



# Regional Differences in Indian Health 2002-2003 EDITION

U.S. Department of Health and Human Services  
**Indian Health Service**  
Office of Public Health Support  
Division of Program Statistics

**INDIAN HEALTH SERVICE  
REGIONAL DIFFERENCES IN INDIAN HEALTH  
2002-2003 EDITION**

**Department of Health and Human Services**

Michael O. Leavitt  
*Secretary*

**Indian Health Service**

Robert G. McSwain  
*Acting Director*

**Office of Public Health Support**

Richard M. Church, Pharm. D.  
*Director*

**Division of Program Statistics**

Edna L. Paisano  
*Director*





## PREFACE

*Since 1955, the Indian Health Service (IHS) has had the responsibility for upholding the Federal Government's obligations to promote healthy American Indian and Alaska Native people, communities, and cultures, while honoring and protecting each Tribe's inherent sovereign rights. The IHS mission is to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level.*

***"Regional Differences in Indian Health"** provides narrative, tables, and charts that describe IHS programs and the health status of American Indians and Alaska Natives. The Report presents a structural overview of the Agency, along with demographic data on American Indians and Alaska Natives and patient care delivery services. Current regional differences are detailed and comparisons made to the U.S. population at large, where appropriate.*

*The IHS remains committed to our goal of assuring that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indian and Alaska Native people. The data contained within this Report advances our ongoing efforts to achieve this vital health care goal.*

  
**Robert G. McSwain**  
Acting Director



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Production coordination was provided by Priscilla Sandoval.

Production was accomplished by the DPS staff: Edna Paisano, JoAnn Glakas Pappalardo, Kirk Greenway, Priscilla Sandoval, and Bonnie Matheson.

Data were analyzed by the following Program Statistics staff:

Part I, Indian Health Structure:

*Kirk Greenway and Bonnie Matheson*

Part II, Population Statistics:

*Kirk Greenway and former staff member Linda Querec*

Part III, Natality and Infant Mortality Statistics:

*JoAnn Glakas Pappalardo*

Part IV, General Mortality Statistics:

*JoAnn Glakas Pappalardo, Alan Friedman, and former staff members  
Debra A. Heller and Barbara Moore*

Multiple Cause Death Statistics and Analysis:

*Mark A. Veazie, Dr.P.H.*

Part V, Patient Care Statistics:

*Kirk Greenway, Bonnie Matheson, and former staff member  
Michael Spencer.*

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## OVERVIEW

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 Indian and Alaska Native (AI/AN) people. 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 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 AI/AN people and its goal is to assure that comprehensive, culturally-acceptable personal and public health services are available and accessible to AI/AN people. The mission of the IHS, in partnership with AI/AN people, is to raise their physical, mental, social, and spiritual health to the highest level. It is also the responsibility of the IHS to work with the people involved in the health delivery programs so they may be cognizant of entitlements of AI/AN 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 AI/AN 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 staffing 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 AI/AN people 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 primary level of health organization for a geographic area served by the IHS program, just as a county or city health department 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 administered by Area Offices.



## INTRODUCTION

*Regional Differences in Indian Health* provides basic statistical information to the IHS and its programs, Tribes, other federal and state government agencies, as well as other customers interested in the IHS. This publication uses narrative, charts, and tables to describe the IHS program and the health status of AI/AN people 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 56 percent of all AI/AN people residing in the U.S. Information pertaining to the IHS organizational structure, AI/AN demography, and patient care is included. Current regional differences are presented, and comparisons to the general population are made when appropriate. Historical trend information can be found in the IHS companion publication *Trends in Indian Health*.

### Scope and Organization of this Report

Narrative, charts, and tables are grouped into five major categories:

IHS STRUCTURE	PG.19
POPULATION STATISTICS	PG.26
NATALITY AND INFANT/MATERNAL MORTALITY STATISTICS	PG.31
GENERAL MORTALITY/MULTIPLE CAUSE STATISTICS	PG.49
PATIENT CARE STATISTICS	PG.82

The tables provide detailed data, while the charts further depict significant relationships. Throughout this report each table and its corresponding chart appear next to each other. However, some self-explanatory charts do not have a corresponding table. In other instances, a table may have more than one chart associated with it.



## SUMMARY OF DATA

### Indian Health Service Organizational Structure

The IHS is comprised of twelve regional administrative units called Area Offices:

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

As of October 1, 2004, the Area Offices consisted of 164 basic administrative units called service units. Of the 164 service units, 97 were operated by Tribes. The number of service units ranged from two in Tucson to 34 in Nashville.

The IHS operated 33 hospitals, 52 health centers, two school health centers, and 38 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, as amended (Title V). A distinction is made in this publication regarding these two Tribal modes of operation, i.e., Title I and Title V. Tribes operated 15 hospitals (Title I, three hospitals and Title V, 12 hospitals), 216 health centers (Title I, 113 and Title V, 103), nine school health centers (Title I, seven and Title V, two), 97 health stations (Title I, 62 and Title V, 35), and 162 Alaska village clinics (Title I, eight, Title V, 147, and other, seven). Both California and Portland had no hospitals while Aberdeen and Phoenix had eight hospitals each. Navajo and Tucson had the fewest health centers with six and Oklahoma the most with 53.

### Population Statistics

In fiscal year (FY) 2004, the IHS user population was over 1.4 million. The IHS user population is defined as the number of Indian registrants, residing within a service delivery area with at least one face-to-face, direct or contract, inpatient stay, ambulatory care visit, or dental visit during the prior three fiscal years. The service delivery area for the user population is called a “Contract Health Service Delivery Area”, and only users who live inside one can be counted as a user. Tucson (24,009) and Nashville (47,218) had the smallest user populations while Navajo (236,829) and Oklahoma (299,622) had the largest user populations.

The AI/AN population is younger, less educated and poorer than the U.S. all-races population. For the IHS user population in FY 2004, 9.3 percent of the persons were under age 5 compared to 6.8 percent for the U.S. all-races population (Census 2000). There was considerable variation by Area with Nashville at 7.7 percent and Phoenix at 10.9 percent.

According to the 2000 Census, 70.9 percent of AI/AN (alone) (ages 25 and older) residing in the IHS service areas are high school graduates or higher compared to 80.4 percent for the U.S. all-races population. For the Navajo Area, the percentage was less than 60.0 (based on state-level AI/AN (alone) data). The 2000 Census also indicated that the median household income in 1999 for AI/AN (alone) residing in the IHS service areas was \$32,461, while for the U.S. all-races it was \$50,046, which is 54 percent higher than AI/AN (alone) people residing in the IHS service areas. Albuquerque had the lowest median household income at \$22,295 and California the highest at \$35,611 (based on state-level AI/AN (alone) data).

### Nativity and Infant/Maternal Mortality Statistics

The birth rate for AI/AN people residing in the IHS service area was 22.2 (rate per 1,000 population) in 1999-2001. It is 1.5 times the 2000 birth rate of 14.7 for the U.S. all-races population. For the period 1999-2001, there were 18 maternal deaths in the IHS service area population. Portland had five deaths, followed by the Oklahoma and Navajo areas each with four deaths. There were six areas with no maternal deaths.

The infant mortality rate for AI/AN people residing in the IHS service area was 8.8 per 1,000 live births in 1999-2001 compared to 6.9 for the U.S. all-races population in 2000. The AI/AN rate is 28 percent higher than the U.S. all-races rate. The infant mortality rate varied considerably among the IHS Areas, ranging from 6.8 in Albuquerque to 13.4 in Aberdeen. These data are adjusted for misreporting of AI/AN race on the death certificate.<sup>1</sup>

### General Mortality Statistics

In 1999-2001, the age-adjusted death rate (all causes) for AI/AN people residing in the IHS service area was 1,059.0 per 100,000 population compared to 872.0 for the U.S. all-races population in 2000. The AI/AN rate is 21 percent greater than the U.S. all-races rate. The Aberdeen (1,470.8), Bemidji (1,449.0) and Billings (1,445.1) service areas had the highest rates. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

The top two leading causes of death for the IHS service area population in 1999-2001 were diseases of the heart and malignant neoplasm, the same as the U.S. all-races in 2000. However, five IHS Areas (Alaska, Albuquerque, Navajo, Phoenix, and Tucson) had unintentional injuries as one of two 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 and therefore could have an effect on the leading causes of death ranking.

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<sup>1</sup> Indian Health Service, Department of Health and Human Service. Adjusting for Misreporting on Indian Race on the State Death Certificate. November 1996.



*General Mortality Statistics (continued)*

For most of the specific causes of death identified in this publication, the 1999-2001 AI/AN age-adjusted death rate (with data that have also been adjusted for misreporting of AI/AN race on death certificates) was greater than the 2000 U.S. all-races rate. There was also considerable variation in the rates among the IHS Areas. Some of the Area rates should be interpreted with caution, because of the small number of deaths involved. The following list is a comparison of the AI/AN age-adjusted rate (using data that are also adjusted for misreporting of AI/AN race on the state death certificate) to the U.S. rate where there are substantial differences.

- 1) tuberculosis  
533 percent greater
- 2) alcoholism  
526 percent greater
- 3) diabetes mellitus  
208 percent greater
- 4) unintentional injuries  
150 percent greater
- 5) homicide  
87 percent greater
- 6) suicide  
60 percent greater
- 7) pneumonia and influenza  
42 percent greater
- 8) firearm injury  
26 percent greater
- 9) cerebrovascular diseases  
5 percent greater
- 10) diseases of the heart  
5 percent less
- 11) malignant neoplasms  
8 percent less
- 12) human immunodeficiency virus (HIV) infection  
38 percent less

### Multiple Cause Analysis

Among AI/AN males and females over the age of 35, the rate of death where diabetes is mentioned as a cause anywhere on the death record (multiple cause) was over two times higher than the rate of death based on the underlying cause of death.

Death rates based on a multiple cause of death analysis:

- Among AI/AN Males 35-74 years of age, the death rate for heart disease in the entire IHS service area, as well as the Aberdeen, Bemidji, Billings, and Portland areas significantly exceeded the U.S. rate. The Aberdeen and Billings areas also significantly exceeded the U.S. death rate for cerebrovascular disease as well.
- Among AI/AN females 35-74 years of age, the Aberdeen, Bemidji, Billings, Nashville, Phoenix, and Portland areas significantly exceeded the U.S. heart disease death rate, as did the entire IHS service area. The entire IHS service area, as well as the Aberdeen, Bemidji, California, Phoenix, and Portland areas, also exceeded the U.S. rate for cerebrovascular disease.
- Among AI/AN 35-74 years of age, the Aberdeen, Bemidji, Billings and Portland areas significantly exceeded the U.S. death rate for heart disease listed in the death record with no mention of diabetes. However, in this age group, the entire IHS service area, as well as all individual IHS areas (except Alaska), significantly exceeded the U.S. death rate for heart disease and diabetes listed together in the death record.
- Among AI/AN 75 years old or more, none of the areas significantly exceeded the U.S. rates for heart disease with no mention of diabetes, while the Aberdeen, Bemidji, California, Nashville, Oklahoma, and Portland areas, as well as the entire IHS service area, significantly exceeded the U.S. rate for heart disease and diabetes combined.



### Patient Care Statistics

In FY 2004, there were over 77,000 admissions to IHS and Tribal direct and contract general hospitals. The number of admissions ranged from 808 in California to 20,105 in Navajo. Obstetric deliveries and complications of pregnancy accounted for the overall leading cause of hospitalization in IHS and Tribal direct and contract general hospitals. However, on an area-by-area basis, obstetric deliveries and complications of pregnancy led hospital admissions in Alaska, Navajo, and Oklahoma; diseases of the digestive system led in Albuquerque, Nashville, and Portland. IHS and Tribal direct and contract facilities reported ambulatory medical visits in excess of 10 million for FY 2004. Tucson reported the fewest ambulatory medical visits with 102,266 and Oklahoma had the most with 1,848,408. The supplementary classification—an ambulatory visit that does not directly deal with an injury or disease, but rather includes such preventative care as well-child visits, vaccinations, physical examinations, tests only (lab, x-ray, screening), hospital, medical, or surgical follow-up, and prescription refills—led as the number-one cause of ambulatory medical visits for all IHS Areas. Prescription refills are thought to be a major contributor to the number of such visits relative to all others. In order to provide a true “top five” in terms of categories of diseases, additional such categories were added beyond five in order to balance the disproportionate number of supplementary classifications relative to all other categories.

In FY 2004, 79.2 percent of AI/AN children 3-27 months and residing in the IHS service area received all required immunizations. In the general population in CY 2003, 80.9 percent of children aged 19 to 27 months received all required immunizations. In AI/AN children 3-27 months and residing in the IHS service area, the Oklahoma Area had the lowest IHS rate at 62.4 percent, while the Navajo Area had the highest rate, 90.2 percent.

In FY 2004, over 15 million dental services were reported to be provided at IHS and Tribal direct and contract facilities. Two IHS Areas provided 54 percent of these reported dental services, Bemidji (3,952,251) and Portland (4,562,504).

## SOURCES AND LIMITATIONS OF DATA

### Population Statistics

Registered AI/AN patients with at least one direct or contract inpatient stay, outpatient visit, or dental visit during the last three years are defined as users. IHS user population estimates are drawn from data in the IHS Patient Registration System. First implemented in 1984, the Patient Registration System functioned adequately for many years; but, in recent years, system changes resulted in registration record errors. New system-wide improvements were implemented. From August through December 2001 local facilities re-sent complete and up-to-date information for all patients who had ever received direct or contract health services from IHS or Tribally-operated programs to a central data repository. Data matching software was then applied to the information, allowing for the identification and removal of duplicate records. Thanks to the dedicated efforts of area statistical officers and information technologists alike, this publication contains some of the most accurate user population estimates ever produced.

The IHS user population estimates shown in this publication should 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, representing self-identified AI/AN people who may or may not use IHS services. IHS service populations between census years (e.g., 1990 and 2000) are estimated using 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 AI/AN people. IHS service populations beyond the latest census year (2000) are projected through linear regression techniques, using the most current ten years of AI/AN birth and death data provided by the NCHS, Centers for Disease Control and Prevention (CDC).

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 AI/AN vital event rates for the IHS service areas.

The social and economic data contained in this publication are from the 2000 census and reflect the characteristics of persons self-identifying as AI/AN (alone).



## IHS Service Population

### Definition

The IHS service population is based on the 2000 census bridged-race file (developed by the Census Bureau and the NCHS, CDC). It consists of AI/AN and serves as a measure of those eligible for IHS services. Those AI/AN eligible are estimated by counting AI/AN who reside in geographic areas in which IHS has responsibilities (“on or near” reservations) and is comprised of approximately 56 percent of all AI/AN residing in the U.S. These people **may** or **may not** use IHS health services. (Migration is not a factor when developing the IHS service population).

### Description of Service Population Calculation

DPS produces service populations for IHS Areas, service units, and counties.

IHS service population figures are based on the 2000 census with bridged-race file county data. The Census Bureau enumerates those individuals who identify themselves as AI/AN. The IHS service population consists of those enumerated AI/ANs who reside in the geographic areas in which IHS has responsibilities (“on or near” reservations, i.e., contract health service delivery areas (CHSDAs)).

The 2000 Census allowed respondents to report more than one race category to describe themselves and household members. This was a result of the revised Office of Management and Budget (OMB) guidelines issued on October 30, 1997. All other censuses prior to 2000 had offered the respondent with the option for self-identification of a single race with which the respondent most closely identified. As a result of the aforementioned OMB revised standards a methodology was developed to “bridge” the 2000 Census with previous decennial censuses. This impacted the manner in which the total AI/AN population was counted.

The Census Bureau and NCHS are credited for developing the bridging methodology to address the inconsistencies for identifying race between the 2000 Census and the previous censuses. The 2000 Census with bridged-race categories re-categorizes more than one race responses to a single race response. The bridged 2000 Census single race corresponds with the single race categories used on the birth and death certificates.

*Source: National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004, United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Available on the Internet at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>. September 8, 2005*

Using the 2000 Census with bridged-race categories increased the AI/AN population denominators resulting in slightly decreased IHS mortality rates. The 2000 Census with bridged-race categories population for all AI/AN in the U.S. is 3.3 million. This falls between the population of all AI/AN in the U.S. of 2.5 million who identified themselves as an AI/AN race (alone) and the population of all AI/AN in the U.S. of 4.2 million who identified themselves as an AI/AN and a combination of at least one other race (combination).



IHS service populations beyond the latest census (2000) are projected through linear regression techniques using the latest ten years of AI/AN birth and death data provided by the NCHS. The estimated natural change for a county (number of births minus number of deaths) is applied accumulatively to the latest census enumeration for the county for each year beyond the census. DPS produces a new set of IHS service population projections each year.

The IHS service populations are produced for the IHS area, service unit, and county levels. If a county is split between and/or among service units and/or IHS service areas, DPS allocates the county population to the affected service units and/or service areas. These population allocations are based on percentage splits developed and agreed by the affected IHS areas. A letter of agreement describing the formal arrangement (including a valid authorization by all authorities for the population allocation) is sent to DPS and kept on file. These percentage splits are calculated using sub-county census data and census maps.

DPS also generates AI/AN population estimates and projections, utilizing an identical methodology, for non-service IHS counties. Therefore, DPS produces census-based AI/AN population figures for every U.S. county and all 50 states.





### Changes in Methodologies

DPS used updated methodologies to produce age-adjusted mortality rates. These applied methodologies coincide with methodologies used by the NCHS, CDC and the U.S. Census Bureau. Using these updated methodologies enabled AI/AN mortality rates to be compared to U.S. all-races mortality rates produced by the aforementioned agencies.

Age-adjusted mortality rates for *Regional Differences in Indian Health* developed for data years 1999-2001 are **NOT** comparable to previously published mortality rates calculated for data years 1996-1998. This is due to several changes in the methodology used to calculate the age-adjusted mortality rate produced by the DPS.

Under **no** circumstances should data published in this issue of *Regional Differences in Indian Health* be compared to any data published in prior *Regional Differences in Indian Health* publications. This holds true for other previous IHS publications including *Trends in Indian Health* the *Focus Reports*, the *Life Expectancy Report* and all YPLL data provided by the DPS. (The forthcoming *Trends in Indian Health* will recalculate trend data that are comparable by using the updated methodologies).

The three major updated methodologies applied by DPS include:

#### *ICD-9 Conversion to ICD-10*

Beginning with the 1999 mortality data a new classification system was implemented to categorize causes of death. The International Classification of Diseases, Version 10 (ICD-10) was used by the states and NCHS to code all causes of death for years 1999 and onward. The ICD-10 classification system consists of a new nomenclature scheme with new and revised categories for some causes of death. Comparability ratios are applied when appropriate, i.e., to adjust data analyzed using the past classification system (ICD-9). Such revisions are noted on the data when applicable. ("Regional Differences in Indian Health" does not apply comparability ratios as these ratios are applied to data prior to 1999. This publication refers to data years 1999-2001 which eliminated the necessity to use these adjustment factors).

#### *2000 U.S. Census Populations with Bridged Race Categories (2000 Census Bridged File)*

The 2000 U.S. Census Population with Bridged-Race Categories (2000 Census Bridged File) for AI/ANs was used by IHS to calculate mortality and natality age-adjusted rates. The 2000 Census allowed respondents to report more than one race category to describe their race. The birth and death certificates (vital events) used by the states for years 1999-2001 allow only a single race category to be reported. Vital event totals are used in the numerator and the 2000 Census bridged population is used in the denominator to produce the birth or death rate that occurs in the population of interest. The denominator data are based on the 2000 Census bridge file, which re-categorizes responses to a single race where more than one race was reported. This corresponds to the single race categories used on birth and death certificates.

#### *Age Adjustment Based on the 2000 Standard Population*

The HHS recommended that all HHS agencies use the 2000 Census standard population to age-adjust mortality rates. IHS calculates age-adjusted rates based on the 2000 standard population to comply to this HHS recommendation.

### Vital Event Statistics

AI/AN vital event statistics are derived from data provided annually to the IHS by NCHS. Vital event statistics for the U.S. population were derived from data reported in various NCHS publications<sup>2,3,4</sup>, as well as from some unpublished data from NCHS. NCHS obtains birth and death records for all U.S. residents from state health departments, based on information reported on official state birth and death certificates. The records NCHS provides to 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 natality and mortality data are only as accurate as the reporting by the states to NCHS. NCHS does perform numerous edit checks, applies verification methods, and imputes values for non-responses.<sup>5</sup>

Misreporting of AI/AN race on state death certificates occurs, especially in areas distant from traditional AI/AN reservations. In order to determine the degree and scope of the misreporting, 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 AI/AN. 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: (a) the results from 1986-88 apply to other years; (b) IHS age-group adjustments applied also to each Area; and (c) 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 ten 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, it was necessary to adjust all the death rates in this publication to provide a meaningful and comprehensive look at health status.

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 less than one year. These are derived from the linked birth/infant death data sets produced by the NCHS. In this edition unadjusted and adjusted infant mortality rates will be shown. These adjustments based on the linked data sets take precedent over the NDI adjustments for the under one-year age group, described above.

<sup>2</sup> Fay MP, Feuer EJ. Confidence intervals for directly adjusted rates: a method based on the gamma distribution. *Stat Med* 16:791-801, 1997

<sup>3</sup> Anderson RN. United States life tables, 1998. *National Vital Statistics Reports*; vol 48 no. 18. Hyattsville, Maryland: National Center for Health Statistics. 2001.

<sup>4</sup> Minino AM, Arias E, Kochanek KD, Murphy SL, Smith BL. Deaths: Final Data for 2000. *National vital statistics reports*; vol 50 no 15 Hyattsville, Maryland: National Center for Health Statistics. 2002.

<sup>5</sup> Martin JA, Hamilton BE, Ventura SJ, Menacker F, Park MM. Births: Final data for 2000. *National vital statistics reports*; vol 50 no 5. Hyattsville, Maryland: National Center for Health Statistics. 2002.



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

The AI/AN vital event statistics in this publication pertain only to AI/AN people residing in the counties that make up the IHS service area, in contrast to earlier editions of the *Trends in Indian Health* publication which showed vital event statistics for all AI/AN people 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 Reservation State data were available; these data were used to show trends going back to 1955, the inception of the IHS. However, now that sufficient vital event data are 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. IHS service area data are more indicative of the health status of the AI/AN people that IHS serves.

The AI/AN population is considerably younger than the U.S. all-races population. Death rates presented in this publication have been age-adjusted to the 2000 standard population, 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.

All age-adjusted death rates calculated using a small number of deaths should be interpreted with caution as the observed rate may be quite different from the true underlying rate. This occasionally occurred when an Area rate was calculated for a specific cause of death, e.g., tuberculosis. Any rate based upon fewer than 20 deaths may not be reliable as the sample will be too small.

Prior to this publication, alcoholism deaths used ICD-9 codes for years prior to 1999. All ICD-9 codes used in IHS publications are consistent with codes used by NCHS. For years 1999 onward, causes of death from alcohol-induced mortality include the following ICD-10 codes:

- F10—(mental and behavioral disorders due to the use of alcohol)
- G31.2—(degeneration of the nervous system due to alcohol)
- G62.1—(alcoholic polyneuropathy)
- I42.6—(alcoholic cardiomyopathy)
- K29.2—(alcoholic gastritis)
- K70—(alcoholic liver disease)
- R78.0—(finding of alcohol in blood)
- X45—(accidental poisoning by and exposure to alcohol)
- X65—(intentional self-poisoning by and exposure to alcohol), and
- Y15—(poisoning by and exposure to alcohol, undetermined intent)

The NCHS definition of alcohol-related deaths includes all of these ICD-10 codes groups and is now used in all IHS publications and will also be published in *Trends in Indian Health*.

### Multiple Cause Analysis

This edition of *Regional Differences in Indian Health* is introducing multiple cause analysis for the AI/AN in the IHS service areas.

Most analyses of mortality are based on assigning a single underlying cause to each death using the information provided on the death certificate. This underlying cause of death is assigned first by the certifier of death, usually a physician, and later potentially corrected by software at the state health department and the National Center for Health Statistics (NCHS). However, the electronic death record captures up to 20 causes of death noted on the death certificate. Approximately three causes of death are listed on the average death certificate both in the U.S. as a whole and for AI/AN. Persons with chronic disease often die of multiple causes, thus the use of statistics based on the underlying cause can be deceptive. Diabetes, for example, is often listed on the death certificate but not classified as the underlying cause of death, contributing to a possible underestimation of deaths due to diabetes in vital statistics. Another way of analyzing mortality data is to use the multiple cause of death file provided by the NCHS and examine deaths where a particular cause is mentioned one or more times anywhere in the electronic death record. The requirements for tracking Healthy People 2010 objectives do not allow for the traditional analysis based on the underlying cause of death when calculating rates of diabetes mortality; a multiple cause analysis is required. For other chronic diseases it is useful to compare rates based on the underlying and multiple cause analyses.

In this report for the first time, death rates and frequencies of heart disease based on the underlying cause of death are compared with rates and frequencies based on the listing of heart disease one or more times in the electronic death record within the multiple cause of death file. The same is done for cerebrovascular disease and diabetes. These rates are broken down by sex and IHS Area for diabetes. The heart disease and cerebrovascular disease rates are calculated by age (35-74 vs. 75 or more), sex, and IHS Area. Within the appropriate ranges of the age (ages 35 or more, ages 35-74, or ages 75 or more), these rates are adjusted to the corresponding 2000 U.S. standard population in 10 year intervals. Using a multiple cause of death analysis, age-adjusted death rates in each combination of diabetes and heart disease are presented by IHS area and age (35-74 vs. 75 or more). These combinations include heart disease listed in the death record without mention of diabetes, diabetes listed in the death record without mention of heart disease, and heart disease and diabetes listed together in the death record. Multiple cause of death analysis makes no reference to which cause of death was identified as the underlying cause.

These data should be interpreted with some caution. Analyses based on the underlying cause of death can be biased by preferences to list one particular cause on the death certificate as the underlying cause instead of another cause on death certificate (e.g., coronary heart disease vs. diabetes). Both underlying and multiple cause of death analyses do not objectively quantify the occurrence of a particular cause at time of death. Instead, these analyses are limited by the certifier's awareness of the presence of a particular cause and his or her judgment about its role in causation. Differences in competence and completeness of death certification may also vary by circumstances and region. Thus, the prevalence and full contribution of conditions



like diabetes and coronary heart disease at time of death can not be completely determined by analyses of death certificates. In addition, the rates presented in this analysis are often based on a small number of deaths. Only statistically significant differences ( $p < 0.05$ ) are featured in the narrative of this analysis. Region-specific rates that are significantly ( $p < 0.05$ ) higher than the corresponding rates among U.S. all races are designated with an asterisk in all tables. Statistical significance was evaluated using 95% confidence intervals based on the gamma distribution.<sup>6</sup>

### Patient Care Statistics

Patient care statistics are derived principally from the IHS National Patient Information Reporting System (NPIRS), the national data repository for IHS statistical health care data on patient registration and visit encounters occurring at either IHS facilities or contracting facilities that provide care. It collects data on persons who are members of federally recognized tribes that access IHS services. Other sources are listed below.

*Monthly Inpatient Services Report*—a patient census report prepared by each IHS hospital indicating the number of discharges and days by type of service (e.g., adult, pediatric, obstetric, newborn), used for direct inpatient workload statistics. Also referred to as the “202” after the name of the form on which it is processed.

*Inpatient Care Data*—The IHS NPIRS serves as an agency-wide statistical information system and warehouse of Indian health and health system data. This data repository is the source of IHS hospital inpatient data pertaining to various patient characteristics (age, sex, principal diagnoses, other diagnoses, community of residence, etc.), collected daily, one record per discharge.

*Ambulatory Patient Care Data*—The NPIRS repository is also 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.

*Contract Care Data*—NPIRS website reports have provided ambulatory and inpatient contract care data collected through the Contract Health System

*Immunization Data*—information obtained by IHS/CDC jointly appointed immunization tracking staff.

*Dental Data*—The NPIRS repository is also the source for dental services data, monitored by IHS Headquarters dental personnel.

*Tuberculosis Data*—based on cases reported to State TB control units at the state health department level.

The data from these systems are subject to recording, inputting, and transmitting errors. However, the IHS DPS in consultation with the Office of Information Technology NPIRS Repository Staff closely monitor the electronic transmissions and content of the repository and its attendant reports ensuring data quality.

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<sup>6</sup> Arias E. United States life tables, 2001. National vital statistics reports; vol 52 no 14. Hyattsville, Maryland: National Center for Health Statistics. 2004.



## GLOSSARY

**Age-Adjustment (direct method)**—The application of age-specific rates in a population of interest to a standardized age distribution in order to eliminate 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.<sup>7</sup>

**Area**—A defined geographic region for Indian Health Service (IHS) administrative purposes. Each Area Office administers several service units

**Average Daily Patient Load**—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.

**Birthweight**—Weight of fetus or infant at time of delivery (recorded in pounds and ounces, or grams).

**Cause of Death**—For the purpose of national mortality statistics, every death is attributed to one underlying condition, based on information reported on the death certificate and using the international rules for selecting the underlying cause of death from the conditions stated on the death certificate. The underlying cause is defined by the World Health Organization (WHO) as the disease or injury that initiated the train of events leading directly to death, or the circumstances of the accident or violence, which produced the fatal injury. Generally, more medical information is reported on death certificates than is directly reflected in the underlying cause of death. The conditions that are not selected as underlying cause of death constitute the non-underlying cause of death, also known as multiple cause of death. Cause of death is coded according to the appropriate revision of the International Classification of Diseases (ICD). Effective with deaths occurring in 1999, the United States began using the Tenth Revision of the ICD (ICD-10); during the period 1979-98, causes of death were coded and classified according to the Ninth Revision (ICD-9). Each of these revisions has produced discontinuities in cause-of-death trends. These discontinuities are measured using comparability ratios.<sup>8</sup>

**Census Definitions**—Definitions for census information including: unemployment, median household income, and poverty can be found on the census website: <http://www.census.gov>

**Comparability Ratios**—Adjustment factors designed to measure the effects of a new revision of the ICD on the comparability with the previous revision of mortality statistics cause of death.<sup>8</sup>

**Contract Care**—Services not available directly from IHS or Tribes that are purchased under contract from community hospitals and practitioners.

**Health Center**—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 forty hours a week for ambulatory care.

**Health Station**—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 forty hours a week.

**High Birthweight**—Birthweight of 4,000 grams or more.

**Infant Mortality**—The death of a live-born child before his or her first birthday. Deaths in the first year of life may be further classified according to age as neonatal and postneonatal. Neonatal deaths are those that occur before the 28th day of life; postneonatal deaths are those that occur between 28 and 365 days of age.

**Infant Mortality Rate**—A rate based on period files calculated by dividing the number of infant deaths during a calendar year by the number of live births reported in the same year. It is expressed as the number of infant deaths per 1,000 live births.<sup>9</sup>

**International Classification of Diseases**—The Ninth Revision (ICD-9) codes are used for years prior to 1999. The Tenth Revision (ICD-10) codes are used for data years 1999 onward.

<sup>7</sup> <http://www.cdc.gov/nchs/datawh/nchsdefs/ageadjustment.htm#aarates>

<sup>8</sup> <http://www.cdc.gov/nchs/datawh/nchsdefs/cod.htm>

<sup>9</sup> <http://www.cdc.gov/nchs/datawh/nchsdefs/infantdeath.htm>



**Life Expectancy**—Life expectancy is the average number of years of life remaining to a person at a particular age and is based on a given set of age-specific death rates, generally the mortality conditions existing in the period mentioned. Life expectancy may be determined by race, sex, or other characteristics using age-specific death rates for the population with that characteristic.<sup>10</sup>

**Live Birth**—In the WHO's definition, also adopted by the United Nations and the NCHS, a live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born.<sup>11</sup>

**Low Birthweight**—Birthweight of less than five pounds, eight ounces or 2,500 grams.

**Maternal Death**—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. Maternal death is one for which the certifying physician has designated a maternal condition as the underlying cause of death. Maternal conditions are those assigned to Complications of Pregnancy, Childbirth, and the Puerperium, (ICD-10 codes A34, O00-O95.9, O98-O99.9).<sup>12</sup>

**Multiple Cause of Death Analysis**—A method of analyzing mortality data by using the death file provided by the NCHS to examine deaths where a particular cause is mentioned one or more times anywhere in the electronic death record.

**Neonatal Mortality Rate**—The number of deaths under 28 days of age per 1,000 live births.

**Occurrence**—Place where the event occurred.

**Postneonatal Mortality Rate**—The number of deaths that occur from 28 days to 365 days after birth per 1,000 live births.

**Race**—Federal Register Notice (October 30, 1997), Revision to the Standards for the Classification of Federal Data on Race and Ethnicity.

The revised standards have five minimum categories for data on race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. There will be two categories for data on ethnicity: "Hispanic or Latino: and "Not Hispanic or Latino."

Persons are offered the option to select one or more races.

<http://www.whitehouse.gov/omb/fedreg1997standards.html>

**Reservation State**—A State in which IHS has responsibilities for providing health care to American Indians or Alaska Natives.

**Residence**—Usual place of residence of person to whom an event occurred. For births and deaths, residence is defined as the mother's place of residence.

**Service Area**—The geographic areas in which IHS has responsibilities—"on or near" reservations, i.e., contract health service delivery areas.

**Service Population**—AI/AN people identified to be eligible for IHS services.

**Service Unit**—The local administrative unit of IHS.

**User Population**—AI/AN people who have used IHS services at least once during the last three-year period according to their community of residence.

**Years of Potential Life Lost (YPLL)**—

A mortality indicator that measures the burden of premature deaths, calculated by subtracting the age at death from age 65 and summing the result over all deaths.

<sup>10</sup> <http://www.cdc.gov/nchs/dataawh/nchsdefs/lifeexpectancy.htm>

<sup>11</sup> <http://www.cdc.gov/nchs/dataawh/nchsdefs/livebirth.htm>

<sup>12</sup> <http://www.cdc.gov/nchs/dataawh/nchsdefs/rates.htm#maternaldeath>



### **Sources of Copies and Additional Information**

Additional AI/AN health status information can be obtained from the IHS Division of Program Statistics. Specific responsibilities are as follows:

#### **GENERAL INFORMATION**

Edna L. Paisano, Principal Statistician and Director, Division of Program Statistics

Priscilla Sandoval, Program Analyst

#### **DEMOGRAPHIC STATISTICS**

Jo Ann Glakas Pappalardo, Team Leader

Alan Friedman, Health Statistician

#### **PATIENT CARE STATISTICS**

Kirk Greenway, Team Leader

Bonnie M. Matheson, Computer Assistant

Copies of this and other statistical publications may be obtained from Division of Program Statistics at:

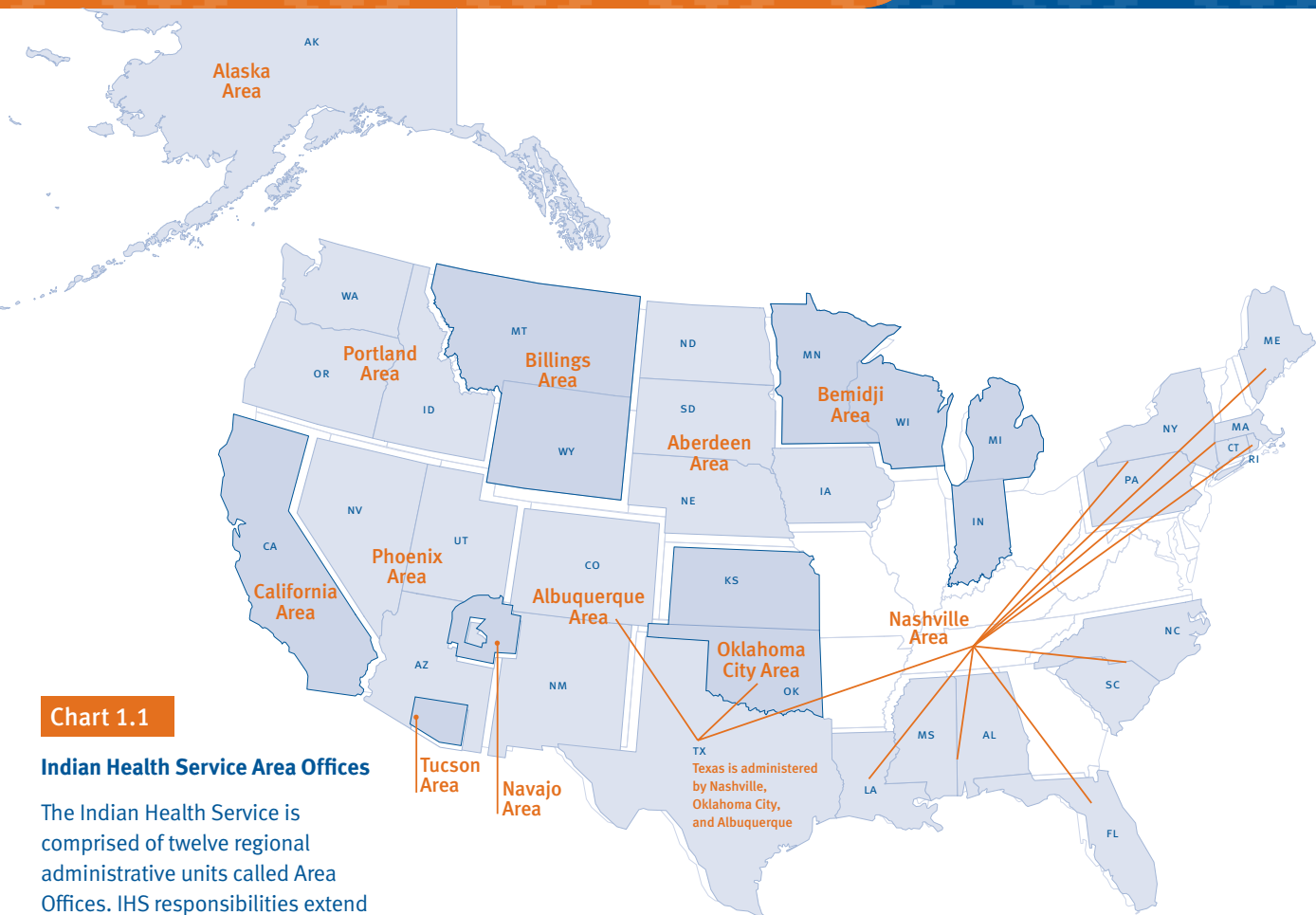
Indian Health Service  
Office of Public Health Support  
Division of Program Statistics  
801 Thompson Building  
Suite 120  
Rockville, Maryland 20852

Phone: 301-443-1180

Fax: 301-443-0114

This publication, other IHS statistical publications, and links to IHS data files are available on the Division of Program Statistics Web Site at:

*[http://www.ihs.gov/NonMedical  
Programs/IHS\\_Stats/](http://www.ihs.gov/NonMedicalPrograms/IHS_Stats/)*


**Chart 1.1**
**Indian Health Service Area Offices**

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

Indian Health Service operated 33 hospitals, 52 health centers, two school health centers, and 38 health stations as of October 1, 2004. Tribes can operate a facility under a P.L. 93-638 self-determination contract (Title I) or self-governance compact, as amended (Title V), or—in Alaska only—an Alaska village clinic funded by a standard procurement contract. Tribes operated 15 hospitals (Title I, three hospitals and Title V, 12 hospitals), 216 health centers (Title I, 113 and Title V, 103), nine school health centers (Title I, seven and Title V, two), 97 health stations (Title I, 62 and Title V, 35), and 162 Alaska village clinics (Title I, eight; Title V, 147; and Other, seven).

**Chart 1.2**
**Number of Service Units and Facilities Operated by IHS and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal			
			Total	I	V	Other
<b>Service Units</b>	<b>164</b>	<b>67</b>	<b>97</b>	—	—	—
<b>Hospitals</b>	<b>48</b>	<b>33</b>	<b>15</b>	<b>3</b>	<b>12</b>	—
<b>Ambulatory Facilities</b>	<b>576</b>	<b>92</b>	<b>484</b>	<b>190</b>	<b>287</b>	<b>7</b>
<i>Health Centers</i>	<i>268</i>	<i>52</i>	<i>216</i>	<i>113</i>	<i>103</i>	—
<i>School Health Centers</i>	<i>11</i>	<i>2</i>	<i>9</i>	<i>7</i>	<i>2</i>	—
<i>Health Stations</i>	<i>135</i>	<i>38</i>	<i>97</i>	<i>62</i>	<i>35</i>	—
<i>Alaska Village Clinics</i>	<i>162</i>	—	<i>162</i>	<i>8</i>	<i>147</i>	<i>7</i>

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000  
Other — operated by a local government, not a tribe, for some Alaska Native villages through a standard procurement contract

In the **Aberdeen Area**, Indian Health Service operated eight hospitals, eight health centers, and seven health stations as of October 1, 2004. Tribes operated five health centers, one school health center, and seven health stations, all under Title I.

Chart 1.3

### Number of Service Units and Facilities Operated by Aberdeen Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	21	13	8	--	--
Hospitals	8	8	--	--	--
Ambulatory Facilities	28	15	13	13	--
Health Centers	13	8	5	5	--
School Health Centers	1	0	1	1	--
Health Stations	14	7	7	7	--

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Alaska Area**, Indian Health Service did not operate any facilities as of October 1, 2004. Tribes operated seven hospitals, 36 health centers (Title I, five and Title V, 31), and 162 village clinics (Title I, eight; Title V, 147; and Other, seven).

Chart 1.4

### Number of Service Units and Facilities Operated by Alaska Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal			
			Total	I	V	Other
Service Units	9	--	9	--	--	--
Hospitals	7	--	7	--	7	--
Ambulatory Facilities	198	--	198	13	178	7
Health Centers	36	--	36	5	31	--
School Health Centers	--	--	--	--	--	--
Health Stations	--	--	--	--	--	--
Alaska Village Clinics	162	--	162	8	147	7

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

Other — operated by a local government, not a tribe, for some Alaska Native villages through a standard procurement contract

In the **Albuquerque Area**, Indian Health Service operated four hospitals, seven health centers, and seven health stations as of October 1, 2004. Tribes operated six health centers (Title I).

Chart 1.5

**Number of Service Units and Facilities  
Operated by Albuquerque Area and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	9	8	--	--	--
Hospitals	4	4	--	--	--
Ambulatory Facilities	20	14	6	6	--
Health Centers	13	7	6	6	--
School Health Centers	--	--	--	--	--
Health Stations	7	7	--	--	--

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Bemidji Area**, Indian Health Service operated two hospitals, two health centers, and two health stations as of October 1, 2004. Tribes operated 32 health centers (Title I, 21 and Title V, 11), five school health centers (Title I) and 11 health stations (Title I, eight and Title V, three).

Chart 1.6

**Number of Service Units and Facilities  
Operated by Bemidji Area and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	13	3	10	--	--
Hospitals	2	2	--	--	--
Ambulatory Facilities	52	4	48	34	14
Health Centers	34	2	32	21	11
School Health Centers	5	--	5	5	--
Health Stations	13	2	11	8	3

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Billings Area**, Indian Health Service operated three hospitals, six health centers, and three health stations as of October 1, 2004. Tribes operated four health centers and three health stations, all under Title V.

Chart 1.7

### Number of Service Units and Facilities Operated by Billings Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	8	6	2	--	--
Hospitals	3	3	--	--	--
Ambulatory Facilities	16	9	7	--	7
Health Centers	10	6	4	--	4
School Health Centers	--	--	--	--	--
Health Stations	6	3	3	--	3

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **California Area**, Indian Health Service did not operate any facilities as of October 1, 2004. Tribes operated 44 health centers (Title I, 39 and Title V, five) and 13 health stations (Title I, 10 and Title V, three).

Chart 1.8

### Number of Service Units and Facilities Operated by California Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	27	--	27	--	--
Hospitals	--	--	--	--	--
Ambulatory Facilities	57	--	57	49	8
Health Centers	44	--	44	39	5
School Health Centers	--	--	--	--	--
Health Stations	13	--	13	10	3

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Nashville Area**, Indian Health Service operated two health centers as of October 1, 2004. Tribes operated two hospitals (Title V), 23 health centers (Title I, 14 and Title V, nine), one school health center and 10 health stations, all under Title V.

Chart 1.9

**Number of Service Units and Facilities  
Operated by Nashville Area and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	34	3	31	--	--
Hospitals	2	--	2	--	2
Ambulatory Facilities	36	2	34	14	20
Health Centers	25	2	23	14	9
School Health Centers	1	--	1	--	1
Health Stations	10	--	10	--	10

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Navajo Area**, Indian Health Service operated five hospitals, five health centers, one school health center, and 10 health stations as of October 1, 2004. Tribes operated one hospital (Title I), one health center (Title I), and five health stations (Title I).

Chart 1.10

**Number of Service Units and Facilities  
Operated by Navajo Area and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	8	6	2	--	--
Hospitals	6	5	1	1	--
Ambulatory Facilities	22	16	6	6	--
Health Centers	6	5	1	1	--
School Health Centers	1	1	--	--	--
Health Stations	15	10	5	5	--

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Oklahoma Area**, Indian Health Service operated four hospitals, eight health centers, and one health station as of October 1, 2004. Tribes operated three hospitals (Title I, one and Title V, two), 45 health centers (Title I, eight and Title V, 37), and one school health center (Title V).

**Chart 1.11** Number of Service Units and Facilities  
Operated by Oklahoma Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	12	8	4	--	--
Hospitals	7	4	3	1	2
Ambulatory Facilities	55	9	46	8	38
Health Centers	53	8	45	8	37
School Health Centers	1	--	1	--	1
Health Stations	1	1	--	--	--

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Phoenix Area**, Indian Health Service operated six hospitals, five health centers, one school health center, and four health stations as of October 1, 2004. Tribes operated two hospitals (Title I, one and Title V, one), nine health centers (Title I) and 19 health stations (Title I, 11 and Title V, eight).

**Chart 1.12** Number of Service Units and Facilities  
Operated by Phoenix Area and Tribes, October 1, 2004

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	11	7	4	--	--
Hospitals	8	6	2	1	1
Ambulatory Facilities	38	10	28	20	8
Health Centers	14	5	9	9	--
School Health Centers	1	1	--	--	--
Health Stations	23	4	19	11	8

I — operated under Title I, P.L. 93-638 Self-Determination Contracts

V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Portland Area**, Indian Health Service operated six health centers as of October 1, 2004. Tribes operated 11 health centers (Title I, five and Title V, six), one school health center (Title I) and 29 health stations (Title I, 21 and Title V, eight).

Chart 1.13

**Number of Service Units and Facilities  
Operated by Portland Area and Tribes, October 1, 2004**

Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	16	7	9	--	--
Hospitals	--	--	--	--	--
Ambulatory Facilities	47	6	41	27	14
Health Centers	17	6	11	5	6
School Health Centers	1	--	1	1	--
Health Stations	29	--	29	21	8

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000

In the **Tucson Area**, Indian Health Service operated one hospital, three health centers, and four health stations as of October 1, 2004. Tribes operated three health centers (Title I) and eight school health centers (Title I).

Chart 1.14

**Number of Service Units and Facilities  
Operated by Tucson Area and Tribes, October 1, 2004**

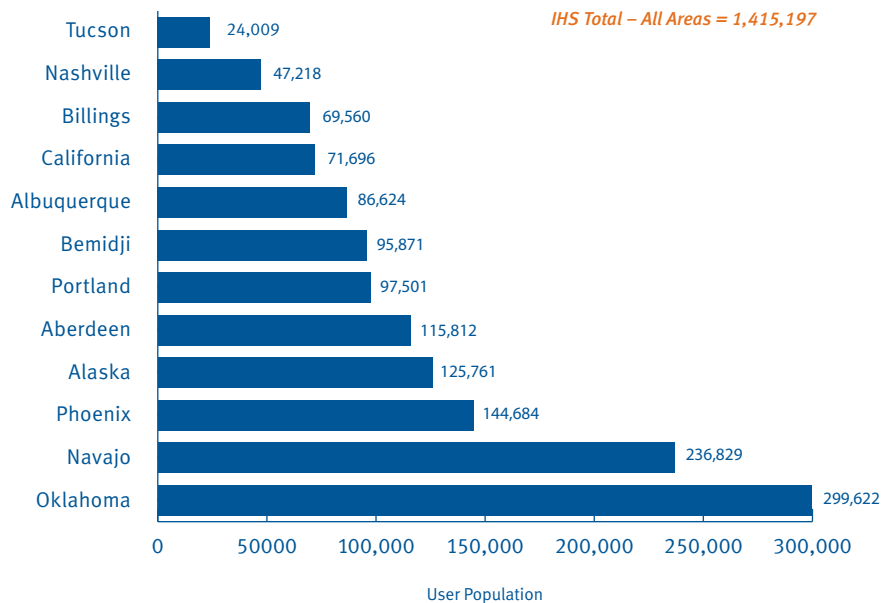
Type of Facility	Total	IHS	Tribal		
			Total	I	V
Service Units	2	2	--	--	--
Hospitals	1	1	--	--	--
Ambulatory Facilities	18	7	11	11	--
Health Centers	6	3	3	3	--
School Health Centers	8	--	8	8	--
Health Stations	4	4	--	--	--

I — operated under Title I, P.L. 93-638 Self-Determination Contracts  
V — operated under Title V, P.L. 106-260 Tribal Self-Governance Amendment of 2000



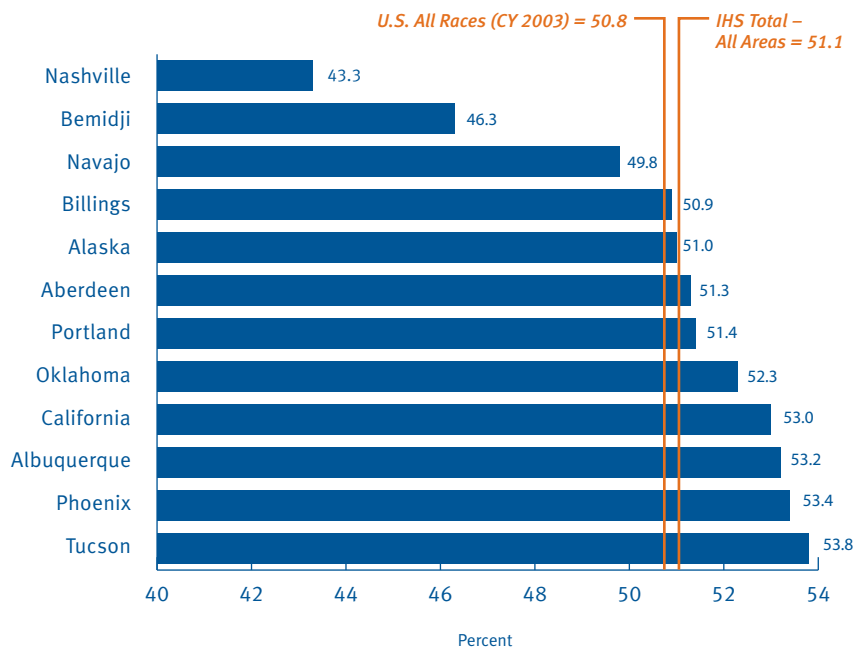
In FY 2004, the IHS user population—a count of those AI/AN people who used IHS services at least once during the last 3-year period—was over 1.4 million. Approximately 38 percent of the user population was concentrated in two IHS Areas: Oklahoma and Navajo.

**Chart 2.1 IHS User Population, FY 2004**



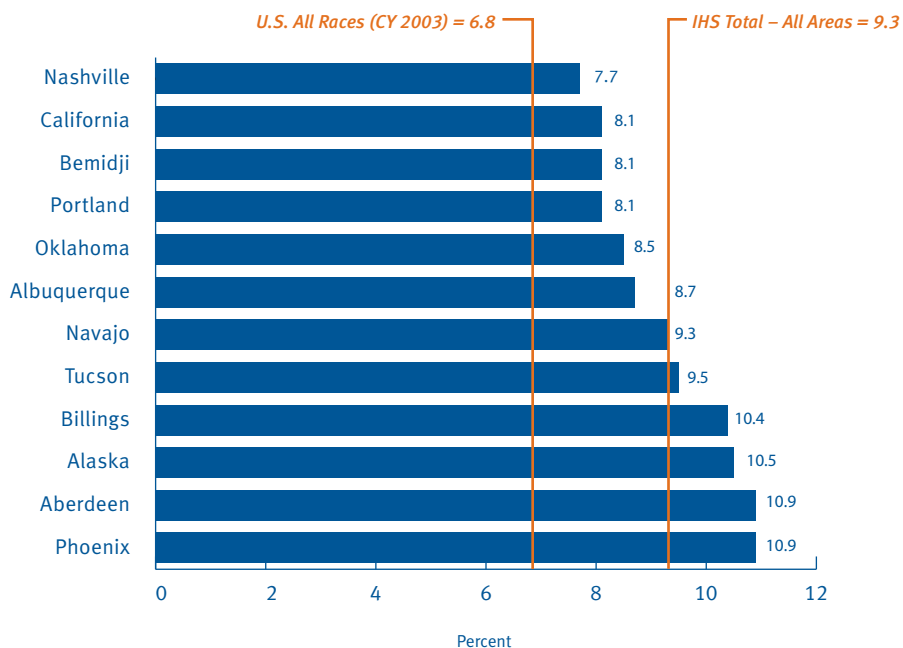
There were a slightly higher percentage of females in FY 2004 in the IHS user population than the U.S. all-races population (CY 2003). Phoenix and Tucson had the two highest percentages at 53.4 and 53.8, respectively.

**Chart 2.2 Percent of Females in User Population, FY 2004**



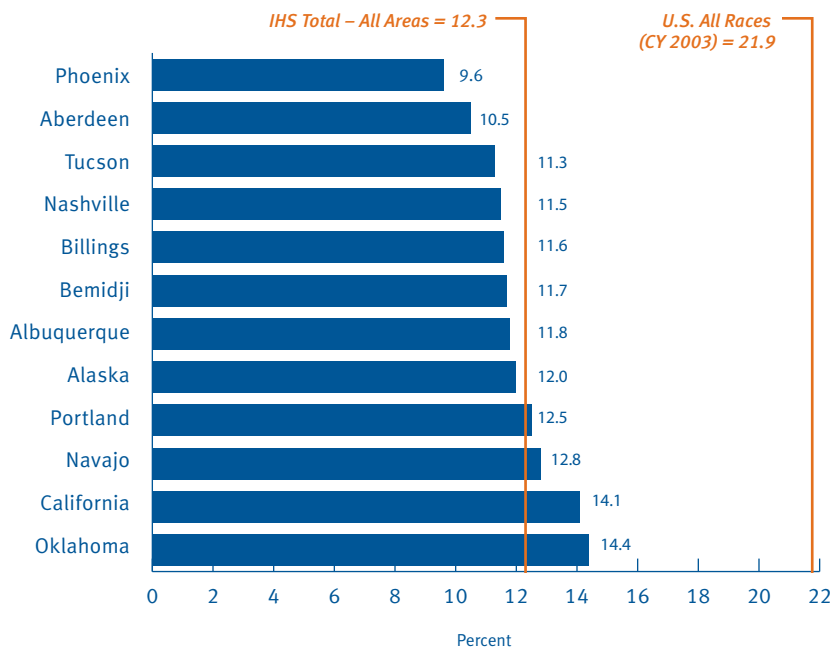
The IHS user population in FY 2004 was considerably younger than the U.S. all-races population (CY 2003). The Nashville Area, which had the lowest percentage of population under age 5 (7.7), still had a percentage that was 11.7 percent higher than the U.S. all-races percentage (6.8).

**Chart 2.3** Percent of User Population Under Age Five, FY 2004



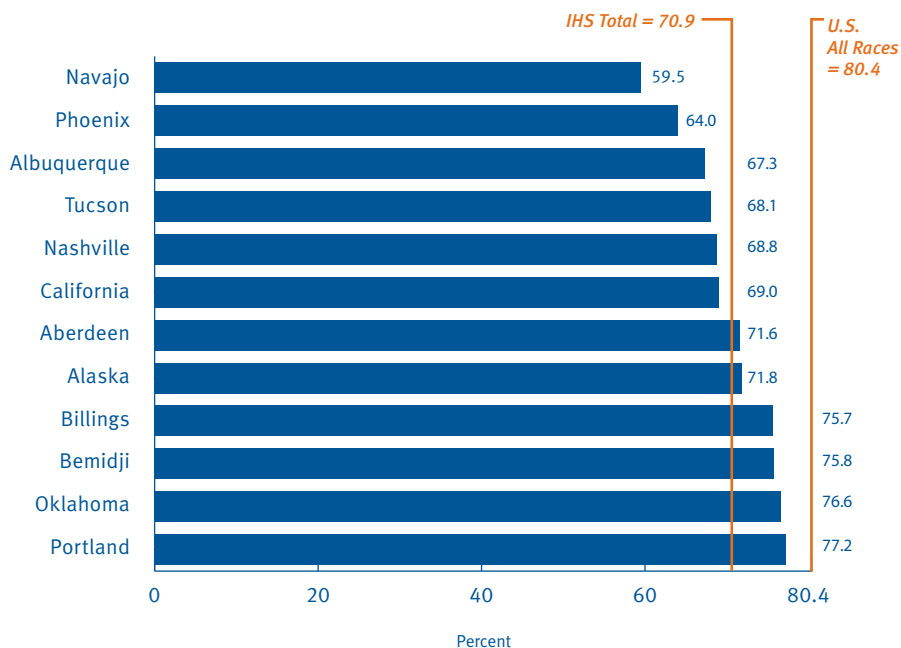
In CY 2003, 21.9 percent of the U.S. all-races population was over age 54 compared to 12.3 for the IHS user population (FY 2004). California and Oklahoma had the highest percentages for this age group, 14.1 and 14.4, respectively.

**Chart 2.4** Percent of User Population Over Age 54, FY 2004



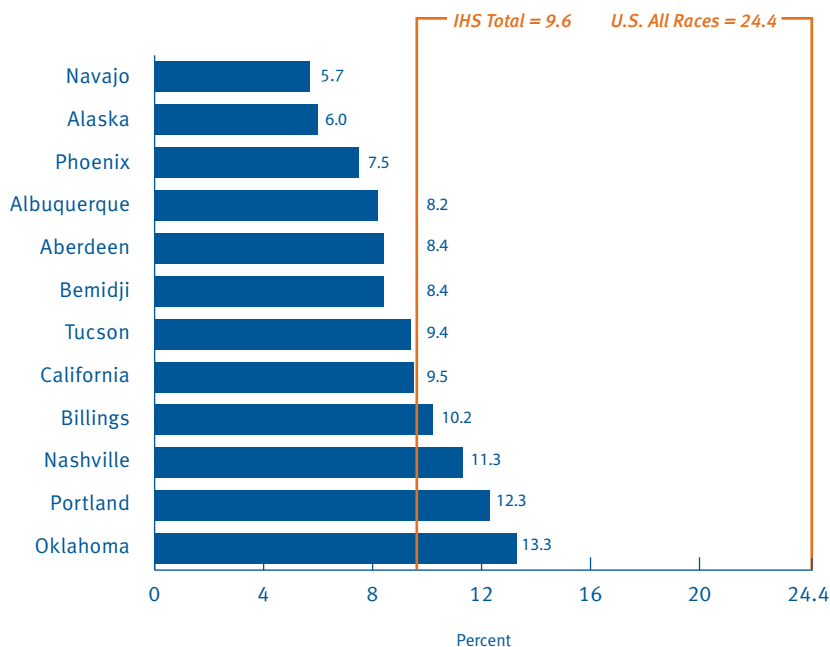
According to the 2000 Census, 70.9 percent of AI/AN people, age 25 and older, are high school graduates or higher as compared to 80.4 percent for the U.S. all-races population. Ten (10) percent more people in the U.S. general population had at least a high school education as compared to the AI/AN people in the IHS service Area. All IHS Areas were below the U.S. percent.

**Chart 2.5** Percent High School Graduate or Higher, Age 25 and Older, 2000 Census American Indian/Alaska Native (Alone)



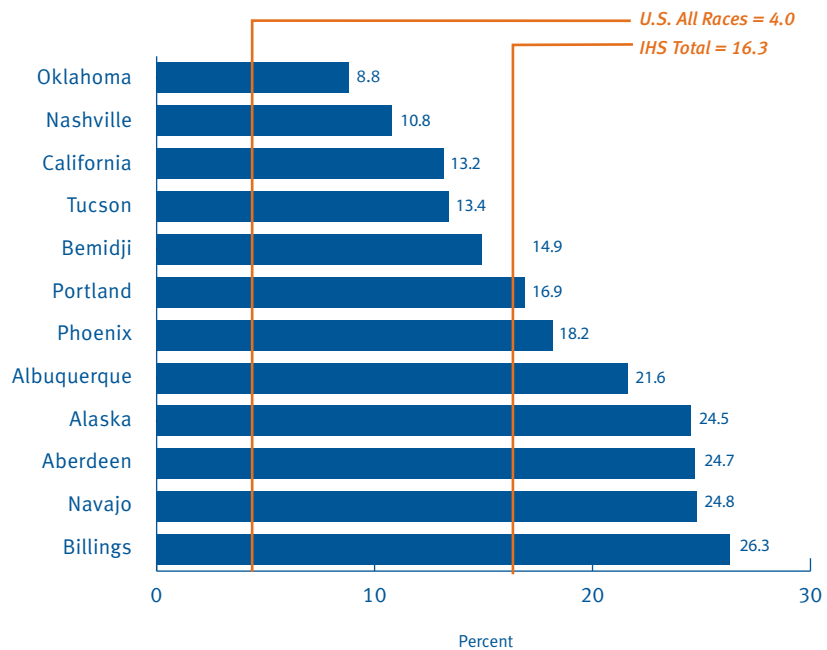
The 2000 Census indicated that 9.6 percent of AI/AN people, age 25 and older, residing in the current IHS Areas have a Bachelor's Degree or higher. This is less than half the rate for U.S. all-races with a Bachelor's Degree (24.4 percent). The Area percentages ranged from 5.7 percent in Navajo to 13.3 percent in Oklahoma.

**Chart 2.6** Percent Bachelor's Degree or Higher, Age 25 and Older, 2000 Census American Indian/Alaska Native (Alone)



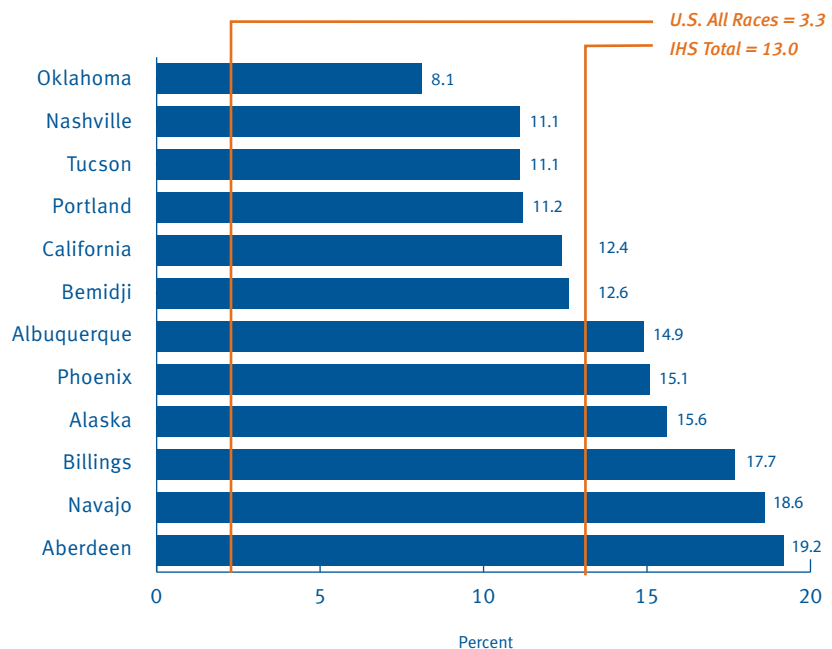
In 2000, 16.3 percent of AI/AN males, age 16 and older, residing in the current IHS Areas were unemployed compared to 4.0 percent for the U.S. all-races male population. Billings had unemployment rates greater than 26.0 percent.

**Chart 2.7** Percent of Males Unemployed, Age 16 and Older, 2000 Census American Indian/Alaska Native (Alone)



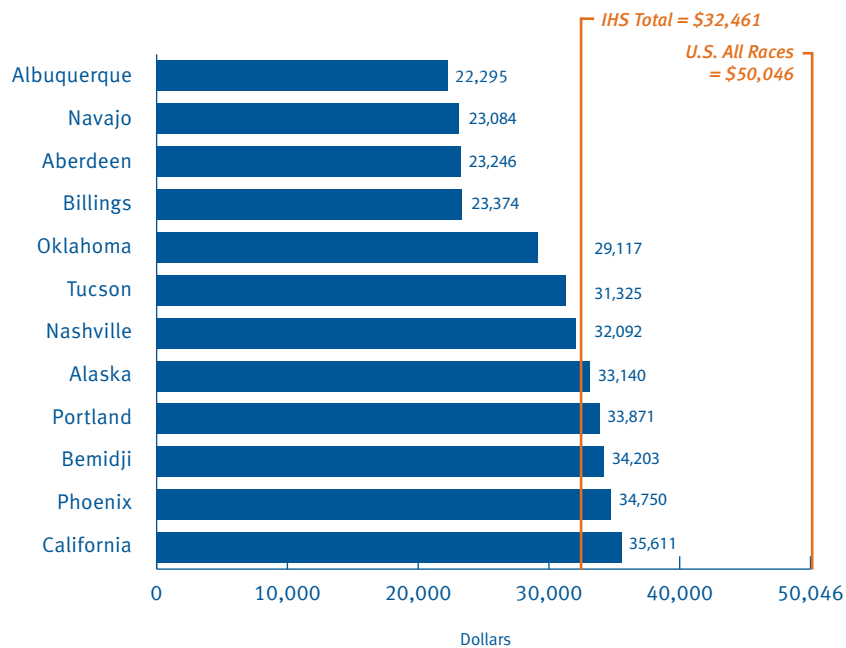
In 2000, 13.0 percent of AI/AN females, age 16 and older, residing in the current IHS Areas were unemployed—a rate that is four times greater than the U.S. all-races female population (3.3 percent). The Area unemployment rates ranged from 8.1 in Oklahoma to 19.2 in Aberdeen.

**Chart 2.8** Percent of Females Unemployed, Age 16 and Older, 2000 Census American Indian/Alaska Native (Alone)



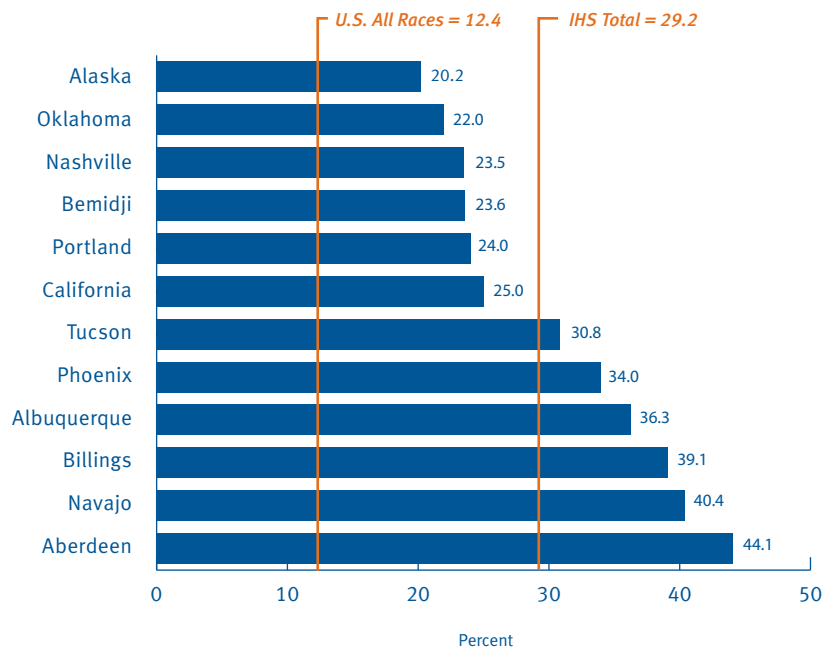
According to the 2000 Census, the median household income in 1999 for AI/AN people residing in the current IHS Areas was \$32,461. The median household income for U.S. all-races (\$50,046) is 54.2 percent higher than that of AI/AN. The Albuquerque, Navajo, Aberdeen, and Billings Areas had median household incomes that were less than half of the U.S. figure.

**Chart 2.9** Median Household Income in 1999  
2000 Census American Indian/Alaska Native (Alone)



The 2000 Census indicated that almost one-third (29.2 percent) of AI/AN people residing in the current IHS Areas were below the poverty level. This is 2.4 times higher than the comparable U.S. all-races figure of 12.4 percent below the poverty level. Aberdeen and Navajo had percentages exceeding 40.0.

**Chart 2.10** Percent of Population Below Poverty Level  
2000 Census American Indian/Alaska Native (Alone)



The birth rate for the IHS service area population in 1999-2001 was 1.5 times the rate for the U.S. all-races population in 2000, (14.7 and 22.2 percent, respectively). The IHS Area with the lowest birth rate (California, 14.7) had the same rate as U.S. all-races population.

Chart 3.1 Birth Rates, Calendar Years 1999–2001

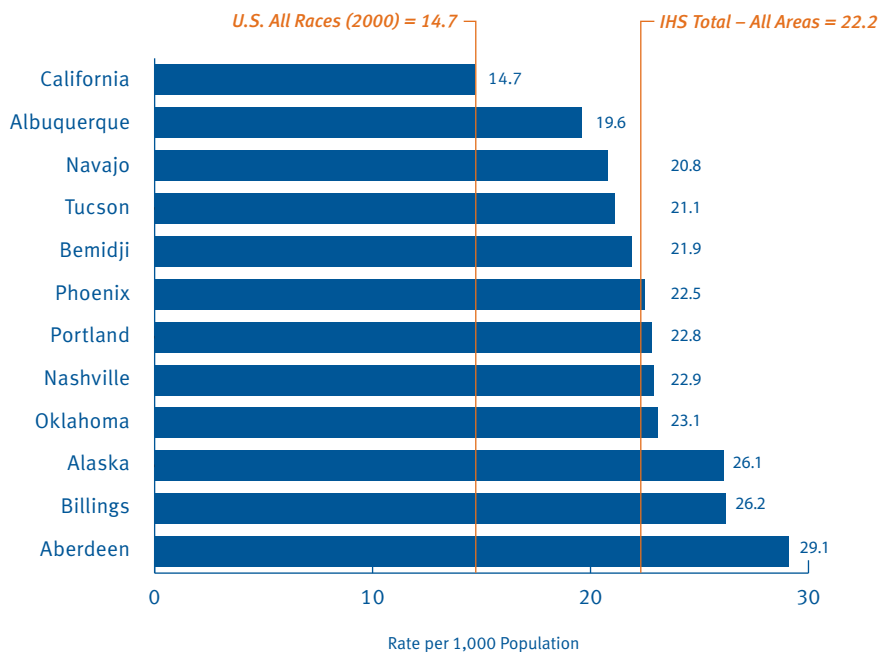


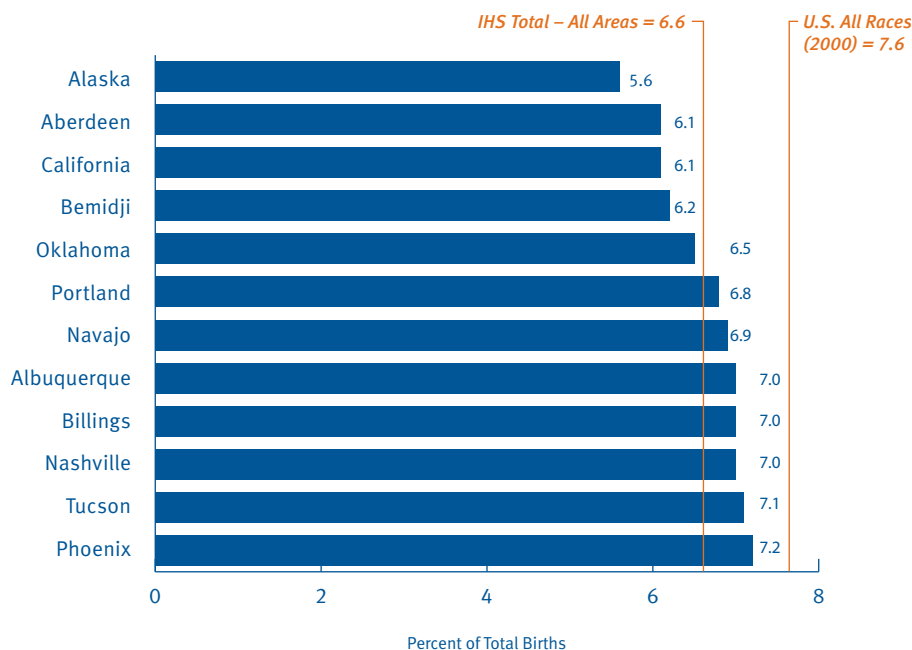
Table 3.1 Number and Rate of Live Births, Calendar Years 1999–2001

	Number	Rate <sup>1</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>14.7</i>
<b><i>All IHS Areas</i></b>	<b><i>109,088</i></b>	<b><i>22.2</i></b>
Aberdeen	8,809	29.1
Alaska	8,439	26.1
Albuquerque	5,584	19.6
Bemidji	6,966	21.9
Billings	4,599	26.2
California	7,306	14.7
Nashville	6,363	22.9
Navajo	13,634	20.8
Oklahoma	22,029	23.1
Phoenix	11,775	22.5
Portland	11,525	22.8
Tucson	2,059	21.1

<sup>1</sup> Rate per 1,000 Population

For 1999-2001, 6.6 percent of all AI/AN births in the IHS service area were considered low birthweight (less than 2,500 grams). This was better than the figure for the U.S. all-races population (7.6 percent in 2000). All IHS Areas had lower proportions of low birthweight births than the general population.

**Chart 3.2 Low Birthweight, Calendar Years 1999–2001**



**Table 3.2 Low Birthweight as a Percent of Total Live Births  
Calendar Years 1999–2001**

	Total Live Births <sup>1</sup>	Number Low Birthweight <sup>2</sup>	Percent Low Birthweight <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>307,030</i>	<i>7.6</i>
<b>All IHS Areas</b>	<b>109,088</b>	<b>7,210</b>	<b>6.6</b>
Aberdeen	8,809	541	6.1
Alaska	8,439	472	5.6
Albuquerque	5,584	391	7.0
Bemidji	6,966	429	6.2
Billings	4,599	322	7.0
California	7,306	448	6.1
Nashville	6,363	445	7.0
Navajo	13,634	946	6.9
Oklahoma	22,029	1,441	6.5
Phoenix	11,775	845	7.2
Portland	11,525	783	6.8
Tucson	2,059	147	7.1

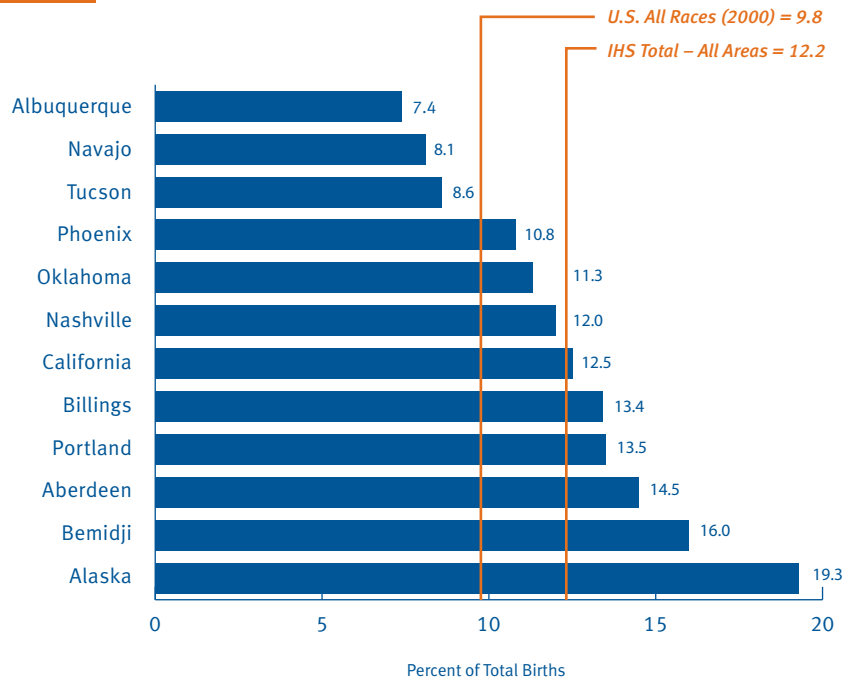
<sup>1</sup> Includes 4,841 U.S. All Races live births and 217 American Indian/Alaska Native live births with birthweight not stated.

<sup>2</sup> Birthweight of less than 2,500 grams (5lb 8oz).

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

The AI/AN population experiences more high birthweights than the U.S. all-races population. High birthweight may be a complication of diabetic pregnancies. In 1999-2001, 12.2 percent of all births in the IHS service area were high birthweight (4,000 grams or more). In contrast, the U.S. all-races percentage was 2.4 percentage points lower (9.8 percent) in 2000 than the IHS service area high birthweight. The rates varied considerably by Area ranging from 7.4 percent in Albuquerque to 19.3 percent in Alaska.

**Chart 3.3 High Birthweight, Calendar Years 1999–2001**



**Table 3.3 High Birthweight as a Percent of Total Live Births Calendar Years 1999–2001**

	Total Live Births <sup>1</sup>	Number High Birthweight <sup>2</sup>	Percent High Birthweight <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>398,737</i>	<i>9.8</i>
<b>All IHS Areas</b>	<b>109,088</b>	<b>13,319</b>	<b>12.2</b>
Aberdeen	8,809	1,275	14.5
Alaska	8,439	1,627	19.3
Albuquerque	5,584	414	7.4
Bemidji	6,966	1,117	16.0
Billings	4,599	614	13.4
California	7,306	916	12.5
Nashville	6,363	761	12.0
Navajo	13,634	1,101	8.1
Oklahoma	22,029	2,491	11.3
Phoenix	11,775	1,268	10.8
Portland	11,525	1,557	13.5
Tucson	2,059	178	8.6

<sup>1</sup> Includes 4,841 U.S. All Races live births and 217 American Indian/Alaska Native live births with birthweight not stated.

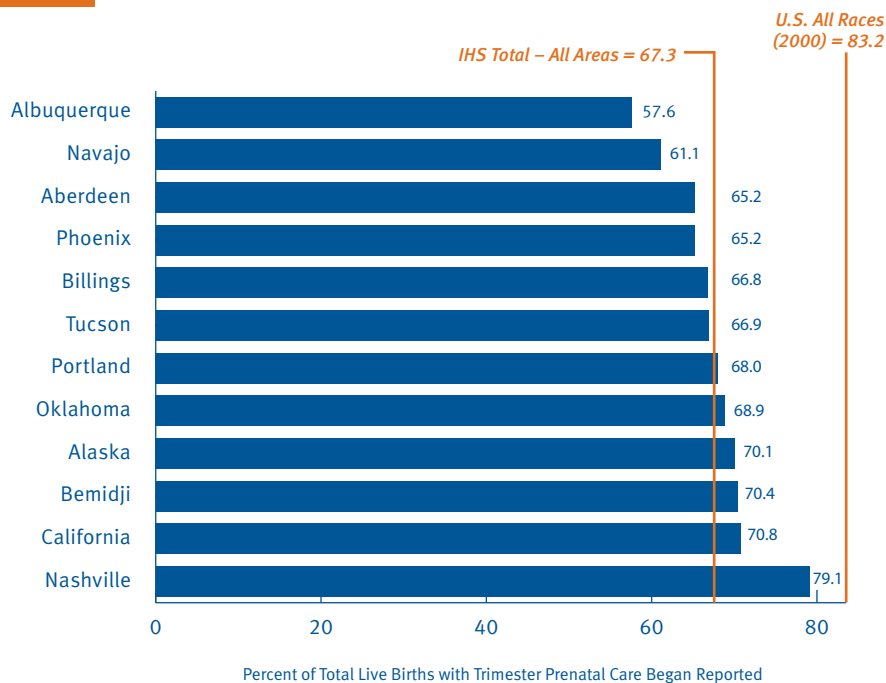
<sup>2</sup> Birthweight of more than 4,000 grams (8lb 14oz).

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



During 1999-2001, prenatal care began in the first trimester for 67.3 percent of AI/AN live births among the IHS service area population, which is 16 percent lower than the number of births with prenatal care among the U.S. all-races population (83.2 percent) in 2000. The percentages varied widely among IHS Areas, ranging from 57.6 for Albuquerque to 79.1 for Nashville.

**Chart 3.4 Prenatal Care in First Trimester, Calendar Years 1999–2001**



**Table 3.4 Prenatal Care in First Trimester, Calendar Years 1999–2001**

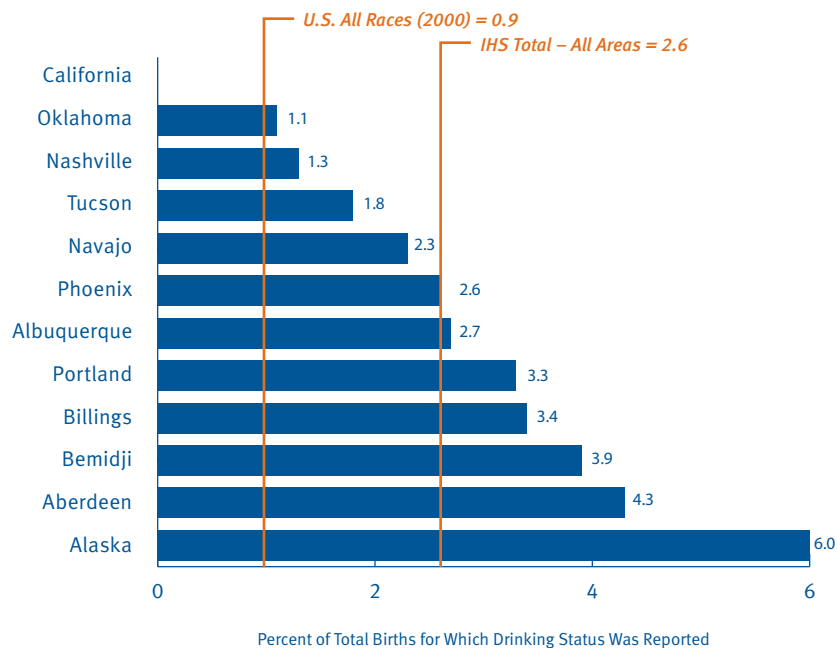
	Live Births with Trimester Prenatal Care Begun Reported		Live Births with Prenatal Care in the First Trimester <sup>2</sup>	
	Total Live Births <sup>1</sup>		NUMBER	PERCENT
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>4,014,185</i>	<i>3,284,256</i>	<i>83.2</i>
<b>All IHS Areas</b>	<b>109,088</b>	<b>107,249</b>	<b>73,451</b>	<b>67.3</b>
Aberdeen	8,809	8,636	5,747	65.2
Alaska	8,439	8,381	5,916	70.1
Albuquerque	5,584	5,483	3,218	57.6
Bemidji	6,966	6,856	4,907	70.4
Billings	4,599	4,508	3,074	66.8
California	7,306	7,186	5,171	70.8
Nashville	6,363	6,281	5,036	79.1
Navajo	13,634	13,299	8,325	61.1
Oklahoma	22,029	21,714	15,169	68.9
Phoenix	11,775	11,497	7,676	65.2
Portland	11,525	11,393	7,834	68.0
Tucson	2,059	2,015	1,378	66.9

<sup>1</sup> Includes 109,130 U.S. All Races live births and 3,730 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 1999-2001, 2.6 percent of mothers of AI/AN newborns drank alcohol during pregnancy (as reported on the state birth certificate), almost triple times the rate for mothers in the U.S. general population (0.9 percent) in 2000. The Alaska Area (6.0 percent) was 2.3 times the all IHS Area rate. The rate of alcohol use increased with age with the exception of AI/AN mothers under 18 years.

**Chart 3.5 Mothers Who Drank Alcohol During Pregnancy  
Calendar Years 1999–2001**



**Table 3.5 Percent of Mothers Who Drank Alcohol During Pregnancy<sup>1</sup>  
by Age of Mother, Calendar Years 1999–2001**

(Mothers who drank alcohol 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	35-54 Years
<i>U.S. All Races (2000)</i>	0.9	0.6	0.6	0.7	0.6	0.9	1.3
<b>All IHS Areas</b>	<b>2.6</b>	<b>2.6</b>	<b>2.1</b>	<b>2.4</b>	<b>2.6</b>	<b>3.1</b>	<b>3.4</b>
Aberdeen	4.3	4.4	3.0	4.6	4.5	4.5	4.5
Alaska	6.0	5.0	3.5	5.6	6.4	7.4	7.5
Albuquerque	2.7	2.1	2.5	2.2	2.8	3.7	3.6
Bemidji	3.9	5.6	3.0	3.9	3.5	3.6	5.1
Billings	3.4	2.8	2.6	3.2	3.6	4.3	4.3
California	—*	—*	—*	—*	—*	—*	—*
Nashville	1.3	1.2	0.8	0.9	1.3	2.3	1.4
Navajo	2.3	3.8	2.9	2.3	2.0	2.7	1.5
Oklahoma	1.1	1.0	0.9	0.9	1.2	1.7	1.9
Phoenix	2.6	2.4	2.1	2.1	2.4	3.4	5.0
Portland	3.3	2.6	3.0	3.2	3.3	3.2	4.7
Tucson	1.8	0.5	0.7	1.5	1.8	3.0	4.6

— Represents zero.

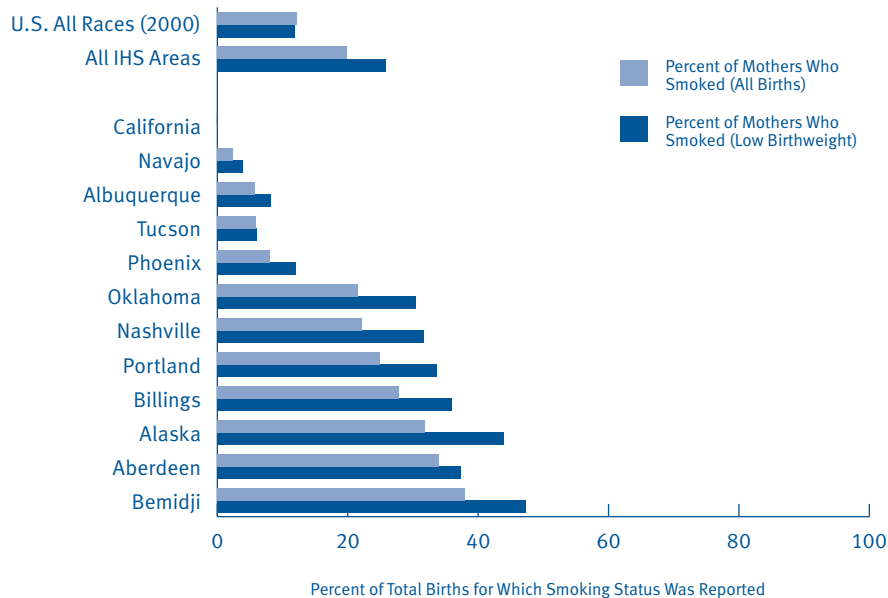
\* Percent based on less than twenty births in the age group specified.

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

NOTE: Excludes data for California, which did not report alcohol use on the state birth certificate.

During 1999-2001, 19.8 percent of women who gave birth to AI/AN newborns smoked tobacco during pregnancy. Women in the U.S. all-races population smoked at a lower rate during pregnancy (12.2 percent) in 2000. Of all AI/AN low birthweights, 25.9 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 types of rates.

**Chart 3.6 Mothers Who Smoked During Pregnancy  
Calendar Years 1999–2001**



**Table 3.6 Percent of Mothers Who Smoked During Pregnancy for All Births and Low Birthweight by Age of Mother  
Calendar Years 1999-2001 (Low birthweight is defined as weight less than 2,500 grams [5lb., 8oz.])**

	Percent of Live Births <sup>1</sup> for Which the Mother Reported Smoking					Percent of Low Birthweight <sup>1</sup> for Which the Mother Reported Smoking				
	All Ages	Under 15 Years	15-19 Years	20-34 Years	35-54 Years	All Ages	Under 15 Years	15-19 Years	20-34 Years	35-54 Years
U.S. All Races (2000)	12.2	7.1	17.8	11.8	9.3	11.9	13.3	11.4	11.6	18.5
All IHS Areas	19.8	13.9	21.3	19.6	17.8	25.9	16.1	23.1	26.4	28.0
Aberdeen	34.0	26.2	31.5	34.9	34.0	37.3	0.0 *	36.0	36.4	46.6 *
Alaska	31.9	19.0	32.9	31.8	31.3	43.9	0.0 *	34.0	45.6	50.7
Albuquerque	5.7	3.4	6.0	5.7	5.7	8.2	0.0 *	7.8	7.3	14.0
Bemidji	37.9	22.2	39.8	37.9	33.9	47.3	0.0 *	42.2	48.7	50.0
Billings	27.9	40.0	27.6	28.0	27.0	36.0	100.0 *	26.3	38.6	32.5
California <sup>2</sup>	— *	— *	— *	— *	— *	— *	— *	— *	— *	— *
Nashville	22.1	10.0 *	26.1	21.5	19.3	31.7	50.0 *	20.5	33.1	41.5
Navajo	2.4	10.0	4.0	2.2	1.4	3.9	0.0 *	6.4	3.7	2.1
Oklahoma	21.6	10.5	23.8	20.8	24.0	30.5	0.0 *	29.4	30.6	35.5
Phoenix	8.0	6.3	7.0	7.9	10.9	12.1	0.0 *	11.4	12.4	11.7
Portland	24.9	20.0	27.0	24.7	22.9	33.6	50.0 *	28.7	33.8	40.0
Tucson	5.9	0.0 *	3.5	6.5	7.5	6.1	0.0 *	2.2	7.3	10.5 *

— Represents zero.

\* Figure does not meet standards of reliability or precision.

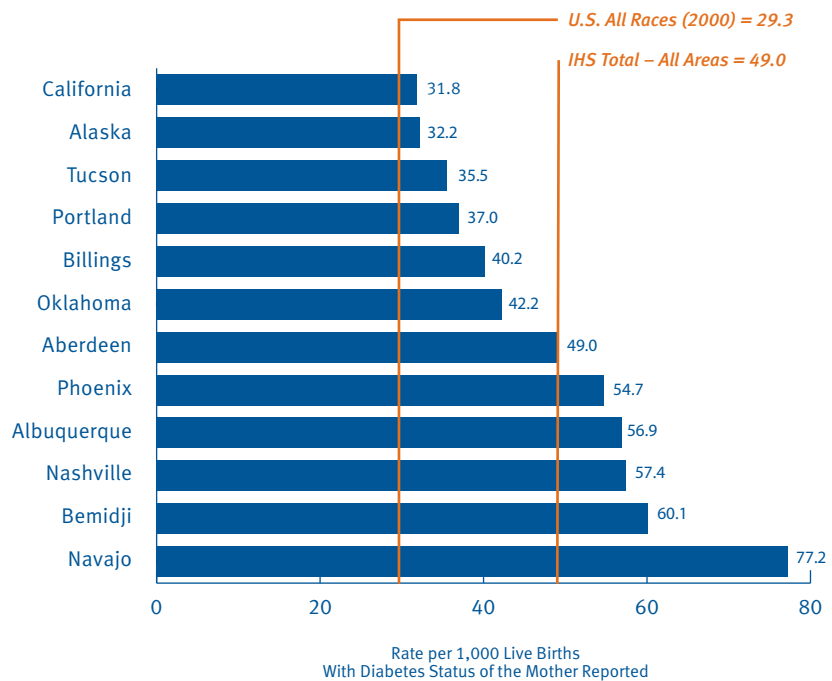
<sup>1</sup> Based on the number of live births with smoking status of the mother reported.

<sup>2</sup> Excludes data for California, which did not require reporting of tobacco use during pregnancy.

NOTE: Excludes data for Indiana, New York State (but includes New York City) and South Dakota, which did not report average number of cigarettes smoked per day in standard categories.

During 1999-2001 mothers of AI/AN newborns were more likely to have diabetes than their counterparts in the U.S. all-races population in 2000. The 1999-2001 rate for AI/AN people was 1.7 times larger than the U.S. all-races rate (29.3 births to mothers with diabetes per 1,000 live births). For the AI/AN population, there were 49.0 births to mothers with diabetes per 1,000 of all live births (a one percent increase from the 1996-1998 rate of 48.3). The Area proportions ranged from 31.8 per 1,000 live births in California to 77.2 in Navajo.

**Chart 3.7 Birth Rates among Mothers with Diabetes, Calendar Years 1999-2001**



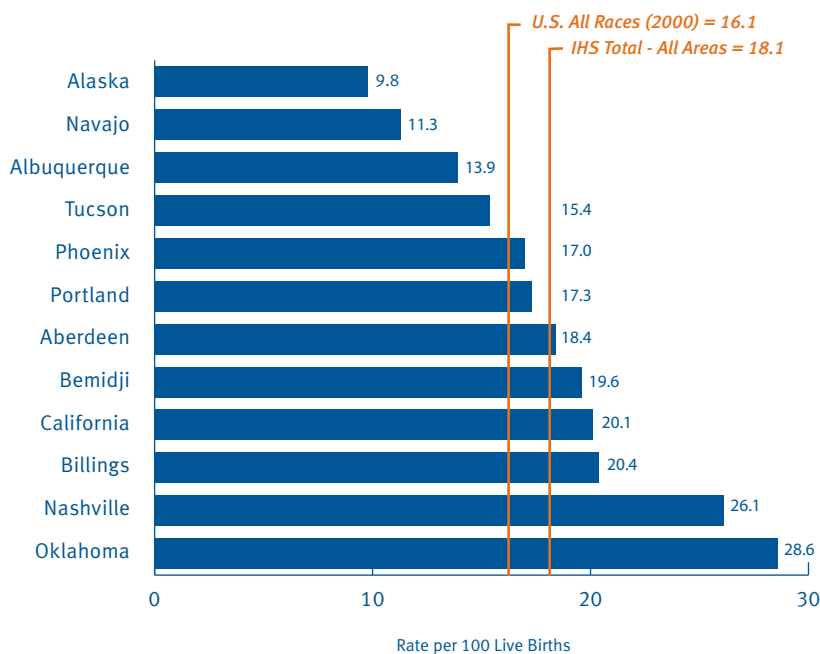
**Table 3.7 Rate<sup>1</sup> of Live Births among Mothers with Diabetes by Age of Mother Calendar Years 1999-2001**

	All Ages	Under 20 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40-54 Years
<i>U.S. All Races (2000)</i>	<i>29.3</i>	<i>8.8</i>	<i>17.3</i>	<i>28.6</i>	<i>38.8</i>	<i>52.0</i>	<i>69.5</i>
<b>All IHS Areas</b>	<b>49.0</b>	<b>14.5</b>	<b>30.9</b>	<b>54.3</b>	<b>84.5</b>	<b>123.7</b>	<b>136.4</b>
Aberdeen	49.0	15.2	31.3	62.3	96.7	148.8	19.0
Alaska	32.2	8.1	18.0	35.3	50.3	73.6	95.7
Albuquerque	56.9	13.8	33.1	53.9	107.3	143.2	159.3
Bemidji	60.1	24.9	45.3	68.1	96.8	133.0	168.5
Billings	40.2	8.8	25.1	53.0	65.2	125.4	112.9
California	31.8	3.7	18.2	33.4	70.0	77.5	57.9
Nashville	57.4	22.6	49.9	57.7	66.9	133.2	112.1
Navajo	77.2	18.9	39.6	77.5	121.1	170.2	228.7
Oklahoma	42.2	16.1	29.0	49.0	85.2	109.3	115.8
Phoenix	54.7	16.3	31.3	63.5	93.4	143.0	148.1
Portland	37.0	8.2	25.2	42.3	57.7	88.9	119.0
Tucson	35.5	8.4	27.6	45.0	52.0	90.9	66.7

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

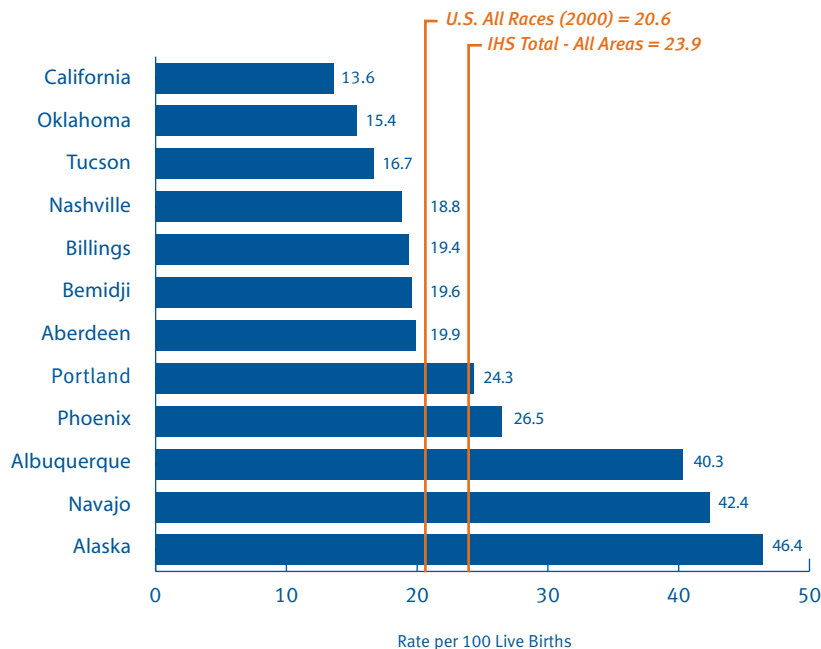
Mothers of AI/AN newborns have a 12 percent higher rate of cesarean deliveries than do women in the U.S. all-races population. The AI/AN rate of primary cesarean deliveries was 18.1 per 100 live births in 1999-2001, while the 2000 U.S. all-races rate was 16.1. Alaska (9.8), Navajo (11.3), Albuquerque (13.9), and Tucson (15.4) were less than the U.S. all-races rate.

**Chart 3.8 First Cesarean Delivery, Calendar Years 1999-2001**



Mothers of AI/AN newborns who had a cesarean delivery were 16 percent more likely to have a subsequent vaginal delivery (VBAC) than women in the U.S. all-races population. The AI/AN rate is 23.9 vaginal births per 100 live births to women with a prior cesarean delivery in 1999-2001 compared to a U.S. all-races rate of 20.6 in 2000. The rate ranged among IHS Areas from 13.6 in California to 46.4 in Alaska.

**Chart 3.9 Vaginal Births after Previous Cesarean Delivery (VBAC) Calendar Years 1999-2001**



**Table 3.8** Rates of First Cesarean Delivery and Vaginal Birth after Previous Cesarean Delivery by Age of Mother, Calendar Years 1999–2001 (Rates per 100 live births)

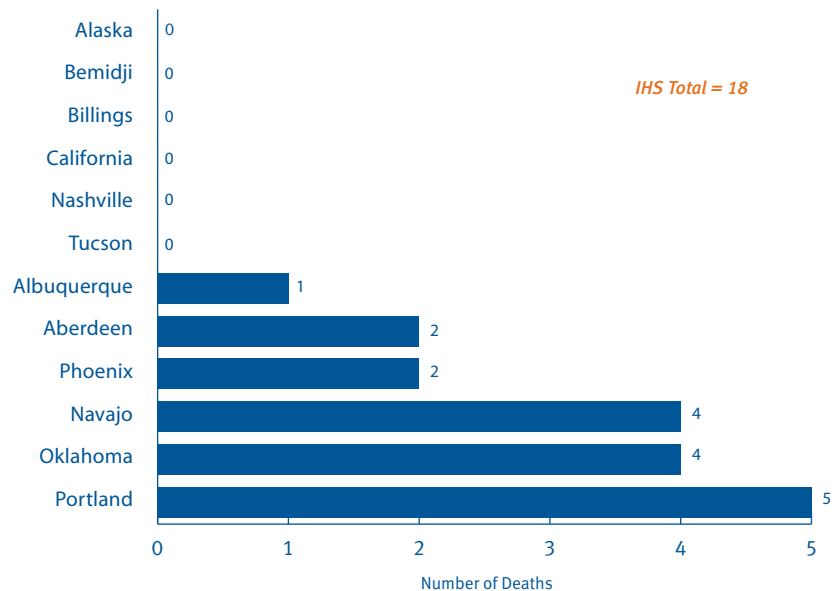
	Rate of First Cesarean Delivery				Rate of Vaginal Births After Previous Cesarean (VBAC) Delivery			
	All Ages	Under 25 Years	25-34 Years	35-54 Years	All Ages	Under 25 Years	25-34 Years	35-54 Years
<i>U.S. All Races (2000)</i>	16.1	14.1	16.5	22.7	20.6	23.2	20.9	17.6
<b>All IHS Areas</b>	<b>18.1</b>	<b>15.7</b>	<b>20.2</b>	<b>30.6</b>	<b>23.9</b>	<b>24.4</b>	<b>23.8</b>	<b>23.1</b>
Aberdeen	18.4	15.3	22.4	38.7	19.9	22.1	19.2	14.9
Alaska	9.8	8.3	10.1	17.2	46.4	41.7	49.2	43.0
Albuquerque	13.9	11.5	15.5	25.2	40.3	49.1	39.3	32.2
Bemidji	19.6	17.1	21.8	38.1	19.6	22.4	18.6	15.8
Billings	20.4	18.9	19.7	43.9	19.4	19.9	19.4	18.2
California	20.1	16.9	21.9	43.7	13.6	17.1	12.7	10.1
Nashville	26.1	21.1	29.6	57.8	18.8	25.0	16.2	15.1
Navajo	11.3	10.5	12.1	19.5	42.4	42.6	42.6	41.8
Oklahoma	28.6	24.1	36.2	59.2	15.4	16.5	15.0	12.2
Phoenix	17.0	14.2	19.7	25.5	26.5	29.5	25.5	23.8
Portland	17.3	13.0	15.2	26.4	24.3	26.8	24.2	19.9
Tucson	15.4	15.7	20.2	28.1	16.7	20.3	17.2	4.2

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

Rate of vaginal births after previous cesarean delivery is computed by dividing the number of such deliveries by the sum of these deliveries plus repeat cesarean deliveries, that is, to women with a previous cesarean section.

There were 18 maternal death in the IHS service area population in 1999-2001. Portland had the highest number (five deaths) followed by Oklahoma and Navajo (four deaths).

**Chart 3.10** Maternal Deaths, Calendar Years 1999-2001



NOTE: IHS unadjusted numbers and numbers adjusted for race misreporting are the same.

The infant mortality rate for the IHS service area population in 1999-2001 was 8.8 deaths per 1,000 live births. The AI/AN rate is 28 percent higher than the U.S. all-races (6.9 deaths per 1,000 live births for 2000). Two IHS Areas (Aberdeen and Alaska) had rates exceeding the U.S. all-races rate by over 50 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

Chart 3.11 Infant Mortality Rates, Calendar Years 1999–2001

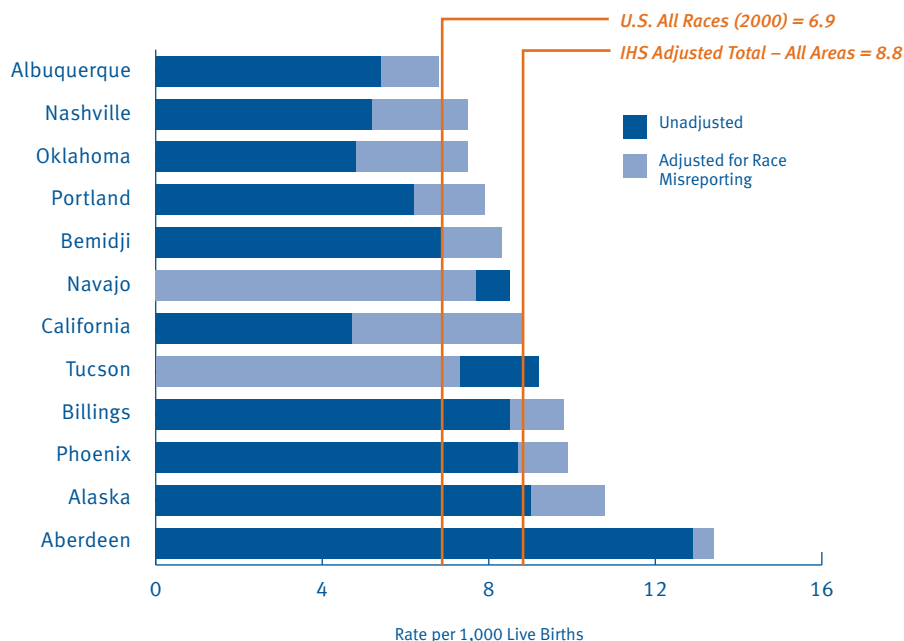


Table 3.11 Infant Mortality Rates (Under One Year), Calendar Years 1999–2001

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>28,035</i>		<i>6.9</i>	
<b>All IHS Areas</b>	<b>109,088</b>	<b>789</b>	<b>955</b>	<b>7.2</b>	<b>8.8</b>
Aberdeen	8,809	114	118	12.9	13.4
Alaska	8,439	76	91	9.0	10.8
Albuquerque	5,584	30	38	5.4	6.8
Bemidji	6,966	48	58	6.9	8.3
Billings	4,599	39	45	8.5	9.8
California	7,306	34	64	4.7	8.8
Nashville	6,363	33	48	5.2	7.5
Navajo	13,634	116 <sup>3</sup>	105 <sup>3</sup>	8.5 <sup>3</sup>	7.7 <sup>3</sup>
Oklahoma	22,029	106	165	4.8	7.5
Phoenix	11,775	102	117	8.7	9.9
Portland	11,525	72	91	6.2	7.9
Tucson	2,059	19 <sup>3</sup>	15 <sup>3</sup>	9.2 <sup>3</sup>	7.3 <sup>3</sup>

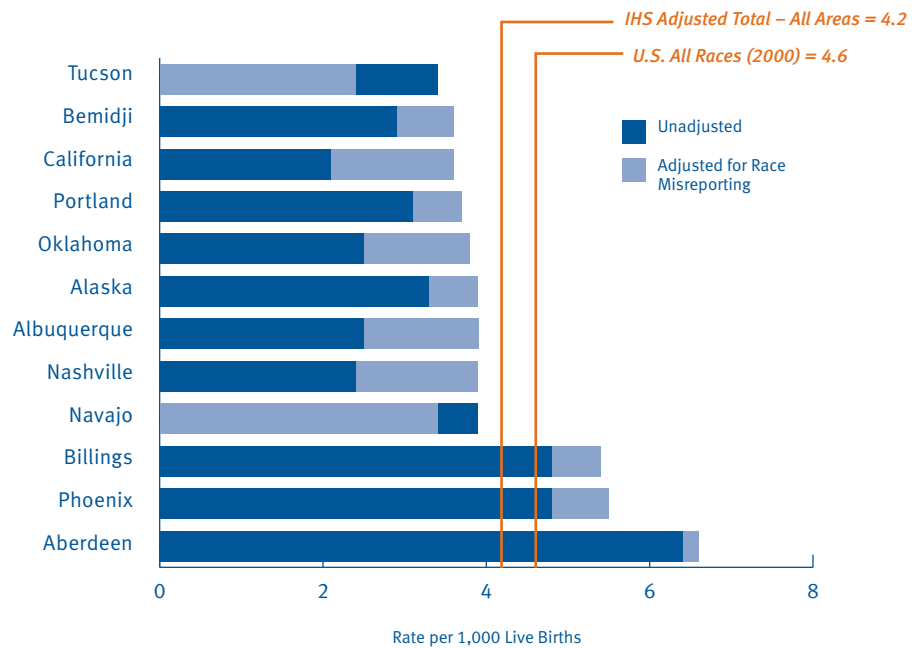
<sup>1</sup> Rate per 1,000 live births.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>3</sup> For the Navajo and Tucson Areas, there were more American Indian and Alaska Native infant deaths identified through use of the state death certificate records (unadjusted data) than through use of match between state birth and deaths certificate records (adjusted data).

The neonatal mortality rate for the IHS service area population in 1999-2001 was 4.2 deaths per 1,000 live births. The AI/AN rate is 8.7 percent lower than the U.S. all-races rate of 4.6 deaths per 1,000 live births in 2000. Three IHS Areas (Aberdeen, Billings and Phoenix) had rates that exceeded the U.S. all-races rate. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.12 Neonatal Mortality Rates, Calendar Years 1999–2001**



**Table 3.12 Neonatal Mortality Rates (Under 28 Days), Calendar Years 1999–2001**

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>18,776</i>		<i>4.6</i>	
<b>All IHS Areas</b>	<b>109,088</b>	<b>377</b>	<b>458</b>	<b>3.5</b>	<b>4.2</b>
Aberdeen	8,809	56	58	6.4	6.6
Alaska	8,439	28	33	3.3	3.9
Albuquerque	5,584	14	22	2.5	3.9
Bemidji	6,966	20	25	2.9	3.6
Billings	4,599	22	25	4.8	5.4
California	7,306	15	26	2.1	3.6
Nashville	6,363	15	25	2.4	3.9
Navajo	13,634	53 <sup>3</sup>	47 <sup>3</sup>	3.9 <sup>3</sup>	3.4 <sup>3</sup>
Oklahoma	22,029	54	84	2.5	3.8
Phoenix	11,775	57	65	4.8	5.5
Portland	11,525	36	43	3.1	3.7
Tucson	2,059	7 <sup>3</sup>	5 <sup>3</sup>	3.4 <sup>3</sup>	2.4 <sup>3</sup>

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

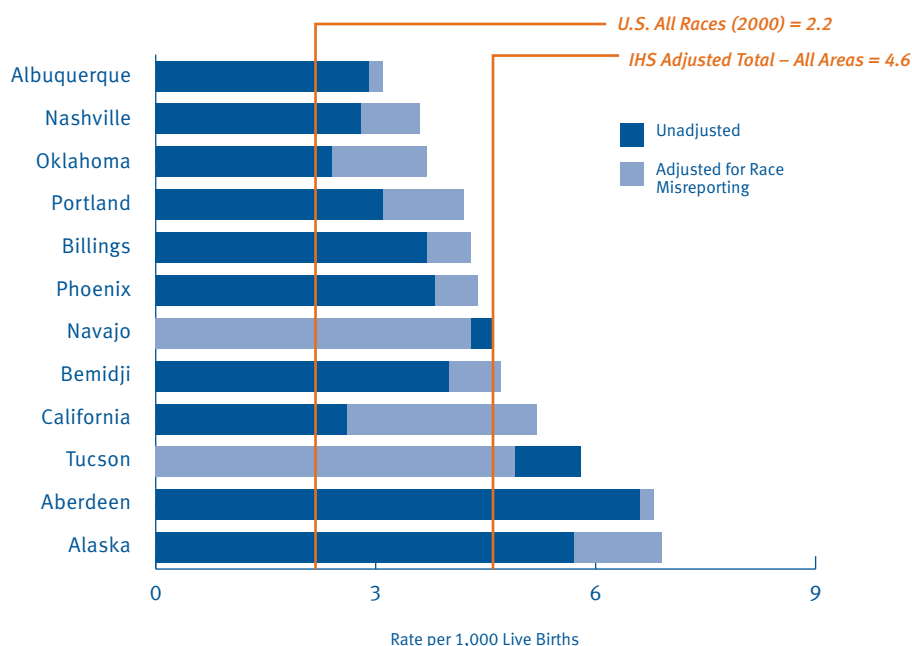
<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>3</sup> The adjusted numbers and rates for neonatal deaths for 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 neonatal deaths) had six and two less deaths, respectively, than did the unadjusted mortality file for each IHS Area (1999-2001 data).



The postneonatal mortality rate for the IHS service area population in 1999-2001 was 4.6 deaths per 1,000 live births. The AI/AN rate is 2.1 times higher than the U.S. all-races rate of 2.2 deaths per 1,000 live births for 2000. The Alaska Area had the highest rate (6.9 deaths per 1,000 live births) among the IHS Areas followed by Aberdeen (6.8 deaths per 1,000 live births). The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.13 Postneonatal Mortality Rates, Calendar Years 1999–2001**



**Table 3.13 Postneonatal Mortality Rates (28 Days to Under One Year) Calendar Years 1999–2001**

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>4,058,814</i>	<i>9,259</i>		<i>2.2</i>	
<b>All IHS Areas</b>	<b>109,088</b>	<b>412</b>	<b>497</b>	<b>3.8</b>	<b>4.6</b>
Aberdeen	8,809	58	60	6.6	6.8
Alaska	8,439	48	58	5.7	6.9
Albuquerque	5,584	16	16	2.9	2.9
Bemidji	6,966	28	33	4.0	4.7
Billings	4,599	17	20	3.7	4.3
California	7,306	19	38	2.6	5.2
Nashville	6,363	18	23	2.8	3.6
Navajo	13,634	63 <sup>3</sup>	58 <sup>3</sup>	4.6 <sup>3</sup>	4.3 <sup>3</sup>
Oklahoma	22,029	52	81	2.4	3.7
Phoenix	11,775	45	52	3.8	4.4
Portland	11,525	36	48	3.1	4.2
Tucson	2,059	12 <sup>3</sup>	10 <sup>3</sup>	5.8 <sup>3</sup>	4.9 <sup>3</sup>

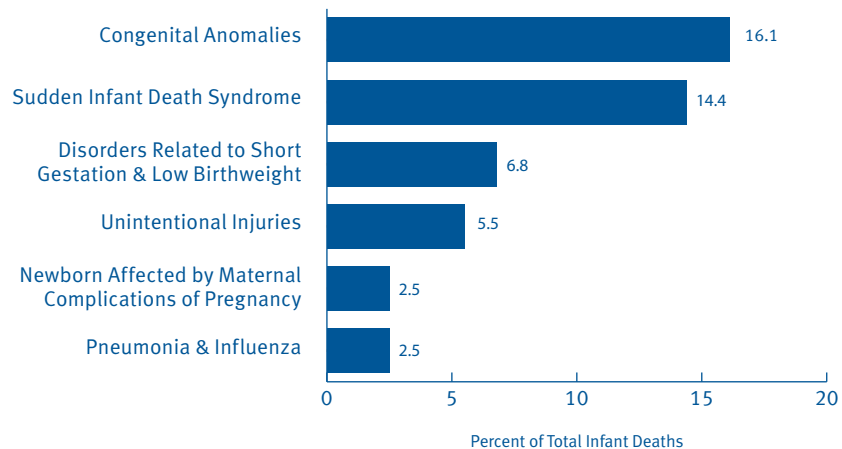
<sup>1</sup> Rate per 1,000 live births.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>3</sup> The adjusted numbers and rates for postneonatal deaths for the 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 postneonatal deaths) had five and two less deaths than, respectively, did the unadjusted mortality file for each IHS Area (1999-2001 data).

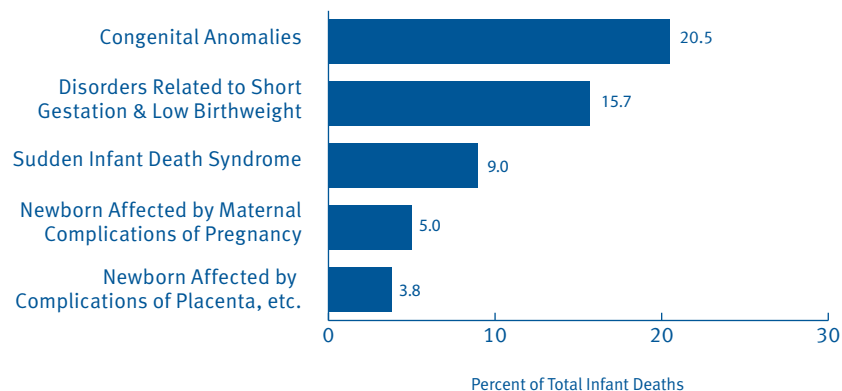
In 1999-2001, 16.1 percent of all infant deaths in the IHS service area were caused by congenital anomalies. This was followed by sudden infant death syndrome (14.4 percent), disorders related to short gestation and low birthweight (6.8 percent), unintentional injuries (5.5 percent), newborn affected by maternal complications of pregnancy and pneumonia and influenza, both at 2.5 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.14** Leading Causes of Infant Deaths, All IHS Areas, Calendar Years 1999–2001



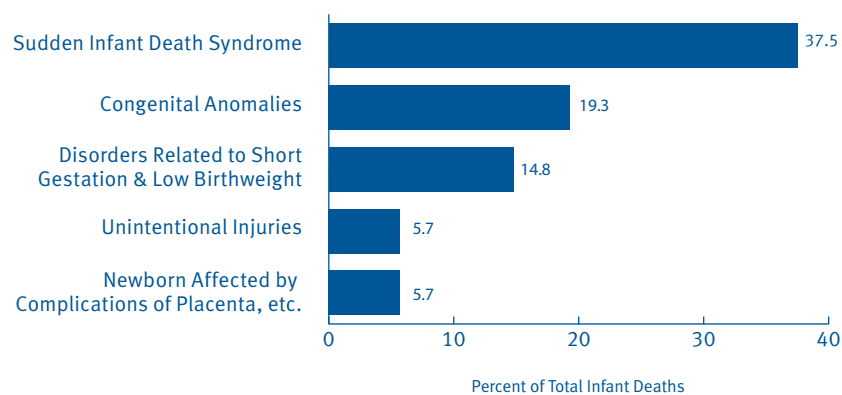
In 2000, 20.5 percent of all infant deaths in the U.S. were caused by congenital anomalies, followed by disorders related to short gestation and low birthweight at 15.7 percent.

**Chart 3.15** Leading Causes of Infant Deaths, U.S. All Races, Calendar Year 2000



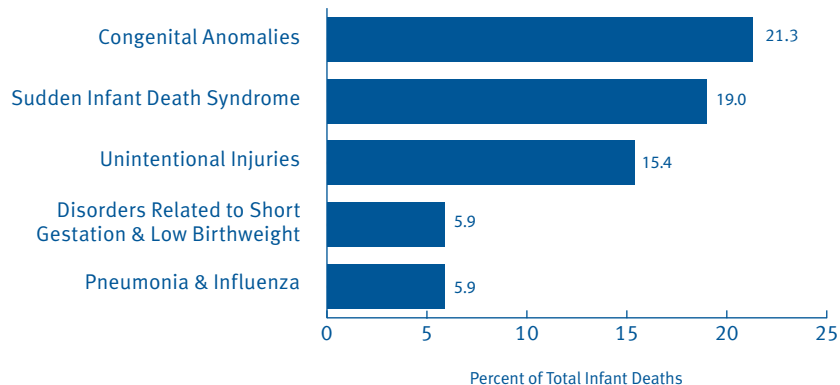
In 1999-2001, 37.5 percent of all infant deaths in the **Aberdeen Area** were caused by sudden infant death syndrome, followed by congenital anomalies at 19.3 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.16** Leading Causes of Infant Deaths, Aberdeen Area, Calendar Years 1999–2001



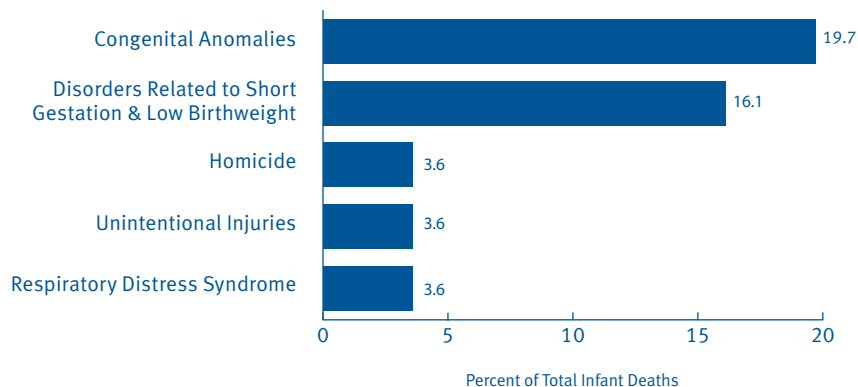
In 1999-2001, 21.3 percent of all infant deaths in the **Alaska Area** were caused by congenital anomalies, followed by sudden infant death syndrome at 19.0 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.17** Leading Causes of Infant Deaths, Alaska Area, Calendar Years 1999–2001



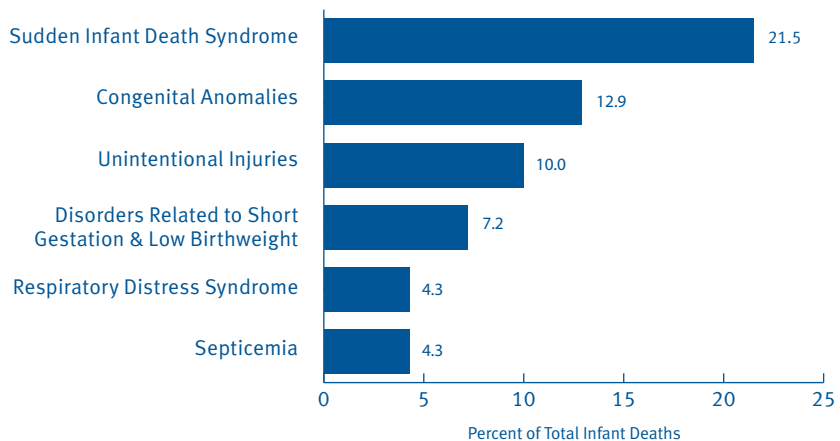
In 1999-2001, 19.7 percent of all infant deaths in the **Albuquerque Area** were caused by congenital anomalies, followed by disorders related to short gestation and low birthweight at 16.1 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.18** Leading Causes of Infant Deaths, Albuquerque Area, Calendar Years 1999–2001



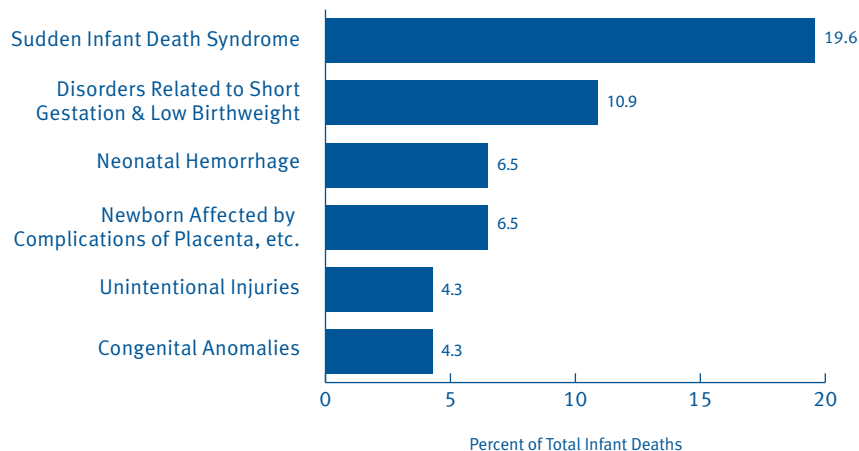
In 1999-2001, 21.5 percent of all infant deaths in the **Bemidji Area** were caused by sudden infant death syndrome, followed by congenital anomalies at 12.9 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.19** Leading Causes of Infant Deaths, Bemidji Area, Calendar Years 1999–2001



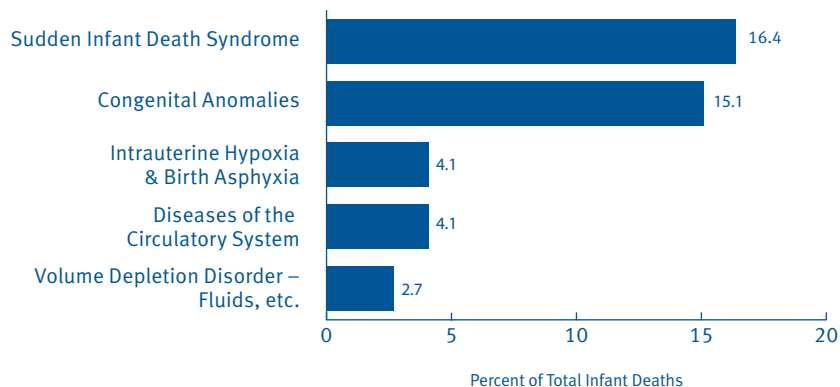
In 1999-2001, 19.6 percent of all infant deaths in the **Billings Area** were caused by sudden infant death syndrome, followed by disorders related to short gestation and low birthweight at 10.9 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.20** Leading Causes of Infant Deaths, Billings Area, Calendar Years 1999–2001



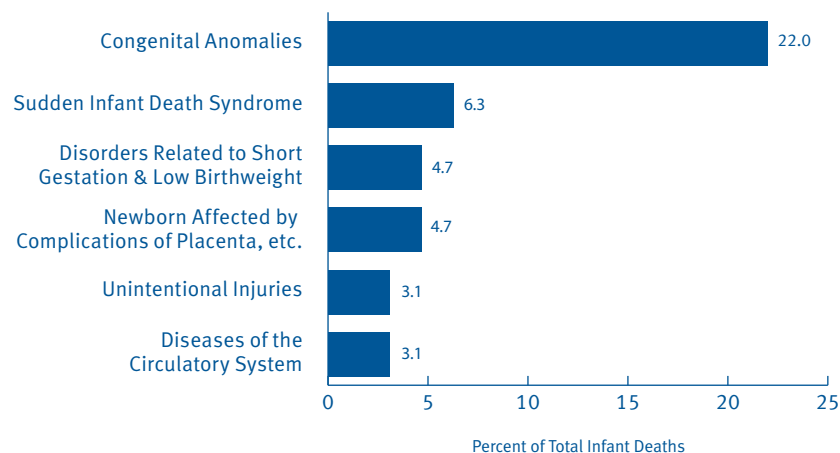
In 1999-2001, 16.4 percent of all infant deaths in the **California Area** were caused by sudden infant death syndrome, followed by congenital anomalies at 15.1 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.21** Leading Causes of Infant Deaths, California Area, Calendar Years 1999–2001



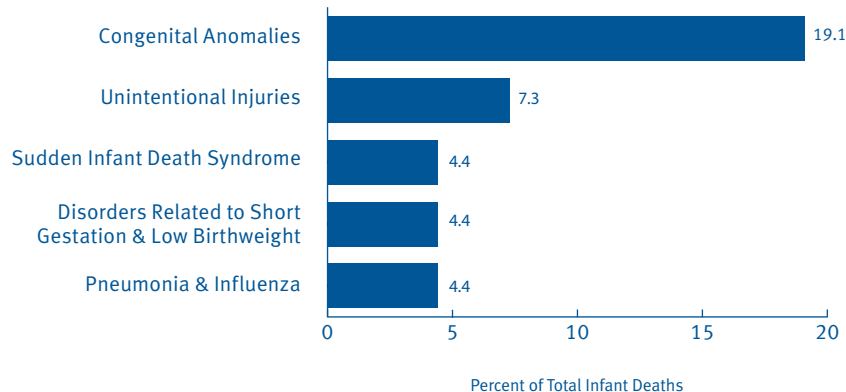
In 1999-2001, 22.0 percent of all infant deaths in the **Nashville Area** were caused by congenital anomalies, followed by sudden infant death syndrome (6.3 percent). Both disorders related to short gestation and low birth weight and newborns affected by complications of placenta, etc. followed at 4.7 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.22** Leading Causes of Infant Deaths, Nashville Area, Calendar Years 1999–2001



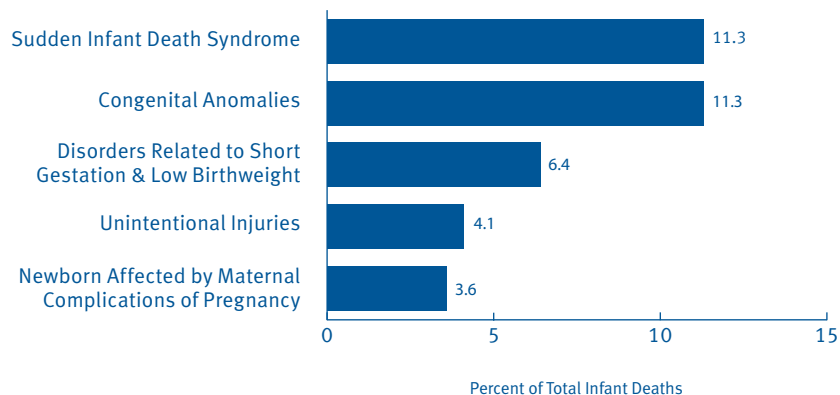
In 1999-2001, 19.1 percent of all infant deaths in the **Navajo Area** were caused by congenital anomalies, followed by unintentional injuries at 7.3 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.23** Leading Causes of Infant Deaths, Navajo Area, Calendar Years 1999–2001



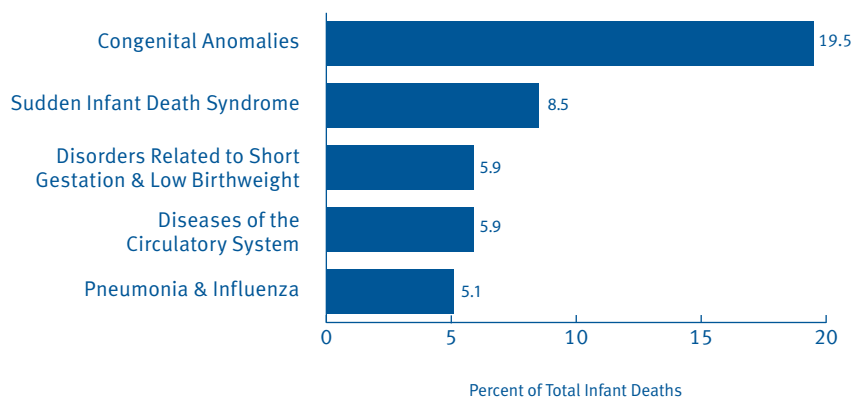
In 1999-2001, sudden infant death syndrome and congenital anomalies were the leading causes of infant deaths at 11.3 percent for the **Oklahoma Area**, followed by disorders related to short gestation and low birthweight at 6.4 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.24** Leading Causes of Infant Deaths, Oklahoma Area, Calendar Years 1999–2001



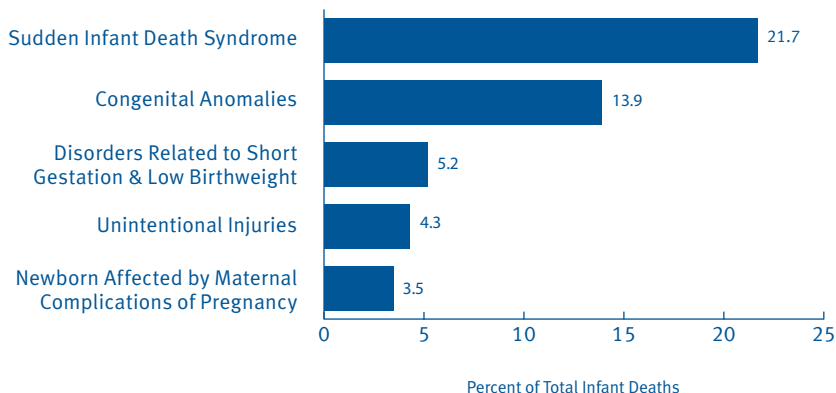
In 1999-2001, 19.5 percent of all infant deaths in the **Phoenix Area** were caused by congenital anomalies, followed by sudden infant death syndrome at 8.5 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.25** Leading Causes of Infant Deaths, Phoenix Area, Calendar Years 1999–2001



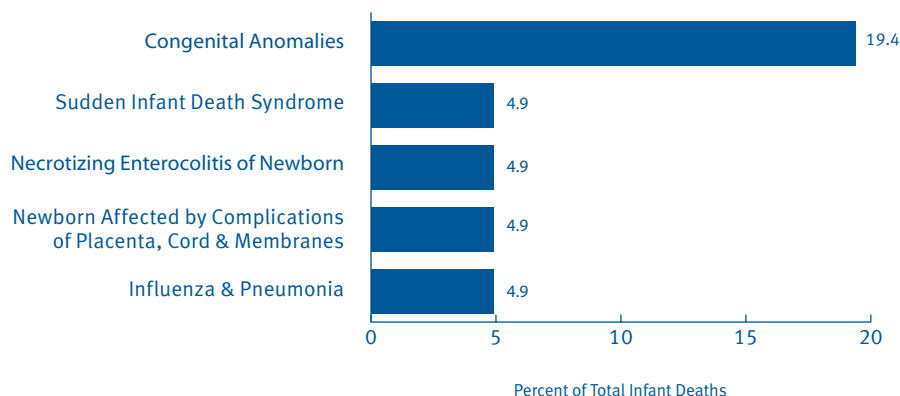
In 1999-2001, 21.7 percent of all infant deaths in the **Portland Area** were caused by sudden infant death syndrome, followed by congenital anomalies at 13.9 percent. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.26** Leading Causes of Infant Deaths, Portland Area, Calendar Years 1999–2001



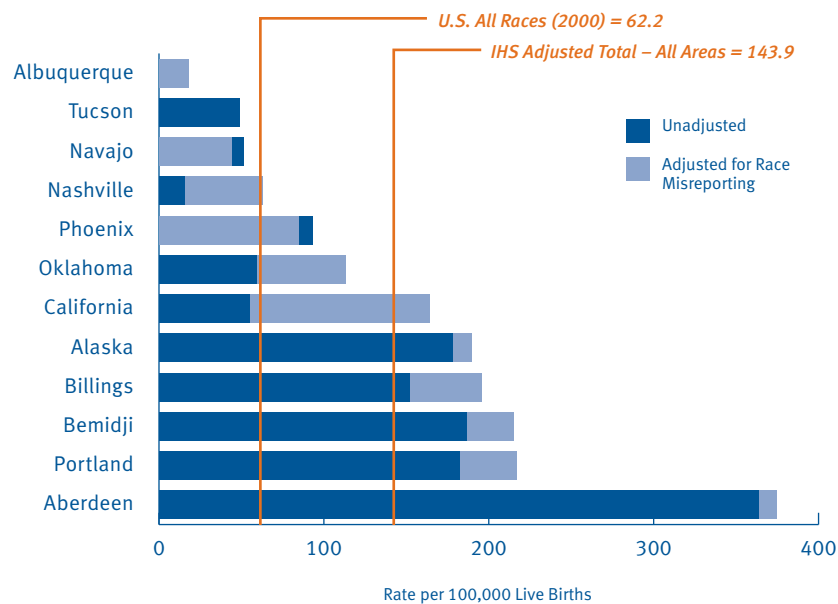
In 1999-2001, 19.4 percent of all infant deaths in the **Tucson Area** were caused by congenital anomalies. The following leading causes of deaths: sudden infant death syndrome; necrotizing enterocolitis of newborn; newborn affected by complications of placenta, cord and membranes; and influenza and pneumonia were equal each at 4.9 percent. The number of infant deaths for the Tucson Area is very small therefore these rates should be interpreted with caution. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.27** Leading Causes of Infant Deaths, Tucson Area, Calendar Years 1999–2001



In 1999-2001, 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 2000 (62.2 and 143.9, respectively). The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 3.28 Sudden Infant Death Syndrome (SIDS) Rates  
Calendar Years 1999–2001**



**Table 3.28 Sudden Infant Death Syndrome (SIDS) Rates, Calendar Years 1999–2001**

	Live Births	Infant Deaths		Rate <sup>1</sup>	
		Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
U.S. All Races (2000)	4,058,814	2,523		62.2	
All IHS Areas	109,088	125	157	114.6	143.9
Aberdeen	8,809	32	33	363.3	374.6
Alaska	8,439	15	16	177.7	189.6
Albuquerque	5,584	0	1	0.0	17.9
Bemidji	6,966	13	15	186.6	215.3
Billings	4,599	7	9	152.2	195.7
California	7,306	4	12	54.7	164.2
Nashville	6,363	1	4	15.7	62.9
Navajo	13,634	7 <sup>3</sup>	6 <sup>3</sup>	51.3 <sup>3</sup>	44.0 <sup>3</sup>
Oklahoma	22,029	13	25	59.0	113.5
Phoenix	11,775	11 <sup>3</sup>	10 <sup>3</sup>	93.4 <sup>3</sup>	84.9 <sup>3</sup>
Portland	11,525	21	25	182.2	216.9
Tucson	2,059	1	1	48.6	48.6

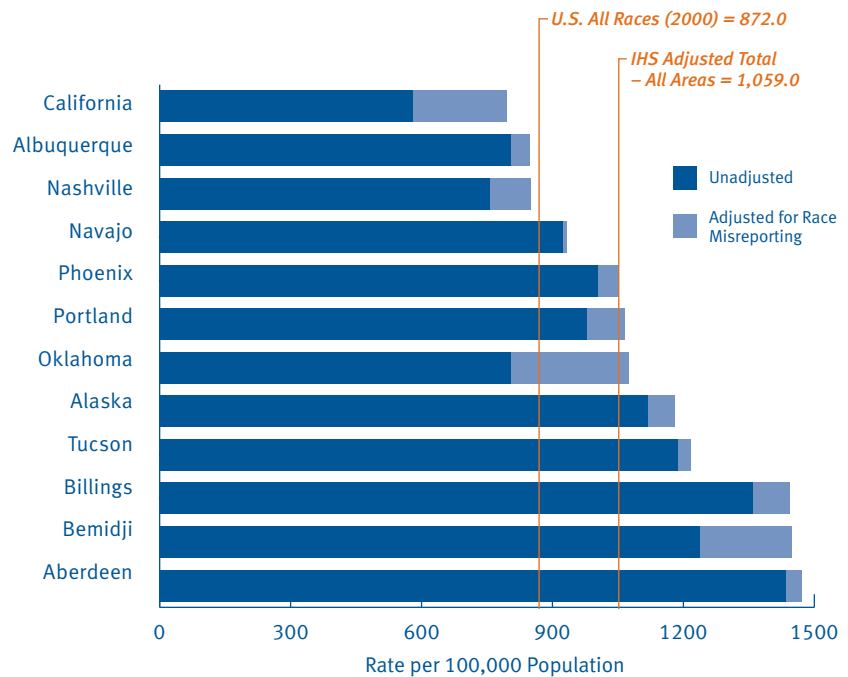
<sup>1</sup> Rate per 100,000 live births.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>3</sup> The adjusted numbers and rates (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 infant deaths) had one less death for this cause than did the unadjusted mortality file for each IHS area (1999-2001 data).

In 1999-2001, the age-adjusted death rate (all causes) for the IHS service area population was 1,059.0 deaths per 100,000 population. The AI/AN rate is 21 percent higher than the U.S. all-races rate of 872.0 for 2000. The Aberdeen (1,470.8), Bemidji (1,449.0) and Billings (1,445.1) service areas had the highest rates. The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.1** Age-Adjusted Death Rates  
Calendar Years 1999-2001



**Table 4.1** Age-Adjusted Death Rates (All Causes)  
Calendar Years 1999-2001

	Deaths <sup>1</sup>		Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>2,403,351</i>		<i>872.0</i>	
<b>All IHS Areas</b>	<b>25,609</b>	<b>29,431</b>	<b>933.8</b>	<b>1,059.0</b>
Aberdeen	2,142	2,201	1,435.4	1,470.8
Alaska	1,983	2,105	1,118.6	1,179.7
Albuquerque	1,323	1,398	805.1	846.8
Bemidji	1,981	2,359	1,238.7	1,449.0
Billings	1,218	1,300	1,358.2	1,445.1
California	1,489	2,145	580.6	795.3
Nashville	1,212	1,386	757.6	850.7
Navajo	3,667	3,701	923.0	932.3
Oklahoma	4,719	6,554	805.1	1,075.1
Phoenix	2,755	2,894	1,003.0	1,051.4
Portland	2,479	2,734	978.6	1,065.0
Tucson	641	654	1,186.3	1,218.2

<sup>1</sup>Includes deaths with age not reported (9 deaths IHS-wide; Albuquerque-1 death, Nashville-1 death, Navajo-3 deaths, Phoenix-3 deaths and Tucson-1 death).

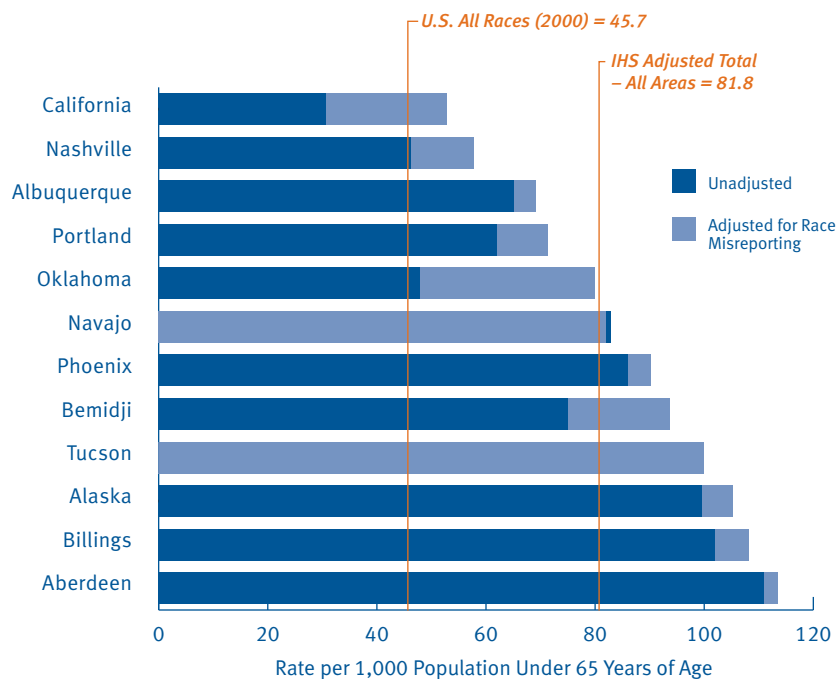
<sup>2</sup>Age-adjusted rate per 100,000 population.

<sup>3</sup>Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.



In 1999-2001, the years of potential life lost rate for the IHS service area population was 81.8 years per 1,000 persons under 65 years, which is 79 percent higher than the U.S. all-races rate of 45.7 for 2000. The rate of each IHS Area is higher than the U.S. all-races rate. The lowest Area rate, California (52.8 years of potential life lost per 1,000 persons under 65 years), is 16 percent greater than the U.S. all-races rate, while the highest Area rate, Aberdeen (113.4), is 2.5 times the U.S. all-races rate. The IHS service area rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.2** Years of Potential Life Lost (YPLL) Rates  
Calendar Years 1999-2001



**Table 4.2** Years of Potential Life Lost (YPLL) Rates (All Causes), Calendar Years 1999-2001

	Number of YPLL <sup>1</sup>		Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>11,261,211</i>		<i>45.7</i>	
<b>All IHS Areas</b>	<b>321,972</b>	<b>379,602</b>	<b>69.4</b>	<b>81.8</b>
Aberdeen	32,090	32,766	111.0	113.4
Alaska	30,361	32,134	99.5	105.3
Albuquerque	17,526	18,594	65.1	69.1
Bemidji	22,699	28,344	75.0	93.6
Billings	17,040	18,081	102.0	108.2
California	14,324	24,738	30.6	52.8
Nashville	12,107	15,125	46.2	57.8
Navajo	50,913	50,434	83.0 <sup>4</sup>	82.2 <sup>4</sup>
Oklahoma	42,634	70,915	47.9	79.8
Phoenix	42,922	44,957	86.0	90.1
Portland	29,772	34,203	62.0	71.3
Tucson	9,584	9,311	103.0 <sup>4</sup>	100.0 <sup>4</sup>

<sup>1</sup> Years of Potential Life Lost (YPLL) is a mortality indicator which 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 one, one to four, and five-year age groups through sixty to 64 years. The age at death was calculated based upon the mid-point of each of these age groups.

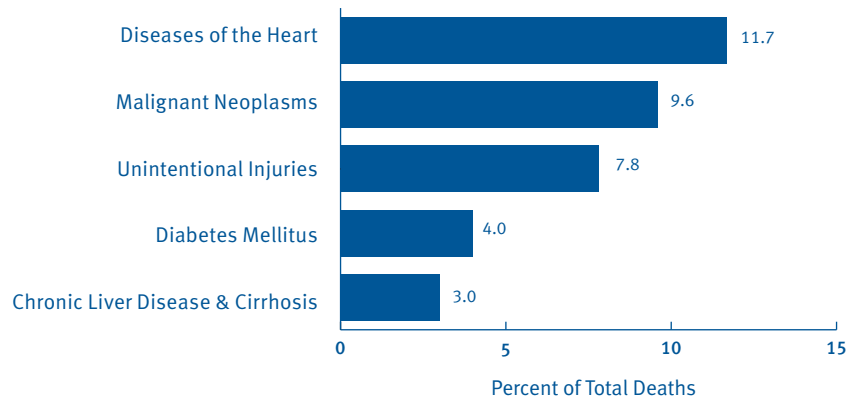
<sup>2</sup> Rate per 1,000 population under 65 years of age.

<sup>3</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>4</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 one less death for this cause than did the unadjusted mortality file for each IHS area (1999-2001 data).

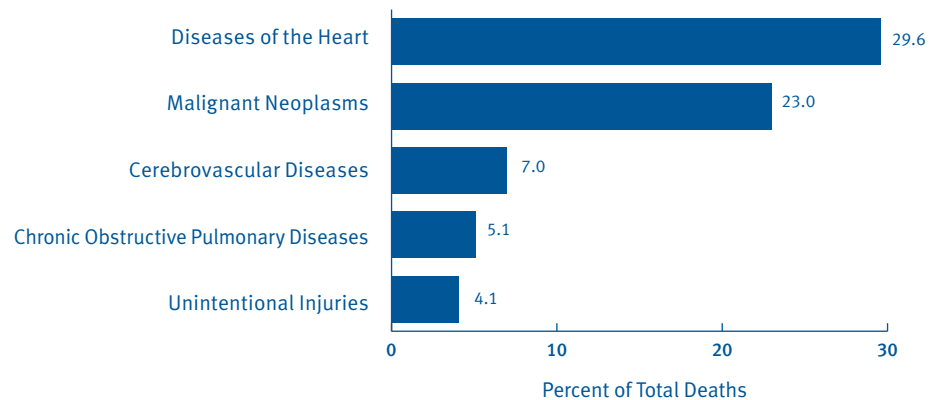
In 1999-2001, 11.7 percent of all deaths in the IHS service area were caused by diseases of the heart, followed by malignant neoplasms (9.6 percent), unintentional injuries (7.8 percent), diabetes mellitus (4.0 percent), and chronic liver disease and cirrhosis (3.0 percent).

**Leading Causes of Death, All IHS Areas,  
Calendar Years 1999-2001**



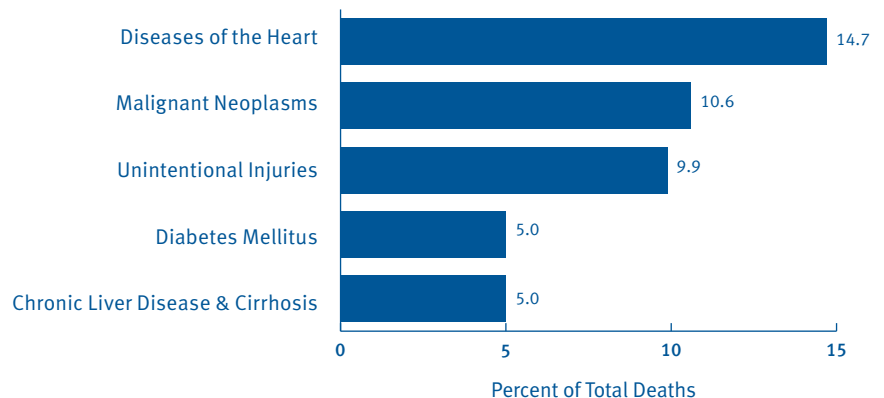
In 2000, 29.6 percent of all deaths in the U.S. were caused by diseases of the heart, followed by malignant neoplasms at 23.0 percent.

**Chart 4.4 Leading Causes of Death, U.S. All Races,  
Calendar Year 2000**



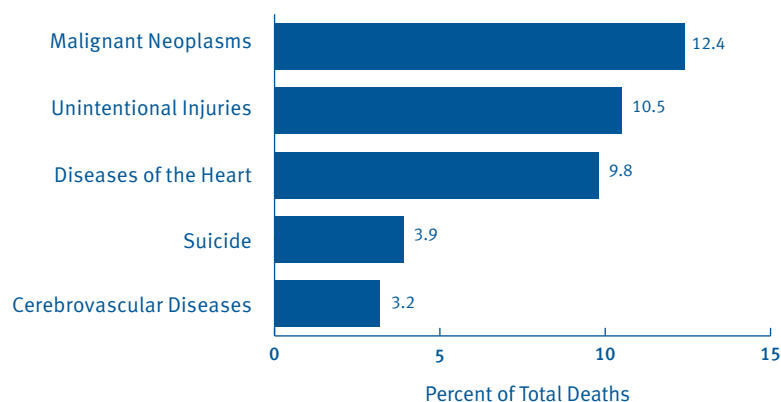
In 1999-2001, 14.7 percent of all deaths in the **Aberdeen Area** were caused by diseases of the heart, followed by malignant neoplasms at 10.6 percent.

**Chart 4.5 Leading Causes of Death, Aberdeen Area,  
Calendar Years 1999-2001**



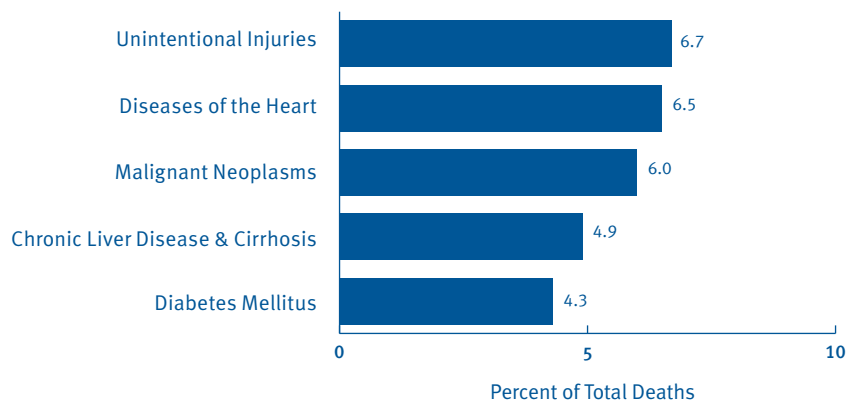
In 1999-2001, 12.4 percent of all deaths in the **Alaska Area** were caused by malignant neoplasms, followed by unintentional injuries at 10.5 percent.

**Chart 4.6** Leading Causes of Death, Alaska Area, Calendar Years 1999-2001



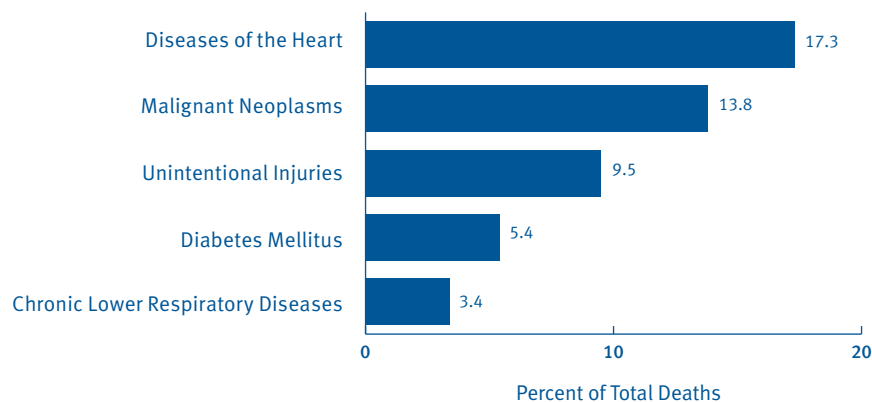
In 1999-2001, 6.7 percent of all deaths in the **Albuquerque Area** were caused by unintentional injuries, followed by diseases of the heart at 6.5 percent.

**Chart 4.7** Leading Causes of Death, Albuquerque Area, Calendar Years 1999-2001



In 1999-2001, 17.3 percent of all deaths in the **Bemidji Area** were caused by diseases of the heart, followed by malignant neoplasms at 13.8 percent.

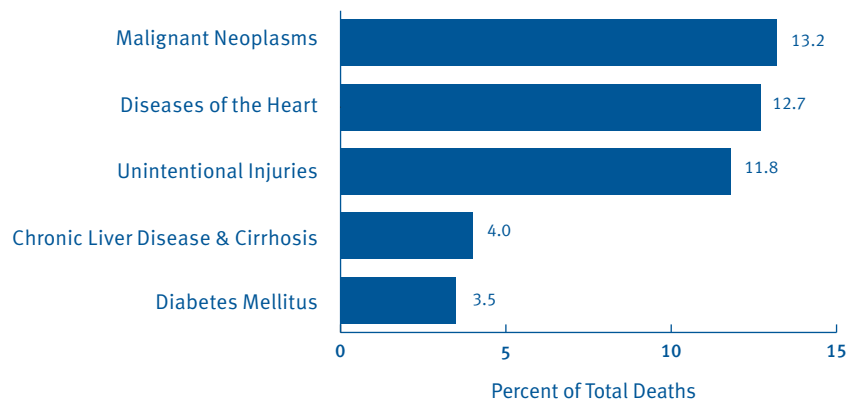
**Chart 4.8** Leading Causes of Death, Bemidji Area, Calendar Years 1999-2001



In 1999-2001, 13.2 percent of all deaths in the **Billings Area** were caused by malignant neoplasms, followed by diseases of the heart at 12.7 percent.

Chart 4.9

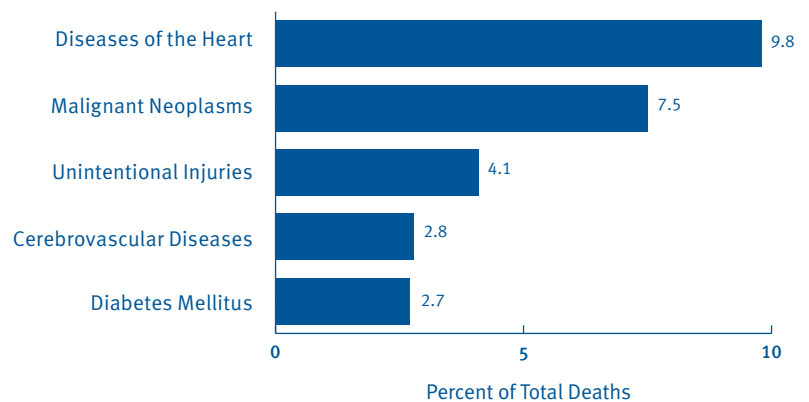
**Leading Causes of Death, Billings Area,  
Calendar Years 1999-2001**



In 1999-2001, 9.8 percent of all deaths in the **California Area** were caused by diseases of the heart, followed by malignant neoplasms at 7.5 percent.

Chart 4.10

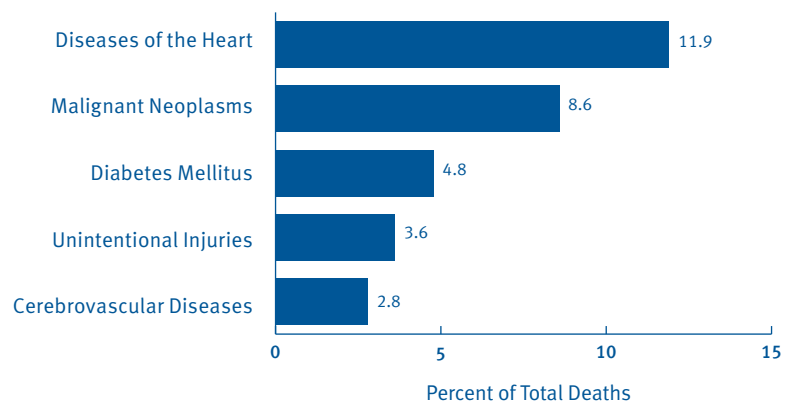
**Leading Causes of Death, California Area,  
Calendar Years 1999-2001**



In 1999-2001, 11.9 percent of all deaths in the **Nashville Area** were caused by diseases of the heart, followed by malignant neoplasms at 8.6 percent.

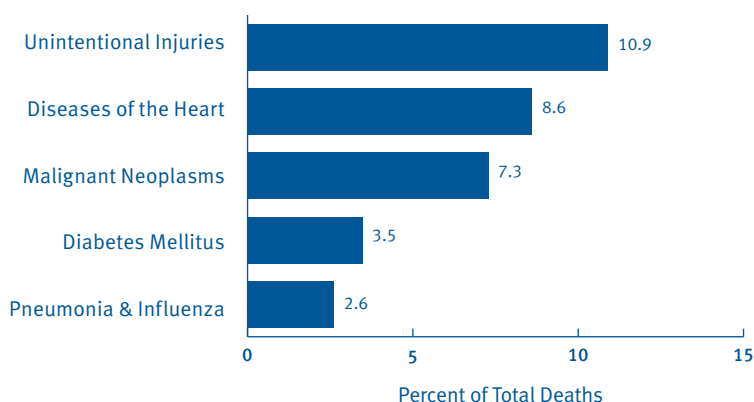
Chart 4.11

**Leading Causes of Death, Nashville Area,  
Calendar Years 1999-2001**



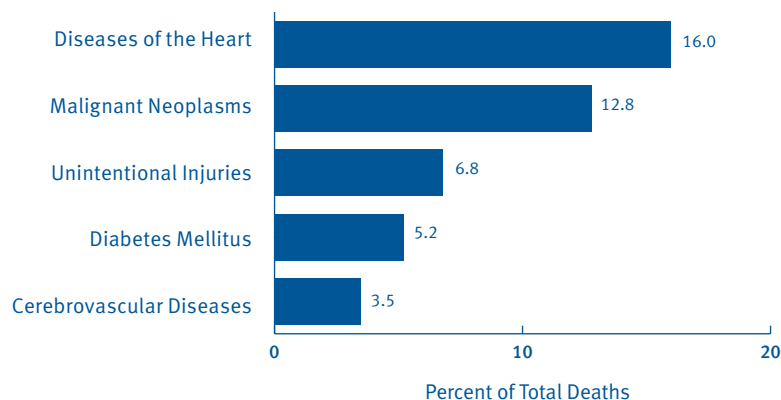
In 1999-2001, 10.9 percent of all deaths in the **Navajo Area** were caused by unintentional injuries, followed by diseases of the heart at 8.6 percent.

**Chart 4.12** Leading Causes of Death, Navajo Area, Calendar Years 1999-2001



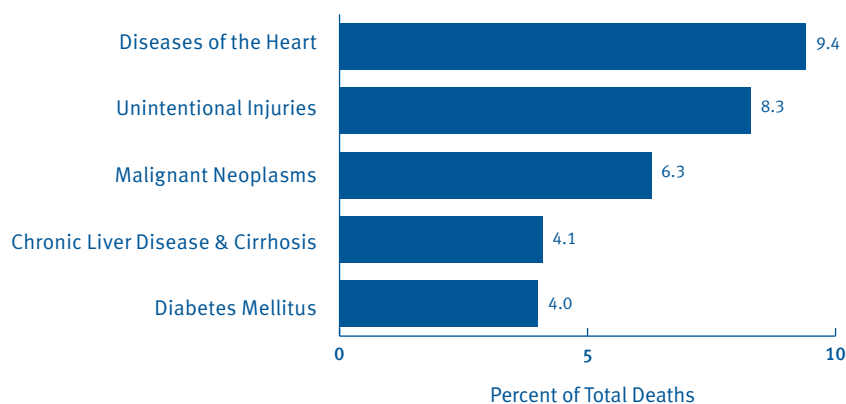
In 1999-2001, 16.0 percent of all deaths in the **Oklahoma Area** were caused by diseases of the heart, followed by malignant neoplasms at 12.8 percent.

**Chart 4.13** Leading Causes of Death, Oklahoma Area, Calendar Years 1999-2001



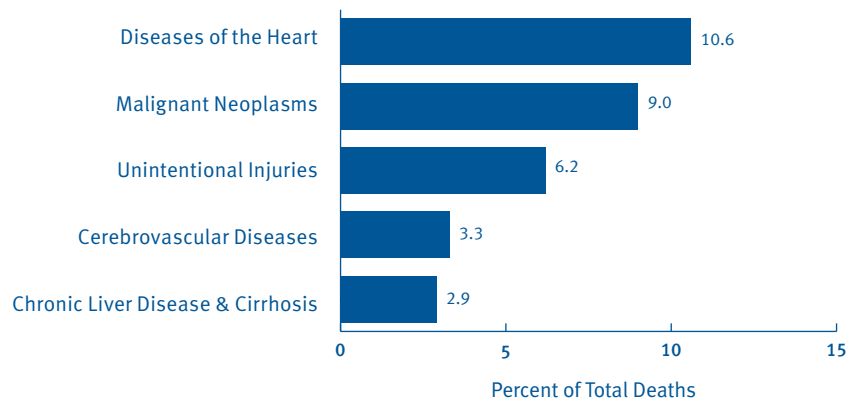
In 1999-2001, 9.4 percent of all deaths in the **Phoenix Area** were caused by diseases of the heart, followed by unintentional injuries at 8.3 percent.

**Chart 4.14** Leading Causes of Death, Phoenix Area, Calendar Years 1999-2001



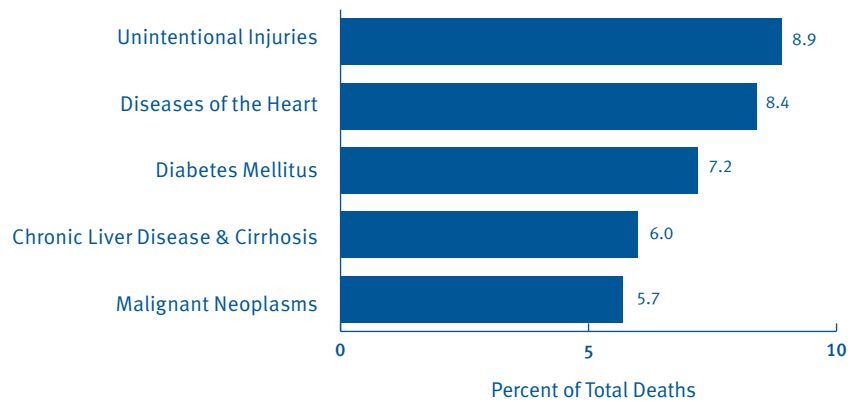
In 1999-2001, 10.6 percent of all deaths in the **Portland Area** were caused by diseases of the heart, followed by malignant neoplasms at 9.0 percent.

**Chart 4.15** Leading Causes of Death, Portland Area, Calendar Years 1999-2001



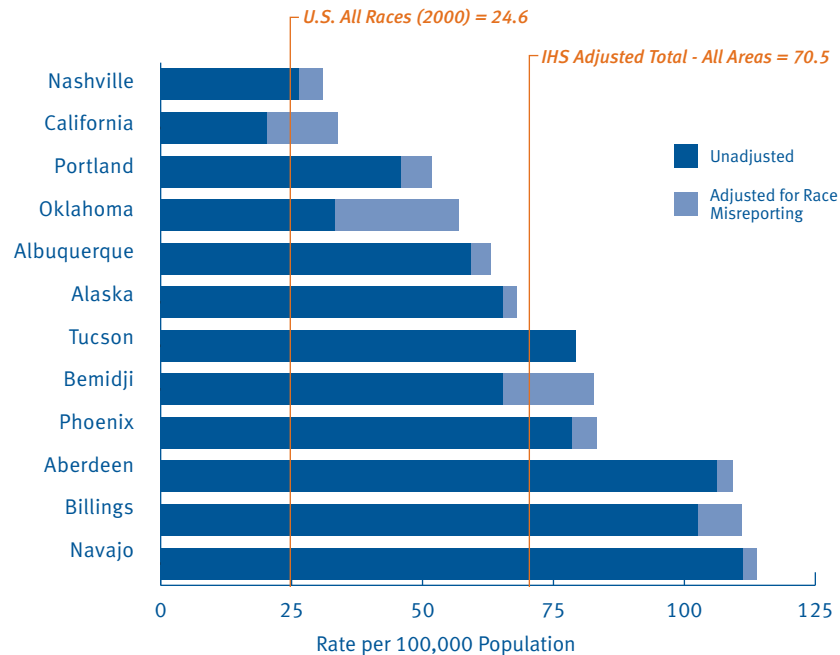
In 1999-2001, 8.9 percent of all deaths in the **Tucson Area** were caused by unintentional injuries, followed by diseases of the heart at 8.4 percent.

**Chart 4.16** Leading Causes of Death, Tucson Area, Calendar Years 1999-2001



In 1999-2001, the age-adjusted injury and poisoning death rate for the IHS service area population was 70.5 deaths per 100,000 population. The AI/AN rate is 2.9 times the U.S. all-races rate (24.6 per 100,000 population) for 2000. The Navajo Area rate (113.9 per 100,000 population), which is the highest among the Areas, is 4.6 times the U.S. all-races rate. The Nashville Area rate (31.0), which is the lowest among the IHS areas, is 1.3 times the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.17** Age-Adjusted Injury and Poisoning Death Rates  
Calendar Years 1999-2001



**Table 4.17** Age-Adjusted Injury and Poisoning<sup>1</sup> Death Rates  
Calendar Years 1999-2001

	Deaths <sup>2</sup>		Rate <sup>3</sup>	
	Unadjusted	Adjusted <sup>4</sup>	Unadjusted	Adjusted <sup>4</sup>
<i>U.S. All Races (2000)</i>	67,704		24.6	
<b>All IHS Areas</b>	<b>2,833</b>	<b>3,345</b>	<b>60.8</b>	<b>70.5</b>
Aberdeen	298	309	106.2	109.3
Alaska	191	200	65.3	68.0
Albuquerque	168	181	59.3	63.1
Bemidji	204	265	65.3	82.7
Billings	174	189	102.6	110.9
California	91	165	20.2	33.9
Nashville	74	89	26.4	31.0
Navajo	648	665	111.1	113.9
Oklahoma	303	540	33.3	56.9
Phoenix	379	405	78.6	83.2
Portland	227	261	45.9	51.7
Tucson	76	76	79.2	79.2

<sup>1</sup> Includes the following ICD-10 cause of death groups combined: motor vehicle accidents, other accident, suicide, homicide, injury undetermined whether accidentally or purposely inflicted, and injury resulting from operations of war.

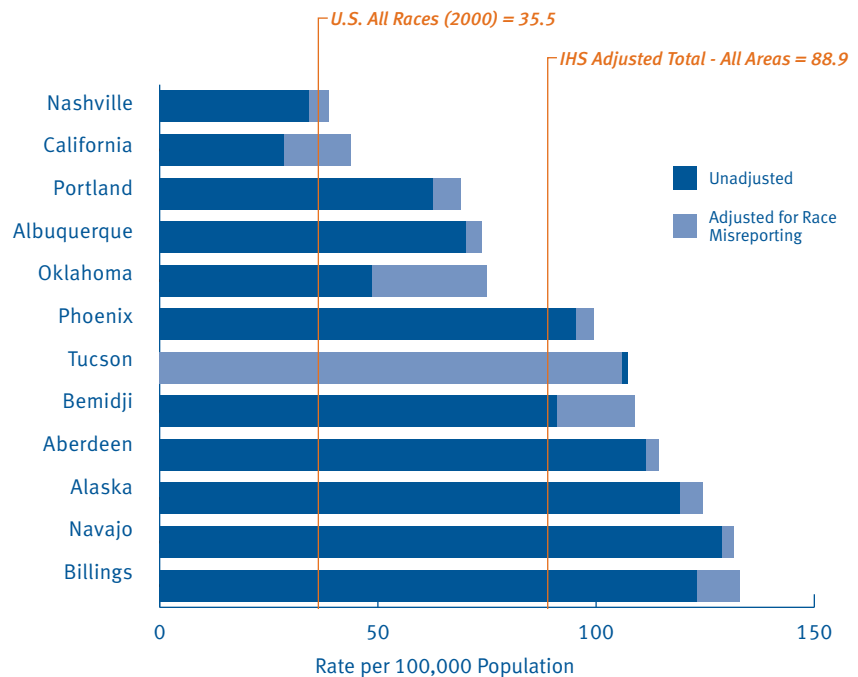
<sup>2</sup> Includes two deaths with age not reported. One death was reported in the Nashville Area and the second death was reported in the Phoenix Area.

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

<sup>4</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted unintentional injury death rate for the IHS service area population was 88.9 per 100,000 population. The AI/AN rate is 2.5 times higher than the U.S. all-races rate of 35.5 for 2000. The Nashville Area has the lowest rate among the IHS Areas (38.8), but it is still over one time the U.S. all-races rate. The highest Area rate (Billings, 132.9) is 3.7 times the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.18** Age-Adjusted Unintentional Injury Death Rates  
Calendar Years 1999-2001



**Table 4.18** Age-Adjusted Unintentional Injury Death Rates, Calendar Years 1999-2001

	All Unintentional Injuries				Motor Vehicle Crashes			Other Unintentional Injuries	
	Deaths		Rate <sup>2</sup>		Totals Rate <sup>2</sup>		Percent of Motor Vehicle Crash Deaths Pedestrian-Related <sup>1</sup>	Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>		Unadjusted	Adjusted <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>97,900</i>		<i>35.5</i>		<i>15.7</i>			<i>19.8</i>	
<b>All IHS Areas</b>	<b>3,289</b>	<b>3,841</b>	<b>78.1</b>	<b>88.9</b>	<b>40.5</b>	<b>48.0</b>	<b>9.9%</b>	<b>37.6</b>	<b>40.9</b>
Aberdeen	291	301	111.5	114.4	66.3	69.1	11.6%	45.2	45.2
Alaska	320	338	119.1	124.4	30.6	32.2	7.8%	88.6	92.2
Albuquerque	180	192	70.2	73.8	42.0	45.5	23.4%	28.3	28.3
Bemidji	240	301	90.9	108.8	46.0	60.0	10.8%	44.9	48.9
Billings	189	207	123.0	132.9	72.9	81.2	4.3%	50.0	51.6
California	117	201	28.4	43.9	13.9	25.1	4.8%	14.5	18.8
Nashville	84	99	34.2	38.8	19.2	23.8	10.1%	15.0	15.0
Navajo	696	714	128.7	131.6	77.6	80.4	14.5%	51.1	51.2
Oklahoma	394	654	48.5	75.0	22.0	38.1	5.4%	26.5	36.9
Phoenix	414	435	95.4	99.3	56.4	60.3	5.1%	39.0	39.0
Portland	275	312	62.7	69.0	29.3	33.9	13.3%	33.4	35.2
Tucson	89 <sup>4</sup>	87 <sup>4</sup>	107.3 <sup>4</sup>	105.9 <sup>4</sup>	49.8	49.8	2.1%	57.4	56.1

<sup>1</sup> Includes motor vehicle crashes having ICD-10 codes V02-V04 indicates a pedestrian was the subject decedent as a result of the motor vehicle crash. Percentages are based on adjusted numbers of deaths.

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

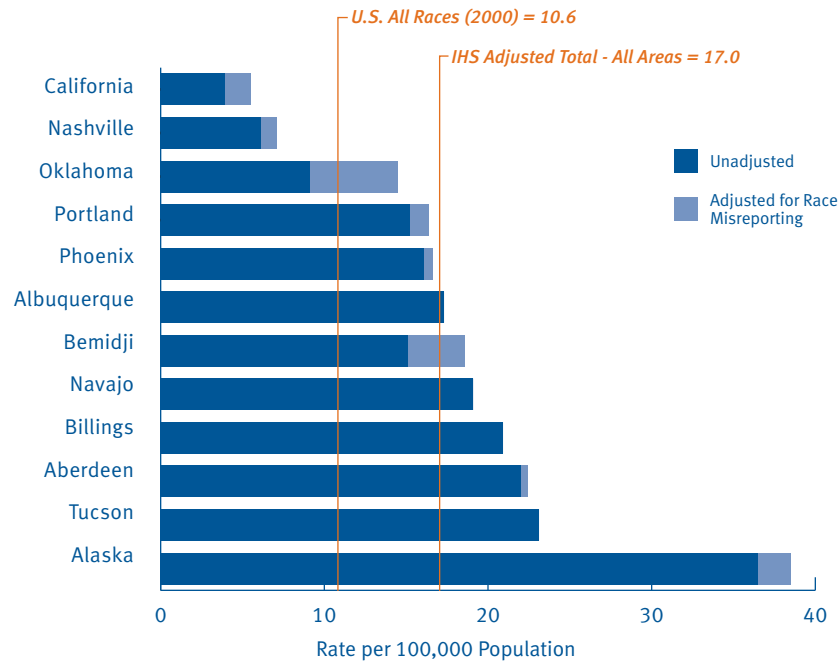
<sup>3</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>4</sup> The adjusted number and rate for Tucson (all unintentional injuries) 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 one less death for this cause than did the unadjusted mortality for this Area.



In 1999-2001, the age-adjusted suicide death rate for the IHS service area population was 17.0 per 100,000 population. The AI/AN rate is 60 percent higher than the U.S. all-races rate of 10.6 for 2000. The Alaska Area rate (38.5) is 3.6 times the U.S. rate while two other Area rates (Aberdeen and Tucson) are at least double the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.19** Age-Adjusted Suicide Death Rates  
Calendar Years 1999-2001



**Table 4.19** Age-Adjusted Suicide Death Rates  
Calendar Years 1999-2001

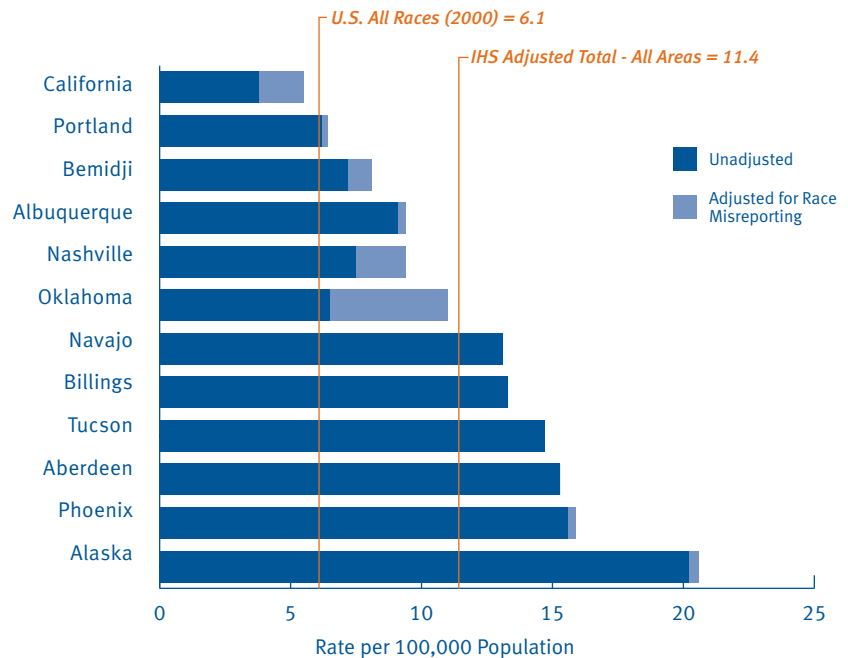
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>29,350</i>		<i>10.6</i>	
<b>All IHS Areas</b>	<b>732</b>	<b>825</b>	<b>15.2</b>	<b>17.0</b>
Aberdeen	65	66	22.0	22.4
Alaska	120	127	36.5	38.5
Albuquerque	52	52	17.3	17.3
Bemidji	46	58	15.1	18.6
Billings	34	34	20.9	20.9
California	17	26	3.9	5.5
Nashville	17	20	6.1	7.1
Navajo	117	117	19.1	19.1
Oklahoma	78	129	9.1	14.5
Phoenix	86	89	16.1	16.6
Portland	77	84	15.2	16.4
Tucson	23	23	23.1	23.1

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted homicide death rate for the IHS service area population was 11.4 per 100,000 population. The AI/AN rate is 87 percent higher than the U.S. all-races rate of 6.1 for 2000. The Alaska Area had the highest rate of 20.6. Six IHS Areas including Alaska had more than double the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.20** Age-Adjusted Homicide Death Rates  
Calendar Years 1999-2001



**Table 4.20** Age-Adjusted Homicide Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>16,765</i>		<i>6.1</i>	
<b>All IHS Areas</b>	<b>484</b>	<b>554</b>	<b>10.1</b>	<b>11.4</b>
Aberdeen	42	42	15.3	15.3
Alaska	60	61	20.2	20.6
Albuquerque	27	28	9.1	9.4
Bemidji	23	26	7.2	8.1
Billings	25	25	13.3	13.3
California	16	25	3.8	5.5
Nashville	22	28	7.5	9.4
Navajo	75	75	13.1	13.1
Oklahoma	59	106	6.5	11.0
Phoenix	85	87	15.6	15.9
Portland	33	34	6.2	6.4
Tucson	17	17	14.7	14.7

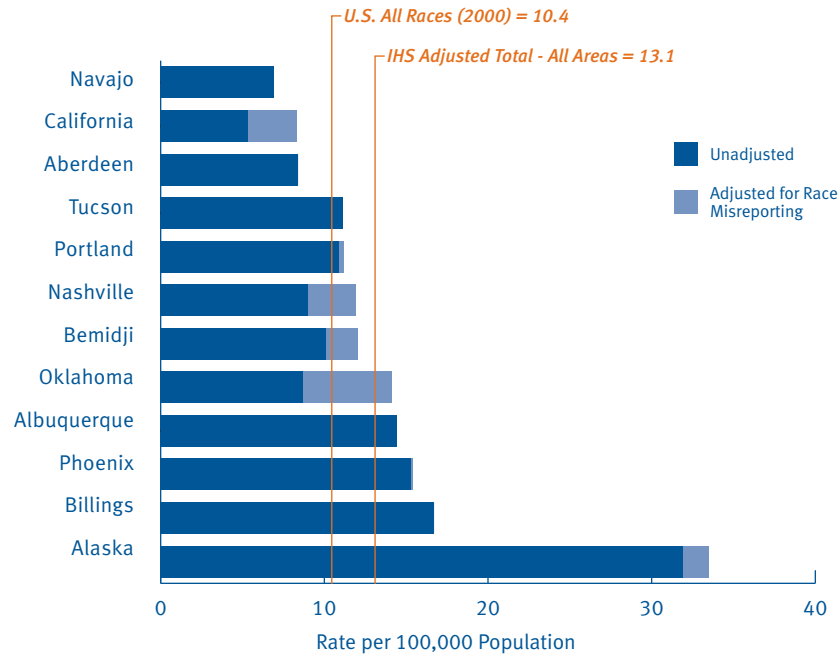
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

Note: Includes deaths due to homicide and legal intervention.

In 1999-2001, the age-adjusted firearm injury death rate for the IHS service area population was 13.1 per 100,000 population. The AI/AN rate is 1.3 times the U.S. all-races rate of 10.4 for 2000. The Alaska Area rate (33.5) far exceeds the rates of the other Areas and is 2 times higher than the next highest Area rate (Billings, 16.7) and 4.9 times higher than the lowest Area rate (Navajo, 6.9). The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.21** Age-Adjusted Firearm Injury Death Rates  
Calendar Years 1999-2001



**Table 4.21** Age-Adjusted Firearm Injury<sup>1</sup> Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>
U.S. All Races (2000)	28,663		10.4	
All IHS Areas	554	649	11.3	13.1
Aberdeen	26	26	8.4	8.4
Alaska	105	111	31.9	33.5
Albuquerque	43	43	14.4	14.4
Bemidji	32	39	10.1	12.0
Billings	29	29	16.7	16.7
California	26	43	5.3	8.3
Nashville	26	35	9.0	11.9
Navajo	40	40	6.9	6.9
Oklahoma	77	130	8.7	14.1
Phoenix	82	83	15.3	15.4
Portland	54	56	10.9	11.2
Tucson <sup>2</sup>	14	14	11.1	11.1

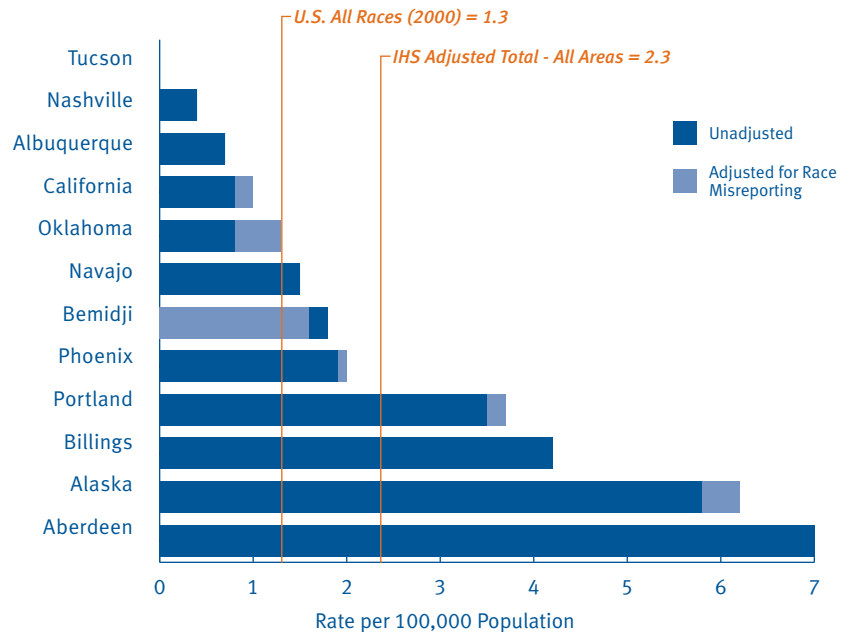
<sup>1</sup> Includes deaths with ICD-10 codes: accident caused by firearm missile—W32-W34; suicide and self-inflicted injury by firearms—X72-X74; assault by firearms and legal intervention—X93-X95, Y35.0; and injury by firearms, undetermined whether accidentally or purposely inflicted—Y22-Y24. Injury by firearm causes exclude explosive and other causes indirectly related to firearms.

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

<sup>3</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, for the IHS service area population, the age-adjusted death rate for injury and poisoning deaths due to other causes was 2.3 per 100,000 population. The AI/AN rate is 77 percent higher than the U.S. all-races rate of 1.3 deaths per 100,000 population for 2000. The Area rates should be interpreted with caution because of the relatively small numbers of deaths involved. (See section *Sources and Limitations of Data: Population Statistics*.) The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.22** Age-Adjusted Death Rates for Injury and Poisoning Deaths Due to Other Causes, Calendar Years 1999-2001



**Table 4.22** Age-Adjusted Death Rates for Injury and Poisoning Deaths Due to Other Causes<sup>1</sup>, Calendar Years 1999-2001

	Deaths		Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>3,605</i>		<i>1.3</i>	
<b>All IHS Areas</b>	<b>91</b>	<b>100</b>	<b>2.1</b>	<b>2.3</b>
Aberdeen	14	14	7.0	7.0
Alaska	18	20	5.8	6.2
Albuquerque	2	2	0.7	0.7
Bemidji	6 <sup>4</sup>	5 <sup>4</sup>	1.8 <sup>4</sup>	1.6 <sup>4</sup>
Billings	6	6	4.2	4.2
California	2	3	0.8	1.0
Nashville	1	1	0.4	0.4
Navajo	7	7	1.5	1.5
Oklahoma	6	11	0.8	1.3
Phoenix	11	12	1.9	2.0
Portland	18	19	3.5	3.7
Tucson	—	—	—	—

— Represents zero.

<sup>1</sup> Includes the following ICD-10 cause of death groups combined: injury undetermined whether accidentally or purposely inflicted—Y10-Y21, Y25-Y34, Y87.2, Y89.9; injury resulting from operations of war—Y36, Y89.1.

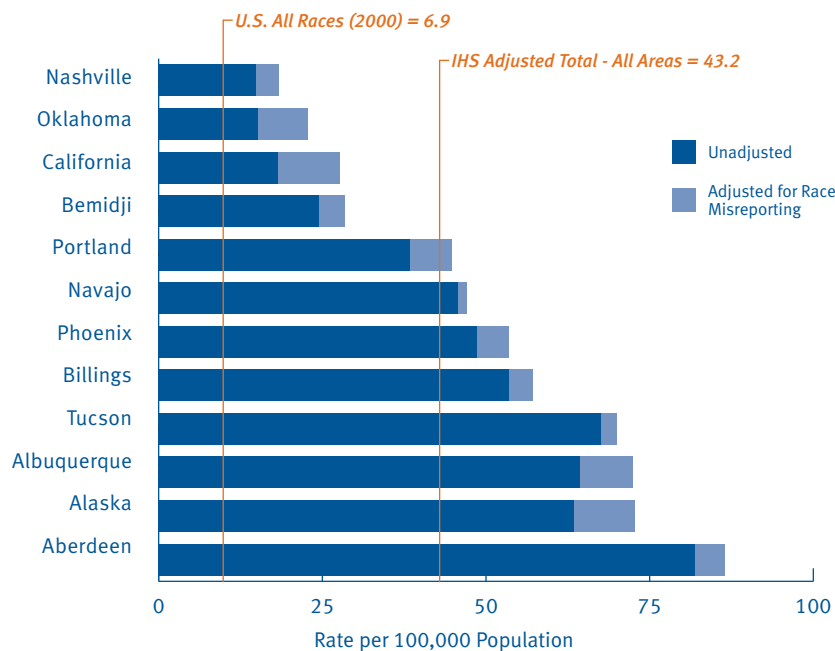
<sup>2</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>3</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>4</sup> The adjusted number and rate in the Bemidji Area is lower than the unadjusted number and rate because the linked birth/infant death file (used to obtain the adjusted counts of infant deaths) had one less death for this cause than did the unadjusted mortality file (1999-2001 data).

The age-adjusted alcohol-related death rate for the IHS service area population in 1999-2001 was 43.2 per 100,000 population. The AI/AN rate is 6.3 times the U.S. all-races rate of 6.9 for 2000. The Aberdeen Area rate of 86.4 is 13 times the U.S. all-races rate and 5 times the lowest Area rate (Nashville, 18.3). The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.23** Age-Adjusted Alcohol-Related Death Rates  
Calendar Years 1999-2001



**Table 4.23** Age-Adjusted Alcohol-Related Death Rates  
Calendar Years 1999-2001

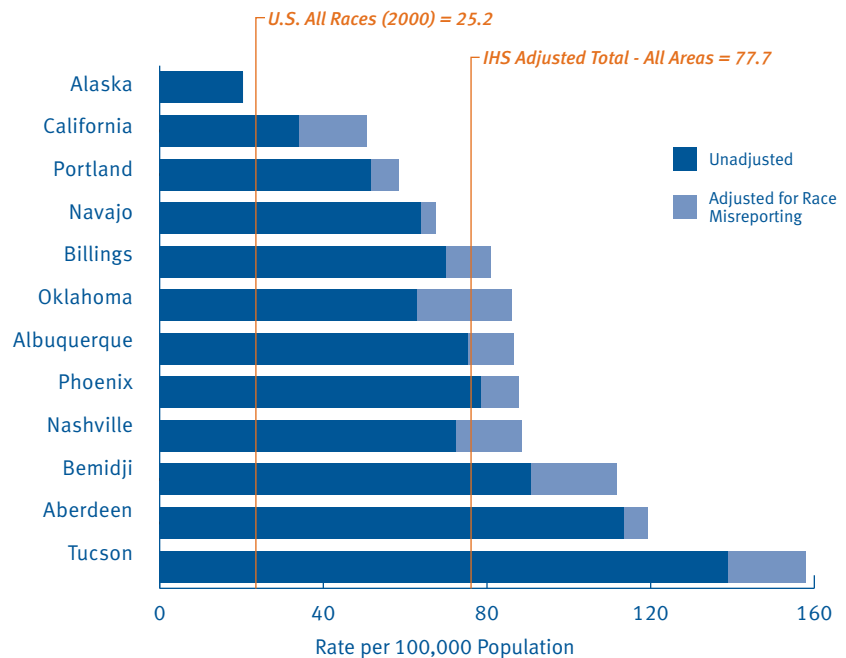
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>19,358</i>		<i>6.9</i>	
<b>All IHS Areas</b>	<b>1,420</b>	<b>1,646</b>	<b>37.4</b>	<b>43.2</b>
Aberdeen	157	167	81.9	86.4
Alaska	154	177	63.4	72.8
Albuquerque	140	158	64.3	72.4
Bemidji	58	67	24.4	28.5
Billings	68	73	53.5	57.1
California	72	111	18.2	27.6
Nashville	34	43	14.8	18.3
Navajo	230	236	45.7	47.1
Oklahoma	113	171	15.2	22.8
Phoenix	189	209	48.6	53.4
Portland	157	184	38.3	44.8
Tucson	48	50	67.5	70.0

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

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

The age-adjusted diabetes death rate for the IHS service area population in 1999-2001 was 77.7 per 100,000 population. The diabetes death rate increased 47.2 percent from the rate experienced by the IHS service area during 1996-1998 (52.8). The 1999-2001 AI/AN rate is 3.1 times the U.S. all-races rate of 25.2 for 2000. The IHS Area rates vary widely, ranging from 20.3 in Alaska (which is 19 percent lower than the U.S. all-races rate) to 157.8 in Tucson (which is 526 percent higher than the U.S. all-races rate). The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.24** Age-Adjusted Diabetes Mellitus Death Rates  
Calendar Years 1999-2001



**Table 4.24** Age-Adjusted Diabetes Mellitus Death Rates  
Calendar Years 1999-2001

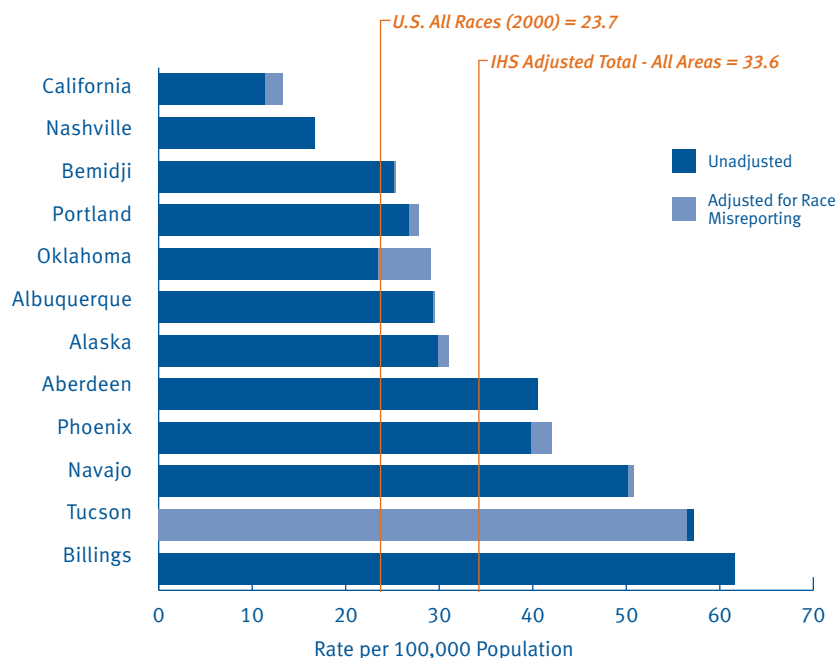
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	69,301		25.2	
<b>All IHS Areas</b>	<b>1,615</b>	<b>1,949</b>	<b>64.9</b>	<b>77.7</b>
Aberdeen	145	152	113.4	119.3
Alaska	29	29	20.3	20.3
Albuquerque	106	122	75.4	86.6
Bemidji	138	171	90.6	111.7
Billings	53	61	70.0	80.8
California	86	132	33.9	50.6
Nashville	111	135	72.5	88.4
Navajo	218	230	63.8	67.4
Oklahoma	359	501	62.9	86.0
Phoenix	191	212	78.6	87.8
Portland	117	134	51.5	58.5
Tucson	62	70	138.9	157.8

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

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

The age-adjusted pneumonia and influenza death rate for the IHS service area population in 1999-2001 was 33.6 per 100,000 population. The AI/AN rate is 1.4 times the U.S. all-races rate of 23.7 for 2000. The two highest Area rates in Billings (61.6) and Tucson (56.5), are at least four times higher than the lowest Area rate in California (13.3). The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.25** Age-Adjusted Pneumonia and Influenza Death Rates  
Calendar Years 1999-2001



**Table 4.25** Age-Adjusted Pneumonia and Influenza Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>65,313</i>		<i>23.7</i>	
<b>All IHS Areas</b>	<b>704</b>	<b>751</b>	<b>31.6</b>	<b>33.6</b>
Aberdeen	48	48	40.5	40.5
Alaska	42	44	29.9	31.0
Albuquerque	42	40	29.3	29.5
Bemidji	36	37	25.1	25.4
Billings	46	46	61.6	61.6
California	22	26	11.4	13.3
Nashville	21	21	16.7	16.7
Navajo	164	168	50.2	50.8
Oklahoma	118	150	23.4	29.1
Phoenix	88	93	39.8	42.0
Portland	51	53	26.7	27.8
Tucson	26 <sup>3</sup>	25 <sup>3</sup>	57.2 <sup>3</sup>	56.5 <sup>3</sup>

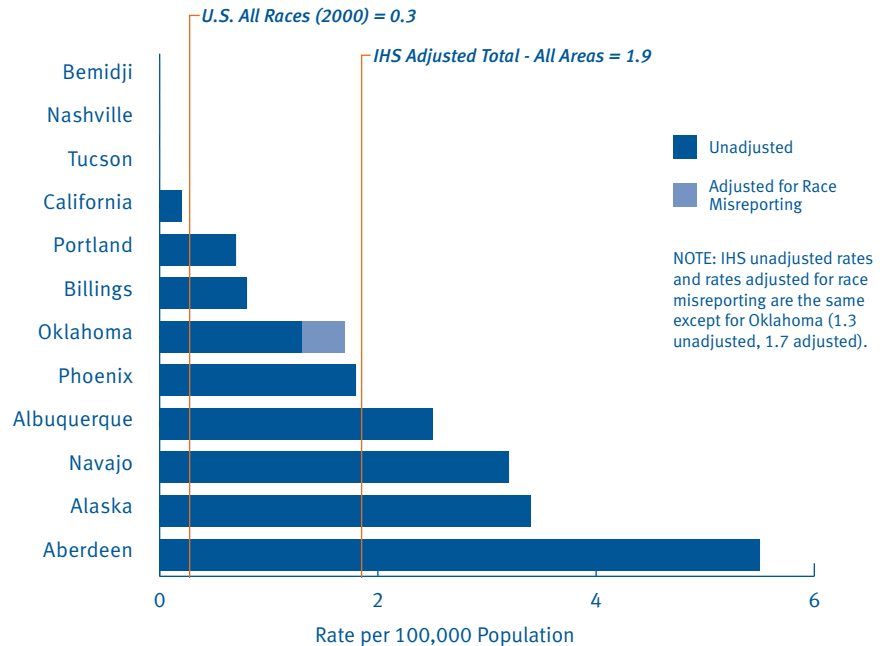
<sup>1</sup> Age-adjusted rate per 100,000 population.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

<sup>3</sup> The adjusted numbers and rates in the Tucson Area are lower than the unadjusted numbers and rates because the linked birth/infant death file (used to obtain the adjusted counts of infant deaths) had one less death for this cause than did the unadjusted mortality file (1999-2001 data).

In 1999-2001, the age adjusted tuberculosis death rate for the IHS service area population was 1.9 per 100,000 population. The AI/AN rate is six times higher than the U.S. all-races rate of 0.3 for 2000. Area rates with small numbers of deaths should be interpreted with caution. The Navajo (10 deaths) and Oklahoma (11 deaths) Areas had the highest numbers of deaths over the 3-year period. (See section *Sources and Limitations of Data: Population Statistics*.) The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.26** Age-Adjusted Tuberculosis Death Rates  
Calendar Years 1999-2001



**Table 4.26** Age-Adjusted Tuberculosis Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	776		0.3	
<b>All IHS Areas</b>	<b>43</b>	<b>46</b>	<b>1.8</b>	<b>1.9</b>
Aberdeen	6	6	5.5	5.5
Alaska	5	5	3.4	3.4
Albuquerque	3	3	2.5	2.5
Bemidji	—	—	—	—
Billings	1	1	0.8	0.8
California	1	1	0.2	0.2
Nashville	—	—	—	—
Navajo	10	10	3.2	3.2
Oklahoma	8	11	1.3	1.7
Phoenix	6	6	1.8	1.8
Portland	3	3	0.7	0.7
Tucson	—	—	—	—

— Represents zero.

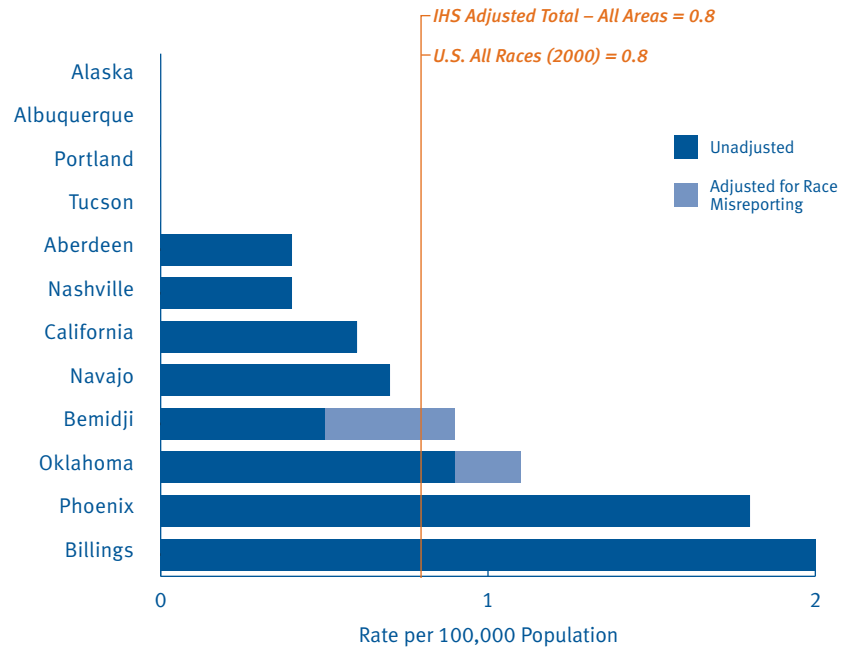
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.



In 1999-2001, the age-adjusted gastrointestinal diseases death rate for the IHS service area population was 0.8 per 100,000 population. The AI/AN rate is equal to the U.S. all-races rate for 2000 (0.8 per 100,000 population). The Area rates should be interpreted with caution because of the small number of deaths involved. (See section *Sources and Limitations of Data: Population Statistics*.) The largest number of deaths over the 3-year period for any one Area was six deaths in the Oklahoma Area. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.27** Age-Adjusted Gastrointestinal Diseases Death Rates  
Calendar Years 1999-2001



**Table 4.27** Age-Adjusted Gastrointestinal Diseases Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>2,096</i>		<i>0.8</i>	
<b>All IHS Areas</b>	<b>16</b>	<b>18</b>	<b>0.7</b>	<b>0.8</b>
Aberdeen	1	1	0.4	0.4
Alaska	–	–	–	–
Albuquerque	–	–	–	–
Bemidji	1	2	0.5	0.9
Billings	1	1	2.0	2.0
California	1	1	0.6	0.6
Nashville	1	1	0.4	0.4
Navajo	2	2	0.7	0.7
Oklahoma	5	6	0.9	1.1
Phoenix	4	4	1.8	1.8
Portland	–	–	–	–
Tucson	–	–	–	–

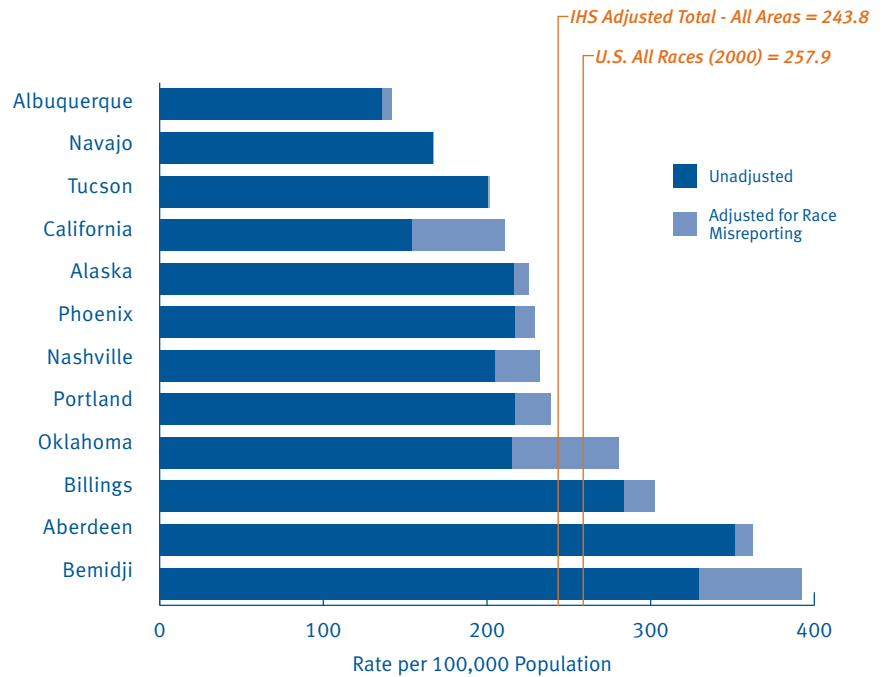
– Represents zero.

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted heart disease death rate for the IHS service area population was 243.8 per 100,000 population. The AI/AN rate is 5 percent lower than the U.S. all-races rate (257.9) in 2000. The Albuquerque Area has the lowest rate (141.7) and is 45 percent lower than the U.S. all-races rate while the Bemidji Area has the highest rate (392.1) for heart disease which is 52 percent higher than the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.28** Age-Adjusted Heart Disease Death Rates  
Calendar Years 1999-2001



**Table 4.28** Age-Adjusted Heart Disease Death Rates  
Calendar Years 1999-2001

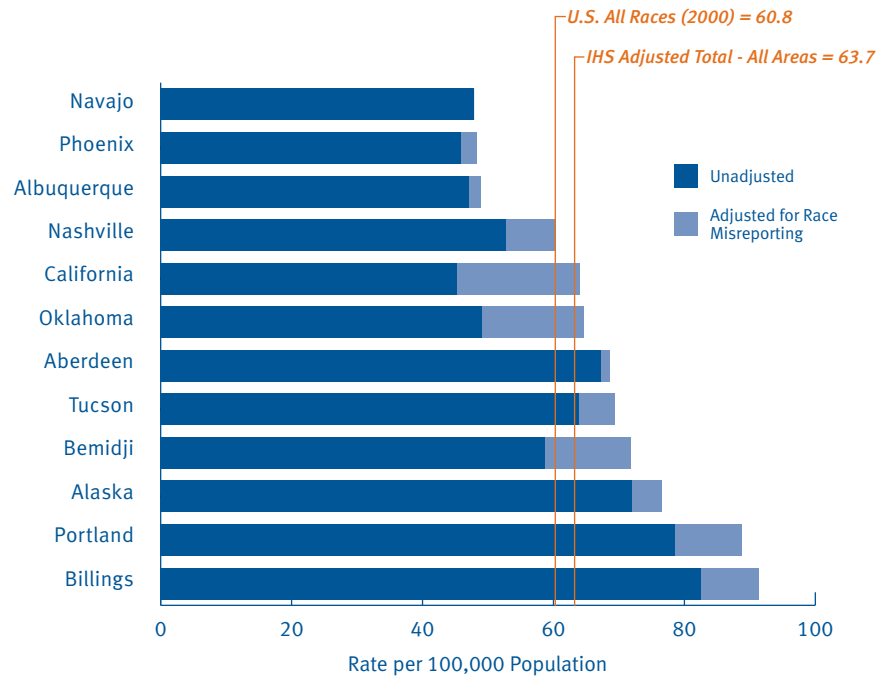
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>710,760</i>		<i>257.9</i>	
<b>All IHS Areas</b>	<b>4,952</b>	<b>5,737</b>	<b>212.2</b>	<b>243.8</b>
Aberdeen	430	444	351.4	362.5
Alaska	303	316	216.6	225.6
Albuquerque	179	186	135.9	141.7
Bemidji	458	551	329.6	392.1
Billings	211	223	283.8	302.2
California	342	484	154.0	211.0
Nashville	291	332	204.8	231.9
Navajo	560	563	166.8	167.6
Oklahoma	1,148	1,528	215.0	280.7
Phoenix	467	492	217.3	229.4
Portland	482	536	217.1	238.8
Tucson	81	82	200.4	201.7

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

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted cerebrovascular diseases death rate for the IHS service area population was 63.7 per 100,000 population. The IHS Area rates differ considerably between Areas; the Billings rate of 91.4 is 1.9 times higher than the Navajo rate of 47.9, whereas the U.S. all-races rate is 60.8 for the year 2000. Mortality from cerebrovascular disease is 5 percent higher in the IHS service areas compared to the U.S. all-races. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.29** Age-Adjusted Cerebrovascular Diseases Death Rates  
Calendar Years 1999-2001



**Table 4.29** Age-Adjusted Cerebrovascular Diseases Death Rates  
Calendar Years 1999-2001

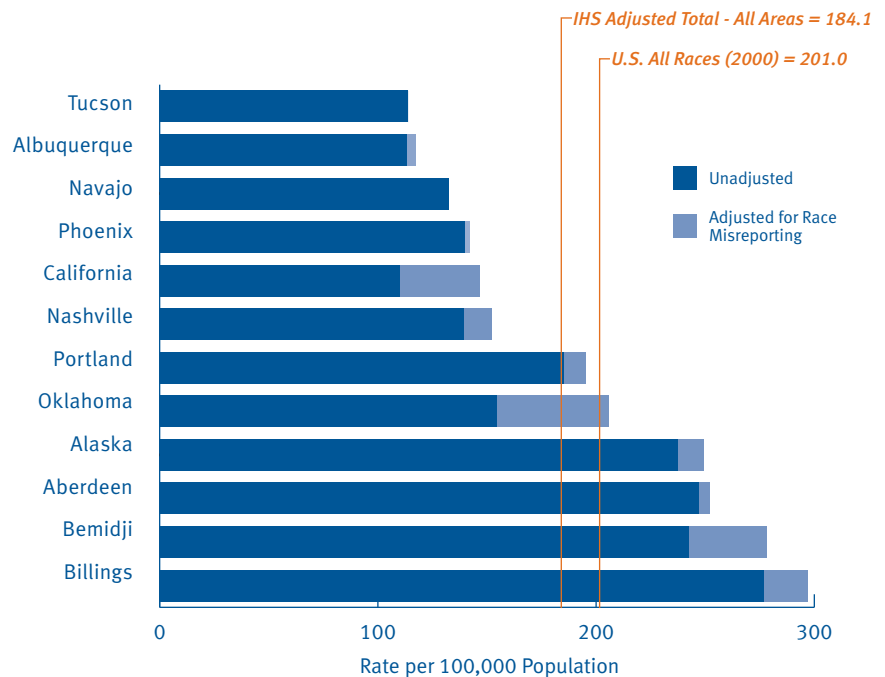
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
U.S. All Races (2000)	167,661		60.8	
All IHS Areas	1,209	1,405	55.1	63.7
Aberdeen	84	86	67.3	68.6
Alaska	96	102	71.9	76.6
Albuquerque	59	61	47.1	48.9
Bemidji	74	90	58.7	71.7
Billings	54	59	82.5	91.4
California	97	140	45.2	64.1
Nashville	69	79	52.7	60.4
Navajo	154	154	47.9	47.9
Oklahoma	251	338	49.1	64.6
Phoenix	98	102	45.8	48.3
Portland	147	166	78.6	88.7
Tucson	26	28	63.8	69.4

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

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted malignant neoplasm death rate for the IHS service area population was 184.1 per 100,000 population. The 1999-2001 AI/AN rate is 8.4 percent less than the U.S. all-races rate of 201.0 for 2000. Five IHS Areas have a rate greater than the U.S. all-races rate; Billings (297.1), Bemidji (278.2), Aberdeen (252.2), Alaska (249.5), and Oklahoma (205.7). The rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.30** Age-Adjusted Malignant Neoplasm Death Rates  
Calendar Years 1999-2001



**Table 4.30** Age-Adjusted Malignant Neoplasm Death Rates  
Calendar Years 1999-2001

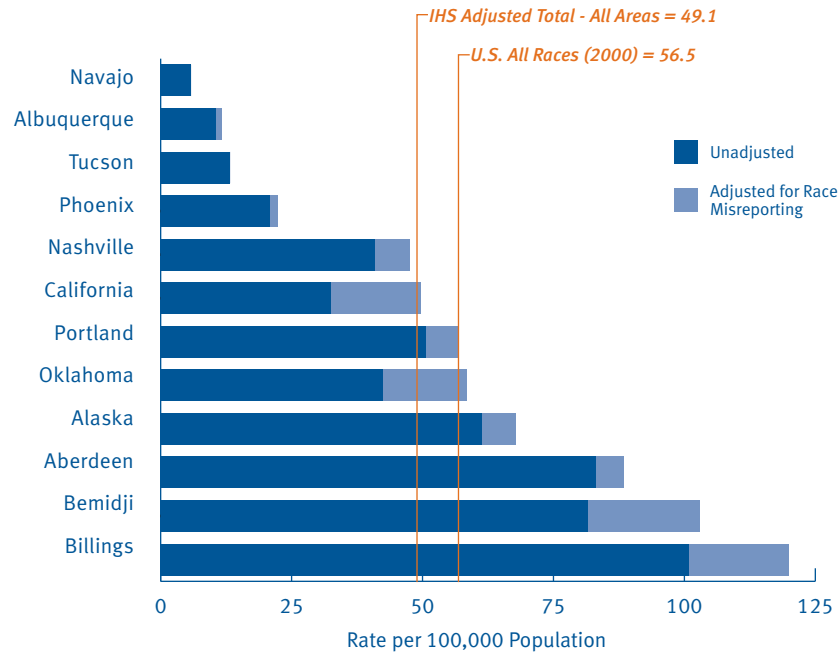
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>553,091</i>		<i>201.0</i>	
<b>All IHS Areas</b>	<b>4,137</b>	<b>4,707</b>	<b>162.9</b>	<b>184.1</b>
Aberdeen	314	320	247.1	252.2
Alaska	379	400	237.3	249.5
Albuquerque	165	170	113.4	117.5
Bemidji	381	438	242.6	278.2
Billings	217	232	276.9	297.1
California	278	374	110.2	146.5
Nashville	218	240	139.6	152.1
Navajo	478	479	132.3	132.5
Oklahoma	898	1,218	154.6	205.7
Phoenix	324	328	140.0	141.9
Portland	429	452	185.2	195.4
Tucson	56	56	113.9	113.9

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

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted lung cancer death rate for the IHS service area population was 49.1 per 100,000 population. The definition of lung cancer has been expanded to include the trachea and bronchus. The 1999-2001 AI/AN rate is 13 percent less than the U.S. all-races rate of 56.5 in 2000. Six IHS Areas (Aberdeen, Alaska, Bemidji, Billings, Oklahoma and Portland) have rates exceeding the U.S. all-races rate. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.31** Age-Adjusted Lung Cancer Death Rates  
Calendar Years 1999-2001



**Table 4.31** Age-Adjusted Lung Cancer<sup>1</sup> Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>2</sup>	
	Unadjusted	Adjusted <sup>3</sup>	Unadjusted	Adjusted <sup>3</sup>
<i>U.S. All Races (2000)</i>	<i>155,521</i>		<i>56.5</i>	
<b>All IHS Areas</b>	<b>1,001</b>	<b>1,240</b>	<b>39.9</b>	<b>49.1</b>
Aberdeen	103	109	83.1	88.3
Alaska	97	108	61.4	67.8
Albuquerque	14	15	10.6	11.6
Bemidji	133	170	81.5	102.9
Billings	75	89	100.9	119.9
California	81	124	32.4	49.6
Nashville	63	74	40.8	47.5
Navajo	20	20	5.8	5.8
Oklahoma	244	341	42.5	58.5
Phoenix	45	48	20.8	22.3
Portland	119	135	50.6	56.9
Tucson	7	7	13.3	13.3

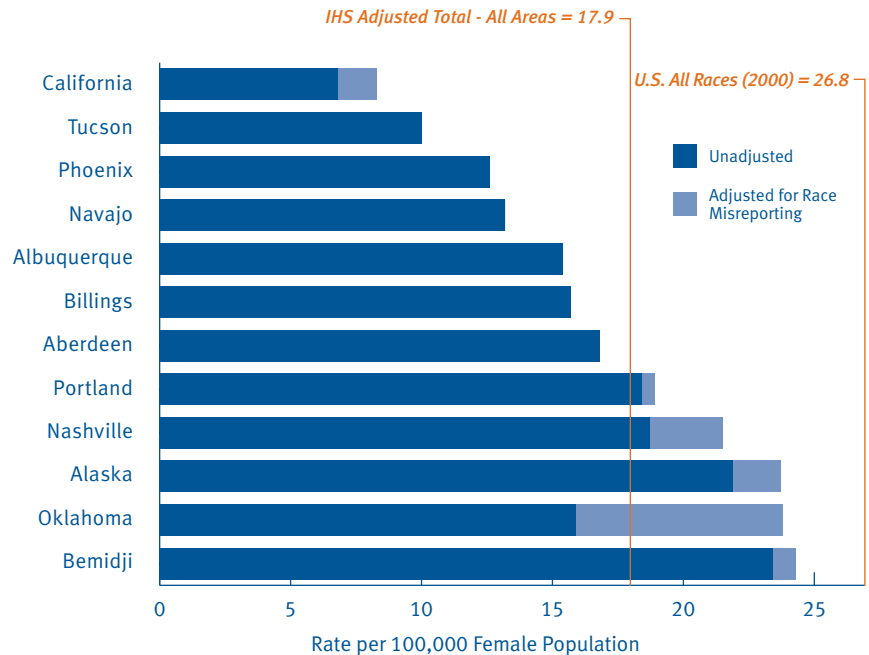
<sup>1</sup> Lung cancer death includes deaths due to cancers of the trachea, bronchus and lung, ICD-10 codes C33-C34.

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted female breast cancer death rate in the IHS service area population was 17.9 per 100,000 population. The 1999-2001 AI/AN rate was almost 10 percent lower than the comparable 1996-1998 AI/AN rate (19.8 deaths per 100,000 population). The 1999-2001 AI/AN rate is 33 percent less than the U.S. all-races rate of 26.8 per 100,000 population for 2000. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.32** Age-Adjusted Female Breast Cancer Death Rates  
Calendar Years 1999-2001



**Table 4.32** Age-Adjusted Female Breast Cancer Death Rates  
Calendar Years 1999-2001

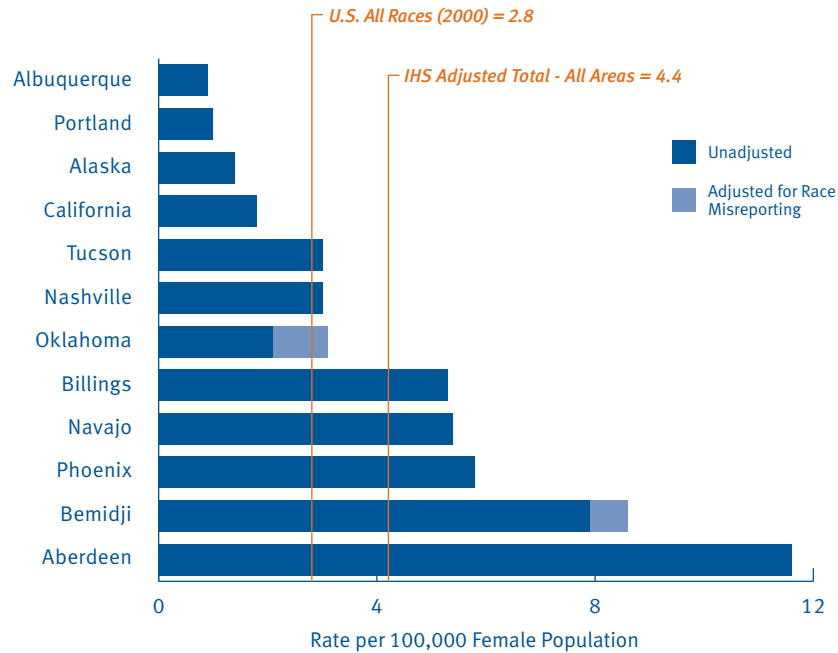
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>41,872</i>		<i>26.8</i>	
<b>All IHS Areas</b>	<b>238</b>	<b>277</b>	<b>17.6</b>	<b>17.9</b>
Aberdeen	14	14	16.9	16.9
Alaska	22	24	21.9	23.7
Albuquerque	14	14	15.4	15.4
Bemidji	22	23	23.4	24.3
Billings	7	7	15.7	15.7
California	10	13	6.8	8.3
Nashville	17	20	18.7	21.5
Navajo	29	29	13.2	13.2
Oklahoma	56	85	15.9	23.8
Phoenix	20	20	12.6	12.6
Portland	24	25	18.4	18.9
Tucson	3	3	10.0	10.0

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted cervical cancer death rate for females in the IHS service area population was 4.4 per 100,000 population. The 1999-2001 AI/AN rate was over 15 percent lower than the comparable 1996-1998 AI/AN rate (5.2 per 100,000 population). The 1999-2001 AI/AN rate is 57 percent greater than the U.S. all-races rate of 2.8 per 100,000 population for 2000. The Area rates should be interpreted with caution because of the small number of deaths involved. The largest numbers of cervical cancer death rates occurred in Aberdeen (11.6) followed by Bemidji (8.6) during the 3-year period. (See section *Sources and Limitations of Data: Population Statistics*.) The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.33** Age-Adjusted Cervical Cancer Death Rates  
Calendar Years 1999-2001



**Table 4.33** Age-Adjusted Cervical Cancer Death Rates  
Calendar Years 1999-2001

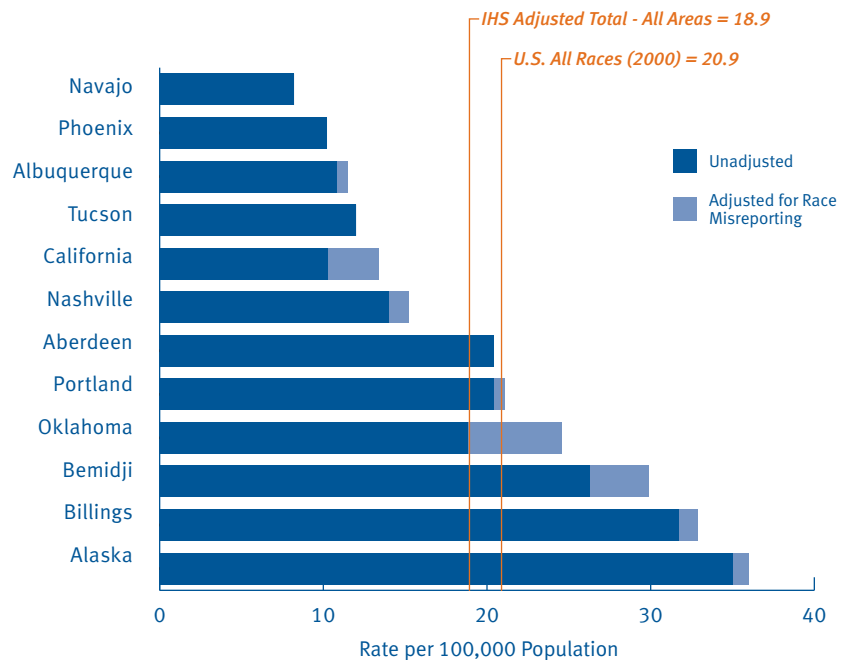
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>4,200</i>		<i>2.8</i>	
<b>All IHS Areas</b>	<b>65</b>	<b>70</b>	<b>3.8</b>	<b>4.4</b>
Aberdeen	11	11	11.6	11.6
Alaska	2	2	1.4	1.4
Albuquerque	1	1	0.9	0.9
Bemidji	10	11	7.9	8.6
Billings	3	3	5.3	5.3
California	3	3	1.8	1.8
Nashville	3	3	3.0	3.0
Navajo	13	13	5.4	5.4
Oklahoma	9	13	2.1	3.1
Phoenix	7	7	5.8	5.8
Portland	2	2	1.0	1.0
Tucson	1	1	3.0	3.0

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

The age-adjusted colon-rectal cancer death rate for the IHS service area population in 1999-2001 was 18.9 per 100,000 population. The 1999-2001 AI/AN rate is 10 percent less than the U.S. all-races rate in 2000 (20.9). The highest IHS Area rate (Alaska, 36.0) is 1.7 times the U.S. all-races rate, while the lowest Area rate (Navajo, 8.2) is less than half the U.S. all-races rate. The age adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.34** Age-Adjusted Colon-Rectal Cancer Death Rates  
Calendar Years 1999-2001



**Table 4.34** Age-Adjusted Colon-Rectal Cancer Death Rates  
Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>57,477</i>		<i>20.9</i>	
<b>All IHS Areas</b>	<b>414</b>	<b>469</b>	<b>16.8</b>	<b>18.9</b>
Aberdeen	25	25	20.4	20.4
Alaska	51	53	35.0	36.0
Albuquerque	16	17	10.8	11.5
Bemidji	36	40	26.3	29.9
Billings	24	25	31.7	32.9
California	24	32	10.3	13.4
Nashville	24	27	14.0	15.2
Navajo	32	32	8.2	8.2
Oklahoma	106	141	18.8	24.6
Phoenix	23	23	10.2	10.2
Portland	48	49	20.4	21.1
Tucson	5	5	12.0	12.0

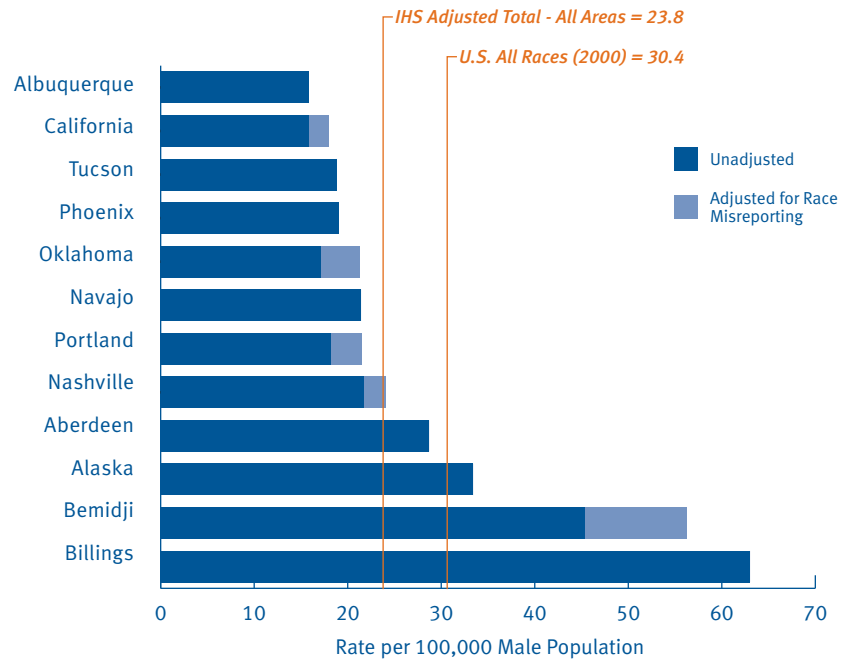
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Adjusted to compensate for misreporting of American Indian/Alaska Native race on the state death certificate.



In 1999-2001, the age-adjusted prostate cancer death rate for males in the IHS service area population was 23.8 per 100,000 population. The 1999-2001 AI/AN rate was 12 percent lower than the comparable 1996-1998 AI/AN rate (26.9 per 100,000 population). The 1999-2001 AI/AN rate is 22 percent lower than the U.S. all-races rate of 30.4 per 100,000 population in 2000. Only the rates for Alaska (33.4), Bemidji (56.2) and Billings (63.0) exceed the rate for the U.S. all-races. The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.35** Age-Adjusted Prostate Cancer Death Rates  
Calendar Years 1999-2001



**Table 4.35** Age-Adjusted Prostate Cancer Death Rates  
Calendar Years 1999-2001

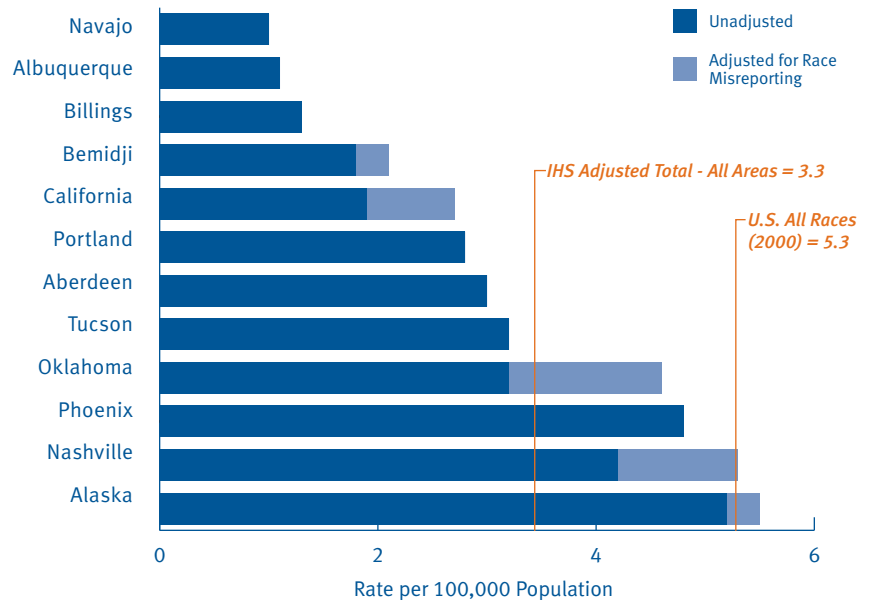
	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>31,078</i>		<i>30.4</i>	
<b>All IHS Areas</b>	<b>169</b>	<b>186</b>	<b>21.6</b>	<b>23.8</b>
Aberdeen	11	11	28.7	28.7
Alaska	12	12	33.4	33.4
Albuquerque	8	8	15.8	15.8
Bemidji	18	22	45.4	56.2
Billings	13	13	63.0	63.0
California	12	14	15.8	18.0
Nashville	9	10	21.7	24.1
Navajo	28	28	21.4	21.4
Oklahoma	31	39	17.1	21.3
Phoenix	12	12	19.0	19.0
Portland	12	14	18.2	21.5
Tucson	3	3	18.8	18.8

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

In 1999-2001, the age-adjusted human immunodeficiency virus (HIV) infection death rate for the IHS service area population was 3.3 per 100,000 population. The 1999-2001 AI/AN age-adjusted rate (3.3) is 1.6 times lower than the 2000 U.S. all-races rate (5.3). The Navajo Area's rate (1.0) is the lowest mortality rate for all IHS areas. Area rates should be interpreted with caution when small numbers of deaths occur. (See section *Sources and Limitations of Data: Population Statistics*.) The age-adjusted rate is adjusted for misreporting of AI/AN race on the state death certificate.

**Chart 4.36** Age-Adjusted Human Immunodeficiency Virus (HIV) Infection Death Rates, Calendar Years 1999-2001



**Table 4.36** Age-Adjusted Human Immunodeficiency Virus (HIV) Infection Death Rates Calendar Years 1999-2001

	Deaths		Rate <sup>1</sup>	
	Unadjusted	Adjusted <sup>2</sup>	Unadjusted	Adjusted <sup>2</sup>
<i>U.S. All Races (2000)</i>	<i>14,478</i>		<i>5.3</i>	
<b>All IHS Areas</b>	<b>119</b>	<b>140</b>	<b>2.8</b>	<b>3.3</b>
Aberdeen	7	7	3.0	3.0
Alaska	14	15	5.2	5.5
Albuquerque	3	3	1.1	1.1
Bemidji	5	6	1.8	2.1
Billings	2	2	1.3	1.3
California	9	13	1.9	2.7
Nashville	11	14	4.2	5.3
Navajo	5	5	1.0	1.0
Oklahoma	25	37	3.2	4.6
Phoenix	22	22	4.8	4.8
Portland	13	13	2.8	2.8
Tucson	3	3	3.2	3.2

<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 misreporting of American Indian/Alaska Native race on the state death certificate.

Among males 35-74 years old, rates of death with heart disease as a cause listed anywhere in the death record significantly exceeded U.S. rates for all races in 4 IHS Areas (Aberdeen, Bemidji, Billings, and Portland). Among females 35-74 years old, 6 IHS Areas significantly exceeded the U.S. rate (Aberdeen, Bemidji, Billings, Nashville, Phoenix, and Portland). Aberdeen, Bemidji and Billings had the highest rates for both sexes. The lowest rates were experienced by women in Albuquerque and Navajo Areas. Among both sexes, there was a significant 3-fold difference between areas with the highest and lowest rates of death where heart disease was listed as a cause anywhere in the death record.

Among females 75 years and older, only the Aberdeen and Bemidji areas experienced rates of death due to heart disease listed anywhere in the death record that significantly exceed the U.S. rate. Among males in this age group, no areas had rates significantly higher than the U.S. Among men there was nearly a 2-fold significant difference between areas with the highest and lowest rates, and among women there was a 2.5-fold significant difference between areas.

**Table 4.37** Heart Disease Death Rates by Age and Sex, Ages 35 and Over (Underlying vs. Multiple Cause) Calendar Years 1999-2001

	Ages 35-74 <sup>1</sup>		Ages 75 or More <sup>1</sup>	
	Underlying <sup>2</sup> Rate* (Deaths)	Multiple Cause <sup>3</sup> Rate* (Deaths)	Underlying <sup>2</sup> Rate* (Deaths)	Multiple Cause <sup>3</sup> Rate* (Deaths)
<b>MALE</b>				
<i>U.S. All Races (2000)</i>	<i>259.4 (153,087)</i>	<i>359.6 (211,912)</i>	<i>3,283.2 (188,589)</i>	<i>4,758.8 (274,150)</i>
<b>All IHS Areas</b>	<b>266.2 (1,771)</b>	<b>397.0 (2,635)*</b>	<b>2,378.8 (935)</b>	<b>3,613.8 (1,417)</b>
Aberdeen	509.4 (166)*	781.9 (255)*	3,355.3 (56)	5,687.5 (94)
Alaska	230.9 (102)	319.9 (139)	2,594.5 (58)	4,544.9 (99)
Albuquerque	149.4 (52)	257.5 (90)	1,947.9 (50)	3,183.1 (82)
Bemidji	453.6 (193)*	664.0 (279)*	3,476.1 (68)	5,101.4 (100)
Billings	354.8 (79)*	490.5 (109)*	3,464.2 (37)	4,727.6 (52)
California	174.0 (120)	268.6 (185)	1,770.0 (64)	2,961.7 (106)
Nashville	232.8 (95)	377.8 (155)	2,394.1 (54)	3,551.4 (80)
Navajo	215.9 (184)	328.2 (279)	2,297.8 (156)	3,196.0 (217)
Oklahoma	266.1 (376)	392.7 (551)	2,569.7 (236)	3,754.3 (343)
Phoenix	267.7 (170)	391.4 (249)	2,341.0 (78)	3,304.3 (110)
Portland	307.9 (212)*	428.9 (298)*	2,000.5 (64)	3,450.7 (113)
Tucson	191.8 (22)	370.0 (46)	2,334.9 (14)	3,355.1 (21)
<b>FEMALE</b>				
<i>U.S. All Races (2000)</i>	<i>121.0 (81,378)</i>	<i>184.5 (124,110)</i>	<i>2,547.4 (282,713)</i>	<i>3,585.5 (396,684)</i>
<b>All IHS Areas</b>	<b>129.3 (969)</b>	<b>227.8 (1,696)*</b>	<b>1,765.2 (1,158)</b>	<b>2,730.6 (1,790)</b>
Aberdeen	277.5 (109)*	469.5 (181)*	2,657.2 (87)	4,451.5 (146)*
Alaska	121.0 (56)	177.3 (83)	2,111.8 (80)	3,035.9 (115)
Albuquerque	64.6 (28)	146.3 (62)	1,161.7 (47)	1,779.3 (71)
Bemidji	185.9 (84)*	391.3 (173)*	2,799.4 (99)	4,272.3 (151)*
Billings	220.8 (55)*	353.1 (89)*	1,926.3 (35)	3,321.1 (60)
California	101.1 (71)	172.3 (124)	1,351.2 (81)	2,242.6 (135)
Nashville	155.9 (71)	251.4 (113)*	1,638.6 (64)	2,508.1 (98)
Navajo	81.8 (85)	143.9 (149)	1,221.5 (125)	1,935.5 (195)
Oklahoma	110.4 (180)	199.9 (324)	1,930.4 (337)	2,882.1 (503)
Phoenix	160.3 (111)*	252.2 (174)*	1,753.3 (90)	2,439.3 (125)
Portland	136.0 (100)	262.3 (189)*	1,867.3 (93)	3,224.5 (163)
Tucson	132.0 (19)	244.5 (35)	1,969.8 (20)	2,765.7 (28)

\* Rate is significantly higher (p<0.05) than the corresponding rate among U.S. all races.

<sup>1</sup> Age divided into 35-74 vs 75+ because American Indian and Alaska Native rates are higher than U.S. All Races prior to age 75 and lower than U.S. All Races after age 75.

<sup>2</sup> Underlying cause of death in the death record.

<sup>3</sup> Heart disease listed one or more times anywhere in the death record. When cardiac arrest (I46) is listed in the death record in the absence of other diseases of the heart, it counts as a heart disease death only if cardiac arrest is classified as the underlying cause of death.

<sup>4</sup> Rates per 100,000 population are adjusted to the 2000 U.S. standard population. Rates based on a small number of deaths should be interpreted with caution.

Among males 35-74 years old, rates of death with cerebrovascular disease listed as a cause anywhere in the death record significantly exceeded U.S. rates for all races in the Aberdeen and Billings areas. Among females 35-74 years old, the entire IHS service area, as well as the Aberdeen, Bemidji, California, Phoenix, and Portland areas, significantly exceeded the U.S. rate. Aberdeen and Billings had the highest rates for men; Aberdeen and Portland had the highest rates for women. The lowest rates were experienced by women in Albuquerque and Navajo Areas. Among males, there was a 3.5-fold significant difference between areas with the highest and lowest rates of death with cerebrovascular disease listed as a cause in the death record, and among females there was a 2.5-fold significant difference.

Among males 75 years and older, only the Billings area experienced rates of death due to cerebrovascular disease listed anywhere in the death record that were significantly higher than the U.S. Among females, no area experienced rates significantly higher than the U.S. Among males there was over a 4.5-fold significant difference between the area with the highest and lowest rate, and among women, there was slightly over a 2-fold significant difference.

**Table 4.38 Cerebrovascular Death Rates by Age and Sex, Ages 35 and Over (Underlying vs. Multiple Cause) Calendar Years 1999-2001**

	Ages 35-74 <sup>1</sup>		Ages 75 or More <sup>1</sup>	
	Underlying <sup>2</sup> Rate <sup>4</sup> (Deaths)	Multiple Cause <sup>3</sup> Rate <sup>4</sup> (Deaths)	Underlying <sup>2</sup> Rate <sup>4</sup> (Deaths)	Multiple Cause <sup>3</sup> Rate <sup>4</sup> (Deaths)
<b>MALE</b>				
<i>U.S. All Races (2000)</i>	<i>37.5 (22,070)</i>	<i>66.8 (39,171)</i>	<i>737.1 (42,158)</i>	<i>1,274.8 (73,268)</i>
<b>All IHS Areas</b>	<b>41.9 (273)</b>	<b>73.6 (474)</b>	<b>585.9 (228)</b>	<b>1,032.6 (407)</b>
Aberdeen	104.0 (34)*	159.4 (52)*	328.4 (6)	1,023.1 (18)
Alaska	50.3 (22)	80.6 (35)	876.2 (19)	1,179.7 (25)
Albuquerque	24.1 (9)	44.9 (16)	429.3 (11)	668.2 (17)
Bemidji	41.0 (16)	89.8 (34)	538.2 (10)	1,363.6 (26)
Billings	55.0 (12)	129.5 (26)*	1,703.1 (17)*	2,564.4 (26)*
California	32.2 (23)	55.9 (37)	572.6 (20)	957.5 (36)
Nashville	46.7 (19)	76.0 (30)	771.8 (18)	1,112.3 (26)
Navajo	28.1 (23)	52.9 (43)	574.0 (39)	971.6 (66)
Oklahoma	36.8 (51)	61.4 (86)	584.5 (54)	1,040.5 (98)
Phoenix	49.4 (32)	82.2 (53)	305.4 (11)	781.8 (27)
Portland	38.6 (24)	81.1 (52)	619.5 (20)	1,162.9 (38)
Tucson	83.7 (8)	98.7 (10)	412.0 (3)	549.3 (4)
<b>FEMALE</b>				
<i>U.S. All Races (2000)</i>	<i>30.0 (20,145)</i>	<i>51.0 (34,300)</i>	<i>742.4 (82,238)</i>	<i>1,201.8 (132,821)</i>
<b>All IHS Areas</b>	<b>38.2 (290)*</b>	<b>66.7 (499)*</b>	<b>607.4 (398)</b>	<b>956.6 (627)</b>
Aberdeen	64.9 (25)*	103.7 (39)*	576.9 (19)	1,062.8 (35)
Alaska	40.2 (21)	64.3 (32)	871.0 (33)	1,293.8 (49)
Albuquerque	27.9 (12)	46.6 (20)	681.6 (27)	882.8 (35)
Bemidji	49.3 (23)*	83.8 (39)*	680.8 (24)	1,331.8 (47)
Billings	55.5 (14)	76.8 (19)	559.5 (10)	1,053.5 (19)
California	36.6 (26)	70.6 (49)*	444.0 (27)	631.7 (38)
Nashville	30.9 (14)	57.9 (26)	463.4 (18)	846.7 (33)
Navajo	24.5 (26)	40.8 (43)	596.1 (59)	836.4 (83)
Oklahoma	29.0 (48)	59.7 (97)	543.8 (95)	939.0 (164)
Phoenix	36.2 (27)	79.3 (57)*	512.6 (26)	750.4 (38)
Portland	66.8 (45)*	97.5 (67)*	1,057.5 (54)*	1,453.6 (74)
Tucson	62.3 (9)	72.8 (11)	594.9 (6)	1,205.9 (12)

\* Rate is significantly higher (p<0.05) than the corresponding rate among U.S. all races.

<sup>1</sup> Age divided into 35-74 vs 75+ because American Indian and Alaska Native rates are higher than U.S. All Races prior to age 75 and lower than U.S. All Races after age 75.

<sup>2</sup> Underlying cause of death in the death record.

<sup>3</sup> Cerebrovascular death listed one or more times anywhere in the death record.

<sup>4</sup> Rates per 100,000 population are adjusted to the 2000 U.S. standard population. Rates based on a small number of deaths should be interpreted with caution.

Among males and females 35 years of age and older, all IHS areas except Alaska had rates of death with diabetes included as a cause anywhere in the death record that were substantially and significantly higher than the U.S. rate for all races. Among males, the Bemidji Area had the highest rate, which is five times greater than Alaska, the area with the lowest rate ( $p<0.05$ ). Among females, the Tucson Area had the highest rate, 4 times greater than Alaska ( $p<0.05$ ).

**Table 4.39** Diabetes Mellitus Death Rates by Sex, Ages 35 and Over (Underlying vs. Multiple Cause) Calendar Years 1999-2001

	MALE		FEMALE	
	Underlying <sup>1</sup> Rate <sup>3</sup> (Deaths)	Multiple Cause <sup>2</sup> Rate <sup>3</sup> (Deaths)	Underlying <sup>1</sup> Rate <sup>3</sup> (Deaths)	Multiple Cause <sup>2</sup> Rate <sup>3</sup> (Deaths)
<i>U.S. All Races (2000)</i>	<i>53.1 (31,113)</i>	<i>172.9 (100,217)</i>	<i>44.2 (37,367)</i>	<i>130.9 (111,468)</i>
<b>All IHS Areas</b>	<b>122.6 (704)*</b>	<b>295.6 (1,686)*</b>	<b>125.5 (887)*</b>	<b>276.2 (1,943)*</b>
Aberdeen	243.0 (65)*	499.8 (141)*	211.2 (79)*	478.4 (172)*
Alaska	46.7 (14)	102.2 (30)	38.0 (14)	120.3 (45)
Albuquerque	177.3 (55)*	339.4 (107)*	124.4 (51)*	233.0 (98)*
Bemidji	168.6 (62)*	512.0 (177)*	176.9 (74)*	425.3 (177)*
Billings	125.4 (23)*	352.3 (64)*	140.2 (29)*	339.4 (75)*
California	69.6 (39)	265.6 (132)*	62.5 (44)*	234.5 (156)*
Nashville	142.6 (48)*	355.6 (116)*	138.4 (61)*	327.6 (140)*
Navajo	131.9 (102)*	267.4 (210)*	116.4 (114)*	251.2 (248)*
Oklahoma	111.2 (143)*	263.5 (334)*	127.4 (211)*	250.2 (415)*
Phoenix	129.8 (78)*	297.6 (173)*	168.8 (109)*	312.2 (203)*
Portland	96.0 (52)*	277.3 (151)*	102.6 (63)*	240.9 (147)*
Tucson	239.4 (23)*	447.7 (51)*	289.8 (38)*	493.1 (67)*

\* Rate is significantly higher ( $p<0.05$ ) than the corresponding rate among U.S. all races.

<sup>1</sup> Underlying cause of death in the death record.

<sup>2</sup> Diabetes Mellitus listed one or more times anywhere in the death record.

<sup>3</sup> Rates per 100,000 population are adjusted to the 2000 U.S. standard population. Rates based on a small number of deaths should be interpreted with caution.

Among persons 35-74 years of age, death rates for heart disease listed in the death record without mention of diabetes were significantly higher than the U.S. rate for all races in the Aberdeen, Bemidji, Billings and Portland areas. Death rates for diabetes without mention of heart disease were significantly higher than the U.S. rates in all areas except Alaska, with the highest rates in Tucson, Aberdeen, and Phoenix. Death rates for diabetes and heart disease together in the death record were significantly higher than the U.S. rate in all areas except Alaska, with the highest rates in Aberdeen, Bemidji, and Tucson. Alaska had the lowest rates for both diabetes without heart disease and diabetes with heart disease.

Among persons 75 years of age and older, death rates involving heart disease without mention of diabetes were not significantly higher than the U.S. rate in any IHS area. Rates for death with diabetes listed and no mention of heart disease were significantly higher than the U.S. rate in all areas except Alaska, with Bemidji and Billings having the highest rates. Death rates for heart disease and diabetes listed together in the death record were significantly higher than the U.S. rate for the Aberdeen, Bemidji, California, Nashville, Oklahoma, and Portland areas, as well as for the entire IHS service area.

**Table 4.40 Rates for Each Combination of Heart Disease (He) and Diabetes (D) by Age, Ages 35 and Over (Multiple Cause Analysis), Calendar Years 1999-2001**

	Rate <sup>1</sup> (Deaths)					
	35-74 Years Old <sup>2</sup>			75+ <sup>2</sup>		
	He Alone <sup>3</sup>	D Alone <sup>4</sup>	He & D <sup>5</sup>	He Alone <sup>3</sup>	D Alone <sup>4</sup>	He & D <sup>5</sup>
<i>U.S. All Races (2000)</i>	<i>218.4 (275,217)</i>	<i>27.6 (34,712)</i>	<i>48.3 (60,805)</i>	<i>3,563.0 (595,301)</i>	<i>243.2 (40,635)</i>	<i>452.1 (75,533)</i>
<b>All IHS Areas</b>	<b>215.1 (3,038)</b>	<b>81.0*(1,142)</b>	<b>94.1*(1,293)</b>	<b>2,470.7 (2,544)</b>	<b>507.8*(531)</b>	<b>630.4*(663)</b>
Aberdeen	424.6*(306)	124.6*(89)	186.4*(130)	3,597.8 (176)	580.9*(30)	1,271.2*(64)
Alaska	223.2 (202)	18.7 (17)	22.8 (20)	3,153.7 (193)	280.6 (17)	346.9 (21)
Albuquerque	106.9 (86)	87.2*(71)	89.0*(66)	1,817.7 (120)	526.4*(35)	521.5 (33)
Bemidji	343.4*(300)	119.1*(104)	178.4*(152)	3,648.3 (197)	781.4*(44)	936.6*(54)
Billings	295.9*(141)	85.5*(40)	121.0*(57)	3,282.5 (93)	771.9*(23)	645.9 (19)
California	143.9 (208)	50.6*(72)	74.4*(101)	1,796.1 (170)	430.8*(44)	716.8*(71)
Nashville	202.6 (176)	83.2*(74)	108.5*(92)	1,935.3 (119)	497.2*(31)	942.5*(59)
Navajo	154.8 (295)	79.5*(149)	71.5*(133)	2,009.8 (338)	616.3*(102)	459.4 (74)
Oklahoma	204.1 (618)	70.5*(214)	84.8*(257)	2,587.3 (679)	412.4*(111)	620.4*(167)
Phoenix	218.3 (293)	120.1*(162)	99.4*(130)	2,372.7 (200)	562.5*(49)	404.2 (35)
Portland	253.4*(368)	62.9*(88)	88.6*(119)	2,689.8 (220)	415.5*(35)	642.1*(56)
Tucson	157.0 (45)	234.6*(62)	142.9*(36)	2,359.8 (39)	624.3*(10)	601.3 (10)

\* Rate is significantly higher ( $p < 0.05$ ) than the corresponding rate among U.S. all races.

<sup>1</sup> Rates per 100,000 population are adjusted to the 2000 U.S. standard population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> Age divided into <75 vs 75+ because American Indian and Alaska Native heart disease rates are higher than U.S. All Races prior to age 75 and lower than U.S. All Races after age 75.

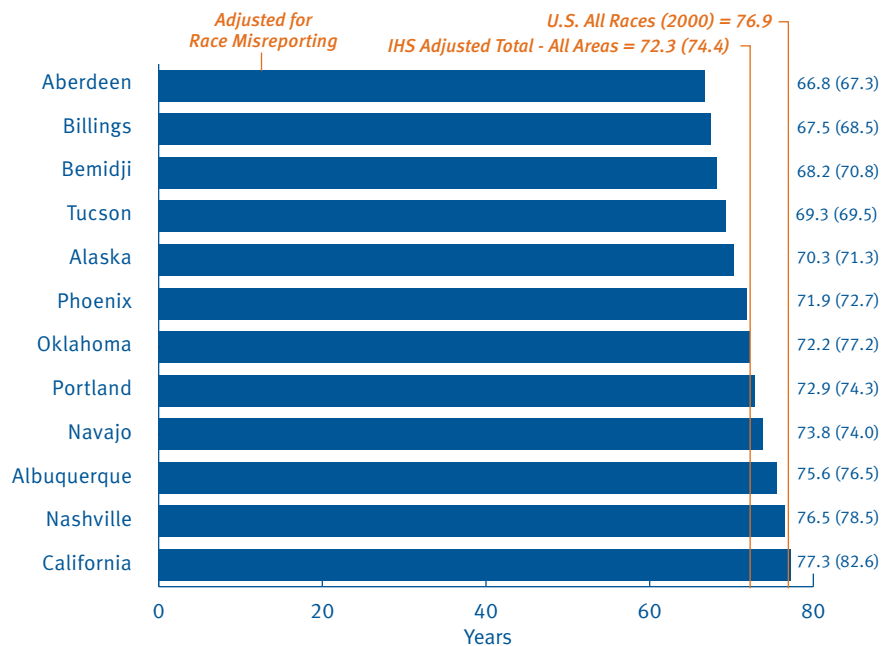
<sup>3</sup> Heart disease listed 1+ times in the death record in the absence of diabetes mellitus. When cardiac arrest (I46) is listed in death record in the absence of other diseases of the heart, it counts as a heart disease death only if cardiac arrest is classified as the underlying cause of death.

<sup>4</sup> Diabetes mellitus listed 1+ times in the death record in the absence of heart disease.

<sup>5</sup> Heart disease and diabetes mellitus listed on the death record together.

In 1999-2001, the AI/AN life expectancy at birth (both sexes) for the IHS service area population was 72.3 years. Life expectancy calculations are based on rates adjusted for misreporting of AI/AN race on the death certificate. Life expectancy at birth is 4.6 years less than the 2000 figure of 76.9 years for the U.S. all-races population. The California IHS Area has a life expectancy greater than the U.S. all-races population. The Aberdeen Area has a life expectancy (66.8) 10.1 years less than the U.S. figure.

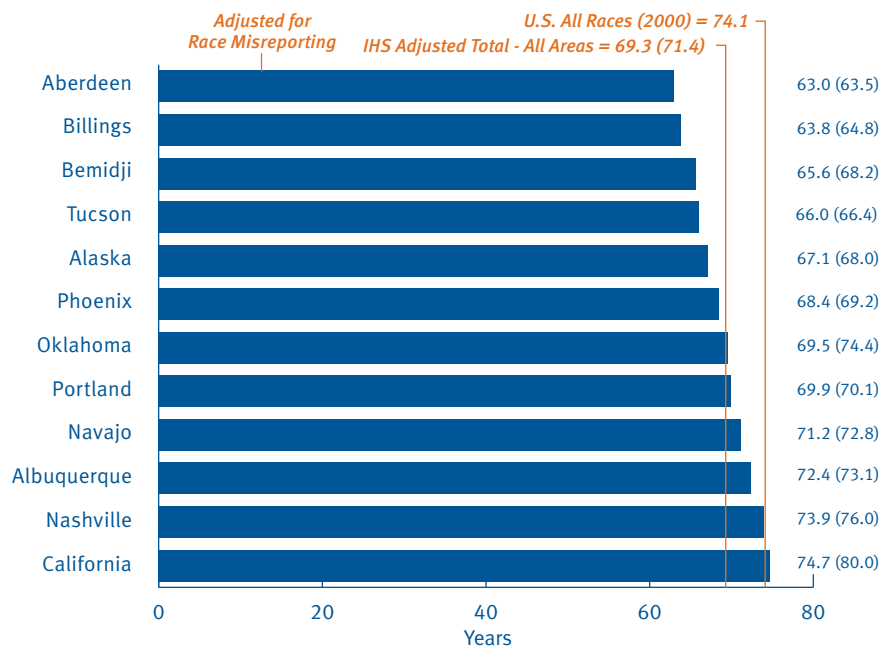
**Chart 4.41 Life Expectancy at Birth, Both Sexes, Calendar Years 1999-2001**



NOTE: Life expectancies not adjusted for misreporting of American Indian/Alaska Native race on state death certificates are shown in parentheses.

In 1999-2001, the life expectancy at birth for AI/AN males in the IHS service area population was 69.3 years. Life expectancy calculations are based on rates adjusted for misreporting of AI/AN race on the death certificate. Life expectancy at birth is 4.8 years less than the 2000 figure of 74.1 years for the U.S. all-races male population. AI/AN males in the Aberdeen Area (63.0) can expect to live from birth, 11.1 years less than U.S. males.

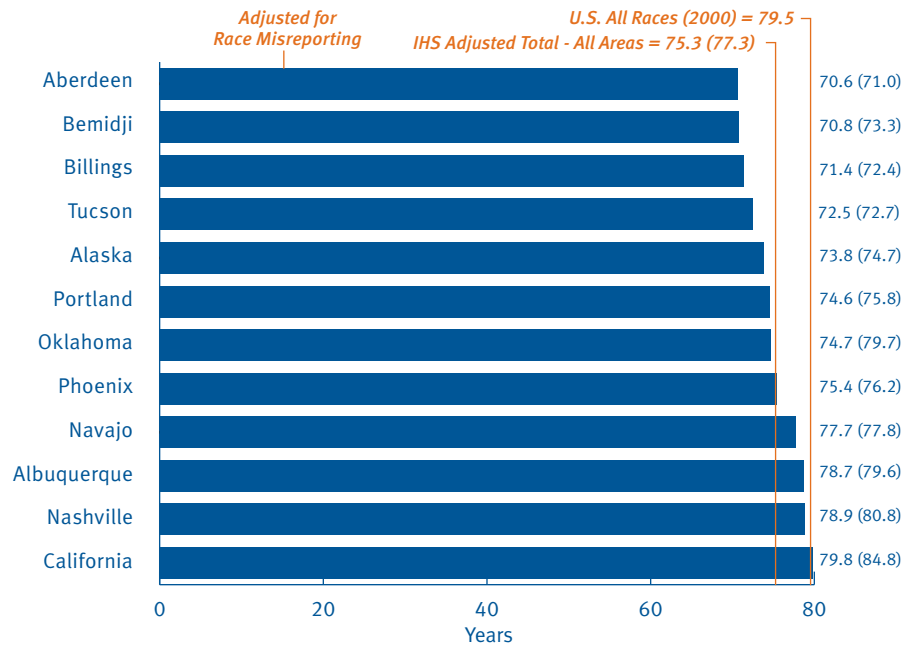
**Chart 4.42 Life Expectancy at Birth, Males, Calendar Years 1999-2001**



NOTE: Life expectancies not adjusted for misreporting of American Indian/Alaska Native race on state death certificates are shown in parentheses.

In 1999-2001, the life expectancy at birth for AI/AN females in the IHS service area population was 75.3 years. Life expectancy calculations are based on rates adjusted for misreporting of AI/AN race on the state death certificate. Life expectancy at birth is 4.2 years less than the 2000 figure of 79.5 years for the U.S. all-races female population. AI/AN females in the California Area (79.8) had the best Area life expectancy, can expect to live from birth slightly longer than their counterparts in the U.S. all-races population. Females in the Aberdeen Area have a life expectancy (70.6) that is 8.9 years less than that of U.S. females.

**Chart 4.43** Life Expectancy at Birth, Females, Calendar Years 1999-2001

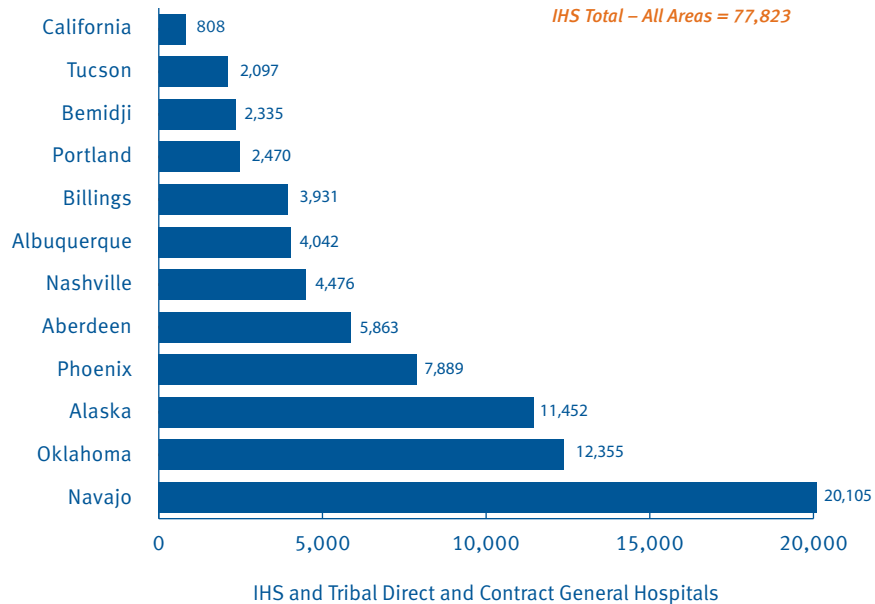


NOTE: Life expectancies not adjusted for misreporting of American Indian/Alaska Native race on state death certificates are shown in parentheses.



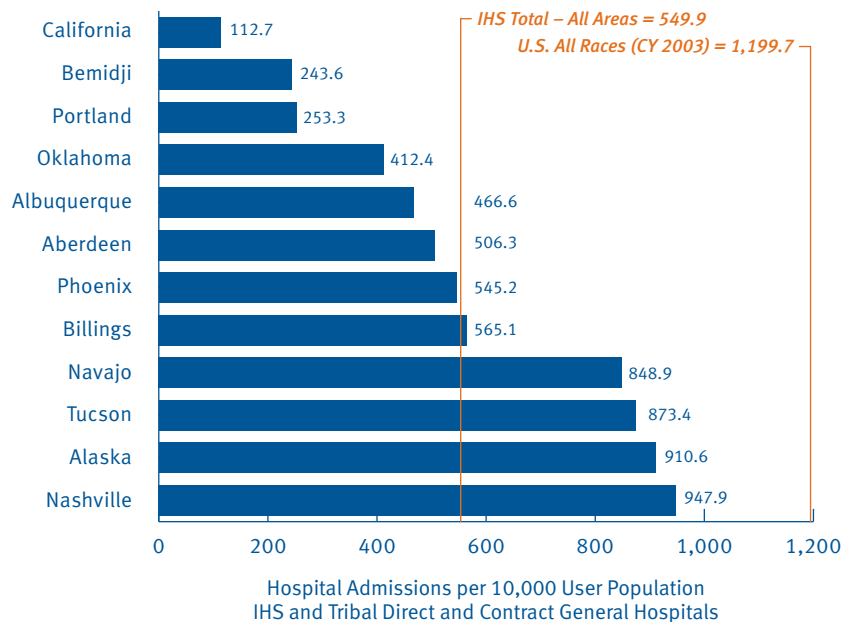
In FY 2004, there were over 77,000 admissions to IHS and Tribal direct and contract general hospitals. Over 41.7 percent of these admissions were in two IHS Areas, Oklahoma (12,355) and Navajo (20,105).

**Chart 5.1** Number of Admissions, FY 2004



The IHS admission rate of 549.9 admissions per 10,000 user population in FY 2004 was nearly 46 percent lower than the U.S. rate of 1,199.7 in CY 2003. The IHS Area rates ranged from 112.7 in California, where the IHS provides little inpatient care, to 947.9 in Nashville.

**Chart 5.2** Hospital Admission Rates, FY 2004



**Table 5.1** Number and Rate of Admissions, Indian Health Service and Tribal Direct and Contract General Hospitals, FY 2004 and U.S. Short-Stay Community Hospitals, Calendar Year 2003

	Total Admission Rate <sup>1</sup>	Total Admissions	IHS Admissions		Tribal Admissions	
			Direct	Contract	Direct	Contract
<i>U.S. All Races (2003)</i>	<i>1,199.7</i>	<i>34,738<sup>2</sup></i>				
<b>All IHS Areas</b>	<b>549.9</b>	<b>77,823</b>	<b>39,382</b>	<b>12,237</b>	<b>21,263</b>	<b>4,925</b>
Aberdeen	506.3	5,863	5,673	115	0	75
Alaska	910.6	11,452	0	211	11,068	173
Albuquerque	466.6	4,042	2,342	1,656	0	44
Bemidji	243.6	2,335	652	774	0	909
Billings	565.1	3,931	2,672	650	0	609
California	112.7	808	0	618	0	190
Nashville	947.9	4,476	0	2,447	1,286	743
Navajo	848.9	20,105	13,658	2,739	3,591	117
Oklahoma	412.4	12,355	6,483	342	4,719	811
Phoenix	545.2	7,889	7,117	84	599	89
Portland	253.3	2,470	0	1,289	0	1,165
Tucson	873.4	2,097	785	1,312	0	0

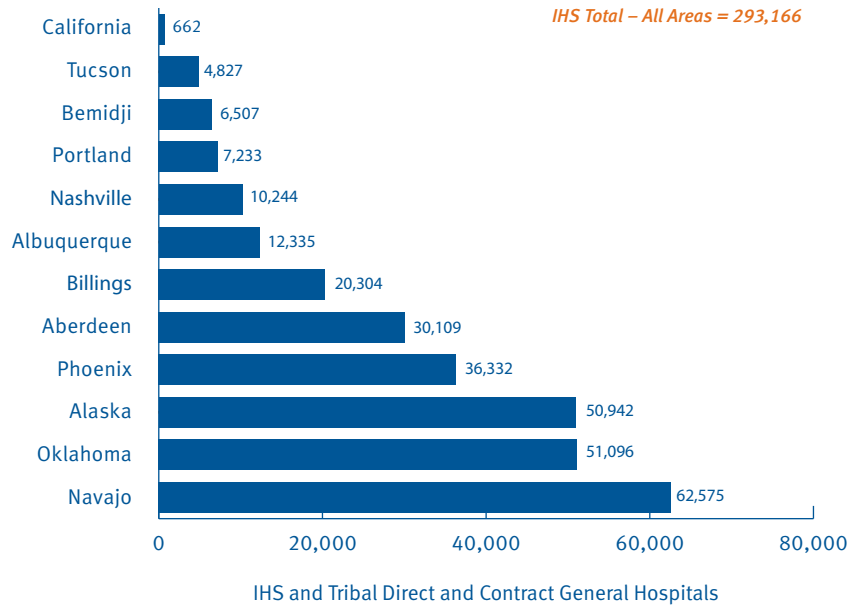
<sup>1</sup> Number of admissions per 10,000 population.

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

SOURCES: IHS and Tribal: National Patient Registry System (NPIRS), FY 2004 & Contract Statistical System, FY 2004  
U.S.: Centers for Disease Control, Advance Data from Vital and Health Statistics, No. 359 (July 8, 2005), p.7.

The number of inpatient days in IHS and Tribal direct and contract general hospitals was over 293,000 in FY 2004. The number varied considerably among the IHS Areas, ranging from 662 in California to 62,575 in Navajo.

**Chart 5.3** Number of Hospital Days, FY 2004



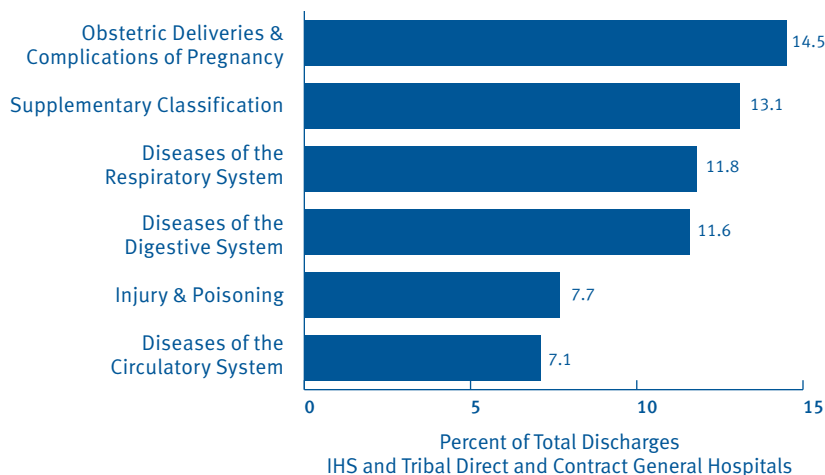
**Table 5.3** Number of Hospital Days, Indian Health Service and Tribal Direct and Contract General Hospitals, FY 2004

	Total Days	IHS Days		Tribal Days	
		Direct	Contract	Direct	Contract
<b>All IHS Areas</b>	<b>293,166</b>	<b>137,190</b>	<b>45,216</b>	<b>88,923</b>	<b>21,837</b>
Aberdeen	30,109	18,368	11,487	0	254
Alaska	50,942	0	0	49,891	1,051
Albuquerque	12,335	8,888	3,302	0	145
Bemidji	6,507	2,588	1,217	0	2,702
Billings	20,304	9,275	8,462	0	2,567
California	662	0	0	0	662
Nashville	10,244	0	160	6,675	3,409
Navajo	62,575	43,385	5,719	13,103	368
Oklahoma	51,096	22,156	7,167	16,774	4,999
Phoenix	36,332	29,092	4,592	2,480	168
Portland	7,233	0	1,721	0	5,512
Tucson	4,827	3,438	1,389	0	0

SOURCES: IHS and Tribal: National Patient Information Registry System (NPIRS), FY 2004 & Contract Statistical System, FY 2004  
Tribal Contract: IHS Area submissions

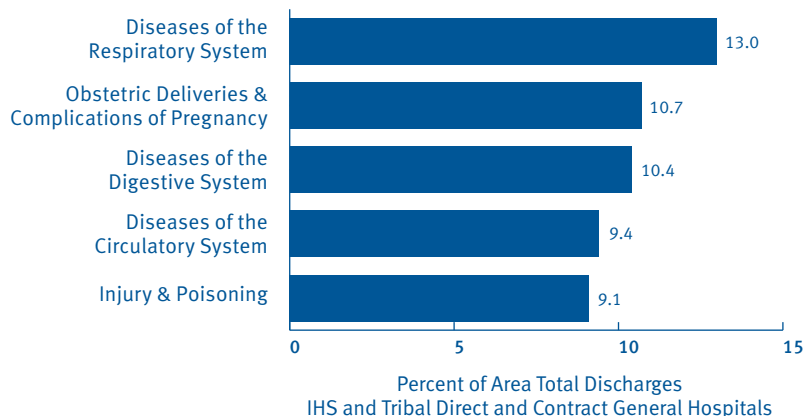
In FY 2004, 14.5 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy, followed by supplementary classification at 13.1 percent.

**Chart 5.4** Leading Causes of Hospitalization, All IHS Areas, FY 2004



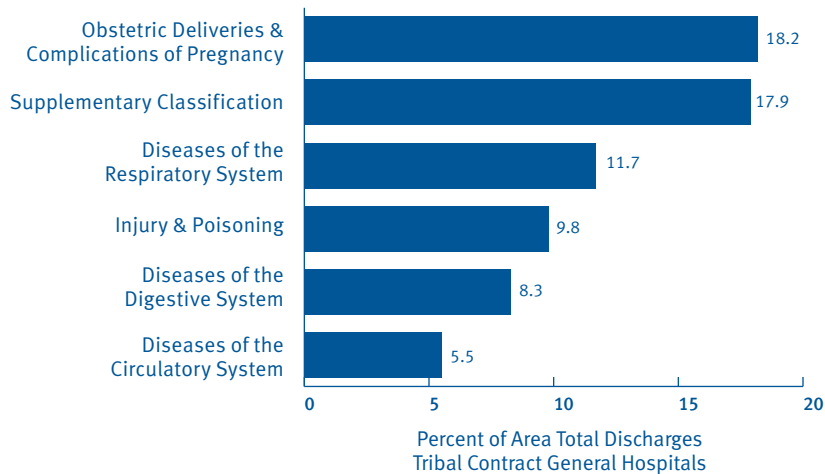
For the **Aberdeen** Area in FY 2004, 13.0 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases, followed by obstetric deliveries and complications of pregnancy at 10.7 percent.

**Chart 5.5** Leading Causes of Hospitalization, Aberdeen Area, FY 2004



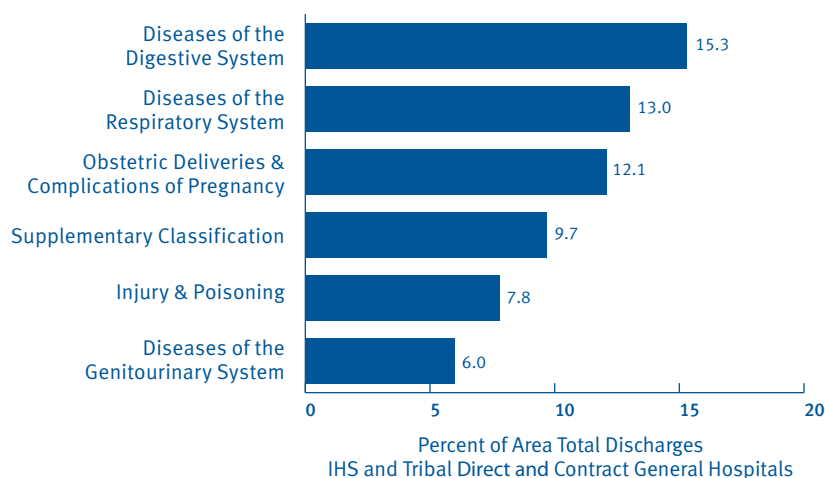
For the **Alaska** Area in FY 2004, 18.2 percent of all discharges from Tribal contract general hospitals pertained to obstetric deliveries and complications of pregnancy, followed by supplementary classification at 17.9 percent.

**Chart 5.6** Leading Causes of Hospitalization, Alaska Area, FY 2004



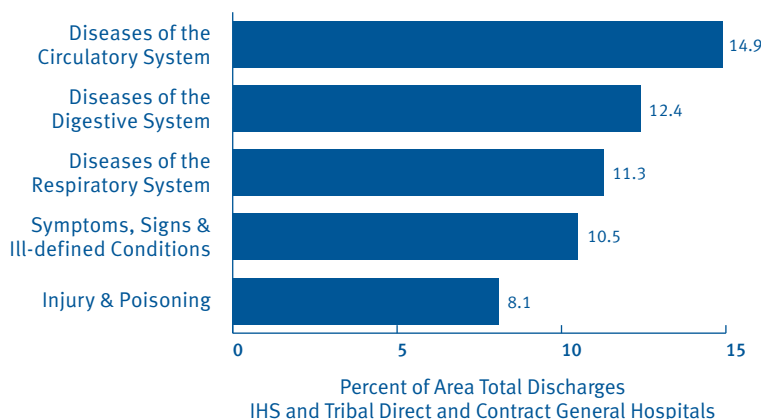
For the **Albuquerque** Area in FY 2004, 15.3 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to diseases of the digestive system, closely followed by diseases of the respiratory system at 13.0 percent.

**Chart 5.7 Leading Causes of Hospitalization, Albuquerque Area, FY 2004**



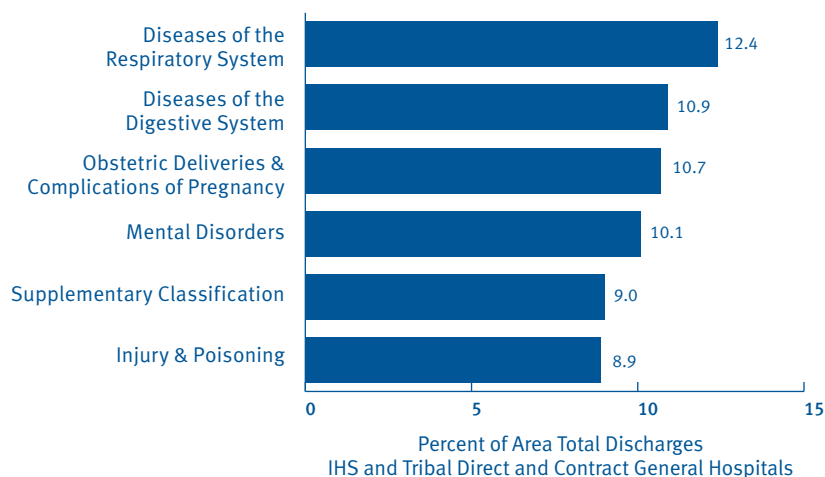
For the **Bemidji** Area in FY 2004, 14.9 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to diseases of the circulatory system, followed by diseases of the digestive system at 12.4 percent.

**Chart 5.8 Leading Causes of Hospitalization, Bemidji Area, FY 2004**



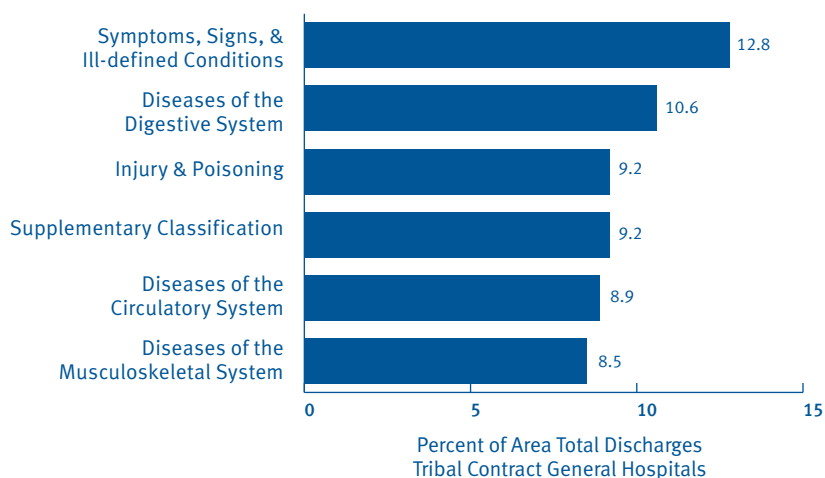
For the **Billings** Area in FY 2004, 12.4 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to diseases of the respiratory system, followed by diseases of the digestive system at 10.9 percent.

**Chart 5.9 Leading Causes of Hospitalization, Billings Area, FY 2004**



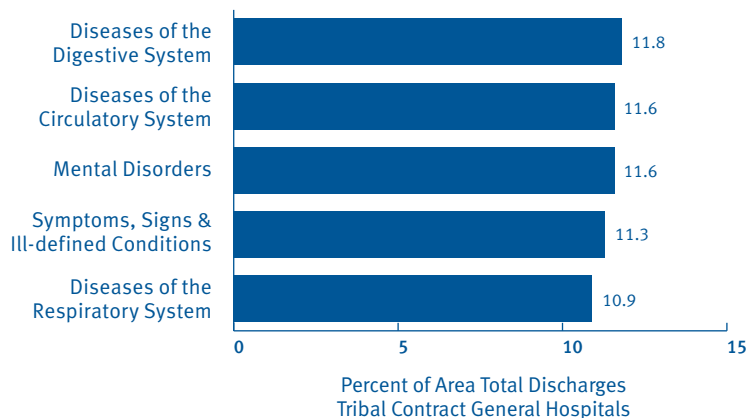
For the **California** Area in FY 2004, 12.8 percent of all discharges from Tribal contract health service hospitals pertained to symptoms, signs and ill-defined conditions, followed by diseases of the digestive system at 10.6 percent.

**Chart 5.10 Leading Causes of Hospitalization, California Area, FY 2004**



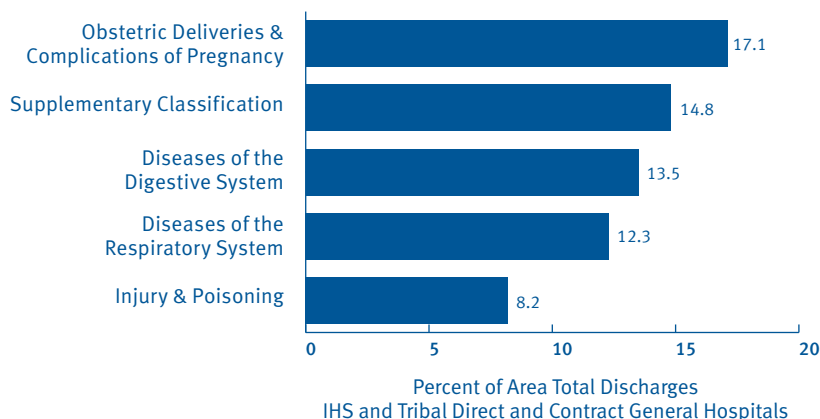
For the **Nashville** Area in FY 2004, 11.8 percent of all discharges from Tribal contract general hospitals pertained to diseases of the digestive system, followed by diseases of the circulatory system and mental disorders at 11.6 percent.

**Chart 5.11 Leading Causes of Hospitalization, Nashville Area, FY 2004**



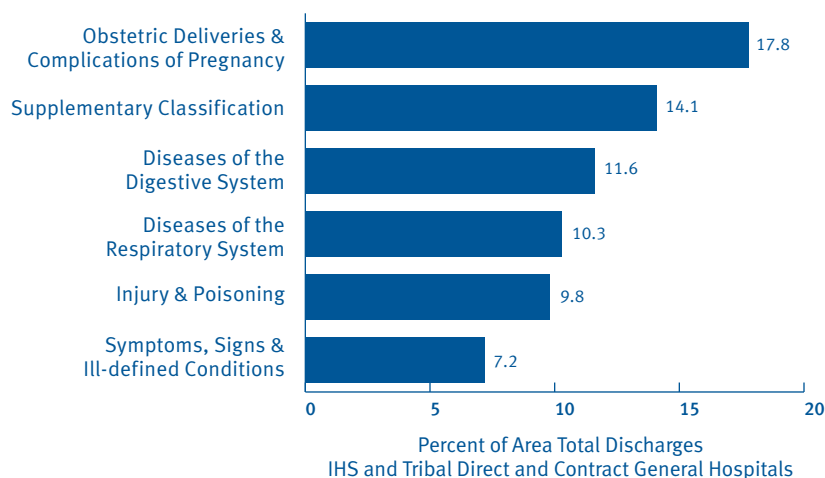
For the **Navajo** Area in FY 2004, 17.1 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy, followed by supplementary classification at 14.8 percent.

**Chart 5.12 Leading Causes of Hospitalization, Navajo Area, FY 2004**



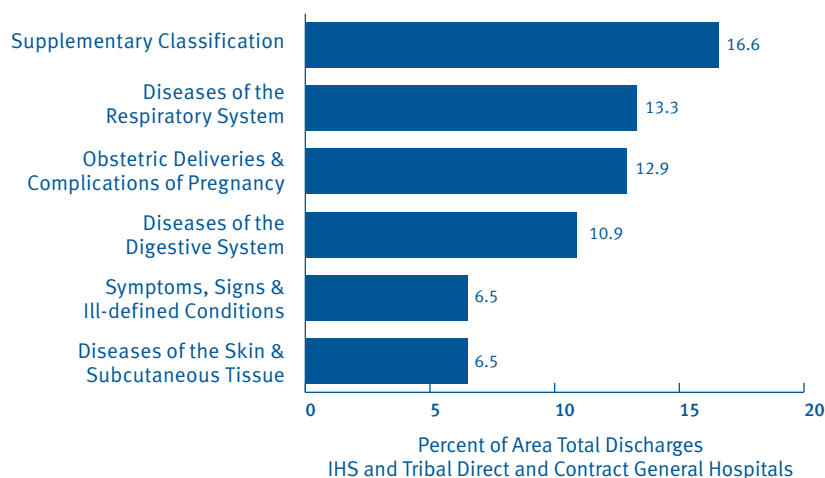
For the **Oklahoma** Area in FY 2004, 17.8 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy, followed by supplementary classification at 14.1 percent.

**Chart 5.13** Leading Causes of Hospitalization, Oklahoma Area, FY 2004



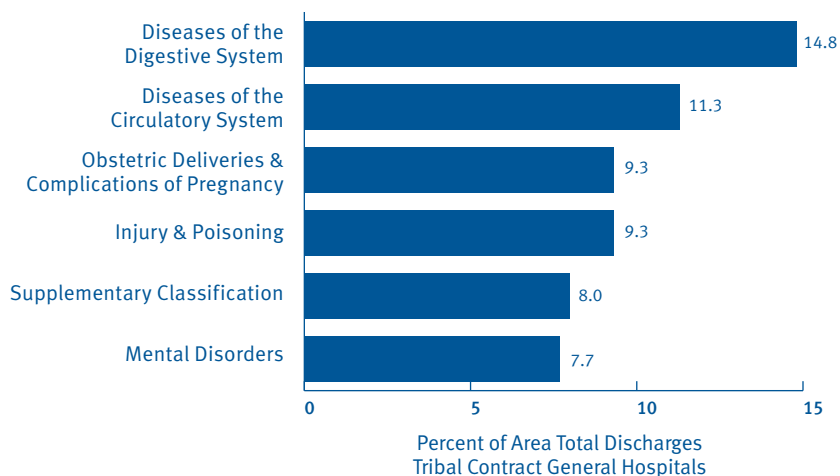
For the **Phoenix** Area in FY 2004, 16.6 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to supplementary classification, followed by diseases of the respiratory system at 13.3 percent.

**Chart 5.14** Leading Causes of Hospitalization, Phoenix Area, FY 2004



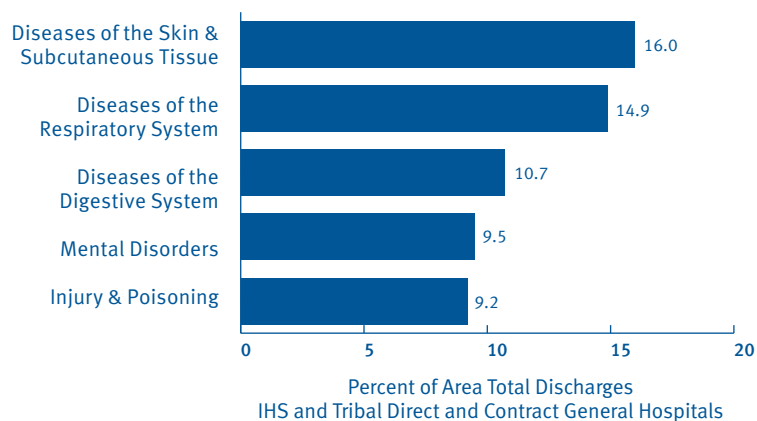
For the **Portland** Area in FY 2004, 14.8 percent of all discharges from Tribal contract general hospitals pertained to diseases of the digestive system, followed by diseases of the circulatory system at 11.3 percent.

**Chart 5.15** Leading Causes of Hospitalization, Portland Area, FY 2004



For the **Tucson** Area in FY 2004, 16.0 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to diseases of the skin & subcutaneous tissue, followed by diseases of the respiratory system at 14.9 percent.

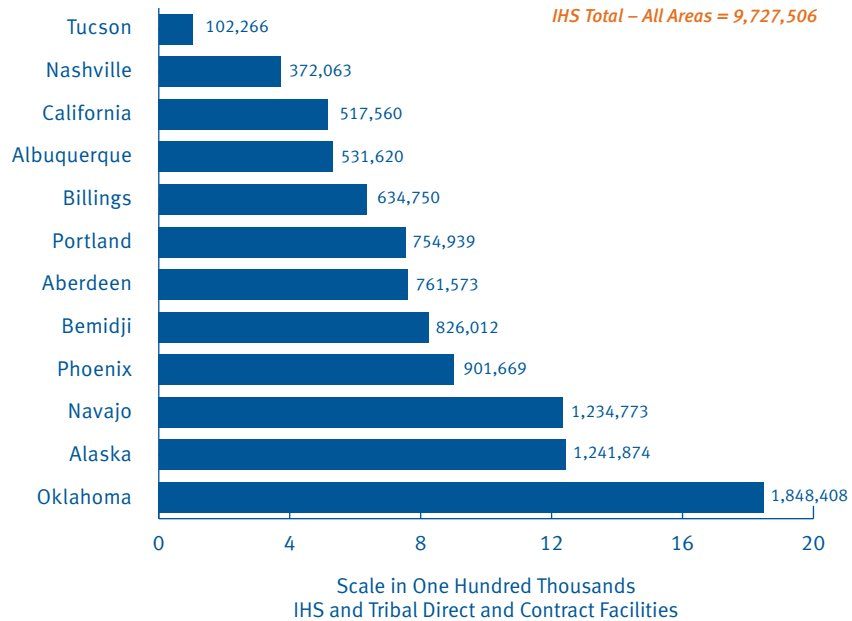
**Chart 5.16** Leading Causes of Hospitalization, Tucson Area, FY 2004





In FY 2004, there were nearly 10 million ambulatory medical visits to IHS and Tribal direct and contract facilities. Three IHS Areas—Oklahoma (1,848,408), Alaska (1,241,874) and Navajo (1,234,773)—had 44.5 percent of the visits.

**Chart 5.17** Number of Ambulatory Medical Visits, FY 2004



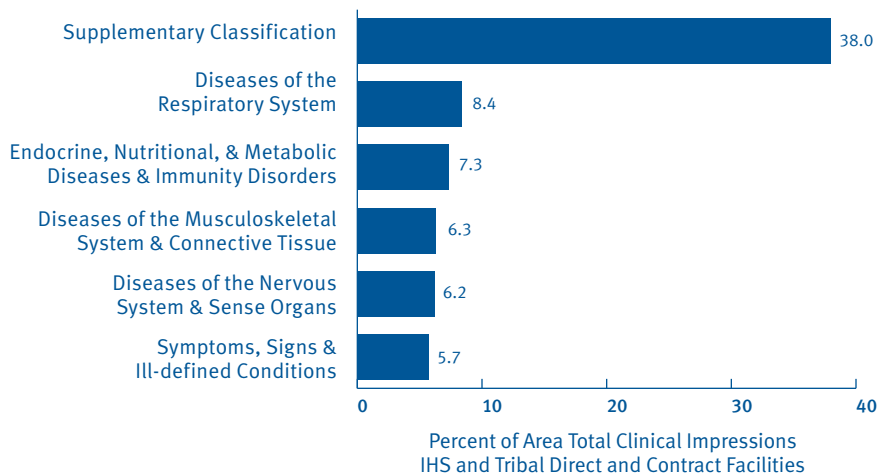
**Table 5.17** Number of Ambulatory Medical Visits  
Indian Health Service and Tribal Direct and Contract Facilities, FY 2004

	Total	Indian Health Service		Tribal	
		Direct	Contract	Direct	Contract
<b>All IHS Areas</b>	<b>9,727,506</b>	<b>4,404,394</b>	<b>89,356</b>	<b>5,029,888</b>	<b>203,868</b>
Aberdeen	761,573	687,955	12,767	59,806	1,045
Alaska	1,241,874	0	0	1,240,481	1,393
Albuquerque	531,620	444,669	6,263	78,993	1,695
Bemidji	826,012	228,083	5,578	555,871	36,480
Billings	634,750	481,627	9,095	107,495	36,533
California	517,560	0	0	492,663	24,897
Nashville	372,063	2,300	3	339,675	30,085
Navajo	1,234,773	1,009,585	6,400	218,338	450
Oklahoma	1,848,408	628,635	14,187	1,197,439	8,147
Phoenix	901,669	607,685	12,658	274,333	6,993
Portland	754,938	231,053	18,604	449,131	56,150
Tucson	102,266	82,802	3,801	15,663	0

SOURCES: IHS NPIRS Database

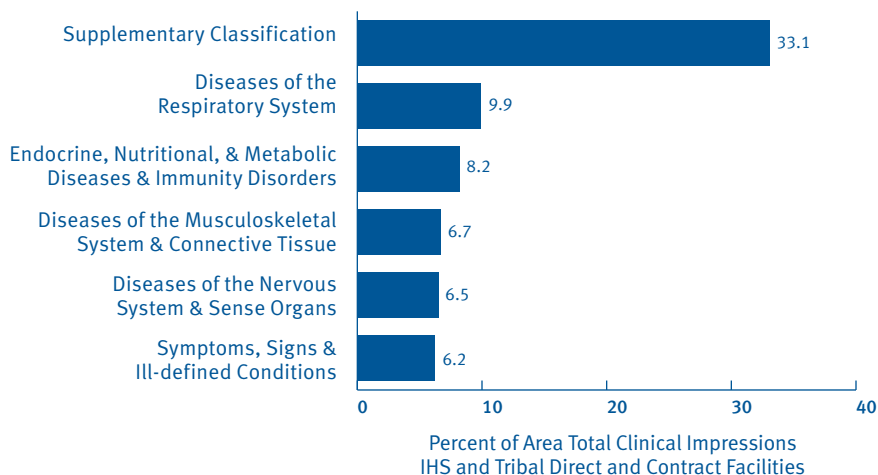
In FY 2004, 38.0 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classification, followed by diseases of the respiratory system at 8.4 percent.

**Chart 5.18** Leading Causes of Ambulatory Medical Visits, All IHS Areas, FY 2004



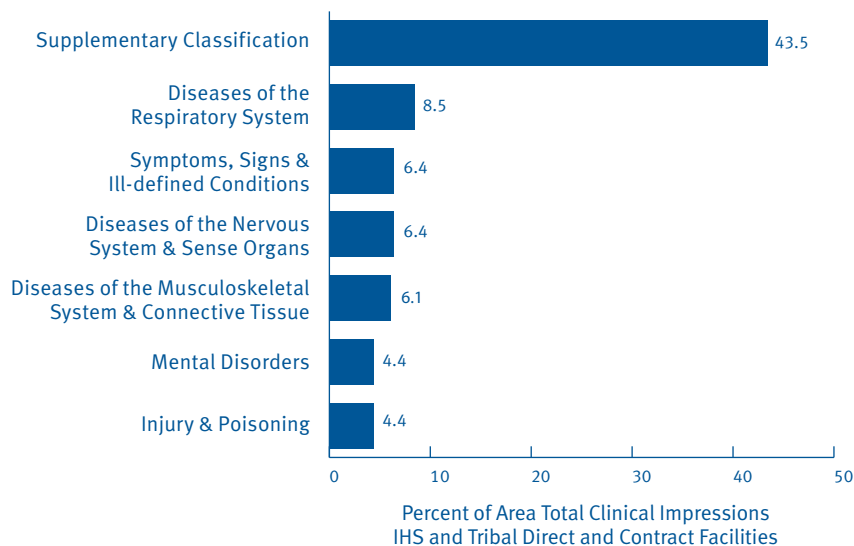
For the **Aberdeen Area** in FY 2004, 33.1 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 9.9 percent.

**Chart 5.19** Leading Causes of Ambulatory Medical Visits, Aberdeen Area, FY 2004



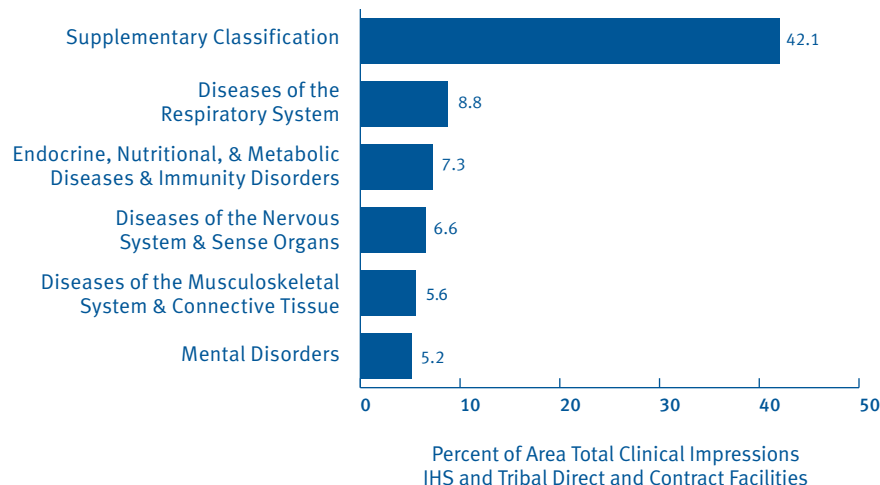
For the **Alaska Area** in FY 2004, 43.5 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 8.5 percent.

**Chart 5.20** Leading Causes of Ambulatory Medical Visits, Alaska Area, FY 2004



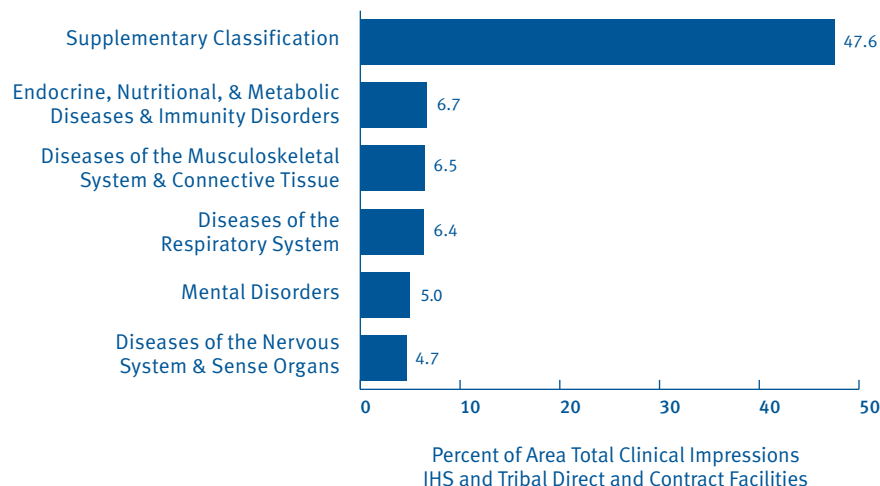
For the **Albuquerque Area** in FY 2004, 42.1 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 8.8 percent.

**Chart 5.21 Leading Causes of Ambulatory Medical Visits, Albuquerque Area, FY 2004**



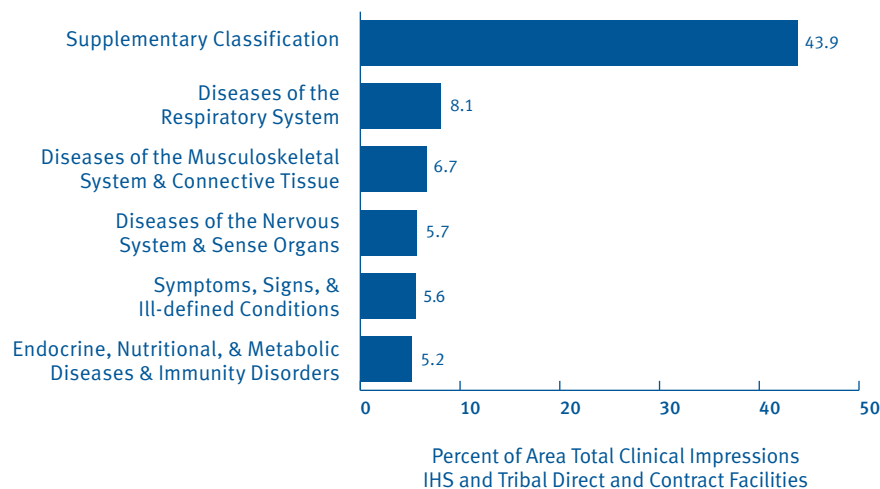
For the **Bemidji Area** in FY 2004, 47.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by endocrine, nutritional, and metabolic diseases and immunity disorders at 6.7 percent.

**Chart 5.22 Leading Causes of Ambulatory Medical Visits, Bemidji Area, FY 2004**



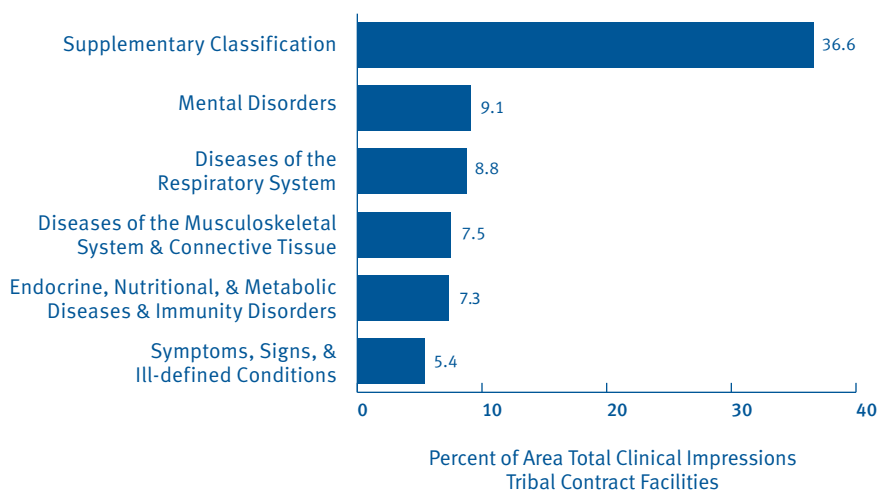
For the **Billings Area** in FY 2004, 43.9 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 8.1 percent.

**Chart 5.23 Leading Causes of Ambulatory Medical Visits, Billings Area, FY 2004**



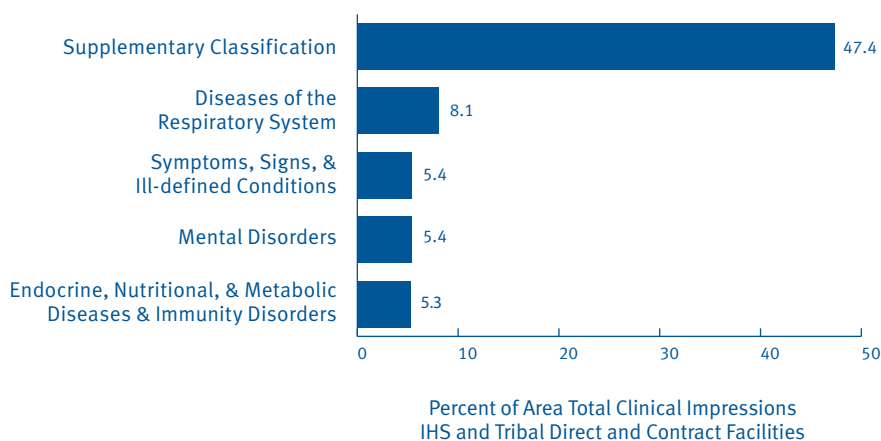
For the **California Area** in FY 2004, 36.6 percent of all clinical impressions in Tribal contract facilities pertained to supplementary classifications, followed by mental disorders at 9.1 percent.

**Chart 5.24 Leading Causes of Ambulatory Medical Visits, California Area, FY 2004**



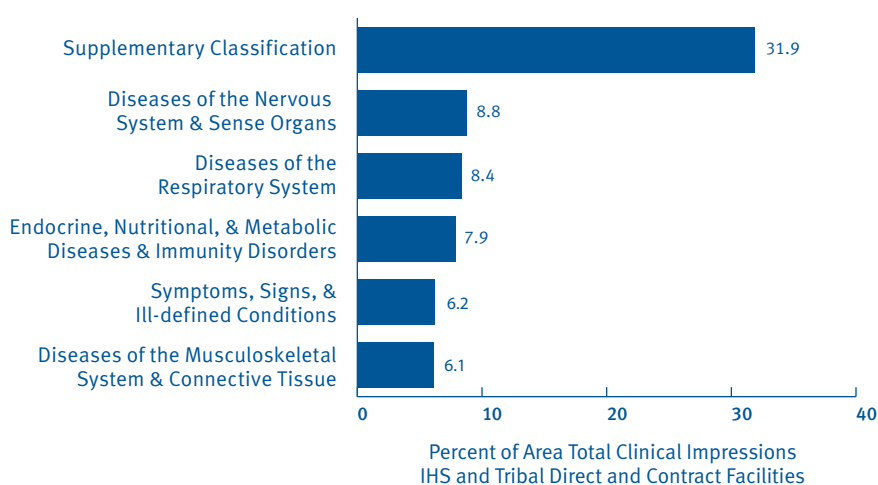
For the **Nashville Area** in FY 2004, 47.4 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 8.1 percent.

**Chart 5.25 Leading Causes of Ambulatory Medical Visits, Nashville Area, FY 2004**



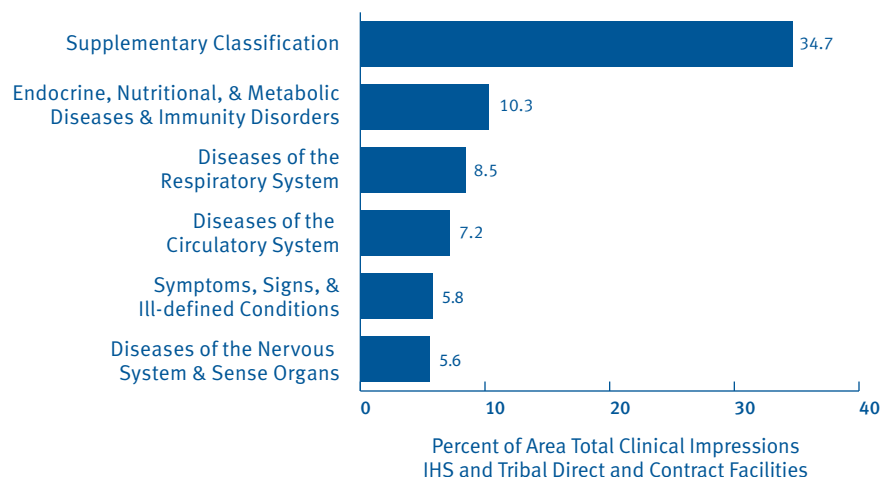
For the **Navajo Area** in FY 2004, 31.9 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the nervous system and sense organs at 8.8 percent.

**Chart 5.26 Leading Causes of Ambulatory Medical Visits, Navajo Area, FY 2004**



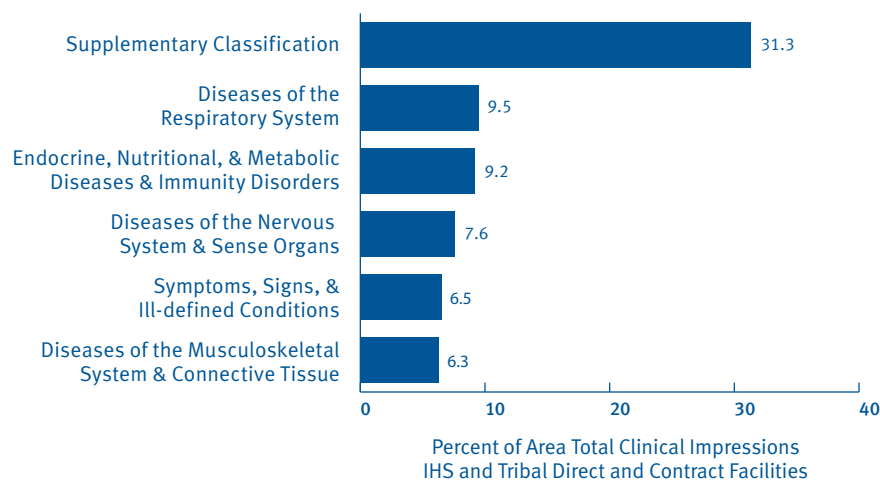
For the **Oklahoma Area** in FY 2004, 34.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by endocrine, nutritional, and metabolic diseases and immunity disorders at 10.3 percent.

**Chart 5.27** Leading Causes of Ambulatory Medical Visits, Oklahoma Area, FY 2004



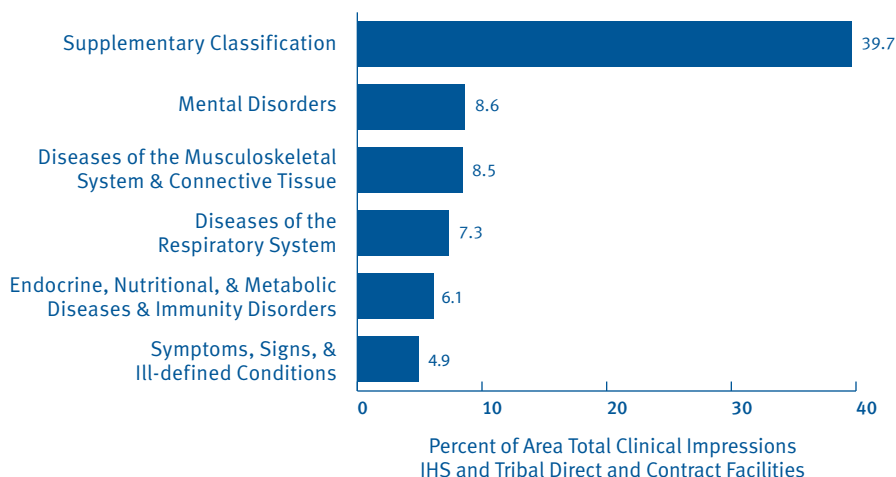
For the **Phoenix Area** in FY 2004, 31.3 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by diseases of the respiratory system at 9.5 percent.

**Chart 5.28** Leading Causes of Ambulatory Medical Visits, Phoenix Area, FY 2004



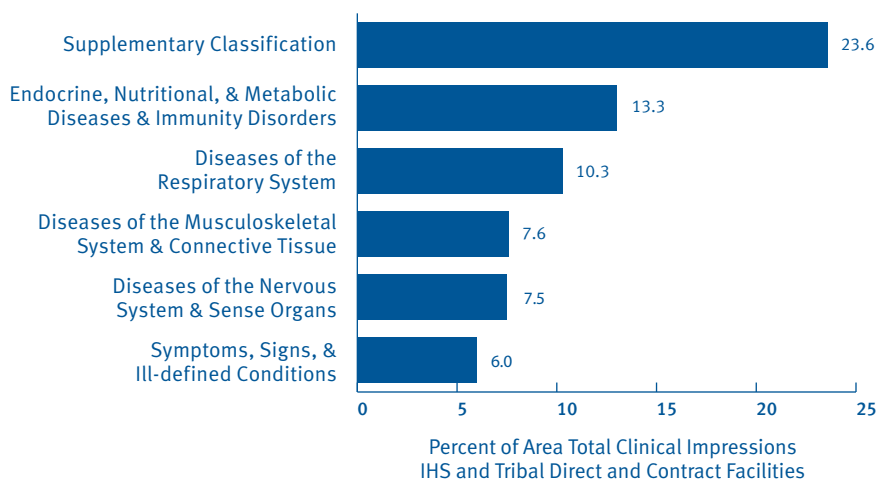
For the **Portland Area** in FY 2004, 39.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by mental disorders at 8.6 percent.

**Chart 5.29** Leading Causes of Ambulatory Medical Visits, Portland Area, FY 2004



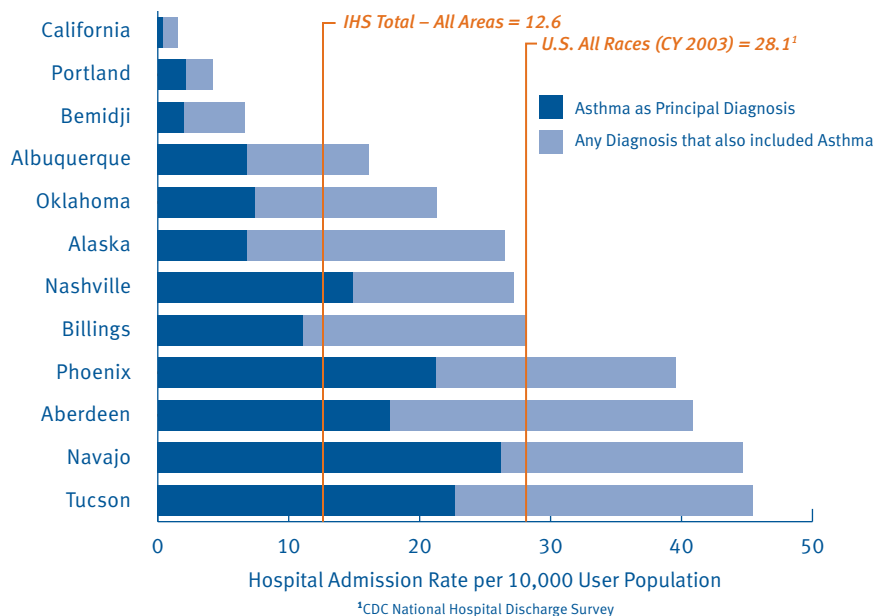
For the **Tucson Area** in FY 2004, 23.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications, followed by endocrine, nutritional, and metabolic diseases and immunity disorders at 13.3 percent.

**Chart 5.30** Leading Causes of Ambulatory Medical Visits, Tucson Area, FY 2004



In FY 2004, there were 702 asthma admissions to IHS and Tribal direct and contract general hospitals with asthma as a principal diagnosis. Approximately 54 percent of these admissions were in two IHS Areas, Navajo (249) and Phoenix (129). The rate of the IHS and Tribal AI/AN population is 45.6 percent of that found in the U.S. all-races population (12.6 asthma admissions per 10,000 versus 28.1, respectively.)

**Chart 5.31 Hospital Rate of Persons Diagnosed with Asthma Under Age 18, FY 2004**



**Table 5.31 Number and Rate of Hospitalizations of Persons Diagnosed with Asthma Under Age 18, FY 2004**

	Asthma as Principal Diagnosis		Any Diagnosis that also Included Asthma		Estimated Population Under Age 18 Years <sup>1</sup>
	Admission Rate per 10,000	Number of Admissions	Admission Rate per 10,000	Number of Admissions	
<b>U.S. All Races (2001-2003)<sup>2</sup></b>	<b>28.1</b>				
<b>All IHS Areas</b>	<b>12.6</b>	<b>702</b>	<b>14.5</b>	<b>812</b>	<b>558,728</b>
Aberdeen	17.7	90	23.2	118	50,938
Alaska	6.8	36	19.7	104	52,902
Albuquerque	6.8	22	9.3	30	32,390
Bemidji	2.0	7	4.6	16	34,919
Billings	11.1	32	17.0	49	28,843
California	0.4	1	1.1	3	28,312
Nashville	14.9	23	12.3	19	15,397
Navajo	26.2	249	18.5	176	95,155
Oklahoma	7.4	83	13.9	155	111,788
Phoenix	21.2	129	18.4	112	60,795
Portland	2.1	8	2.1	8	37,586
Tucson	22.7	22	22.7	22	9,703

<sup>1</sup> IHS User Population under age 18 for FY 2004.

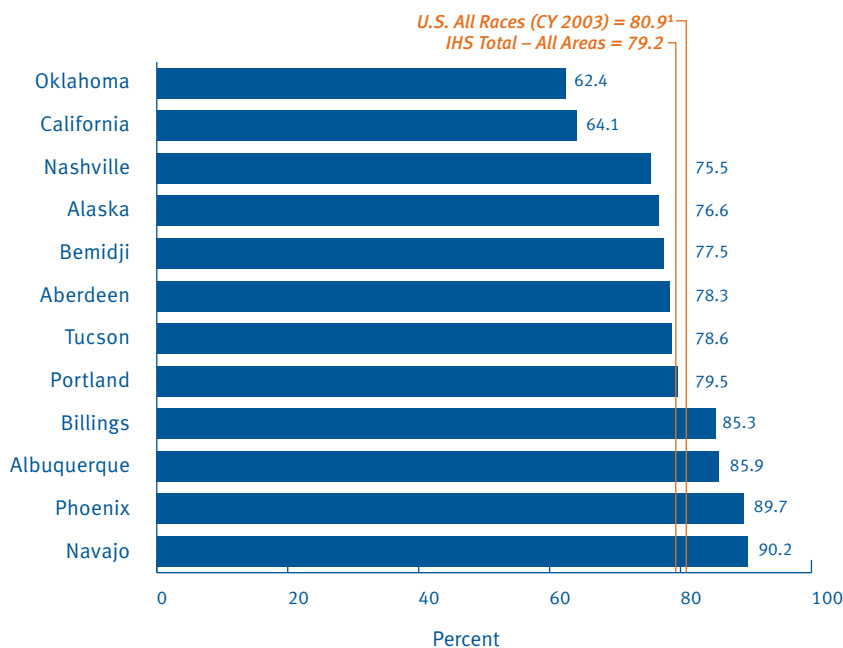
<sup>2</sup> CDC National Hospital Discharge Survey under age 18 for CY 2001-2003

SOURCES: IHS Direct: Inpatient Data System

IHS Contract: Contract Statistical System

In CY 2004, 79.2 percent of AI/AN children 3-27 months and residing in the IHS service area received all required immunizations. In the general population in CY 2003, 80.9 percent of children aged 19 to 27 months received all required immunizations. The Oklahoma Area had the lowest IHS rate at 62.4 percent, while the Navajo Area had the highest rate, 90.2.

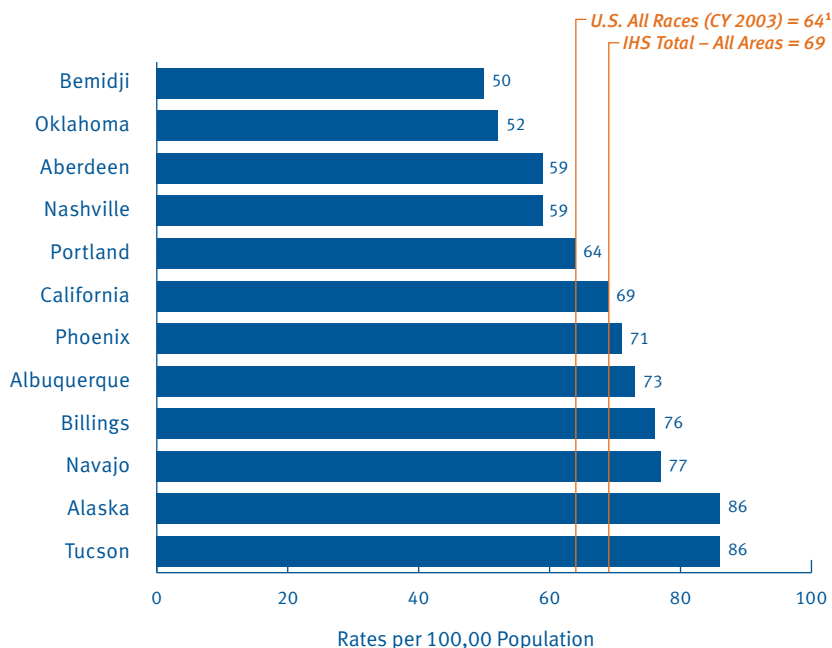
**Chart 5.32 Immunization Rates, 3–27 Months, Calendar Year 2004**



<sup>1</sup>Centers for Disease Control and Prevention. NIS. Vaccination coverage for children aged 19-27 months—United States, 2004.

In FY 2004, 69 percent of AI/AN adults over 65 years and residing in the IHS service area received pneumococcus immunization. In the general population in CY 2003, 64 percent of the adults over 65 years received pneumococcus immunization. The Bemidji Area had the lowest IHS rate at 50 percent, while the Alaska and Tucson Areas had the highest rate, 86 percent.

**Chart 5.33 Pneumococcal Immunization Rates, Over 65 Years, FY 2004**

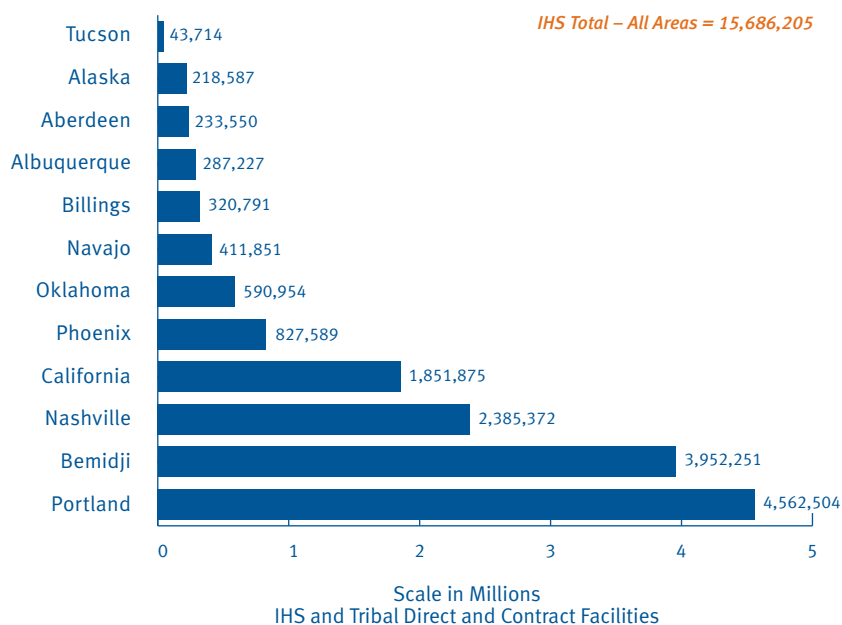


<sup>1</sup>Centers for Disease Control, MMWR 2004; 53(43): 1007–1012.



In FY 2004, over 15 million dental services were provided at IHS and Tribal direct and contract facilities, as reported to the IHS central database. Two IHS Areas provided 54 percent of these dental services, Bemidji (3,952,251) and Portland (4,562,504). NOTE: not all IHS areas fully report contract dental services.

**Chart 5.34 Number of Dental Services Provided, FY 2004**



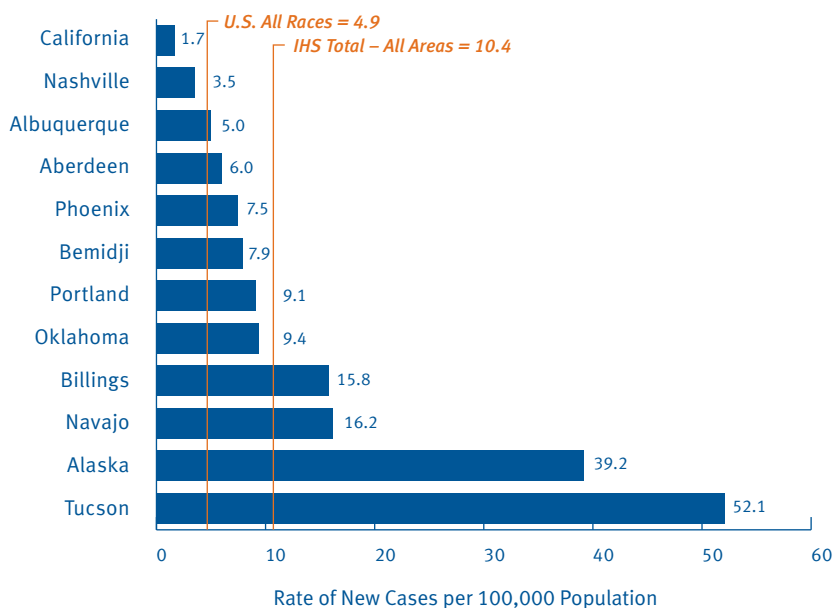
**Table 5.34 Number of Dental Services Provided, Indian Health Service and Tribal Direct and Contract Facilities, FY 2004**

	Total		IHS Direct		IHS Contract		Tribal Direct		Tribal Contract	
	Patients	Services	Patients	Services	Patients	Services	Patients	Services	Patients	Services
<b>All IHS Areas</b>	<b>152,569</b>	<b>15,686,265</b>	<b>75,344</b>	<b>1,616,610</b>	<b>1,137</b>	<b>2,171,129</b>	<b>72,640</b>	<b>1,594,183</b>	<b>3,448</b>	<b>10,304,343</b>
Aberdeen	10,606	233,550	9,097	202,536	0	0	1,465	27,494	44	3,520
Alaska	5,272	218,587	0	0	0	0	5,256	181,543	16	37,044
Albuquerque	9,451	287,227	7,899	184,776	25	1,073	1,307	38,348	220	63,030
Bemidji	9,063	3,952,251	1,885	56,610	128	907,558	6,258	159,685	792	2,828,398
Billings	9,796	320,791	6,228	191,584	266	76,585	3,302	52,622	0	0
California	18,578	1,851,875	0	0	0	0	18,273	389,096	305	1,462,779
Nashville	6,605	2,385,372	579	4,068	13	42	5,224	116,959	789	2,264,303
Navajo	25,147	411,851	21,160	376,104	247	2,391	3,739	33,353	1	3
Oklahoma	27,892	590,954	11,901	199,596	4	5	15,950	284,271	37	107,082
Phoenix	14,680	827,589	10,382	227,823	181	1,205	3,961	96,634	156	501,927
Portland	12,929	4,562,504	4,942	144,497	266	1,182,249	6,633	199,501	1,088	3,036,257
Tucson	2,550	43,714	1,271	29,016	7	21	1,272	14,677	0	0

NOTE: Not all IHS areas fully report contract dental services.

The rate of new tuberculosis cases for the IHS in CY 2004 (10.4 per 100,000 population) is 2.1 times the rate as compared to the U.S. all races (4.9). Two Areas had a significantly higher rate of new tuberculosis cases. Tucson area (52.1) was 10.6 times and Alaska area (39.2) was 8.0 times compared to the U.S. all-races rate.

**Chart 5.35 Rate of New Tuberculosis Cases, Calendar Year 2004**



**Table 5.35 Number and Rate of New Tuberculosis Cases, Calendar Year 2004**

	Number of Cases <sup>1</sup>	Case Rate <sup>1</sup>
<i>U.S. All Races<sup>2</sup></i>	<i>14,517</i>	<i>4.9</i>
<i>All IHS Areas</i>	<i>184</i>	<i>10.4</i>
Aberdeen	7	6.0
Alaska	43	39.2
Albuquerque	5	5.0
Bemidji	9	7.9
Billings	10	15.8
California	3	1.7
Nashville	8	3.5
Navajo	18	16.2
Oklahoma	32	9.4
Phoenix	14	7.5
Portland	17	9.1
Tucson	18	52.1

<sup>1</sup> Number of new cases per 100,00 service population. Rates are based on a small number of new cases and should be interpreted with caution.

<sup>2</sup> Table 1, CDC. Reported Tuberculosis in the United States, 2004. Atlanta, GA: US DHHS, CDC, 9/05. SOURCE: State level TB surveillance programs

## LIST OF 113 CAUSES OF DEATH (1999-PRESENT)

Cause of Death	ICD-10 Codes
Salmonella infections	A01-A02
Shigellosis and amebiasis	A03, A06
Certain other intestinal infections	A04, A07-A09
Tuberculosis	A16-A19
Respiratory Tuberculosis	A16
Other Tuberculosis	A17-A19
Whooping cough	A37
Scarlet fever and erysipelas	A38, A46
Meningococcal infection	A39
Septicemia	A40-A41
Syphilis	A50-A53
Acute poliomyelitis	A80
Arthropod-borne viral encephalitis	A83-A84, A85.2
Measles	B05
Viral Hepatitis	B15-B19
Human immunodeficiency virus (HIV) disease	B20-B24
Malaria	B50-B54
Other and unspecified infections and parasitic diseases and their sequelae	A00, A05, A20-A36, A42-A44, A48-A49, A54-A79, A81-A82, A85.0-A85.1, A85.8, A86-B04, B06-B09, B25-B49, B55-B99
Malignant neoplasm	C00-C97
Malignant neoplasm of lip, oral cavity and pharynx	C00-C14
Malignant neoplasm of esophagus	C15
Malignant neoplasm of stomach	C16
Malignant neoplasm of colon, rectum, anus	C18-C21
Malignant neoplasm of liver and intrahepatic bile ducts	C22
Malignant neoplasm of pancreas	C25
Malignant neoplasm of larynx	C32
Malignant neoplasm of trachea, bronchus and lung	C33-C34
Malignant melanoma of skin	C43
Malignant neoplasm of breast	C50
Malignant neoplasm of cervix uteri	C53
Malignant neoplasm of corpus uteri and uterus, part unspecified	C54-C55
Malignant neoplasm of ovary	C56
Malignant neoplasm of prostate	C61
Malignant neoplasm of kidney and renal pelvis	C64-C65
Malignant neoplasm of bladder	C67
Malignant neoplasm of meninges, brain, and other parts of central nervous System	C70-C72
Malignant neoplasm of lymphoid, hematopoietic and related tissue	C81-C96
Hodgkin's disease	C81
Non-Hodgkin's lymphoma	C82-C85
Leukemia	C91-C95
Multiple myeloma and immunoproliferative neoplasm	C88, C90
Other and unspecified malignant neoplasm of lymphoid, hematopoietic and related tissue	C96
All other unspecified malignant neoplasm	C17, C23-C24, C26-C31, C37-C41, C44-C49, C51-C52, C57-C60, C62-C63, C66, C68-C69, C73-C80, C97
In situ neoplasm, benign neoplasm and neoplasm of uncertain or unknown behavior	D00-D48
Anemia	D50-D64
Diabetes mellitus	E10-E14



Cause of Death	ICD-10 Codes
Nutritional deficiencies	E40-E64
Malnutrition	E40-E46
Other nutritional deficiencies	E50-E64
Meningitis	G00, G03
Parkinson's disease	G20-G21
Alzheimer's disease	G30
Major cardiovascular diseases	I00-I78
Diseases of heart	I00-I09, I11, I13, I20-I51
Acute rheumatic fever and chronic rheumatic heart diseases	I00-I09
Hypertensive heart disease	I11
Hypertensive and renal disease	I13
Ischemic heart disease	I20-I25
Acute myocardial infarction	I21-I22
Other acute ischemic heart diseases	I24
Other forms of chronic ischemic heart disease	I20-I25
Atherosclerotic cardiovascular disease, so described	I25.0
All other forms of chronic ischemic heart disease	I20, I25.1-I25.9
Other heart diseases	I26-I51
Acute and subacute endocarditis	I33
Diseases of pericardium and acute myocarditis	I30-I31, I40
Heart failure	I50
All other forms of heart disease	I26-I28, I34-I38, I42-I49, I51
Essential (primary) hypertension and hypertensive renal disease	I10, I12
Cerebrovascular disease	I60-I69
Atherosclerosis	I70
Other diseases of circulatory system	I71-I78
Aortic aneurysm and dissection	I71
Other diseases of arteries, arterioles and capillaries	I72-I78
Other disorders of circulatory system	I80-I99
Influenza and pneumonia	J10-J18
Influenza	J10-J11
Pneumonia	J12-J18
Other acute lower respiratory infections	J20-J22
Acute bronchitis and bronchiolitis	J20-J21
Unspecified acute lower respiratory infection	J22
Chronic lower respiratory diseases	J40-J47
Bronchitis chronic and unspecified	J44, J47
Emphysema	J43
Asthma	J45-J46
Other chronic lower respiratory diseases	J44, J47
Pneumoconioses and chemical effects	J60-J66, J68
Pneumonitis due to solids and liquids	J69
Other diseases of respiratory system	J00-J06, J30-J39, J67, J70-J98
Peptic ulcer	K25-K28
Diseases of appendix	K35-K38
Hernia	K40-K46
Chronic liver disease and cirrhosis	K70, K73-K74
Alcoholic liver disease	K70
Other chronic liver disease and cirrhosis	K73-K74

Cause of Death	ICD-10 Codes
Cholelithias and other disorders of gall bladder	K80-K82
Nephritis, nephritic syndrome and nephrosis	N00-N07, N17-N19, N25-N27
Acute and rapidly progressive nephritic and nephritic syndrome	N00-N01, N04
Chronic glomerulonephritis, nephritis and nephropathy not specified as acute or chronic, and renal sclerosis unspecified	N02-N03, N05-N07, N26
Renal failure	N17-N19
Other disorders of kidney	N25, N27
Infections of kidney	N10-N12, N13.6, N15.1
Hyperplasia of prostate	N40
Inflammatory diseases of female pelvic organs	N70-N76
Pregnancy, childbirth and the puerperium	O00-O99
Pregnancy with abortive outcome	O00-O07
Other complications of pregnancy, childbirth and the puerperium	O10-O99
Certain conditions originating in the perinatal period	P00-P96
Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
Symptoms, signs, and abnormal clinical and laboratory findings not Elsewhere classified	R00-R99
<hr/>	
All other diseases	Residual
Accidents (unintentional injuries)	V01-X59, Y85-Y86
Transport accidents	V01-V99, Y85
Motor vehicle accidents	V02-V04, V09.0-V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Other land transport accidents	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8-V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9
Water, air and space and other and unspecified transport accidents and their sequelae	V90-V99, Y85
Nontransport accidents	W00-X59, Y86
Falls	W00-W19
Accidental discharge of firearms	W32-W34
Accidental drowning and submersion	W65-W74
Accidental exposure to smoke, fire and flames	X00-X09
Accidental poisoning and exposure to noxious substances	X40-X49
Other and unspecified nontransport accidents and their sequelae	W20-W31, W35-W64, W75-W99, X10-X39, X50-X59, Y86
Intentional self-harm (suicide)	U03, X60-X84, Y87.0
Intentional self-harm (suicide) by discharge of firearms	X72-X74
Intentional self-harm (suicide) by other and unspecified means and their sequelae	U03, X60-X71, X75-X84, Y87.0
Assault (homicide)	U01-U02, X85-Y09, Y87.1
Assault (homicide) by discharge of firearms	U01.4, X93-X95
Assault (homicide) by other and unspecified means and their sequelae	U01.0-U01.3, U01.5-U01.9, U02, X85-X92, X96-Y09, Y87.1
Legal intervention	Y35, Y89.0
Events of undetermined intent	Y10-Y34, Y87.2, Y89.9
Discharge of firearms, undetermined intent	Y22-Y24
Other and unspecified events of undetermined intent and their sequelae	Y10-Y21, Y25-Y34, Y87.2, Y89.9
Operations of war and their sequelae	Y36, Y89.1
Complications of medical and surgical care	Y40-Y84, Y88



## LIST OF 130 CAUSES OF INFANT DEATH (1999-PRESENT)

Cause of Death	ICD-10 Codes
Certain infections and parasitic diseases	A00-B99
Certain intestinal infectious diseases	A00-A08
Diarrhea and gastroenteritis of infectious origin	A09
Tuberculosis	A16-A19
Tetanus	A33, A35
Diphtheria	A36
Whooping cough	A37
Meningococcal infection	A39
Septicemia	A40-A41
Congenital syphilis	A50
Gonococcal infection	A54
Viral diseases	A80-B34
Acute poliomyelitis	A80
Varicella (chickenpox)	B01
Measles	B05
Human immunodeficiency virus (HIV) disease	B20-B24
Mumps	B26
Other and unspecified viral diseases	A81-B00, B02-B04, B06-B19, B25, B27-B34
Candidiasis	B37
Malaria	B50-B54
Pneumocystosis	B59
All other and unspecified infectious and parasitic diseases	A20-A32, A38, A42-A49, A51-A53, A55-A79, B35-B36, B38-B49, B55-B58, B60-B99
Neoplasm	C00-D48
Malignant neoplasm	C00-C97
Hodgkin's disease and non-Hodgkin's lymphomas	C81-C85
Leukemia	C91-C95
Other and unspecified malignant neoplasm	C00-C80, C88-C90, C96-C97
In situ neoplasm, benign, neoplasm and neoplasm of uncertain or unknown behavior	D00-D48
Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	D50-D89
Anemias	D50-D64
Other diseases of blood and blood forming organs	D65-D76
Certain disorders involving the immune mechanism	D80-D89
Endocrine, nutritional and metabolic diseases	E00-E88
Short stature, not elsewhere classified	E34.3
Malnutrition and other nutritional deficiencies	E40-E64
Cystic fibrosis	E84
Volume depletion, disorders of fluid, electrolyte and acid-base balance	E86-E87
All other endocrine, nutritional and metabolic diseases	E00-E32, E34.0-E34.2, E34.4-E34.9, E65-E83, E85, E88
Diseases of the nervous system	G00-G98
Meningitis	G00, G03
Infantile spinal muscular atrophy, type I (Werdnig-Hoffman)	G12.0
Infantile cerebral palsy	G80
Anoxic brain damage, not elsewhere classified	G93.1
Other diseases of nervous system	G04, G06-G11, G12.1-G12.9, G20-G72, G81-G92, G93.0, G93.2-G93.9, G95-G98
Diseases of the ear and mastoid process	H60-H93

Cause of Death	ICD-10 Codes
Diseases of the circulatory system	I00-I99
Pulmonary heart disease and diseases of pulmonary circulation	I26-I28
Pericarditis, endocarditis and myocarditis	I30, I33, I40
Cardiomyopathy	I42
Cardiac arrest	I46
Cerebrovascular disease	I60-I69
All other diseases of the circulatory system	I00-I25, I31, I34-I38, I44-I45, I47-I51, I70-I99
Diseases of the respiratory system	J00-J98
Acute upper respiratory infections	J00-J06
Influenza and pneumonia	J10-J18
Influenza	J10-J11
Pneumonia	J12-J18
Acute bronchitis and acute bronchiolitis	J20-J21
Bronchitis, chronic and unspecified	J40-J42
Asthma	J45-J46
Pneumonitis due to solids and liquids	J69
Other and unspecified diseases of the respiratory system	J22, J30-J39, J43-J44, J47-J68, J70-J98
Diseases of the digestive system	K00-K92
Gastritis, duodenitis, and noninfective enteritis and colitis	K29, K50-K55
Hernia of abdominal cavity and intestinal obstruction without hernia	K40-K46, K56
All other and unspecified diseases of the digestive system	K00-K28, K30-K38, K57-K92
Diseases of the genitourinary system	N00-N95
Renal failure and other diseases of the kidney	N17-N19, N25, N27
Other and unspecified diseases of the genitourinary system	N00-N15, N20-N23, N26, N28-N95
Certain conditions originating in the prenatal period	P00-P96
Newborn affected by maternal factors and by complications of pregnancy, labor and delivery	P00-P04
Newborn affected by maternal hypertensive disorders	P00.0
Newborn affected by other maternal conditions which may be unrelated to present pregnancy	P00.1- P00.9
Newborn affected by maternal complications of pregnancy	P01
Newborn affected by incompetent cervix	P01.0
Newborn affected by premature rupture of membranes	P01.1
Newborn affected by multiple pregnancy	P01.5
Newborn affected by other maternal complications of pregnancy	P01.2-P01.4, P01.6-P01.9
Newborn affected by complications of placenta, cord, and membranes	P02
Newborn affected by complications involving placenta	P02.0-P02.3
Newborn affected by complications involving cord	P02.4-P02.6
Newborn affected by chorioamnionitis	P02.7
Newborn affected by other and unspecified abnormalities of membranes	P02.8-P02.9
Newborn affected by other complications of labor and delivery	P03
Newborn affected by noxious influences transmitted via placenta or breast milk	P04
Disorders related to length of gestation and fetal malnutrition	P05-P08
Slow fetal growth and fetal malnutrition	P05
Disorders related to short gestation and low birth weight not elsewhere classified	P07
Extremely low birth weight or extreme immaturity	P07.0-P07.2
Other low birth weight or preterm	P07.1, P07.3
Disorders related to long gestation and high birth weight	P08
Birth trauma	P10-P15





Cause of Death	ICD-10 Codes
Intrauterine hypoxia and birth asphyxia	P20-P21
Intrauterine hypoxia	P20
Birth asphyxia	P21
Respiratory distress of newborn	P22
Other respiratory conditions originating in the perinatal period	P23-P28
Congenital pneumonia	P23
Neonatal aspiration syndromes	P24
Interstitial emphysema and related conditions originating in the perinatal period	P25
Pulmonary hemorrhage originating in the perinatal period	P26
Chronic respiratory disease originating in the perinatal period	P27
Atelectasis	P28.0-P28.1
All other respiratory conditions originating in the perinatal period	P28.2-P28.9
Infections specific to the perinatal period	P35-P39
Bacterial sepsis of newborn	P36
Omphalitis of newborn with or without mild hemorrhage	P38
All other infections specific to the perinatal period	P35, P37, P39
Hemorrhagic and hematological disorders of newborn	P50-P61
Neonatal hemorrhage	P50-P52, P54
Hemorrhagic disease of newborn	P53
Hemolytic disease of newborn due to isoimmunization and other perinatal jaundice	P55-P59
Hematological disorders	P60-P61
Syndrome of infant of a diabetic mother and neonatal diabetes mellitus	P70.0-P70.2
Necrotizing enterocolitis of newborn	P77
Hydrops fetalis not due to hemolytic disease	P83.2
Other perinatal conditions	P29, P70.3-P76, P78-P81, P83.0-P83.1, P83.3-P83.9, P90-P96
Congenital malformations, deformations and chromosomal abnormalities	Q00-Q99
Anencephaly and similar malformations.	Q00
Congenital hydrocephalus	Q03
Spina bifida	Q05
Other congenital malformations of the nervous system	Q01-Q02, Q04, Q06-Q07
Congenital malformations of heart	Q20-Q24
Other congenital malformations of circulatory system	Q25-Q28
Congenital malformations of respiratory system	Q30-Q34
Congenital malformations of digestive system	Q35-Q45
Congenital malformations genitourinary system	Q50-Q64
Congenital malformations and deformations of musculoskeletal system, limbs and integument	Q65-Q85
Down's syndrome	Q90
Edwards syndrome	Q91.0-Q91.3
Patau's syndrome	Q91.4-Q91.7
Other congenital malformations and deformations	Q10-Q18, Q86-Q89
Other chromosomal abnormalities, not elsewhere classified	Q92-Q99
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00-R99
Sudden infant death syndrome	R95
Other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00-R53, R55-R59.4, R96-R99
All other diseases	F01-F99, H00-H57, L00-M99



Cause of Death	ICD-10 Codes
External causes of mortality	U01, V01-Y84
Accidents (unintentional injuries)	V01-X59
Transport accident	V01-V99
Motor vehicle accidents	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.2, V80.6-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Other unspecified transport accidents	V01, V05-V06, V09.1, V09.3-V09.9, V10-V11, V15-V18, V19.3, V19.8, V19.9, V80.0-V80.2, V80.6-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9, V90-V99
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Accidental discharge of firearms	W32-W34
Accidental drowning and submersion	W65-W74
Accidental suffocation and strangulation in bed	W75
Other accidental suffocation and strangulation	W76-W77, W81-W84
Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract	W78-W80
Accidents caused by exposure to smoke, fire and flames	X00-X09
Accidental poisoning and exposure to noxious substances	X40-X49
Other and unspecified accidents	W20-W31, W35-W64, W85-W99, X10-X39, X50-X59
Assault (homicide)	U01, X85-Y09
Assault (homicide) by hanging, strangulation and suffocation	X91
Assault (homicide) by discharge of firearms	U01.4, X93-X95
Neglect, abandonment and other maltreatment syndromes	Y06-Y07
Assault (homicide) by other and unspecified means	U01.1-U01.3, U01.5-U01.9 X85-X90, X92, X96-X99, Y00-Y05, Y08-Y09
Complications of medical and surgical care	Y40-Y84
Other external causes	X60-X84, Y10-Y36



### ADDITIONAL CAUSES OF DEATH AND THEIR CORRESPONDING ICD-10 CODES (1999-PRESENT)

(These categories are not included as part of the 113 cause of death or 130 causes of infant death lists. They are independent of these two lists but are valid cause of death codes to use for the causes indicated.)

Cause of Death	ICD-10 Codes
Alcohol-related deaths	F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, Y15
Breast cancer (females)	C50
Cervical cancer	C53
Colon-rectal-cancer	C18-C21
Drug-related deaths	F11-F11.5, F11.7-F11.9, F12-F12.5, F12.7-F12.9, F13-F13.5, F13.7-F13.9, F14-F14.5, F14.7-F14.9, F15-F15.5, F15.7-F15.9, F16-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18-F18.5, F18.7-F18.9, F19-F19.5, F19.7-F19.9, X40-X44, X60-X64, X85, Y10-Y14
Gastrointestinal disease deaths	A03-A03.3, A03.8-A03.9, A04, A06.1-A06.2, A06.4-A06.9, A07.0-A07.3, A07.8-A07.9, A08-A08.3, A08.5, A09, K29-K29.1, K50.0-K50.1, K50.8-K50.9, K51.0-K51.4, K51.8-K51.9, K52.0-K52.1, K52.8-K57.1
Human Immunodeficiency virus (HIV) infection	B24
Firearm deaths	W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0, U01.4
Injury and poisoning	S00-T98, U01-U03, V00-Y89
Other injuries	Y10-Y21, Y25-Y34, Y36, Y87.2, Y89.1, Y89.9
Lung cancer	C33-C34
Maternal death	A34, O00-O95, O98-O99
Prostate cancer	C61, D29

### LIST OF ICD-9-CM CODES USED IN PATIENT CARE CHARTS AND TABLES

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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	630-677
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
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