. All Races rate in 1995, i.e., 9.3 deaths per 1,000 live births compared to 7.6. The Aberdeen Area had the highest rate among the IHS Areas; the rate of 14.1 was 86 percent greater than the U.S. All Races rate. The Oklahoma Area had the only rate (7.5) that was less than the All Races rate. The top two leading causes of Indian infant deaths were sudden infant death syndrome and congenital anomalies. For the All Races population, they were congenital anomalies and disorders related to short gestation and low birthweight. The Indian death data has been adjusted for miscoding of Indian race on death certificates.

There are various factors that have an influence on infant mortality and/or the health of the infant. For example in 1994-96, prenatal care began in the first trimester for 66.5 percent of Indian live births. This was 18 percent less than the percentage for the U.S. All Races population in 1995 (81.3). Indian mothers drank during pregnancy at a rate three times that for All Races mothers, i.e., 4.5 percent of Indian mothers compared to 1.5 percent of All Races mothers. Also, Indian mothers smoked during pregnancy at a rate 1.5 times that for All Races mothers, i.e., 20.4 percent of Indian mothers compared to 13.9 percent of All Races mothers. See Part 3 of this publication for tables and charts related to the infant mortality focus area. Additional information on this topic is provided in the Trends in Indian Health publication.



## Diabetes Mellitus

Indians die from diabetes mellitus at a much greater rate than the U.S. All Races population. In 1994-96, the Indian age-adjusted rate (46.4 deaths per 100,000 population) was 3.5 times the 1995 All Races rate (13.3). The rate varied considerably by IHS Area. The Tucson Area rate (highest Area rate) of 79.7 was 6 times the All Races rate and 7.3 times the Alaska Area rate (lowest Area rate) of 10.9. These Indian rates have been adjusted for miscoding of Indian race on death certificates. (See Chart and Table 4.24.) Additional information on this topic is provided in the *Trends in Indian Health* publication.

## Cardiovascular Diseases

The Indian death rates due to cardiovascular diseases are somewhat elevated compared to the rates for the U.S. All Races population. In particular, Indians died from diseases of the heart in 1994-96 at an age-adjusted rate 13 percent higher than that for the All Races population in 1995, i.e., 156.0 compared to 138.3. However, the highest IHS Area rate (Bemidji, 287.0) was more than double the All Races rate. In contrast, the lowest IHS Area rate (Albuquerque, 85.1) was 38 percent less than the All Races rate. A similar relationship exists for deaths due to cerebrovascular diseases. The Indian rate of 30.5 in 1994-96 was 14 percent higher than the All Races rate of 26.7 in 1995. The highest IHS Area rate (Bemidji, 53.5) was more than double the All Races rate. The lowest IHS Area rate (Navajo, 20.4) was 24 percent less than the All Races rate. These Indian rates have been adjusted for miscoding of Indian race on death certificates. (See Charts and Tables 4.28 and 4.29.) Additional information on this topic is provided in the *Trends in Indian Health* publication.

## Human Immunodeficiency Virus (HIV)

Indians deaths from HIV infection have not reached the level experienced in the general population. In 1994-96, the Indian age-adjusted death rate (6.2) was 60 percent less than the U.S. All Races rate in 1995 (15.6). All IHS Area rates were below the All Races rate. The California, Portland, and Phoenix Areas had the highest Area rates, 11.0, 9.6, 7.8, respectively. These Indian rates have been adjusted for miscoding of Indian race on death certificates. (See Chart and Table 4.36.) Additional information on this topic is provided in the *Trends in Indian Health* publication.



## Breast and Cervical Cancers

This publication does not have information on cancer screening rates. However, the death rates due to female breast cancer and cervical cancer can be examined. In comparison to the general population, Indians fare better concerning female breast cancer than cervical cancer. The Indian age-adjusted death rate for female breast cancer in 1994-96 was 31 percent less than the U.S. All Races rate in 1995, i.e., 14.5 versus 21.1. However, two IHS Areas (Bemidji, 23.4 and Portland, 23.2) had a rate that exceeded the All Races rate. In contrast, the Indian age-adjusted death rate for cervical cancer in 1994-96 was 52 percent higher than the All Races rate in 1995, 3.8 versus 2.5. The IHS Area rates for cervical cancer deaths need to be interpreted with caution because of the small number of deaths involved; only the Oklahoma Area (21 deaths) had at least 20 deaths (a rule of thumb for reliable rates). These Indian rates and counts have been adjusted for miscoding of Indian race on death certificates. (See Charts and Tables 4.32 and 4.33.) Additional information on this topic is provided in the *Trends in Indian Health* publication.

## Immunization Rates

This publication only has information on child immunization rates. In FY 1998, 88.0 percent of Indian children, 0-27 months of age, completed all required immunizations. The most comparable figure published for the U.S. All Races population was for children, 19-35 months, in 1996. That U.S. rate is 77.0 percent. The IHS Area rates ranged from 78.0 percent in Nashville to 96.0 percent in Phoenix. (See Chart and Table 5.32.)





## Sources and Limitations of Data

### Populations Statistics

IHS user population estimates are based on data from the IHS Patient Registration System. Patients who receive direct or contract health services from IHS or Tribally operated programs are registered in the Patient Registration System. Those registered Indian patients who had at least one direct or contract inpatient stay, outpatient visit, or dental visit during the last 3 years are defined as users. The Patient Registration System was first implemented in 1984, and by now is considered to be fairly complete and accurate. It is possible for patients to register at more than one site, but the IHS central computer is programmed to unduplicate registration records within an Area. Those cases that are not clear are sent to the IHS Area Offices as possible duplicates for resolution.

The IHS user population estimates, which are shown in this publication, need to be contrasted with the IHS service population (eligible population) estimates, which are shown in the *Trends in Indian Health* publication. The service population estimates are based on official U.S. Census Bureau county data. These are self-identified Indians who may or may not use IHS services. IHS service populations between Census years (e.g., 1980 and 1990) are estimated by a smoothing technique in order to show a gradual transition between Census years. This normally results in upward revisions to service population figures projected prior to a Census, since each Census tends to do a better job in enumerating American Indians and Alaska Natives. IHS service populations beyond the latest Census year (1990) are projected through linear regression techniques, using the most current 10 years of Indian birth and death data provided by the National Center for Health Statistics (NCHS).

IHS user population figures are used for calculating IHS patient care rates. However, since State birth and death certificates do not provide information on use of IHS services, IHS service population figures are used in calculating Indian vital event rates for the IHS service area.

The social and economic data contained in this publication are from the 1990 Census. They reflect the characteristics of persons that self-identified as Indian during the Census.



## Vital Event Statistics

American Indian and Alaska Native vital event statistics are derived from data furnished annually to the IHS by the National Center for Health Statistics. Vital event statistics for the U.S. population were derived from data in various NCHS publications, as well as from some unpublished data from NCHS. NCHS obtains birth and death records for all U.S. residents from the State departments of health, based on information reported on official State birth and death certificates. The records NCHS provides IHS contain the same basic demographic items as the vital event records maintained by NCHS for all U.S. residents, but with names, addresses, and record identification numbers deleted. It should be noted that Tribal identity is not recorded on these records.

The data are subject to the degree of accuracy of reporting by the States to NCHS. NCHS does perform numerous edit checks and imputes values for non-responses.

It is known that there is miscoding of Indian race on State death certificates, especially in areas distant from traditional Indian reservations. In order to determine the degree and scope of the miscoding, IHS conducted a study utilizing the National Death Index (NDI) maintained by the NCHS. The study involved matching IHS patient records of those patients who could have died during 1986 through 1988 with all death records of U.S. residents for 1986 through 1988 as contained on the NDI. The results were published in a document entitled *Adjusting for Miscoding of Indian Race on State Death Certificates*, November 1996. The study revealed that on 10.9 percent of the matched IHS-NDI records, the race reported for the decedent was other than American Indian or Alaska Native. The percentage of records with inconsistent classification of race ranged from 1.2 percent in the Navajo Area to 28.0 and 30.4 percent in the Oklahoma and California Areas, respectively.

The results of the NDI study provide sufficient numbers to calculate adjustments for each IHS Area, IHS overall, and selected age groups. In addition to these adjustments based on the study findings, IHS assumed the following: 1) the results from 1986-88 apply to other years; 2) IHS age-group adjustments applied also to each Area; and 3) the Area adjustments applied to the causes of death used in this publication (i.e., if an Area's total deaths needed to be increased by 10 percent, then the deaths for each cause of death would also increase by this same rate). These assumptions cannot be statistically supported by the results of the study. However, IHS felt that it was necessary to adjust all of the death rates in this publication to provide a meaningful and comprehensive look at health status. IHS also believes that they are reasonable adjustments.



These NDI adjustments were used for the first time in the 1997 edition of this publication. Both unadjusted and adjusted information is shown, as applicable. The adjustments were applied to the results obtained from using an unadjusted death file.

IHS has more specific adjustment factors for the age group under 1 year. These are derived from the linked birth/infant death data sets produced by the NCHS. In this edition (as was done for the first time in the 1997 edition), unadjusted and adjusted infant mortality rates will be shown. IHS is assuming that data years for which linked data sets were not produced (NCHS did not produce linked data sets prior to data year 1983 and for data years 1992-94) can be adjusted based on the results from other linked data sets, which is not statistically sound but reasonable. These adjustments based on the linked data sets take precedence over the NDI adjustments for the under 1 year age group, described above.

Natality statistics are based on the total file of birth records occurring in the United States each year. Mortality statistics are based on the total file of registered deaths occurring in the United States each year. Tabulations of vital events for IHS Areas are by place of residence.

The Indian vital event statistics in this publication pertain only to American Indians and Alaska Natives residing in the counties that make up the IHS service area. This contrasts with earlier editions of the *Trends in Indian Health* publication that showed vital event statistics for all American Indians and Alaska Natives residing in the Reservation States. Calculations done on a Reservation State basis include all counties within the State, even those outside the IHS service area. Reservation State vital event rates tend to be lower in value (i.e., lower birth rates, lower death rates) than IHS service area rates. Since prior to 1972, only total Reservation State data are available, Reservation State data need to be used to show trends going back to 1955, the inception of the IHS. However, now that there are sufficient vital event data available for the IHS service area to show meaningful trends, the *Trends in Indian Health* publication, beginning with the 1992 edition, shows vital event statistics for the IHS service population. The reason for this is that IHS service area data are more indicative of the health status of the Indians that IHS serves.

The Indian population is considerably younger than the U.S. All Races population. Therefore, the death rates presented in this publication have been age-adjusted, where applicable, so that appropriate comparisons can be made between these population groups. One exception is the information presented for leading causes of death. In order to determine the leading causes of death for a population group, it is necessary to rank causes of death without any adjustment for age. However, it should be kept in mind that the ranking of causes of death for a population group is affected by its age composition.



The age-adjusted death rates presented in this publication were computed by the direct method, that is, by applying the age-specific death rate for a given cause of death to the standard population distributed by age. The total population as enumerated in 1940 was selected as the standard to be consistent with NCHS. The rates for the total population and for each race-sex group were adjusted separately, by using the same standard population. The age-adjusted rates were based on 10-year age groups. An age-adjusted rate that was calculated based upon a small number of deaths should be interpreted with caution since the observed rate may be very different from the true underlying rate. This occasionally occurred when an Area rate was calculated for a specific cause of death, e.g., tuberculosis.

Prior to the 1993 edition of this publication, alcoholism deaths were defined through the use of three ICD-9 cause of death code groups: 291-alcoholic psychoses; 303-alcohol dependence syndrome; and 571.0-571.3-alcoholic liver disease. Various IHS Area statisticians and epidemiologists believed this definition to be incomplete and suggested that it be expanded to include five additional ICD-9 code categories. These “new” categories were used for the first time in the 1993 edition. They include: 305.0-alcohol overdose; 425.5-alcoholic cardiomyopathy; 535.3-alcoholic gastritis; 790.3-elevated blood-alcohol level; and E860.0, E860.1-accidental poisoning by alcohol, not elsewhere classified. This expanded definition results in about a 25 percent increase in the number of alcoholism deaths identified in comparison to the previous three-group definition. NCHS is now publishing alcoholism deaths with a definition that includes codes that IHS had not used, i.e., 357.5-alcoholic polyneuropathy and all of E860-accidental poisoning by alcohol (not just E860.0 and E860.1). To be consistent with NCHS, these additional codes are now used by IHS starting with the 1996 edition. The NCHS definition includes all of the code groups previously used by IHS plus these new codes. This NCHS definition of alcoholism deaths is now used in all IHS publications, including *Trends in Indian Health*.

NCHS is also now publishing drug-related deaths with a definition that includes codes that IHS had not used, i.e., 292-drug psychoses and E962.0-assaults from poisoning by drugs and medicaments. To be consistent with NCHS, these additional codes are now used by IHS starting with the 1996 edition. The NCHS definition includes all of the code groups previously used by IHS plus these two codes. This NCHS definition of drug-related deaths is now used in all IHS publications, including *Trends in Indian Health*.



## Patient Care Statistics

Patient care statistics are derived from IHS reporting systems. There are four main patient care reporting systems. The Monthly Inpatient Services Report is a patient census report that is prepared by each IHS hospital. It indicates the number of discharges and days by type of service (e.g., adult, pediatric, obstetric, newborn) and is used for the direct inpatient workload statistics. The Inpatient Care System is the source of IHS hospital inpatient data pertaining to various patient characteristics (age, sex, principal diagnoses, other diagnoses, community of residence, etc.). The data are collected daily, one record per discharge. The Contract Care System is the source of similar contract hospital inpatient data.

The Ambulatory Patient Care System is the source of data pertaining to the number of ambulatory medical visits at IHS facilities by various patient characteristics (age, sex, clinical impression, community of residence, etc.). The data are collected daily, one record per ambulatory medical visit. The Contract Care System is the source of similar contract ambulatory medical visit data.

The data from the automated systems are subject to recording, input, and transmission errors. However, the IHS Program Statistics Team monitors the reporting systems, and each one has a computer edit. In these ways, errors are kept to an acceptable level.

The immunization data are obtained by IHS Area Immunization Coordinators from facility quarterly reports. The Dental Data System is the source for dental services data. The system is monitored by IHS Headquarters Dental personnel. The tuberculosis data are based on cases reported to the Centers for Disease Control and Prevention.



## Glossary

<b>Age-Adjustment</b>	The application of the age-specific rates in a population of interest to a standardized age distribution in order to eliminate the differences in observed rates that result from age differences in population composition. This adjustment is usually done when comparing two or more populations at one point in time or one population at two or more points in time.
<b>Area</b>	A defined geographic region for Indian Health Service (IHS) administrative purposes. Each Area Office administers several service units.
<b>Average Daily Patient Load</b>	The average number of patients occupying beds in a hospital on a daily basis. It is calculated by dividing total inpatient days for the year by 365.
<b>Birthweight</b>	Weight of fetus or infant at time of delivery (recorded in pounds and ounces, or grams).
<b>Cause of Death</b>	For the purpose of national death statistics, every death is attributed to one underlying condition, based on information reported on the death certificate and utilizing the international rules for selecting the underlying cause of death from the reported conditions.
<b>Contract Care</b>	Services not available directly from IHS or Tribes that are purchased under contract from community hospitals and practitioners.
<b>Health Center</b>	A facility, physically separated from a hospital, with a full range of ambulatory services including at least primary care physicians, nursing, pharmacy, laboratory, and x-ray, which are available at least 40 hours a week for ambulatory care.
<b>Health Station</b>	A facility, physically separated from a hospital or health center where primary care physician services are available on a regularly scheduled basis but for less than 40 hours a week.
<b>High Birthweight</b>	Birthweight of 8 pounds, 14 ounces or 4,000 grams or more.
<b>Infant Mortality</b>	Death of live-born children who have not reached their first birthday expressed as a rate (i.e., the number of infant deaths during a year per 1,000 live births reported in the year).
<b>Life Expectancy</b>	The average number of years remaining to a person at a particular age based on a given set of age-specific death rates, generally the mortality conditions existing in the period mentioned.



<b>Live Birth</b>	A live birth is the complete expulsion or extraction from its mother of a product of conception irrespective of the duration of pregnancy, which after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
<b>Low Birthweight</b>	Birthweight of less than 5 pounds, 8 ounces or 2,500 grams.
<b>Maternal Death</b>	The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.
<b>Neonatal Mortality Rate</b>	The number of deaths under 28 days of age per 1,000 live births.
<b>Occurrence</b>	Place where the event occurred.
<b>Postneonatal Mortality Rate</b>	The number of deaths that occur from 28 days to 365 days after birth per 1,000 live births.
<b>Race</b>	On death certificates, race is usually recorded by the funeral director who may or may not query the family members of the decedent. The race of a newborn does not appear on the birth certificate. In this report if either the mother, or the father, or both parents were recorded as American Indian or Alaska Native on birth certificate, the birth is considered as an American Indian or Alaska Native birth.
<b>Reservation State</b>	A State in which IHS has responsibilities for providing health care to American Indians or Alaska Natives.
<b>Residence</b>	Usual place of residence of person to whom event occurred. For births and deaths, residence is defined as the mother's place of residence.
<b>Service Area</b>	The geographic areas in which IHS has responsibilities — “on or near” reservations, i.e., contract health service delivery areas.
<b>Service Population</b>	American Indians and Alaska Natives identified to be eligible for IHS services.
<b>Service Unit</b>	The local administrative unit of IHS.
<b>User Population</b>	American Indians and Alaska Natives who have used IHS services at least once during the last 3-year period.
<b>Years of Potential Life Lost (YPLL)</b>	A mortality indicator that measures the burden of premature deaths. It is calculated by subtracting the age at death from age 65 and summing the result over all deaths.



## Sources of Additional Information

Additional Indian health status information can be obtained from the IHS Program Statistics Team. Specific responsibilities are as follows:

### **General Information**

Anthony J. D'Angelo, Team Leader, Program Statistics Team  
Priscilla Sandoval, Program Analyst

### **Demographic Statistics**

Aaron O. Handler, Team Leader, Demographic Statistics Team  
Jo Ann N. Pappalardo, Computer Systems Analyst  
Barbara A. Moore, Statistical Assistant

### **Patient Care Statistics**

Linda J. Querec, Team Leader, Patient Care Statistics Team  
Bonnie M. Matheson, Computer Assistant

Copies of this and other statistical publications may be obtained from Donna Y. Anderson, Secretary.

The address and phone number are as follows:

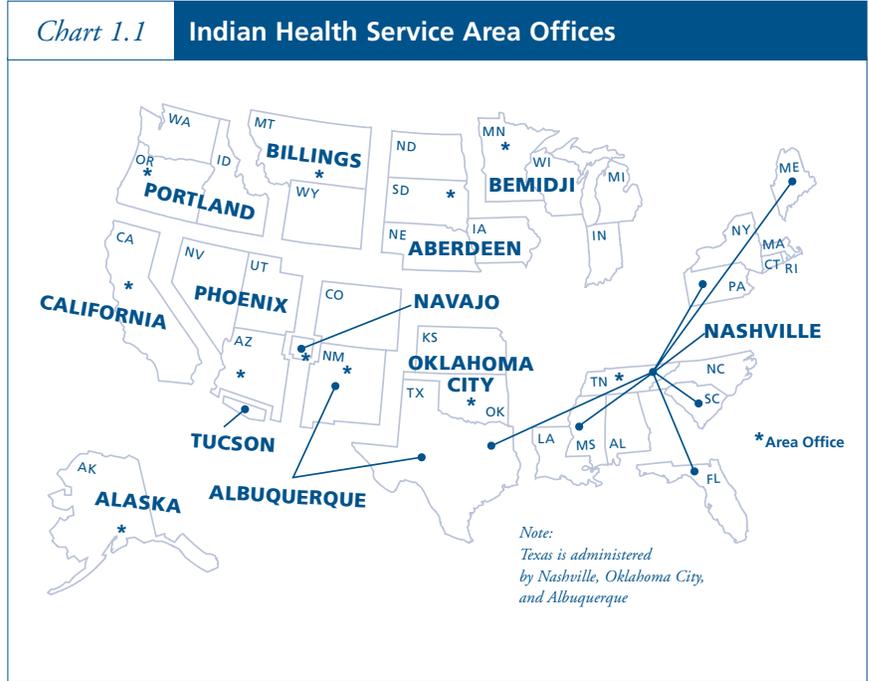
Indian Health Service  
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Program Statistics Team  
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This publication, other IHS statistical publications, and links to IHS data files are available on the Program Statistics Web Site. The address is:

[http://www2.ihs.gov/IHS\\_Stats/](http://www2.ihs.gov/IHS_Stats/)

# Part 1: Indian Health Service Structure

The Indian Health Service is comprised of 12 regional administrative units called Area Offices. IHS responsibilities extend to all or parts of 35 States known as Reservation States.



The Indian Health Service operated 37 hospitals, 59 health centers, 4 school health centers, and 44 health stations as of October 1, 1998. Tribes can operate a facility under a P.L. 93-638 self-determination contract (Title I) or self-governance compact (Title III). Tribes operated 12 hospitals (Title I, 3 hospitals and Title III, 9 hospitals), 155 health centers (Title I, 98 and Title III, 57), 3 school health centers (Title I, 1 and Title III, 2), 76 health stations (Title I, 60 and Title III, 16), and 160 Alaska village clinics (Title I, 16 and Title III, 144).

**Chart 1.2 Number of Service Units and Facilities**

*Operated by IHS and Tribes, October 1, 1998*

Type of Facility	Total	IHS	Tribal		
			Total	I	III
Service Units	151	66	85		
Hospitals	49	37	12	3	9
Ambulatory Facilities	501	107	394	175	219
Health Centers	214	59	155	98	57
School Health Centers	7	4	3	1	2
Health Stations	120	44	76	60	16
Alaska Village Clinics	160	—	160	16	144

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Aberdeen Area, Indian Health Service operated 8 hospitals, 8 health centers, 1 school health center, and 12 health stations as of October 1, 1998. Tribes operated 6 health centers, 1 school health centers, and 3 health stations, all under Title I.

*Chart 1.3*

**Number of Service Units and Facilities**

*Operated by Aberdeen Area and Tribes, October 1, 1998*

<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>18</b>	<b>13</b>	<b>5</b>		
Hospitals	<b>8</b>	<b>8</b>	—	—	—
Ambulatory Facilities	<b>31</b>	<b>21</b>	<b>10</b>	<b>10</b>	—
<i>Health Centers</i>	14	8	6	6	—
<i>School Health Centers</i>	2	1	1	1	—
<i>Health Stations</i>	15	12	3	3	—

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Alaska Area, Indian Health Service operated 1 hospital as of October 1, 1998. Tribes operated 6 hospitals (Title I, 1 and Title III, 5), 23 health centers (Title I, 3 and Title III, 20), and 160 village clinics (Title I, 16 and Title III, 144).

*Chart 1.4*

**Number of Service Units and Facilities**

*Operated by Alaska Area and Tribes, October 1, 1998*

<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>9</b>	<b>1</b>	<b>8</b>		
Hospitals	<b>7</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>5</b>
Ambulatory Facilities	<b>183</b>	—	<b>183</b>	<b>19</b>	<b>164</b>
<i>Health Centers</i>	23	—	23	3	20
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	—	—	—	—	—
<i>Village Clinics</i>	160	—	160	16	144

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Albuquerque Area, Indian Health Service operated 5 hospitals, 9 health centers, 1 school health center, and 7 health stations as of October 1, 1998. Tribes operated 3 health centers, all under Title I.

<i>Chart 1.5</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Albuquerque Area and Tribes, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>8</b>	<b>7</b>	<b>1</b>		
Hospitals	<b>5</b>	<b>5</b>	—	—	—
Ambulatory Facilities	<b>20</b>	<b>17</b>	<b>3</b>	<b>3</b>	—
<i>Health Centers</i>	12	9	3	3	—
<i>School Health Centers</i>	1	1	—	—	—
<i>Health Stations</i>	7	7	—	—	—

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Bemidji Area, Indian Health Service operated 2 hospitals, 2 health centers, and 2 health stations as of October 1, 1998. Tribes operated 24 health centers (Title I, 15 and Title III, 9) and 11 health stations (Title I, 7 and Title III, 4).

<i>Chart 1.6</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Bemidji Area and Tribes, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>13</b>	<b>3</b>	<b>10</b>		
Hospitals	<b>2</b>	<b>2</b>	—	—	—
Ambulatory Facilities	<b>39</b>	<b>4</b>	<b>35</b>	<b>22</b>	<b>13</b>
<i>Health Centers</i>	26	2	24	15	9
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	13	2	11	7	4

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Billings Area, Indian Health Service operated 3 hospitals, 6 health centers, and 3 health stations as of October 1, 1998. Tribes operated 3 health centers and 3 health stations, all under Title III.

*Chart 1.7*

**Number of Service Units and Facilities**

*Operated by Billings Area and Tribes, October 1, 1998*

<u>Type of Facility</u>	<u>Total</u>	<u>IHS</u>	<u>Tribal</u>		
			<u>Total</u>	<u>I</u>	<u>III</u>
Service Units	<b>8</b>	<b>6</b>	<b>2</b>		
Hospitals	<b>3</b>	<b>3</b>	—	—	—
Ambulatory Facilities	<b>15</b>	<b>9</b>	<b>6</b>	—	<b>6</b>
<i>Health Centers</i>	9	6	3	—	3
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	6	3	3	—	3

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the California Area, Indian Health Service did not operate any facilities as of October 1, 1998. Tribes operated 33 health centers (Title I, 32 and Title III, 1) and 18 health stations (all Title I).

*Chart 1.8*

**Number of Service Units and Facilities**

*Operated by California Area and Tribes, October 1, 1998*

<u>Type of Facility</u>	<u>Total</u>	<u>IHS</u>	<u>Tribal</u>		
			<u>Total</u>	<u>I</u>	<u>III</u>
Service Units	<b>26</b>	—	<b>26</b>		
Hospitals	—	—	—	—	—
Ambulatory Facilities	<b>51</b>	—	<b>51</b>	<b>50</b>	<b>1</b>
<i>Health Centers</i>	33	—	33	32	1
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	18	—	18	18	—

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Nashville Area, Indian Health Service operated 1 hospital as of October 1, 1998. Tribes operated 1 hospital (Title III), 18 health centers (Title I, 17 and Title III, 1), 1 school health center (Title III), and 8 health stations (Title I, 5 and Title III, 3).

<i>Chart 1.9</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Nashville Area and Tribes, October 1, 1998</i>					
<u>Type of Facility</u>	<u>Total</u>	<u>IHS</u>	<u>Tribal</u>		
			<u>Total</u>	<u>I</u>	<u>III</u>
Service Units	<b>21</b>	<b>1</b>	<b>20</b>		
Hospitals	<b>2</b>	<b>1</b>	<b>1</b>	—	<b>1</b>
Ambulatory Facilities	<b>27</b>	—	<b>27</b>	<b>22</b>	<b>5</b>
<i>Health Centers</i>	18	—	18	17	1
<i>School Health Centers</i>	1	—	1	—	1
<i>Health Stations</i>	8	—	8	5	3

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Navajo Area, Indian Health Service operated 6 hospitals, 7 health centers, 1 school health center, and 14 health stations as of October 1, 1998. There were no Tribally operated facilities as of October 1, 1998.

<i>Chart 1.10</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Navajo Area, October 1, 1998</i>					
<u>Type of Facility</u>	<u>Total</u>	<u>IHS</u>	<u>Tribal</u>		
			<u>Total</u>	<u>I</u>	<u>III</u>
Service Units	<b>8</b>	<b>8</b>	—		
Hospitals	<b>6</b>	<b>6</b>	—	—	—
Ambulatory Facilities	<b>22</b>	<b>22</b>	—	—	—
<i>Health Centers</i>	7	7	—	—	—
<i>School Health Centers</i>	1	1	—	—	—
<i>Health Stations</i>	14	14	—	—	—

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Oklahoma Area, Indian Health Service operated 4 hospitals and 12 health centers as of October 1, 1998. Tribes operated 3 hospitals (Title I, 1 and Title III, 2), 26 health centers (Title I, 9 and Title III, 17), and 1 school health center (Title III).

<i>Chart 1.11</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Oklahoma Area and Tribes, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>12</b>	<b>9</b>	<b>3</b>		
Hospitals	<b>7</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>2</b>
Ambulatory Facilities	<b>39</b>	<b>12</b>	<b>27</b>	<b>9</b>	<b>18</b>
<i>Health Centers</i>	38	12	26	9	17
<i>School Health Centers</i>	1	—	1	—	1
<i>Health Stations</i>	—	—	—	—	—

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Phoenix Area, Indian Health Service operated 6 hospitals, 5 health centers, and 4 health stations as of October 1, 1998. Tribes operated 2 hospitals (Title I, 1 and Title III, 1), 8 health centers (Title I), and 6 health stations (Title I, 5 and Title III, 1).

<i>Chart 1.12</i>		<b>Number of Service Units and Facilities</b>			
<i>Operated by Phoenix Area, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>10</b>	<b>7</b>	<b>3</b>		
Hospitals	<b>8</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>1</b>
Ambulatory Facilities	<b>23</b>	<b>9</b>	<b>14</b>	<b>13</b>	<b>1</b>
<i>Health Centers</i>	13	5	8	8	—
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	10	4	6	5	1

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

In the Portland Area, Indian Health Service operated 7 health centers and 1 school health center as of October 1, 1998. Tribes operated 11 health centers (Title I, 5 and Title III, 6) and 27 health stations (Title I, 22 and Title III, 5).

<i>Chart 1.13</i> <b>Number of Service Units and Facilities</b>					
<i>Operated by Portland Area and Tribes, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>16</b>	<b>9</b>	<b>7</b>		
Hospitals	—	—	—	—	—
Ambulatory Facilities	<b>46</b>	<b>8</b>	<b>38</b>	<b>27</b>	<b>11</b>
<i>Health Centers</i>	18	7	11	5	6
<i>School Health Centers</i>	1	1	—	—	—
<i>Health Stations</i>	27	—	27	22	5

I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

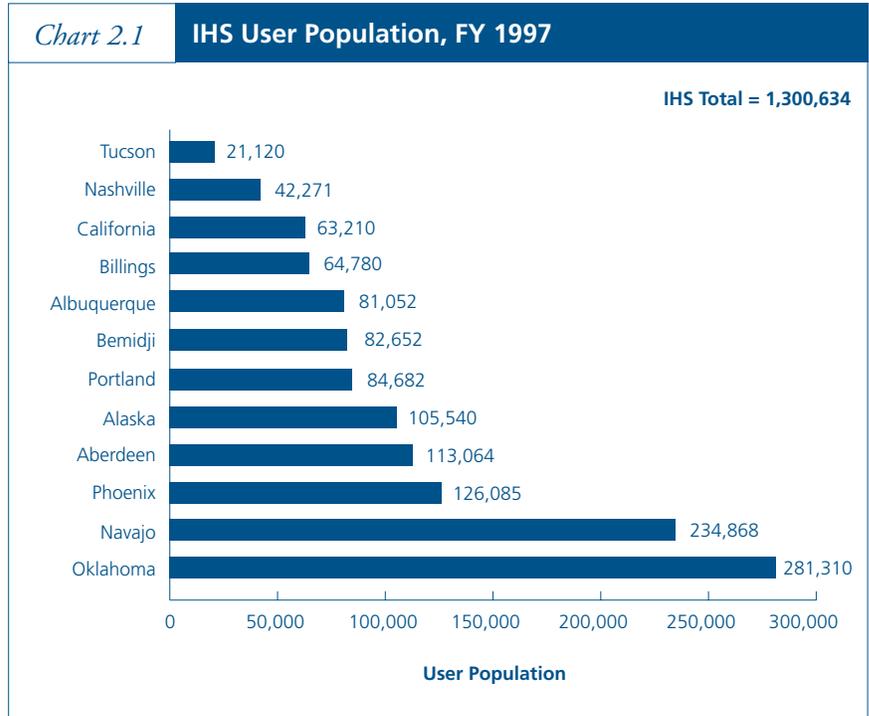
In the Tucson Area, Indian Health Service operated 1 hospital, 3 health centers, and 2 health stations as of October 1, 1998. There were no Tribally operated facilities as of October 1, 1998.

<i>Chart 1.14</i> <b>Number of Service Units and Facilities</b>					
<i>Operated by Tucson Area, October 1, 1998</i>					
<b>Type of Facility</b>	<b>Total</b>	<b>IHS</b>	<b>Tribal</b>		
			<b>Total</b>	<b>I</b>	<b>III</b>
Service Units	<b>2</b>	<b>2</b>	—		
Hospitals	<b>1</b>	<b>1</b>	—	—	—
Ambulatory Facilities	<b>5</b>	<b>5</b>	—	—	—
<i>Health Centers</i>	3	3	—	—	—
<i>School Health Centers</i>	—	—	—	—	—
<i>Health Stations</i>	2	2	—	—	—

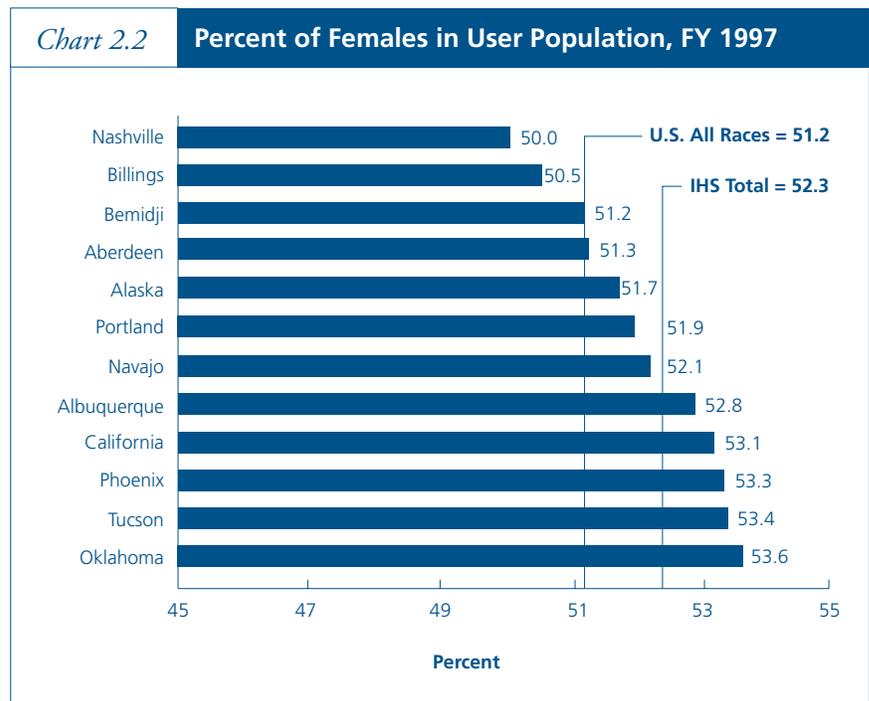
I - operated under Title I, P.L. 93-638 Self-Determination Contracts  
 III - operated under Title III, P.L. 93-638 Self-Governance Compacts

## Part 2: Population Statistics

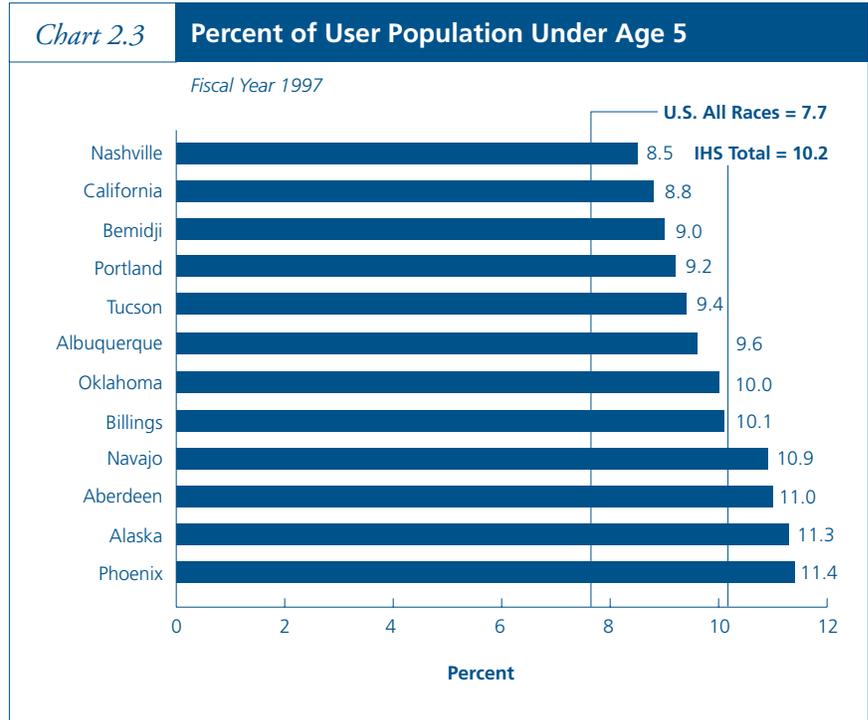
In FY 1997, the Indian Health Service user population was more than 1.3 million. Approximately 40 percent of the user population was concentrated in two IHS Areas, Oklahoma and Navajo.



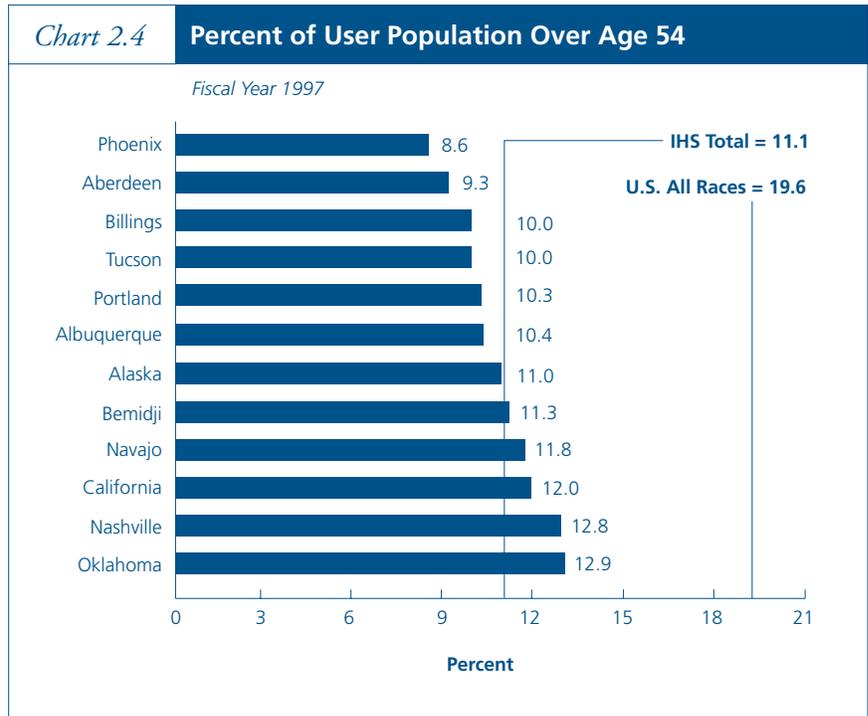
There was a slightly higher percentage of females in FY 1997 in the IHS user population than in the U.S. All Races population (CY 1997). Oklahoma and Tucson each had the two highest percentages at 53.6 and 53.4, respectively.



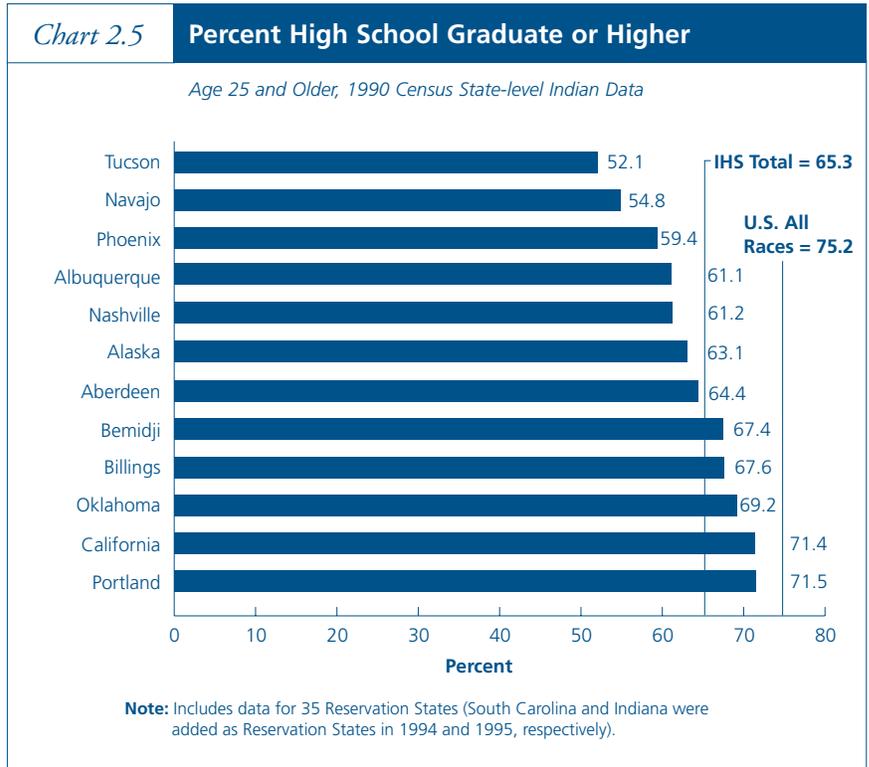
The IHS user population in FY 1997 was considerably younger than the U.S. All Races population (CY 1997). The Nashville Area, which had the lowest percentage of population under age 5 (8.5), still had a percentage that was more than 1.1 times the U.S. All Races percentage (7.7).



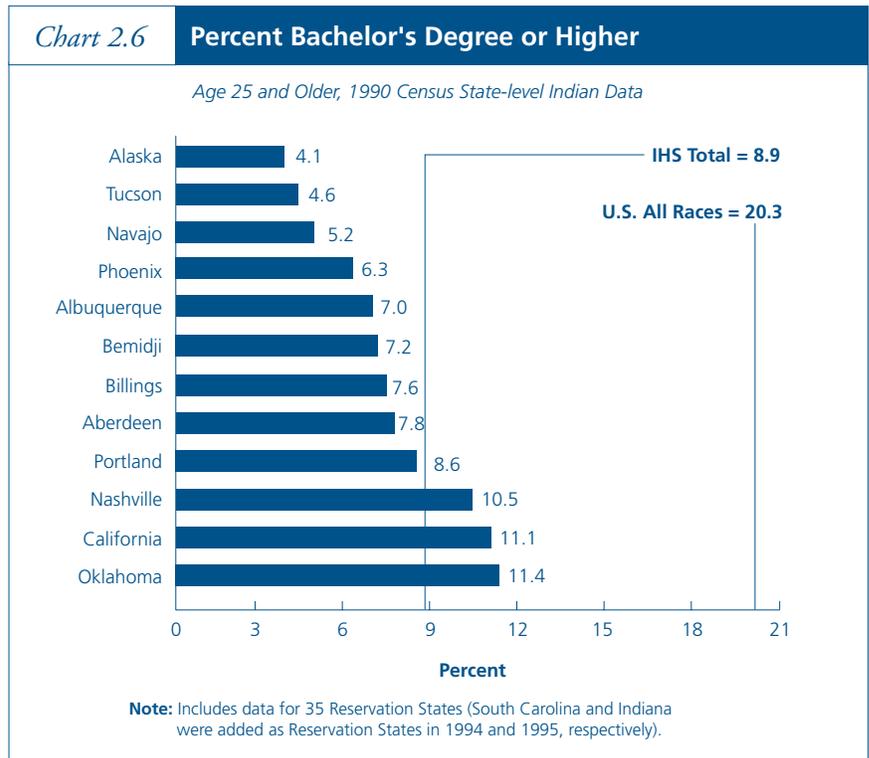
In CY 1997, 19.6 percent of the U.S. All Races population was over age 54 compared to 11.1 percent for the IHS user population (FY 1997). Oklahoma and Nashville had the highest percentages for this age group, 12.9 and 12.8, respectively.



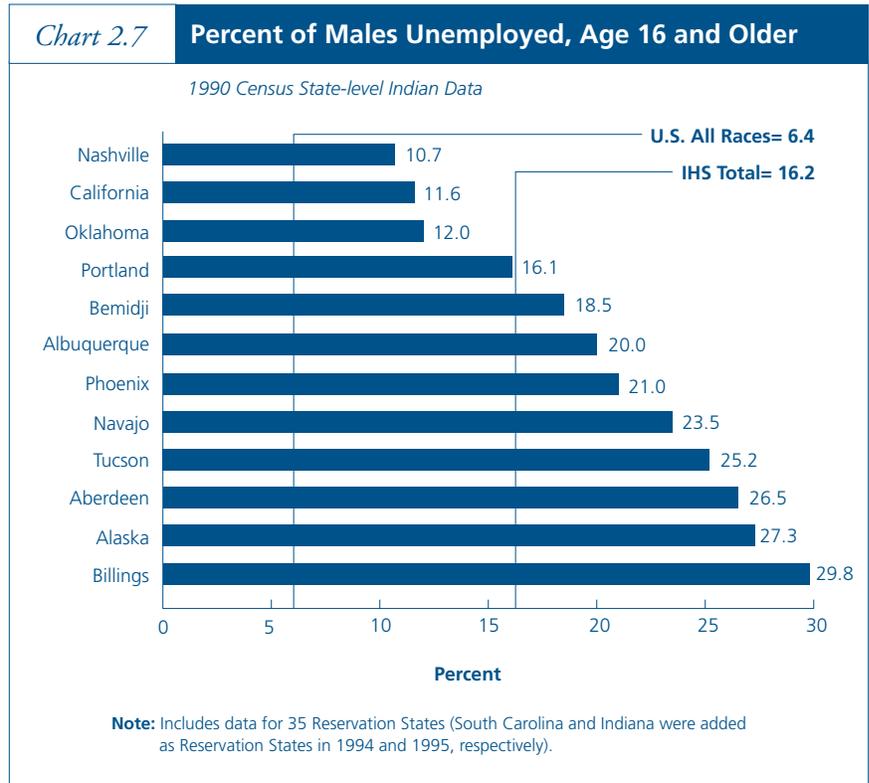
According to the 1990 Census, 65.3 percent of Indians, age 25 and older, residing in the current Reservation States, are high school graduates or higher compared to 75.2 percent for the U.S. All Races population. Tucson, Navajo, and Phoenix had percentages less than 60.0.



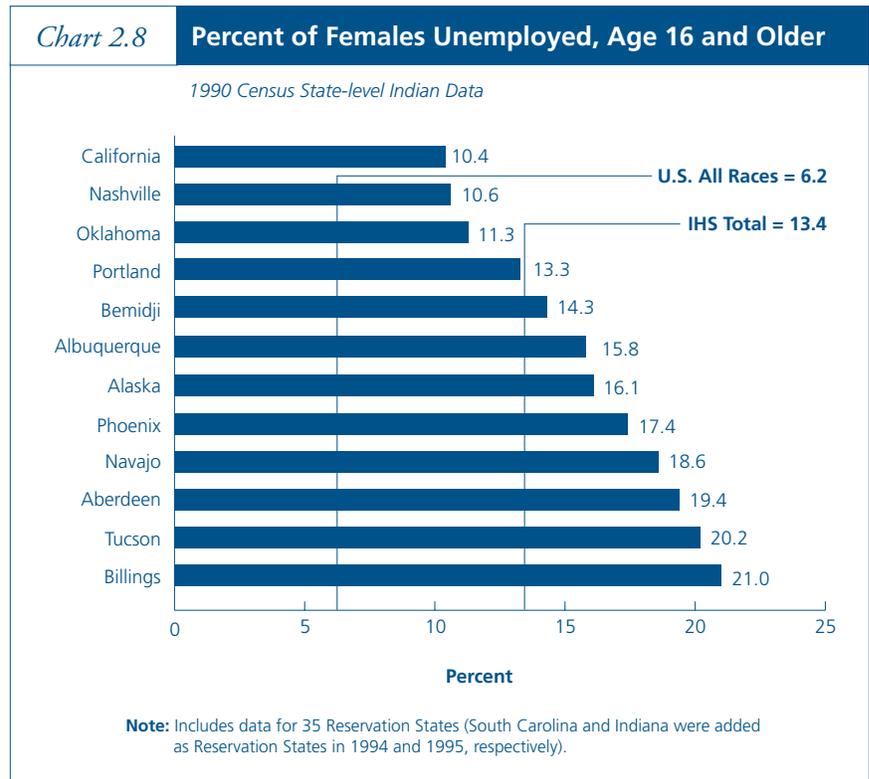
The 1990 Census indicated that 8.9 percent of Indians, age 25 and older, residing in the current Reservation States, have a bachelor's degree or higher. This is well below the percentage for the U.S. All Races population of 20.3. The Area percentages ranged from 4.1 in Alaska to 11.4 in Oklahoma.



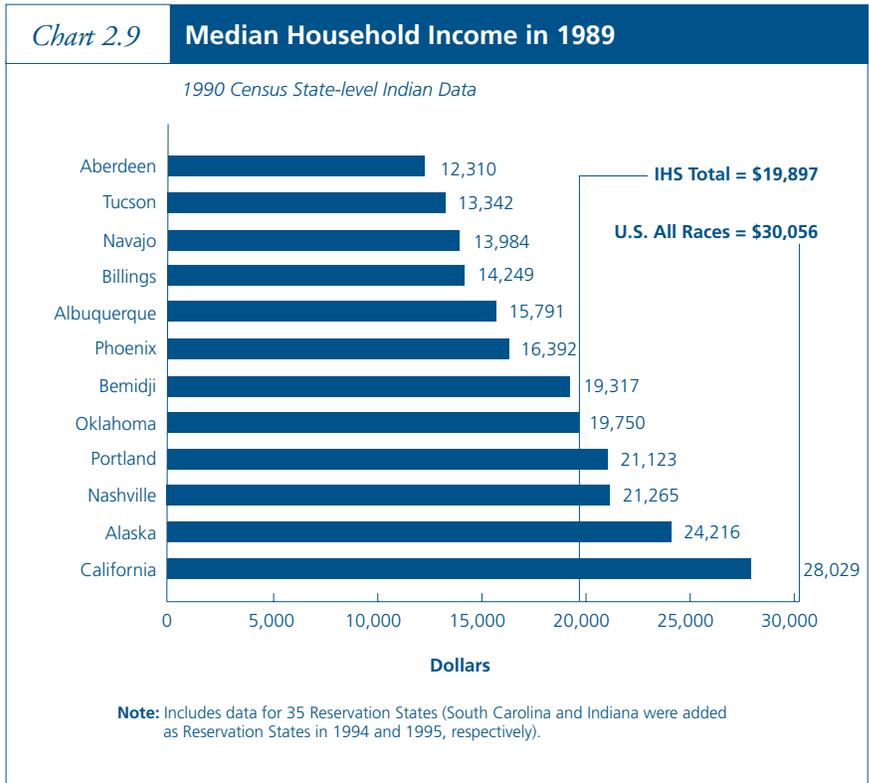
In 1990, 16.2 percent of Indian males, age 16 and older, residing in the current Reservation States, were unemployed compared to 6.4 percent for the U.S. All Races male population. Billings, Alaska, Aberdeen, and Tucson had unemployment rates greater than 25.0 percent.



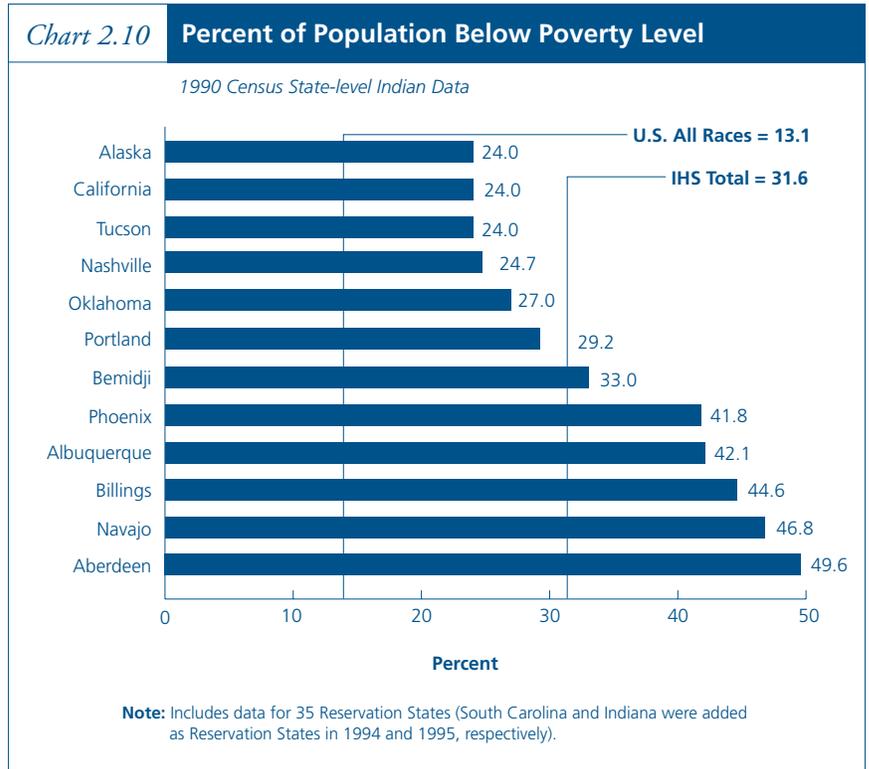
In 1990, 13.4 percent of Indian females, age 16 and older, residing in the current Reservation States, were unemployed compared to 6.2 percent for the U.S. All Races female population. The Area unemployment rates ranged from 10.4 in California to 21.0 in Billings.



According to the 1990 Census, the median household income in 1989 for Indians residing in the current Reservation States was \$19,897. This is two-thirds of the U.S. All Races figure for 1989 of \$30,056. Aberdeen, Tucson, Navajo, and Billings had median household incomes that were less than half the U.S. figure.

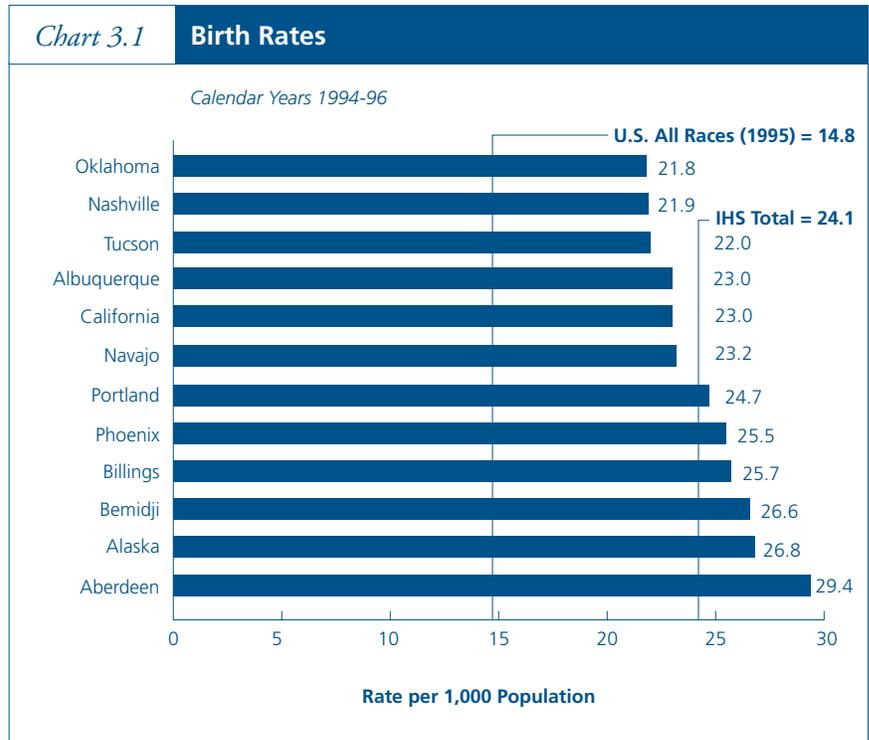


The 1990 Census indicated that 31.6 percent of Indians residing in the current Reservation States were below the poverty level. This is 2.4 times the comparable U.S. All Races figure of 13.1. Aberdeen, Navajo, Billings, Albuquerque, and Phoenix had percentages exceeding 40.0.



## Part 3: Natality & Infant/Maternal Mortality Statistics

The birth rate for the IHS service area population in 1994-96 was 1.6 times the rate for the U.S. All Races population in 1995, i.e., 24.1 compared to 14.8. Even the IHS Area with the lowest birth rate (Oklahoma, 21.8) had a rate considerably greater than the U.S. rate (47 percent greater).



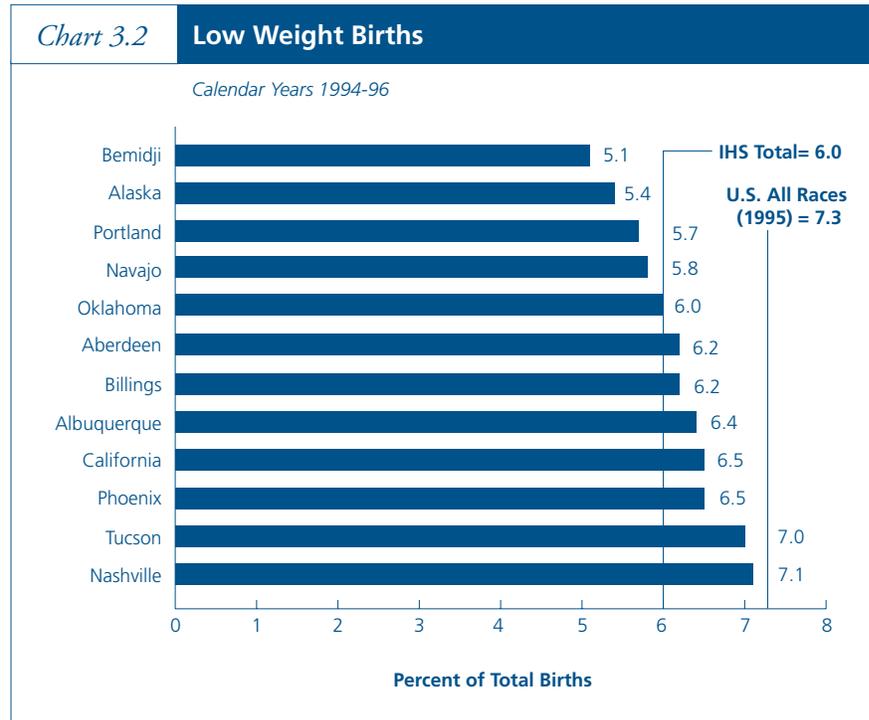
**Table 3.1 Number and Rate of Live Births**

Calendar Years 1994-96

	Number	Rate <sup>1</sup>
U.S. All Races (1995)	3,899,589	14.8
All IHS Areas	99,023	24.1
Aberdeen	7,924	29.4
Alaska	7,840	26.8
Albuquerque	5,151	23.0
Bemidji	5,865	26.6
Billings	4,066	25.7
California	8,208	23.0
Nashville	4,627	21.9
Navajo	14,091	23.2
Oklahoma	18,759	21.8
Phoenix	10,235	25.5
Portland	10,494	24.7
Tucson	1,763	22.0

<sup>1</sup>Rate per 1,000 population.

For 1994-96, 6.0 percent of all Indian births in the IHS service area were low weight (less than 2,500 grams) births. This was better than the figure for the U.S. All Races population, i.e., 7.3 percent in 1995. All IHS Areas had relatively fewer low weight births than occurred in the general population.



**Table 3.2 Births of Low Weight as a Percent of Total Live Births**

Calendar Years 1994-96

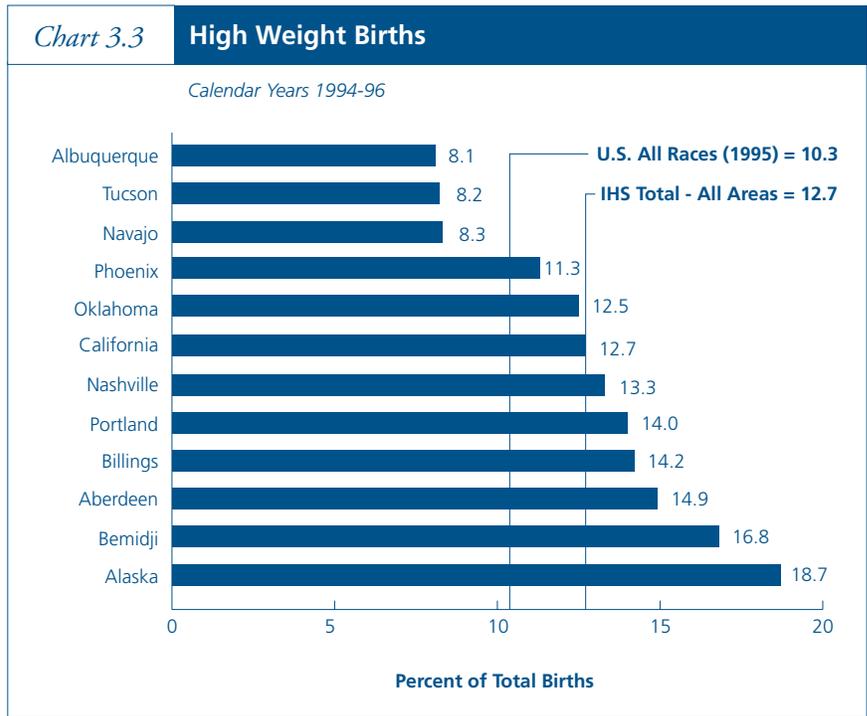
	Total Live Births <sup>1</sup>	Number Low Weight <sup>2</sup>	Percent Low Weight <sup>3</sup>
U.S. All Races (1995)	3,899,589	285,152	7.3
All IHS Areas	99,023	5,962	6.0
Aberdeen	7,924	488	6.2
Alaska	7,840	419	5.4
Albuquerque	5,151	328	6.4
Bemidji	5,865	297	5.1
Billings	4,066	251	6.2
California	8,208	535	6.5
Nashville	4,627	327	7.1
Navajo	14,091	819	5.8
Oklahoma	18,759	1,111	6.0
Phoenix	10,235	665	6.5
Portland	10,494	598	5.7
Tucson	1,763	124	7.0

<sup>1</sup> Includes 4,057 U.S. All Races live births and 215 American Indian/Alaska Native live births with birthweight not stated.

<sup>2</sup> Births of less than 2,500 grams.

<sup>3</sup> Percent low weight based on live births with a birthweight reported.

The Indian population has a greater problem with high weight rather than low weight births. High birthweights may be a complication of diabetic pregnancies and should be of concern. In 1994-96, 12.7 percent of all births in the IHS service area were high weight (4,000 grams or more) births. In contrast, the U.S. All Races percentage was 2.4 points lower at 10.3 in 1995. The percentages varied considerably by Area ranging from 8.1 in Albuquerque to 18.7 in Alaska.



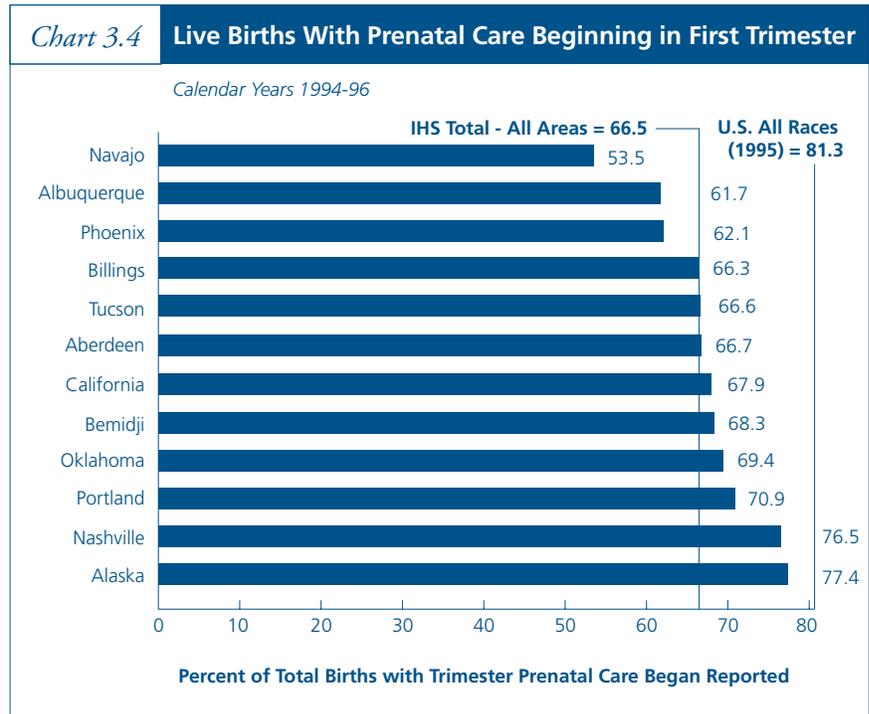
**Table 3.3 Births of High Weight as a Percent of Total Live Births**

Calendar Years 1994-96

	Total Live Births <sup>1</sup>	Number High Weight <sup>2</sup>	Percent High Weight <sup>3</sup>
U.S. All Races (1995)	3,899,589	402,533	10.3
All IHS Areas	99,023	12,528	12.7
Aberdeen	7,924	1,182	14.9
Alaska	7,840	1,457	18.7
Albuquerque	5,151	413	8.1
Bemidji	5,865	986	16.8
Billings	4,066	575	14.2
California	8,208	1,039	12.7
Nashville	4,627	614	13.3
Navajo	14,091	1,170	8.3
Oklahoma	18,759	2,328	12.5
Phoenix	10,235	1,152	11.3
Portland	10,494	1,467	14.0
Tucson	1,763	145	8.2

<sup>1</sup> Includes 4,057 U.S. All Races live births and 215 American Indian/Alaska Native live births with birthweight not stated.  
<sup>2</sup> Births of 4,000 grams or more (8 lb., 14 oz. or more).  
<sup>3</sup> Percent high weight based on live births with a birthweight reported.

In 1994-96, prenatal care began in the first trimester for 66.5 percent of Indian live births for the IHS service area population. This compared to 81.3 percent for the U.S. All Races population in 1995. The percentages varied widely among IHS Areas, ranging from 53.5 for Navajo to 77.4 for Alaska.



**Table 3.4 Live Births With Prenatal Care Beginning in First Trimester**

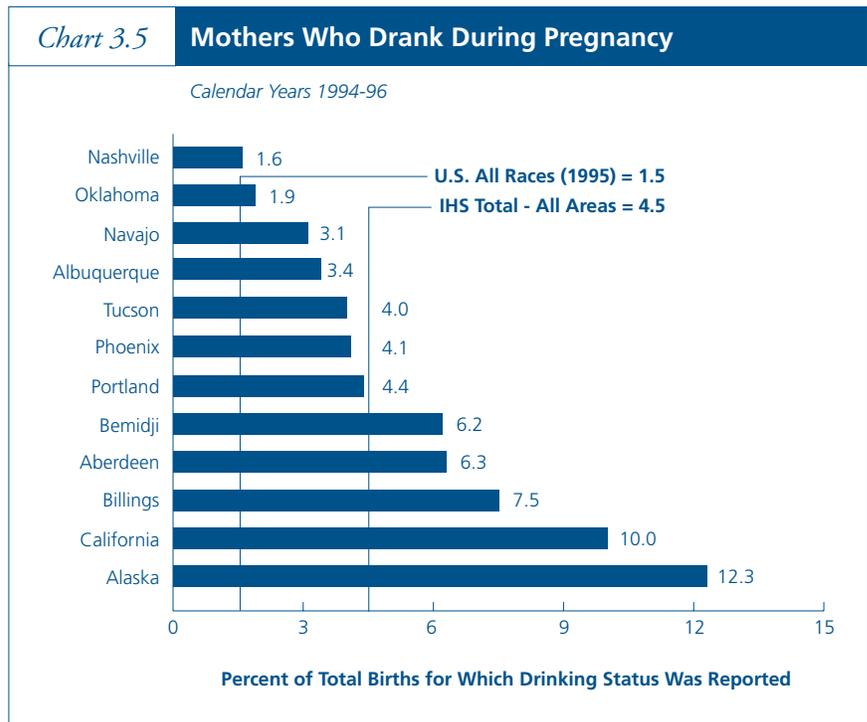
Calendar Years 1994-96

	Total Live Births <sup>1</sup>	Live Births With trimester Prenatal Care Began Reported	Live Births With Prenatal Care Beginning in the First Trimester <sup>2</sup>	
			Number	Percent
U.S. All Races (1995)	3,899,589	3,807,446	3,094,402	81.3
All IHS Areas	99,023	96,479	64,164	66.5
Aberdeen	7,924	7,796	5,198	66.7
Alaska	7,840	7,748	5,994	77.4
Albuquerque	5,151	4,901	3,024	61.7
Bemidji	5,865	5,765	3,935	68.3
Billings	4,066	4,039	2,678	66.3
California	8,208	8,139	5,527	67.9
Nashville	4,627	4,557	3,484	76.5
Navajo	14,091	13,836	7,408	53.5
Oklahoma	18,759	17,917	12,438	69.4
Phoenix	10,235	10,032	6,228	62.1
Portland	10,494	9,992	7,080	70.9
Tucson	1,763	1,757	1,170	66.6

<sup>1</sup> Includes 92,143 U.S. All Races live births and 2,544 American Indian/Alaska Native live births for which trimester of pregnancy that prenatal care began was not reported on the State birth certificate.

<sup>2</sup> Percent based on live births with this information reported.

During 1994-96, 4.5 percent of Indian mothers drank during pregnancy (as reported on the birth certificate), three times the percentage for mothers in the general population, i.e., 1.5 in 1995. The Alaska Area percentage of 12.3 was 2.7 times the All IHS Areas percentage. The percentage increased with age, except Indian mothers in the under 18 age group drank more than Indian mothers in the 18 to 19 age group.



**Table 3.5 Percent of Mothers Who Drank During Pregnancy<sup>1</sup> by Age of Mother**

Calendar Years 1994-96

(Mothers who drank during pregnancy includes those who drank even less than one drink per week during pregnancy.)

	All Ages	Under 18 Years	18-19 Years	20-24 Years	25-29 Years	30-34 Years	35-49 Years
U.S. All Races (1995)	1.5	0.8	0.9	1.2	1.4	2.0	2.5
All IHS Areas	4.5	3.6	3.3	4.1	4.8	5.7	6.0
Aberdeen	6.3	5.5	4.7	5.8	7.1	7.9	7.6
Alaska	12.3	12.4	8.6	10.6	12.4	15.2	15.5
Albuquerque	3.4	3.0	3.2	2.7	3.9	4.1	3.6
Bemidji	6.2	4.1	5.1	5.5	6.2	8.3	10.7
Billings	7.5	4.5	5.0	8.0	8.7	7.7	10.9
California	10.0	25.0*	25.0*	6.3*	10.5*	10.0*	—*
Nashville	1.6	0.3	1.6	1.6	2.1	1.3	2.7
Navajo	3.1	3.8	3.1	2.8	3.2	3.1	3.1
Oklahoma	1.9	1.0	1.0	2.0	1.6	2.7	3.7
Phoenix	4.1	2.8	3.5	3.4	4.3	6.1	4.8
Portland	4.4	3.3	2.9	4.6	3.4	4.7	5.5
Tucson	4.0	3.7	3.1	3.7	4.4	4.7	4.4

— Represents zero

\*Percent based on less than 20 births in the age group specified.

<sup>1</sup> Based on the number of live births with drinking status of the mother reported.

NOTE: The States of California and South Dakota do not include a question on drinking history of the mother during pregnancy on State birth certificates. Persons usually residing in one of these two States responding to this question reported their drinking history on a form from another State, since the delivery was performed out of their usual State of residence.

In the Indian population, 20.4 percent of women reported that they smoked during pregnancy, 1994-96. Women in the U.S. All Races population smoked at a lower rate during pregnancy, i.e., 13.9 percent in 1995. There appears to be a relationship between smoking and low birthweight births. Of all Indian low weight births, 29.0 percent were to women who reported smoking during pregnancy. There were considerable variations among the IHS Areas and age groups in terms of these two rates.

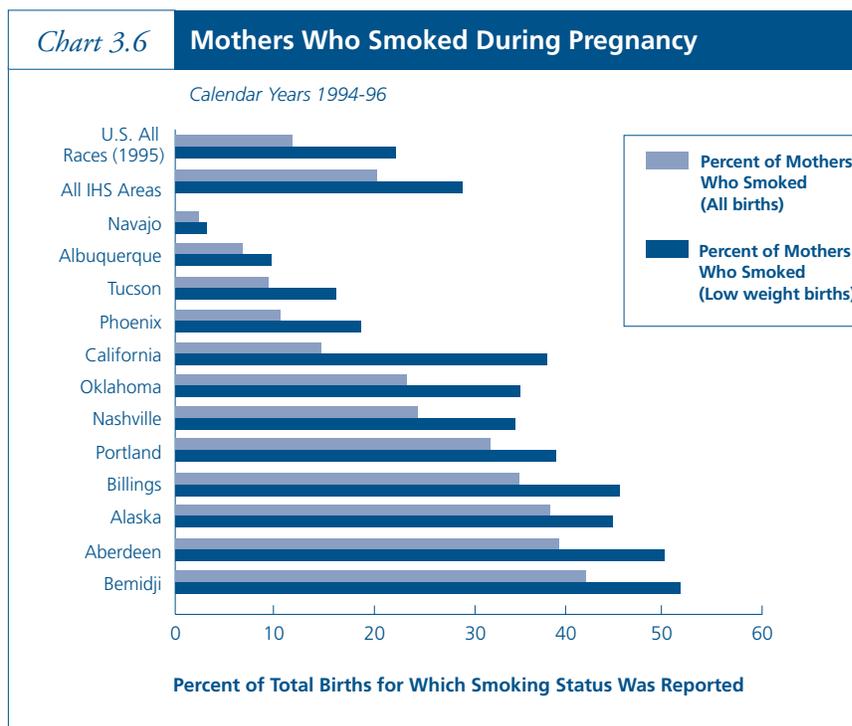


Table 3.6

**Percent of Mothers Who Smoked During Pregnancy for All Births and Low Weight Births by Age of Mother**

Calendar Years 1994-96  
(Low birthweight is defined as weight less than 2,500 grams (5 lb, 8 oz))

	Percent of Live Births <sup>1</sup> for Which the Mother Reported Smoking					Percent of Low Weight Births <sup>1</sup> for Which the Mother Reported Smoking				
	All Ages	Under 15 Years	15-19 Years	20-34 Years	35-49 Years	All Ages	Under 15 Years	15-19 Years	20-34 Years	35-49 Years
U.S. All Races (1995)	13.9	7.3	16.8	13.8	11.7	22.5	7.8	19.6	23.1	23.6
All IHS Areas	20.4	13.5	21.7	20.2	19.1	29.0	19.3	27.1	29.1	32.3
Aberdeen	38.2	30.0	34.5	39.4	39.8	51.9	66.7*	51.1	51.7	53.3*
Alaska	36.7	15.4	43.4	35.5	34.4	46.4	—*	31.5	51.4	40.8
Albuquerque	5.4	4.5	5.6	5.3	5.9	8.7	—*	3.5	8.9	15.8
Bemidji	41.1	27.3	40.3	41.5	39.7	53.5	100.0*	39.3	56.7	57.1
Billings	31.6	16.0	31.6	31.6	33.5	47.4	—*	43.5	47.1	55.2
California	13.5	—*	14.3*	13.6	—*	37.5*	—*	—*	42.9*	—*
Nashville	23.3	—*	20.9	24.0	24.9	34.3	—*	25.0	36.9	43.5
Navajo	2.3	5.1	3.7	2.0	1.6	3.6	—*	7.6	2.6	4.6
Oklahoma	20.5	9.9	19.4	20.4	28.7	34.7	—*	32.2	33.5	56.0
Phoenix	10.0	5.1	9.8	10.1	10.0	17.5	33.3*	18.9	16.0	24.6
Portland	29.2	23.0	33.6	28.1	27.5	39.3	50.0*	37.3	39.4	42.2
Tucson	9.0	18.8*	8.8	8.7	11.8	13.7	—*	10.7*	12.2	33.3*

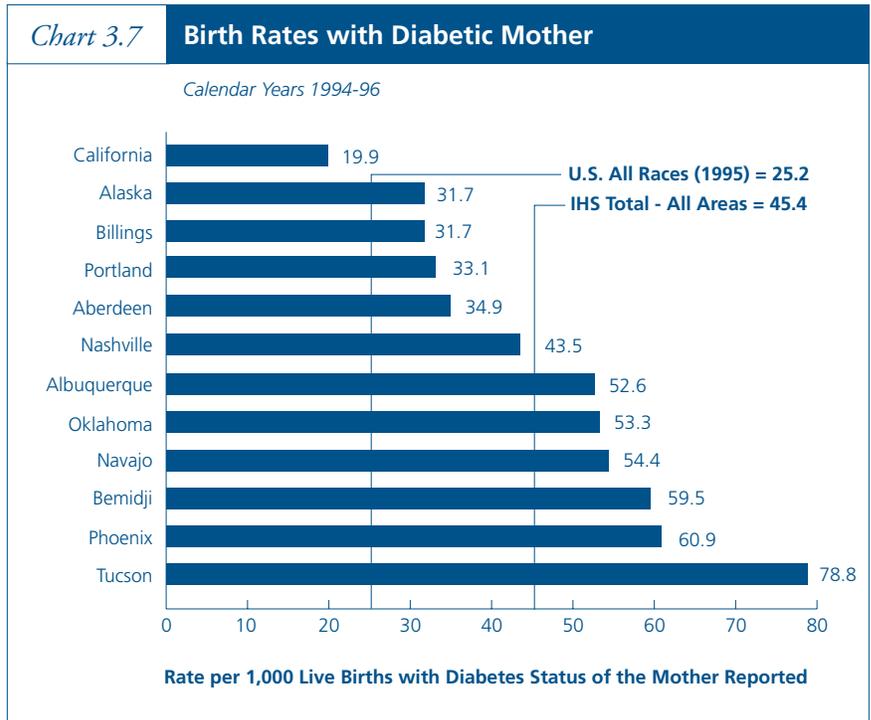
— Represents zero.

\*Percent based on less than 20 births in the age group specified.

<sup>1</sup> Based on the number of live births with smoking status of the mother reported.

NOTE: The States of California, Indiana, New York (except New York City) and South Dakota do not include a question on smoking history of the mother during pregnancy. Persons usually residing in one of these 4 States responding to this question reported their smoking history on a form from another State, since the delivery was performed out of their usual State of residence.

Indian women giving birth during 1994-96 were more likely to be diabetic than their counterparts in the U.S. All Races population in 1995. For the Indian population, there were 45.4 births with a diabetic mother per 1,000 live births. This is 1.8 times the All Races rate of 25.2. The Area rates ranged from 19.9 in California to 78.8 in Tucson.



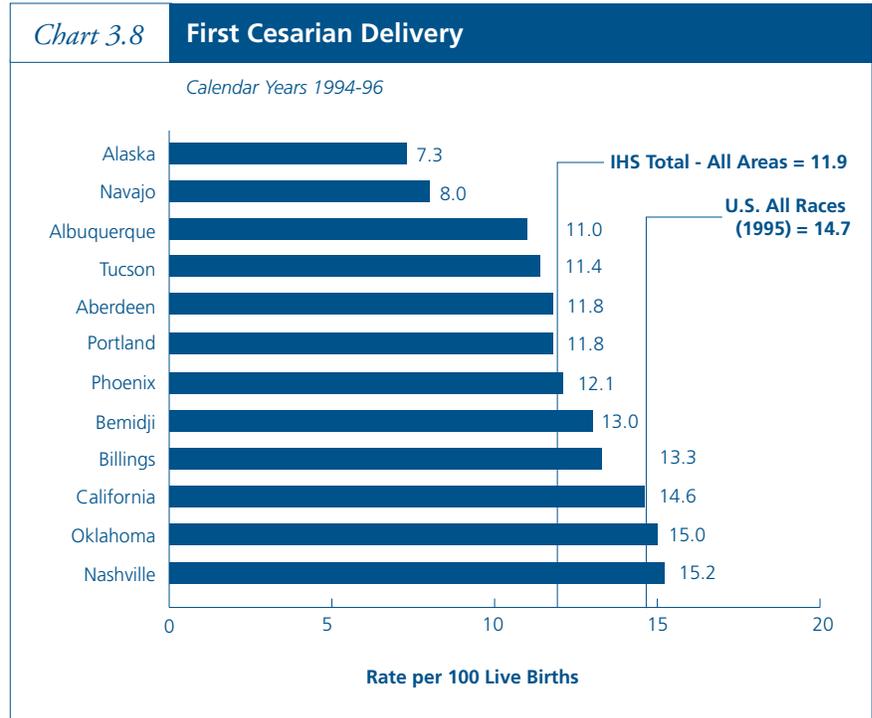
**Table 3.7 Rate<sup>1</sup> of Live Births with Diabetic Mother by Age of Mother**

*Calendar Years 1994-96*

	All Ages	Under 20 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40-49 Years
U.S. All Races (1995)	25.2	8.1	16.0	24.6	33.5	46.2	62.8
All IHS Areas	45.4	13.7	28.4	49.7	78.4	112.5	162.2
Aberdeen	34.9	12.0	22.7	37.9	64.5	105.6	171.4
Alaska	31.7	11.4	20.0	34.2	49.4	53.8	104.5
Albuquerque	52.6	15.9	27.1	45.3	96.2	137.2	195.1
Bemidji	59.5	22.8	38.0	64.6	108.5	164.4	211.5
Billings	31.7	12.1	18.0	41.6	65.7	47.8	170.2
California	19.9	6.6	17.5	20.7	30.8	39.0	51.7
Nashville	43.5	10.6	32.1	51.6	77.5	100.0	100.0
Navajo	54.4	9.1	24.5	49.9	91.6	133.5	209.6
Oklahoma	53.3	17.9	40.2	68.2	85.8	151.3	170.2
Phoenix	60.9	15.8	33.5	68.7	102.9	173.1	184.0
Portland	33.1	12.4	21.0	36.1	62.0	69.6	109.6
Tucson	78.8	26.6	43.4	88.3	166.0	166.7	363.6

<sup>1</sup> Number of live births with a diabetic mother per 1,000 live births with diabetes status reported in age group specified.

Indian women on average have a lower rate of cesarian deliveries than women in the U.S. All Races population. The Indian rate of first cesarian deliveries, 11.9 per 100 live births in 1994-96, was 19 percent less than the 1995 All Races rate, 14.7. Only two IHS Areas exceeded the All Races rate, Nashville (15.2) and Oklahoma (15.0). The lowest rate occurred in Alaska (7.3).



Indian women who had a cesarian delivery were 14 percent more likely to have a subsequent vaginal delivery (1994-96) than women in the U.S. All Races population (1995). The Indian rate is 31.4 vaginal births per 100 live births to women with a prior cesarian delivery compared to an All Races rate of 27.5. The rate ranged among IHS Areas from 18.5 in Aberdeen to 55.2 in Alaska.

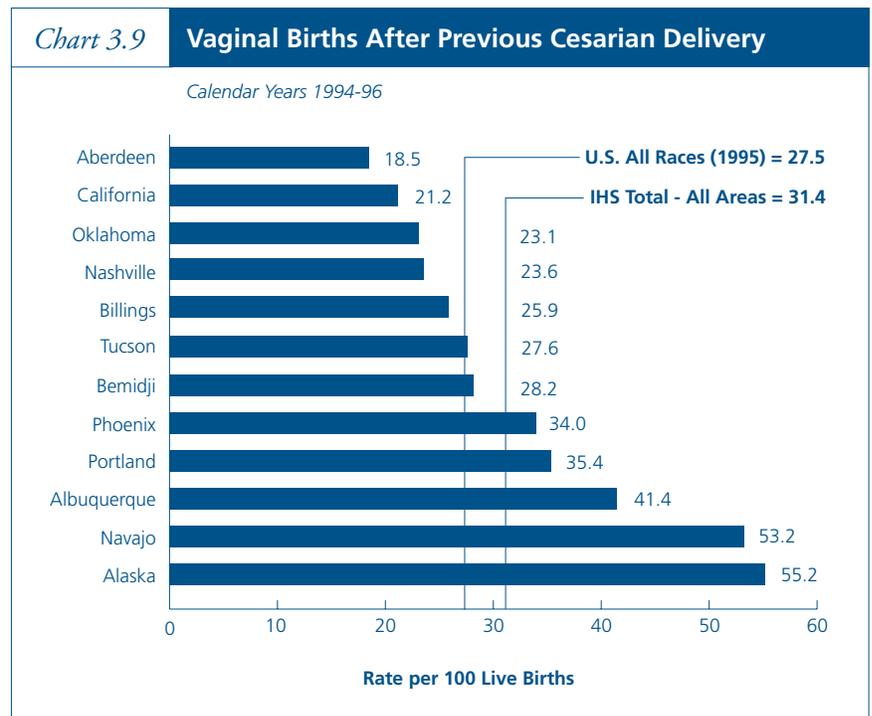




Table 3.8

**Rates of First Cesarean Delivery and Vaginal Births After Previous Cesarean Delivery by Age of Mother**

Calendar Years 1994-96 (Rates per 100 live births)

	Rate of First Cesarean Delivery				Rate of Vaginal Births After Previous Cesarean Delivery			
	All Ages	Under 25 Years	25-34 Years	35-49 Years	All Ages	Under 25 Years	25-34 Years	35-49 Years
U.S. All Races (1995)	14.7	13.4	15.0	18.3	27.5	30.0	27.8	23.7
All IHS Areas	11.9	11.6	11.7	15.0	31.4	32.5	31.1	29.3
Aberdeen	11.8	11.5	12.1	12.6	18.5	22.2	15.9	15.6
Alaska	7.3	6.6	7.3	10.7	55.2	54.3	54.6	58.8
Albuquerque	11.0	10.4	10.7	16.7	41.4	47.4	40.6	35.8
Bemidji	13.0	12.9	12.6	16.7	28.2	28.9	28.7	23.1
Billings	13.3	12.4	13.8	5.7	25.9	31.0	24.1	16.0
California	14.6	14.1	14.6	18.5	21.2	23.0	20.7	19.4
Nashville	15.2	14.6	15.1	21.7	23.6	24.1	25.1	10.9
Navajo	8.0	7.3	8.0	11.2	53.2	58.8	54.3	42.7
Oklahoma	15.0	15.0	14.3	18.6	23.1	24.1	23.2	18.8
Phoenix	12.1	11.5	12.2	15.6	34.0	37.5	32.2	32.9
Portland	11.8	10.8	12.6	15.3	35.4	39.9	34.7	27.8
Tucson	11.4	9.8	12.7	5.7	27.6	37.5	15.6	40.9

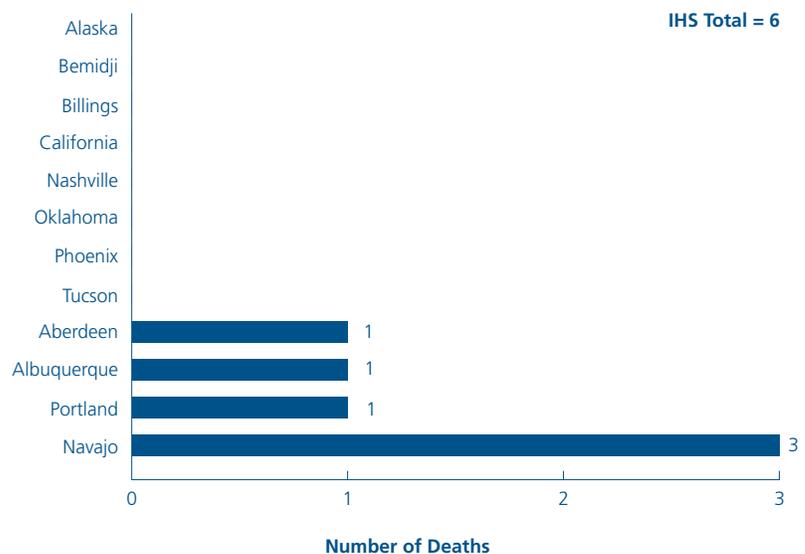
**Note:** Rate of first cesarian delivery is computed by dividing the total number of such deliveries by the number of all women who have never had a cesarian delivery. The denominator for this rate includes all births less those with method of delivery classified as repeat cesarian, vaginal birth after previous cesarian, or method not stated. Rate of vaginal births after previous cesarian delivery is computed by dividing the number of such deliveries by the sum of these deliveries plus repeat cesarian deliveries, that is, to women with a previous cesarian section.

There were 6 maternal deaths in the IHS service area population in 1994-96. Only one IHS Area had more than 1 maternal death, i.e., the Navajo Area with 3 deaths.

Chart 3.10

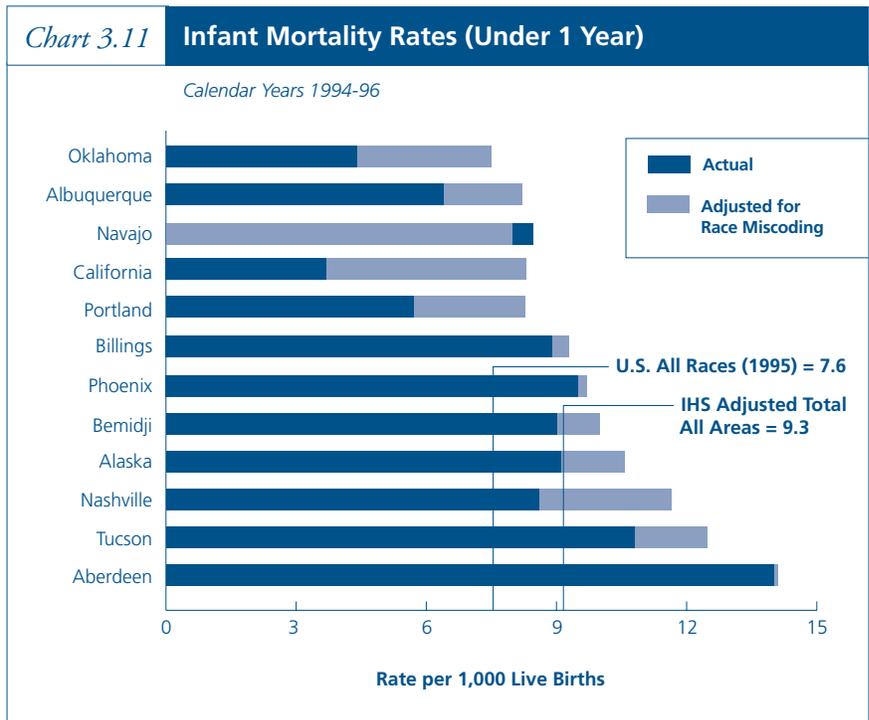
**Maternal Deaths**

Calendar Years 1994-96



**Note:** IHS actual numbers and numbers adjusted for race miscoding are the same. There were no maternal deaths in 1994, 1 maternal death in 1995, and 5 maternal deaths in 1996.

The infant mortality rate for the IHS service area population in 1994-96 was 9.3. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 22 percent higher than the U.S. All Races rate of 7.6 for 1995. Three IHS Areas (Aberdeen, Tucson, and Nashville) had a rate exceeding the U.S. rate by over 50 percent.



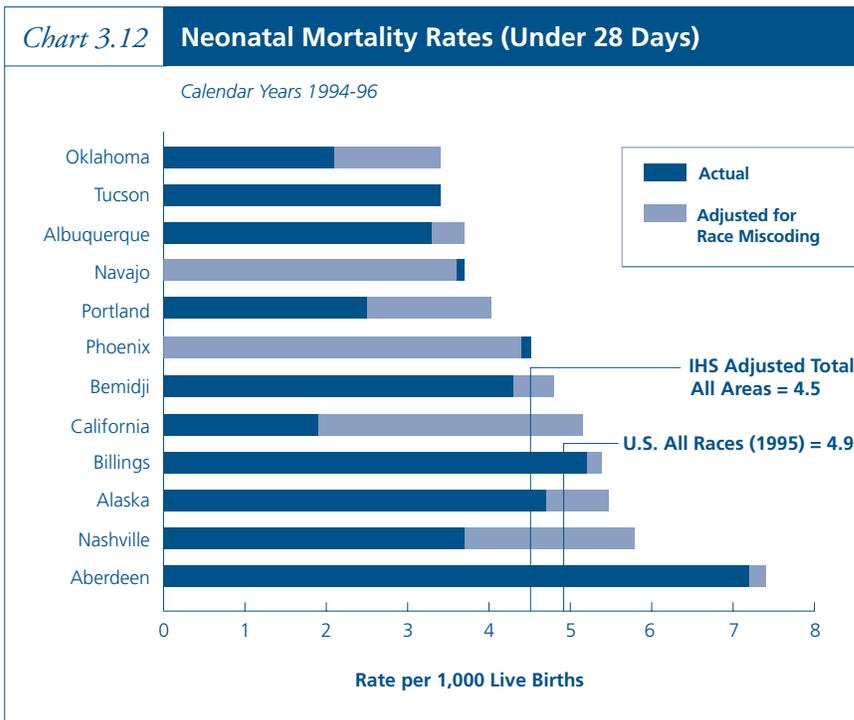
**Table 3.11 Infant Mortality Rates (Under 1 Year)**

Calendar Years 1994-96

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	3,899,589	29,583		7.6	
All IHS Areas	99,023	753	922	7.6	9.3
Aberdeen	7,924	111	112	14.0	14.1
Alaska	7,840	71	83	9.1	10.6
Albuquerque	5,151	33	42	6.4	8.2
Bemidji	5,865	53	59	9.0	10.1
Billings	4,066	36	38	8.9	9.3
California	8,208	30	68	3.7	8.3
Nashville	4,627	40	54	8.6	11.7
Navajo	14,091	121 <sup>3</sup>	116 <sup>2</sup>	8.6 <sup>3</sup>	8.2 <sup>3</sup>
Oklahoma	18,759	82	141	4.4	7.5
Phoenix	10,235	97	99	9.5	9.7
Portland	10,494	60	88	5.7	8.4
Tucson	1,763	19	22	10.8	12.5

<sup>1</sup> Rate per 1,000 live births.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.  
<sup>3</sup> For the Navajo Area there were more American Indian Infant deaths identified through use of the State death certificate records (121 infant deaths-actual data) than through use of a match between State birth and death certificate records (116 infant deaths-adjusted data).

The neonatal mortality rate for the IHS service area population in 1994-96 was 4.5. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 8 percent less than the U.S. All Races rate of 4.9 for 1995. Five IHS Areas (Aberdeen, Nashville, Alaska, Billings, and California) had a rate that exceeded the U.S. All Races rate.



**Table 3.12 Neonatal Mortality Rates (Under 28 Days)**

Calendar Years 1994-96

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	3,899,589	18,932		4.9	
All IHS Areas	99,023	360	449	3.6	4.5
Aberdeen	7,924	57	59	7.2	7.4
Alaska	7,840	37	43	4.7	5.5
Albuquerque	5,151	17	19	3.3	3.7
Bemidji	5,865	25	28	4.3	4.8
Billings	4,066	21	22	5.2	5.4
California	8,208	16	43	1.9	5.2
Nashville	4,627	17	27	3.7	5.8
Navajo	14,091	52 <sup>3</sup>	51 <sup>3</sup>	3.7 <sup>3</sup>	3.6 <sup>3</sup>
Oklahoma	18,759	40	63	2.1	3.4
Phoenix	10,235	46 <sup>3</sup>	45 <sup>3</sup>	4.5 <sup>3</sup>	4.4 <sup>3</sup>
Portland	10,494	26	43	2.5	4.1
Tucson	1,763	6	6	3.4	3.4

<sup>1</sup> Rate per 1,000 live births.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

<sup>3</sup> The adjusted numbers and rates for neonatal deaths for Navajo and Phoenix Areas are lower than the unadjusted numbers and rates because the linked birth/infant death file (used to obtain the adjusted counts for neonatal deaths) had 1 less death than did the actual mortality file for each respective Area (1994-96 data).

The postneonatal mortality rate for the IHS service area population in 1994-96 was 4.8. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 1.8 times the U.S. All Races rate of 2.7 for 1995. The Tucson Area had the highest rate, 9.1, among the IHS Areas followed by Aberdeen with 6.7.

Chart 3.13

Postneonatal Mortality Rates (28 days to Under 1 Year)

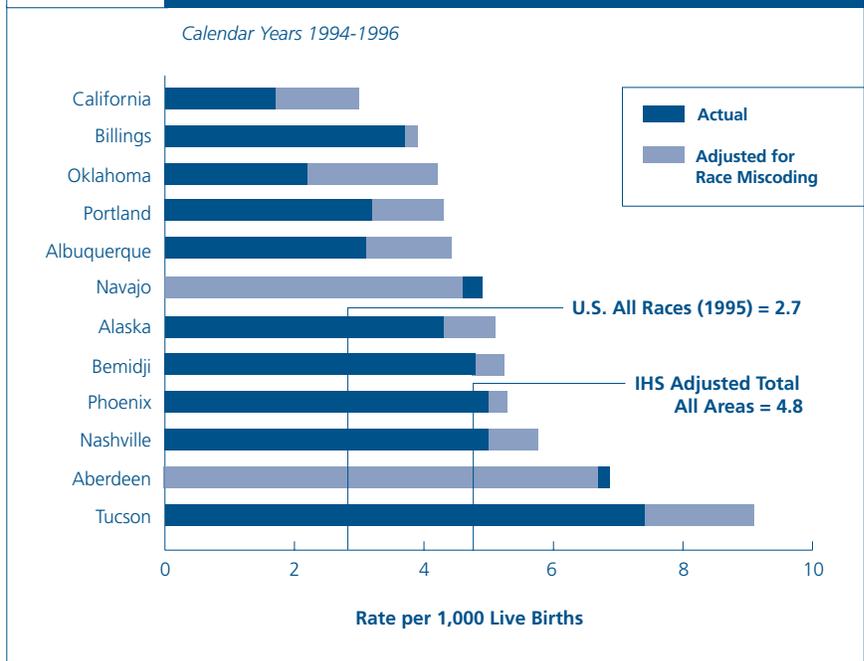


Table 3.13

Postneonatal Mortality Rates (28 Days to Under 1 Year)

Calendar Years 1994-96

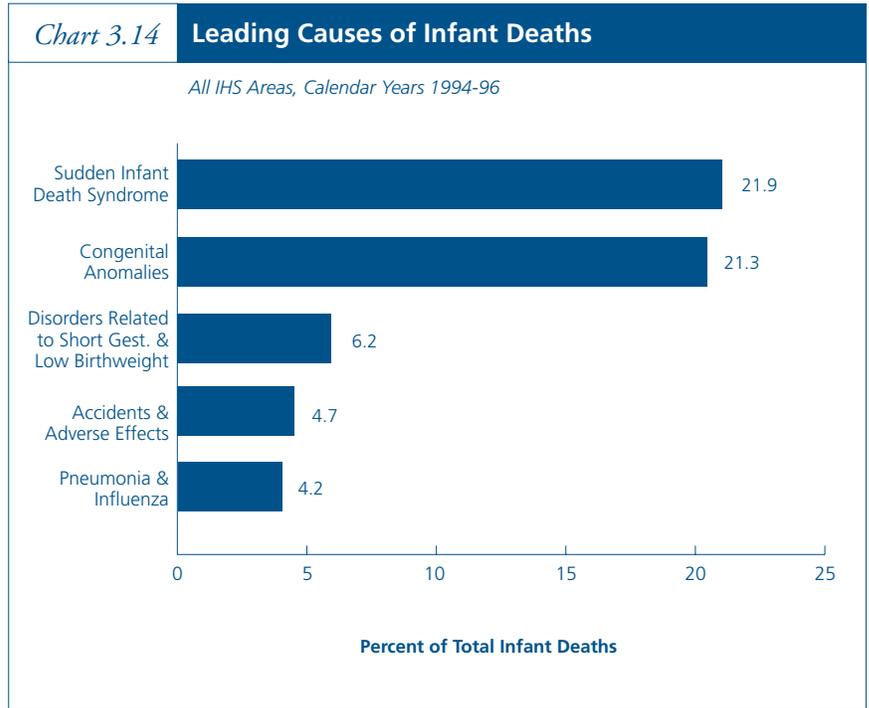
	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	3,899,589	10,271		2.7	
All IHS Areas	99,023	393	473	4.0	4.8
Aberdeen	7,924	54 <sup>3</sup>	53 <sup>3</sup>	6.8 <sup>3</sup>	6.7 <sup>3</sup>
Alaska	7,840	34	40	4.3	5.1
Albuquerque	5,151	16	23	3.1	4.5
Bemidji	5,865	28	31	4.8	5.3
Billings	4,066	15	16	3.7	3.9
California	8,208	14	25	1.7	3.0
Nashville	4,627	23	27	5.0	5.8
Navajo	14,091	69 <sup>3</sup>	65 <sup>3</sup>	4.9 <sup>3</sup>	4.6 <sup>3</sup>
Oklahoma	18,759	42	78	2.2	4.2
Phoenix	10,235	51	54	5.0	5.3
Portland	10,494	34	45	3.2	4.3
Tucson	1,763	13	16	7.4	9.1

<sup>1</sup> Rate per 1,000 live births.

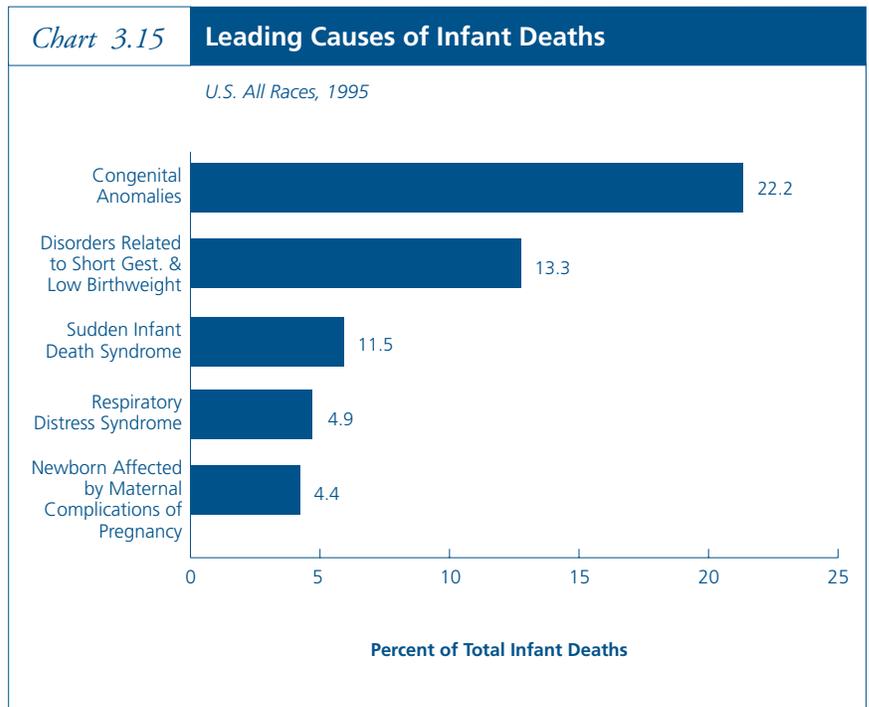
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

<sup>3</sup> The adjusted numbers and rates for postneonatal deaths for Aberdeen and Navajo Areas are lower than the unadjusted numbers and rates because the linked birth/infant death file (used to obtain the adjusted counts for postneonatal deaths) had 1 less death for Aberdeen Area and 4 less deaths for Navajo Area than did the actual mortality file for each respective Area (1994-96 data).

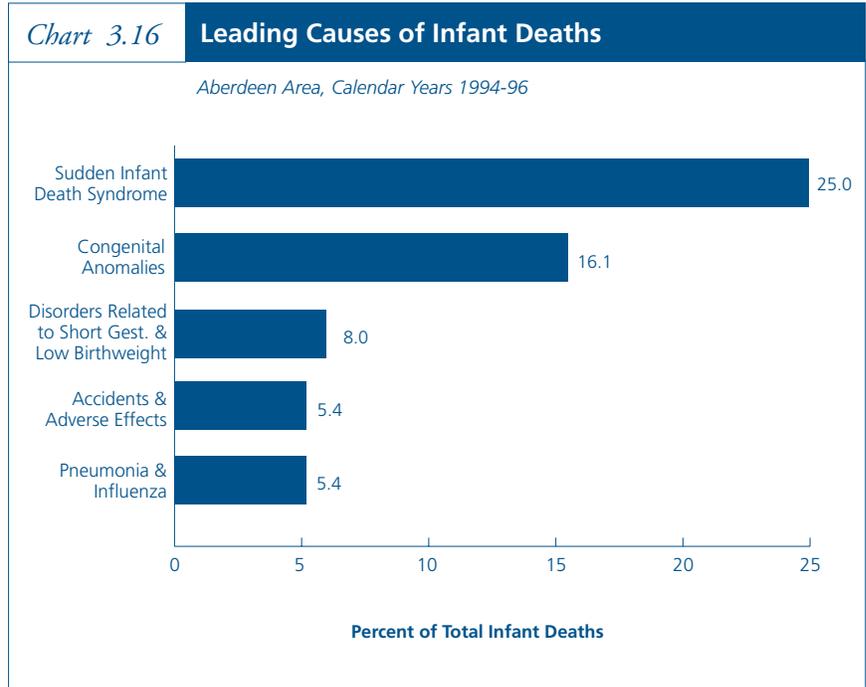
In 1994-96, 21.9 percent of all infant deaths in the IHS service area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 21.3 percent.



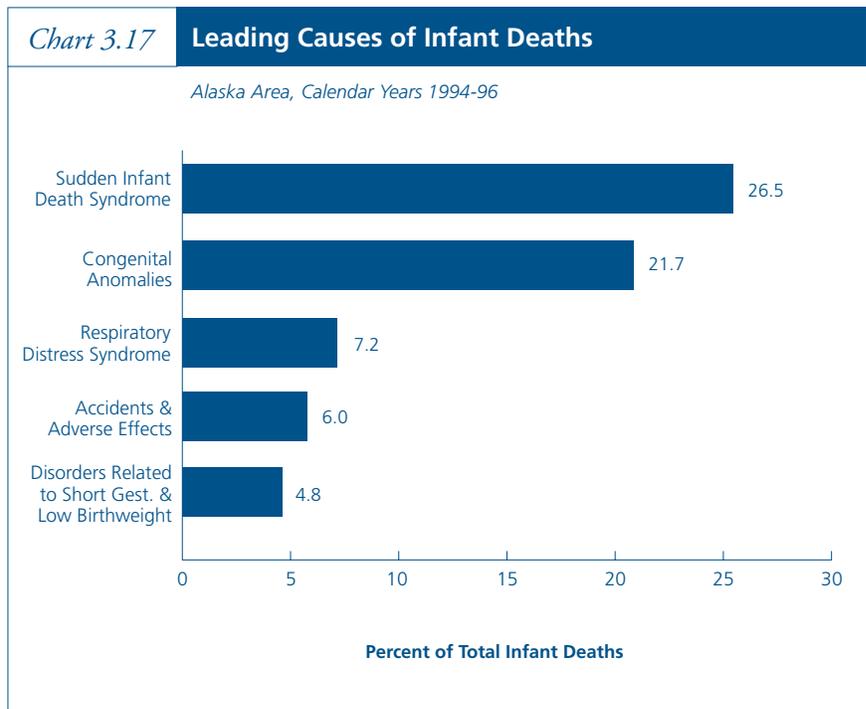
In 1995, 22.2 percent of all infant deaths in the U.S. were caused by congenital anomalies. This was followed by disorders related to short gestation and low birthweight at 13.3 percent.



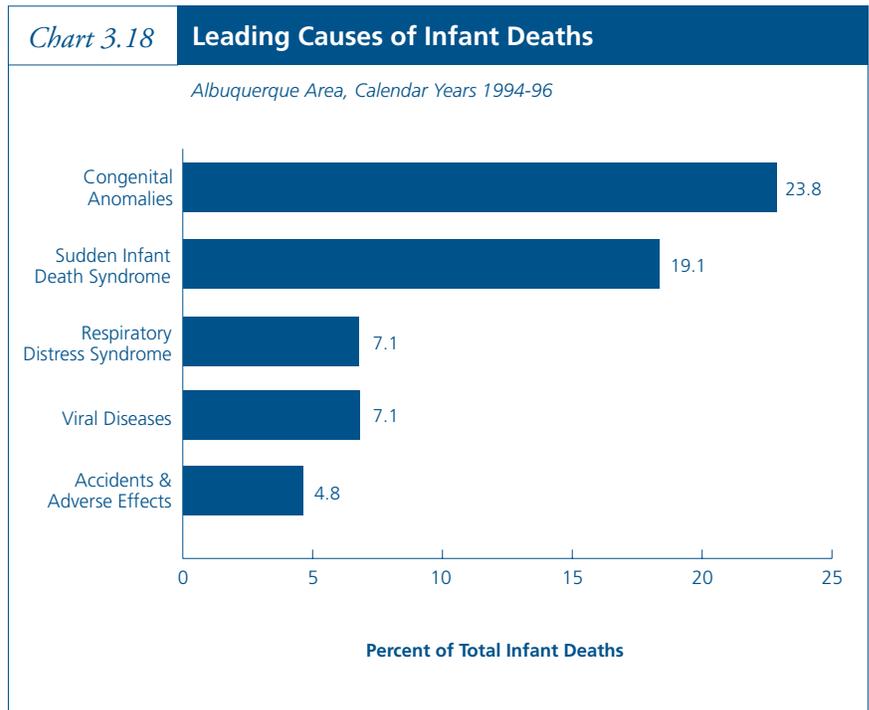
In 1994-96, 25.0 percent of all infant deaths in the Aberdeen Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 16.1 percent.



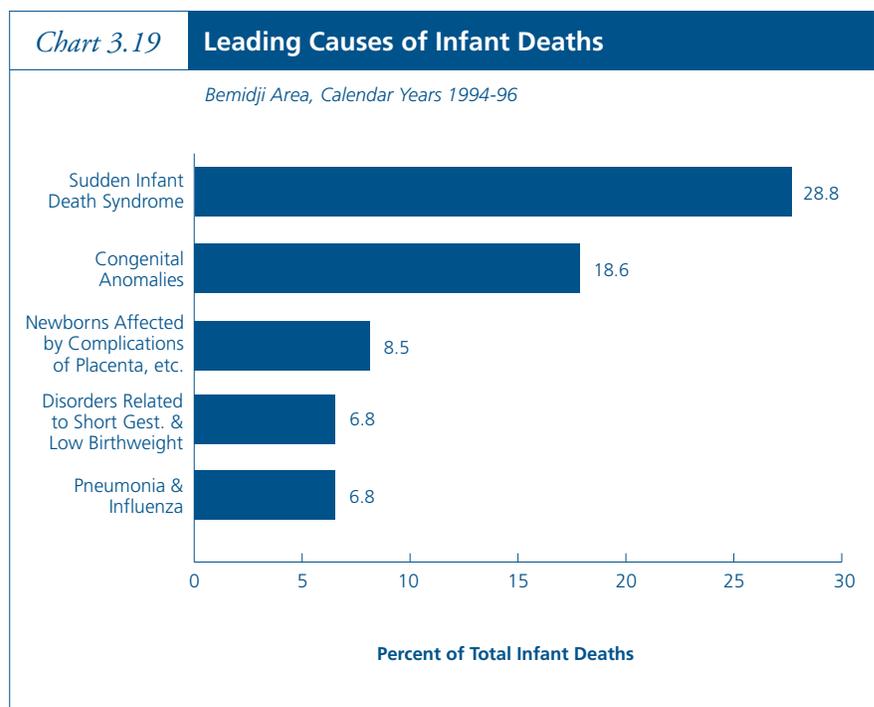
In 1994-96, 26.5 percent of all infant deaths in the Alaska Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 21.7 percent.



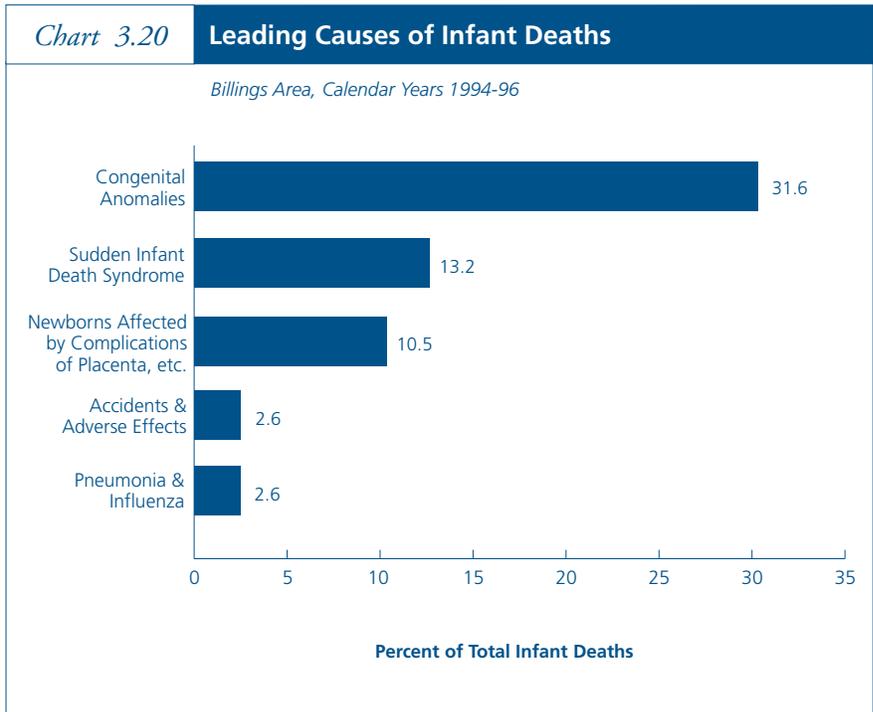
In 1994-96, 23.8 percent of all infant deaths in the Albuquerque Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 19.1 percent.



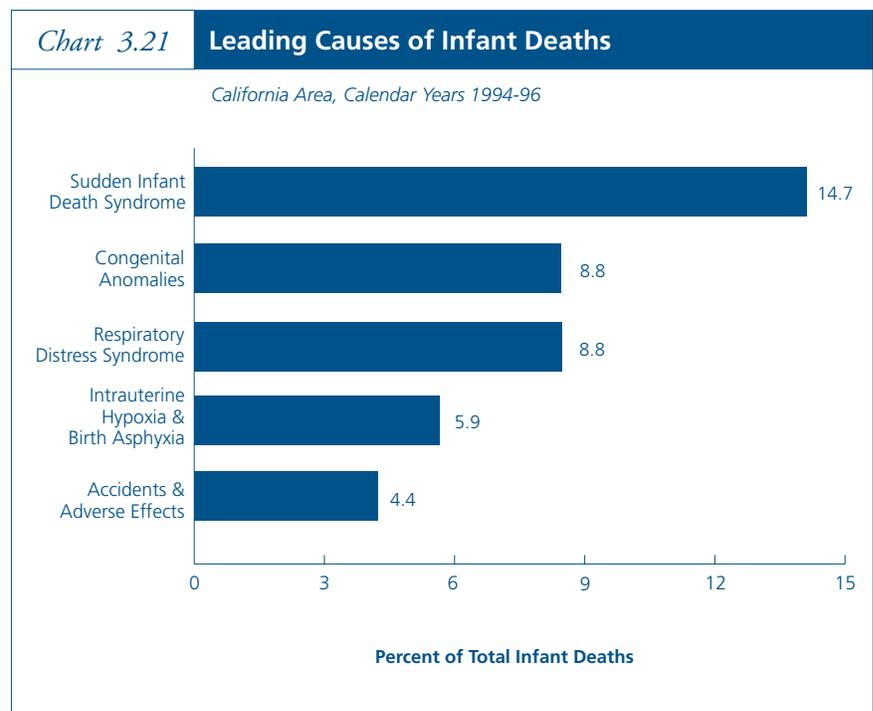
In 1994-96, 28.8 percent of all infant deaths in the Bemidji Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 18.6 percent.



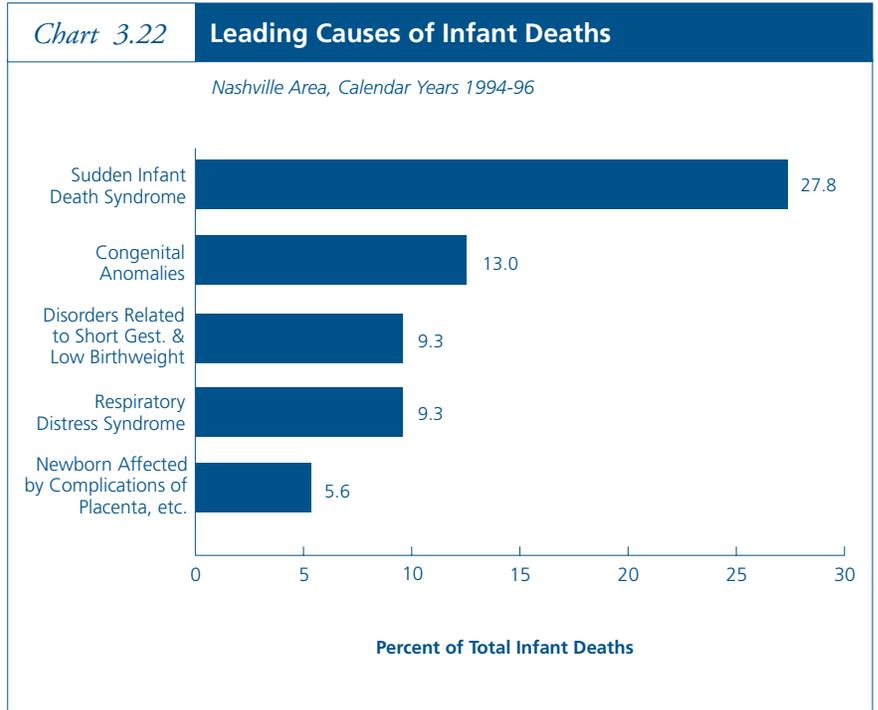
In 1994-96, 31.6 percent of all infant deaths in the Billings Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 13.2 percent and respiratory distress syndrome at 8.8 percent each.



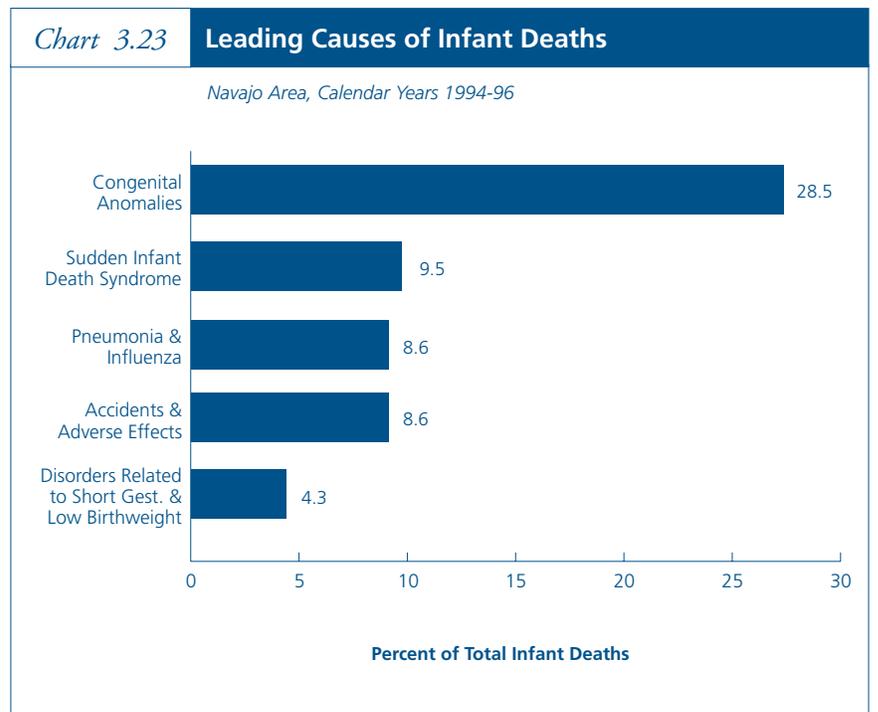
In 1994-96, 14.7 percent of all infant deaths in the California Area were caused by sudden infant death syndrome. This was followed by congenital anomalies and respiratory distress syndrome at 8.8 percent each.



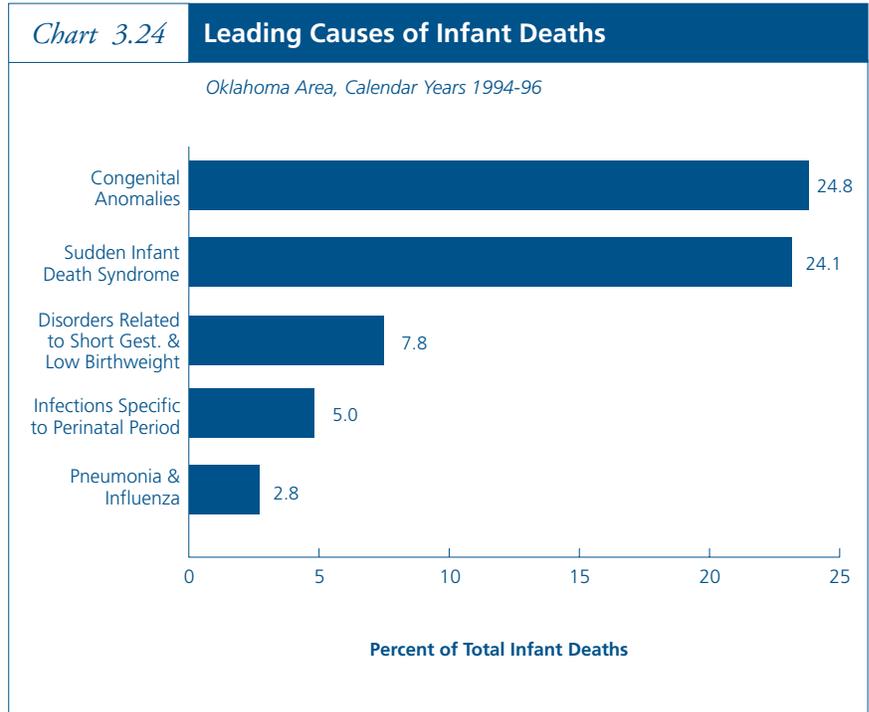
In 1994-96, 27.8 percent of all infant deaths in the Nashville Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 13.0 percent.



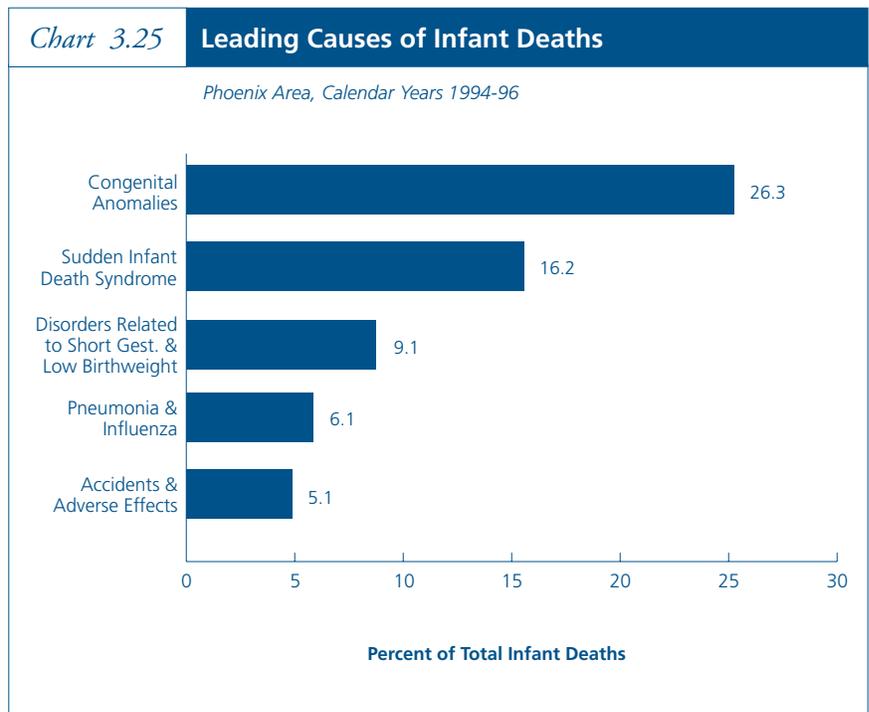
In 1994-96, 28.5 percent of all infant deaths in the Navajo Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 9.5 percent.



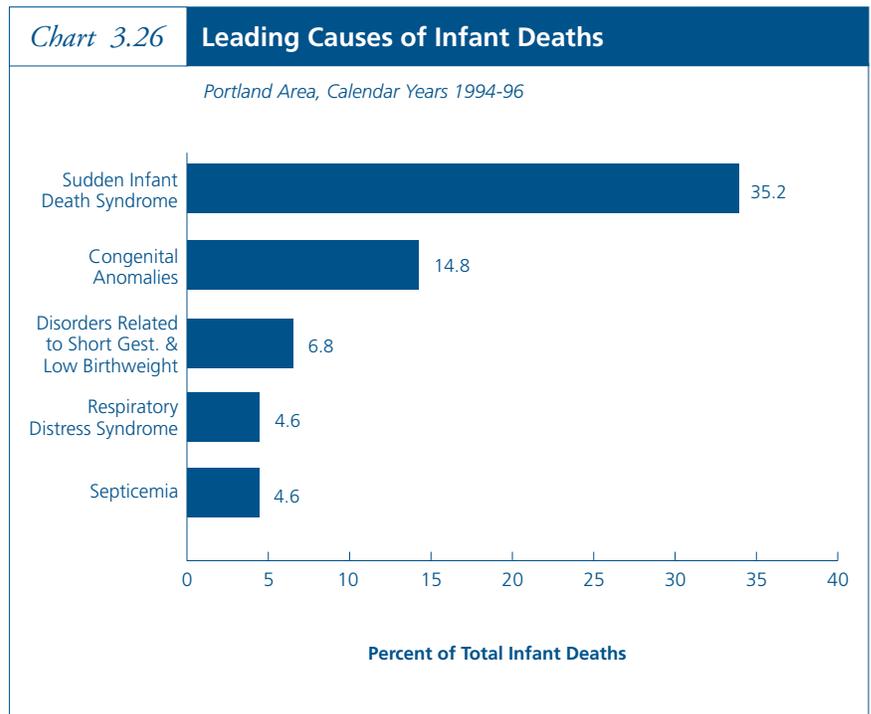
In 1994-96, 24.8 percent of all infant deaths in the Oklahoma Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 24.1 percent.



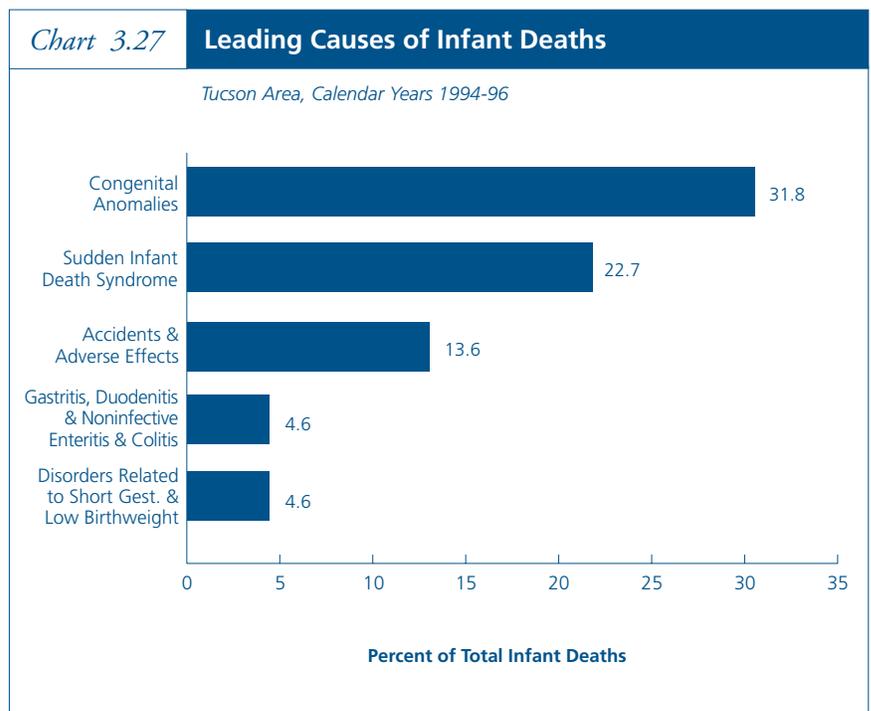
In 1994-96, 26.3 percent of all infant deaths in the Phoenix Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 16.2 percent.



In 1994-96, 35.2 percent of all infant deaths in the Portland Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 14.8 percent.



In 1994-96, 31.8 percent of all infant deaths in the Tucson Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 22.7 percent.



In 1994-96, the mortality rate for sudden infant death syndrome (SIDS) for the IHS service area population was 2.3 times the rate for the U.S. All Races population in 1995, 204.0 compared to 87.1. The Indian rate is adjusted for miscoding of Indian race on death certificates. In the Portland Area, 35.2 percent of infant deaths were caused by SIDS.

Chart 3.28

Sudden Infant Death Syndrome Rates

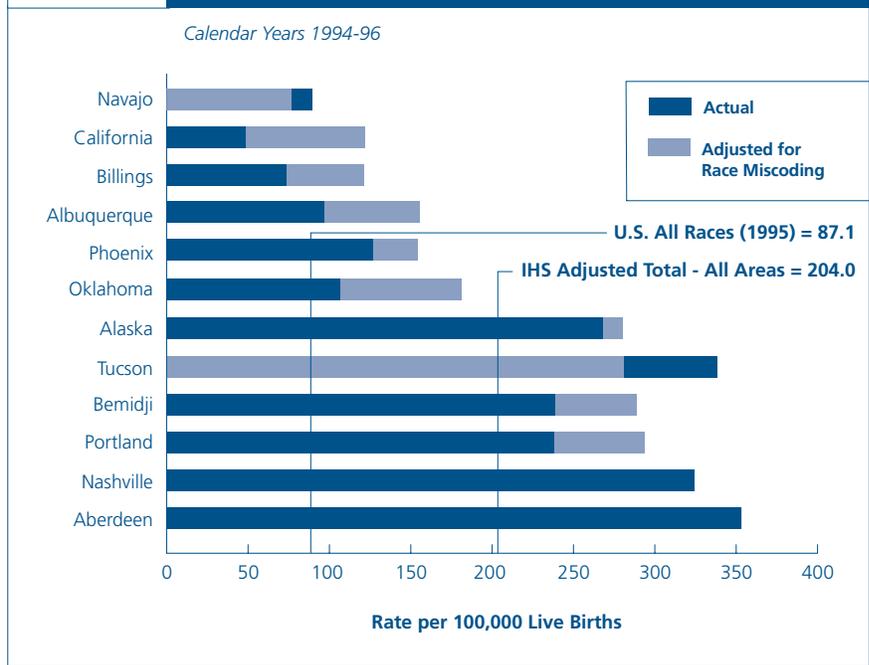


Table 3.28

Sudden Infant Death Syndrome Rates

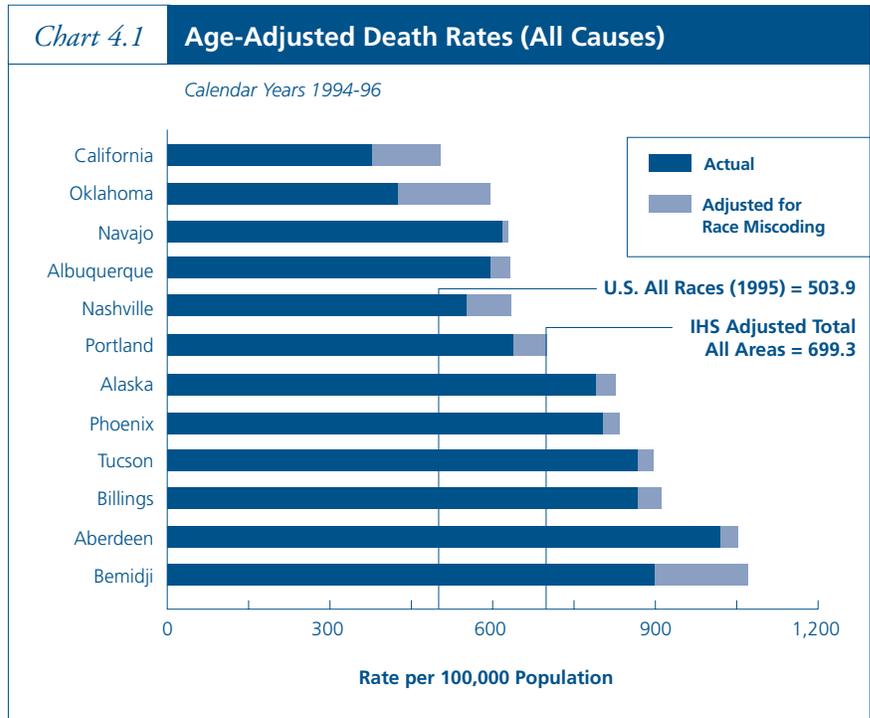
Calendar Years 1994-96

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	3,899,589	3,397		87.1	
All IHS Areas	99,023	166	202	167.6	204.0
Aberdeen	7,924	28	28	353.4	353.4
Alaska	7,840	21	22	267.9	280.6
Albuquerque	5,151	5	8	97.1	155.3
Bemidji	5,865	14	17	238.7	289.9
Billings	4,066	3	5	73.8	123.0
California	8,208	4	10	48.7	121.8
Nashville	4,627	15	15	324.2	324.2
Navajo	14,091	12 <sup>3</sup>	11 <sup>3</sup>	85.2 <sup>3</sup>	78.1 <sup>3</sup>
Oklahoma	18,759	20	34	106.6	181.2
Phoenix	10,235	13	16	127.0	156.3
Portland	10,494	25	31	238.2	295.4
Tucson	1,763	6 <sup>3</sup>	5 <sup>3</sup>	340.3 <sup>3</sup>	283.6 <sup>3</sup>

<sup>1</sup> Rate per 100,000 live births.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.  
<sup>3</sup> The adjusted numbers and rates (Navajo and Tucson Areas) are lower than the unadjusted numbers and rates because the linked birth/infant death file (used to obtain the adjusted counts for infant deaths) had 1 less death for this cause than did the actual mortality file for each respective IHS area (1994-96 data).

## Part 4: General Mortality Statistics

In 1994-96, the age-adjusted death rate (all causes) for the IHS service area population was 699.3. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 39 percent higher than the U.S. All Races rate of 503.9 for 1995. The Bemidji (1,074.4) and Aberdeen (1,048.7) rates are more than double the U.S. rate.



**Table 4.1 Age-Adjusted Death Rates (All Causes)**

Calendar Years 1994-96

	Deaths <sup>1</sup>		Rate <sup>2</sup>	
	Actual	Adj <sup>3</sup>	Actual	Adj <sup>3</sup>
U.S. All Races (1995)	2,312,132		503.9	
All IHS Areas	22,143	25,304	609.8	699.3
Aberdeen	2,086	2,139	1,021.5	1,048.7
Alaska	1,765	1,865	739.3	781.5
Albuquerque	1,170	1,237	594.8	630.2
Bemidji	1,665	1,982	900.8	1,074.4
Billings	1,046	1,110	867.2	923.0
California	1,117	1,624	346.8	505.1
Nashville	1,081	1,238	556.4	635.6
Navajo	3,277	3,310	617.0	625.1
Oklahoma	3,835	5,336	412.2	587.1
Phoenix	2,337	2,443	754.4	790.7
Portland	2,178	2,416	640.6	707.8
Tucson	586	604	864.2	891.1

<sup>1</sup> Includes deaths with age not reported (12 deaths IHS-wide; Albuquerque-2 deaths, Billings-1 death, California-1 death, Nashville-1 death, Navajo-2 deaths, Oklahoma-2 deaths, Phoenix-1 death, and Tucson-3 deaths).

<sup>2</sup> Age-adjusted rate per 100,000 population.

<sup>3</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the years of potential life lost rate (all causes) for the IHS service area population was 91.5. This is the rate adjusted for miscoding of Indian race on death certificates. This is 70 percent greater than the U.S. All Races rate of 53.7 for 1995. Each IHS Area has a rate greater than the U.S. All Races rate. The lowest Area rate (California, 64.6) is 20 percent greater than the U.S. rate, while the highest Area rate (Aberdeen, 127.6) is 2.4 times the U.S. rate.

Chart 4.2

**Years of Potential Life Lost Rates (All Causes)**

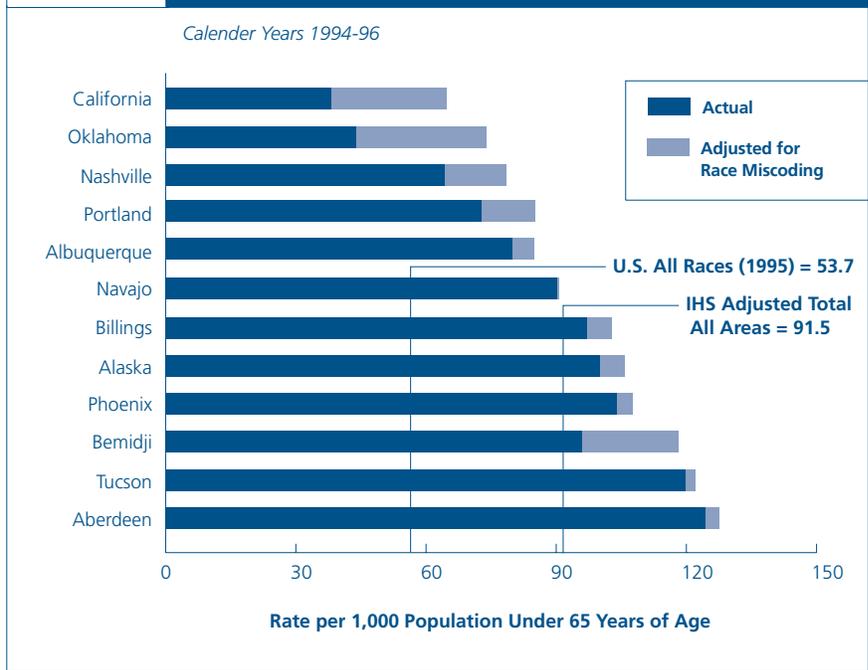


Table 4.2

**Years of Potential Life Lost (YPLL) Rates (All Causes)**

Calendar Years 1994-96

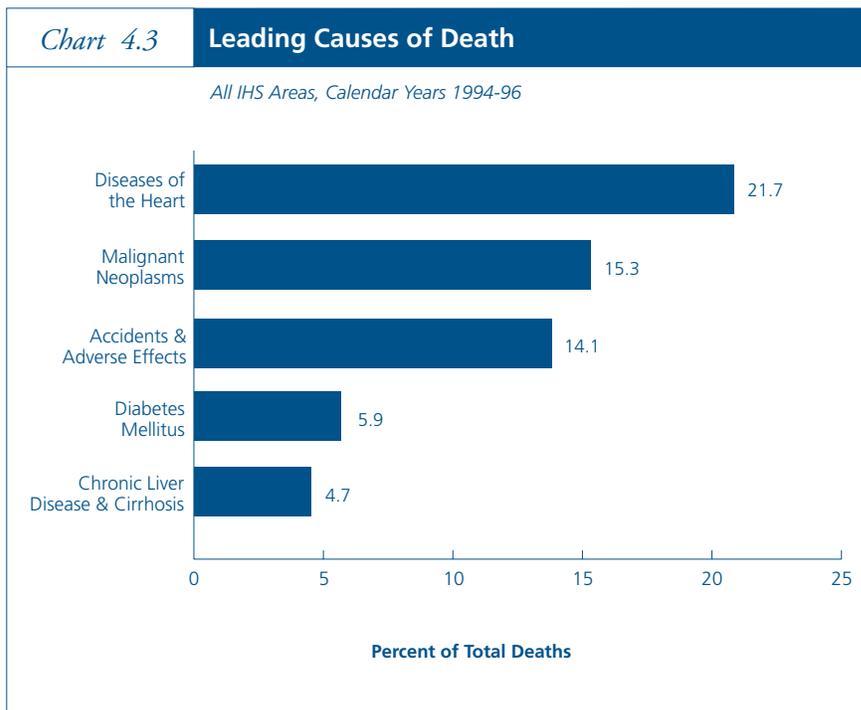
	Number of YPLL <sup>1</sup>		Rate <sup>2</sup>	
	Actual	Adj <sup>3</sup>	Actual	Adj <sup>3</sup>
U.S. All Races (1995)	12,310,582		53.7	
All IHS Areas	302,372	354,248	78.1	91.5
Aberdeen	31,879	32,676	124.5	127.6
Alaska	27,925	29,759	100.2	106.8
Albuquerque	16,938	18,294	79.8	86.2
Bemidji	20,017	24,796	95.9	118.8
Billings	14,632	15,521	97.0	102.9
California	12,864	21,713	38.2	64.6
Nashville	12,752	15,608	64.2	78.6
Navajo	51,999	52,204	90.3	90.6
Oklahoma	34,766	58,544	44.0	74.0
Phoenix	40,000	41,404	104.1	107.8
Portland	29,540	34,468	72.9	85.1
Tucson	9,060	9,261	119.7	122.4

<sup>1</sup> Years of Potential Life Lost (YPLL) is a mortality indicator that measures the burden of premature deaths. It is calculated by subtracting the age at death from age 65 and summing the result over all deaths. This calculation was performed through the use of age groups Under 1, 1 to 4 and 5-year age groups through 60 to 64. The age at death was calculated based upon the midpoint of each of these age groups.

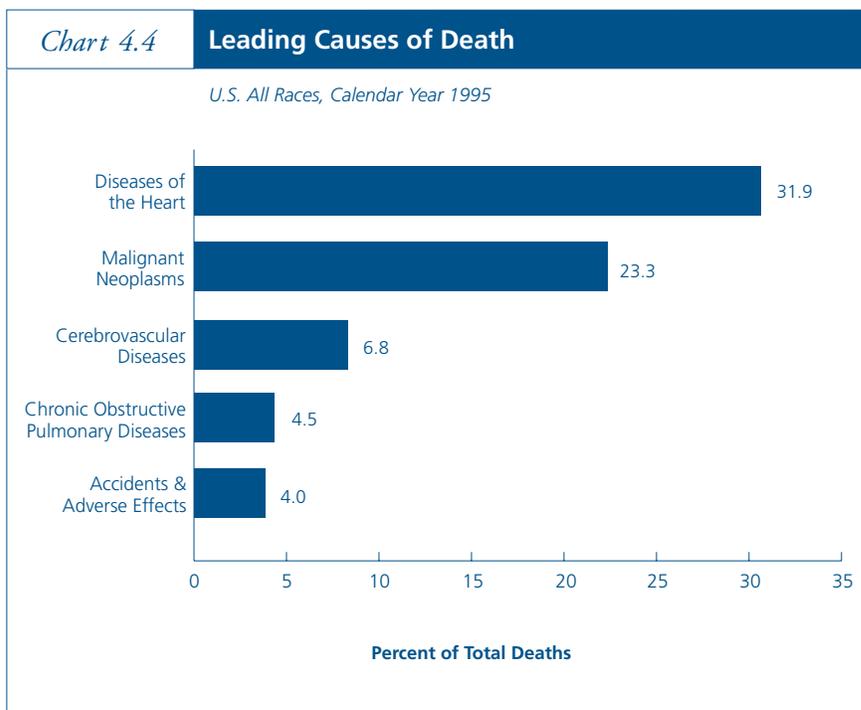
<sup>2</sup> Rate per 1,000 population under 65 years of age.

<sup>3</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

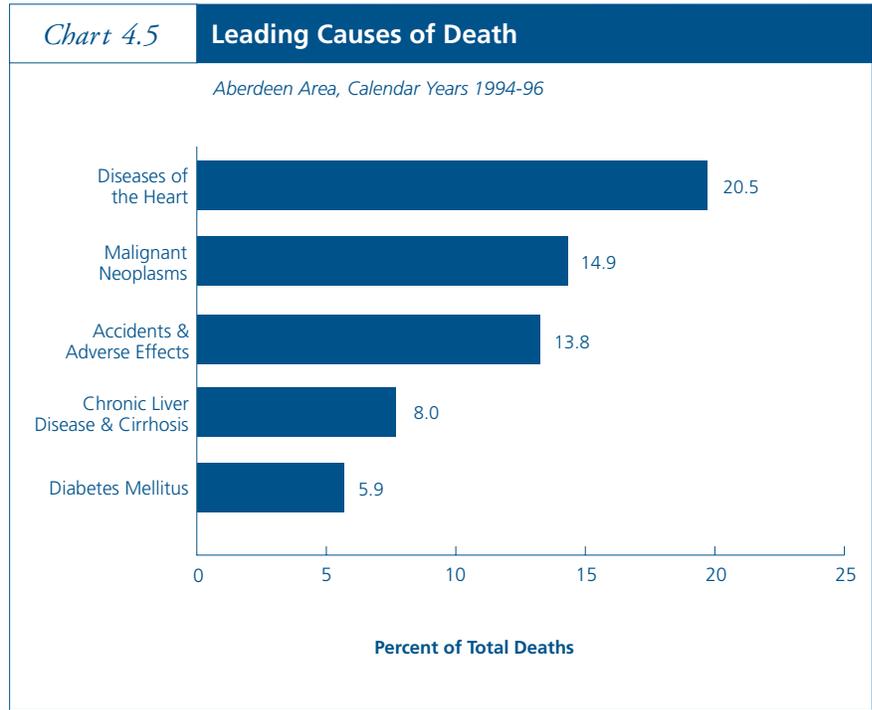
In 1994-96, 21.7 percent of all deaths in the IHS service area were caused by diseases of the heart. This was followed by malignant neoplasms at 15.3 percent.



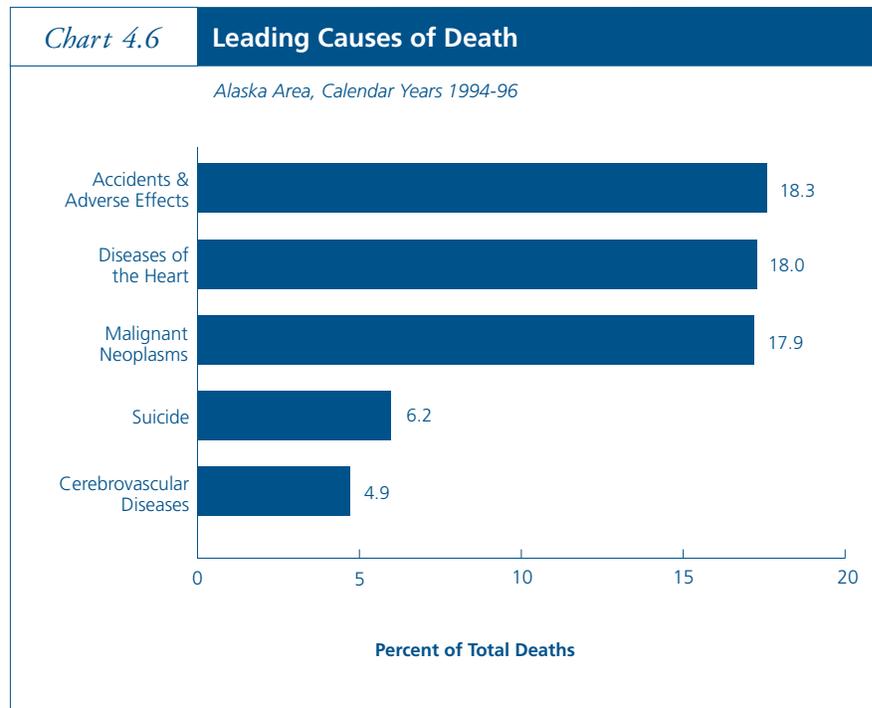
In 1995, 31.9 percent of all deaths in the U.S. were caused by diseases of the heart. This was followed by malignant neoplasms at 23.3 percent.



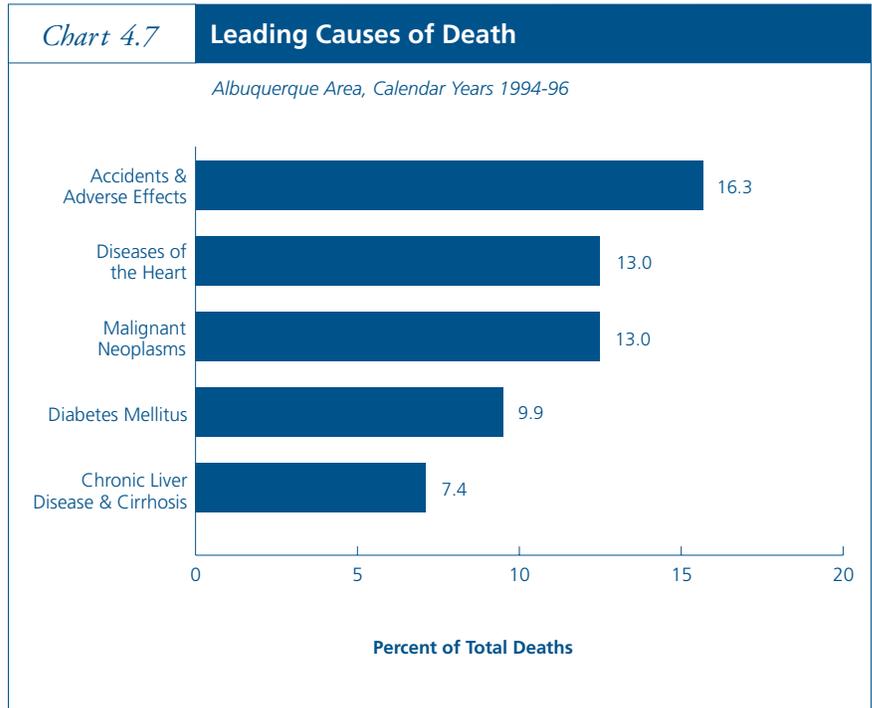
In 1994-96, 20.5 percent of all deaths in the Aberdeen Area were caused by diseases of the heart. This was followed by malignant neoplasms at 14.9 percent.



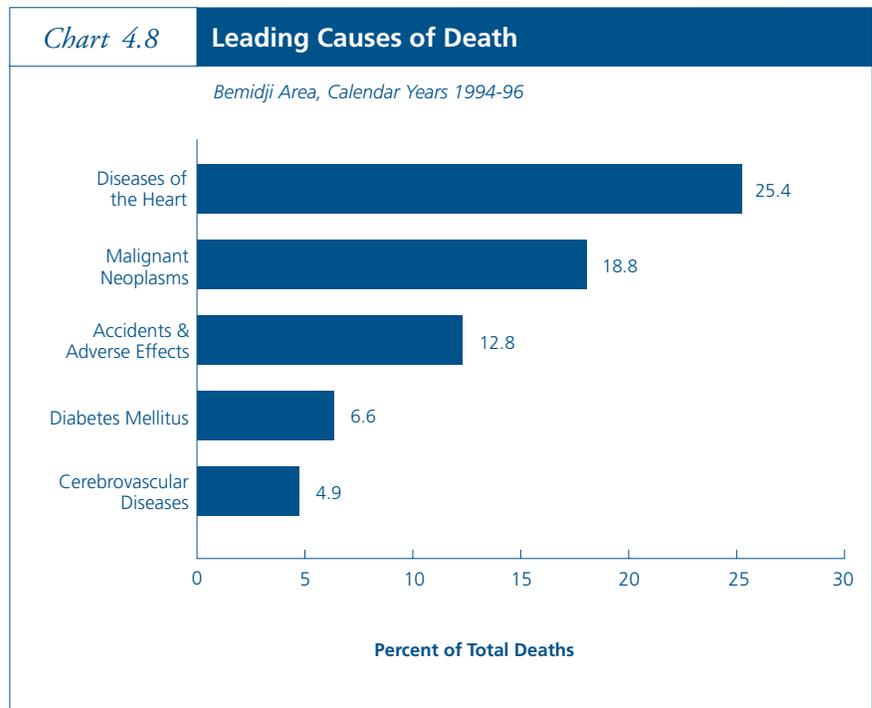
In 1994-96, 18.3 percent of all deaths in the Alaska Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 18.0 percent.



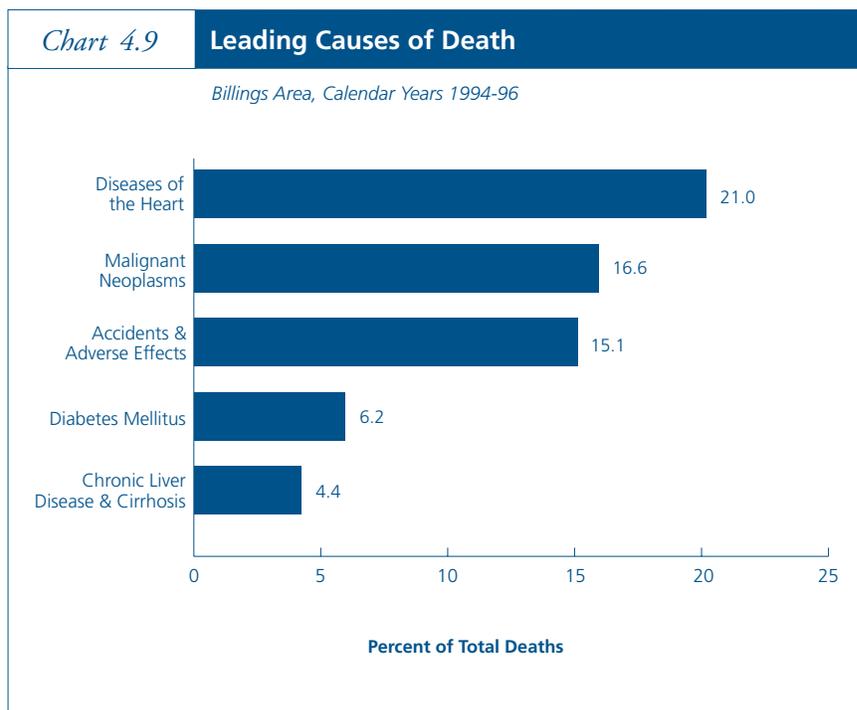
In 1994-96, 16.3 percent of all deaths in the Albuquerque Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 13.0 percent.



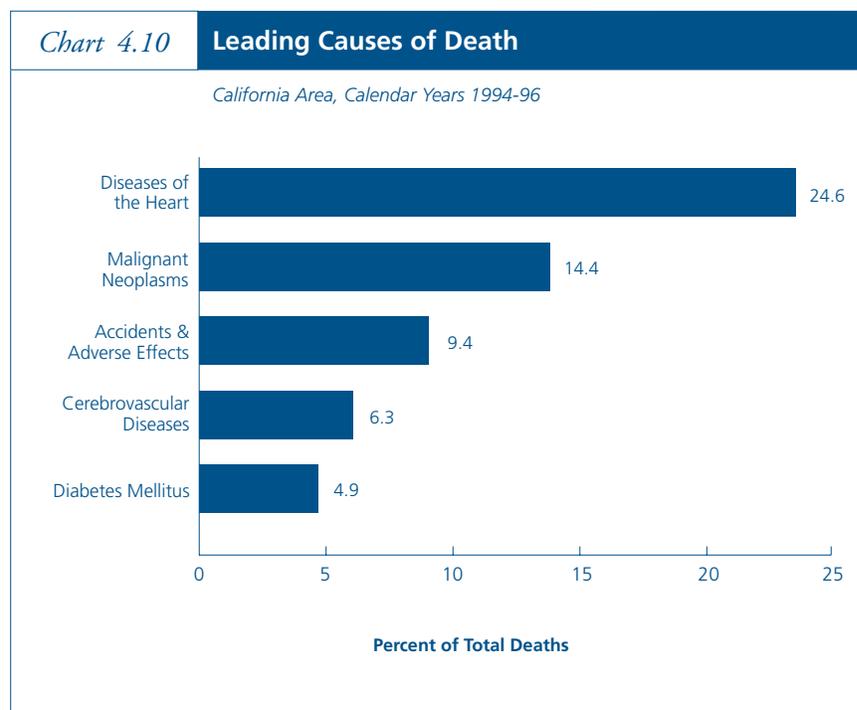
In 1994-96, 25.4 percent of all deaths in the Bemidji Area were caused by diseases of the heart. This was followed by malignant neoplasms at 18.8 percent.



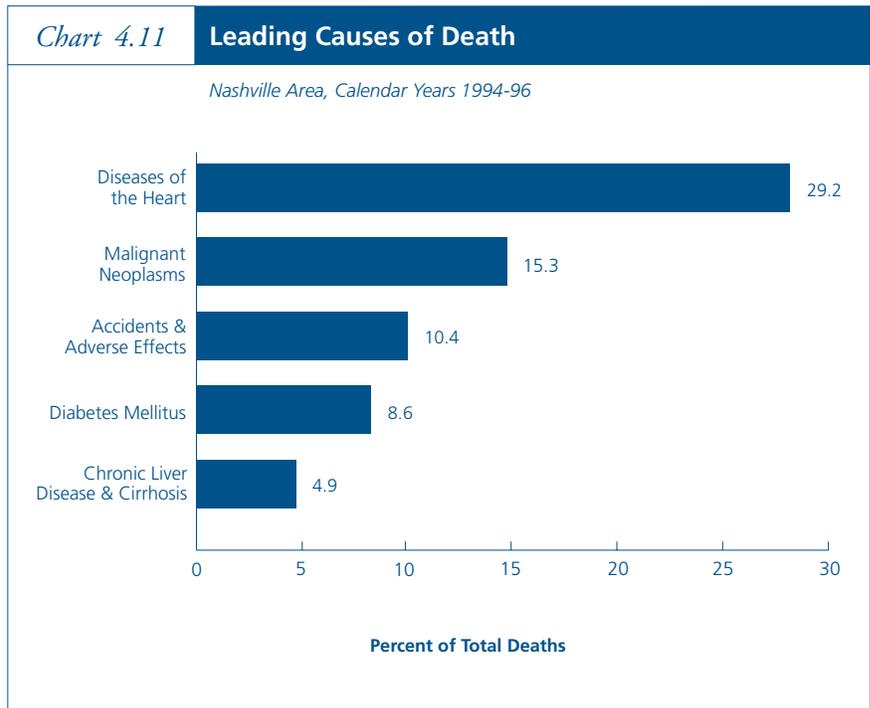
In 1994-96, 21.0 percent of all deaths in the Billings Area were caused by diseases of the heart. This was followed by malignant neoplasms at 16.6 percent.



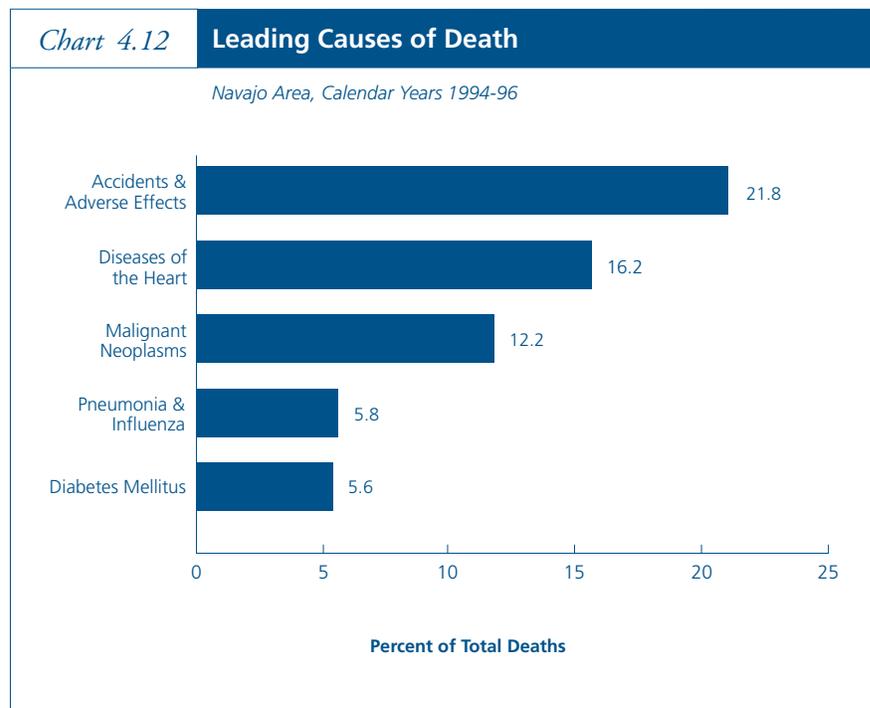
In 1994-96, 24.6 percent of all deaths in the California Area were caused by diseases of the heart. This was followed by malignant neoplasms at 14.4 percent.



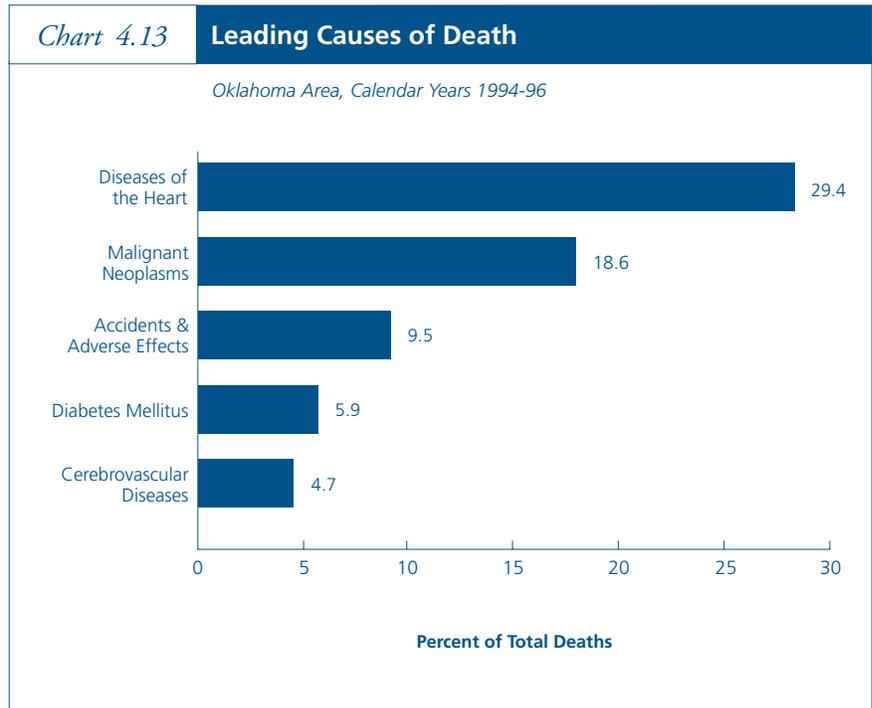
In 1994-96, 29.2 percent of all deaths in the Nashville Area were caused by diseases of the heart. This was followed by malignant neoplasms at 15.3 percent.



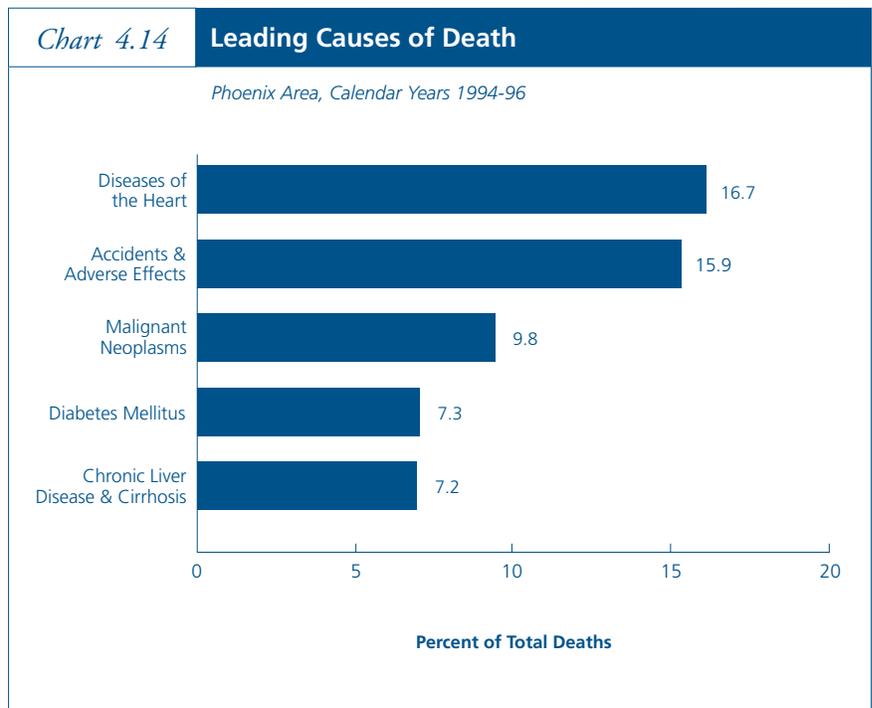
In 1994-96, 21.8 percent of all deaths in the Navajo Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 16.2 percent.



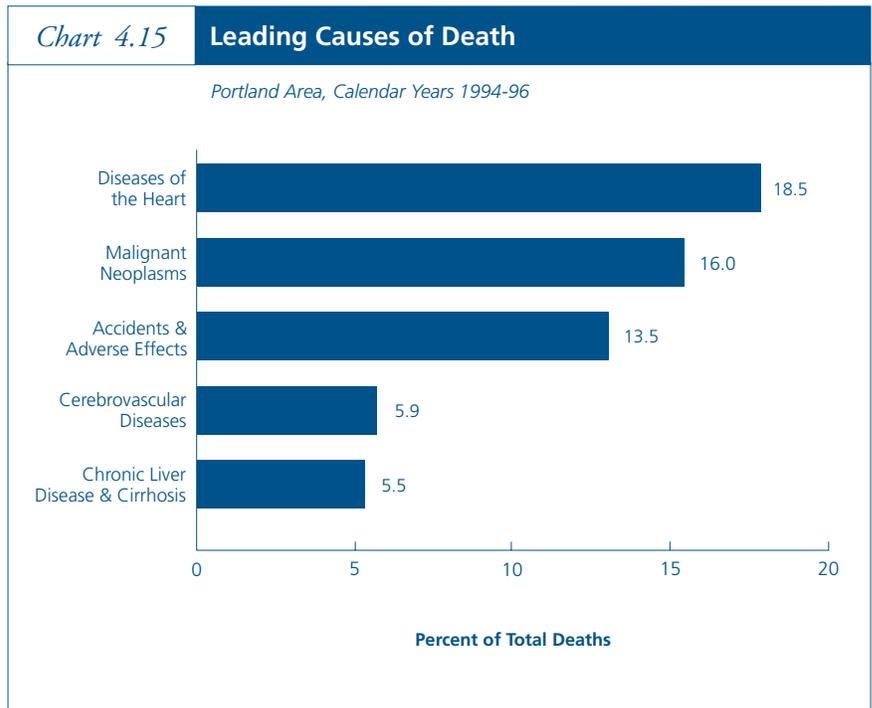
In 1994-96, 29.4 percent of all deaths in the Oklahoma Area were caused by diseases of the heart. This was followed by malignant neoplasms at 18.6 percent.



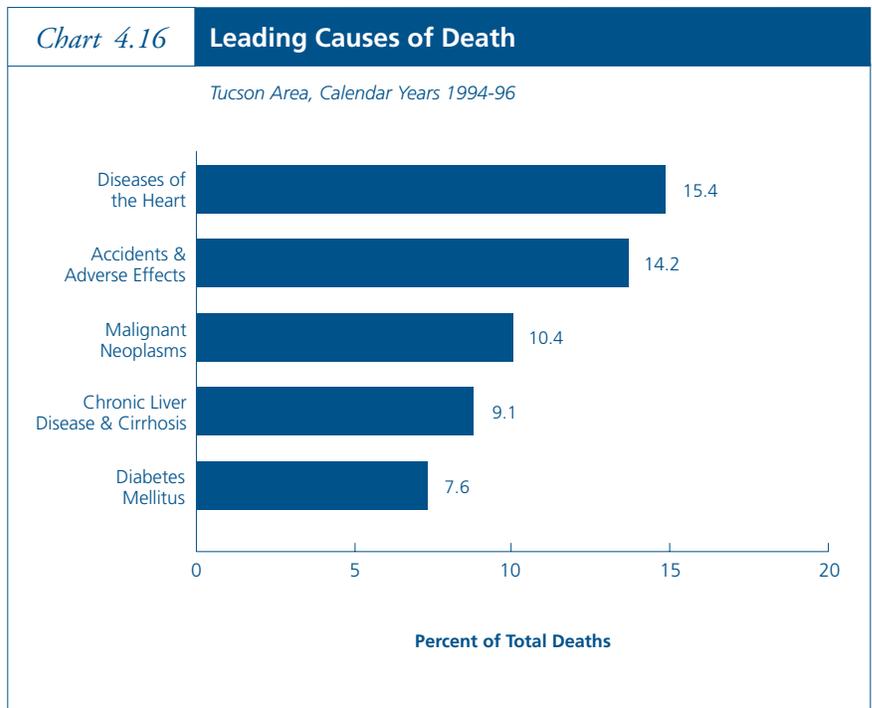
In 1994-96, 16.7 percent of all deaths in the Phoenix Area were caused by diseases of the heart. This was followed by accidents and adverse effects at 15.9 percent.



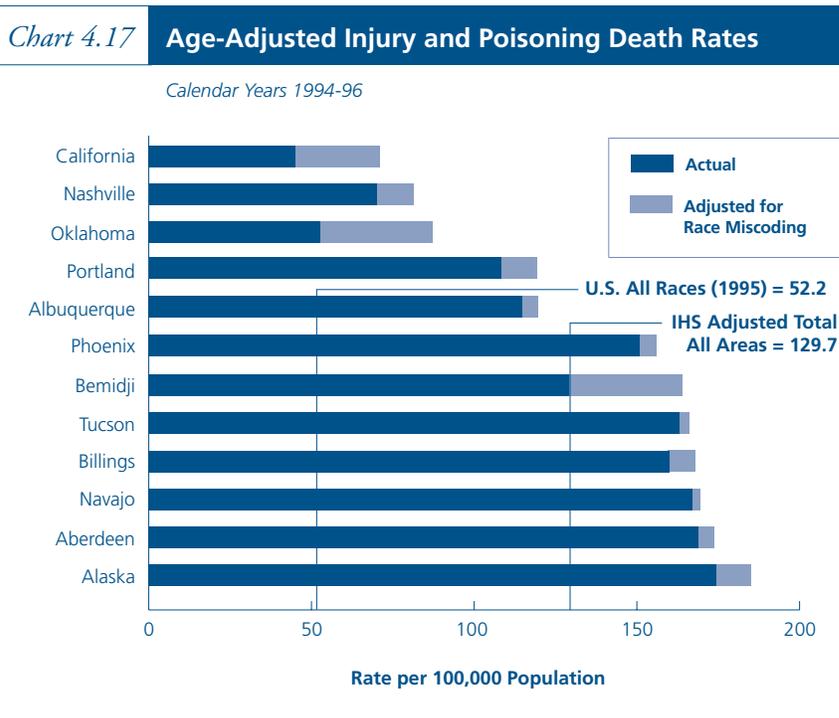
In 1994-96, 18.5 percent of all deaths in the Portland Area were caused by diseases of the heart. This was followed by malignant neoplasms at 16.0 percent.



In 1994-96, 15.4 percent of all deaths in the Tucson Area were caused by diseases of the heart. This was followed by accidents and adverse effects at 14.2 percent.



In 1994-96, the age-adjusted injury and poisoning death rate for the IHS service area population was 129.7. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 2.5 times the U.S. All Races rate of 52.2 for 1995. The Alaska Area rate (185.1), which is the highest among the Areas, is 3.5 times the U.S. rate. The California Area rate (70.9), which is the lowest, is still 1.4 times the U.S. rate.



**Table 4.17 Age-Adjusted Injury and Poisoning<sup>1</sup> Death Rates**

Calendar Years 1994-96

	Deaths <sup>2</sup>		Rate <sup>3</sup>	
	Actual	Adj <sup>4</sup>	Actual	Adj <sup>4</sup>
U.S. All Races (1995)	150,809		52.2	
All IHS Areas	4,384	5,020	113.6	129.7
Aberdeen	401	413	169.0	174.0
Alaska	469	498	174.4	185.1
Albuquerque	252	266	114.8	120.6
Bemidji	268	342	129.1	164.1
Billings	227	239	160.1	168.4
California	158	249	45.0	70.9
Nashville	143	168	70.0	81.5
Navajo	908	924	167.0	170.2
Oklahoma	426	716	52.6	87.8
Phoenix	565	586	150.8	156.1
Portland	444	494	108.2	119.5
Tucson	123	125	164.0	166.1

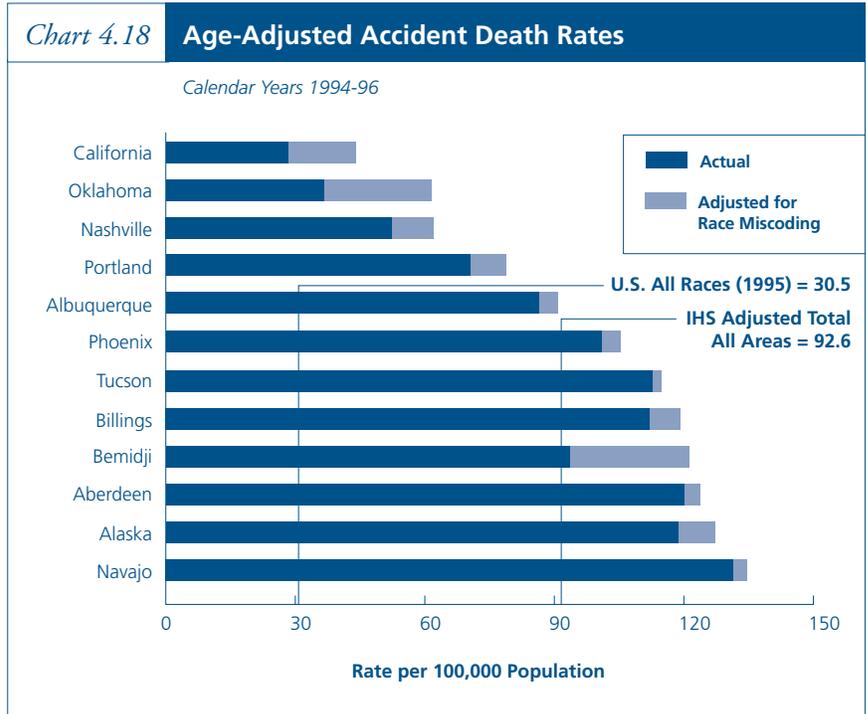
<sup>1</sup> Includes the following ICD-9 cause of death groups combined: Motor vehicle accidents-E810-E825. Other accidents-E800-E807, E826-E949. Suicide-E950-E959. Homicide-E960-E978. Injury undetermined whether accidentally or purposely inflicted-E980-E989. Injury resulting from operations of war-E990-E999.

<sup>2</sup> Includes deaths with age not reported. For IHS, includes Navajo-1 death, Oklahoma-1 death, Phoenix-1 death, and Tucson-2 deaths.

<sup>3</sup> Age-adjusted rate per 100,000 population.

<sup>4</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted accident death rate for the IHS service area population was 92.6. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 204 percent higher than the U.S. All Races rate of 30.5 for 1995. The California Area has the lowest rate among the IHS Areas (44.1), but it is still 45 percent greater than the U.S. rate. The highest Area rate (Navajo, 134.6) is 4.4 times the U.S. rate.



**Table 4.18 Age-Adjusted Accident Death Rates**

Calendar Years 1994-96

	All Accidents				Motor Vehicle Accidents			Other Accidents	
	Deaths		Rate <sup>1</sup>		Totals		Percent of Motor Vehicle Accident Deaths <sup>3</sup>	Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>		Actual	Adj <sup>2</sup>
U.S. All Races (1995)	93,320		30.5		16.3			14.2	
All IHS Areas	3,093	3,565	80.6	92.6	45.9	54.0	22.7%	34.7	38.6
Aberdeen	284	295	120.0	124.4	67.9	71.9	17.8%	52.1	52.5
Alaska	318	341	118.7	127.4	27.0	27.7	22.4%	91.7	99.6
Albuquerque	190	202	86.4	91.4	57.1	62.1	30.0%	29.3	29.3
Bemidji	194	253	93.5	121.5	60.6	83.1	17.7%	32.9	38.4
Billings	156	167	112.1	119.8	67.5	74.9	16.3%	44.6	44.9
California	98	153	28.3	44.1	14.8	23.7	19.0%	13.5	20.5
Nashville	107	129	52.4	62.6	33.5	42.0	20.9%	18.9	20.6
Navajo	706	722	131.4	134.6	83.3	85.8	30.7%	48.1	48.8
Oklahoma	298	504	36.6	61.6	22.5	39.0	17.1%	14.1	22.6
Phoenix	370	388	100.9	105.5	61.5	65.1	25.5%	39.3	40.4
Portland	288	325	70.5	79.0	37.3	42.7	18.5%	33.3	36.2
Tucson	84	86	112.8	114.9	68.2	68.2	21.6%	44.6	46.7

<sup>1</sup> Age-adjusted rate per 100,000 population.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

<sup>3</sup> Includes Motor vehicle accidents having ICD-9 codes E810-E825 with a fourth digit code .7. The fourth digit code .7 indicates a pedestrian was the subject decedent as a result of the motor vehicle accident. Percents are based upon adjusted numbers of deaths.

In 1994-96, the age-adjusted suicide death rate for the IHS service area population was 19.3. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 72 percent higher than the U.S. All Races rate of 11.2 for 1995. The Alaska rate (41.9) is 3.7 times the U.S. rate and four Area rates (Aberdeen, Billings, Phoenix, and Portland) are at least double the U.S. rate.

Chart 4.19

Age-Adjusted Suicide Death Rates

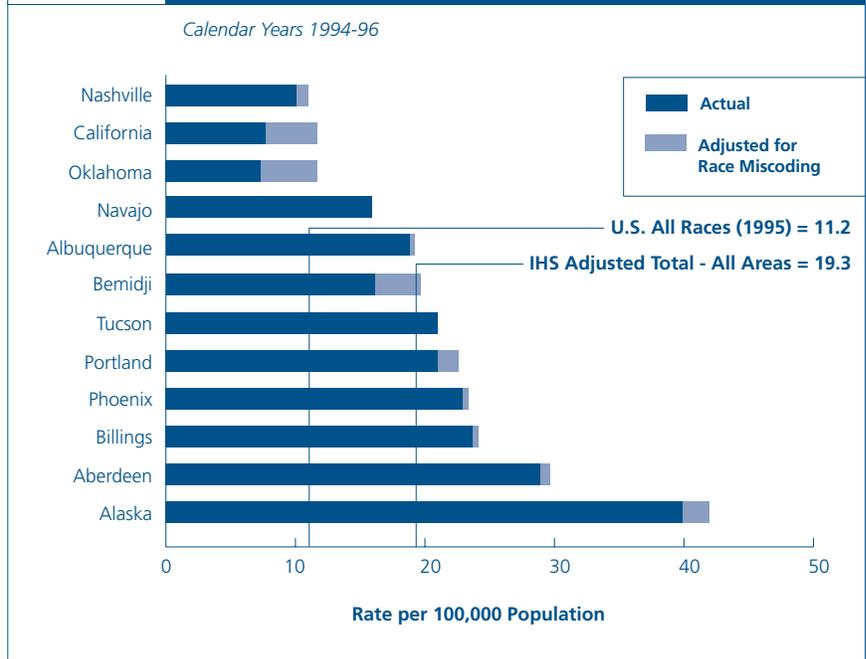


Table 4.19

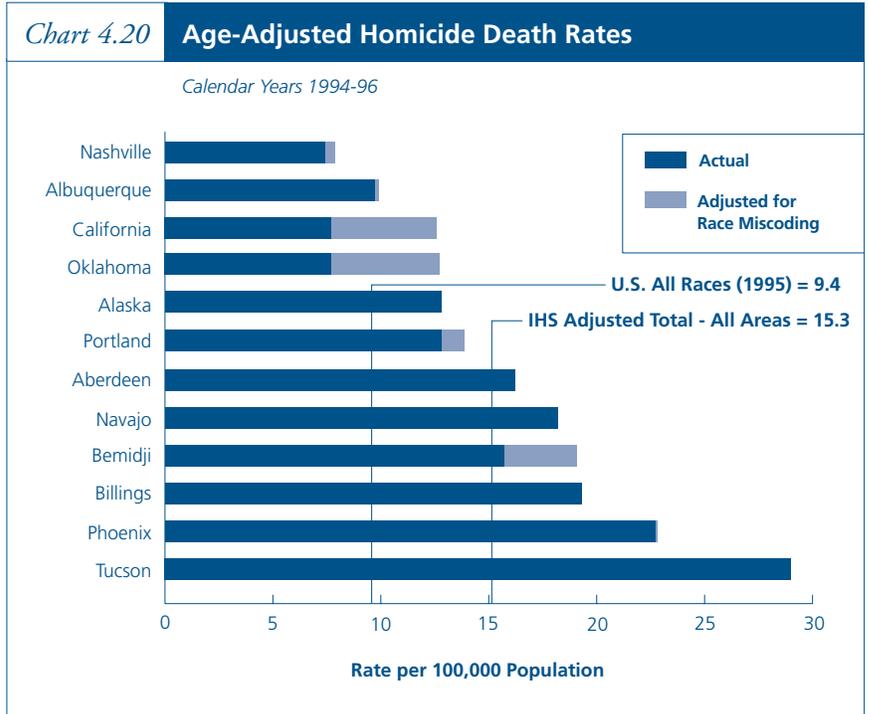
Age-Adjusted Suicide Death Rates

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	31,284		11.2	
All IHS Areas	672	753	17.3	19.3
Aberdeen	67	69	28.9	29.7
Alaska	110	116	39.9	41.9
Albuquerque	40	41	18.8	19.2
Bemidji	34	42	16.1	19.7
Billings	34	35	23.7	24.3
California	27	41	7.7	11.7
Nashville	21	23	10.1	11.0
Navajo	89	89	15.9	15.9
Oklahoma	58	95	7.3	11.9
Phoenix	91	93	22.9	23.4
Portland	85	93	21.0	22.8
Tucson	16	16	21.0	21.0

<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted homicide death rate for the IHS service area population was 15.3. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 63 percent higher than the U.S. All Races rate of 9.4 for 1995. The Tucson rate (29.0) is more than triple the U.S. rate. The Phoenix (22.8), Billings (19.3), and Bemidji (19.1) rates are more than double the U.S. rate, while the Navajo rate (18.2) is nearly double the U.S. rate.



**Table 4.20 Age-Adjusted Homicide Death Rates**

Calendar Years 1994-96

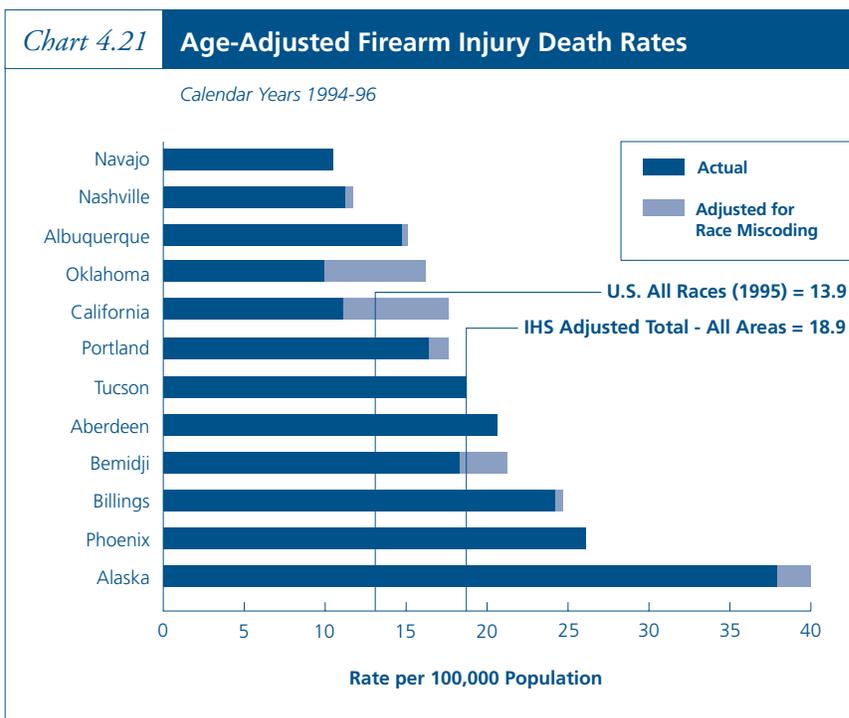
	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	22,895		9.4	
All IHS Areas	535	610	13.5	15.3
Aberdeen	41	41	16.2	16.2
Alaska	33	33	12.8	12.8
Albuquerque	22	23	9.7	9.9
Bemidji	33	40	15.7	19.1
Billings	30	30	19.3	19.3
California	28	46	7.7	12.7
Nashville	15	16	7.4	7.9
Navajo	104	104	18.2	18.2
Oklahoma	62	104	7.7	12.7
Phoenix	91	92	22.7	22.8
Portland	54	59	12.8	13.9
Tucson	22	22	29.0	29.0

<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

**Note:** Includes deaths due to homicide and legal intervention.

In 1994-96 for the IHS service area population, the age-adjusted firearm injury death rate was 18.9. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 1.4 times the U.S. All Races rate of 13.9 for 1995. The Alaska Area rate (40.0) far exceeds the rates of the other Areas. It is 1.5 times the next highest Area rate (Phoenix, 26.1) and 3.8 times the lowest Area rate (Navajo, 10.5).



**Table 4.21 Age-Adjusted Firearm Injury<sup>1</sup> Death Rates**

Calendar Years 1994-96

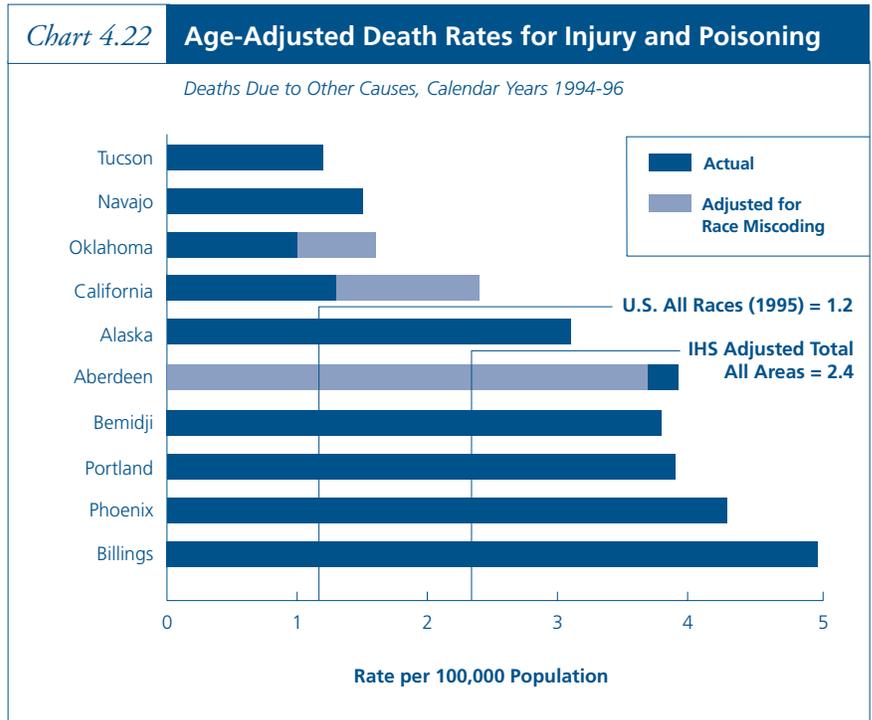
	Deaths		Rate <sup>2</sup>	
	Actual	Adj <sup>3</sup>	Actual	Adj <sup>3</sup>
U.S. All Races (1995)	35,957		13.9	
All IHS Areas	645	739	16.5	18.9
Aberdeen	49	49	20.6	20.6
Alaska	106	112	37.9	40.0
Albuquerque	31	32	14.7	15.1
Bemidji	36	42	18.3	21.3
Billings	35	36	24.2	24.8
California	39	62	11.1	17.6
Nashville	23	24	11.2	11.7
Navajo	62	62	10.5	10.5
Oklahoma	79	130	9.9	16.2
Phoenix	103	103	26.1	26.1
Portland	68	73	16.4	17.6
Tucson <sup>3</sup>	14	14	18.7	18.7

<sup>1</sup> Includes deaths with ICD-9 codes: Accident caused by firearm missile-E922, Suicide and self-inflicted injury by firearms-E955.0-E955.4, Assault by firearms and legal intervention-E965.0-E965.4, E970, and Injury by firearms, undetermined whether accidentally or purposely inflicted-E985.0-E985.4. Injury by firearm causes exclude explosive and other causes indirectly related to firearms.

<sup>2</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>3</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96 for the IHS service area population, the age-adjusted death rate for injury and poisoning deaths due to other causes was 2.4. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is double the U.S. All Races rate of 1.2 for 1995. The Area rates should be interpreted with caution because of the small number of deaths involved.



**Table 4.22 Age-Adjusted Death Rates for Injury and Poisoning Deaths Due to Other Causes <sup>1</sup>**

*Calendar Years 1994-96*

	Deaths		Rate <sup>2</sup>	
	Actual	Adj <sup>3</sup>	Actual	Adj <sup>3</sup>
U.S. All Races (1995)	3,310		1.2	
All IHS Areas	84	92	2.2	2.4
Aberdeen	9 <sup>4</sup>	8 <sup>4</sup>	3.9 <sup>4</sup>	3.7 <sup>4</sup>
Alaska	8	8	3.1	3.1
Albuquerque	—	—	—	—
Bemidji	7	7	3.8	3.8
Billings	7	7	5.0	5.0
California	5	9	1.3	2.4
Nashville	—	—	—	—
Navajo	9	9	1.5	1.5
Oklahoma	8	13	1.0	1.6
Phoenix	13	13	4.3	4.3
Portland	17	17	3.9	3.9
Tucson	1	1	1.2	1.2

— Represents zero.

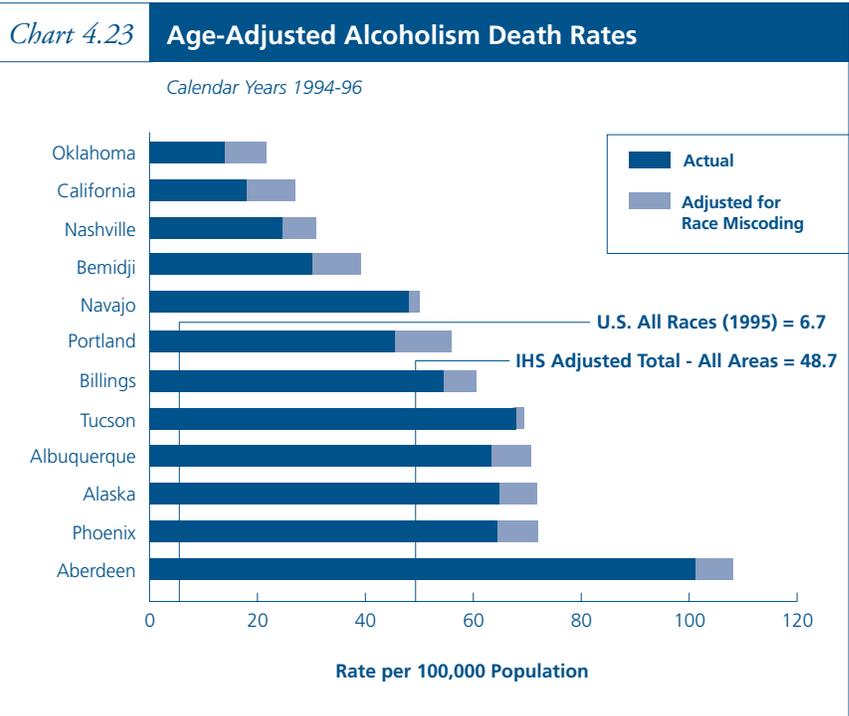
<sup>1</sup> Includes the following ICD-9 cause of death groups combined: Injury undetermined whether accidentally or purposely inflicted-E980-E989. Injury resulting from operations of war-E990-E999. (There were 9 deaths due to this cause for the U.S. All Races during 1995 and 0 deaths for the American Indian and Alaska Native population in the IHS service area, 1994-96).

<sup>2</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>3</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

<sup>4</sup> The adjusted number and rate (Aberdeen Area) is lower than the unadjusted number and rate because the linked birth/infant death file (used to obtain the adjusted counts for infant deaths) had 1 less death for this cause than did the actual mortality file (1994-96 data).

In 1994-96, the age-adjusted alcoholism death rate for the IHS service area population was 48.7. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is over 7 times the U.S. All Races rate of 6.7 for 1995. The Aberdeen Area rate of 108.7 is over 16 times the U.S. rate and 1.5 times the second highest Area rate, Phoenix at 72.1.



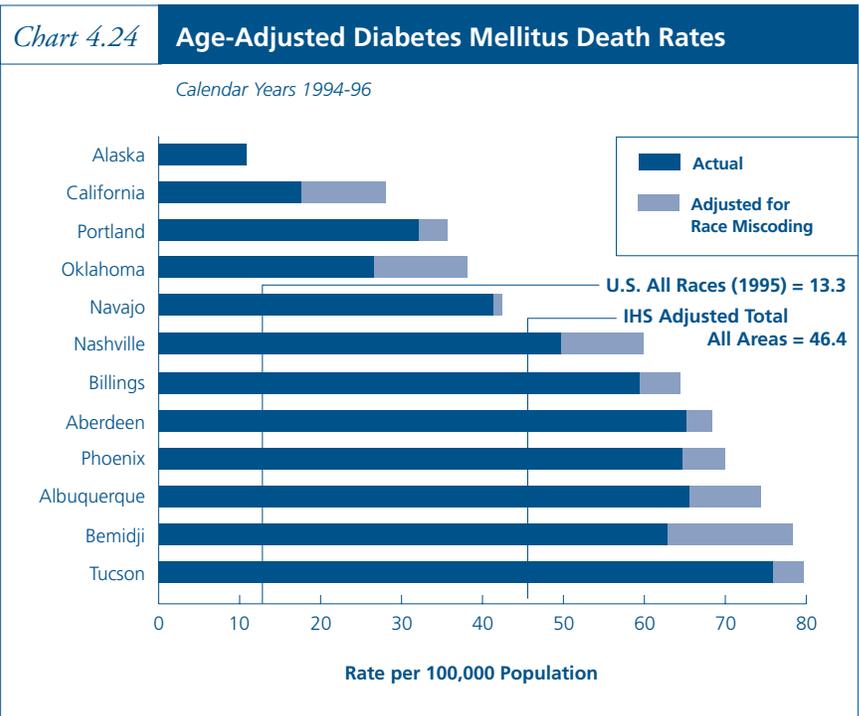
**Table 4.23 Age-Adjusted Alcoholism Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	20,231		6.7	
All IHS Areas	1,343	1,564	41.6	48.7
Aberdeen	181	194	101.2	108.7
Alaska	141	156	64.9	72.1
Albuquerque	111	123	63.3	70.7
Bemidji	50	65	30.1	39.2
Billings	62	69	54.4	60.6
California	53	79	18.0	27.0
Nashville	43	54	24.6	30.8
Navajo	218	227	48.1	50.1
Oklahoma	102	158	14.0	21.7
Phoenix	190	212	64.4	72.1
Portland	149	183	45.5	56.0
Tucson	43	44	68.0	70.0

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted diabetes death rate for the IHS service area population was 46.4. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 3.5 times the U.S. All Races rate of 13.3 for 1995. The IHS Area rates vary widely, ranging from 10.9 in Alaska (82 percent of the U.S. rate) to 79.7 in Tucson (6.0 times the U.S. rate).



**Table 4.24 Age-Adjusted Diabetes Mellitus Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	59,254	-	13.3	-
All IHS Areas	1,274	1,491	39.4	46.4
Aberdeen	121	127	65.2	68.7
Alaska	23	23	10.9	10.9
Albuquerque	109	123	65.5	74.6
Bemidji	105	130	62.8	78.3
Billings	64	69	59.4	64.5
California	50	79	17.6	28.0
Nashville	89	107	49.7	59.9
Navajo	181	186	41.3	42.5
Oklahoma	225	315	26.6	38.1
Phoenix	166	179	64.7	70.0
Portland	97	107	32.1	35.7
Tucson	44	46	75.9	79.7

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96 for the IHS service area population, the age-adjusted pneumonia and influenza death rate was 22.0. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 1.7 times the U.S. All Races rate of 12.9 for 1995. The two highest Area rates (Tucson, 38.3 and Aberdeen, 36.7) are more than 2.5 times the lowest Area rate (Oklahoma, 14.2).

Chart 4.25

Age-Adjusted Pneumonia and Influenza Death Rates

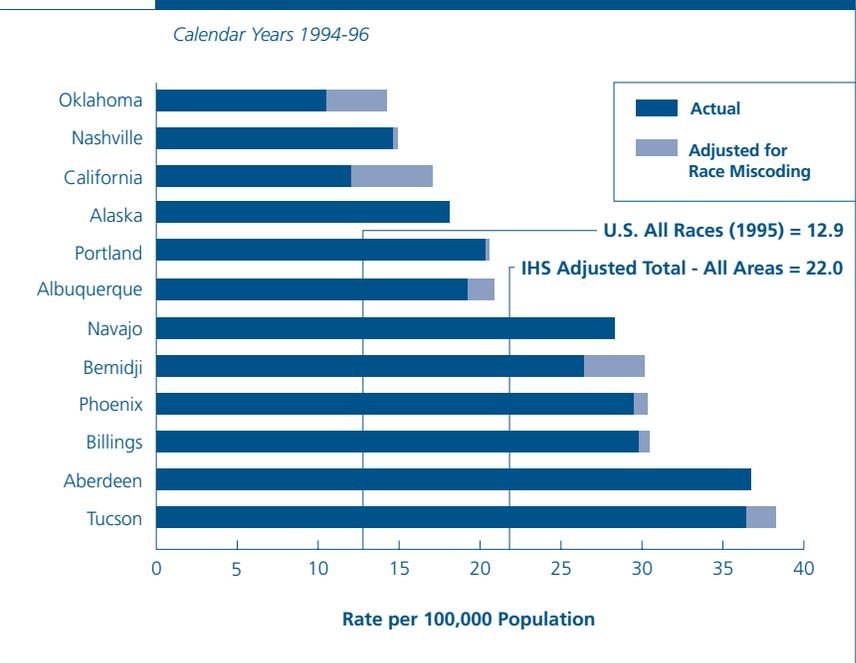


Table 4.25

Age-Adjusted Pneumonia and Influenza Death Rates

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	82,923		12.9	
All IHS Areas	840	912	20.2	22.0
Aberdeen	81	81	36.7	36.7
Alaska	44	44	18.1	18.1
Albuquerque	47	49	19.2	20.9
Bemidji	54	63	26.4	30.3
Billings	37	38	29.8	30.6
California	41	59	12.0	17.1
Nashville	33	34	14.6	14.9
Navajo	192	192	28.3	28.3
Oklahoma	121	157	10.5	14.2
Phoenix	94	97	29.5	30.4
Portland	70	71	20.3	20.6
Tucson	26	27	36.4	38.3

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted tuberculosis death rate for the IHS service area population was 1.9. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is more than 6 times the U.S. All Races rate of 0.3 for 1995. The Area rates should be interpreted with caution because of the small number of deaths involved. The Navajo (20 deaths) and Oklahoma (10) Areas had the most deaths over the 3-year period.

Chart 4.26

Age-Adjusted Tuberculosis Death Rates

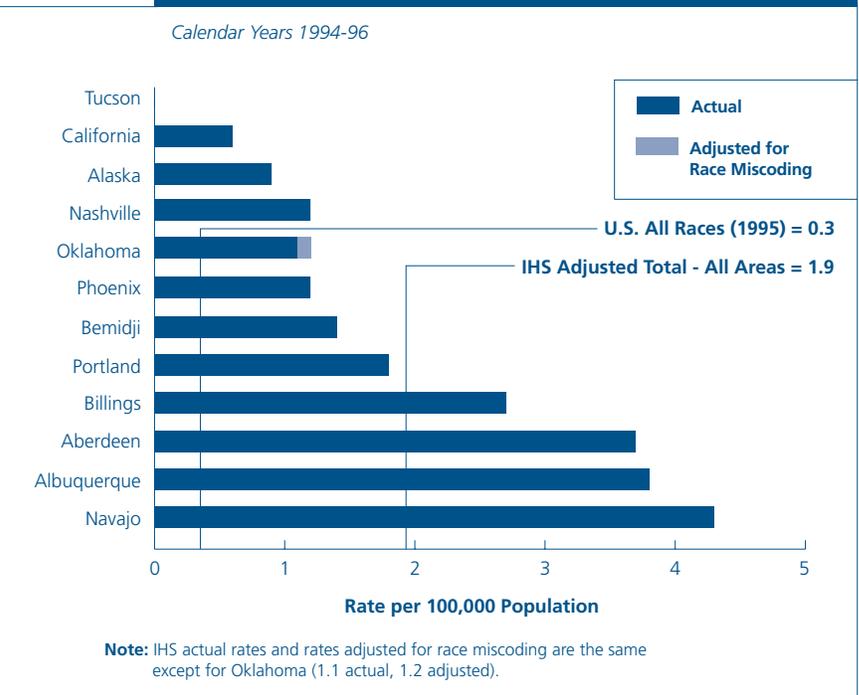


Table 4.26

Age-Adjusted Tuberculosis Death Rates

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	1,336		0.3	
All IHS Areas	62	63	1.9	1.9
Aberdeen	6	6	3.7	3.7
Alaska	2	2	0.9	0.9
Albuquerque	6	6	3.8	3.8
Bemidji	3	3	1.4	1.4
Billings	3	3	2.7	2.7
California	2	2	0.6	0.6
Nashville	2	2	1.2	1.2
Navajo	20	20	4.3	4.3
Oklahoma	9	10	1.1	1.2
Phoenix	4	4	1.2	1.2
Portland	5	5	1.8	1.8
Tucson	—	—	—	—

— Represents zero.

<sup>1</sup> Age-Adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted gastrointestinal diseases death rate for the IHS service area population was 1.7. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 42 percent greater than the U.S. All Races rate for 1995 (1.2). The Area rates should be interpreted with caution because of the small number of deaths involved. The most deaths (adjusted for miscoding) over the 3-year period for any one Area was 13.

Chart 4.27

Age-Adjusted Gastrointestinal Diseases Death Rates

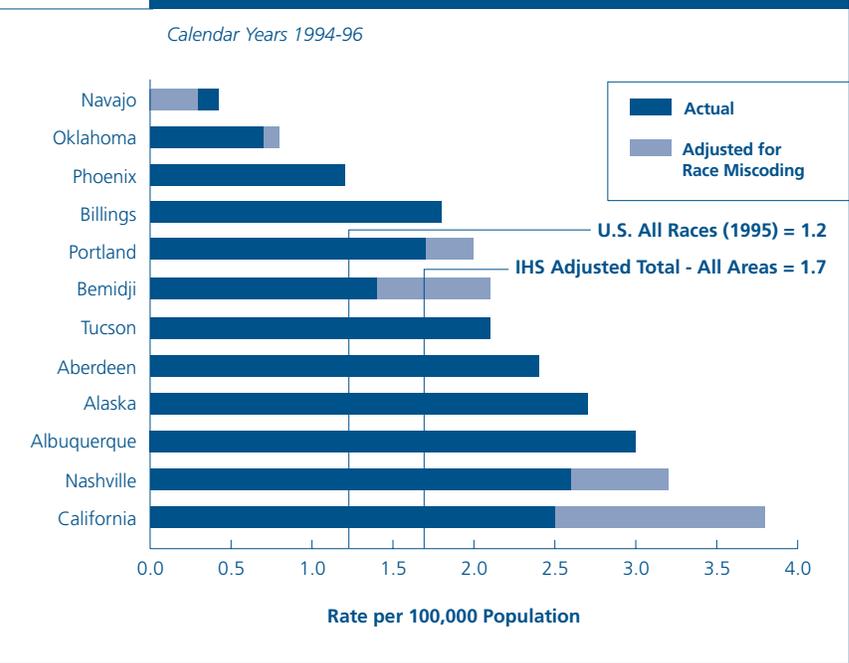


Table 4.27

Age-Adjusted Gastrointestinal Diseases Death Rates

Calendar Years 1994-96

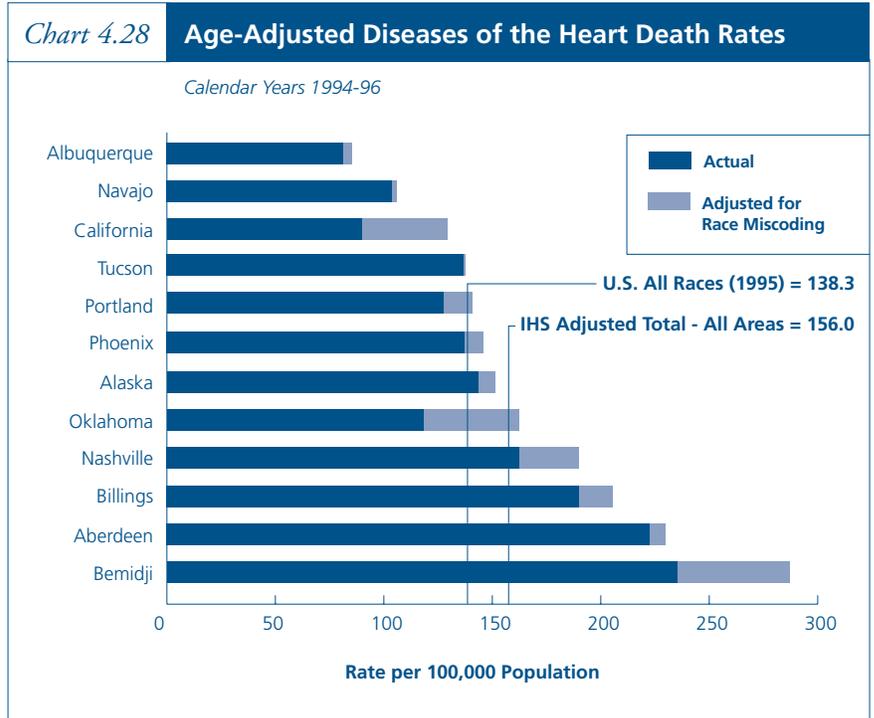
	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	6,508		1.2	
All IHS Areas	56	64	1.5	1.7
Aberdeen	4	4	2.4	2.4
Alaska	6	6	2.7	2.7
Albuquerque	7	7	3.0	3.0
Bemidji	2	3	1.4	2.1
Billings	2	2	1.8	1.8
California	8	13	2.5	3.8
Nashville	5	6	2.6	3.2
Navajo	4 <sup>3</sup>	3 <sup>3</sup>	0.4 <sup>3</sup>	0.3 <sup>3</sup>
Oklahoma	8	9	0.7	0.8
Phoenix	3	3	1.2	1.2
Portland	5	6	1.7	2.0
Tucson	2	2	2.1	2.1

<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

<sup>3</sup> The adjusted number and rate (Navajo Area) is lower than the unadjusted number and rate because the linked birth/infant death file (used to obtain the adjusted counts for infant deaths) had 1 less death for this cause than did the actual mortality file (1994-96 data).

In 1994-96, the age-adjusted diseases of the heart death rate for the IHS service area population was 156.0. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 13 percent higher than the U.S. All Races rate of 138.3 in 1995. The lowest Area rate (Albuquerque, 85.1) is 62 percent of the U.S. rate, while the highest Area rate (Bemidji, 287.0) is more than double the U.S. rate.



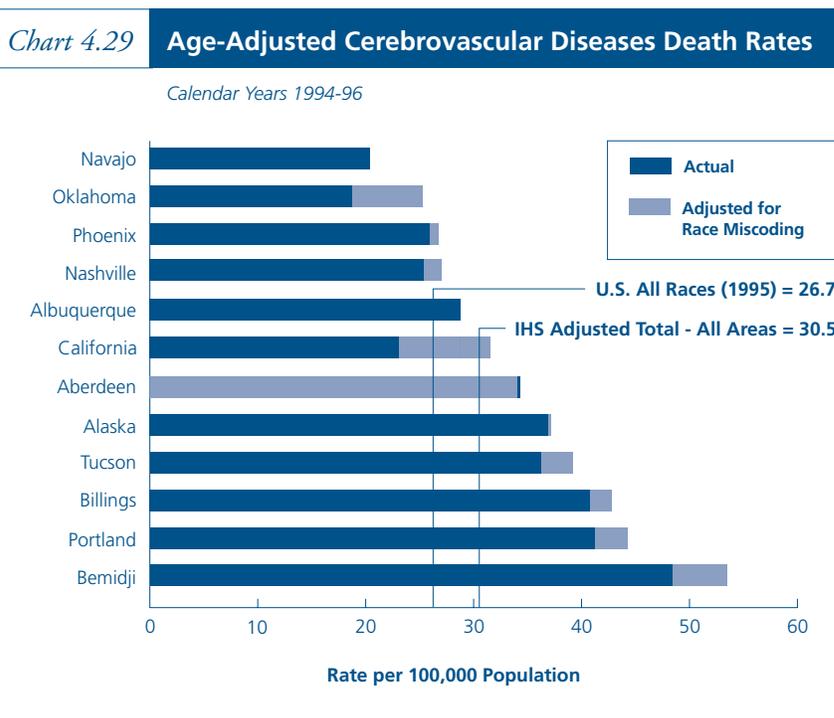
**Table 4.28 Age-Adjusted Diseases of the Heart Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	737,563		138.3	
All IHS Areas	4,688	5,482	132.4	156.0
Aberdeen	425	438	222.6	229.7
Alaska	317	335	143.4	151.6
Albuquerque	154	161	81.2	85.1
Bemidji	414	504	235.0	287.0
Billings	216	233	190.0	206.4
California	280	399	89.9	129.3
Nashville	309	361	162.5	190.4
Navajo	528	536	103.8	105.7
Oklahoma	1,164	1,569	118.0	163.6
Phoenix	384	407	137.2	145.9
Portland	405	446	127.3	140.9
Tucson	92	93	136.8	137.5

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted cerebrovascular diseases death rate for the IHS service area population was 30.5. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 14 percent higher than the U.S. All Races rate of 26.7 for 1995. The IHS Area rates differ considerably; the Bemidji rate of 53.5 is 2.6 times the Navajo rate of 20.4.



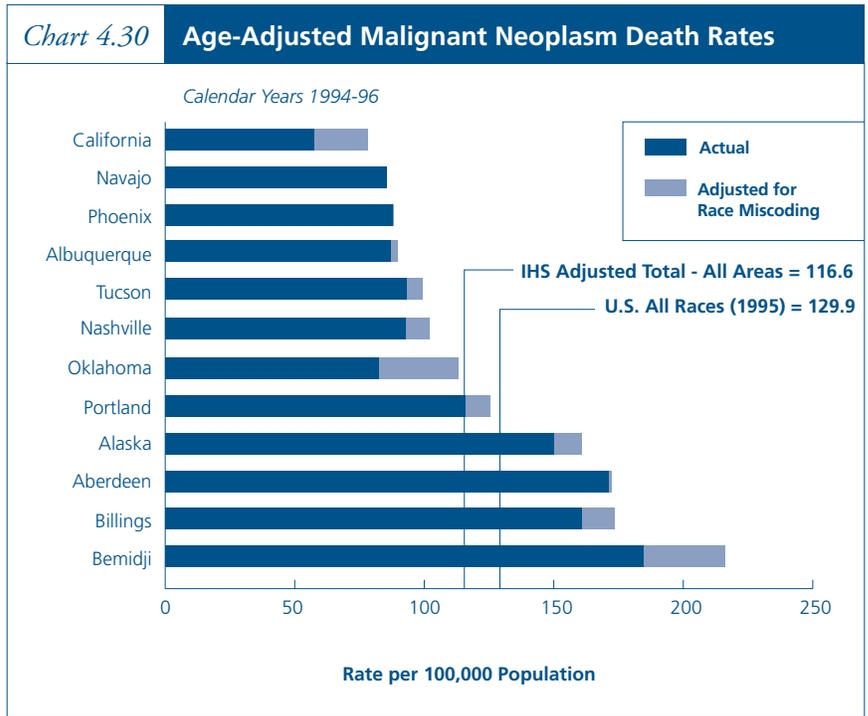
**Table 4.29 Age-Adjusted Cerebrovascular Diseases Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	157,991	-	26.7	-
All IHS Areas	1,029	1,143	27.2	30.5
Aberdeen	71 <sup>3</sup>	70 <sup>3</sup>	34.5 <sup>3</sup>	34.3 <sup>3</sup>
Alaska	91	92	36.9	37.4
Albuquerque	60	60	28.8	28.8
Bemidji	89	98	48.4	53.5
Billings	47	49	40.8	43.0
California	77	102	23.1	31.5
Nashville	51	54	25.4	27.0
Navajo	114	114	20.4	20.4
Oklahoma	193	253	18.7	25.3
Phoenix	78	81	25.9	26.7
Portland	133	143	41.2	44.3
Tucson	25	27	36.2	39.3

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.  
<sup>3</sup> The adjusted number and rate (Aberdeen Area) is lower than the unadjusted number and rate because the linked birth/infant death file (used to obtain the adjusted counts for infant deaths) had 1 less death for this cause than did the actual mortality file (1994-96 data).

In 1994-96, the age-adjusted malignant neoplasm death rate for the IHS service area population was 116.6. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 10 percent less than the U.S. All Races rate of 129.9 for 1995. Four IHS Areas have a rate greater the U.S. rate: Bemidji (216.2), Billings (173.3), Aberdeen (172.9), and Alaska (160.9). The Portland Area rate (126.4) is just below the U.S. rate.



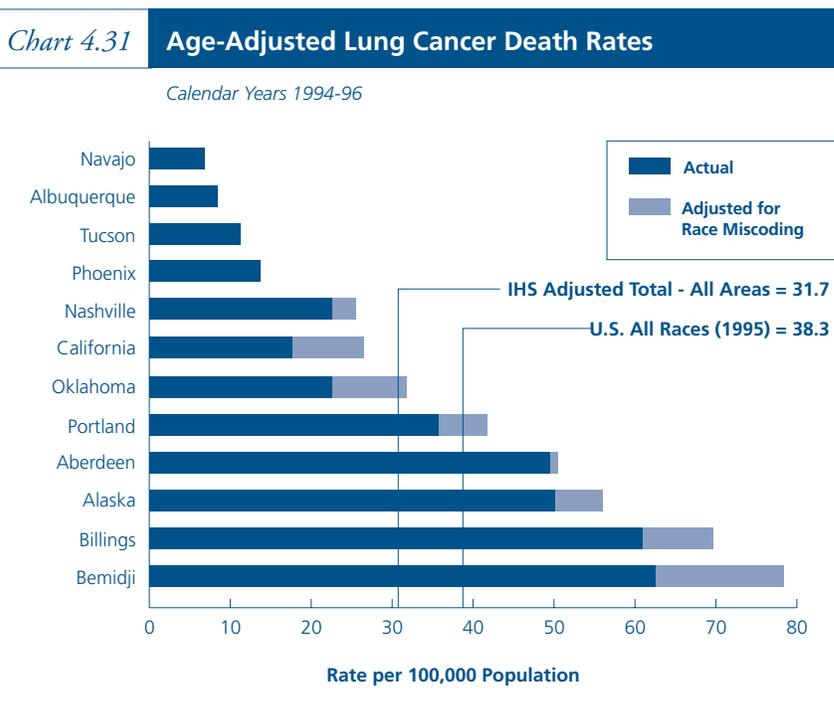
**Table 4.30 Age-Adjusted Malignant Neoplasm Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	538,455		129.9	
All IHS Areas	3,413	3,879	102.1	116.6
Aberdeen	316	319	171.3	172.9
Alaska	312	333	150.0	160.9
Albuquerque	156	161	87.0	90.0
Bemidji	320	373	184.7	216.2
Billings	171	184	160.8	173.3
California	174	234	57.5	78.0
Nashville	171	189	92.7	102.2
Navajo	404	404	85.5	85.5
Oklahoma	736	993	82.5	113.3
Phoenix	239	240	87.8	88.2
Portland	355	386	115.8	126.4
Tucson	59	63	93.2	99.4

<sup>1</sup> Age-adjusted rate per 100,000 population.  
<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted lung (this category has been expanded to also include trachea and bronchus) cancer death rate for the IHS service area population was 31.7. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 17 percent less than the U.S. All Races rate of 38.3 in 1995. Five IHS Areas (Bemidji, Billings, Alaska, Aberdeen, and Portland) have rates exceeding the U.S. rate.



**Table 4.31 Age-Adjusted Lung Cancer<sup>1</sup> Death Rates**

Calendar Years 1994-96

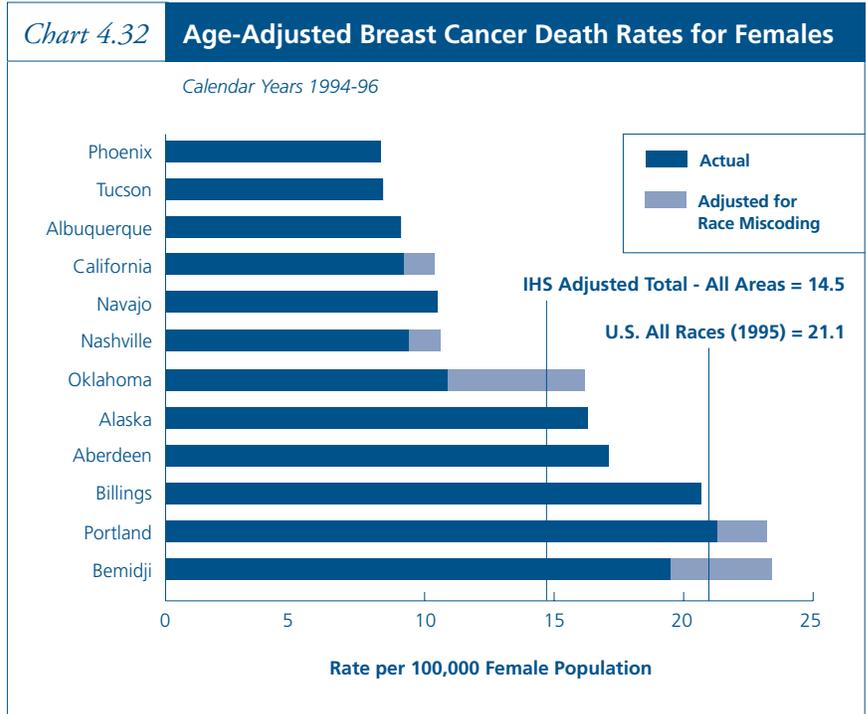
	Deaths		Rate <sup>2</sup>	
	Actual	Adj <sup>3</sup>	Actual	Adj <sup>3</sup>
U.S. All Races (1995)	151,200		38.3	
All IHS Areas	838	1,012	26.2	31.7
Aberdeen	89	91	49.5	50.6
Alaska	100	112	50.1	56.3
Albuquerque	15	15	8.4	8.4
Bemidji	105	132	62.5	78.4
Billings	63	72	60.9	69.7
California	52	77	17.7	26.5
Nashville	40	45	22.6	25.5
Navajo	30	30	6.8	6.8
Oklahoma	196	272	22.6	31.8
Phoenix	36	36	13.7	13.7
Portland	105	123	35.7	42.1
Tucson	7	7	11.2	11.2

<sup>1</sup> Lung cancer death includes deaths due to cancers of the trachea, bronchus and lung, ICD-9 codes 162.0 to 162.9.

<sup>2</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>3</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted breast cancer death rate for females in the IHS service area population was 14.5. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 31 percent less than the U.S. All Races rate of 21.1 for 1995. The Bemidji and Portland Areas both have a rate (23.4 and 23.2, respectively) that exceeds the U.S. rate.



**Table 4.32 Age-Adjusted Breast Cancer Death Rates for Females**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	43,877		21.1	
All IHS Areas	222	253	12.7	14.5
Aberdeen	17	17	17.1	17.1
Alaska	19	19	16.3	16.3
Albuquerque	7	7	9.1	9.1
Bemidji	17	20	19.5	23.4
Billings	11	11	20.7	20.7
California	16	18	9.2	10.4
Nashville	9	10	9.4	10.6
Navajo	24	24	10.5	10.5
Oklahoma	51	73	10.9	16.2
Phoenix	13	13	8.3	8.3
Portland	34	37	21.3	23.2
Tucson	4	4	8.4	8.4

<sup>1</sup> Age-adjusted rate per 100,000 female population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted cervical cancer death rate for females in the IHS service area population was 3.8. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 52 percent greater than the U.S. All Races rate of 2.5 for 1995. The Area rates should be interpreted with caution because of the small number of deaths involved. Only four Areas (Oklahoma, Navajo, Bemidji, and Phoenix) had 10 deaths or more (adjusted for miscoding) during the 3-year period.

Chart 4.33

Age-Adjusted Cervical Cancer Death Rates for Females

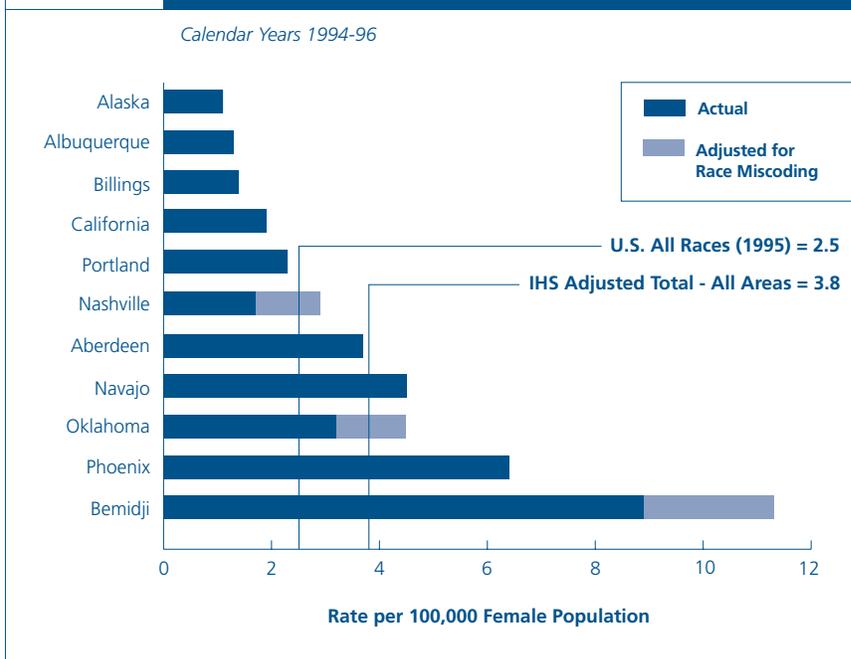


Table 4.33

Age-Adjusted Cervical Cancer Death Rates for Females

Calendar Years 1994-96

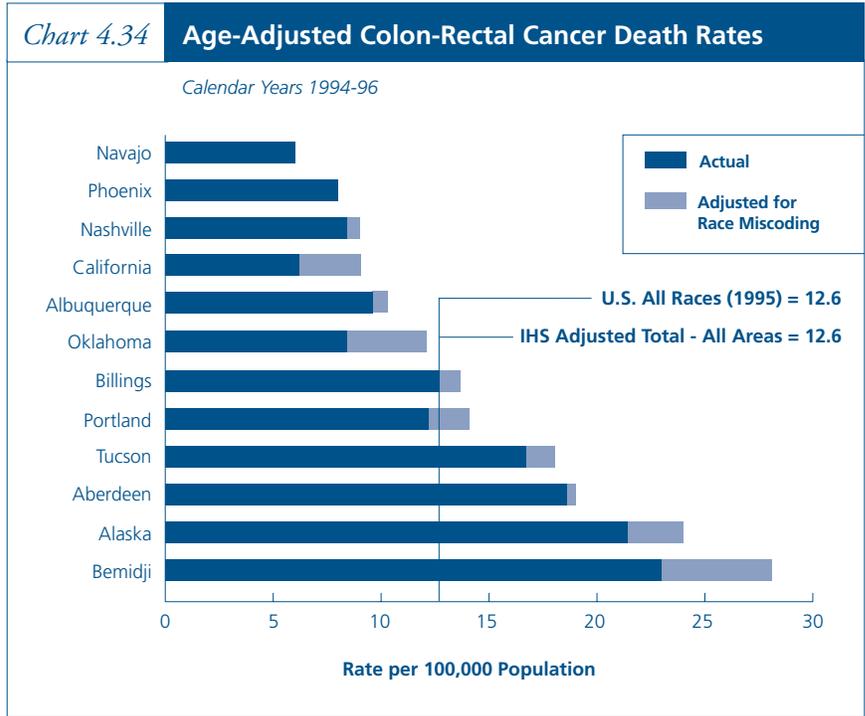
	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	4,511		2.5	
All IHS Areas	60	69	3.3	3.8
Aberdeen	4	4	3.7	3.7
Alaska	1	1	1.1	1.1
Albuquerque	1	1	1.3	1.3
Bemidji	8	10	8.9	11.3
Billings	1	1	1.4	1.4
California	3	3	1.9	1.9
Nashville	2	3	1.7	2.9
Navajo	11	11	4.5	4.5
Oklahoma	15	21	3.2	4.5
Phoenix	10	10	6.4	6.4
Portland	4	4	2.3	2.3
Tucson	—	—	—	—

— Represents zero.

<sup>1</sup> Age-adjusted rate per 100,000 female population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted colon-rectal cancer death rate for the IHS service area population was 12.6. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is the same as the U.S. All Races rate in 1995. The highest IHS Area rate (Bemidji, 28.1) is 2.2 times the IHS average/U.S. rate, while the lowest Area rate (Navajo, 6.0) is less than half the IHS average/U.S. rate.



**Table 4.34 Age-Adjusted Colon-Rectal Cancer Death Rates**

Calendar Years 1994-96

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	57,331		12.6	
All IHS Areas	362	426	10.6	12.6
Aberdeen	35	36	18.6	19.1
Alaska	46	51	21.4	24.0
Albuquerque	18	19	9.6	10.3
Bemidji	39	47	23.0	28.1
Billings	14	15	12.7	13.7
California	20	29	6.2	9.1
Nashville	15	16	8.4	9.0
Navajo	29	29	6.0	6.0
Oklahoma	77	108	8.4	12.1
Phoenix	21	21	8.0	8.0
Portland	38	44	12.2	14.2
Tucson	10	11	16.7	18.1

<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted prostate cancer death rate for males in the IHS service area population was 12.9. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 16 percent less than the U.S. All Races rate of 15.4 in 1995. Three IHS Areas (Aberdeen, Bemidji, and Billings) have a rate that exceeds the U.S. rate. The highest Area rate (Aberdeen, 30.2) is nearly double the U.S. rate.

Chart 4.35

Age-Adjusted Prostate Cancer Death Rates for Males

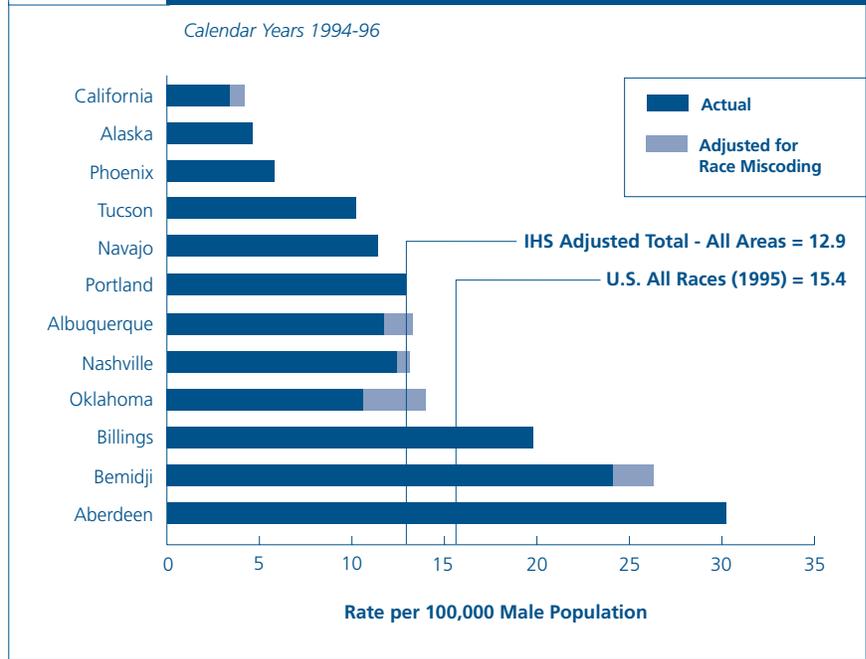


Table 4.35

Age-Adjusted Prostate Cancer Death Rates for Males

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	34,497		15.4	
All IHS Areas	184	203	11.7	12.9
Aberdeen	25	25	30.2	30.2
Alaska	5	5	4.6	4.6
Albuquerque	10	11	11.7	13.3
Bemidji	20	22	24.1	26.3
Billings	10	10	19.8	19.8
California	5	6	3.4	4.2
Nashville	10	11	12.4	13.3
Navajo	26	26	11.4	11.4
Oklahoma	47	61	10.6	14.0
Phoenix	7	7	5.8	5.8
Portland	16	16	12.9	12.9
Tucson	3	3	10.2	10.2

<sup>1</sup> Age-adjusted rate per 100,000 *male* population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the age-adjusted human immunodeficiency virus (HIV) infection death rate for the IHS service area population was 6.2. This is the rate adjusted for miscoding of Indian race on death certificates. The Indian rate is 60 percent less than the 1995 U.S. rate of 15.6. Some of the Area rates should be interpreted with caution because of the small number of deaths involved. The highest Area rate (California, 11.0 based on 37 deaths) is 71 percent of the U.S. rate.

Chart 4.36

**Age-Adjusted Human Immunodeficiency Virus (HIV) Infection Death Rates**

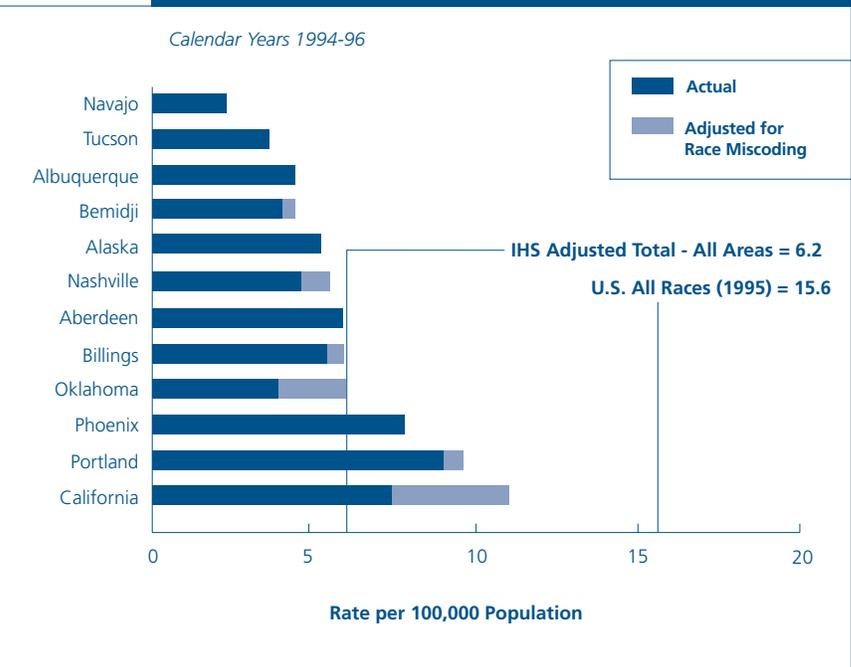


Table 4.36

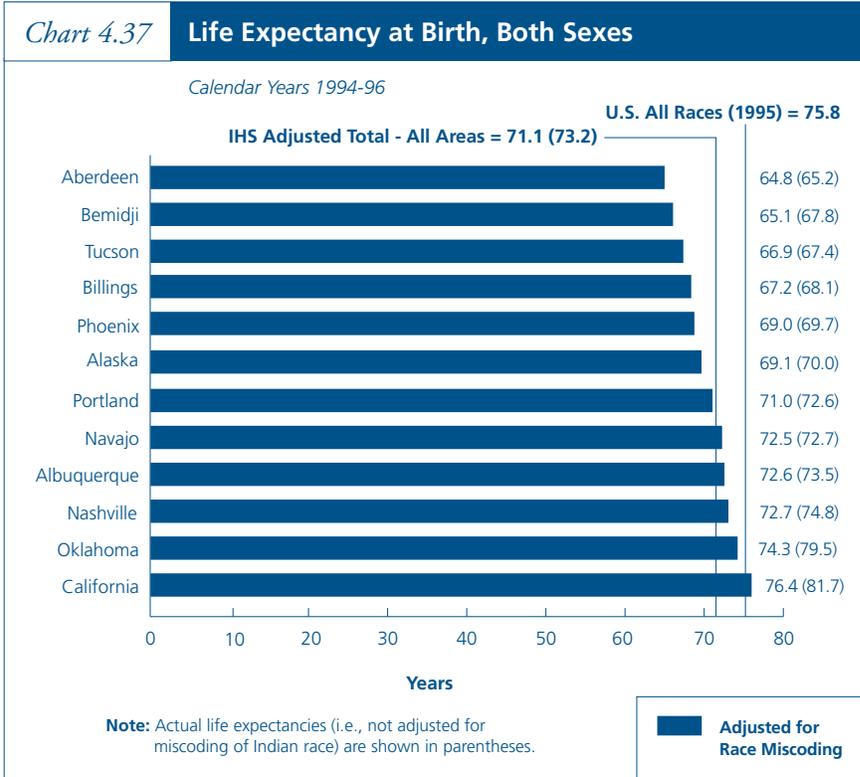
**Age-Adjusted Human Immunodeficiency Virus (HIV) Infection Death Rates**

	Deaths		Rate <sup>1</sup>	
	Actual	Adj <sup>2</sup>	Actual	Adj <sup>2</sup>
U.S. All Races (1995)	43,115		15.6	
All IHS Areas	198	234	5.3	6.2
Aberdeen	13	13	5.9	5.9
Alaska	15	15	5.2	5.2
Albuquerque	8	8	4.4	4.4
Bemidji	8	9	4.0	4.4
Billings	7	8	5.4	6.0
California	25	37	7.4	11.0
Nashville	10	12	4.6	5.5
Navajo	12	12	2.3	2.3
Oklahoma	31	48	3.9	6.0
Phoenix	29	29	7.8	7.8
Portland	37	40	9.0	9.6
Tucson	3	3	3.6	3.6

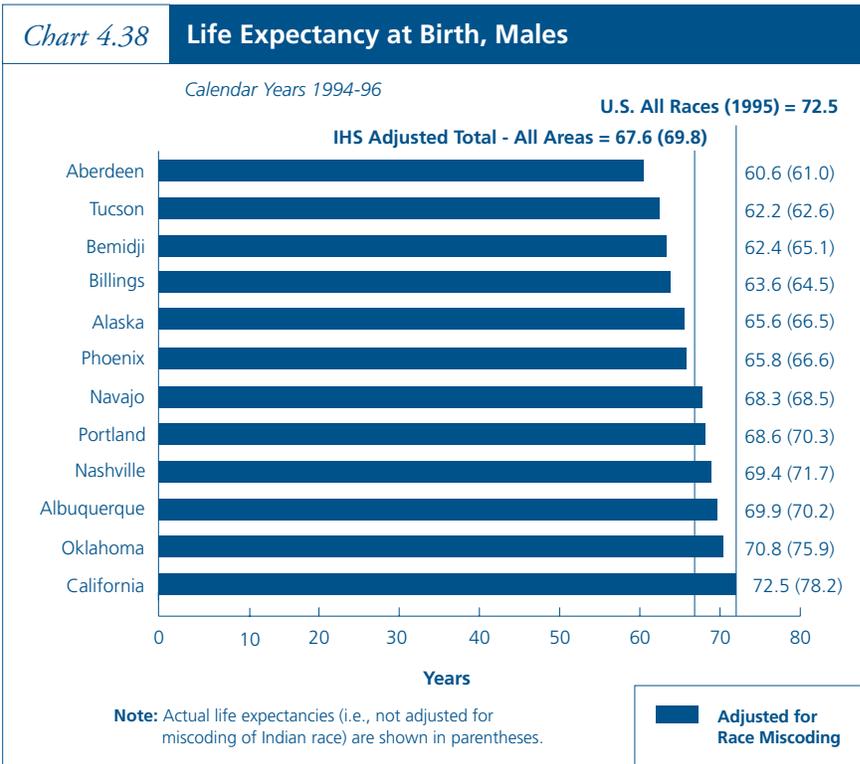
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for miscoding of Indian race on death certificates.

In 1994-96, the life expectancy at birth (both sexes) for the IHS service area population was 71.1 years. This is the life expectancy adjusted for miscoding of Indian race on death certificates. This is 4.7 years less than the 1995 figure of 75.8 for the U.S. All Races population. One IHS Area has a life expectancy greater than the U.S. figure (California, 76.4). At the other extreme, the Aberdeen Area life expectancy (64.8) is 11.0 years less than that for the U.S.



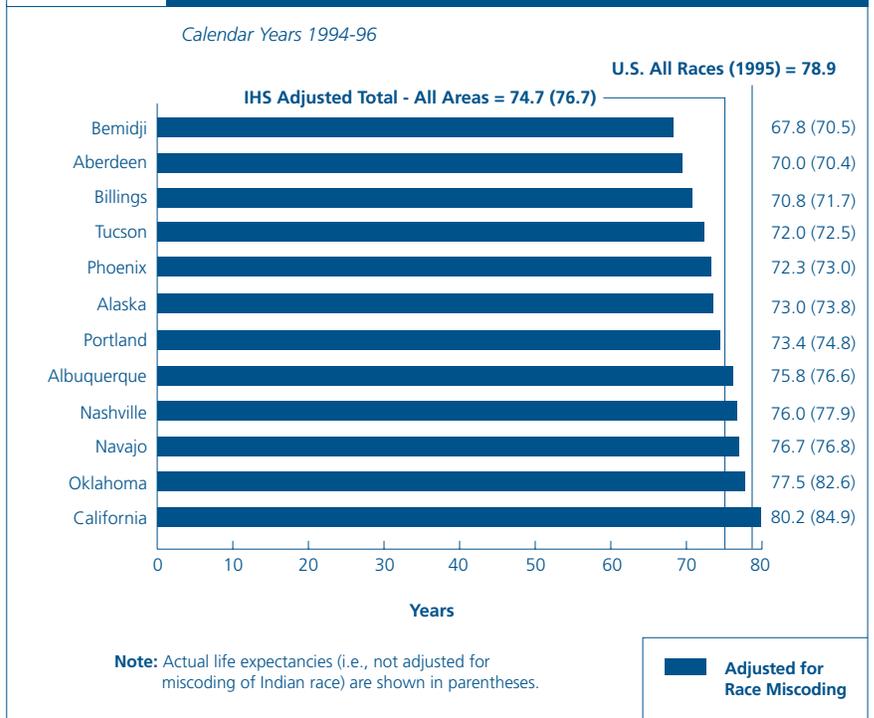
In 1994-96, the life expectancy at birth for males in the IHS service area population was 67.6 years. This is the life expectancy adjusted for miscoding of Indian race on death certificates. This is 4.9 years less than the 1995 figure of 72.5 years for the U.S. All Races male population. Indian males in the California Area have a life expectancy (72.5) equal to that for U.S. males. On the other hand, Indian males in the Aberdeen Area (60.6) can expect to live from birth 11.9 years less than U.S. males.



In 1994-96, the life expectancy at birth for females in the IHS service area population was 74.7 years. This is the life expectancy adjusted for miscoding of Indian race on death certificates. This is 4.2 years less than the 1995 figure of 78.9 years for the U.S. All Races female population. Indian females in the California Area (80.2) can expect to live from birth 1.3 years longer than their counterparts in the U.S. All Races population. In contrast, females in the Bemidji Area have a life expectancy (67.8) that is 11.1 years less than that of U.S. females.

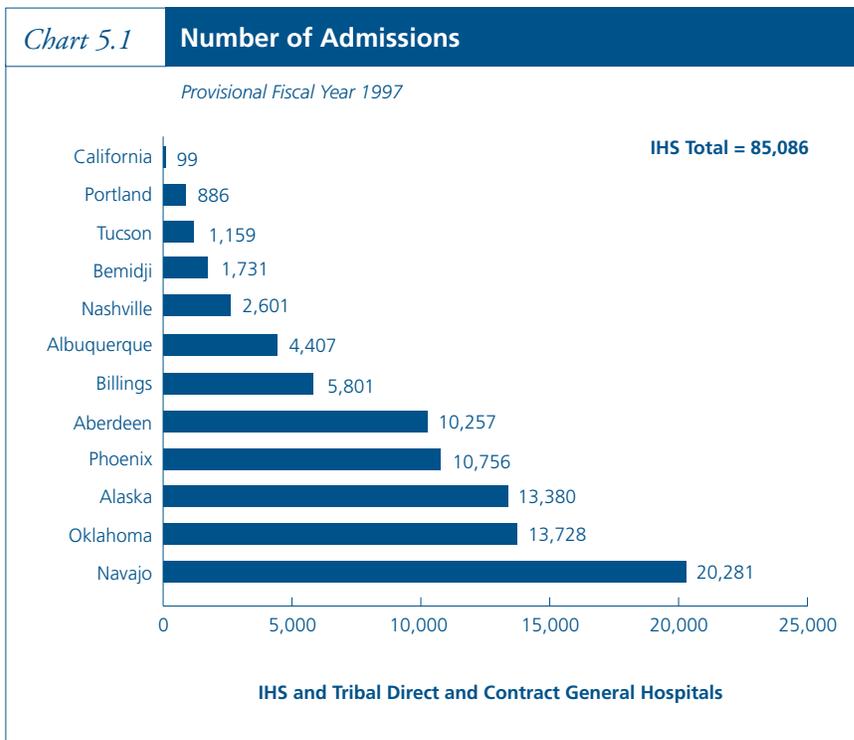
Chart 4.39

**Life Expectancy at Birth, Females**

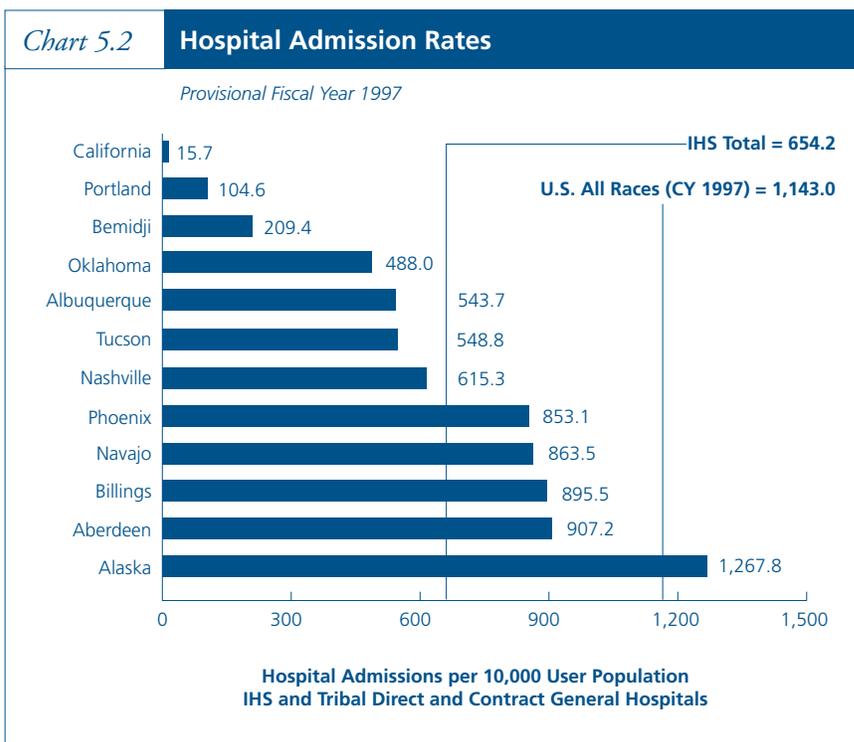


## Part 5: Patient Care Statistics

In FY 1997 (provisional), there were over 85,000 admissions to IHS and Tribal direct and contract general hospitals. Approximately 40 percent of these admissions (provisional) were in two IHS Areas, Navajo (20,281) and Oklahoma (13,728).



The IHS admission rate of 654.2 admissions per 10,000 user population in FY 1997 (provisional) was 43 percent lower than the U.S. All Races rate of 1,143.0 in CY 1997. The IHS Area rates (provisional) ranged from 15.7 in California, where the IHS provides little inpatient care, to 1,267.8 in Alaska.





**Table 5.1**      **Number and Rate of Admissions**

*Indian Health Service and Tribal Direct and  
Contract General Hospitals, Provisional FY 1997  
U.S. Short-Stay Community Hospitals, CY 1997*

	<b>Total</b>		<b>IHS Admissions</b>		<b>Tribal Admissions</b>	
	<b>Admission Rate <sup>1</sup></b>	<b>Total Admissions</b>	<b>Direct</b>	<b>Contract</b>	<b>Direct</b>	<b>Contract</b>
U.S. All Races	1,143.0	30,914 <sup>2</sup>				
All IHS Areas	654.2	85,086	56,219	13,932	12,188	2,747
Aberdeen	907.2	10,257	7,006	3,251	0	0
Alaska	1,267.8	13,380	5,645	267	6,070	1,398
Albuquerque	543.7	4,407	3,141	1,266	0	0
Bemidji	209.4	1,731	1,069	430	0	232
Billings	895.5	5,801	3,468	2,166	0	167
California	15.7	99	0	0	0	99
Nashville	615.3	2,601	1,047	253	570	731 <sup>3</sup>
Navajo	863.5	20,281	18,419	1,862	0	0
Oklahoma	488.0	13,728	6,856	1,893	4,979	0
Phoenix	853.1	10,756	8,652	1,533	569	2
Portland	104.6	886	0	768	0	118
Tucson	548.8	1,159	916	243	0	0

<sup>1</sup> Number of admissions per 10,000 population.

<sup>2</sup> Number of admissions in thousands.

<sup>3</sup> FY 1997 not available; used FY 1996 as estimate.

SOURCES: IHS and Tribal Direct: Monthly Report of Inpatient Services

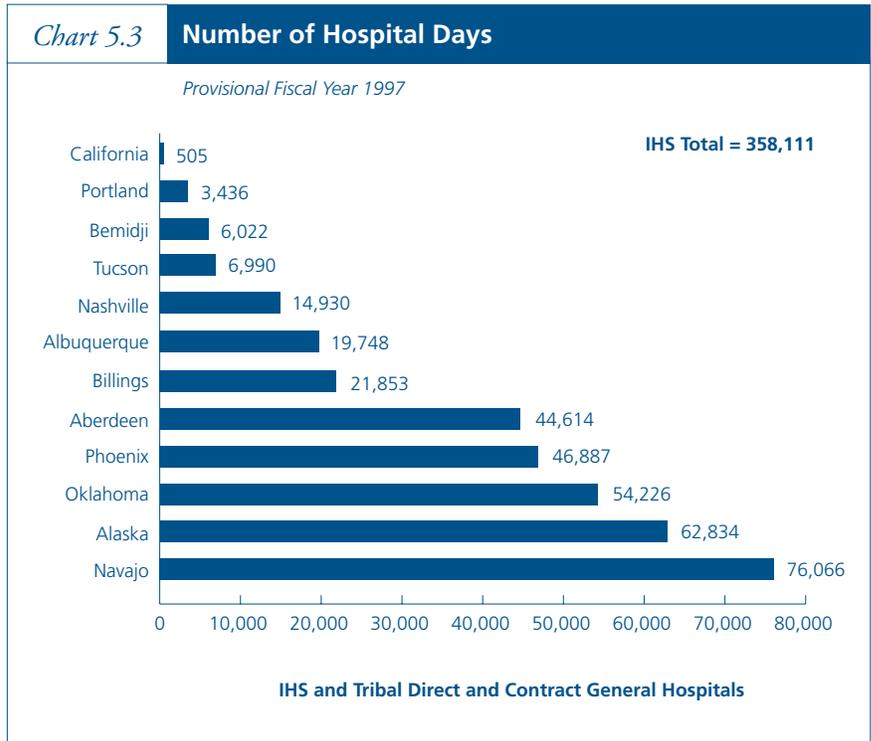
IHS Contract: Contract Statistical System (Report 3I)

Tribal Contract: IHS Area submissions

U.S.: Unpublished Data, NCHS Hospital Discharge Survey Branch



The number of inpatient days in IHS and Tribal direct and contract general hospitals was more than 358,000 in FY 1997 (provisional). The number (provisional) varied considerably among the IHS Areas, ranging from 505 in California to 76,066 in Navajo.



**Table 5.3 Number of Hospital Days**

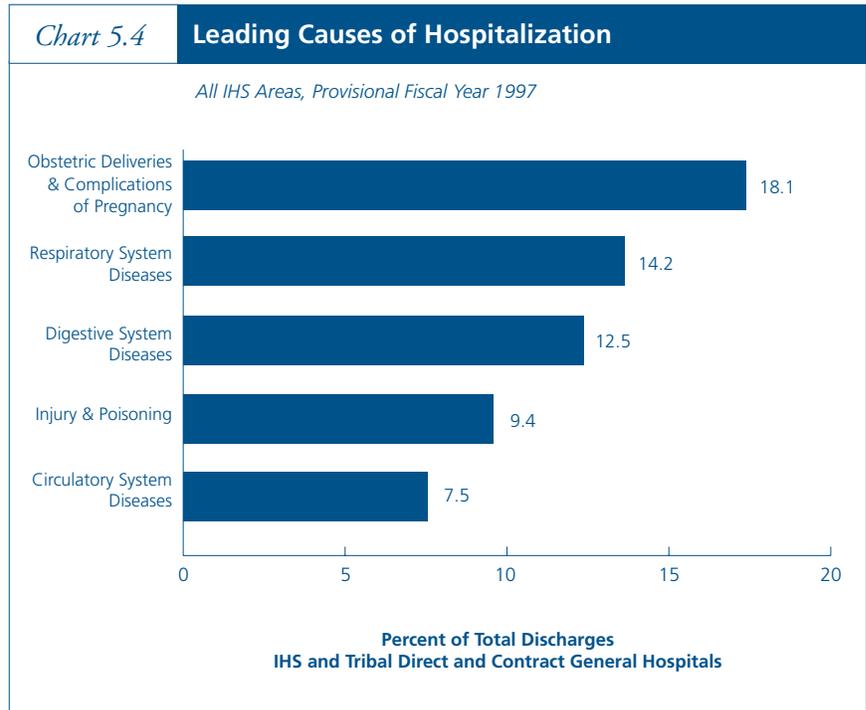
*Indian Health Service and Tribal Direct and Contract General Hospitals, Provisional FY 1997*

	Total Days	IHS Days		Tribal Days	
		Direct	Contract	Direct	Contract
All IHS Areas	358,111	234,077	68,584	44,970	10,480
Aberdeen	44,614	28,600	16,014	0	0
Alaska	62,834	35,616	1,929	21,381	3,908
Albuquerque	19,748	14,295	5,453	0	0
Bemidji	6,022	3,542	1,724	0	756
Billings	21,853	10,575	10,514	0	764
California	505	0	0	0	505
Nashville	14,930	6,205	1,285	3,321	4,119 <sup>1</sup>
Navajo	76,066	66,354	9,712	0	0
Oklahoma	54,226	25,774	10,778	17,674	0
Phoenix	46,887	37,324	6,965	2,594	4
Portland	3,436	0	3,012	0	424
Tucson	6,990	5,792	1,198	0	0

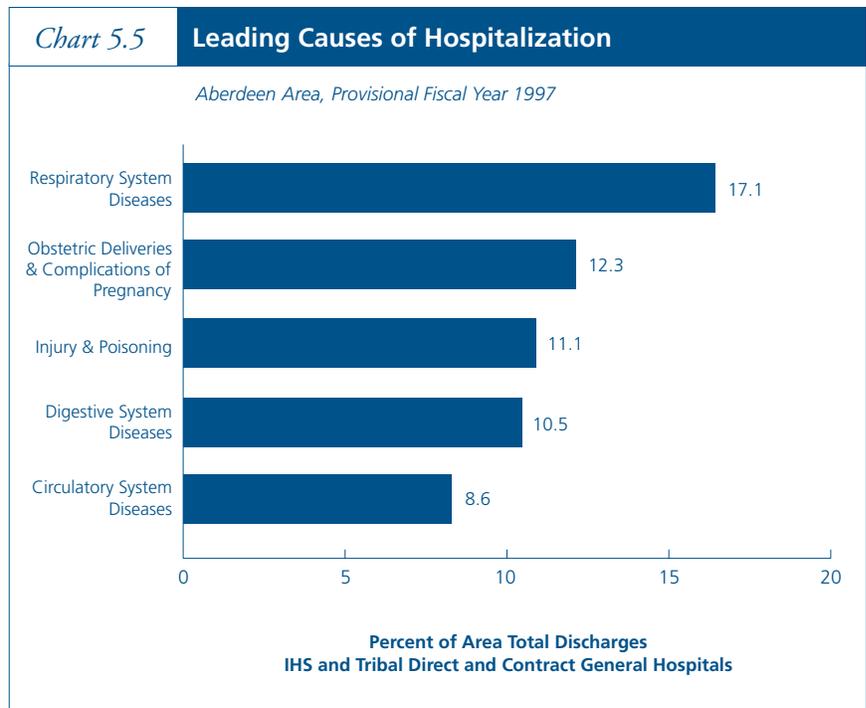
<sup>1</sup> FY 1997 not available; used FY 1996 as estimate.

SOURCES: IHS and Tribal Direct: Monthly Report of Inpatient Services  
 IHS Contract: Contract Statistical System (Report 3I)  
 Tribal Contract: IHS Area submissions

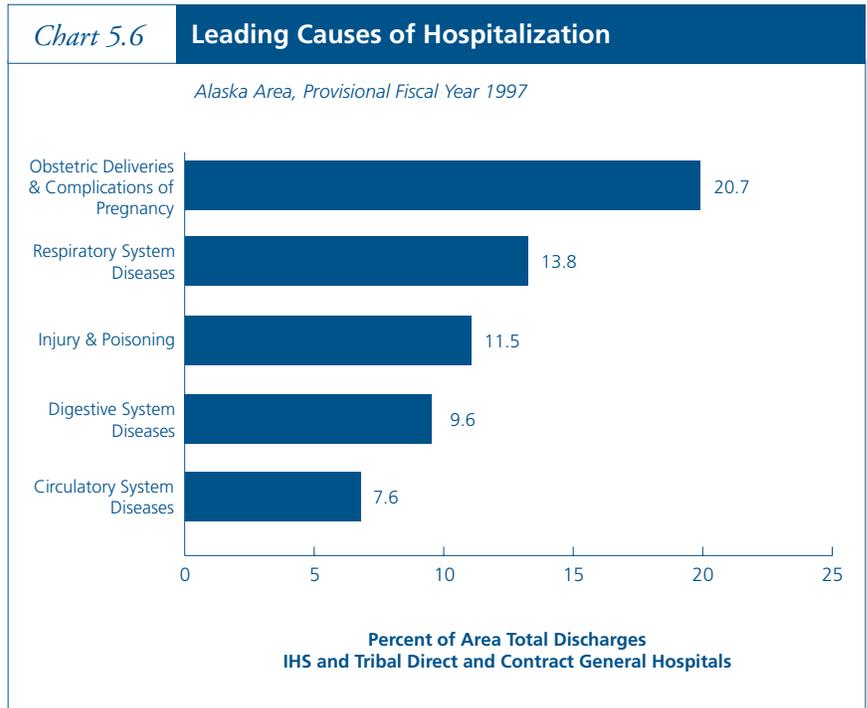
In FY 1997 (provisional), 18.1 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy. This was followed by respiratory system diseases at 14.2 percent.



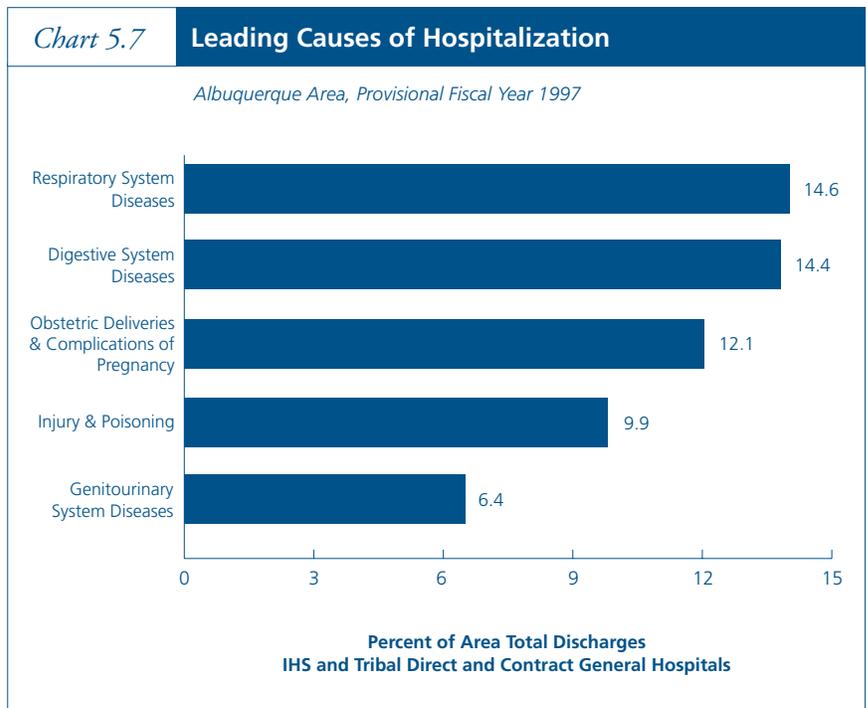
For the Aberdeen Area in FY 1997 (provisional), 17.1 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by obstetric deliveries and complications of pregnancy at 12.3 percent.



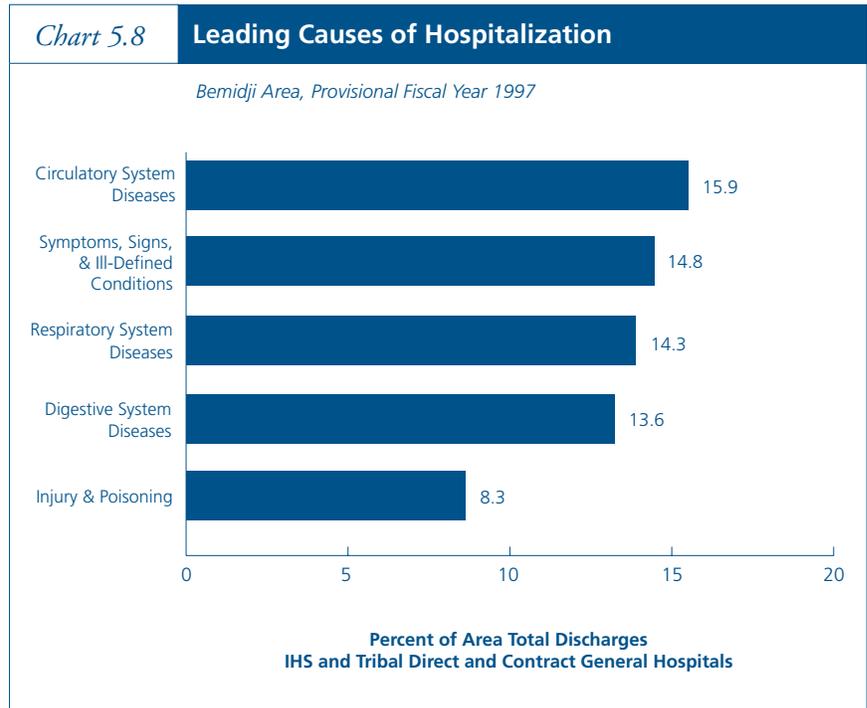
For the Alaska Area in FY 1997 (provisional), 20.7 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy. This was followed by respiratory system diseases at 13.8 percent.



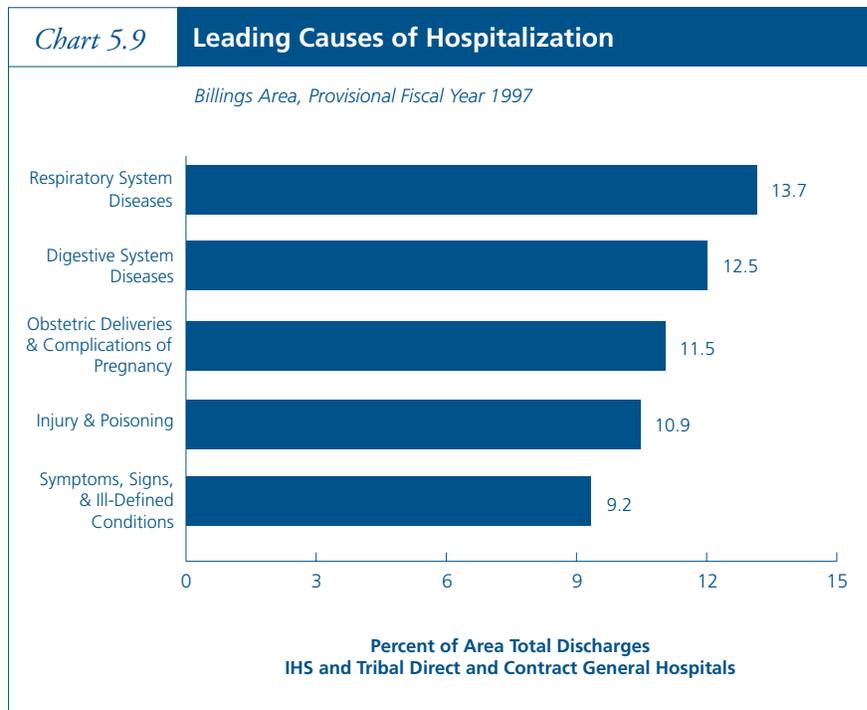
For the Albuquerque Area in FY 1997 (provisional), 14.6 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was closely followed by digestive system diseases at 14.4 percent.



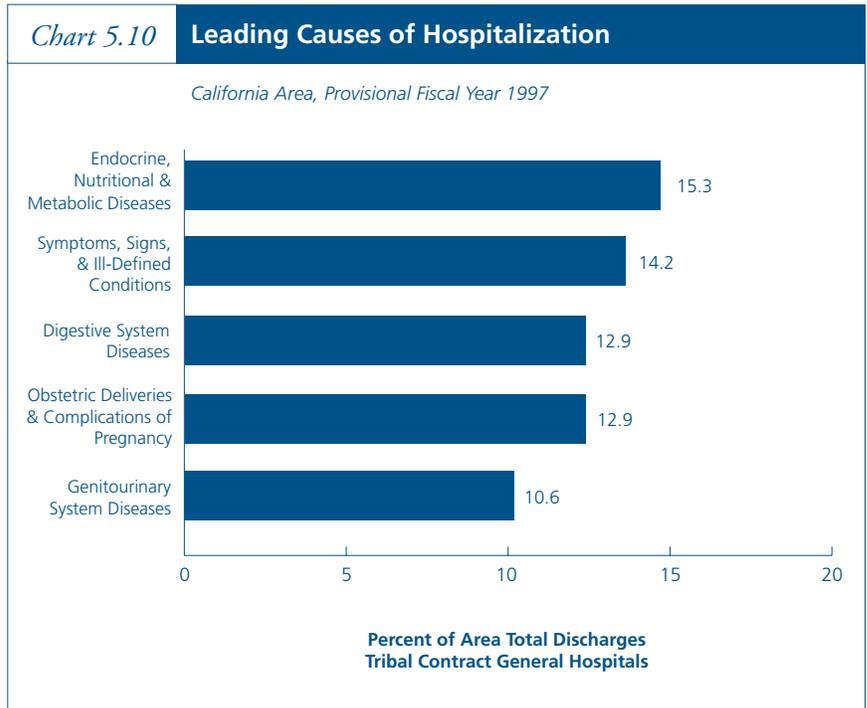
For the Bemidji Area in FY 1997 (provisional), 15.9 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to circulatory system diseases. This was followed by symptoms, signs, and ill-defined conditions at 14.8 percent.



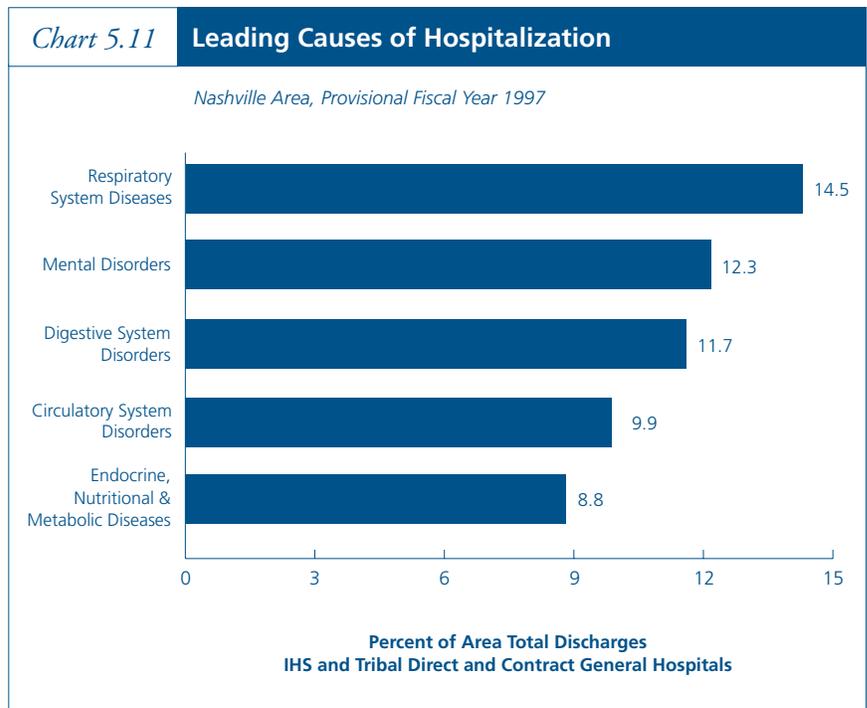
For the Billings Area in FY 1997 (provisional), 13.7 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by digestive system diseases at 12.5 percent.



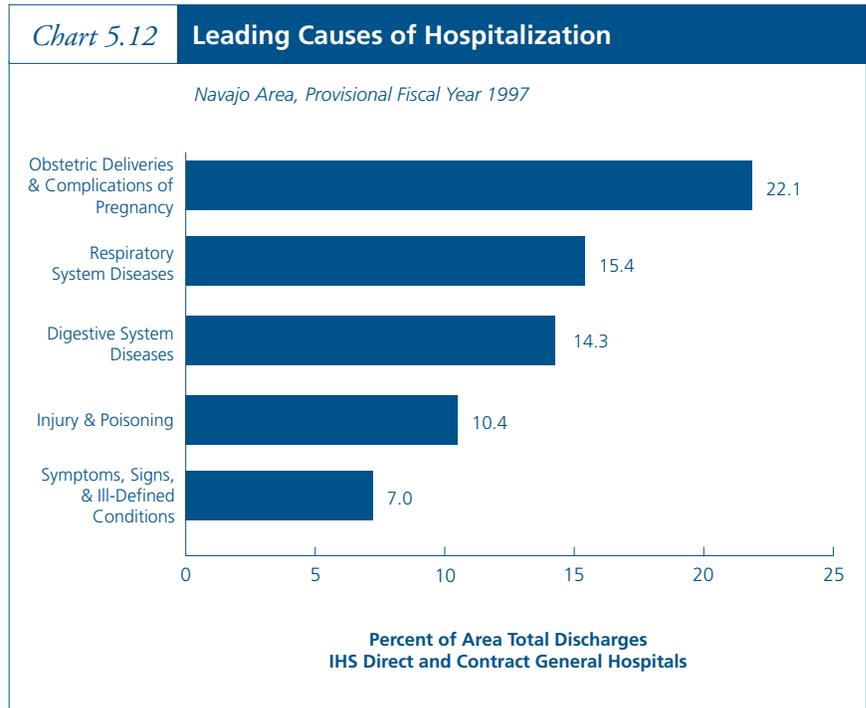
For the California Area in FY 1997 (provisional), 15.3 percent of all discharges from Tribal contract health service hospitals pertained to endocrine, nutritional, and metabolic diseases. This was followed by symptoms, signs, and ill-defined conditions at 14.2 percent.



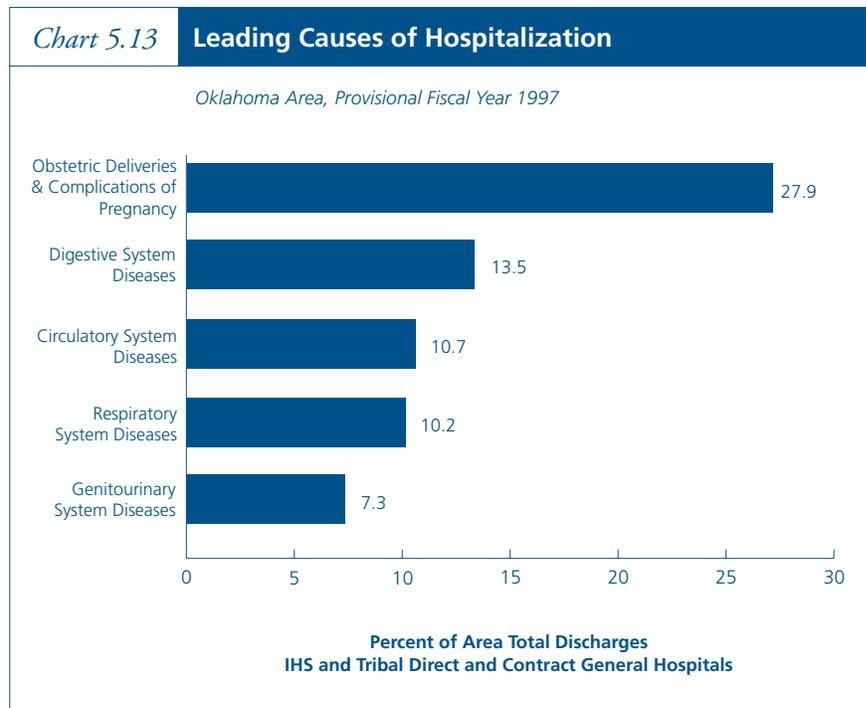
For the Nashville Area in FY 1997 (provisional), 14.5 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by mental disorders at 12.3 percent.



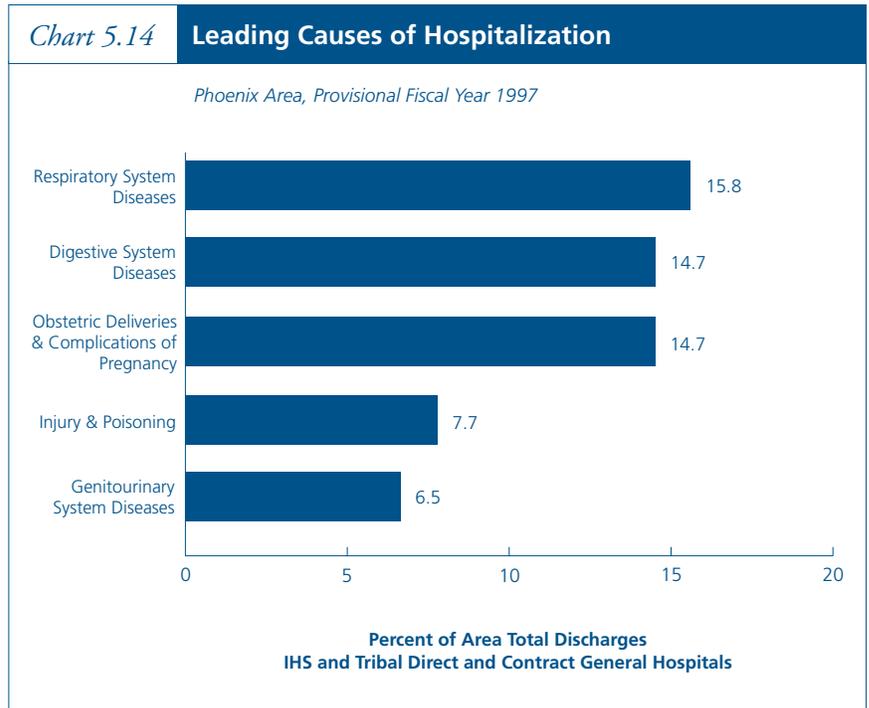
For the Navajo Area in FY 1997 (provisional), 22.1 percent of all discharges from IHS direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy. This was followed by respiratory system diseases at 15.4 percent.



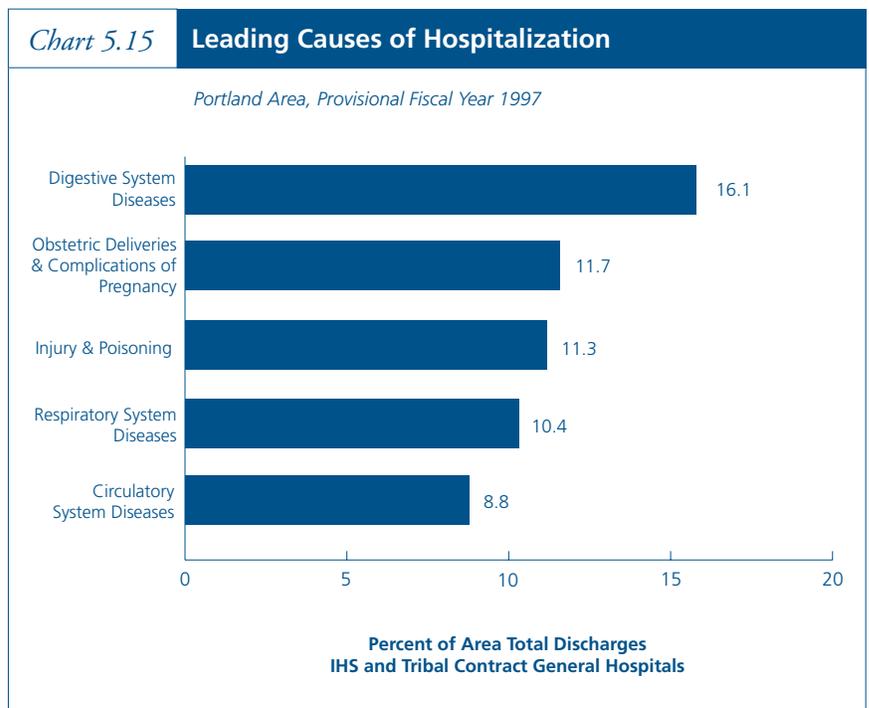
For the Oklahoma Area in FY 1997 (provisional), 27.9 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy. This was followed by digestive system diseases at 13.5 percent.



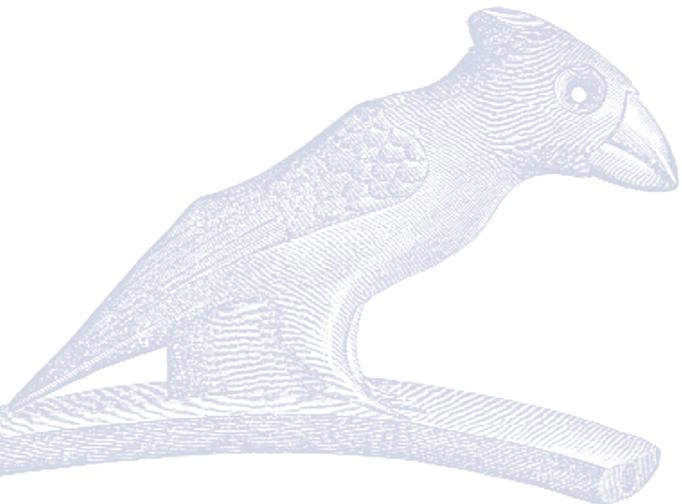
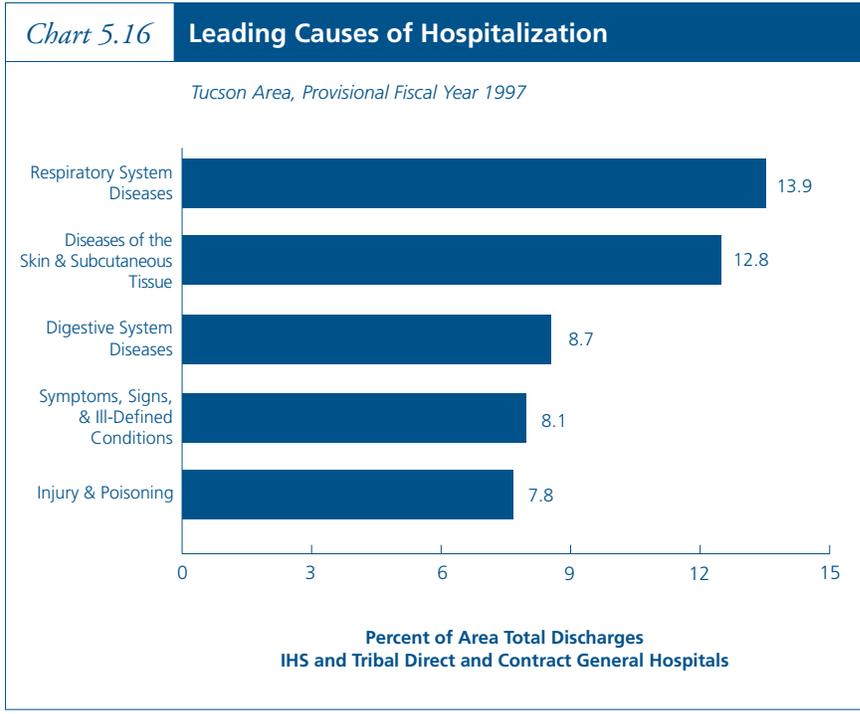
For the Phoenix Area in FY 1997 (provisional), 15.8 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by digestive system diseases and obstetric deliveries and complications of pregnancy, each at 14.7 percent.



For the Portland Area in FY 1997 (provisional), 16.1 percent of all discharges from IHS and Tribal contract general hospitals pertained to digestive system diseases. This was followed by obstetric deliveries and complications of pregnancy at 11.7 percent.



For the Tucson Area in FY 1997 (provisional), 13.9 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by diseases of the skin and subcutaneous tissue at 12.8 percent.



In FY 1997 (provisional), there were more than 7.3 million ambulatory medical visits to IHS and Tribal direct and contract facilities. Two IHS Areas had 32 percent of the visits (provisional), Oklahoma (1,333,944) and Navajo (1,004,195).

Chart 5.17

**Number of Ambulatory Medical Visits**

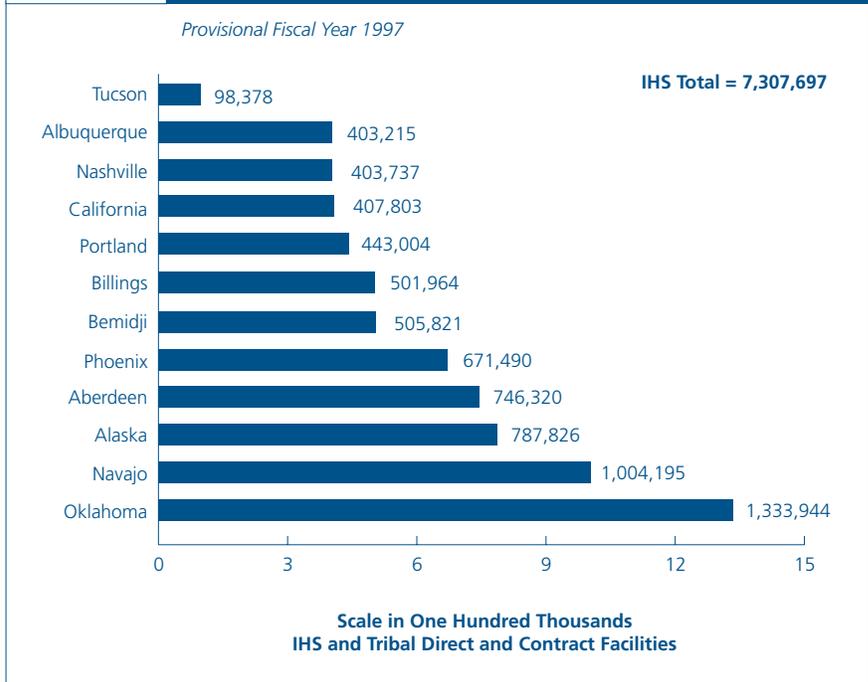


Table 5.17

**Number of Ambulatory Medical Visits**

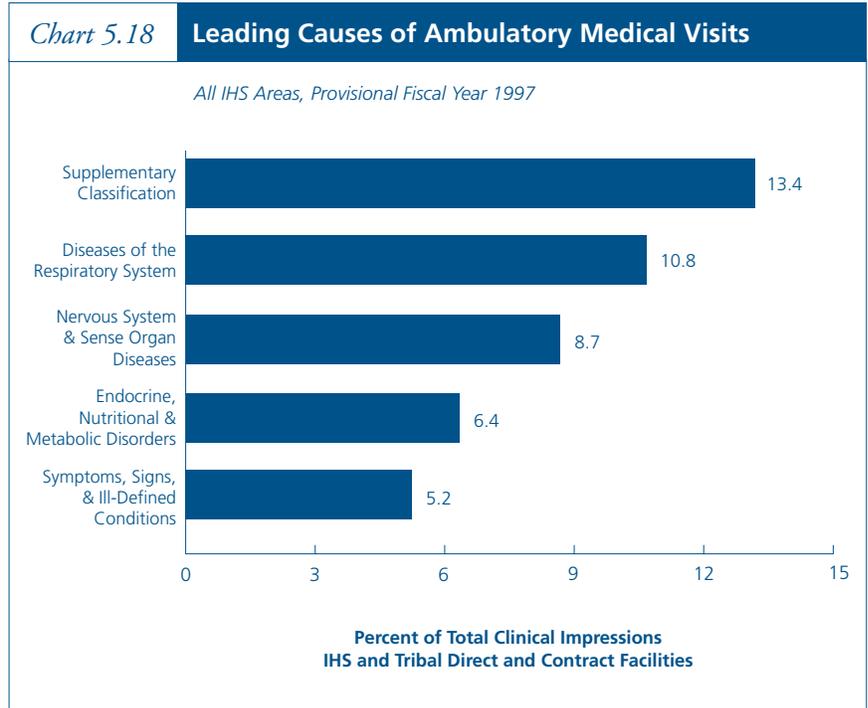
Indian Health Service and Tribal Direct and Contract Facilities, Provisional FY 1997

	Total	Indian Health Service		Tribal	
		Direct	Contract	Direct	Contract
All IHS Areas	7,307,697	4,288,120	129,459	2,710,775	179,343
Aberdeen	746,320	675,587	17,080	53,653	0
Alaska	787,826	214,487	2,782	504,181	66,376
Albuquerque	403,215	365,346	7,823	30,046	0
Bemidji	505,821	147,206	6,234	343,021	9,360
Billings	501,964	390,978	10,847	76,636	23,503
California	407,803	0	0	371,814	35,989
Nashville	403,737	64,877	2,051	302,638 <sup>1</sup>	34,171 <sup>1</sup>
Navajo	1,004,195	971,830	32,365	0	0
Oklahoma	1,333,944	684,885	15,760	633,296	3
Phoenix	671,490	483,742	14,889	172,442	417
Portland	443,004	206,153	18,234	209,093	9,524
Tucson	98,378	83,029	1,394	13,955	0

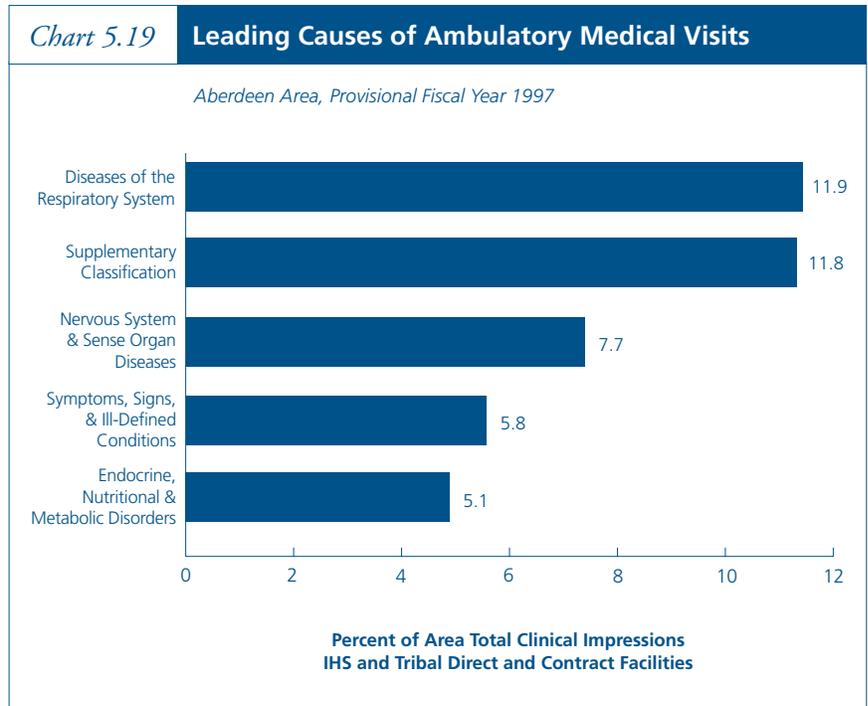
<sup>1</sup> FY 1997 not available; used FY 1996 as estimate.

SOURCES: IHS Direct: APC Data System (Report 1A)  
IHS Contract: Contract Statistical System (Report 3G)  
Tribal Direct and Contract: Area Submissions

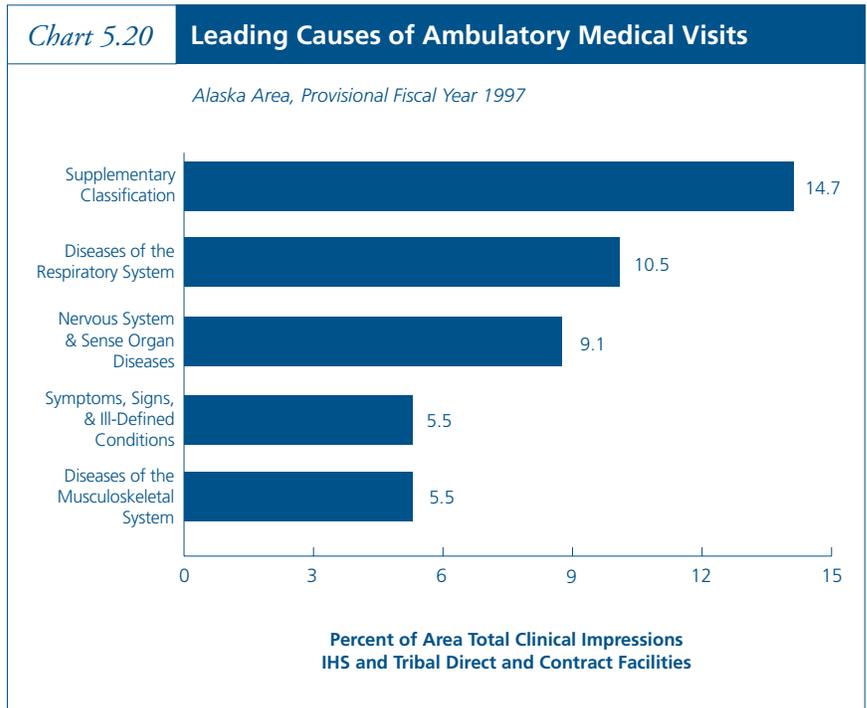
In FY 1997 (provisional), 13.4 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 10.8 percent.



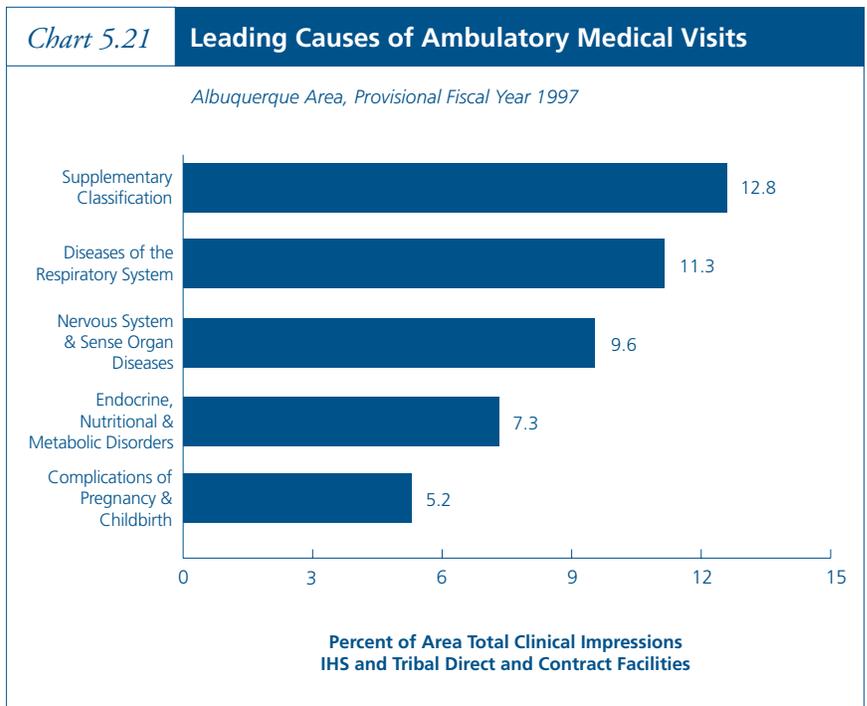
For the Aberdeen Area in FY 1997 (provisional), 11.9 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to diseases of the respiratory system. This was followed by supplementary classifications at 11.8 percent.



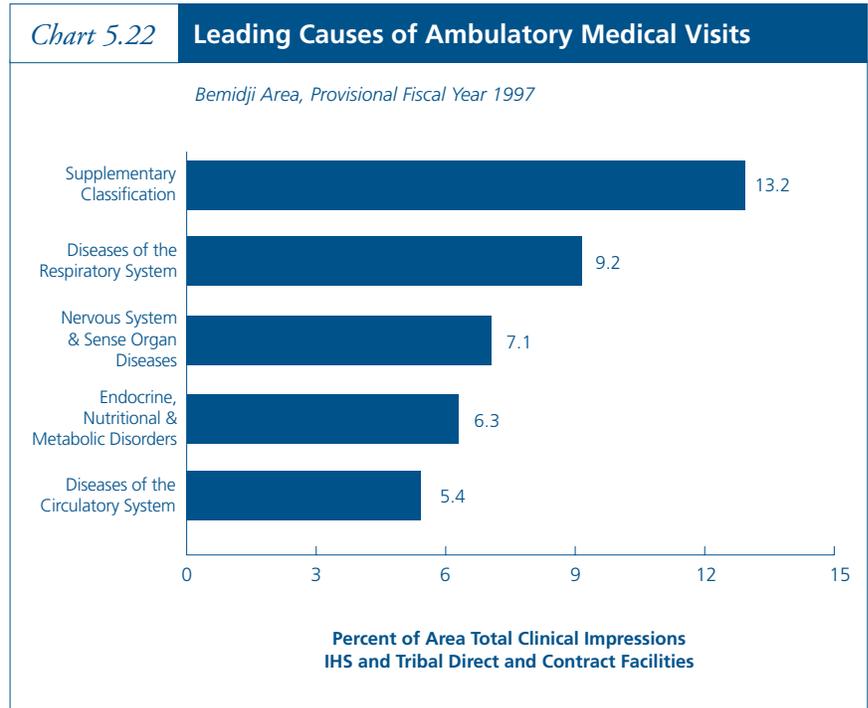
For the Alaska Area in FY 1997 (provisional), 14.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 10.5 percent.



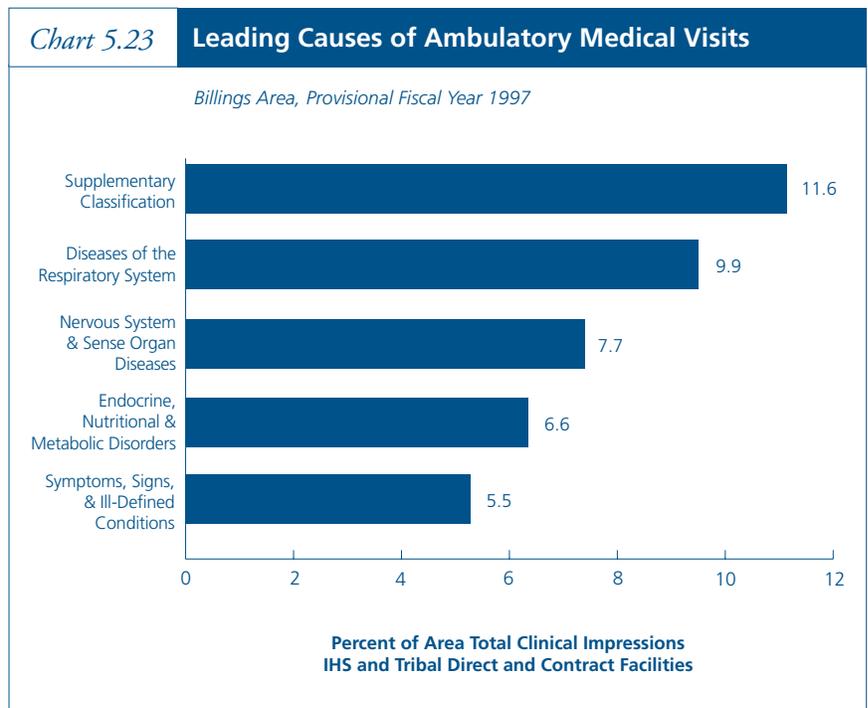
For the Albuquerque Area in FY 1997 (provisional), 12.8 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 11.3 percent.



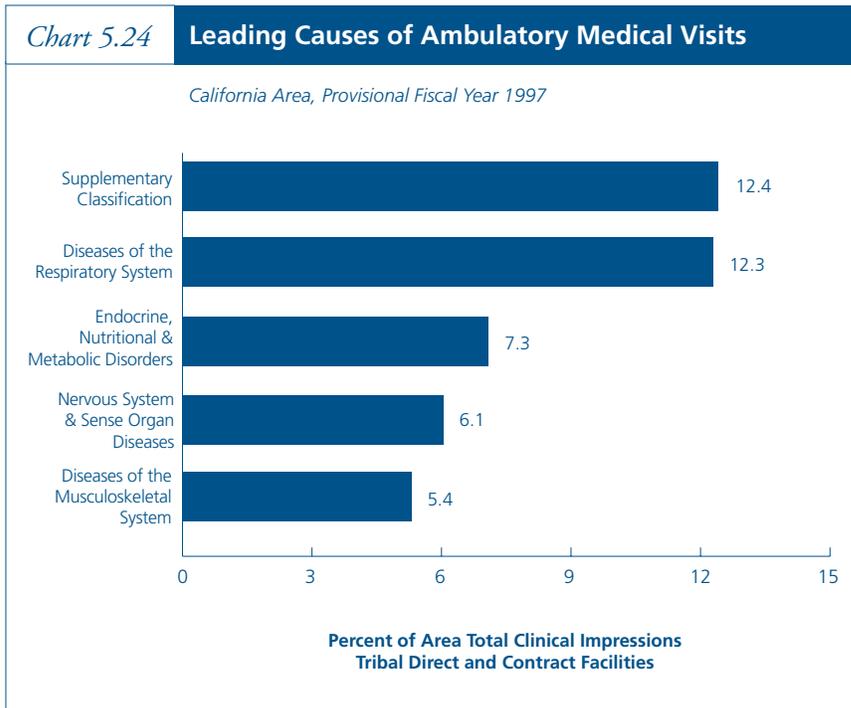
For the Bemidji Area in FY 1997 (provisional), 13.2 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 9.2 percent.



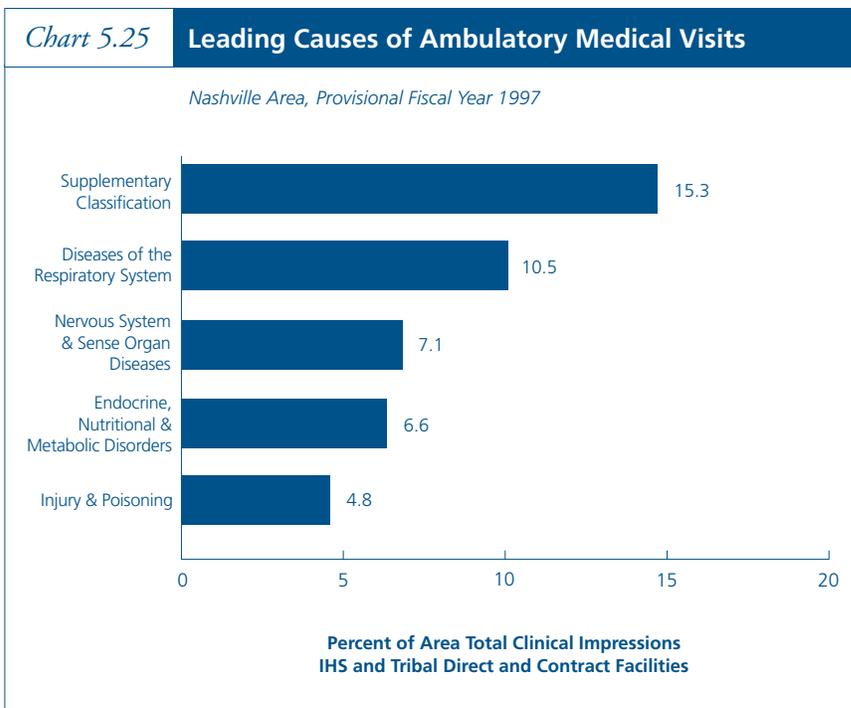
For the Billings Area in FY 1997 (provisional), 11.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 9.9 percent.



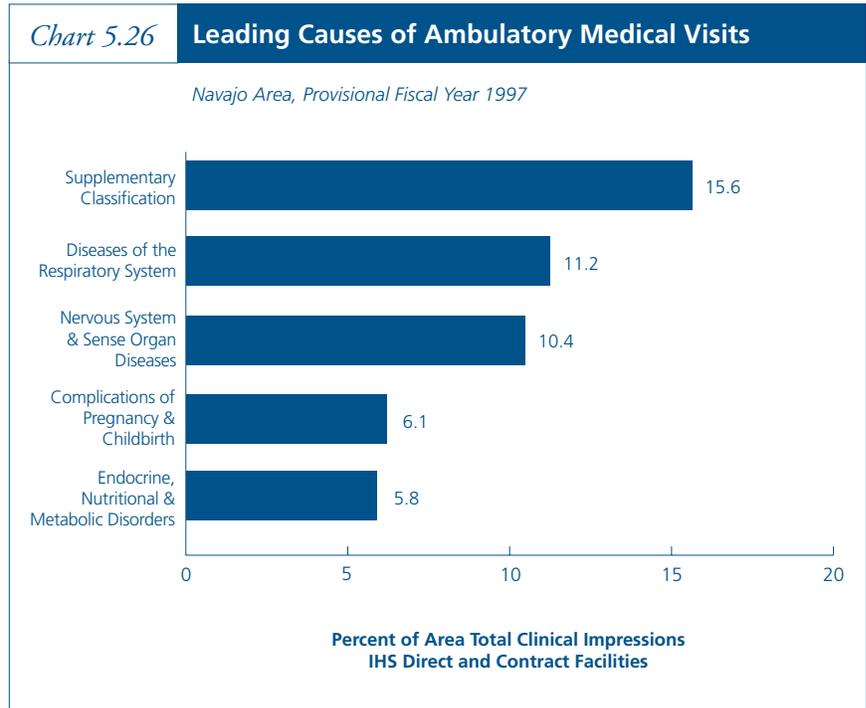
For the California Area in FY 1997 (provisional), 12.4 percent of all clinical impressions in Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 12.3 percent.



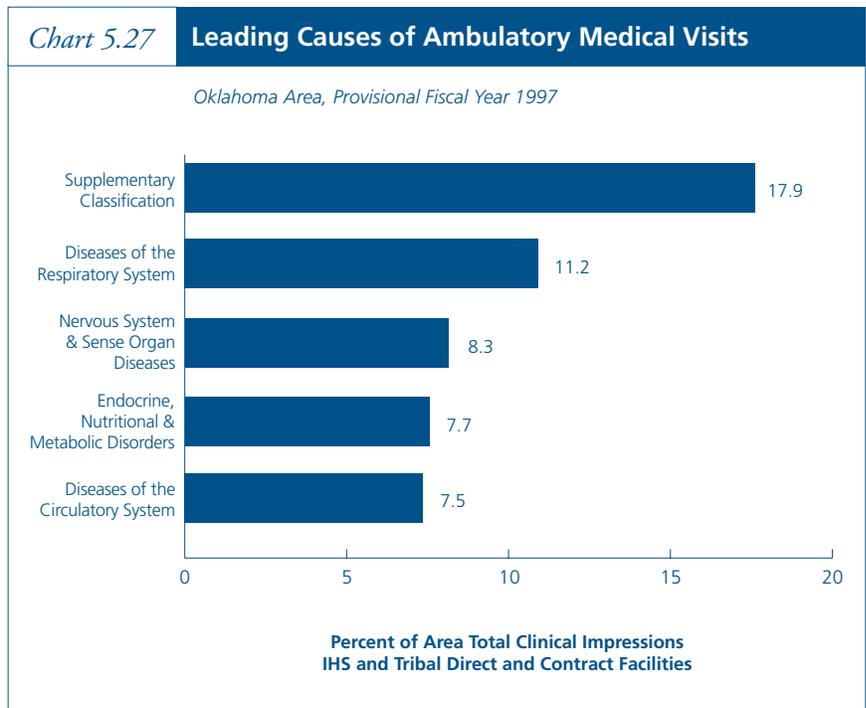
For the Nashville Area in FY 1997 (provisional), 15.3 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 10.5 percent.



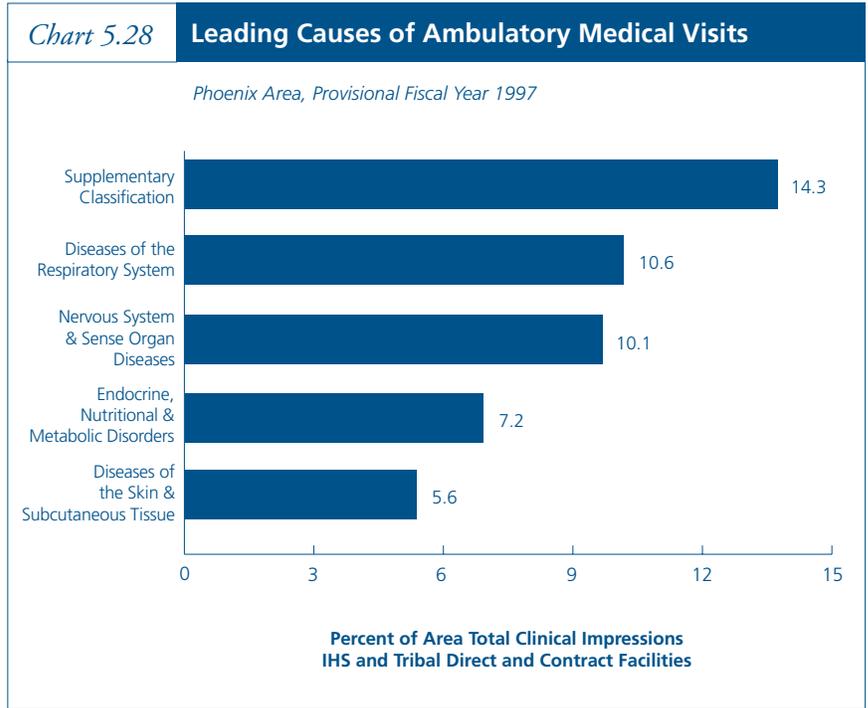
For the Navajo Area in FY 1997 (provisional), 15.6 percent of all clinical impressions in IHS direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 11.2 percent.



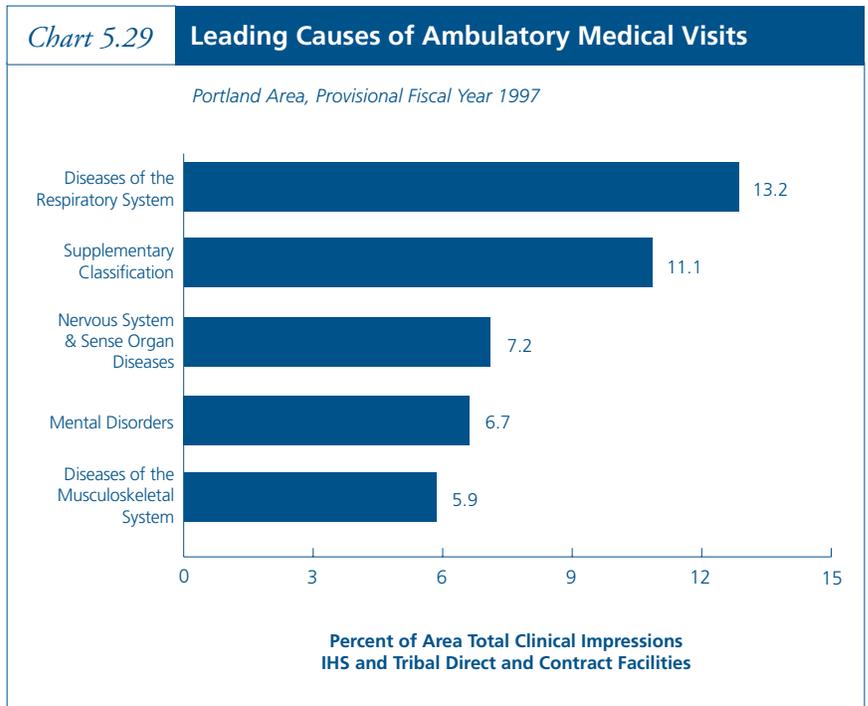
For the Oklahoma Area in FY 1997 (provisional), 17.9 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 11.2 percent.



For the Phoenix Area in FY 1997 (provisional), 14.3 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 10.6 percent.



For the Portland Area in FY 1997 (provisional), 13.2 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to diseases of the respiratory system. This was followed by supplementary classifications at 11.1 percent.

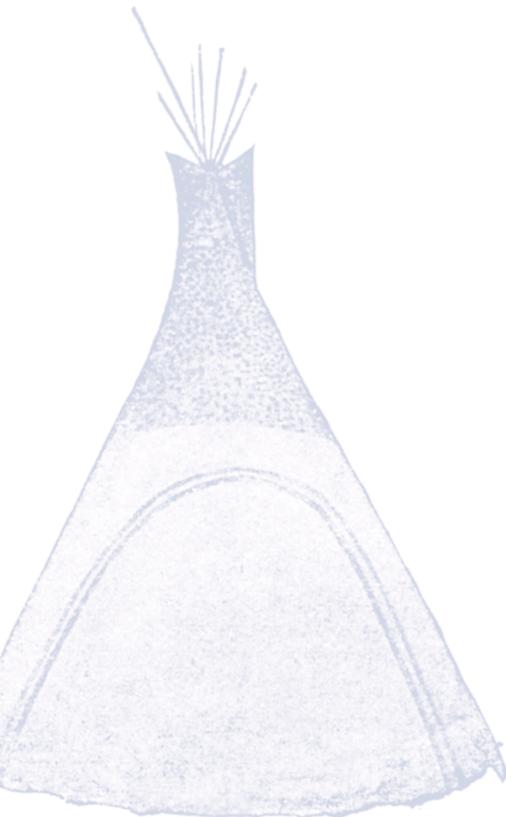
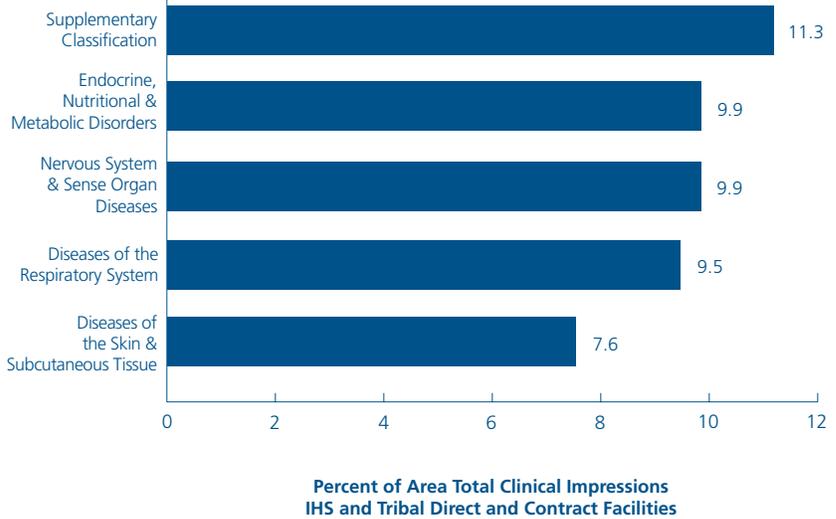


For the Tucson Area in FY 1997 (provisional), 11.3 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by endocrine, nutritional, and metabolic disorders and nervous system and sense organ diseases, each at 9.9 percent.

Chart 5.30

**Leading Causes of Ambulatory Medical Visits**

*Tucson Area, Provisional Fiscal Year 1997*



Indian women of childbearing age (15 to 44 years) had family planning visits to IHS and Tribal direct and contract facilities in FY 1997 (provisional) at a rate of 573.0 visits per 1,000 women (15 to 44 years). The rate (provisional) varied considerably by IHS Area, ranging from 268.7 in California to 838.1 in Alaska.

Chart 5.31

Family Planning Visit Rates

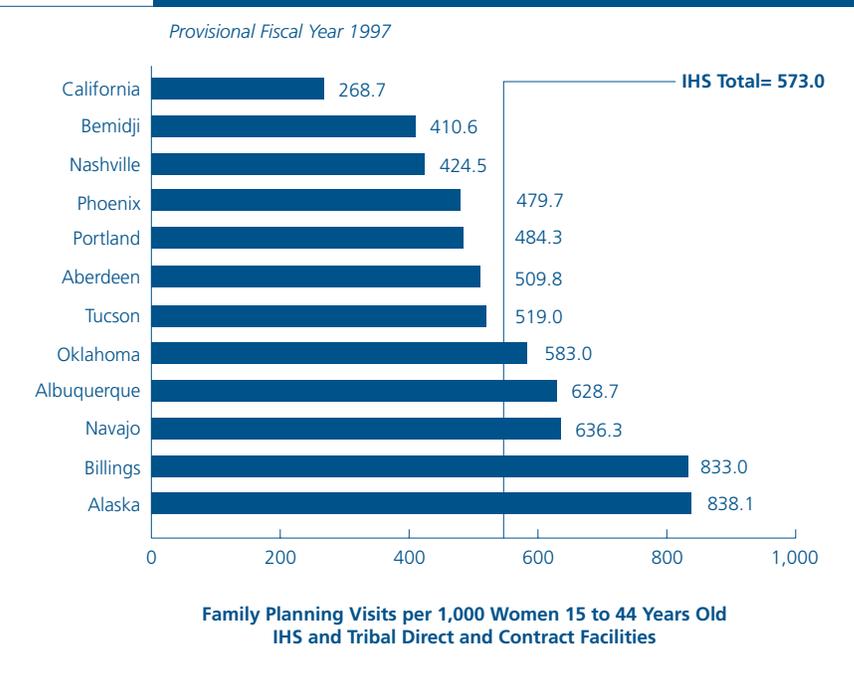


Table 5.31

Number and Rate of Family Planning Visits

Indian Health Service and Tribal Direct and Contract Facilities, Provisional FY 1997

	Total Visit Rate <sup>1</sup>	Total Visits	Direct Visits	Contract Visits	Women 15 to 44 Years
All IHS Areas	573.0	185,282	183,799	1,483	323,328
Aberdeen	509.8	13,955	13,928	27	27,373
Alaska	838.1	21,242	21,237	5	25,344
Albuquerque	628.7	13,702	13,648	54	21,794
Bemidji	410.6	7,705	7,635	70	18,767
Billings	833.0	13,094	12,930	164	15,720
California	268.7	4,283	4,277	6	15,940
Nashville	424.5	3,801	3,801	0	8,954
Navajo	636.3	35,707	34,910	797	56,115
Oklahoma	583.0	42,447	42,410	37	72,809
Phoenix	479.7	16,036	15,974	62	33,432
Portland	484.3	10,380	10,130	250	21,434
Tucson	519.0	2,930	2,919	11	5,646

<sup>1</sup> Number of family planning visits per 1,000 women of childbearing age (15-44 years) in the IHS user population.

SOURCES: IHS Direct: APC Data System (Report 1A)  
IHS Contract: Contract Statistical System (Report 3G)  
Tribal Direct and Contract: Area Submissions

In FY 1998, 88.0 percent of Indian children, 0-27 months, residing in the IHS service area received all required immunizations. In the general population in CY 1996, 77.0 percent of children ages 19 to 35 months received all required immunizations. The Nashville Area had the lowest IHS rate at 78.0 percent, while the Phoenix Area had the highest rate, 96.0.

Chart 5.32

**Immunization Rates, 0-27 Months**

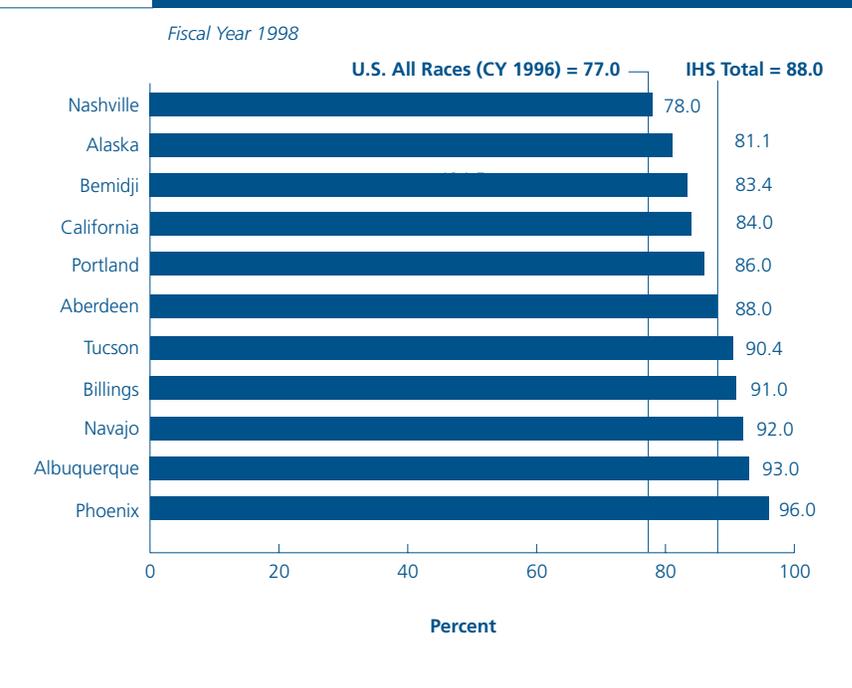


Table 5.32

**Population and Rate of Immunizations, 0-27 Months**

Fiscal Year 1998

	Population Immunized	Immunization Rate <sup>1</sup>
U.S. All Races <sup>2</sup>		77.0
All IHS Areas	77,404	88.0
Aberdeen	15,233	88.0
Alaska	3,342	81.1
Albuquerque	7,546	93.0
Bemidji	1,880	83.4
Billings	8,465	91.0
California	5,676	84.0
Nashville	1,298	78.0
Navajo	29,097	92.0
Oklahoma <sup>3</sup>	—	—
Phoenix	1,060	96.0
Portland	2,021	86.0
Tucson	1,786	90.4

<sup>1</sup> Number of children who have completed all required immunizations divided by the service population for the age group.  
<sup>2</sup> Vaccination coverage levels among children ages 19-35 months, 1996.  
<sup>3</sup> Data not reported to IHS.

SOURCES: U.S. - National Immunization Survey, CDC.  
 IHS - Area Immunization Coordinators from facility quarterly reports.

In FY 1998, there were nearly 2.1 million dental services provided at IHS and Tribal direct and contract facilities, as reported to the IHS central database. Two IHS Areas provided 37 percent of these dental services, Navajo (391,727) and Oklahoma (378,550).

Chart 5.33

**Number of Dental Services Provided**

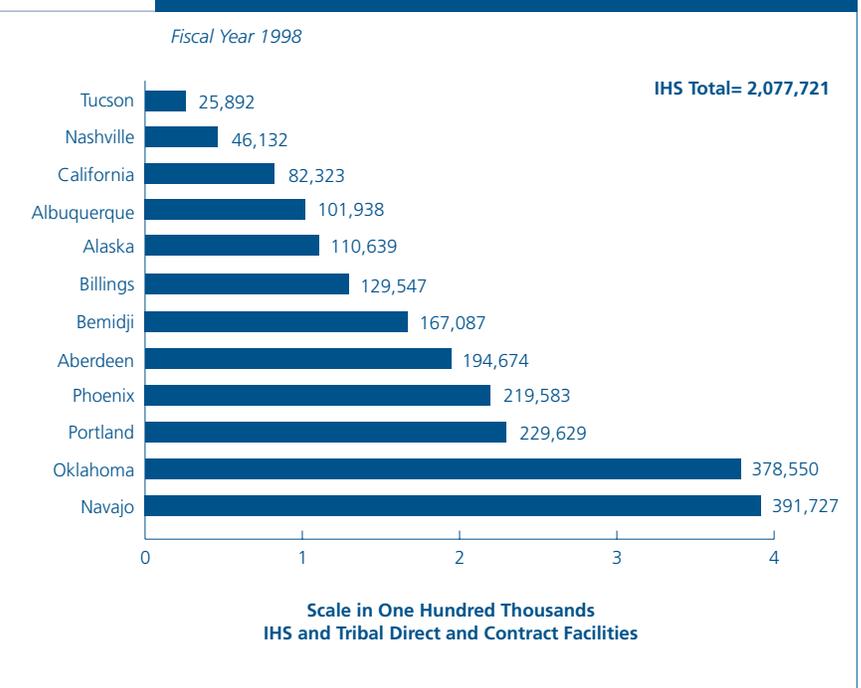


Table 5.33

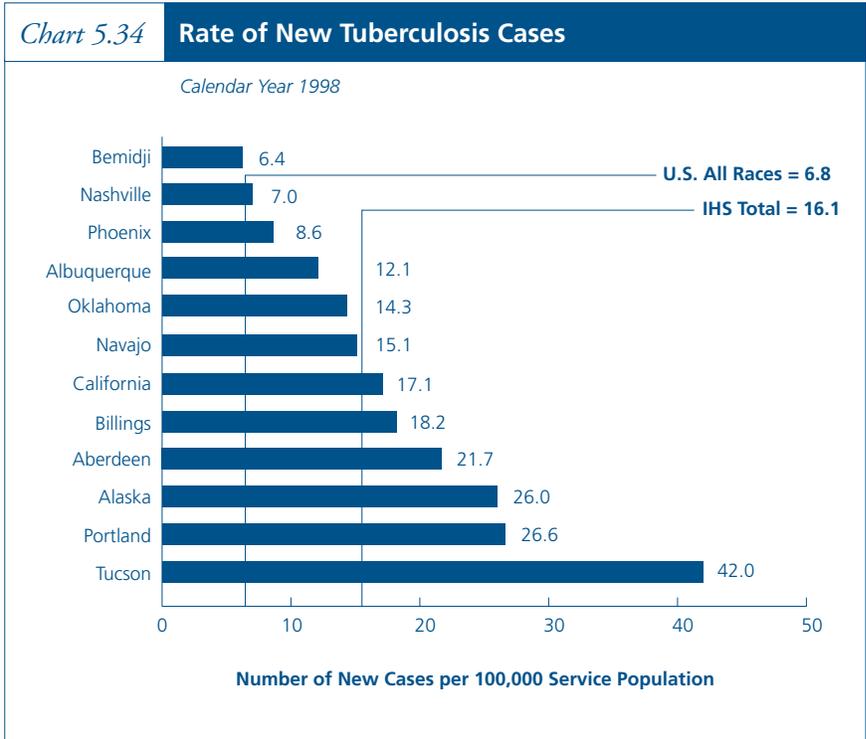
**Number of Dental Services Provided**

Indian Health Service and Tribal Direct and Contract Facilities, FY 1998

	Total		IHS Direct		IHS Contract		Tribal Direct		Tribal Contract	
	Patients	Services	Patients	Services	Patients	Services	Patients	Services	Patients	Services
All IHS Areas	318,521	2,077,721	206,385	1,382,583	269	15,773	111,769	673,978	98	5,387
Aberdeen	27,359	194,674	23,962	168,649	0	2,423	3,392	22,926	5	676
Alaska	42,151	110,639	10,110	24,051	20	702	32,021	85,886	0	0
Albuquerque	17,393	101,938	15,596	91,535	151	1,035	1,646	9,368	0	0
Bemidji	26,516	167,087	6,909	38,782	0	305	19,607	127,999	0	1
Billings	18,727	129,547	18,727	129,438	0	109	0	0	0	0
California	9,571	82,323	0	0	0	0	9,571	82,321	0	2
Nashville	3,875	46,132	2,006	11,689	0	46	1,777	32,500	92	1,897
Navajo	54,938	391,727	54,840	389,772	98	1,955	0	0	0	0
Oklahoma	50,848	378,550	30,307	220,779	0	8,165	20,541	149,006	0	600
Phoenix	31,949	219,583	25,277	172,474	0	273	6,672	46,473	0	363
Portland	31,319	229,629	14,776	109,522	0	760	16,542	117,499	1	1,848
Tucson	3,875	25,892	3,875	25,892	0	0	0	0	0	0

SOURCE: IHS Dental Workload Data Reporting System, 1998

The rate of new tuberculosis cases for the IHS in CY 1998 was 2.4 times the rate for the U.S., 16.1 new cases per 100,000 population compared to 6.8. The Tucson Area rate (42.0) was 6.2 times the U.S. rate. However, the Tucson rate should be interpreted with caution since it is only based on 9 cases.



**Table 5.34 Number and Rate of New Tuberculosis Cases**

Calendar Year 1998

	Case Rate <sup>1</sup>	Number of Cases <sup>1</sup>
U.S. All Races	6.8	18,361
All IHS Areas	16.1	215
Aberdeen	21.7	25
Alaska	26.0	28
Albuquerque	12.1	10
Bemidji	6.4	6
Billings	18.2	12
California	17.1	11
Nashville	7.0	3
Navajo	15.1	36
Oklahoma	14.3	41
Phoenix	8.6	11
Portland	26.6	23
Tucson	42.0	9

<sup>1</sup> Number of new cases per 100,000 service population. Rates are based on a small number of new cases and should be interpreted with caution.

SOURCE: Centers for Disease Control and Prevention (data by State and County)

# Glossary of ICD-9 Codes

## *List of 72 Selected Causes of Death (1979-Present)*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Shigellosis and amebiasis . . . . .	004, 006
Certain other intestinal infections . . . . .	007-009
Tuberculosis . . . . .	010-018
Tuberculosis of respiratory system . . . . .	010-012
Other tuberculosis . . . . .	013-018
Whooping cough . . . . .	033
Streptococcal sore throat, scarlatina, and erysipelas . . . . .	034-035
Meningococcal infection . . . . .	036
Septicemia . . . . .	038
Acute poliomyelitis . . . . .	045
Measles . . . . .	055
Viral hepatitis . . . . .	070
Syphilis . . . . .	090-097
All other infectious and parasitic diseases . . . . .	001-003, 005, 020-032, 037, 039-041, 042-044, 046-054, 056-066, 071-088, 098-139
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	140-208
Malignant neoplasms of lip, oral cavity, and pharynx . . . . .	140-149
Malignant neoplasms of digestive organs and peritoneum . . . . .	150-159
Malignant neoplasms of respiratory and intrathoracic organs . . . . .	160-165
Malignant neoplasm of breast . . . . .	174-175
Malignant neoplasms of genital organs . . . . .	179-187
Malignant neoplasms of urinary organs . . . . .	188-189
Malignant neoplasms of all other and unspecified sites . . . . .	170-173, 190-199
Leukemia . . . . .	204-208
Other malignant neoplasms of lymphatic and hematopoietic tissues . . . . .	200-203
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature . . . . .	210-239
Diabetes mellitus . . . . .	250
Nutritional deficiencies . . . . .	260-269
Anemias . . . . .	280-285
Meningitis . . . . .	320-322
Major cardiovascular diseases . . . . .	390-448
Diseases of heart . . . . .	390-398, 402, 404-429
Rheumatic fever and rheumatic heart disease . . . . .	390-398
Hypertensive heart disease . . . . .	402
Hypertensive heart and renal disease . . . . .	404
Ischemic heart disease . . . . .	410-414
Acute myocardial infarction . . . . .	410
Other acute and subacute forms of ischemic heart disease . . . . .	411
Angina pectoris . . . . .	413
Old myocardial infarction and other forms of chronic ischemic heart disease . . . . .	412, 414

*List of 72 Selected Causes of Death (1979-Present)*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Other diseases of endocardium .....	424
All other forms of heart disease .....	415-423, 425-429
Hypertension with or without renal disease .....	401, 403
Cerebrovascular diseases .....	430-438
Intracerebral and other intracranial hemorrhage .....	431-432
Cerebral thrombosis and unspecified occlusion of cerebral arteries .....	434.0, 434.9
Cerebral embolism .....	434.1
All other and late effects of cerebrovascular diseases .....	430, 433, 435-438
Atherosclerosis .....	440
Other diseases of arteries, arterioles, and capillaries .....	441-448
Acute bronchitis and bronchiolitis .....	466
Pneumonia and influenza .....	480-487
Pneumonia .....	480-486
Influenza .....	487
Chronic obstructive pulmonary diseases and allied conditions .....	490-496
Bronchitis, chronic and unspecified .....	490-491
Emphysema .....	492
Asthma .....	493
Other chronic obstructive pulmonary diseases and allied conditions .....	494-496
Ulcer of stomach and duodenum .....	531-533
Appendicitis .....	540-543
Hernia of abdominal cavity and intestinal obstruction without mention of hernia .....	550-553, 560
Chronic liver disease and cirrhosis .....	571
Cholelithiasis and other disorders of gallbladder .....	574-575
Nephritis, nephrotic syndrome, and nephrosis .....	580-589
Acute glomerulonephritis and nephrotic syndrome .....	580-581
Chronic glomerulonephritis, nephritis and nephropathy, not specified as acute or chronic, and renal sclerosis, unspecified .....	582-583, 587
Renal failure, disorders resulting from impaired renal function, and small kidney of unknown cause .....	584-586, 588-589
Infections of kidney .....	590
Hyperplasia of prostate .....	600
Complications of pregnancy, childbirth, and the puerperium .....	630-676
Pregnancy with abortive outcome .....	630-638
Other complications of pregnancy, childbirth, and the puerperium .....	640-676
Congenital anomalies .....	740-759
Certain conditions originating in the perinatal period .....	760-779
Birth trauma, intrauterine hypoxia, birth asphyxia, and respiratory distress syndrome .....	767-769
Other conditions originating in the perinatal period .....	760-766, 770-779
Symptoms, signs, and ill-defined conditions .....	780-799
All other diseases .....	Residual
Accidents and adverse effects .....	E800-E949
Motor vehicle accidents .....	E810-E825
All other accidents and adverse effects .....	E800-E807, E826-E949
Suicide .....	E950-E959
Homicide and legal intervention .....	E960-E978
All other external causes .....	E980-E999

*List of 61 Selected Causes of Infant Death (1979-Present)*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Certain intestinal infections .....	008-009
Whooping cough .....	033
Meningococcal infection .....	036
Septicemia .....	038
Viral diseases .....	045-079
Congenital syphilis .....	090
Remainder of infectious and parasitic diseases .....	001-007, 010-032, 034-035, 037, 039-041, 042-044, 080-088, 091-139
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues .....	140-208
Benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature .....	210-239
Diseases of thymus gland .....	254
Cystic fibrosis .....	277.0
Diseases of blood and blood-forming organs .....	280-289
Meningitis .....	320-322
Other diseases of nervous system and sense organs .....	323-389
Acute upper respiratory infections .....	460-465
Bronchitis and bronchiolitis .....	466, 490-491
Pneumonia and influenza .....	480-487
Pneumonia .....	480-486
Influenza .....	487
Remainder of diseases of respiratory system .....	470-478, 492-519
Hernia of abdominal cavity and intestinal obstruction without mention of hernia .....	550-553, 560
Gastritis, duodenitis, and noninfective enteritis and colitis .....	535, 555-558
Remainder of diseases of digestive system .....	520-534, 536-543, 562-579
Congenital anomalies .....	740-759
Anencephalus and similar anomalies .....	740
Spina bifida .....	741
Congenital hydrocephalus .....	742.3
Other congenital anomalies of central nervous system and eye .....	742.0-742.2, 742.4-742.9, 743
Congenital anomalies of heart .....	745-746
Other congenital anomalies of circulatory system .....	747
Congenital anomalies of respiratory system .....	748
Congenital anomalies of digestive system .....	749-751
Congenital anomalies of genitourinary system .....	752-753
Congenital anomalies of musculoskeletal system .....	754-756
Down's syndrome .....	758.0
Other chromosomal anomalies .....	758.1-758.9
All other and unspecified congenital anomalies .....	744, 757, 759
Certain conditions originating in the perinatal period .....	760-779
Newborn affected by maternal conditions that may be unrelated to present pregnancy .....	760
Newborn affected by maternal complications of pregnancy .....	761
Newborn affected by complications of placenta, cord, and membranes .....	762
Newborn affected by other complications of labor and delivery .....	763
Slow fetal growth and fetal malnutrition .....	764
Disorders relating to short gestation and unspecified low birthweight .....	765
Disorders relating to long gestation and high birthweight .....	766

*List of 61 Selected Causes of Infant Death (1979-Present)*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Birth trauma . . . . .	767
Intrauterine hypoxia and birth asphyxia . . . . .	768
Fetal distress in liveborn infant . . . . .	768.2-768.4
Birth asphyxia . . . . .	768.5-768.9
Respiratory distress syndrome . . . . .	769
Other respiratory conditions of newborn . . . . .	770
Infections specific to the perinatal period . . . . .	771
Neonatal hemorrhage . . . . .	772
Hemolytic disease of newborn, due to isoimmunization, and other perinatal jaundice . . . . .	773-774
Syndrome of "infant of a diabetic mother" and neonatal diabetes mellitus . . . . .	775.0-775.1
Hemorrhagic disease of newborn . . . . .	776.0
All other and ill-defined conditions originating in the perinatal period . . . . .	775.2-775.9, 776.1-779
Symptoms, signs, and ill-defined conditions . . . . .	780-799
Sudden infant death syndrome . . . . .	798.0
Symptoms, signs, and all other ill-defined conditions . . . . .	780-797, 798.1-799
Accidents and adverse effects . . . . .	E800-E949
Inhalation and ingestion of food or other object causing obstruction of respiratory tract or suffocation . . . . .	E911-E912
Accidental mechanical suffocation . . . . .	E913
Other accidental causes and adverse effects . . . . .	E800-E910, E914-E949
Homicide . . . . .	E960-E969
Child battering and other maltreatment . . . . .	E967
Other homicide. . . . .	E960-E966, E968-E969
All other causes . . . . .	Residual

## *Additional Causes of Death and Their Corresponding ICD-9 Codes That Are Found in This Publication*

*(These categories are not included as part of the 72 cause of death or 61 cause of infant death lists. They are independent of these two lists but are valid cause of death codes to use for the causes indicated.)*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Alcoholism deaths	291, 303, 305.0, 357.5, 425.5, 535.3, 571.0-571.3, 790.3, E860
Breast cancer (females)	174
Cervical cancer	180
Colon-rectal cancer	153.0-154.3, 154.8, 159.0
Drug-related deaths	292, 304, 305.2-305.9, E850-E858, E950-E950.5, E962.0, E980.0-E980.5
Gastroenteric deaths	004, 006-009, 535, 555-556, 558, 562
Human immunodeficiency virus (HIV) infection	042-044
Injury by firearms	E922, E955.0-E955.4, E965.0-E965.4, E970, E985.0-E985.4
Injury and poisoning	E800-E807, E810-E825, E826-E949, E950-E959, E960-E978, E980-E989, E990-E999
Other injuries	E980-E989, E990-E999
Lung cancer	162.2-162.9
Maternal deaths	630-676
Prostate cancer	185

## *List of ICD-9-CM Codes Used in Patient Care Charts and Tables*

<b>Cause of death</b>	<b>ICD-9 Codes</b>
Infectious and parasitic diseases	001-139
Neoplasms	140-239
Endocrine, nutritional, and metabolic diseases and immunity disorders	240-279
Diseases of the blood and blood-forming organs	280-289
Mental disorders	290-319
Diseases of the nervous system and sense organs	320-389
Diseases of the circulatory system	390-459
Diseases of the respiratory system	460-519
Diseases of the digestive system	520-579
Diseases of the genitourinary system	580-629
Complications of pregnancy, childbirth, and the puerperium	630-676
Diseases of the skin and subcutaneous tissue	680-709
Diseases of the musculoskeletal system and connective tissue	710-739
Congenital anomalies	740-759
Certain conditions originating in the perinatal period	760-779
Symptoms, signs, and ill-defined conditions	780-799
Injury and poisoning	800-999
Supplementary classification (classification of factors influencing health status and contact with health service)	E01-E99



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Cancer, breast . . . . .	4.32	4.32	Malignant neoplasms, all sites . . . . .	4.30	4.30
Cancer, cervical . . . . .	4.33	4.33	Malignant neoplasms, breast . . . . .	4.32	4.32
Cancer, colon-rectal . . . . .	4.34	4.34	Malignant neoplasms, cervical . . . . .	4.33	4.33
Cancer, lung . . . . .	4.31	4.31	Malignant neoplasms, colon-rectal . . . . .	4.34	4.34
Cancer, prostate . . . . .	4.35	4.35	Malignant neoplasms, lung . . . . .	4.31	4.31
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