

# Regional Differences

in



Indian Health

# 1994

Indian Health Service





# OVERVIEW OF THE INDIAN HEALTH SERVICE PROGRAM

The Department of Health and Human Services (DHHS), primarily through the Indian Health Service (IHS) of the Public Health Service (PHS), is responsible for providing Federal health services to American Indians and Alaska Natives. Federal Indian health services are based on the laws which the Congress has passed pursuant to its authority to regulate commerce with the Indian Nations as explicitly specified in the Constitution and in other pertinent authorities.

The Indian Health program became a primary responsibility of the PHS 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 goal is to raise the health status of American Indians and Alaska Natives to the highest possible level. The mission is to provide a comprehensive health services delivery system for American Indians and Alaska Natives with opportunity for maximum tribal involvement in developing and managing programs to meet their health needs. The IHS also acts as the principal Federal health advocate for Indian people by assuring they have knowledge of and access to all Federal, State, and local health programs they are entitled to as American citizens. It is also the responsibility of the IHS to work with these programs so they will be cognizant of entitlements of Indian people.

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 and staff on the one hand, with those purchased by IHS through contractual arrangements on the other, taking into account other health resources to which the Indians have access. Tribes are also actively involved in program implementation.

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

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



These are defined areas, usually centered around a single federal reservation in the continental United States, or a population concentration in Alaska.

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 which are administered by Area Offices.



## PURPOSE AND DESCRIPTION OF REGIONAL DIFFERENCES IN INDIAN HEALTH

**T**he IHS Regional Differences in Indian Health attempts to fulfill the basic statistical information requirements of parties that are interested in the IHS, and its relationship with the American Indian and Alaska Native people. The tables and charts contained in the IHS Regional Differences in Indian Health describe the IHS program, and the health status of American Indians and Alaska Natives. Information pertaining to the IHS structure, and American Indian and Alaska Native demography and patient care are included. Current regional differences are depicted, and comparisons to the general population are made, when appropriate. Historical trend information can be found in the IHS companion publication called Trends in Indian Health.

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



# SUMMARY OF DATA SHOWN

## *Indian Health Service Structure*

The IHS is comprised of 11 regional administrative units called Area Offices. There is also an Office located in Tucson which is responsible for administering health services delivery. For the present statistical purposes, the Tucson Office is also considered an Area Office, thereby making 12 in total. The 12 IHS Area Offices are:

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

As of October 1, 1993, the Area Offices consisted of 143 basic administrative units called service units. Of the 143 service units, 70 were operated by Tribes. The number of service units ranged from 2 in Tucson to 23 in California.

The IHS operated 41 hospitals, 66 health centers, 4 school health centers, and 44 health stations; while Tribes operated 8 hospitals, 110 health centers, 4 school health centers, 62 health stations, and 171 Alaska village clinics. Both California and Portland had no hospitals while Aberdeen and Phoenix had 8 hospitals each. Tucson had the fewest health centers with 3, and California the most with 32.

## *Population Statistics*

In fiscal year 1992 the IHS user population (count of those American Indians and Alaska Natives who used IHS services at least once during the last 3-year period) was approximately 1,150,000. Tucson (18,799) and Nashville (34,167) had the smallest user populations while Oklahoma (246,750) and Navajo (226,754) had the largest user populations.

The Indian population is younger, less educated and poorer than the U.S. All Races population. For the IHS user population in 1992, 13.3 percent of the persons were under age 5 compared to 7.5 percent for the U.S. All Races population. There was considerable variation by Area with Nashville at 10.9 percent and Alaska at 14.5 percent. According to the 1990 Census, 65.3 percent of Indians (age 25 and older) residing in the current Reservation States are high school graduates or higher compared to 75.2 percent for the U.S. All Races population. For 3 IHS Areas (Tucson, Navajo, and Phoenix), the percentage was less than 60.0 (based on State-level Indian data). The 1990 Census also indicated that the median household income in 1989 for Indians residing in the current Reservation States was \$19,886, while for the U.S. All Races it was \$30,056. Aberdeen had the lowest median household income at \$12,310, and California the highest at \$28,029 (based on State-level Indian data).

## *Natality and Infant/Maternal Mortality Statistics*

The birth rate for American Indians and Alaska Natives residing in the IHS service area was 28.1 (rate per 1,000 population) in 1989-1991. It is 1.7 times the 1990 birth rate of 16.7 for the U.S. All Races population. For the period 1989-1991, there were

10 maternal deaths in the IHS service area population. Only the Navajo Area (5 deaths) and the Aberdeen Area (2 deaths) had more than 1 maternal death.

The infant mortality rate for American Indians and Alaska Natives residing in the IHS service area was 10.2 (rate per 1,000 live births) in 1989-1991 compared to 9.2 for the U.S. All Races population in 1990. However, there appears to be underreporting of Indian race on death certificates in at least 3 IHS Areas -- California, Oklahoma, and Portland. When these 3 Areas are excluded from the calculation, the IHS infant mortality rate for the 9 remaining Areas is 12.0, 30 percent higher than the U.S. rate. The infant mortality rate varied considerably among these 9 Areas, ranging from 8.0 in Albuquerque to 17.5 in Aberdeen.

### ***General Mortality Statistics***

In 1989-1991, the age-adjusted mortality rate (all causes) for American Indians and Alaska Natives residing in the IHS service area was 585.2 (rate per 100,000 population) compared to 520.2 for the U.S. All Races population in 1990. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 713.9. This is 37 percent greater than the U.S. rate. The Aberdeen Area rate of 1,067.2 is more than double the U.S. rate.

The 2 leading causes of death for the IHS service area population in 1989-1991 were "diseases of the heart" and "accidents and adverse effects." However, this was the order for only 3 of the IHS Areas (Billings, Phoenix, and Tucson). Three (3) IHS Areas (Alaska, Albuquerque, and Navajo) had the order reversed. The remaining 6 IHS Areas (Aberdeen, Bemidji, California, Nashville, Oklahoma, and Portland) had the same 2 leading causes of death as the U.S. All Races population (1990), i.e., "diseases of the heart" and "malignant neoplasms." The leading causes of death were determined without any adjustment for age which is the customary method. However, it should be noted that the age composition of a population does influence its mortality pattern.

For most of the specific causes of death identified in this publication, the 1989-1991 Indian age-adjusted mortality rate (calculated by excluding the 3 IHS Areas with apparent death certificate problems) was greater than the 1990 U.S. All Races rate. There was also considerable variation in the rates among the IHS Areas. However, some of the Area rates need to be interpreted with caution because of the small number of deaths involved. Following is a comparison of the Indian (9 Area) rate to the U.S. rate where there are significant differences.

- 1) alcoholism—630 percent greater
- 2) tuberculosis—580 percent greater
- 3) diabetes mellitus—232 percent greater
- 4) accidents—216 percent greater
- 5) suicide—85 percent greater
- 6) homicide—80 percent greater
- 7) malignant neoplasms—18 percent less

### ***Patient Care Statistics***

In FY 1992 there were over 93,000 admissions to IHS and Tribal direct and contract general hospitals. The number of admissions ranged from 876 in Tucson to 20,147 in Navajo. The leading cause of hospitalization in IHS and Tribal direct and contract general hospitals was "obstetric deliveries and complications of puerperium and pregnancy." There were 5 IHS Areas with a different leading cause; Bemidji and

Nashville (circulatory system diseases), Billings and Tucson (respiratory system diseases), and Portland (digestive system diseases).

The total number of outpatient visits (IHS and Tribal direct and contract facilities) was approximately 5.7 million in FY 1992. Tucson had the fewest outpatient visits with 72,867 and Oklahoma had the most with 1,013,286. The leading cause of outpatient visits in IHS and Tribal direct and contract facilities was "supplementary classifications." All IHS Areas had this same leading cause. The "supplementary classifications" category includes such clinical impressions as "other preventive health services," "well child care," "physical examination," "tests only" (lab, x-ray, screening), and "hospital, medical, or surgical follow-up."

In FY 1993, there were nearly 2.6 million dental services provided at IHS and Tribal direct and contract facilities. Two IHS Areas provided 35 percent of the dental services, Oklahoma (489,697) and Navajo (409,747).

The rate of new tuberculosis cases for the IHS in CY 1991 was 2.2 times the rate for the U.S., 23.1 new cases per 100,000 population compared to 10.4. Only 2 IHS Areas (California and Bemidji) had a rate less than the U.S. rate.



# SOURCES AND LIMITATIONS OF DATA

## *Population Statistics*

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

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

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

The social and economic data contained in this publication are from the 1990 Census. At the time of this publication, IHS had not yet obtained county-level social and economic data. Therefore, State-level data were used to develop estimates for each IHS Area. That is, Indian data for each of the States where an IHS Area currently provides services were combined to form an estimate for the IHS Area. IHS has made arrangements with the Census Bureau to obtain county-level social and economic data for Indians which will allow IHS to make more precise calculations at the IHS Area level.

## *Vital Event Statistics*

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

The data are subject to the degree of accuracy of reporting by the States to NCHS. NCHS does perform numerous edit checks, and imputes values for non-responses. IHS is using the National Death Index (NDI) maintained by NCHS to determine the extent of the underreporting of Indian race on death certificates. The results of the NDI match should indicate in which States the problems are occurring. IHS will then target the "problem" States for special efforts aimed at the improvement of the reporting of race.

It is already known that there is an underreporting of Indian race on State death certificates in the California, Oklahoma, and Portland Areas. Therefore, the indices based on mortality (i.e., mortality rates, years of productive life lost, and life expectancy at birth) that appear in this publication for these Areas are suspect and should be interpreted with caution. As a result, this publication shows IHS-wide mortality-based rates with and without the data for these 3 Areas.

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

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

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

The vital event statistics in this publication are for the 3-year (calendar year) period, 1989-1991, as compared to 1987-1989 for the previous edition in this series.



Normally, each edition of this publication reflects only one year of new vital event data. However, this year the timing was such that two years of data (1990 and 1991) could be added. The population-based vital event rates are also different because of population adjustments. The service population estimates for the years 1981-1989 were smoothed again resulting in higher estimates (compared to the estimates used in prior editions) as a result of 1980 Census adjustments. The Census Bureau recently issued revised 1980 Census American Indian and Alaska Native population counts by age and sex for all U.S. counties which increased the total 1980 count. Population adjustments are explained in the previous discussion pertaining to "population statistics." Increased population bases have a downward effect on the calculation of rates.

Prior to the 1993 edition of this publication, alcoholism deaths were defined through the use of three ICD-9 cause of death code groups; 291-alcoholic psychoses; 303-alcohol dependence syndrome and; 571.0-571.3-alcoholic liver disease. Various IHS Area statisticians and epidemiologists believed this definition to be incomplete and suggested that it be expanded to include five additional ICD-9 code categories. These "new" categories were used for the first time in the 1993 edition. They include; 305.0-alcohol overdose; 425.5-alcoholic cardiomyopathy; 535.3-alcoholic gastritis; 790.3-elevated blood-alcohol level; and E860.0, E860.1-accidental poisoning by alcohol, not elsewhere classified. This expanded definition results in about a 25 percent increase in the number of alcoholism deaths identified in comparison to the previous 3-group definition. This expanded definition of alcoholism deaths is now used in all IHS publications, including Trends in Indian Health.

There is also a change in this edition regarding the treatment of deaths related to injuries and poisonings. In prior editions, mortality data were shown separately for three of the causes (i.e., accidents, suicide, and homicide) that comprise the injuries and poisonings group. Commencing with this edition, mortality data are now also shown for the composite group, "deaths due to injury and poisoning" (ICD-9 codes E800-E999) and the other causes that comprise this composite group. The same treatment will be used in the companion document, Trends in Indian Health. The following titles and codes are used for this purpose.

- (new) Deaths due to injury and poisoning (E800-E999)
  - Accidental deaths (E800-E949)
    - Motor vehicle accidents (E810-E825)
    - Other accidents (E800-E807, E826-E949)
  - Suicide (E950-E959)
  - Homicide (E960-E978)
- (new) Injury undetermined whether accidentally or purposely inflicted (E980-E989)
- (new) Injury resulting from operations of war (E990-E999)

### ***Patient Care Statistics***

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

residence, etc.). The data are collected daily, one record per discharge. The Contract Care System is the source of similar contract hospital inpatient data.

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

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

The Dental Data System is the source for dental services data. The system is monitored by IHS Headquarters Dental personnel. The tuberculosis data are based on cases reported to the Centers for Disease Control.



## GLOSSARY

**Age-Adjustment** — The application of the age-specific rates in a population of interest to a standardized age distribution in order to eliminate the differences in observed rates that result from age differences in population composition. This adjustment is usually done when comparing two or more populations at one point in time or one population at two or more points in time.

**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.

**Birth Weight** — 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 utilizing the international rules for selecting the underlying cause of death from the reported conditions.

**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 40 hours a week for outpatient 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 40 hours a week.

**Infant Mortality** — Death of live-born children who have not reached their first birthday expressed as a rate (i.e., the number of infant deaths during a year per 1,000 live births reported in the year).

**Life Expectancy** — The average number of years 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.

**Live Birth** — A live birth is the complete expulsion or extraction from its mother of a product of conception irrespective of the duration of pregnancy, which after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

**Low Birth Weight** — Birth weight of less than five pounds, eight ounces or 2500 grams.

**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** — On death certificates, race is usually recorded by the funeral director who may or not query the family members of the decedent. The race of a newborn does



not appear on the birth certificate. In this report if either the mother, or the father, or both parents were recorded as American Indian or Alaska Native on the birth certificate, the birth is considered as an American Indian or Alaska Native birth.

**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 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** — American Indians and Alaska Natives identified to be eligible for IHS services.

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

**User Population** — American Indians and Alaska Natives who have used IHS services at least once during the last 3-year period.

**Years of Productive Life Lost (YPLL)** — 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.

## SOURCES OF ADDITIONAL INFORMATION

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

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Copies of this and other Division publications may be obtained from Priscilla Sandoval or Monique E. Alston, Division Secretaries.

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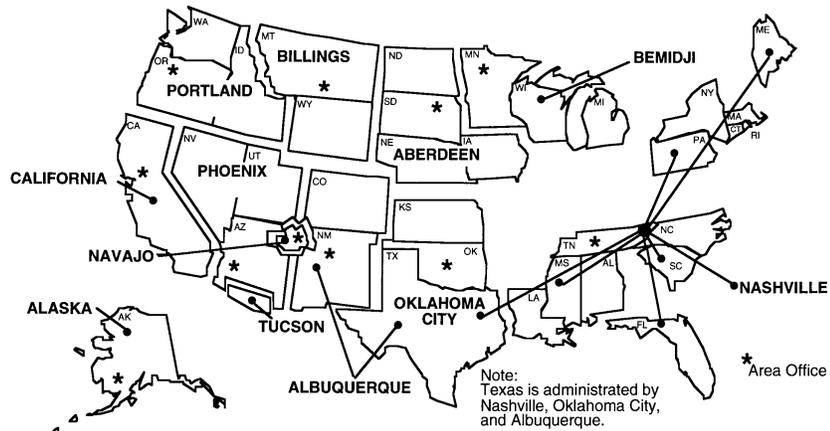




# PART I—Indian Health Service Structure

**Chart 1.1  
Indian Health Service Area Offices**

The Indian Health Service is comprised of 12 regional administrative units called Area Offices. IHS responsibilities extend to all or parts of 34 States known as Reservation States.



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

Operated by IHS and Tribes, Oct. 1, 1993

Indian Health Service operated 41 hospitals, 66 health centers, 4 school health centers, and 44 health stations as of October 1, 1993. Tribes operated 8 hospitals, 110 health centers, 4 school health centers, 62 health stations, and 171 Alaska village clinics as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	73	70
• Hospitals	41	8
• Outpatient Facilities	114	347
— Health Centers	66	110
— School Health Centers	4	4
— Health Stations	44	62
— Alaska Village Clinics	—	171

### Chart 1.3

## Number of Service Units and Facilities

Operated by Aberdeen Area and Tribes, Oct. 1, 1993

In the Aberdeen Area, Indian Health Service operated 8 hospitals, 8 health centers, 1 school health center, and 6 health stations as of October 1, 1993. Tribes operated 3 health centers, 3 school health centers, and 8 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	13	3
• Hospitals	8	—
• Outpatient Facilities	15	14
— Health Centers	8	3
— School Health Centers	1	3
— Health Stations	6	8

### Chart 1.4

## Number of Service Units and Facilities

Operated by Alaska Area and Tribes, Oct. 1, 1993

In the Alaska Area, Indian Health Service operated 2 hospitals and 1 health center as of October 1, 1993. Tribes operated 5 hospitals, 13 health centers, and 171 village clinics as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	2	7
• Hospitals	2	5
• Outpatient Facilities	1	184
— Health Centers	1	13
— School Health Centers	—	—
— Health Stations	—	—
— Village Clinics	—	171

## Chart 1.5 Number of Service Units and Facilities

Operated by Albuquerque Area and Tribes, Oct. 1, 1993

In the Albuquerque Area, Indian Health Service operated 5 hospitals, 9 health centers, 1 school health center, and 7 health stations as of October 1, 1993. Tribes operated 3 health centers as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	6	1
• Hospitals	5	—
• Outpatient Facilities	17	3
— Health Centers	9	3
— School Health Centers	1	—
— Health Stations	7	—

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## Chart 1.6 Number of Service Units and Facilities

Operated by Bemidji Area and Tribes, Oct. 1, 1993

In the Bemidji Area, Indian Health Service operated 2 hospitals, 2 health centers, and 5 health stations as of October 1, 1993. Tribes operated 13 health centers and 13 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	3	10
• Hospitals	2	—
• Outpatient Facilities	7	26
— Health Centers	2	13
— School Health Centers	—	—
— Health Stations	5	13

## Chart 1.7 Number of Service Units and Facilities

Operated by Billings Area and Tribes, Oct. 1, 1993

In the Billings Area, Indian Health Service operated 3 hospitals, 7 health centers, and 4 health stations as of October 1, 1993. Tribes operated 2 health centers and 1 health station as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	7	1
• Hospitals	3	—
• Outpatient Facilities	11	3
— Health Centers	7	2
— School Health Centers	—	—
— Health Stations	4	1

## Chart 1.8 Number of Service Units and Facilities

Operated by California Area and Tribes, Oct. 1, 1993

In the California Area, Indian Health Service did not operate any facilities as of October 1, 1993. Tribes operated 32 health centers and 17 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	—	23
• Hospitals	—	—
• Outpatient Facilities	—	49
— Health Centers	—	32
— School Health Centers	—	—
— Health Stations	—	17

## Chart 1.9 Number of Service Units and Facilities

Operated by Nashville Area and Tribes, Oct. 1, 1993

In the Nashville Area, Indian Health Service operated 1 hospital and 1 health station as of October 1, 1993. Tribes operated 1 hospital, 14 health centers, 1 school health center, and 4 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	1	19
• Hospitals	1	1
• Outpatient Facilities	1	19
— Health Centers	—	14
— School Health Centers	—	1
— Health Stations	1	4

## Chart 1.10 Number of Service Units and Facilities

Operated by Navajo Area and Tribes, Oct. 1, 1993

In the Navajo Area, Indian Health Service operated 6 hospitals, 8 health centers, 1 school health center, and 12 health stations as of October 1, 1993. There were no Tribally-operated facilities as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	8	—
• Hospitals	6	—
• Outpatient Facilities	21	—
— Health Centers	8	—
— School Health Centers	1	—
— Health Stations	12	—

### Chart 1.11

## Number of Service Units and Facilities

Operated by Oklahoma Area and Tribes, Oct. 1, 1993

In the Oklahoma Area, Indian Health Service operated 5 hospitals and 12 health centers as of October 1, 1993. Tribes operated 2 hospitals and 16 health centers as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	10	2
• Hospitals	5	2
• Outpatient Facilities	12	16
— Health Centers	12	16
— School Health Centers	—	—
— Health Stations	—	—

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### Chart 1.12

## Number of Service Units and Facilities

Operated by Phoenix Area and Tribes, Oct. 1, 1993

In the Phoenix Area, Indian Health Service operated 8 hospitals, 6 health centers, 1 school health center, and 7 health stations as of October 1, 1993. Tribes operated 5 health centers and 4 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	9	1
• Hospitals	8	—
• Outpatient Facilities	14	9
— Health Centers	6	5
— School Health Centers	1	—
— Health Stations	7	4

### Chart 1.13

## Number of Service Units and Facilities

Operated by Portland Area and Tribes, Oct. 1, 1993

In the Portland Area, Indian Health Service operated 11 health centers and 1 health station as of October 1, 1993. Tribes operated 8 health centers and 15 health stations as of October 1, 1993.

<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	12	3
• Hospitals	—	—
• Outpatient Facilities	12	23
— Health Centers	11	8
— School Health Centers	—	—
— Health Stations	1	15

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### Chart 1.14

## Number of Service Units and Facilities

Operated by Tucson Area and Tribes, Oct. 1, 1993

In the Tucson Area, Indian Health Service operated 1 hospital, 2 health centers, and 1 health station as of October 1, 1993. There was 1 Tribally-operated health center as of October 1, 1993.

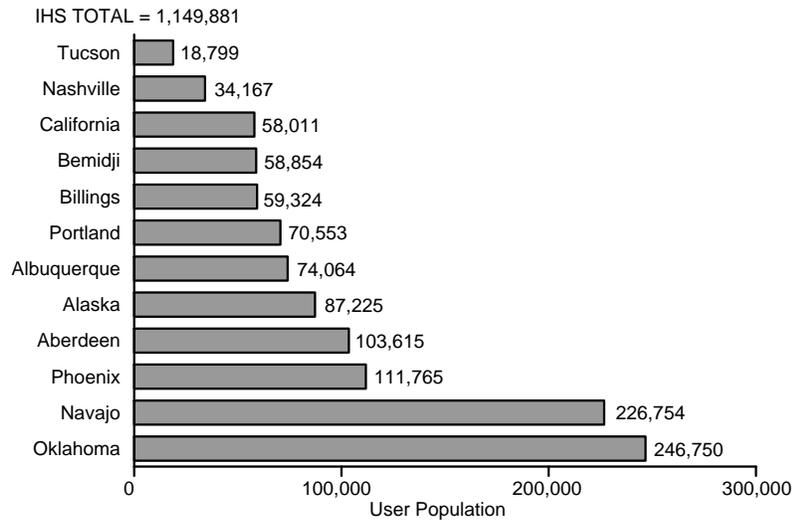
<i>Type of facility</i>	<i>IHS</i>	<i>Tribal</i>
• Service Units	2	—
• Hospitals	1	—
• Outpatient Facilities	3	1
— Health Centers	2	1
— School Health Centers	—	—
— Health Stations	1	—



# PART II—Population Statistics

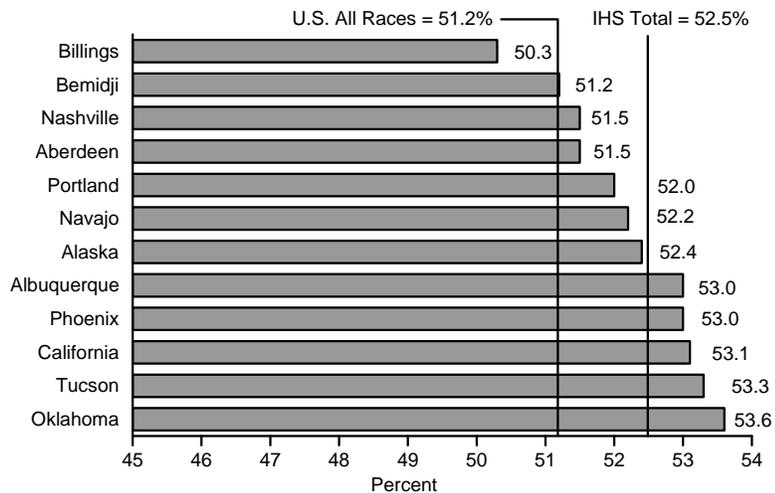
**Chart 2.1**  
**IHS User Population, FY 1992**

In FY 1992, the Indian Health Service user population was approximately 1.15 million. Over 41 percent of the user population was concentrated in 2 IHS Areas, Oklahoma and Navajo.



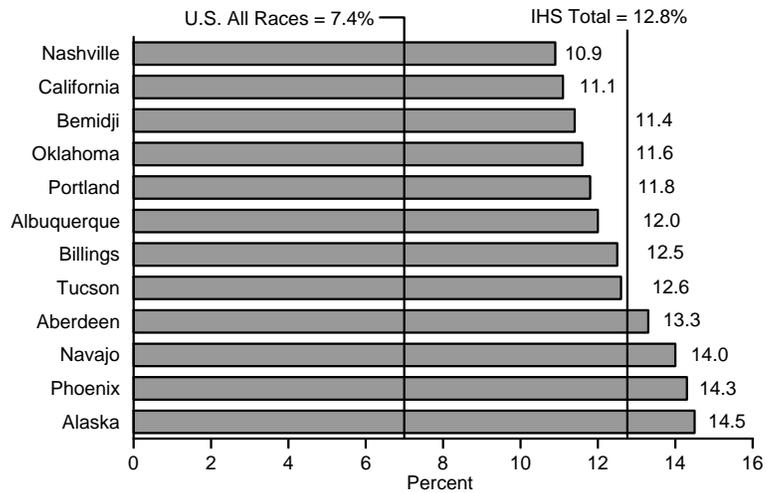
**Chart 2.2**  
**Percent of Females in User Population, FY 1992**

There was a slightly higher percentage of females in 1992 in the IHS user population and the U.S. All Races population. Oklahoma had the highest percentage of females at 53.6.



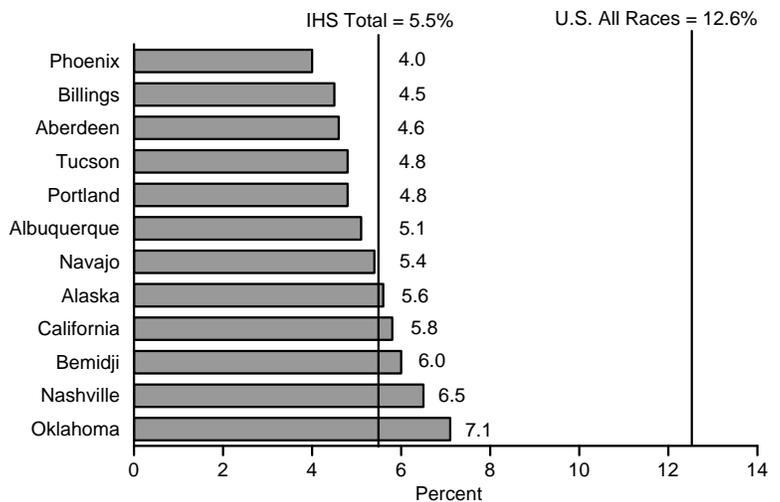
### Chart 2.3 Percent of User Population Under Age 5, FY 1992

The IHS user population in 1992 was considerably younger than the U.S. All Races population. The Nashville Area, which had the lowest percentage of population under age 5 (10.9), still had a percentage that was nearly 1.5 times the U.S. All Races percentage (7.4).



### Chart 2.4 Percent of User Population Over Age 64, FY 1992

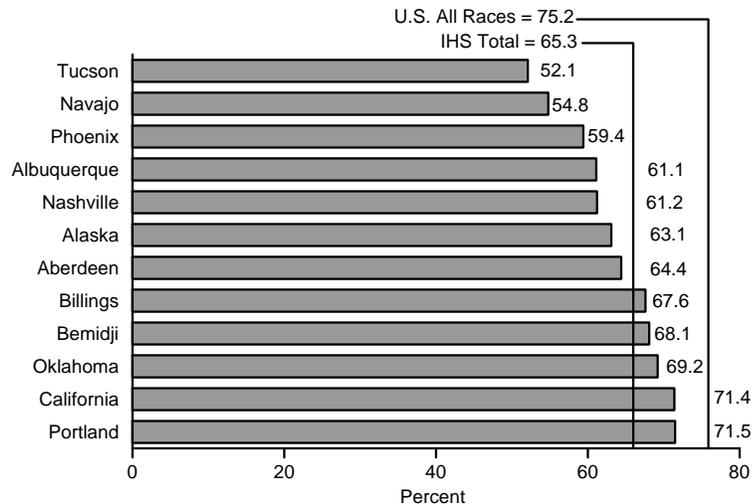
12.6 percent of the U.S. All Races population was over age 64 in 1992, compared to 5.5 for the IHS user population. Oklahoma and Nashville had the highest percentages for this age group.



## Chart 2.5 Percent High School Graduate or Higher, Age 25 and Older

1990 Census State-Level Indian Data

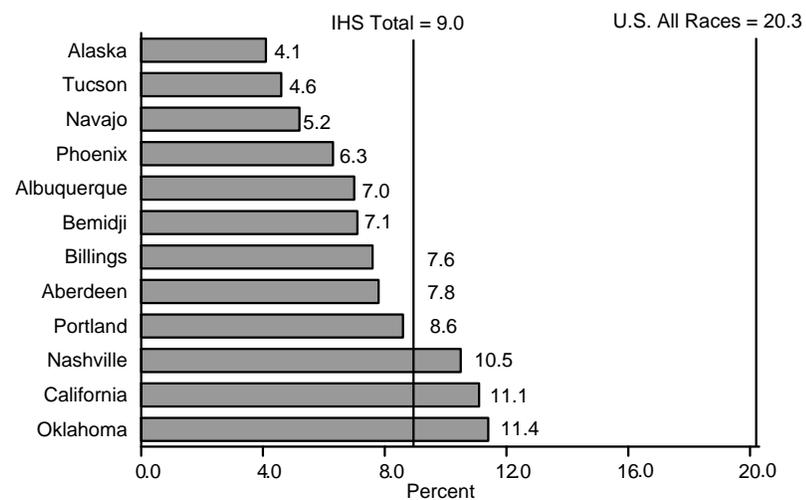
According to the 1990 Census, 65.3 percent of Indians, age 25 and older, residing in the current Reservation States are high school graduates or higher compared to 75.2 percent for the U.S. All Races population. Tucson, Navajo, and Phoenix had percentages less than 60.0.



## Chart 2.6 Percent Bachelor's Degree or Higher, Age 25 and Older

1990 Census State-Level Indian Data

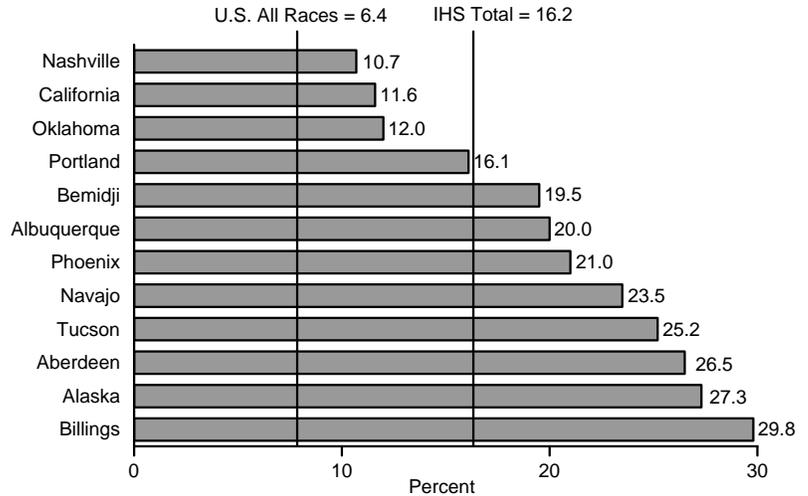
The 1990 Census indicated that 9.0 percent of Indians, age 25 and older, residing in the current Reservation States have a bachelor's degree or higher. This is well below the percentage for the U.S. All Races population of 20.3. The Area percentages ranged from 4.1 in Alaska to 11.4 in Oklahoma.



## Chart 2.7 Percent of Males Unemployed, Age 16 and Older

1990 Census State-Level Indian Data

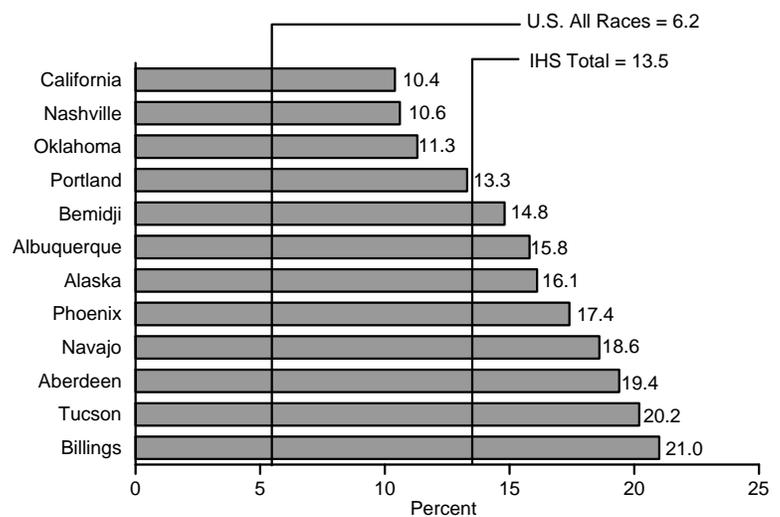
In 1990, 16.2 percent of Indian males, age 16 and older, residing in the current Reservation States were unemployed compared to 6.4 percent for the U.S. All Races male population. Billings, Alaska, Aberdeen, and Tucson had unemployment rates greater than 25.0 percent.



## Chart 2.8 Percent of Females Unemployed, Age 16 and Older

1990 Census State-Level Indian Data

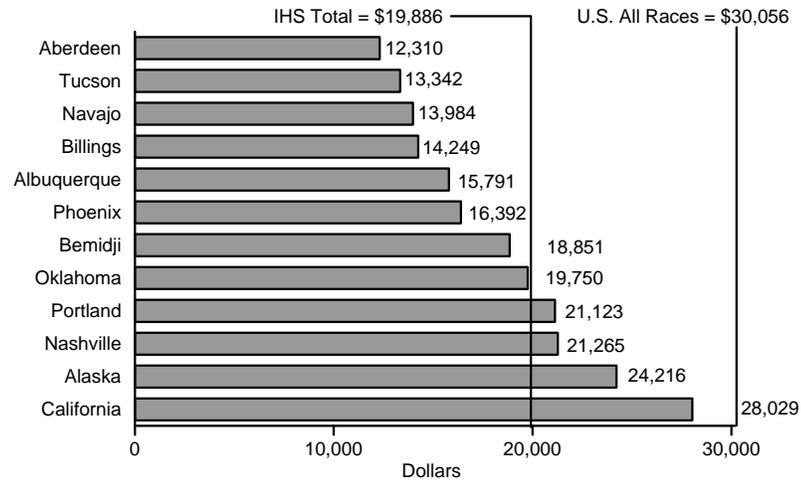
In 1990, 13.5 percent of Indian females, age 16 and older, residing in the current Reservation States were unemployed compared to 6.2 percent for the U.S. All Races female population. The Area unemployment rates ranged from 10.4 in California to 21.0 in Billings.



## Chart 2.9 Median Household Income in 1989

1990 Census State-Level Indian Data

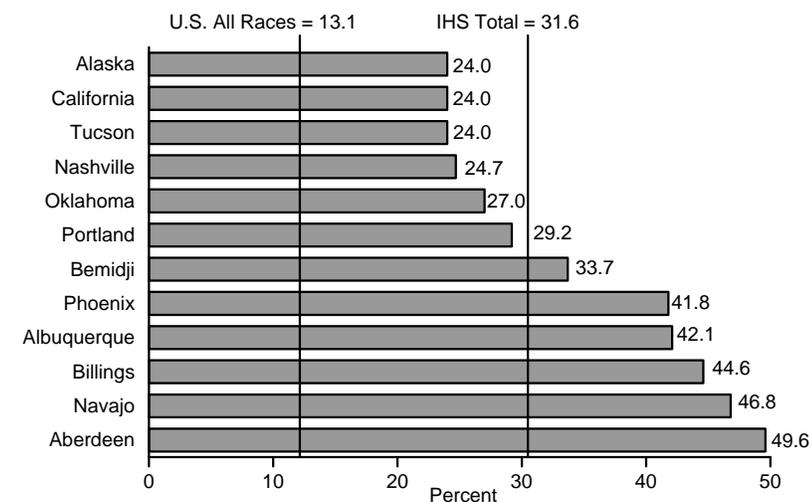
According to the 1990 Census, the median household income in 1989 for Indians residing in the current Reservation States was \$19,886. This is two-thirds of the U.S. All Races figure for 1989 of \$30,056. Aberdeen, Tucson, Navajo, and Billings had median household incomes that were less than half the U.S. figure.



## Chart 2.10 Percent of Population Below Poverty Level

1990 Census State-Level Indian data

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



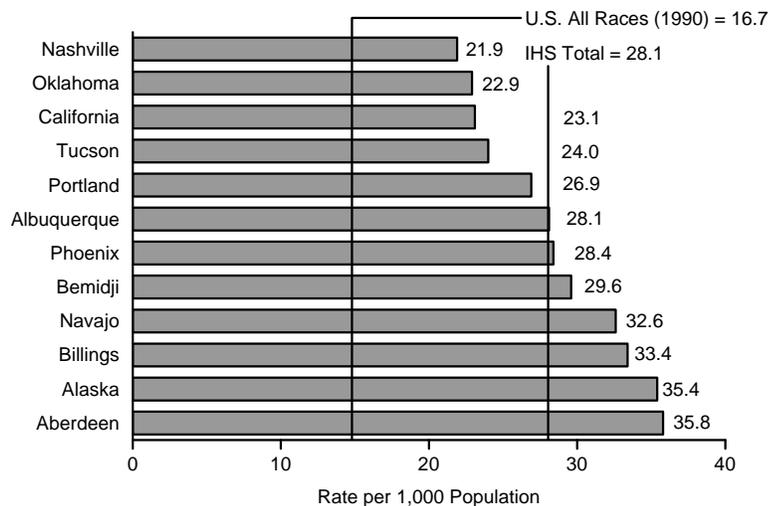


# Part III—Natality and Infant/Maternal Mortality Statistics

**Chart 3.1**  
**Birth Rates**

Calendar Years 1989–1991

The birth rate for the IHS service area population in 1989-1991 was 1.7 times the rate for the U.S. All Races population in 1990, i.e., 28.1 compared to 16.7. Even the IHS Area with the lowest birth rate (Nashville, 21.9) had a rate considerably greater than the U.S. rate (31 percent greater).



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

Calendar Years 1989–1991

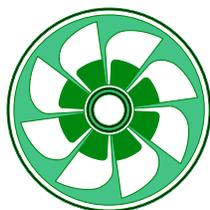
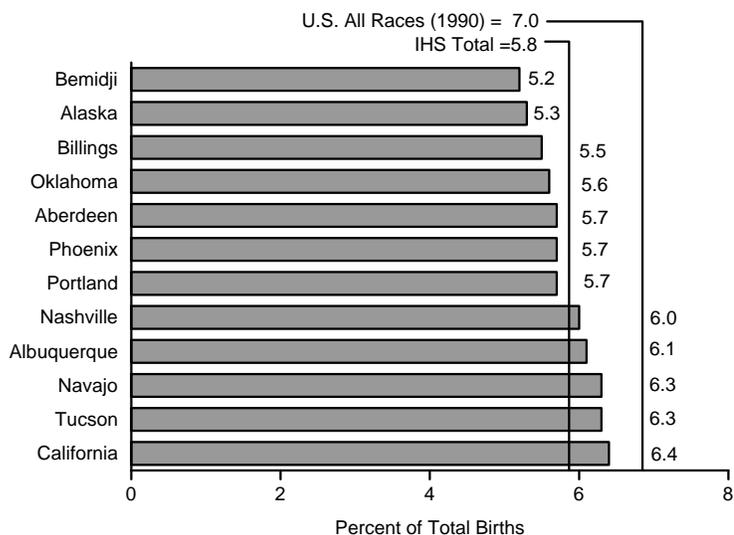
	Number	Rate <sup>1</sup>
U.S. All Races (1990)	4,158,212	16.7
All IHS Areas	101,780	28.1
Aberdeen	8,222	35.8
Alaska	9,176	35.4
Albuquerque	5,659	28.1
Bemidji	5,433	29.6
Billings	4,716	33.4
California	7,231	23.1
Nashville	3,313	21.9
Navajo	17,788	32.6
Oklahoma	17,956	22.9
Phoenix	10,241	28.4
Portland	10,278	26.9
Tucson	1,767	24.0

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

For 1989-1991, 5.8 percent of all Indian births in the IHS service area were low weight (less than 2,500 grams) births. This was better than the figure for the U.S. All Races population, i.e., 7.0 percent in 1990. All IHS Areas had relatively fewer low weight births than occurred in the general population.

### Chart 3.2 Low Weight Births

Calendar Years 1989-1991



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

Calendar Years 1989-1991

	Total live births <sup>1</sup>	Number low weight <sup>2</sup>	Percent low weight <sup>3</sup>
U.S. All Races (1990)	4,158,212	289,418	7.0
All IHS Areas	101,780	5,897	5.8
Aberdeen	8,222	467	5.7
Alaska	9,176	487	5.3
Albuquerque	5,659	347	6.1
Bemidji	5,433	282	5.2
Billings	4,716	261	5.5
California	7,231	464	6.4
Nashville	3,313	198	6.0
Navajo	17,788	1,116	6.3
Oklahoma	17,956	1,002	5.6
Phoenix	10,241	579	5.7
Portland	10,278	583	5.7
Tucson	1,767	111	6.3

<sup>1</sup> Includes 5,304 U.S. All Races live births and 202 American Indian/Alaska Native live births with birth weight not stated.

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

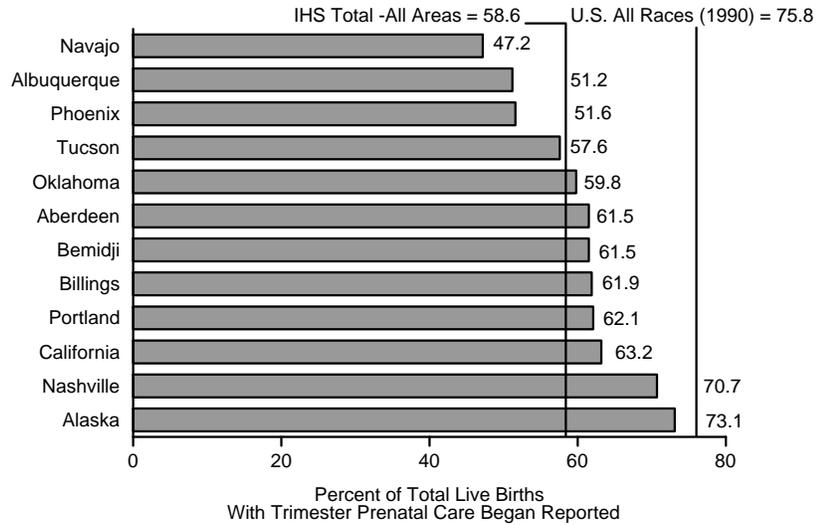
<sup>3</sup> Percent low weight based on live births with a birth weight reported.

### Chart 3.3

## Live Births With Prenatal Care Beginning in First Trimester

Calendar Years 1989–1991

In 1989-1991, prenatal care began in the first trimester for 58.6 percent of Indian live births for the IHS service area population. This compared to 75.8 percent for the U.S. All Races population in 1990. The percentages varied widely among IHS Areas, ranging from 47.2 for Navajo to 73.1 for Alaska.



### Table 3.3

## Live Births With Prenatal Care Beginning in First Trimester

Calendar Years 1989–1991

	Total live births <sup>1</sup>	Live births with trimester prenatal care began reported	Live births with prenatal care beginning in the first trimester <sup>2</sup>	
			Number	Percent
U.S. All Races (1990)	4,158,212	4,068,409	3,084,950	75.8
All IHS Areas	101,780	99,226	58,166	58.6
Aberdeen	8,222	8,122	4,992	61.5
Alaska	9,176	9,008	6,581	73.1
Albuquerque	5,659	5,257	2,692	51.2
Bemidji	5,433	5,285	3,249	61.5
Billings	4,716	4,685	2,898	61.9
California	7,231	7,179	4,537	63.2
Nashville	3,313	3,251	2,299	70.7
Navajo	17,788	17,494	8,257	47.2
Oklahoma	17,956	17,407	10,407	59.8
Phoenix	10,241	9,926	5,118	51.6
Portland	10,278	9,859	6,126	62.1
Tucson	1,767	1,753	1,010	57.6

<sup>1</sup> Includes 89,803 U.S. All Races live births and 2,554 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.



### Chart 3.4

# Maternal Deaths

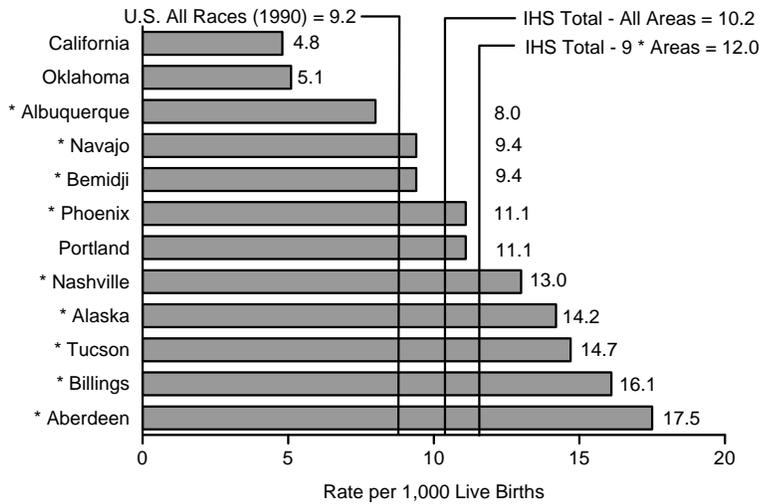
Calendar Years 1989-1991

There were 10 maternal deaths in the IHS service area population in 1989-1991. Only the Navajo Area (5 deaths) and the Aberdeen Area (2 deaths) had more than 1 maternal death.



### Chart 3.5 Infant Mortality Rates Calendar Years 1989–1991

The infant mortality rate for the IHS service area population in 1989-1991 was 10.2. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 12.0. This is 30 percent higher than the U.S. All Races rate of 9.2 for 1990. The Aberdeen and Billings Areas had the highest rates, 17.5 and 16.1, respectively.



### Table 3.5 Infant Mortality Rates (Under 1 Year)

Calendar Years 1989–1991

	Live births	Infant deaths	Rate <sup>1</sup>
U.S. All Races (1990)	4,158,212	38,351	9.2
All IHS Areas	101,780	1,038	10.2
9* Areas <sup>2</sup>	66,315	797	12.0
Aberdeen*	8,222	144	17.5
Alaska*	9,176	130	14.2
Albuquerque*	5,659	45	8.0
Bemidji*	5,433	51	9.4
Billings*	4,716	76	16.1
California	7,231	35	4.8
Nashville*	3,313	43	13.0
Navajo*	17,788	168	9.4
Oklahoma	17,956	92	5.1
Phoenix*	10,241	114	11.1
Portland	10,278	114	11.1
Tucson*	1,767	26	14.7

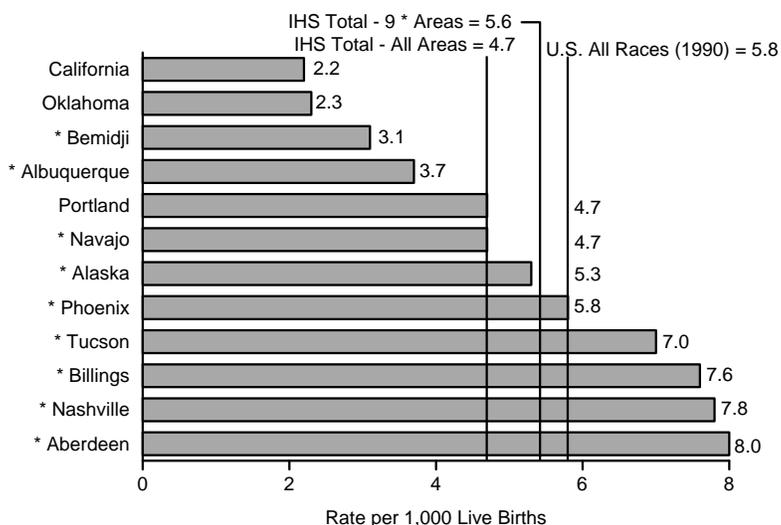
<sup>1</sup> Rate per 1,000 live births.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 3.6 Neonatal Mortality Rates

Calendar Years 1989–1991

The neonatal mortality rate for the IHS service area population in 1989–1991 was 4.7. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 5.6. This is still less than the U.S. All Races rate of 5.8 for 1990. The Aberdeen Area had the highest rate at 8.0.



## Table 3.6 Neonatal Mortality Rates (Under 28 Days)

Calendar Years 1989–1991



	Live births	Infant deaths	Rate <sup>1</sup>
U.S. All Races (1990)	4,158,212	24,309	5.8
All IHS Areas	101,780	475	4.7
9* Areas <sup>2</sup>	66,315	369	5.6
Aberdeen*	8,222	66	8.0
Alaska*	9,176	49	5.3
Albuquerque*	5,659	21	3.7
Bemidji*	5,433	17	3.1
Billings*	4,716	36	7.6
California	7,231	16	2.2
Nashville*	3,313	26	7.8
Navajo*	17,788	83	4.7
Oklahoma	17,956	42	2.3
Phoenix*	10,241	59	5.8
Portland	10,278	48	4.7
Tucson*	1,767	12	7.0

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

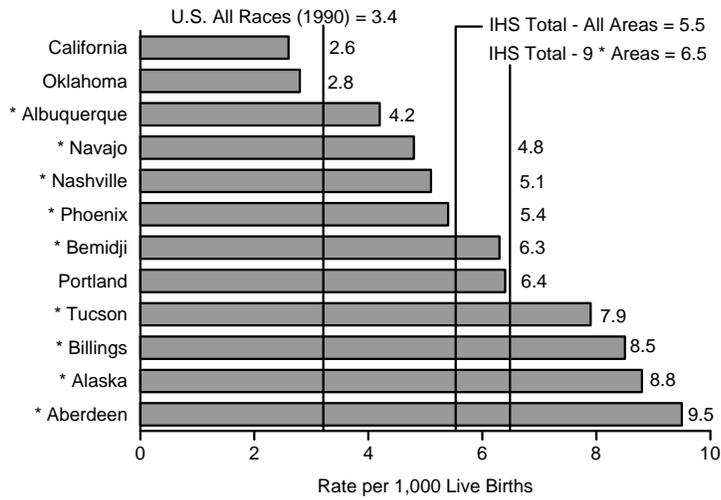
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

### Chart 3.7

## Postneonatal Mortality Rates

Calendar Years 1989–1991

The postneonatal mortality rate for the IHS service area population in 1989-1991 was 5.5. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 6.5. This is 1.9 times the U.S. All Races rate of 3.4 for 1990. The Aberdeen and Alaska Areas had the highest rates, 9.5 and 8.8, respectively.



**Table 3.7**  
**Postneonatal Mortality Rates**  
**(28 Days to Under 1 Year)**  
 Calendar Years 1989–1991

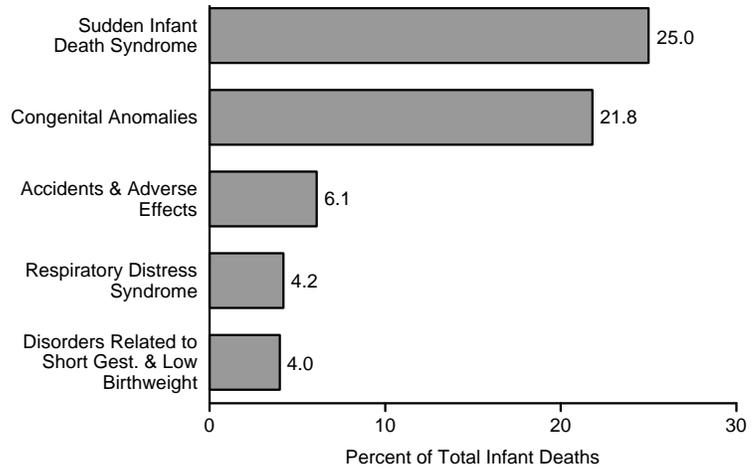
	Live births	Infant deaths	Rate <sup>1</sup>
U.S. All Races (1990)	4,158,212	14,042	3.4
All IHS Areas	101,780	563	5.5
9* Areas <sup>2</sup>	66,315	428	6.5
Aberdeen*	8,222	78	9.5
Alaska*	9,176	81	8.8
Albuquerque*	5,659	24	4.2
Bemidji*	5,433	34	6.3
Billings*	4,716	40	8.5
California	7,231	19	2.6
Nashville*	3,313	17	5.1
Navajo*	17,788	85	4.8
Oklahoma	17,956	50	2.8
Phoenix*	10,241	55	5.4
Portland	10,278	66	6.4
Tucson*	1,767	14	7.9

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

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

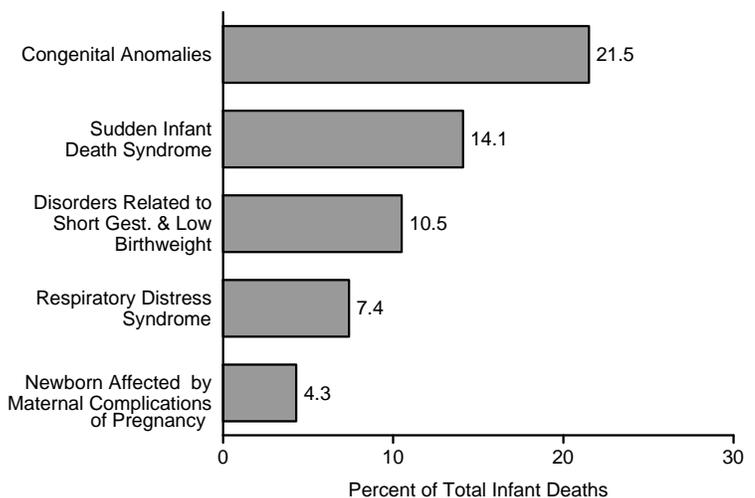
In 1989-1991, 25.0 percent of all infant deaths in the IHS service area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 21.8 percent.

**Chart 3.8**  
**Leading Causes of Infant Deaths**  
 All IHS Areas, Calendar Years 1989–1991



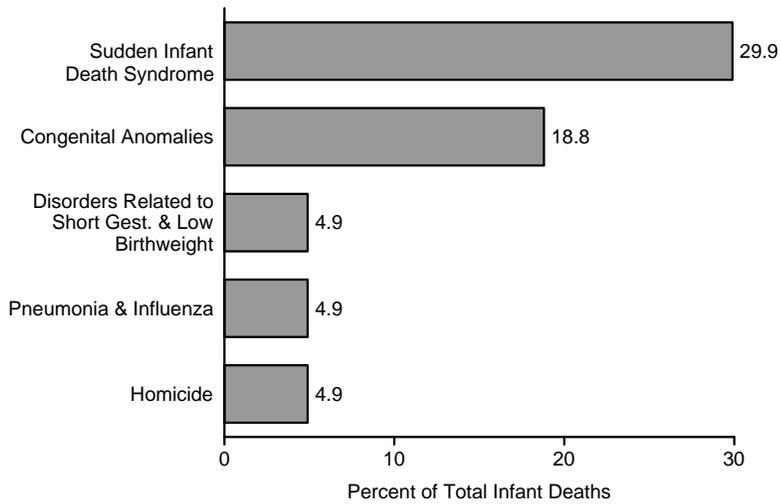
**Chart 3.9**  
**Leading Causes of Infant Deaths**  
 U.S. All Races, 1990

In 1990, 21.5 percent of all infant deaths in the U.S. were caused by congenital anomalies. This was followed by sudden infant death syndrome at 14.1 percent.



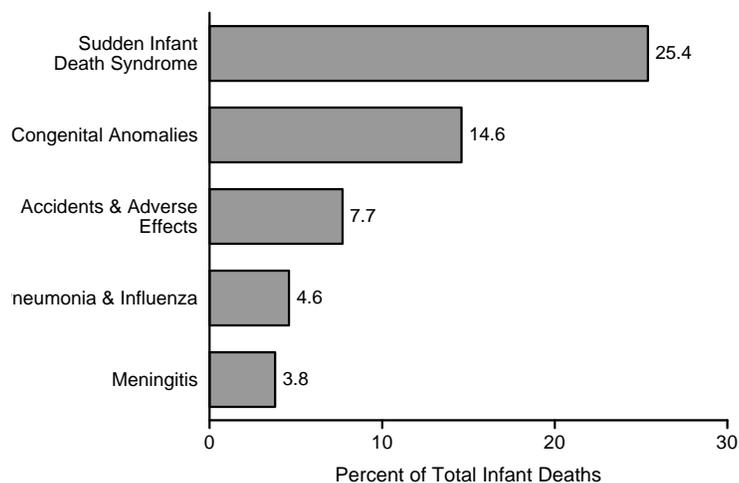
**Chart 3.10**  
**Leading Causes of Infant Deaths**  
 Aberdeen Area, Calendar Years 1989–1991

In 1989-1991, 29.9 percent of all infant deaths in the Aberdeen Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 18.8 percent.



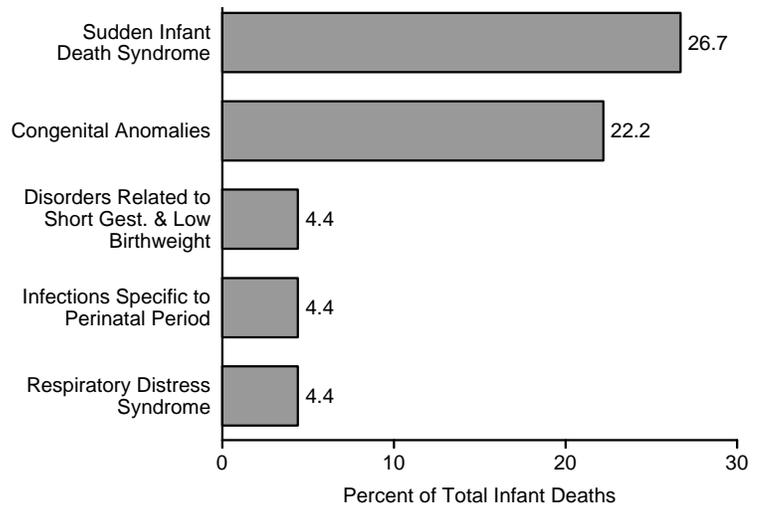
**Chart 3.11**  
**Leading Causes of Infant Deaths**  
 Alaska Area, Calendar Years 1989–1991

In 1989-1991, 25.4 percent of all infant deaths in the Alaska Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 14.6 percent.



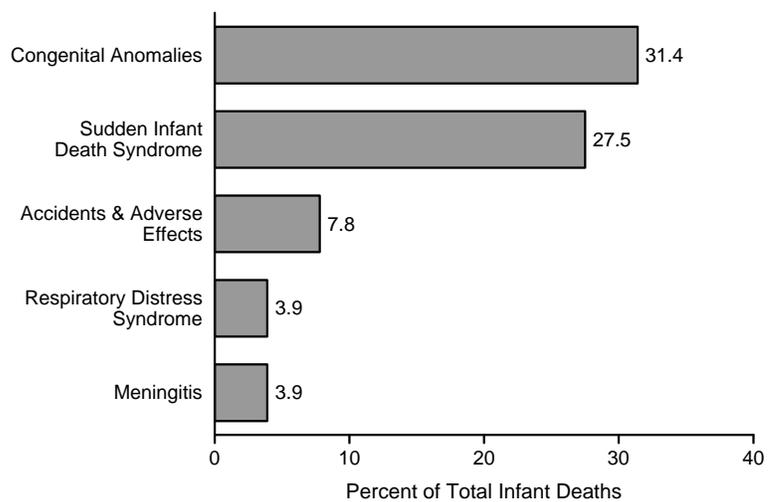
In 1989-1991, 26.7 percent of all infant deaths in the Albuquerque Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 22.2 percent.

**Chart 3.12**  
**Leading Causes of Infant Deaths**  
 Albuquerque Area, Calendar Years 1989–1991



**Chart 3.13**  
**Leading Causes of Infant Deaths**  
 Bemidji Area, Calendar Years 1989–1991

In 1989-1991, 31.4 percent of all infant deaths in the Bemidji Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 27.5 percent.

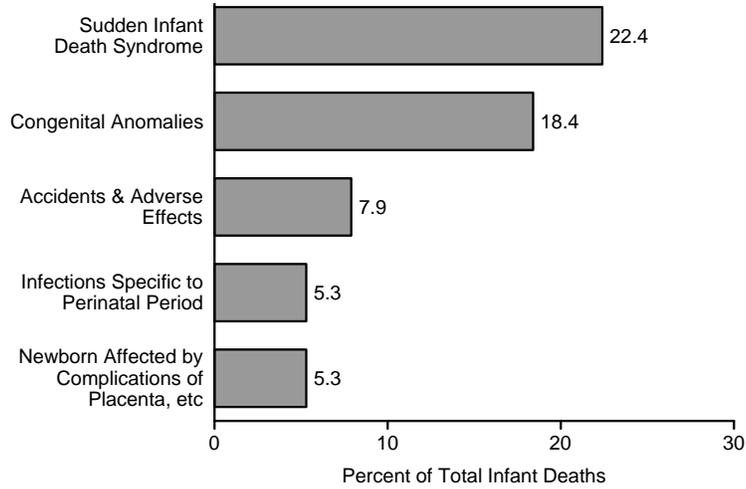


### Chart 3.14

## Leading Causes of Infant Deaths

Billings Area, Calendar Years 1989–1991

In 1989-1991, 22.4 percent of all infant deaths in the Billings Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 18.4 percent.

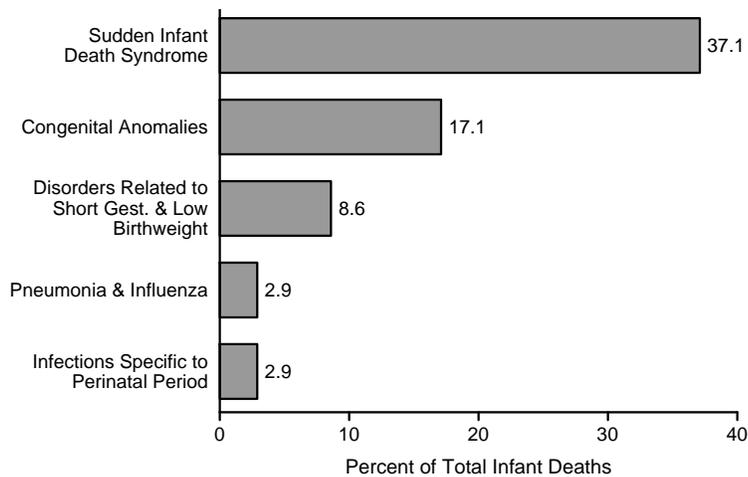


### Chart 3.15

## Leading Causes of Infant Deaths

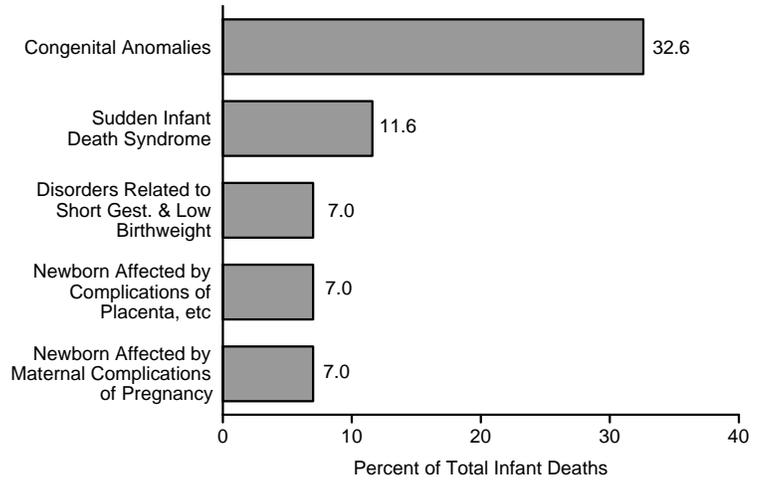
California Area, Calendar Years 1989–1991

In 1989-1991, 37.1 percent of all infant deaths in the California Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 17.1 percent.



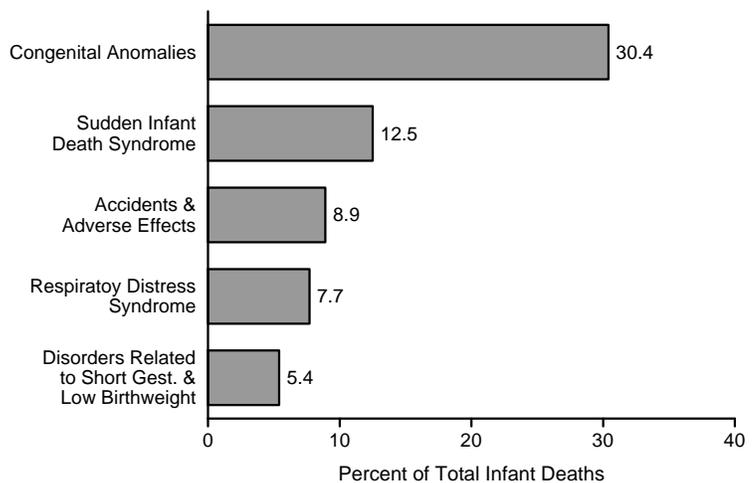
In 1989-1991, 32.6 percent of all infant deaths in the Nashville Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 11.6 percent.

**Chart 3.16**  
**Leading Causes of Infant Deaths**  
 Nashville Area, Calendar Years 1989–1991



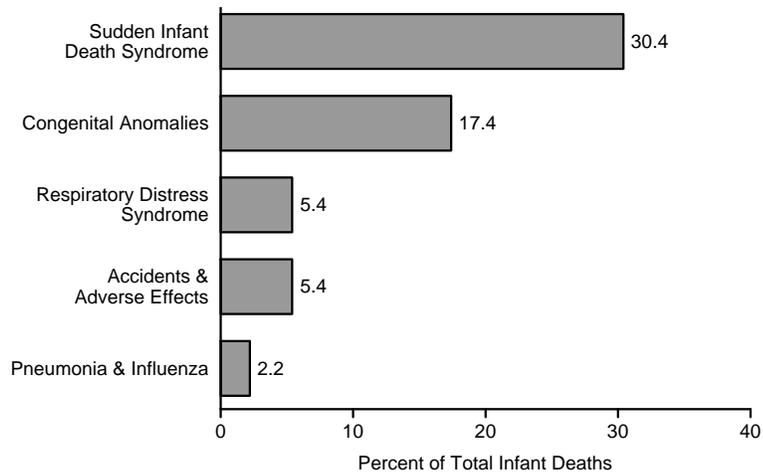
In 1989-1991, 30.4 percent of all infant deaths in the Navajo Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 12.5 percent.

**Chart 3.17**  
**Leading Causes of Infant Deaths**  
 Navajo Area, Calendar Years 1989–1991



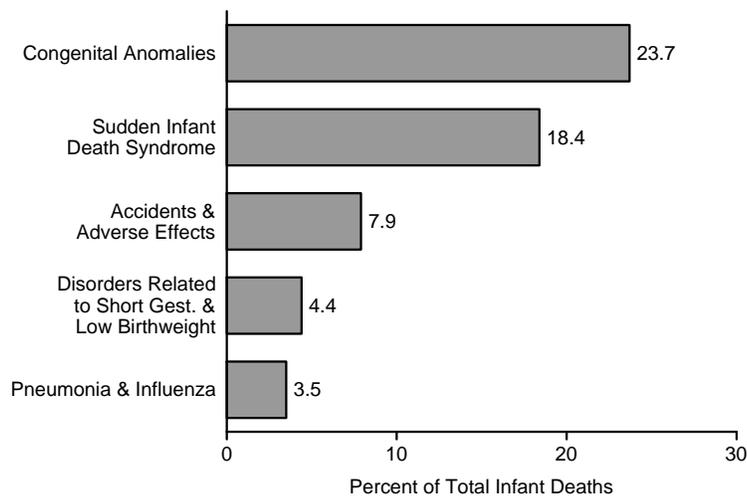
**Chart 3.18**  
**Leading Causes of Infant Deaths**  
 Oklahoma Area, Calendar Years 1989–1991

In 1989-1991, 30.4 percent of all infant deaths in the Oklahoma Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 17.4 percent.



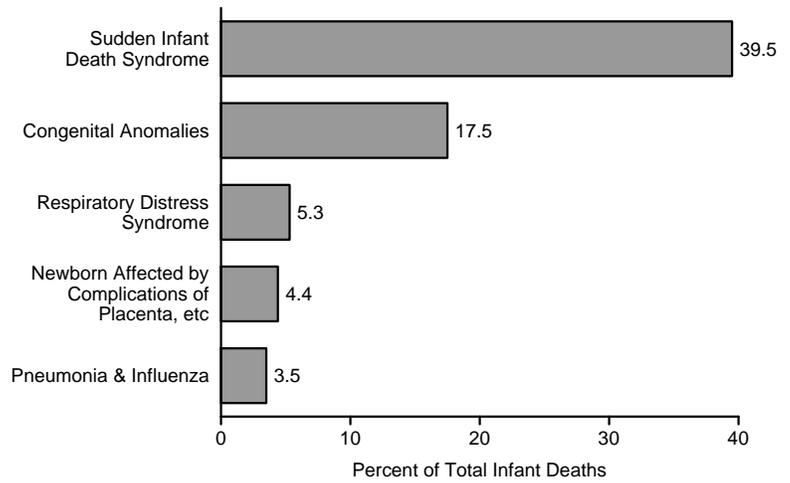
**Chart 3.19**  
**Leading Causes of Infant Deaths**  
 Phoenix Area, Calendar Years 1989–1991

In 1989-1991, 23.7 percent of all infant deaths in the Phoenix Area were caused by congenital anomalies. This was followed by sudden infant death syndrome at 18.4 percent.



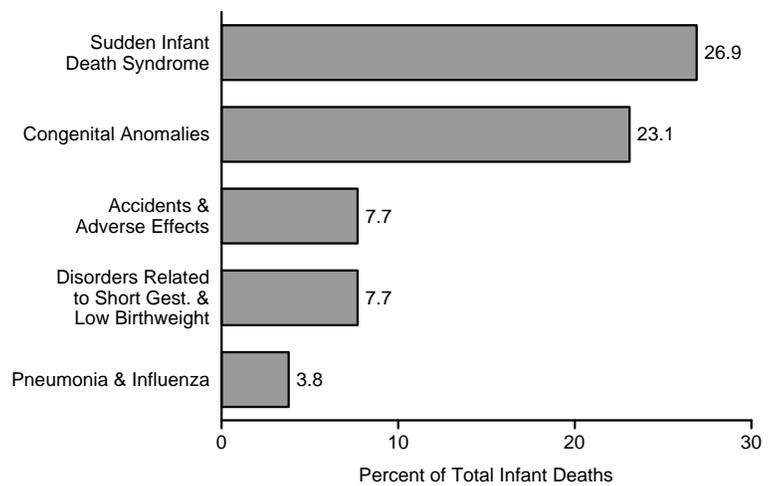
In 1989-1991, 39.5 percent of all infant deaths in the Portland Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 17.5 percent.

**Chart 3.20**  
**Leading Causes of Infant Deaths**  
 Portland Area, Calendar Years 1989–1991



In 1989-1991, 26.9 percent of all infant deaths in the Tucson Area were caused by sudden infant death syndrome. This was followed by congenital anomalies at 23.1 percent.

**Chart 3.21**  
**Leading Causes of Infant Deaths**  
 Tucson Area, Calendar Years 1989–1991

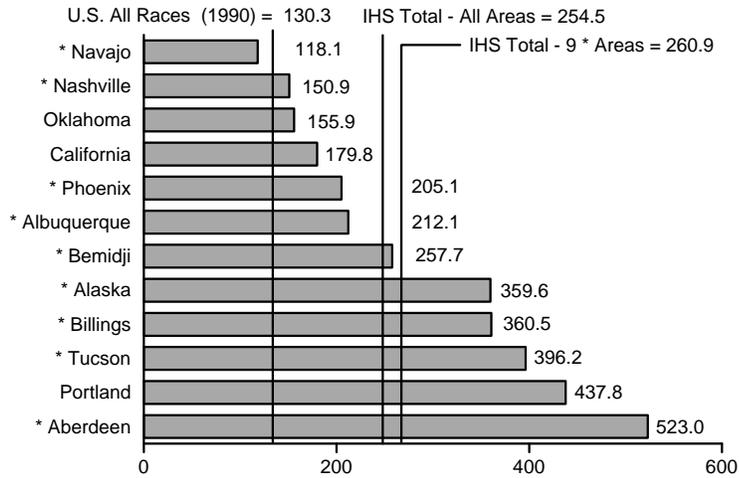


### Chart 3.22

## Sudden Infant Death Syndrome Rates

Calendar Years 1989–1991

In 1989-1991, the mortality rate for sudden infant death syndrome (SIDS) for the IHS service area population was nearly 2 times the rate for the U.S. All Races population in 1990, 254.5 compared to 130.3. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the IHS rate in this instance is only slightly higher (260.9) because of the problem with SIDS in the Portland Area. In the Portland Area, 39.5 percent of infant deaths were because of SIDS.



**Table 3.22**  
**Sudden Infant Death Syndrome Rates**  
 Calendar Years 1989–1991

	Infant deaths	Live births	Rate <sup>1</sup>
U.S. All Races (1990)	5,417	4,158,212	130.3
All IHS Areas	259	101,780	254.5
9* Areas <sup>2</sup>	173	66,315	260.9
Aberdeen*	43	8,222	523.0
Alaska*	33	9,176	359.6
Albuquerque*	12	5,659	212.1
Bemidji*	14	5,433	257.7
Billings*	17	4,716	360.5
California	13	7,231	179.8
Nashville*	5	3,313	150.9
Navajo*	21	17,788	118.1
Oklahoma	28	17,956	155.9
Phoenix*	21	10,241	205.1
Portland	45	10,278	437.8
Tucson*	7	1,767	396.2

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

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

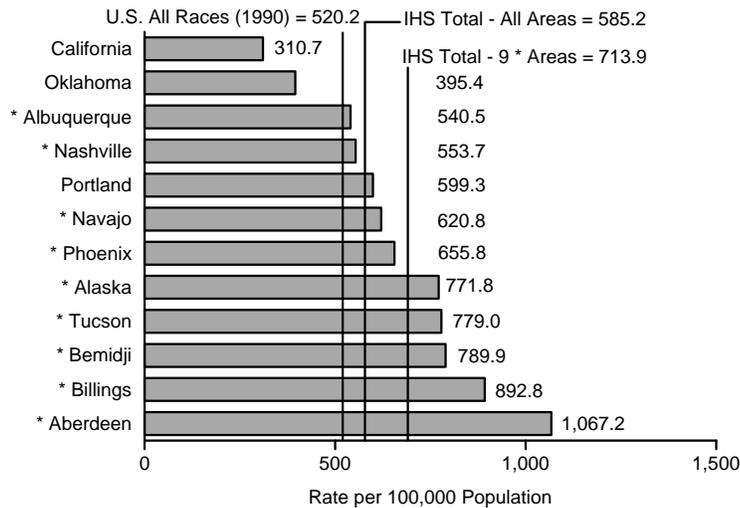




# PART IV—General Mortality Statistics

**Chart 4.1**  
**Age-Adjusted Mortality Rates**  
 Calendar Years 1989–1991

In 1989-1991, the age-adjusted mortality rate (all causes) for the IHS service area population was 585.2. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 713.9. This is 37 percent higher than the U.S. All Races rate of 520.2 for 1990. The Aberdeen rate (1,067.2) was more than double the U.S. rate.



**Table 4.1**  
**Age-Adjusted Mortality Rates**  
**(All Causes)**  
 Calendar Years 1989–1991

	Total deaths	Rate <sup>1</sup>
U.S. All Races (1990)	2,148,463	520.2
All IHS Areas	19,084	585.2
9* Areas <sup>2</sup>	12,924	713.9
Aberdeen*	1,891	1,067.2
Alaska*	1,702	771.8
Albuquerque*	979	540.5
Bemidji*	1,198	789.9
Billings*	997	892.8
California	897	310.7
Nashville*	809	553.7
Navajo*	3,009	620.8
Oklahoma	3,400	395.4
Phoenix*	1,849	655.8
Portland	1,863	599.3
Tucson*	490	799.0

<sup>1</sup> Rate per 100,000 population.

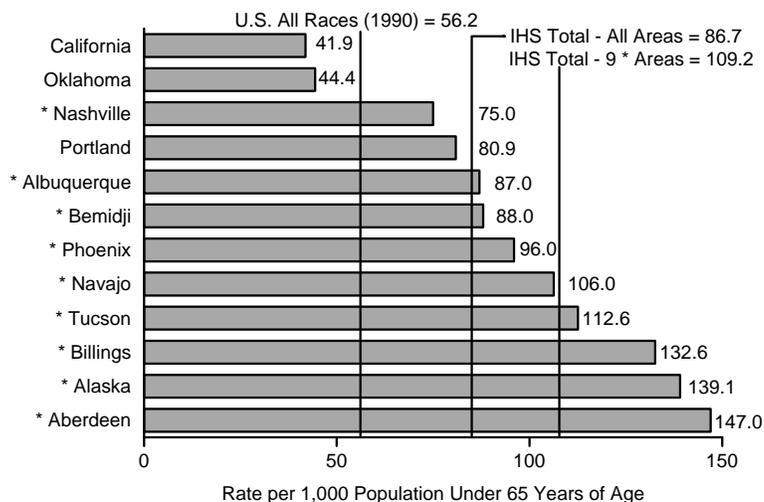
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.2 Years of Productive Life Lost Rates

Calendar Years 1989–1991

In 1989-1991, the years of productive life lost rate (all causes) for the IHS service area population was 86.7. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 109.2. This is nearly double the U.S. All Races rate of 56.2 for 1990. Each of the remaining 9 IHS Areas had a rate greater than the U.S. All Races rate.



## Table 4.2 Years of Productive Life Lost (YPLL) Rates (All Causes)

Calendar Years 1989–1991

	Number of YPLL <sup>1</sup>	Rate <sup>2</sup>
U.S. All Races (1990)	12,237,379	56.2
All IHS Areas	296,436	86.7
9* Areas <sup>3</sup>	222,548	109.2
Aberdeen*	32,099	147.0
Alaska*	34,336	139.1
Albuquerque*	16,555	87.0
Bemidji*	15,305	88.0
Billings*	17,875	132.6
California	12,390	41.9
Nashville*	10,608	75.0
Navajo*	54,797	106.0
Oklahoma	31,992	44.4
Phoenix*	33,144	96.0
Portland	29,506	80.9
Tucson*	7,829	112.6

<sup>1</sup> Years of Productive 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.

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

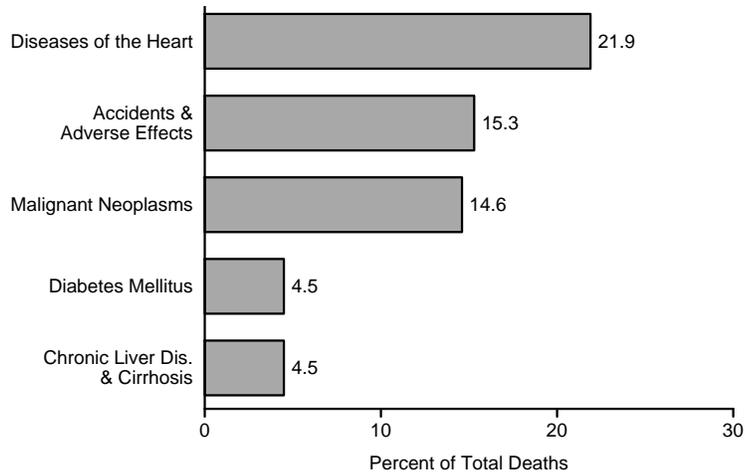
<sup>3</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

### Chart 4.3

## Leading Causes of Death

All IHS Areas, Calendar Years 1989–1991

In 1989-1991, 21.9 percent of all deaths in the IHS service area were caused by diseases of the heart. This was followed by accidents and adverse effects at 15.3 percent.

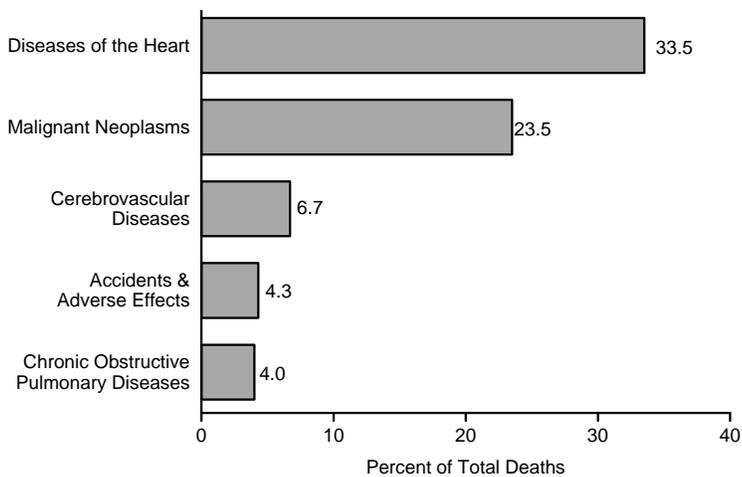


### Chart 4.4

## Leading Causes of Death

U.S. All Races, Calendar Year 1990

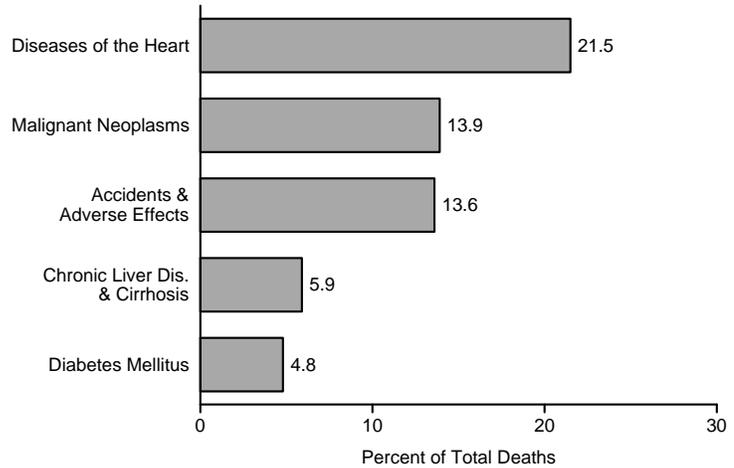
In 1990, 33.5 percent of all deaths in the U.S. were caused by diseases of the heart. This was followed by malignant neoplasms at 23.5 percent.



In 1989-1991, 21.5 percent of all deaths in the Aberdeen Area were caused by diseases of the heart. This was followed by malignant neoplasms at 13.9 percent.

### Chart 4.5 Leading Causes of Death

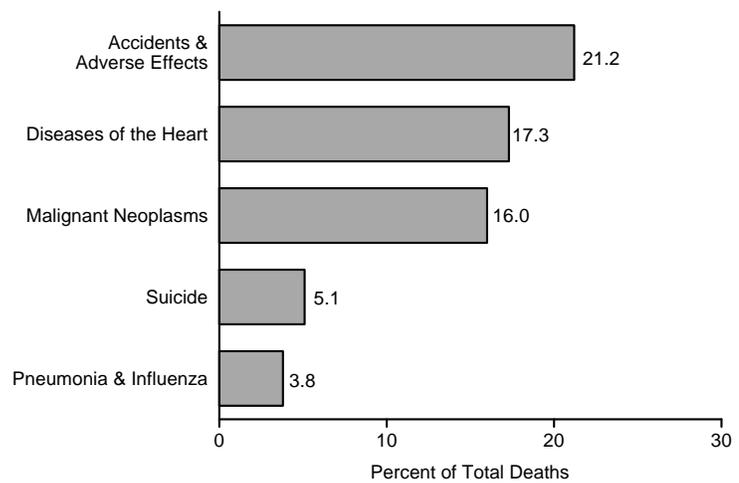
Aberdeen Area, Calendar Years 1989-1991



In 1989-1991, 21.2 percent of all deaths in the Alaska Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 17.3 percent.

### Chart 4.6 Leading Causes of Death

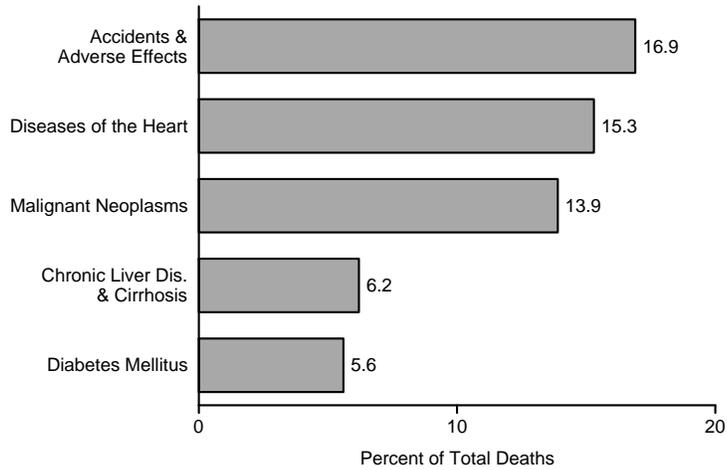
Alaska Area, Calendar Years 1989-1991



## Chart 4.7 Leading Causes of Death

Albuquerque Area, Calendar Years 1989–1991

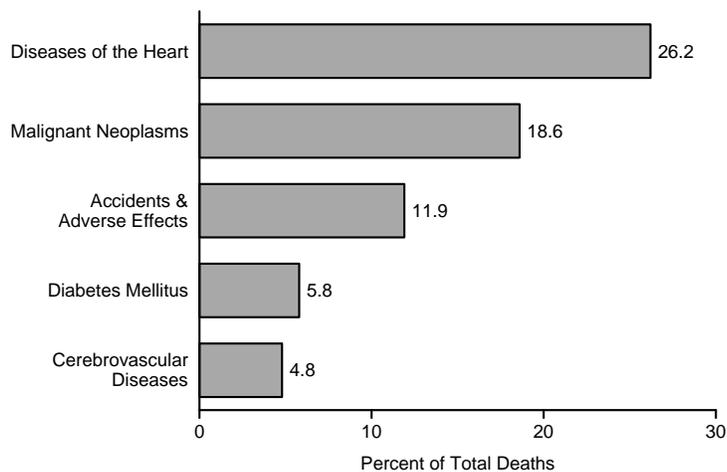
In 1989-1991, 16.9 percent of all deaths in the Albuquerque Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 15.3 percent.



## Chart 4.8 Leading Causes of Death

Bemidji Area, Calendar Years 1989–1991

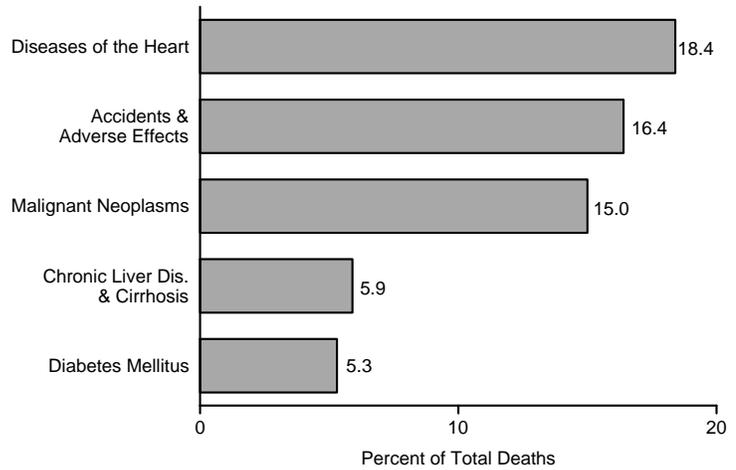
In 1989-1991, 26.2 percent of all deaths in the Bemidji Area were caused by diseases of the heart. This was followed by malignant neoplasms at 18.6 percent.



In 1989-1991, 18.4 percent of all deaths in the Billings Area were caused by diseases of the heart. This was followed by accidents and adverse effects at 16.4 percent.

### Chart 4.9 Leading Causes of Death

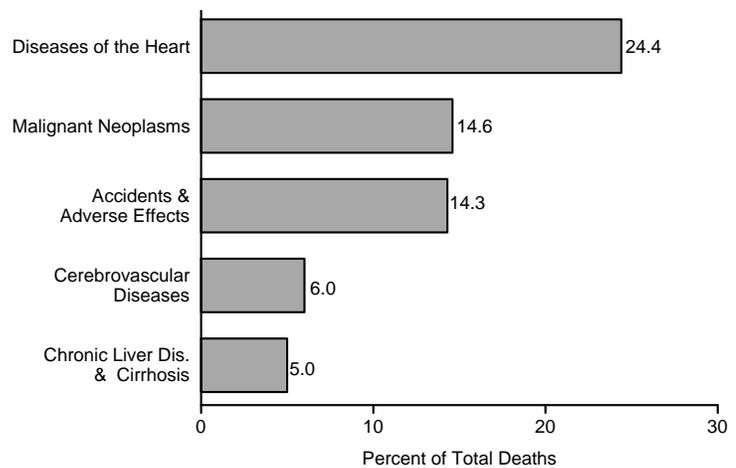
Billings Area, Calendar Years 1989-1991



### Chart 4.10 Leading Causes of Death

California Area, Calendar Years 1989-1991

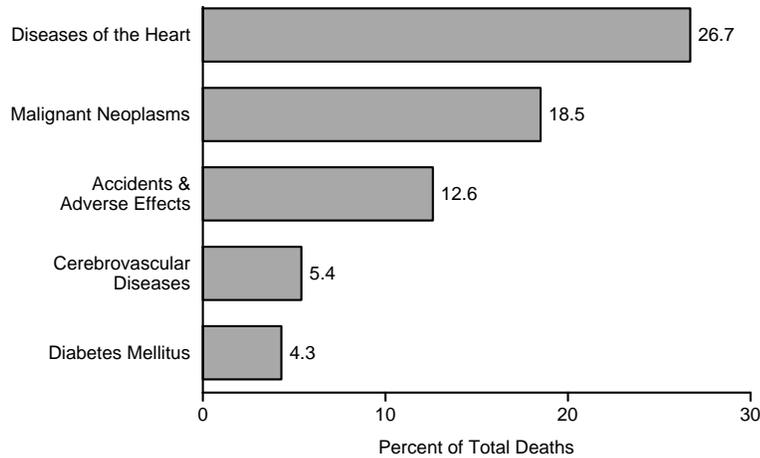
In 1989-1991, 24.4 percent of all deaths in the California Area were caused by diseases of the heart. This was followed by malignant neoplasms at 14.6 percent.



## Chart 4.11 Leading Causes of Death

Nashville Area, Calendar Years 1989–1991

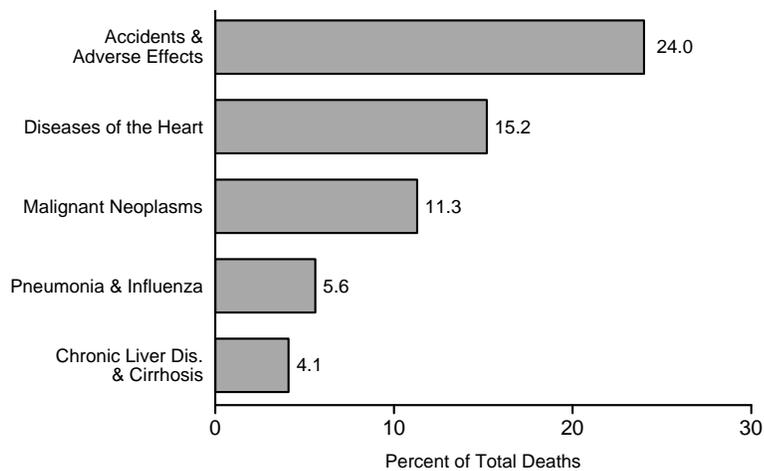
In 1989-1991, 26.7 percent of all deaths in the Nashville Area were caused by diseases of the heart. This was followed by malignant neoplasms at 18.5 percent.



## Chart 4.12 Leading Causes of Death

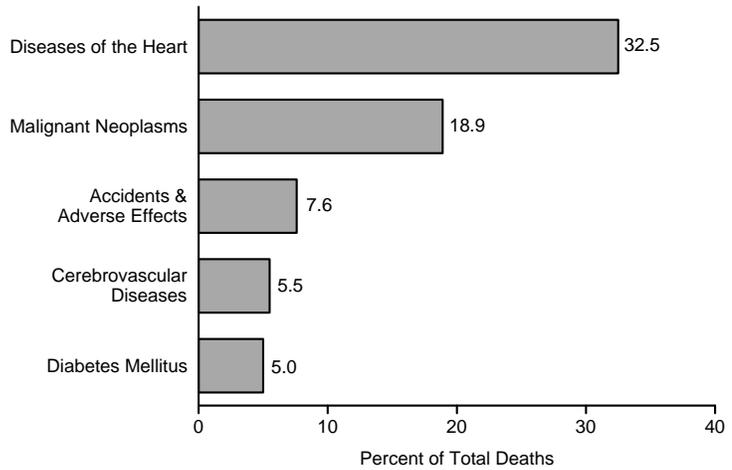
Navajo Area, Calendar Years 1989–1991

In 1989–1991, 24.0 percent of all deaths in the Navajo Area were caused by accidents and adverse effects. This was followed by diseases of the heart at 15.2 percent.



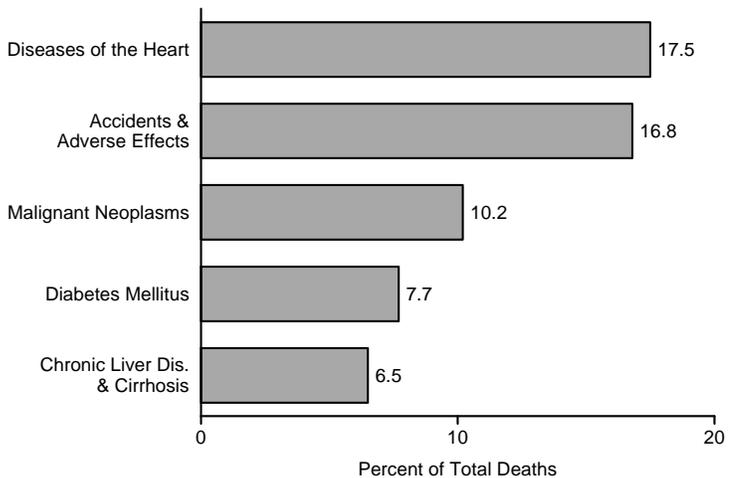
In 1989-1991, 32.5 percent of all deaths in the Oklahoma Area were caused by diseases of the heart. This was followed by malignant neoplasms at 18.9 percent.

**Chart 4.13**  
**Leading Causes of Death**  
 Oklahoma Area, Calendar Years 1989-1991



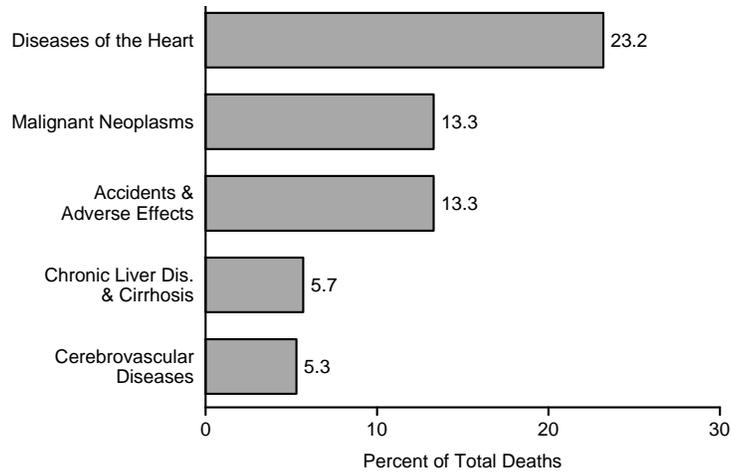
In 1989-1991, 17.5 percent of all deaths in the Phoenix Area were caused by diseases of the heart. This was followed by accidents and adverse effects at 16.8 percent.

**Chart 4.14**  
**Leading Causes of Death**  
 Phoenix Area, Calendar Years 1989-1991



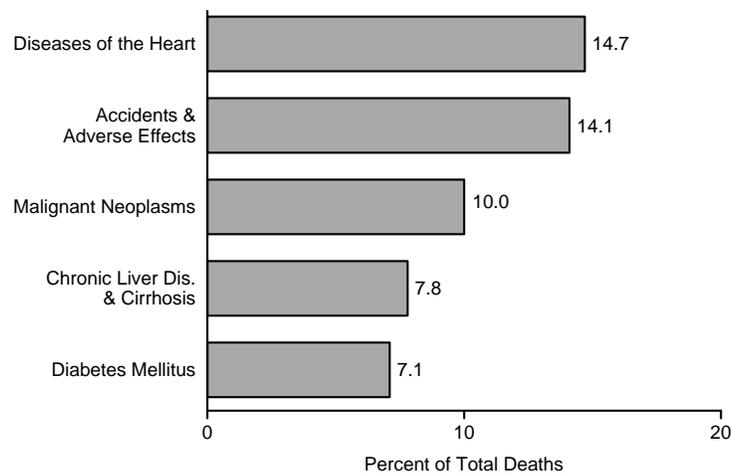
**Chart 4.15**  
**Leading Causes of Death**  
 Portland Area, Calendar Years 1989–1991

In 1989-1991, 23.2 percent of all deaths in the Portland Area were caused by diseases of the heart. This was followed by malignant neoplasms at 13.3 percent.



**Chart 4.16**  
**Leading Causes of Death**  
 Tucson Area, Calendar Years 1989–1991

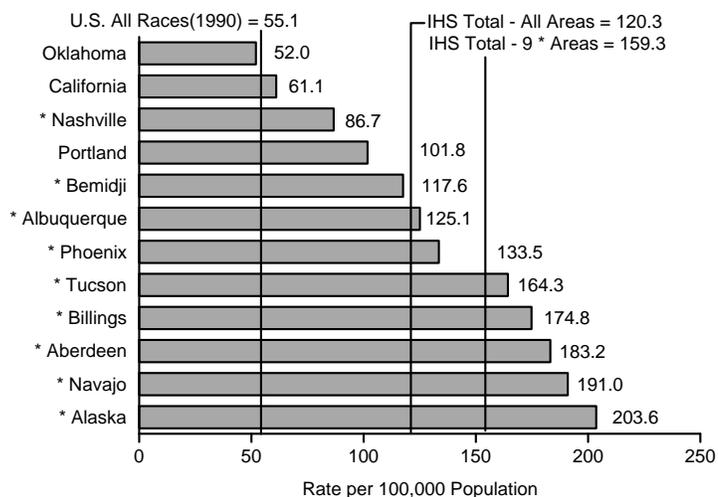
In 1989-1991, 14.7 percent of all deaths in the Tucson Area were caused by diseases of the heart. This was followed by accidents and adverse effects at 14.1 percent.



## Chart 4.17 Age-Adjusted Injury and Poisoning Mortality Rates

Calendar Years 1989-1991

In 1989-1991, the age-adjusted injury and poisoning mortality rate for the IHS service area population was 120.3. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 159.3. This is nearly 3 times the U.S. All Races rate of 55.1 for 1990. Three Areas (Alaska, Navajo, and Aberdeen) had rates exceeding 180.0.



## Table 4.17 Age-Adjusted Injury and Poisoning<sup>1</sup> Mortality Rates

Calendar Years 1989-1991

	Deaths <sup>2</sup>	Rate <sup>3</sup>
U.S. All Races (1990)	150,211	55.1
All IHS Areas	4,109	120.3
9* Areas <sup>4</sup>	3,150	159.3
Aberdeen*	363	183.2
Alaska*	499	203.6
Albuquerque*	249	125.1
Bemidji*	197	117.6
Billings*	227	174.8
California	188	61.1
Nashville*	127	86.7
Navajo*	923	191.0
Oklahoma	398	52.0
Phoenix*	457	133.5
Portland	377	101.8
Tucson*	108	164.3

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

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

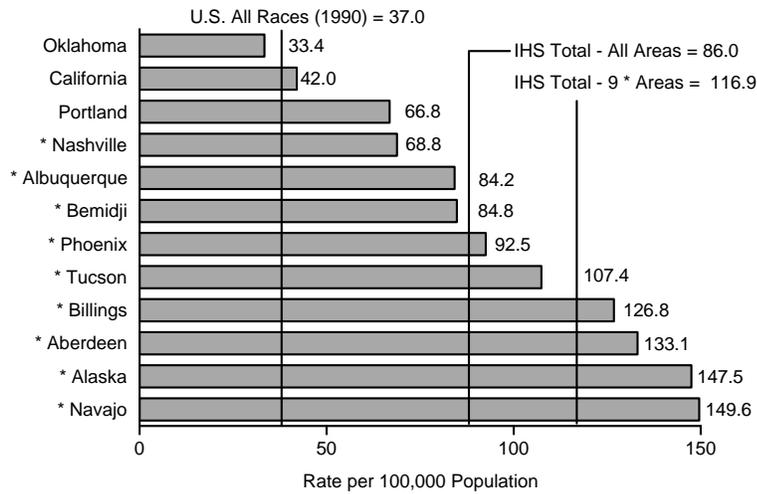
<sup>3</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>4</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.18 Age-Adjusted Accident Mortality Rates Calendar Years 1989–1991

In 1989-1991, the age-adjusted accident mortality rate for the IHS service area population was 86.0. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 116.9. This is 216 percent higher than the U.S. All Races rate of 37.0 for 1990. The Navajo Area had the highest rate (149.6) which was mainly attributable to motor vehicle accidents. For the IHS service area, 23.1 percent of the motor vehicle accidents were pedestrian-related compared to 15.4 percent for the U.S. All Races population.



## Table 4.18 Age-Adjusted Accident Mortality Rates Calendar Years 1989–1991

	Motor vehicle accidents							
	All accidents		Totals		Pedestrian-related <sup>1</sup>		Other accidents	
	Deaths	Rate <sup>2</sup>	Deaths	Rate <sup>2</sup>	Deaths	Percent of motor vehicle accident deaths	Deaths	Rate <sup>2</sup>
U.S. All Races (1990)	91,983	37.0	46,814	18.8	7,205	15.4%	45,169	18.2
All IHS Areas	2,925	86.0	1,642	48.3	380	23.1%	1,283	37.6
9* Areas <sup>2</sup>	2,292	116.9	1,277	64.9	316	24.7%	1,015	52.0
Aberdeen*	258	133.1	153	77.8	25	16.3%	105	55.3
Alaska*	360	147.5	68	28.8	20	29.4%	292	118.7
Albuquerque*	165	84.2	110	55.6	39	35.5%	55	28.6
Bemidji*	142	84.8	78	48.5	12	15.4%	64	36.3
Billings*	164	126.8	108	83.2	15	13.9%	56	43.6
California	128	42.0	76	24.5	14	18.4%	52	17.5
Nashville*	102	68.8	60	40.6	15	25.0%	42	28.2
Navajo*	722	149.6	454	93.2	134	29.5%	268	56.4
Oklahoma	258	33.4	150	20.0	24	16.0%	108	13.5
Phoenix*	310	92.5	203	59.0	43	21.2%	107	33.5
Portland	247	66.8	139	37.7	26	18.7%	108	29.2
Tucson*	69	107.4	43	64.5	13	30.2%	26	42.9

<sup>1</sup> Includes motor vehicle accidents having ICD-9 codes E810-E825 with a fourth digit code .7. The fourth digit code .7 indicates that a pedestrian was the subject decedent as a result of the motor vehicle accident.

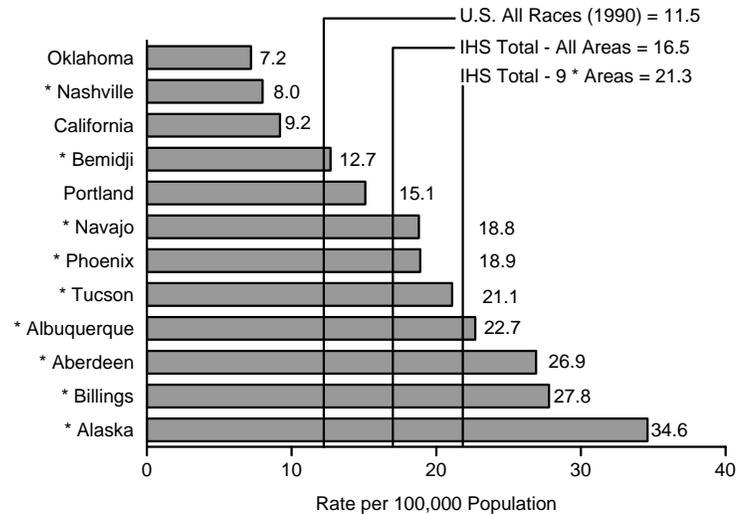
<sup>2</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>3</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.19 Age-Adjusted Suicide Mortality Rates

Calendar Years 1989–1991

In 1989–1991, the age-adjusted suicide mortality rate for the IHS service area population was 16.5. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 21.3. This is 85 percent higher than the U.S. All Races rate of 11.5 for 1990. Three Areas (Alaska, Billings, and Aberdeen) had rates more than double the U.S. rate.



## Table 4.19 Age-Adjusted Suicide Mortality Rates

Calendar Years 1989–1991



	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	30,906	11.5
All IHS Areas	571	16.5
9* Areas <sup>2</sup>	432	21.3
Aberdeen*	55	26.9
Alaska*	87	34.6
Albuquerque*	47	22.7
Bemidji*	22	12.7
Billings*	35	27.8
California	28	9.2
Nashville*	11	8.0
Navajo*	91	18.8
Oklahoma	54	7.2
Phoenix*	69	18.9
Portland	57	15.1
Tucson*	15	21.1

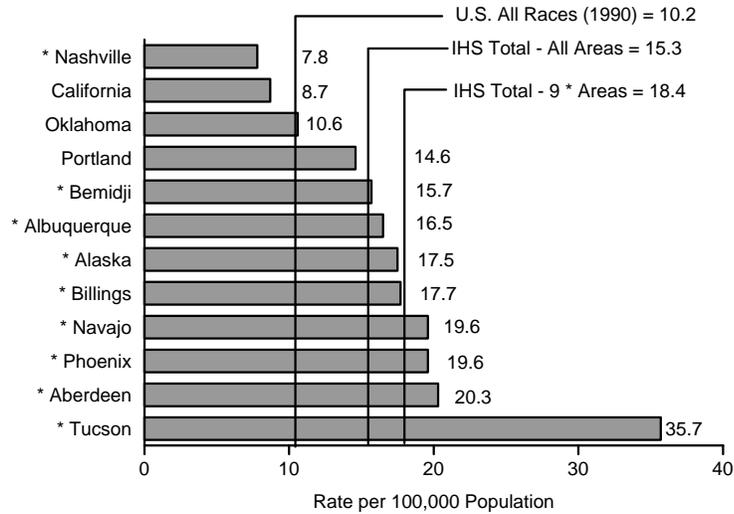
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.20 Age-Adjusted Homicide Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted homicide mortality rate for the IHS service area population was 15.3. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 18.4. This is 80 percent higher than the U.S. All Races rate of 10.2 for 1990. The Tucson Area rate of 35.7 was 3.5 times the U.S. rate.



## Table 4.20 Age-Adjusted Homicide Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	24,932	10.2
All IHS Areas	529	15.3
9* Areas <sup>2</sup>	369	18.4
Aberdeen*	44	20.3
Alaska*	43	17.5
Albuquerque*	33	16.5
Bemidji*	25	15.7
Billings*	24	17.7
California	28	8.7
Nashville*	11	7.8
Navajo*	96	19.6
Oklahoma	78	10.6
Phoenix*	69	19.6
Portland	54	14.6
Tucson*	24	35.7

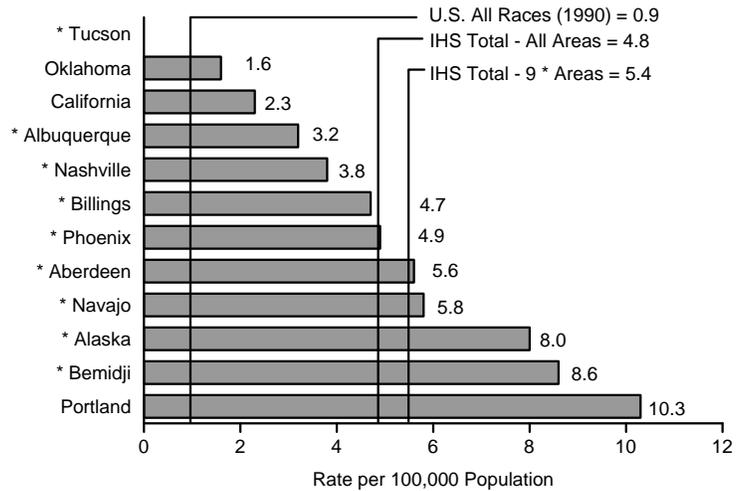
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.21 Age-Adjusted Mortality Rates for Injury and Poisoning Deaths Due to Other Causes

Calendar Years 1989–1991

In 1989-1991 for the IHS service area population, the age-adjusted mortality rate for injury and poisoning deaths due to other causes was 4.8. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 5.4. This is 6 times the U.S. All Races rate of 0.9 for 1990. The Area rates should be interpreted with caution because of the small number of deaths involved.



## Table 4.21 Age-Adjusted Mortality Rates for Injury and Poisoning Deaths Due to Other Causes<sup>1</sup>

Calendar Years 1989–1991

	Deaths	Rate <sup>2</sup>
U.S. All Races (1990)	2,390	0.9
All IHS Areas	85	4.8
9* Areas <sup>3</sup>	56	5.4
Aberdeen*	6	5.6
Alaska*	9	8.0
Albuquerque*	4	3.2
Bemidji*	8	8.6
Billings*	4	4.7
California	4	2.3
Nashville*	3	3.8
Navajo*	14	5.8
Oklahoma	6	1.6
Phoenix*	8	4.9
Portland	19	10.3
Tucson*	—	—

<sup>1</sup> Includes the following ICD-9 cause of death groups combined: Injury undetermined whether accidentally or purposely inflicted-E980-E989. Injury resulting from operations of war-E990-E999. (There were 14 deaths due to this cause for the U.S. All Races during 1990 and 0 deaths for the American Indian and Alaska Native population in the IHS service area, 1989-1991.)

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

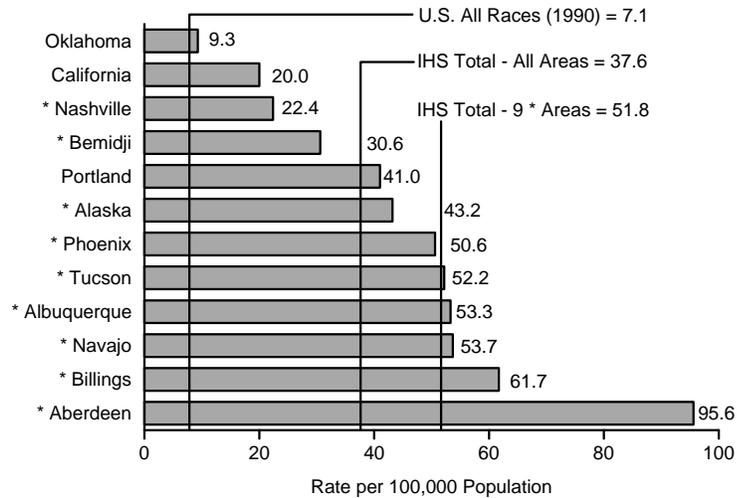
<sup>3</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.22 Age-Adjusted Alcoholism Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted alcoholism mortality rate for the IHS service area population was 37.6. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 51.8. This is 630 percent higher than the U.S. All Races rate of 7.1 for 1990. The Aberdeen Area rate of 95.6 was 13.5 times the U.S. rate.



## Table 4.22 Age-Adjusted Alcoholism Mortality Rates

Calendar Years 1989–1991

	Number of deaths and ICD-9 cause of death group									
	All causes	291	303	305.0	425.5	535.3	571.0–571.3	790.3	E860.0–E860.1	Rate <sup>1</sup>
U.S. All Races (1990)	19,587	433	5,226	788	860	85	12,000	15	180	7.1
All IHS Areas	1,079	22	290	90	21	6	627	5	18	37.6
9* Areas <sup>2</sup>	838	15	233	77	14	3	475	5	16	51.8
Aberdeen*	145	3	38	10	1	—	91	—	2	95.6
Alaska*	89	2	14	24	3	1	39	5	1	43.2
Albuquerque*	82	4	21	6	1	—	50	—	—	53.3
Bemidji*	43	1	10	3	1	—	25	—	3	30.6
Billings*	64	1	14	1	1	—	47	—	—	61.7
California	51	—	13	2	1	1	34	—	—	20.0
Nashville*	29	—	9	1	1	1	16	—	1	22.4
Navajo*	222	3	85	27	5	1	94	—	7	53.7
Oklahoma	64	2	14	2	2	2	41	—	1	9.3
Phoenix*	133	1	33	4	1	—	92	—	2	50.6
Portland	126	5	30	9	4	—	77	—	1	41.0
Tucson*	31	—	9	1	—	—	21	—	—	52.2

<sup>1</sup> Age-adjusted rate per 100,000 population. The rate computation excludes 3 deaths with age not reported. Rates based on a small number of deaths should be interpreted with caution.

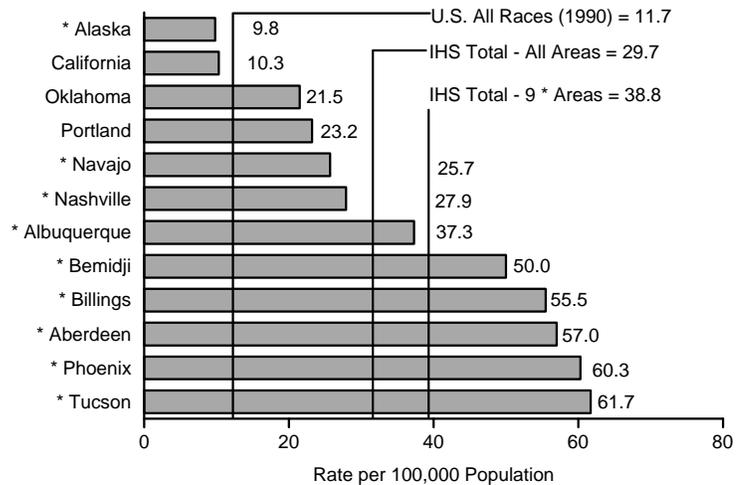
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

291—Alcoholic Psychoses; 303—Alcoholic Dependence Syndrome; 305.0—Alcohol Overdose; 425.5—Alcoholic Cardiomyopathy; 535.3—Alcoholic Gastritis; 571.0–571.3—Alcoholic Liver Disease; 790.3—Elevated Blood-Alcohol Level; E860.0, E860.1—Accidental Poisoning by Alcohol, not elsewhere classified.

## Chart 4.23 Age-Adjusted Diabetes Mellitus Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted diabetes mortality rate for the IHS service area population was 29.7. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 38.8. This is 232 percent higher than the U.S. All Races rate of 11.7 for 1990. All of the IHS Areas had a rate greater than the U.S. rate with the exception of Alaska and California (however the California rate is low because of Indian race reporting problems).



## Table 4.23 Age-Adjusted Diabetes Mellitus Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	47,664	11.7
All IHS Areas	861	29.7
9* Areas <sup>2</sup>	600	38.8
Aberdeen*	90	57.0
Alaska*	19	9.8
Albuquerque*	55	37.3
Bemidji*	69	50.0
Billings*	53	55.5
California	27	10.3
Nashville*	35	27.9
Navajo*	102	25.7
Oklahoma	171	21.5
Phoenix*	142	60.3
Portland	63	23.2
Tucson*	35	61.7

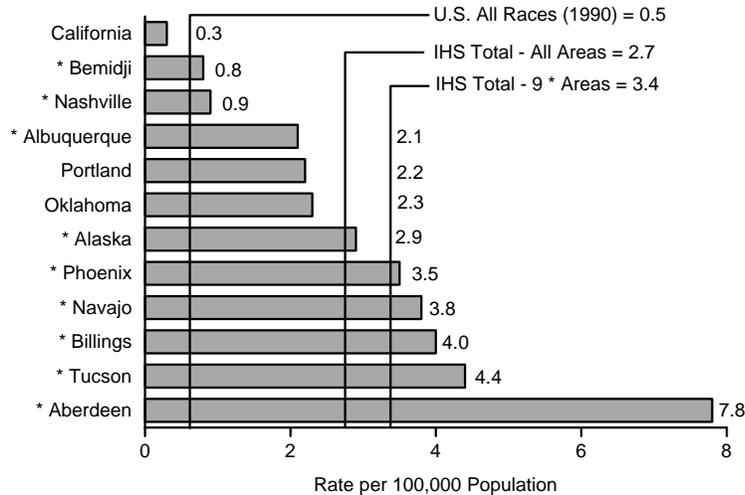
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.24 Age-Adjusted Tuberculosis Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted tuberculosis mortality rate for the IHS service area population was 2.7. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 3.4. This is nearly 7 times the U.S. All Races rate of 0.5 for 1990. The Area rates should be interpreted with caution because of the small number of deaths involved. The Navajo and Oklahoma Areas had the most deaths over the 3-year period, both with 18.



## Table 4.24 Age-Adjusted Tuberculosis Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	1,810	0.5
All IHS Areas	82	2.7
9* Areas <sup>2</sup>	57	3.4
Aberdeen*	12	7.8
Alaska*	6	2.9
Albuquerque*	3	2.1
Bemidji*	1	0.8
Billings*	5	4.0
California	1	0.3
Nashville*	1	0.9
Navajo*	18	3.8
Oklahoma	18	2.3
Phoenix*	8	3.5
Portland	6	2.2
Tucson*	3	4.4

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

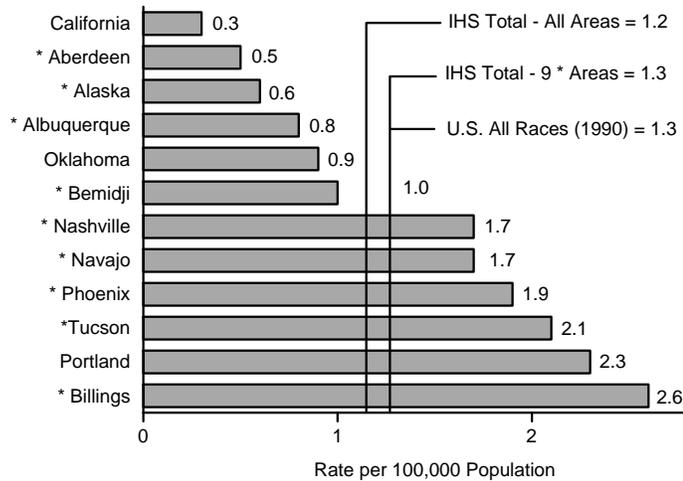
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.25 Age-Adjusted Gastrointestinal Diseases Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted gastrointestinal diseases mortality rate for the IHS service area population was 1.2. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 1.3. This is the same as the U.S. All Races rate for 1990. The Area rates should be interpreted with caution because of the small number of deaths involved. The Navajo and Oklahoma Areas had the most deaths over the 3-year period, both with 8.



## Table 4.25 Age-Adjusted Gastrointestinal Diseases Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	6,007	1.3
All IHS Areas	44	1.2
9* Areas <sup>2</sup>	29	1.3
Aberdeen*	1	0.5
Alaska*	2	0.6
Albuquerque*	3	0.8
Bemidji*	2	1.0
Billings*	3	2.6
California	1	0.3
Nashville*	3	1.7
Navajo*	8	1.7
Oklahoma	8	0.9
Phoenix*	6	1.9
Portland	6	2.3
Tucson*	1	2.1

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

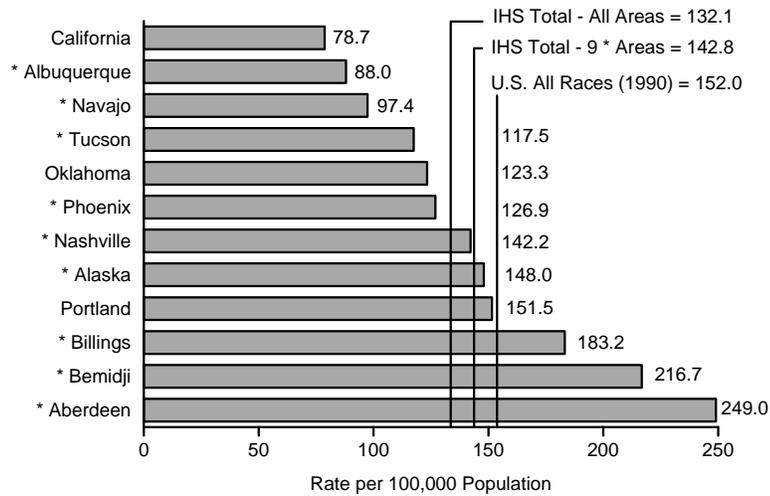
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.26 Age-Adjusted Diseases of the Heart Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted diseases of the heart mortality rate for the IHS service area population was 132.1. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 142.8. This is 6 percent less than the U.S. All Races rate of 152.0 for 1990. The Albuquerque and Navajo Area rates are well below the U.S. rate.



## Table 4.26 Age-Adjusted Diseases of the Heart Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	720,058	152.0
All IHS Areas	4,171	132.1
9* Areas <sup>2</sup>	2,414	142.8
Aberdeen*	406	249.0
Alaska*	295	148.0
Albuquerque*	150	88.0
Bemidji*	314	216.7
Billings*	183	183.2
California	219	78.7
Nashville*	216	142.2
Navajo*	456	97.4
Oklahoma	1,105	123.3
Phoenix*	322	126.9
Portland	433	151.5
Tucson*	72	117.5

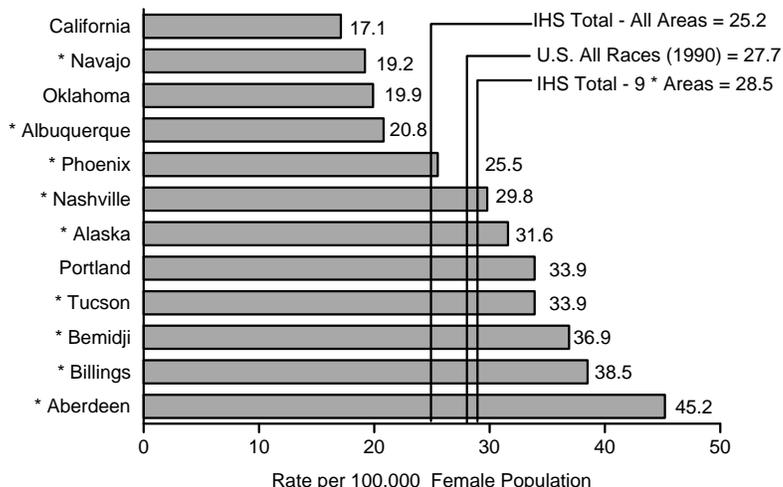
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.27 Age-Adjusted Cerebrovascular Diseases Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted cerebrovascular diseases mortality rate for the IHS service area population was 25.2. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 28.5. This is slightly higher than the U.S. All Races rate of 27.7 for 1990. The Aberdeen Area rate of 45.2 was 2.4 times the Navajo Area rate of 19.2.



## Table 4.27 Age-Adjusted Cerebrovascular Diseases Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	144,088	27.7
All IHS Areas	839	25.2
9* Areas <sup>2</sup>	499	28.5
Aberdeen*	78	45.2
Alaska*	63	31.6
Albuquerque*	40	20.8
Bemidji*	58	36.9
Billings*	40	38.5
California	54	17.1
Nashville*	44	29.8
Navajo*	90	19.2
Oklahoma	188	19.9
Phoenix*	67	25.5
Portland	98	33.9
Tucson*	19	33.9

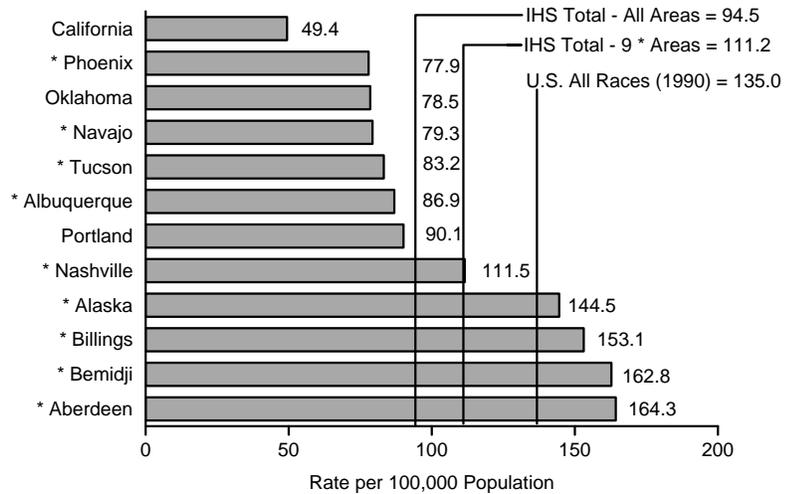
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.28 Age-Adjusted Malignant Neoplasm Mortality Rates

Calendar Years 1989–1991

In 1989-1991, the age-adjusted malignant neoplasm mortality rate for the IHS service area population was 94.5. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 111.2. This is 18 percent less than the U.S. All Races rate of 135.0 for 1990. However, the Aberdeen, Bemidji, Billings, and Alaska Areas had rates greater than the U.S. rate.



## Table 4.28 Age-Adjusted Malignant Neoplasm Mortality Rates

Calendar Years 1989–1991

	Deaths	Rate <sup>1</sup>
U.S. All Races (1990)	505,322	135.0
All IHS Areas	2,793	94.5
9* Areas <sup>2</sup>	1,770	111.2
Aberdeen*	262	164.3
Alaska*	273	144.5
Albuquerque*	136	86.9
Bemidji*	223	162.8
Billings*	150	153.1
California	131	49.4
Nashville*	150	111.5
Navajo*	339	79.3
Oklahoma	644	78.5
Phoenix*	188	77.9
Portland	248	90.1
Tucson*	49	83.2

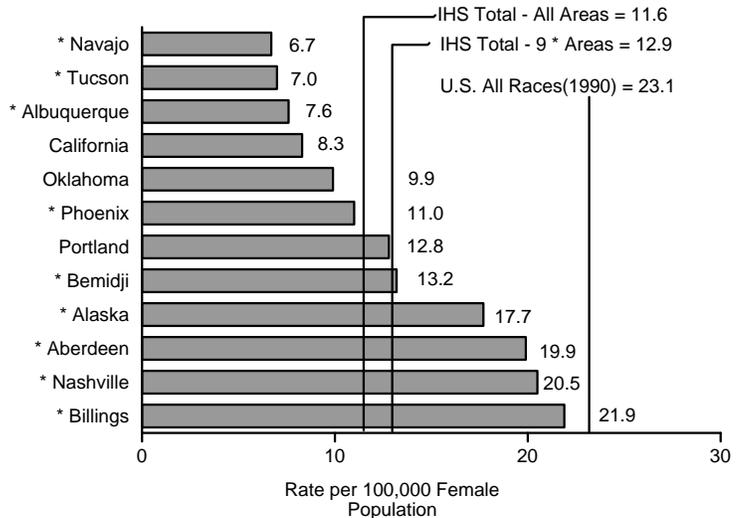
<sup>1</sup> Age-adjusted rate per 100,000 population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.29 Age-Adjusted Breast Cancer Mortality Rates for Females

Calendar Years 1989–1991

In 1989-1991, the age-adjusted breast cancer mortality rate for females in the IHS service area population was 11.6. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 12.9. This is 44 percent less than the U.S. All Races rate of 23.1 for 1990. The Billings Area rate of 21.9 approached the U.S. rate.



## Table 4.29 Age-Adjusted Breast Cancer Mortality Rates For Females

Calendar Years 1989–1991



	Total deaths	Rate <sup>1</sup>
U.S. All Races (1990)	43,391	23.1
All IHS Areas	180	11.6
9* Areas <sup>2</sup>	108	12.9
Aberdeen*	18	19.9
Alaska*	16	17.7
Albuquerque*	6	7.6
Bemidji*	10	13.2
Billings*	11	21.9
California	12	8.3
Nashville*	15	20.5
Navajo*	15	6.7
Oklahoma	40	9.9
Phoenix*	15	11.0
Portland	20	12.8
Tucson*	2	7.0

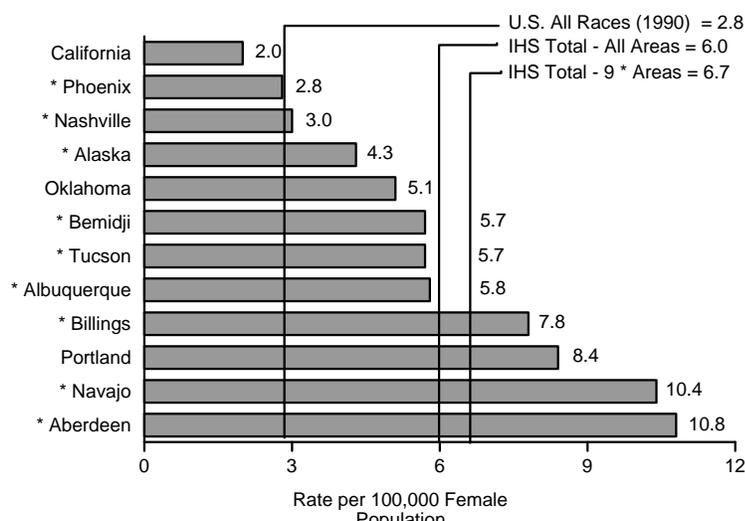
<sup>1</sup> Age-adjusted rate per 100,000 female population. Rates based on a small number of deaths should be interpreted with caution.

<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.

## Chart 4.30 Age-Adjusted Cervical Cancer Mortality Rates for Females

Calendar Years 1989–1991

In 1989-1991, the age-adjusted cervical cancer mortality rate for females in the IHS service area population was 6.0. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the rate is 6.7. This is 2.4 times the U.S. All Races rate of 2.8 for 1990. The Area rates should be interpreted with caution because of the small number of deaths involved. Navajo (23) was the only Area with more than 20 deaths over the 3-year period.



## Table 4.30 Age-Adjusted Cervical Cancer Mortality Rates For Females

Calendar Years 1989–1991

	Total deaths	Rate <sup>1</sup>
U.S. All Races (1990)	4,627	2.8
All IHS Areas	92	6.0
9* Areas <sup>2</sup>	58	6.7
Aberdeen*	9	10.8
Alaska*	5	4.3
Albuquerque*	5	5.8
Bemidji*	4	5.7
Billings*	4	7.8
California	3	2.0
Nashville*	2	3.0
Navajo*	23	10.4
Oklahoma	18	5.1
Phoenix*	4	2.8
Portland	13	8.4
Tucson*	2	5.7

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

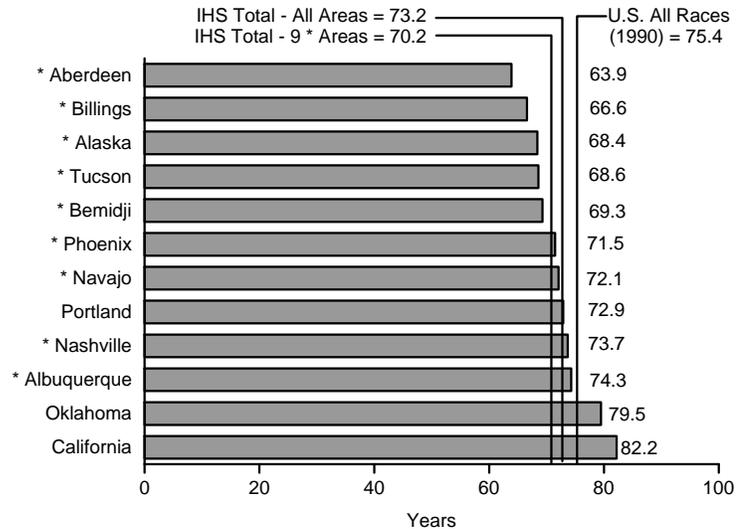
<sup>2</sup> The 3 IHS Areas that do not have an asterisk (California, Oklahoma, and Portland) appear to have a problem with underreporting of Indian race on death certificates. Therefore a separate IHS rate was calculated excluding these 3 Areas.



## Chart 4.31 Life Expectancy at Birth, Both Sexes

Calendar Years 1989–1991

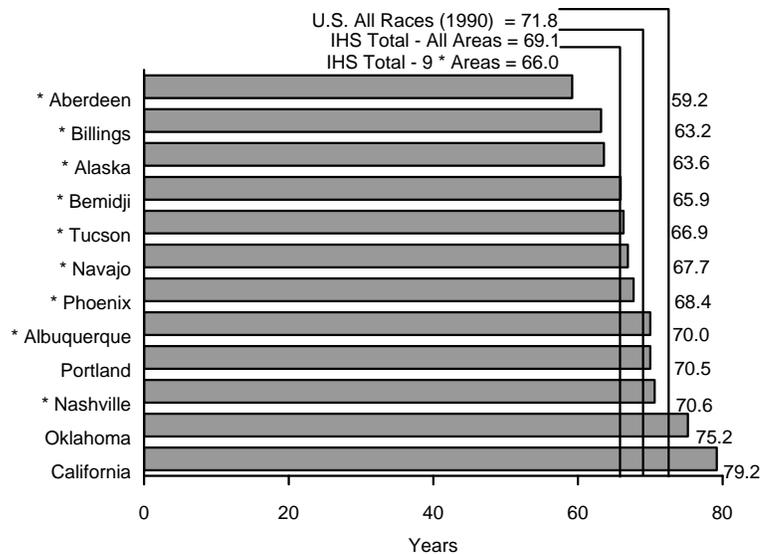
In 1989-1991, the life expectancy at birth (both sexes) for the IHS service area population was 73.2 years. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the life expectancy is 70.2 years. This is 5.2 years less than the 1990 figure of 75.4 for the U.S. All Races population. Most Areas had figures less than the U.S. figure.



## Chart 4.32 Life Expectancy at Birth, Males

Calendar Years 1989–1991

In 1989-1991, the life expectancy at birth for males in the IHS service area population was 69.1 years. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the life expectancy is 66.0 years. This is 5.8 years less than the 1990 figure of 71.8 years for the U.S. All Races male population. Most Areas had figures less than the U.S. figure.

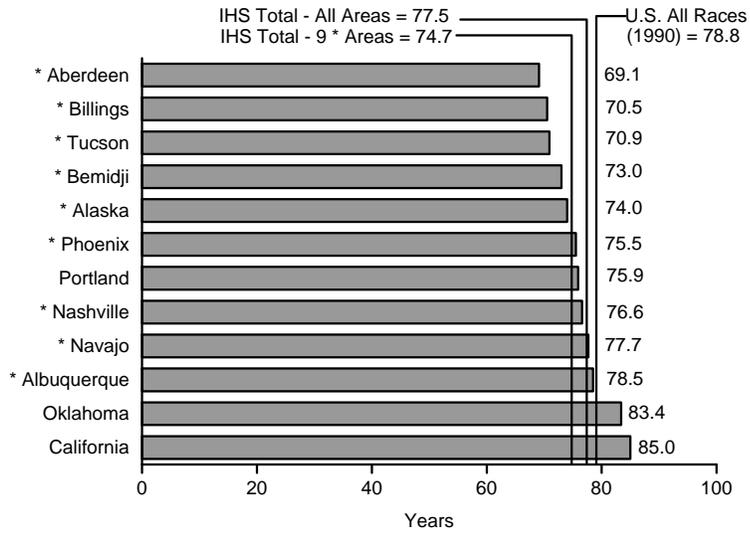


### Chart 4.33

## Life Expectancy at Birth, Females

Calendar Years 1989–1991

In 1989-1991, the life expectancy at birth for females in the IHS service area population was 77.5 years. When the 3 IHS Areas with apparent problems in underreporting of Indian race on death certificates are excluded, the life expectancy is 74.7 years. This is 4.1 years less than the 1990 figure of 78.8 years for the U.S. All Races female population. Most Areas had figures less than the U.S. figure.

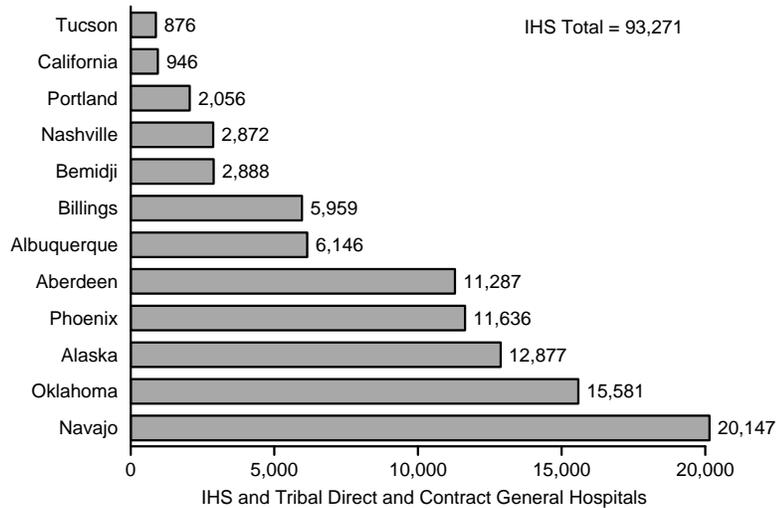




# PART V—Patient Care Statistics

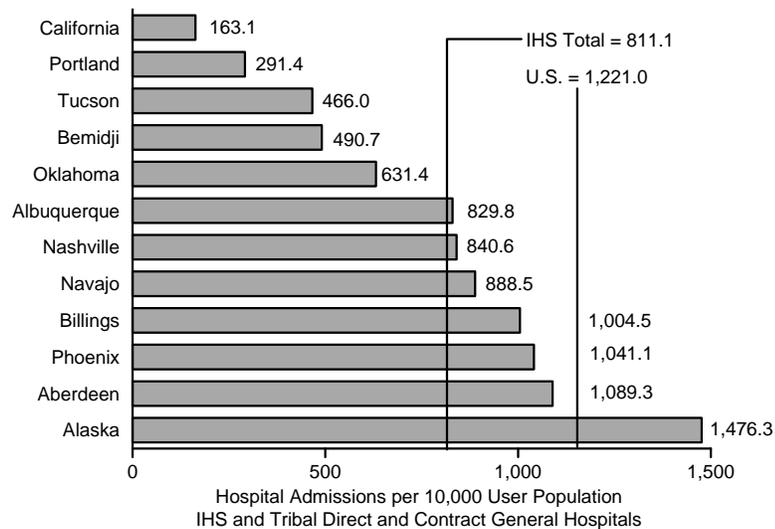
**Chart 5.1**  
**Number of Admissions, FY 1992**

In FY 1992, there were over 93,000 admissions to IHS and Tribal direct and contract general hospitals. Over 38 percent of these admissions were in 2 IHS Areas, Navajo (20,147) and Oklahoma (15,581).



**Chart 5.2**  
**Hospital Admission Rates, FY 1992**

The IHS admission rate of 811.1 admissions per 10,000 population in FY 1992 was 34 percent lower than the U.S. rate of 1,221.0 in CY 1992. The IHS Area rates ranged from 163.1 in California, where the IHS provides little inpatient care, to 1,476.3 in Alaska.



## Table 5.1 Number and Rate of Admissions

Indian Health Service and Tribal Direct and Contract  
General Hospitals, FY 1992  
U.S. Short-Stay Community Hospitals, CY 1992

	Total admission rate <sup>1</sup>	Total admissions	IHS admissions		Tribal admissions	
			Direct	Contract	Direct	Contract
U.S.	1,221.0	30,951 <sup>2</sup>				
All IHS Areas	811.1	93,271	61,992	16,905	9,017	5,357
Aberdeen	1,089.3	11,287	7,875	3,151	—	261
Alaska	1,476.3	12,877	5,381	321	5,902	1,273
Albuquerque	829.8	6,146	4,862	1,284	—	—
Bemidji	490.7	2,888	1,045	426	—	1,417
Billings	1,004.5	5,959	3,162	2,797	—	—
California	163.1	946	—	—	—	946
Nashville	840.6	2,872	965	182	1,084	641
Navajo	888.5	20,147	18,122	2,025	—	—
Oklahoma	631.4	15,581	10,135	3,147	2,031	268
Phoenix	1,041.1	11,636	9,826	1,750	—	60
Portland	291.4	2,056	—	1,565	—	491
Tucson	466.0	876	619	257	—	—

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

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

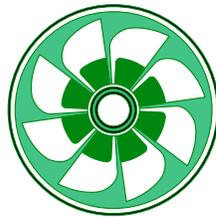
Sources: IHS Direct: Monthly Report of Inpatient Services

IHS Contract: Contract Statistical System (Report 3I)

Tribal Direct: Monthly Report of Inpatient Services

Tribal Contract: IHS Area submissions

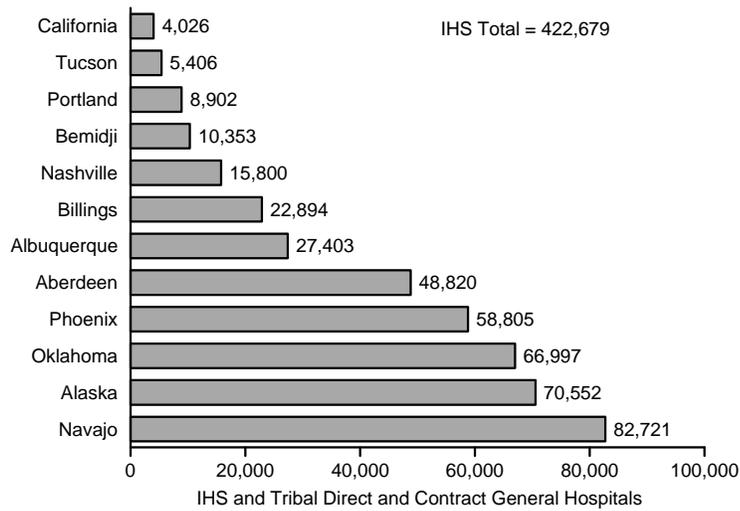
U.S.: Unpublished Data, NCHS Hospital Discharge Survey Branch



### Chart 5.3

## Number of Hospital Days, FY 1992

The number of inpatient days in IHS and Tribal direct and contract general hospitals was nearly 423,000 in FY 1992. The number varied considerably among the IHS Areas, ranging from 4,026 in California to 82,721 in Navajo.



### Table 5.3

## Number of Hospital Days

Indian Health Service and Tribal Direct and Contract General Hospitals, FY 1992

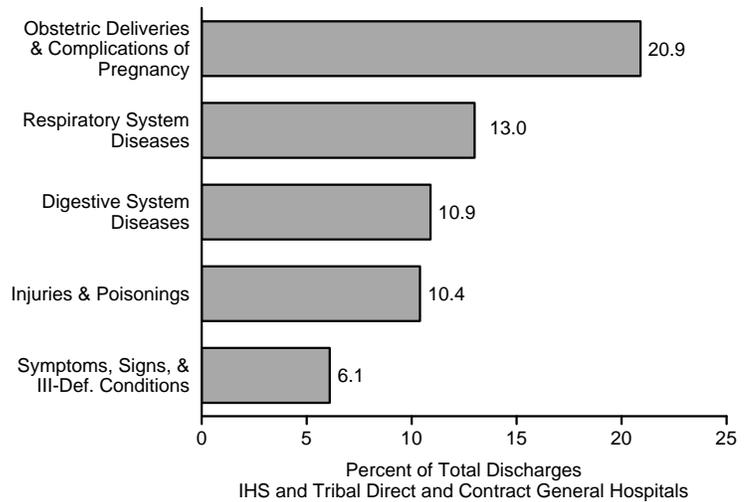
	Total days	IHS days		Tribal days	
		Direct	Contract	Direct	Contract
<b>All Areas</b>	<b>422,679</b>	<b>277,447</b>	<b>81,889</b>	<b>40,986</b>	<b>22,357</b>
Aberdeen	48,820	32,434	15,396	—	990
Alaska	70,552	37,928	1,540	26,834	4,250
Albuquerque	27,403	21,846	5,557	—	—
Bemidji	10,353	3,312	1,700	—	5,341
Billings	22,894	10,861	12,033	—	—
California	4,026	—	—	—	4,026
Nashville	15,800	6,172	811	4,998	3,819
Navajo	82,721	72,098	10,623	—	—
Oklahoma	66,997	38,774	17,474	9,154	1,595
Phoenix	58,805	50,000	8,698	—	107
Portland	8,902	—	6,673	—	2,229
Tucson	5,406	4,022	1,384	—	—

Sources: IHS Direct: Monthly Report of Inpatient Services  
 IHS Contract: Contract Statistical System (Report 3I)  
 Tribal Direct: Monthly Report of Inpatient Services  
 Tribal Contract: IHS Area Submissions

In FY 1992, 20.9 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by respiratory system diseases at 13.0 percent.

## Chart 5.4 Leading Causes of Hospitalization

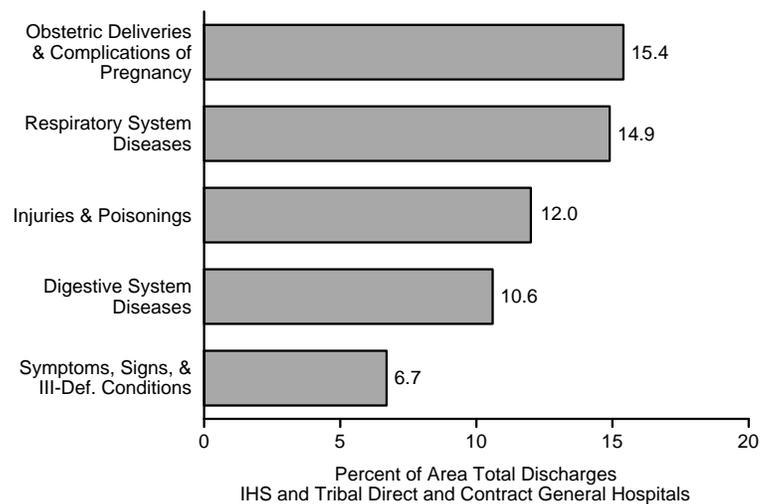
All IHS Areas, FY 1992



## Chart 5.5 Leading Causes of Hospitalization

Aberdeen Area, FY 1992

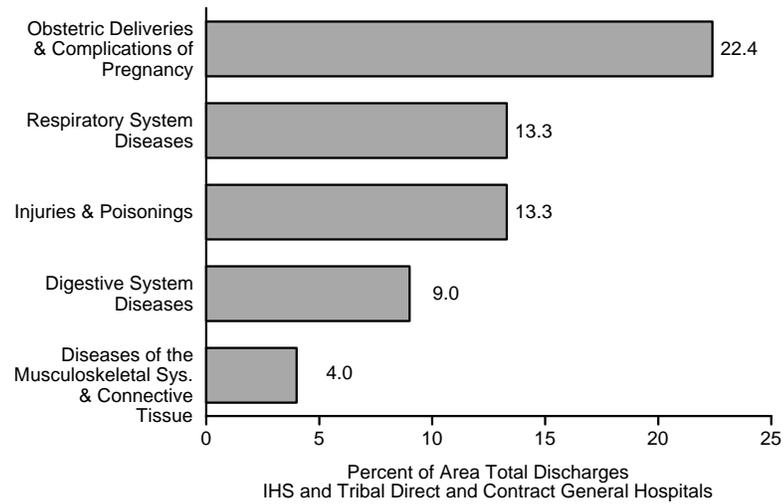
For the Aberdeen Area in FY 1992, 15.4 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by respiratory system diseases at 14.9 percent.



## Chart 5.6 Leading Causes of Hospitalization

Alaska Area, FY 1992

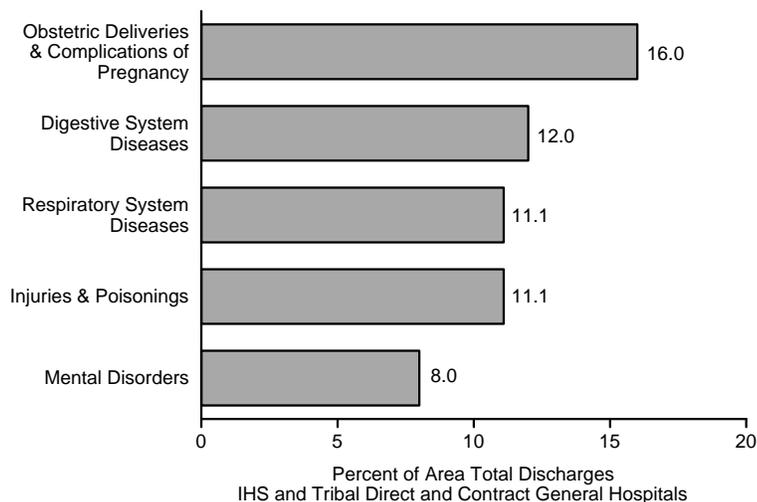
For the Alaska Area in FY 1992, 22.4 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by respiratory system diseases at 13.3 percent.



## Chart 5.7 Leading Causes of Hospitalization

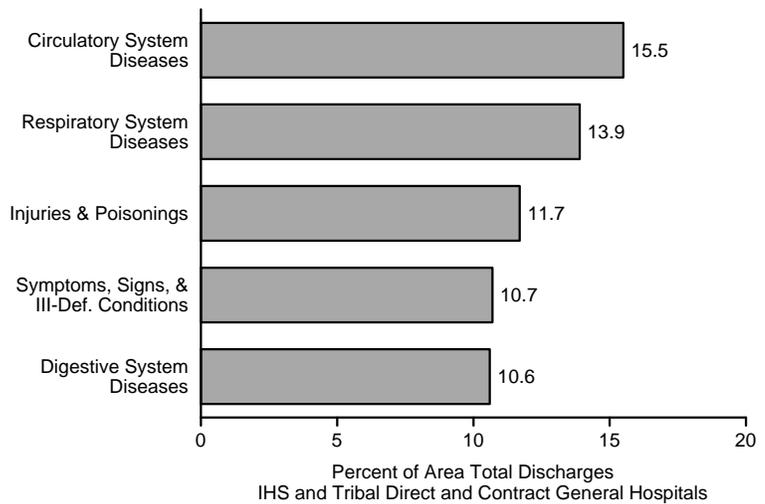
Albuquerque Area, FY 1992

For the Albuquerque Area in FY 1992, 16.0 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by digestive system diseases at 12.0 percent.



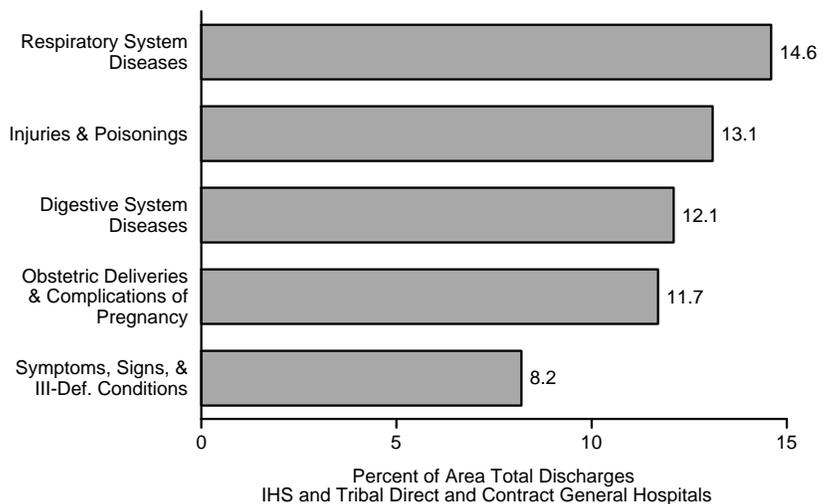
For the Bemidji Area in FY 1992, 15.5 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to circulatory system diseases. This was followed by respiratory system diseases at 13.9 percent.

**Chart 5.8**  
**Leading Causes of Hospitalization**  
 Bemidji Area, FY 1992



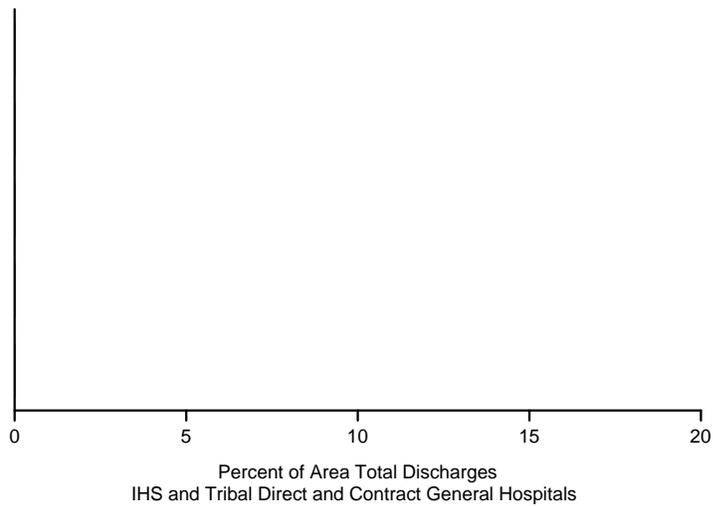
**Chart 5.9**  
**Leading Causes of Hospitalization**  
 Billings Area, FY 1992

For the Billings Area in FY 1992, 14.6 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by injuries and poisonings at 13.1 percent.



## Chart 5.10 Leading Causes of Hospitalization California Area, FY 1992

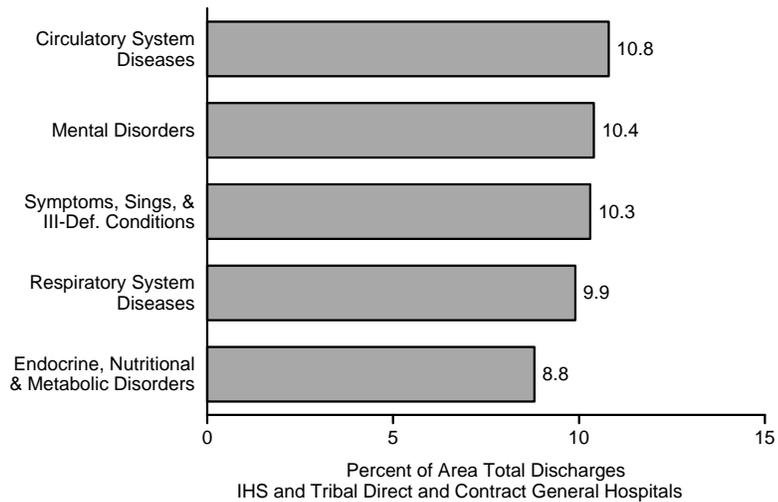
There were no diagnostic inpatient data available for the California Area in FY 1992.




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## Chart 5.11 Leading Causes of Hospitalization Nashville Area, FY 1992

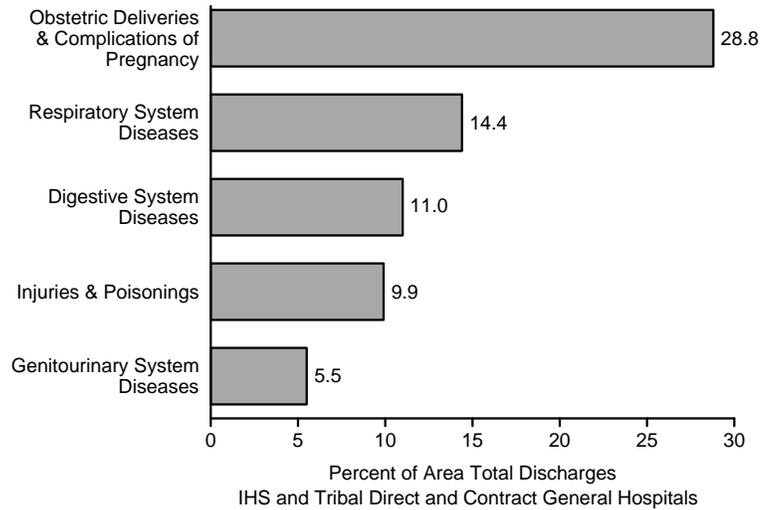
For the Nashville Area in FY 1992, 10.8 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to circulatory system diseases. This was followed by mental disorders at 10.4 percent.



For the Navajo Area in FY 1992, 28.8 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by respiratory system diseases at 14.4 percent.

## Chart 5.12 Leading Causes of Hospitalization

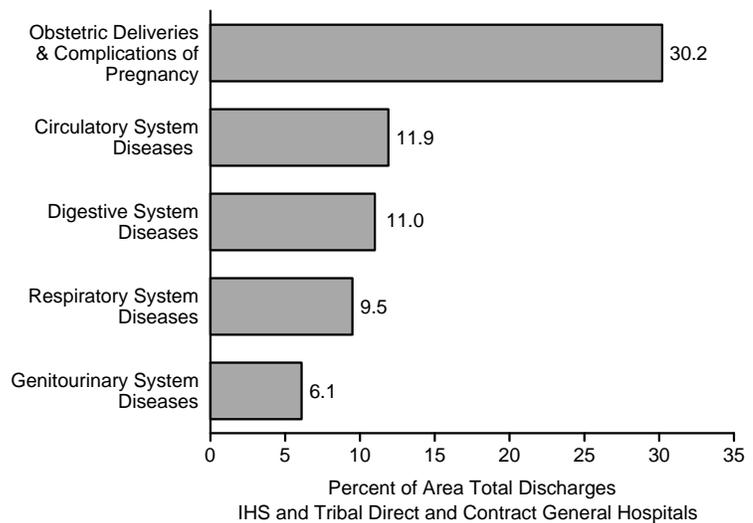
Navajo Area, FY 1992



## Chart 5.13 Leading Causes of Hospitalization

Oklahoma Area, FY 1992

For the Oklahoma Area in FY 1992, 30.2 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and the puerperium. This was followed by circulatory system diseases at 11.9 percent.

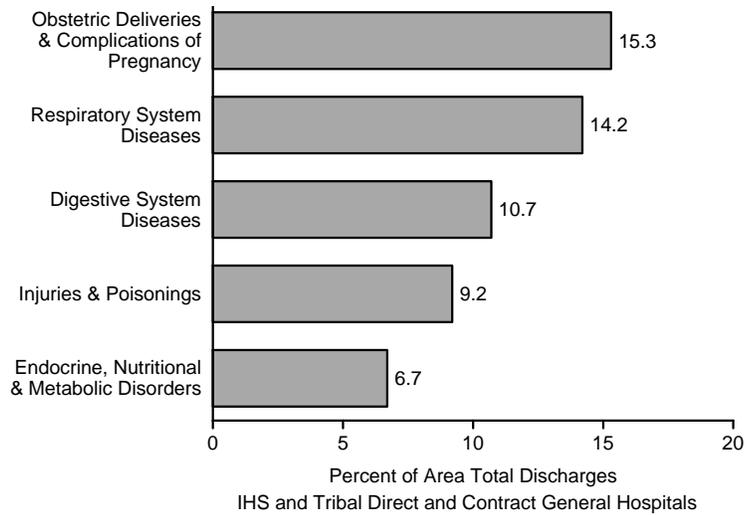


### Chart 5.14

## Leading Causes of Hospitalization

Phoenix Area, FY 1992

For the Phoenix Area in FY 1992, 15.3 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to obstetric deliveries and complications of pregnancy and puerperium. This was followed by respiratory system diseases at 14.2 percent.

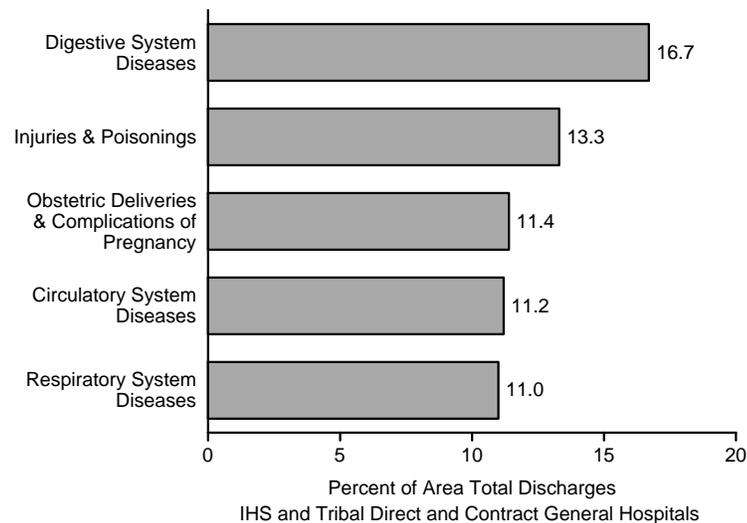


### Chart 5.15

## Leading Causes of Hospitalization

Portland Area, FY 1992

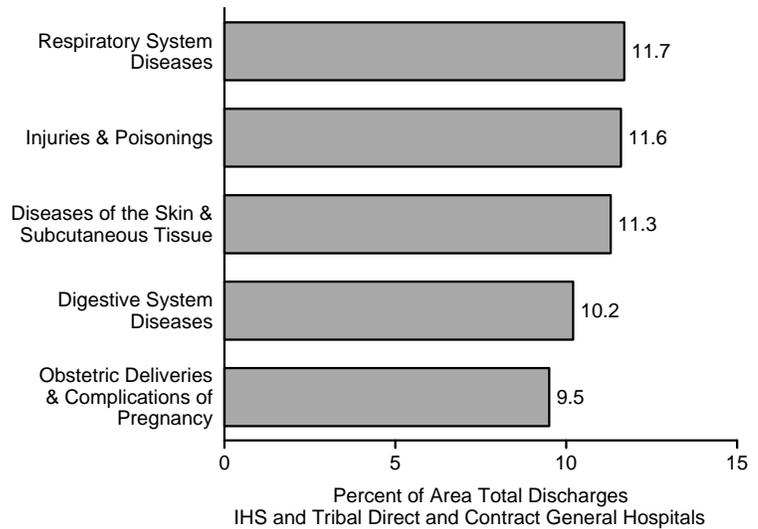
For the Portland Area in FY 1992, 16.7 percent of all discharges from IHS and Tribal contract general hospitals pertained to digestive system diseases. This was followed by injuries and poisonings at 13.3 percent.



## Chart 5.16 Leading Causes of Hospitalization

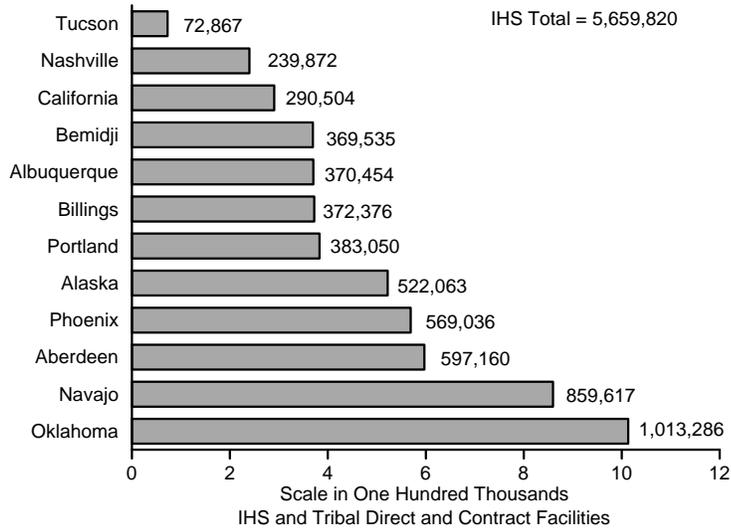
Tucson Area, FY 1992

For the Tucson Area in FY 1992, 11.7 percent of all discharges from IHS and Tribal direct and contract general hospitals pertained to respiratory system diseases. This was followed by injuries and poisonings at 11.6 percent.



## Chart 5.17 Number of Outpatient Visits, FY 1992

In FY 1992, there were approximately 5.7 million outpatient visits to IHS and Tribal direct and contract facilities. Two IHS Areas had 33 percent of the visits, Oklahoma (1,013,286) and Navajo (859,617).



## Table 5.17 Number of Outpatient Visits

Indian Health Service and Tribal Direct and Contract Facilities, FY 1992

	Total	Indian health service		Tribal	
		Direct	Contract	Direct	Contract
<b>All Areas</b>	<b>5,659,820</b>	<b>3,924,484</b>	<b>167,697</b>	<b>1,407,421</b>	<b>160,218</b>
Aberdeen	597,160	523,209	16,000	55,717	2,234
Alaska	522,063	190,616	905	288,072	42,470
Albuquerque	370,454	340,080	9,115	21,259	—
Bemidji	369,535	127,007	4,085	209,545	28,898
Billings	372,376	342,627	29,749	—	—
California	290,504	—	—	240,142	50,362
Nashville	239,872	67,978	1,269	160,635	9,990
Navajo	859,617	821,596	38,021	—	—
Oklahoma	1,013,286	694,087	20,248	294,407	4,544
Phoenix	569,036	501,041	15,383	49,761	2,851
Portland	383,050	251,052	32,138	81,661	18,199
Tucson	72,867	65,191	784	6,222	670

Sources: IHS Direct: APC Data System (Report 1A)

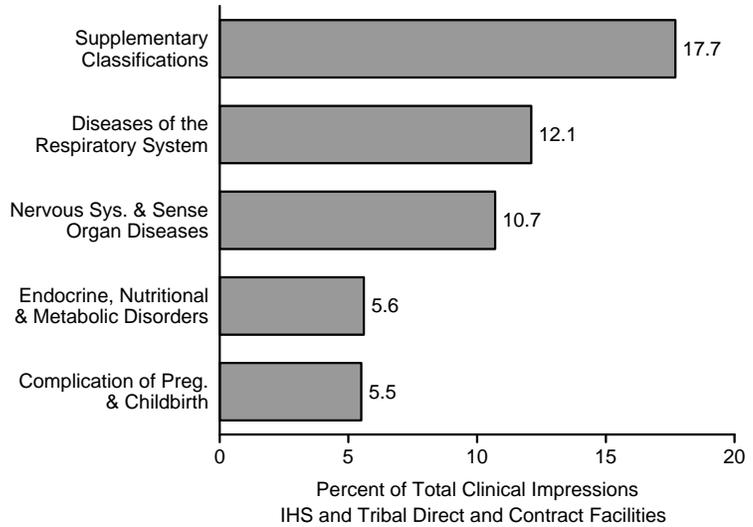
IHS Contract: Contract Statistical Data System (Report 3G)

Tribal Direct and Contract: Area Submissions

In FY 1992, 17.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 12.1 percent.

### Chart 5.18 Leading Causes of Outpatient Visits

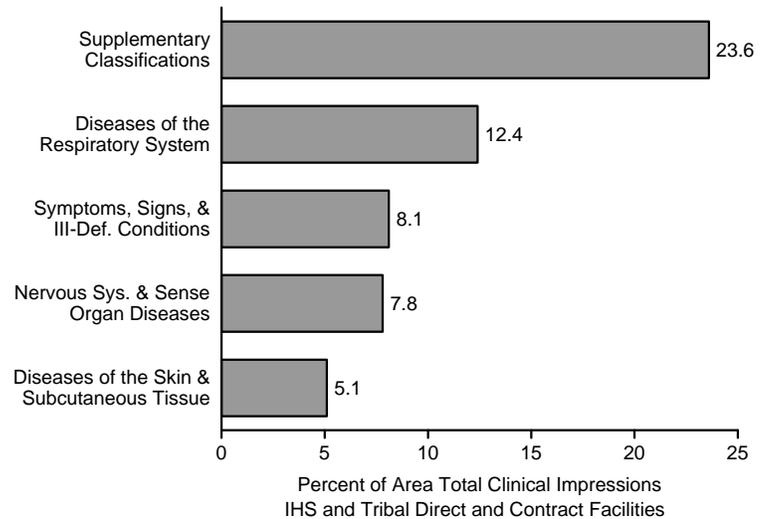
All IHS Areas, FY 1992



### Chart 5.19 Leading Causes of Outpatient Visits

Aberdeen Area, FY 1992

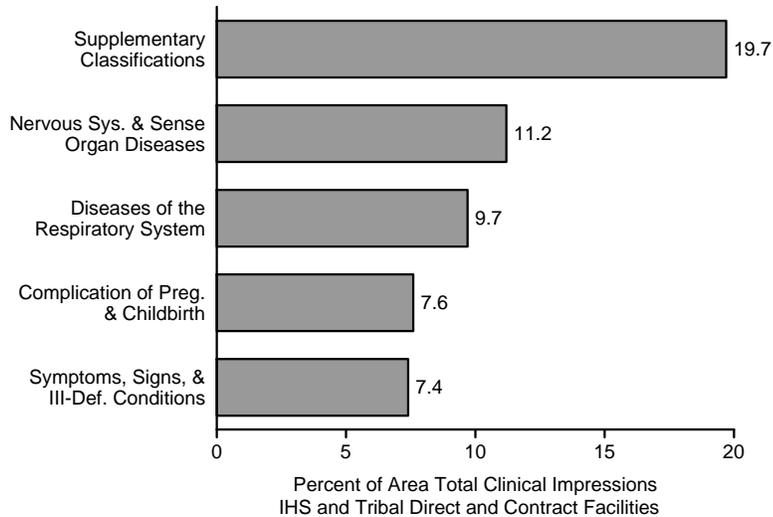
For the Aberdeen Area in FY 1992, 23.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 12.4 percent.



## Chart 5.20 Leading Causes of Outpatient Visits

Alaska Area, FY 1992

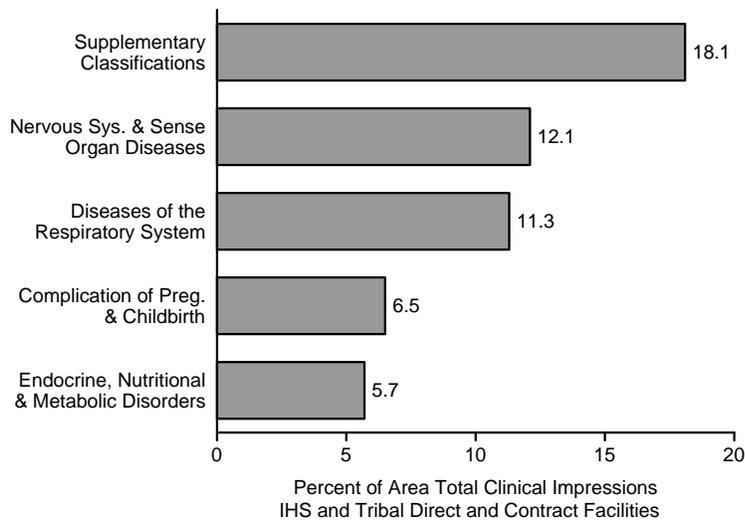
For the Alaska Area in FY 1992, 19.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by nervous system and sense organ diseases at 11.2 percent.



## Chart 5.21 Leading Causes of Outpatient Visits

Albuquerque Area, FY 1992

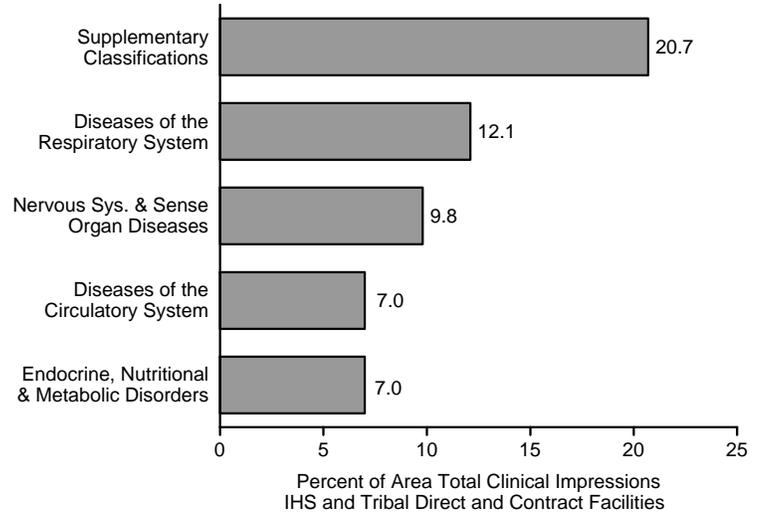
For the Albuquerque Area in FY 1992, 18.1 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by nervous system and sense organ diseases at 12.1 percent.



**F**or the Bemidji Area in FY 1992, 20.7 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 12.1 percent.

### Chart 5.22 Leading Causes of Outpatient Visits

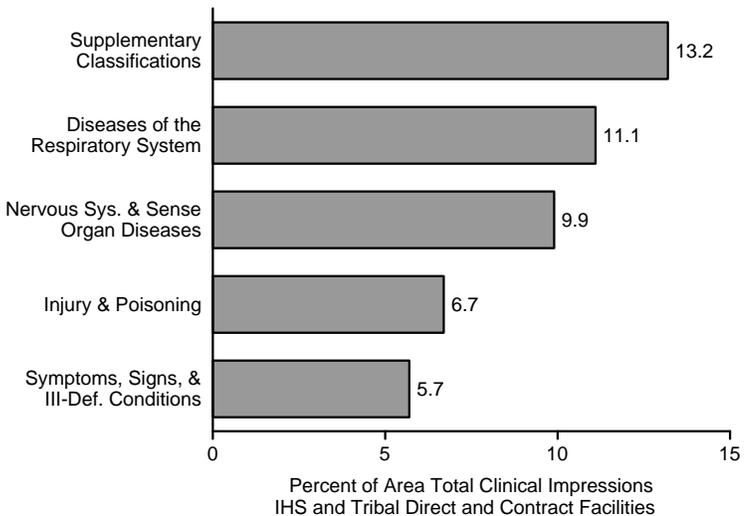
Bemidji Area, FY 1992



### Chart 5.23 Leading Causes of Outpatient Visits

Billings Area, FY 1992

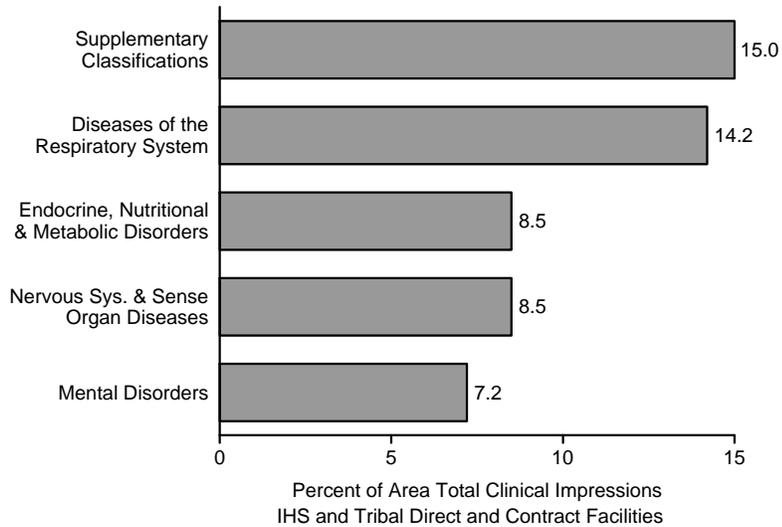
**F**or the Billings Area in FY 1992, 13.2 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 11.1 percent.



## Chart 5.24 Leading Causes of Outpatient Visits

California Area, FY 1992

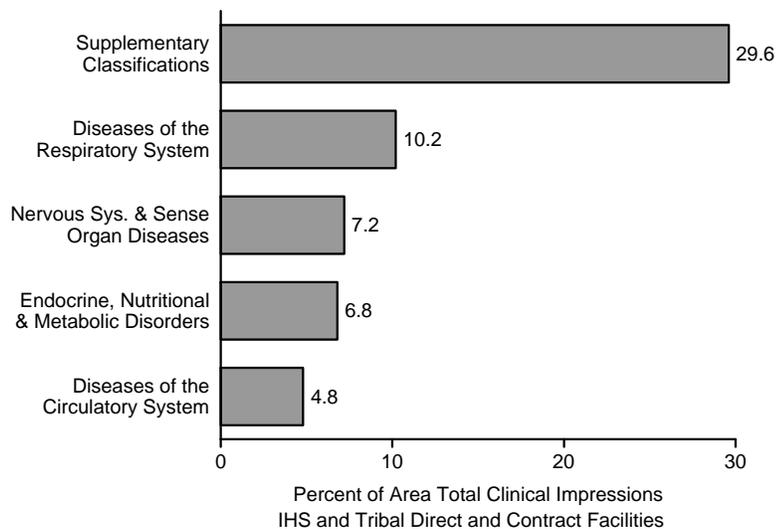
For the California Area in FY 1992, 15.0 percent of all clinical impressions in Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 14.2 percent.



## Chart 5.25 Leading Causes of Outpatient Visits

Nashville Area, FY 1992

For the Nashville Area in FY 1992, 29.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 10.2 percent.

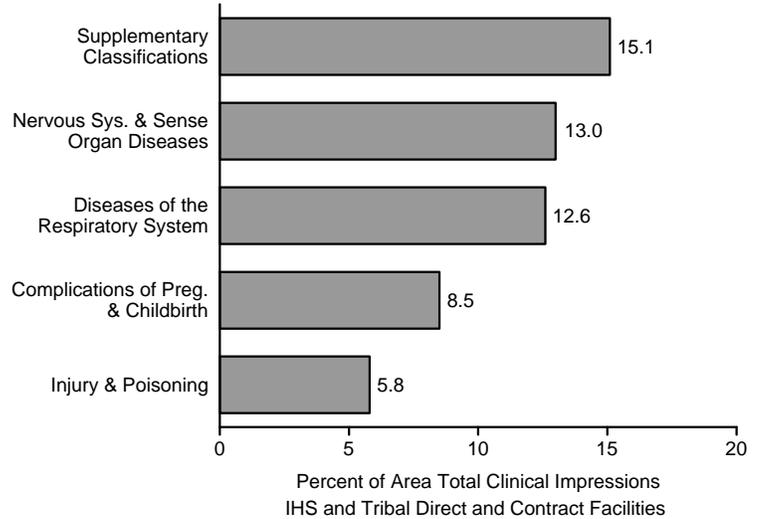


**F**or the Navajo Area in FY 1992, 15.1 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by nervous system and sense organ diseases at 13.0 percent.



## Chart 5.26 Leading Causes of Outpatient Visits

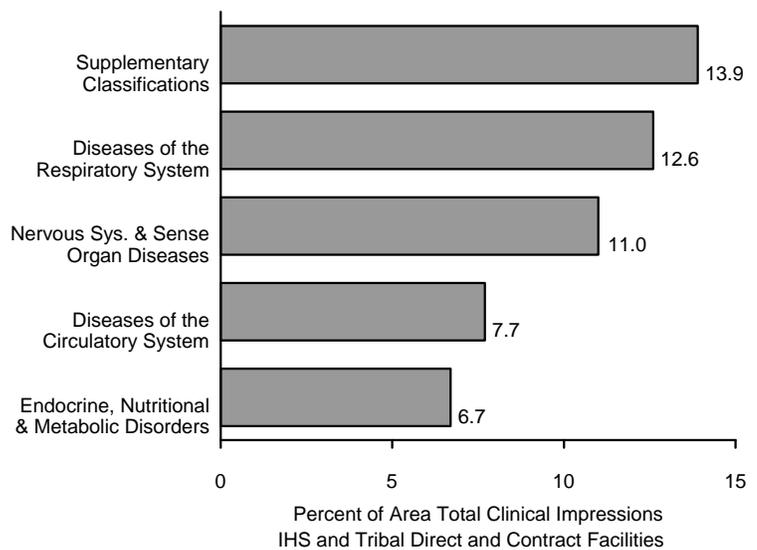
Navajo Area, FY 1992



## Chart 5.27 Leading Causes of Outpatient Visits

Oklahoma Area, FY 1992

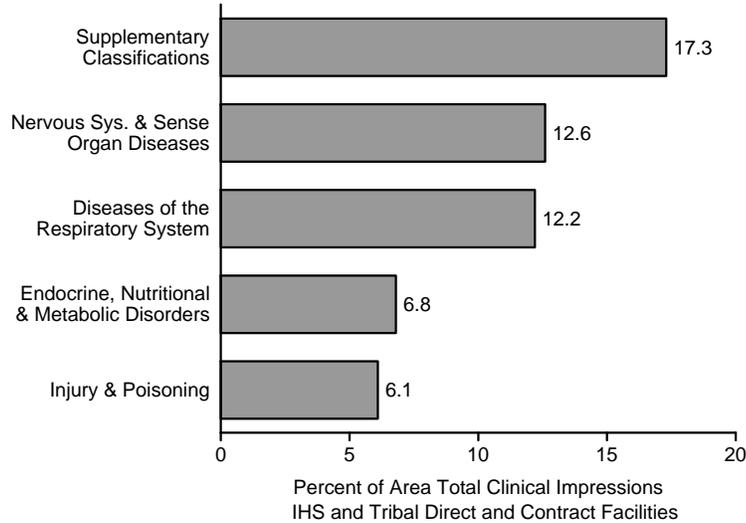
**F**or the Oklahoma Area in FY 1992, 13.9 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 12.6 percent.



## Chart 5.28 Leading Causes of Outpatient Visits

Phoenix Area, FY 1992

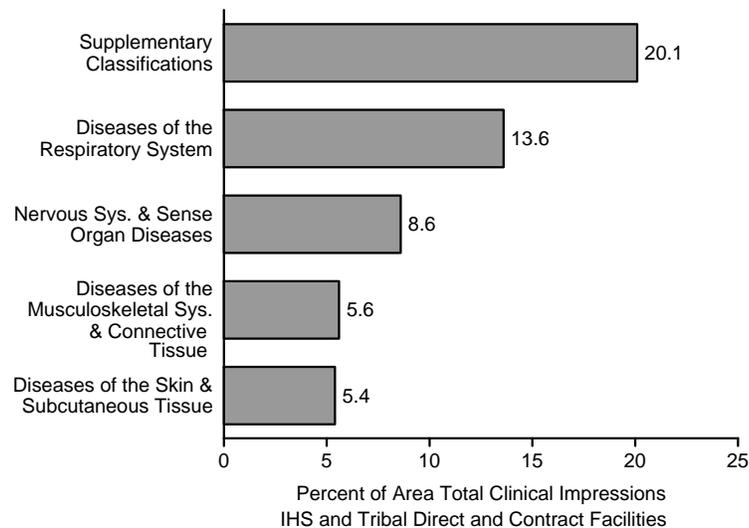
For the Phoenix Area in FY 1992, 17.3 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by nervous system and sense organ diseases at 12.6 percent.



## Chart 5.29 Leading Causes of Outpatient Visits

Portland Area, FY 1992

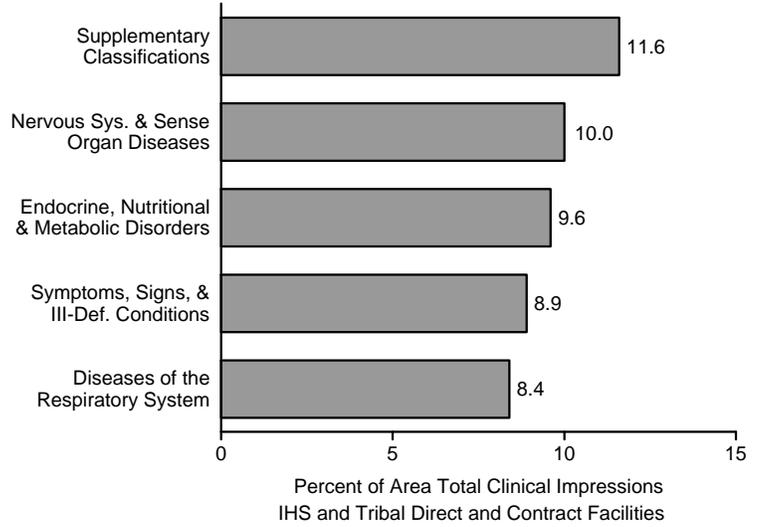
For the Portland Area in FY 1992, 20.1 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by diseases of the respiratory system at 13.6 percent.



# Chart 5.30 Leading Causes of Outpatient Visits

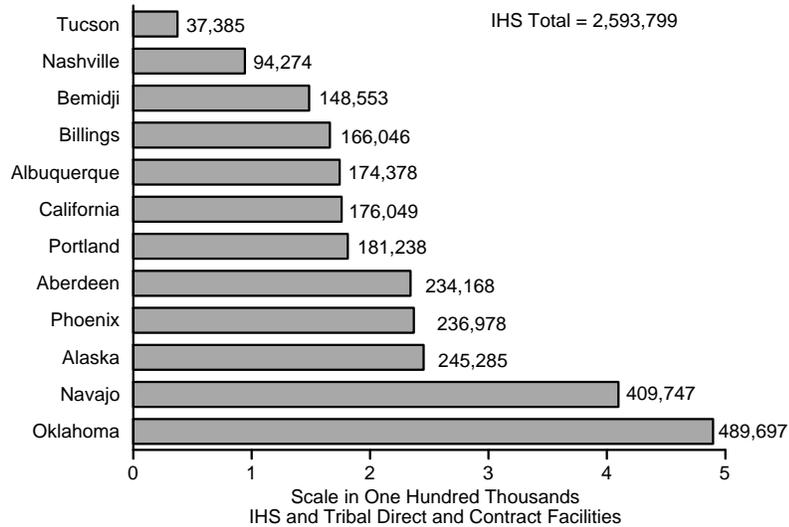
Tucson Area, FY 1992

For the Tucson Area in FY 1992, 11.6 percent of all clinical impressions in IHS and Tribal direct and contract facilities pertained to supplementary classifications. This was followed by nervous system and sense organ diseases at 10.0 percent.



## Chart 5.31 Number of Dental Services Provided, FY 1993

In FY 1993, there were nearly 2.6 million dental services provided at IHS and Tribal direct and contract facilities. Two IHS Areas provided 35 percent of the dental services, Oklahoma (489,697) and Navajo (409,747).



## Table 5.31 Number of Dental Services Provided

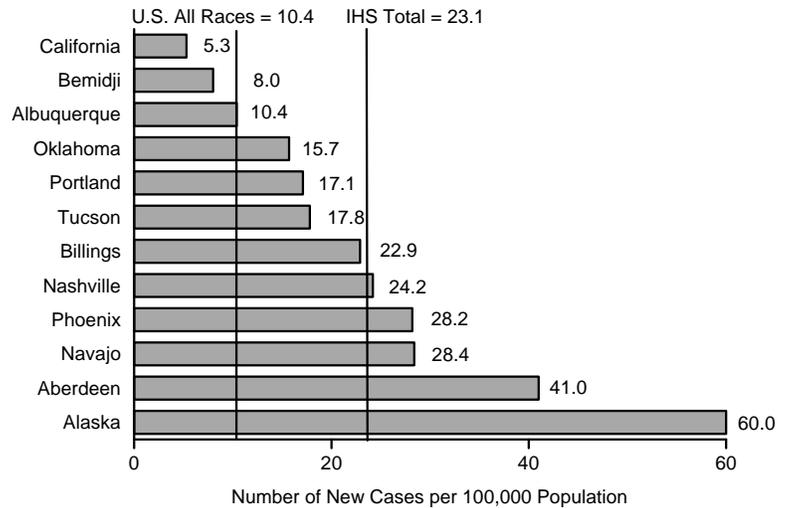
Indian Health Service and Tribal Direct and Contract Facilities, FY 1993

	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>382,303</b>	<b>2,593,799</b>	<b>250,231</b>	<b>1,730,753</b>	<b>17,924</b>	<b>97,897</b>	<b>108,552</b>	<b>734,411</b>	<b>5,596</b>	<b>30,738</b>
Aberdeen	37,810	234,168	29,796	185,149	1,942	11,361	5,269	33,423	803	4,235
Alaska	39,647	245,285	9,665	70,211	90	2,159	29,892	172,915	—	—
Albuquerque	24,667	174,378	22,749	153,854	9	21	1,909	20,503	—	—
Bemidji	21,408	148,553	6,687	43,202	1,015	9,018	12,614	89,555	1,092	6,778
Billings	24,776	166,046	24,346	163,953	430	2,093	—	—	—	—
California	21,849	176,049	—	—	—	—	21,596	174,937	253	1,112
Nashville	14,232	94,274	3,285	23,179	25	168	9,896	64,781	1,026	6,146
Navajo	63,215	409,747	57,261	388,182	5,954	21,565	—	—	—	—
Oklahoma	66,695	489,697	47,577	355,493	904	21,974	17,254	105,219	960	7,011
Phoenix	33,298	236,978	28,182	207,961	1,299	3,756	3,801	25,156	16	106
Portland	27,075	181,238	15,672	110,082	3,636	17,884	6,321	47,922	1,446	5,350
Tucson	7,631	37,385	5,011	29,487	2,620	7,898	—	—	—	—

Source: IHS Dental Data Reporting System

## Chart 5.32 Rate of New Tuberculosis Cases, CY 1991

The rate of new tuberculosis cases for the IHS in CY 1991 was 2.2 times the rate for the U.S., 23.1 new cases per 100,000 population compared to 10.4. The Alaska Area rate (60.0) was almost 6 times the U.S. rate.



## Table 5.32 Number and Rate of New Tuberculosis Cases, CY 1991

	Case rate <sup>1</sup>	Number of cases
U.S. All Races	10.4	26,283
All IHS Areas	23.1	277
Aberdeen	41.0	33
Alaska	60.0	53
Albuquerque	10.4	7
Bemidji	8.0	5
Billings	22.9	11
California	5.3	5
Nashville	24.2	13
Navajo	28.4	53
Oklahoma	15.7	41
Phoenix	28.2	31
Portland	17.1	21
Tucson	17.8	4

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

Source: Centers for Disease Control (data by State and county)