

INDIAN HEALTH SERVICE

**TRACKING REGIONAL INDIAN HEALTH
STATUS OBJECTIVES**

2011

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

INDIAN HEALTH SERVICE

OFFICE OF PUBLIC HEALTH SUPPORT

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Overview

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

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

The IHS is the federal health care provider and health advocate for AI/AN people and its goal is to assure that comprehensive, culturally-acceptable personal and public health services are available and accessible to AI/AN people. The mission of the IHS, in partnership with AI/AN people, is to raise their physical, mental, social, and spiritual health to the highest level. It is also the responsibility of the IHS to work with the people involved in the health delivery programs so they may be cognizant of entitlements of AI/AN people, as American citizens, to all federal, state, and local health programs, in addition to IHS and Tribal services. The IHS also acts as the principal federal health advocate for AI/AN people in the building of health coalitions, networks, and partnerships with Tribal nations and other government agencies as well as with non-federal organizations, e.g., academic medical centers and private foundations.

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

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

increase the number of Indian health professionals for Indian needs and to improve health care access for Indian people living in urban areas.

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

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

Tracking Regional Indian Health Status Objectives, 2011

Introduction

“Tracking Regional Indian Health Status Objectives, 2011” provides an overview of Indian Health Service progress in meeting a special set of health status objectives. This report uses narrative (analysis), tables, and charts to describe specific American Indian and Alaska Native health status measures as specified in Healthy People 2010 (HP2010) and focuses on a core set of 17 objectives. The HP2010 objectives are available online at www.health.gov/healthypeople.

Healthy People 2010 was designed to make progress in two broad areas: (1) to assist individuals of all ages to increase life expectancy and improve their quality of life, and (2) to eliminate health disparities among different segments of the population. Unlike HP2000 the HP2010 guidelines identify a single national target for each objective which is applicable to all population groups. Several different strategies were used by HP2010 to establish these targets to include a “better than the best” approach for which individual risk behaviors could be expected to change over the short-term (e.g., motor-vehicle crashes). This target-setting method ensured that the HP2010 targets allowed for improvements for all racial/ethnic groups. For objectives that were deemed unlikely to achieve non-disparity within the decade regardless of the degree of intervention, the HP2010 targets were set at a level that would represent an improvement for a substantial proportion of the U.S. population.

The IHS is committed to achieving the health promotion and disease prevention objectives outlined in HP2010. The Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics is tracking HP2010 objectives for the entire nation. IHS is tracking these health status objectives only for AI/AN people residing in the specific counties in which the IHS has responsibilities of which comprises approximately 57 percent of all AI/AN residing in the United States.

This *“Tracking Regional Indian Health Status Objectives, 2011”* does not address all of the objectives in HP2010 but focuses on a core set of 17 objectives. Throughout this report, current regional differences and trends over time are depicted and comparisons to the general population are made when appropriate. Additional general purpose health statistics for the IHS service population can be ascertained in the IHS publications entitled: *“Trends in Indian Health”* and *“Regional Differences in Indian Health.”*

Sources and Limitations of Data

Population Statistics

IHS service population estimates are based on official U.S. Census Bureau county data, representing self-identified AI/AN people who may or may not use IHS services. IHS service populations between census years (e.g., 1990 and 2000) are estimated using a smoothing technique in order to show a gradual transition between census years. This normally results in upward revisions to service population figures projected prior to a census, since each Census tends to do a better job in enumerating AI/AN people. IHS service populations beyond the latest census year (2000) are projected through linear regression techniques, using the most current ten years of AI/AN birth and death data provided by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC).

State birth and death certificates do not provide information on use of IHS services, IHS service population figures are used in calculating AI/AN vital event rates for the IHS service areas.

IHS Service Population

Definition

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

Description of Service Population Calculation

The Division of Program Statistics (DPS) produces service populations for IHS Areas, service units, and counties. Since state birth and death certificates do not provide information on use of IHS services, the IHS service population counts are used as the denominator when calculating AI/AN vital event rates for the IHS service areas.

IHS service populations between census years (e.g., 1990 and 2000) are estimated using a smoothing technique in order to illustrate 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 conduct a better job in enumerating AI/AN people. IHS service populations beyond the latest census years (2000) are projected through linear regression techniques, using the most current ten years of AI/AN birth and death data provided by NCHS.

The IHS service population is based on the 2000 Census with bridged-race categories.

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

The U.S. Census Bureau and the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS) are credited for developing the bridging methodology to address the inconsistencies for identifying race between the 2000 Census and the previous censuses. The 2000 Census with bridged-race categories re-categorizes more than one race responses to a single race response. The 2000 Census’ (with bridged-race categories) single race corresponds with the single race categories used on the birth and death certificates.

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

Using the 2000 Census with bridged-race categories increased the AI/AN population denominators resulting in an AI/AN population of 3.3 million for the entire U.S; thereby slightly decreasing the IHS mortality rates.

This AI/AN population of 3.3 million falls between the population of all AI/AN in the U.S. of 2.5 million who identified themselves as an AI/AN race (alone) and the population of all AI/AN in the U.S. of 4.2 million who identified themselves as an AI/AN and a combination of at least one other race (combination).

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

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

for the population allocation) is sent to DPS and kept on file. These percentage splits are calculated using sub-county census data and census maps.

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

Changes in Methodologies

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

Age-adjusted mortality rates for this report are **NOT** comparable to previously published mortality rates calculated for “*Tracking Regional Indian Health Status Objectives, 1996*”. This is due to several changes in the methodology used to calculate the age-adjusted mortality rate produced by DPS.

DPS calculates data that are comparable by using the following updated methodologies.

The three major updated methodologies applied by DPS include:

ICD-9 Conversion to ICD-10

Beginning with the 1999 mortality data a new classification system was implemented to categorize causes of death. The International Classification of Diseases, Version 10 (ICD-10) was used by the states and NCHS to code all causes of death for years 1999 onward. The ICD-10 classification system consists of a new nomenclature scheme with new and revised categories for some causes of death. Comparability ratios are applied when appropriate, i.e., to adjust data analyzed using the past classification system (ICD-9). Such revisions are noted on the data when applicable. Since there is no direct ‘code-to-code’ correlation these comparability ratios assist with bridging the different classifications systems to insure that data are comparable when illustrating trends. DPS uses adjustment factors to calculate the mortality rates when providing data for years prior to 1999.

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

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

categorizes responses to a single race where more than one race was reported. This corresponds to the single race categories used on birth and death certificates.

Age Adjustment Based on the 2000 Standard Population

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

Vital Event Statistics

AI/AN vital event statistics are derived from data provided annually to IHS by NCHS. Vital event statistics for the U.S. population were derived from data reported in various NCHS publications as well as from some unpublished data from NCHS.¹ NCHS obtains birth and death records for all U.S. residents from state health departments, based on information reported on official birth and death state certificates. The records NCHS provides to IHS contain the same basic demographic items as the vital event records maintained by NCHS for all U.S. residents, but with names, addresses, and record identification numbers deleted. It should be noted that Tribal identity is not recorded on these records.

The natality and mortality data are only as accurate as the reporting by the states to NCHS. NCHS does perform numerous edit checks, applies verification methods, and imputes values for non-responses.

Misreporting of AI/AN race on state death certificates occurs, especially in areas distant from traditional AI/AN reservations. In order to determine the degree and scope of the misreporting, IHS conducted a study utilizing the National Death Index (NDI) maintained by NCHS. The study involved matching IHS patient records of those patients who could have died during 1986 through 1988 with all death records of U.S. residents for 1986 through 1988 as contained on the NDI. The results were published in a document entitled, *Adjusting for Miscoding of Indian Race on State Death Certificates*, November 1996. The study revealed that on 10.9 percent of the matched IHS-NDI records, the race reported for the decedent was other than AI/AN. The percentage of records with inconsistent classification of race ranged from 1.2 percent in the Navajo Area to 28.0 and 30.4 percent in the Oklahoma and California Areas, respectively.²

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

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

IHS has more specific adjustment factors for the age group less than one year. These are derived from the linked birth/infant death data sets produced by the NCHS.³ In this edition unadjusted and adjusted infant mortality rates will be shown. These adjustments based on the linked data sets take precedent over the NDI adjustments for the under one-year age group, described above.

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

The AI/AN population is considerably younger than the U.S. all-races population. Therefore, the death rates presented in this publication have been age-adjusted where applicable so that appropriate comparisons can be made between these population groups. Two exceptions are the information presented for leading causes of death and leading cancer sites.⁴ In order to determine the leading causes of death or cancer sites for a population group, it is necessary to rank without any adjustment for age. However, it should be kept in mind that the ranking of causes of death or cancer sites for a population group is affected by its age composition.

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

Age-Adjustment

The age-adjusted death rates presented in this publication were computed by the direct method, that is, by applying the age-specific death rate for a given cause of death to the standard population distributed by age. The total population as enumerated in 2000 was selected as the standard since this is the standard used by NCHS.⁵ 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 ten-year age groups. It is important **not** to compare age-adjusted death rates with crude rates.

Glossary

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

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

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

Comparability Ratios—Adjustment factors designed to measure the effects of a new revision of the ICD on the comparability with the previous revision of mortality statistics cause of death.⁶

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

Race—Federal Register Notice (October 30, 1997), Revision to the Standards for the Classification of Federal Data on Race and Ethnicity. The revised standards have five minimum categories for data on race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. There will be two categories for data on ethnicity: “Hispanic or Latino” and “Not Hispanic or Latino.” Persons are offered the option to select one or more races.⁷

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

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

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

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- ² Indian Health Service, Division of Program Statistics, Adjusting for Miscoding of Indian Race on State Death Certificates. November, 1996.
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- ⁴ <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/leadingdeaths03/leadingdeaths03.htm>
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- ⁶ Anderson RN, Minino AM, Hoyert DL, Rosenberg, HM. Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates. National Vital Statistics Reports; vol 49 no. 2. Hyattsville, Maryland: National Center for Health Statistics. 2001.
- ⁷ <http://www.whitehouse.gov/omb/fedreg/1997standards.html>.

Sources of Copies and Additional Information

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

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CORONARY HEART DISEASE

Reduction in heart disease is a major focal area for Healthy People 2010. Coronary heart disease (CHD) accounts for a major proportion of all heart disease and heart disease deaths. The Healthy People 2010 target goals for age-adjusted death rates for CHD were established based on a 20% reduction of the baseline U.S. all races rate. The baseline U.S. all races rate in 1998 was 208.0 coronary heart disease deaths (per 100,000 population). The Healthy People 2010 goal was set at 166.0 deaths (per 100,000 population) for all population groups including the American Indian and Alaska Native (AI/AN) population.

Table 1 presents age-adjusted CHD mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 1 illustrates the changes that have taken place in CHD mortality rates between the baseline and most recent time periods for each IHS Area.

The results shown in Table 1 and Figure 1 suggest that improvements in CHD mortality have occurred for all IHS service areas. In the baseline period (1996-1998) only one IHS Area—Albuquerque – had CHD mortality rates that were “*at or below*” the target rate. By 2002-2004 the number of IHS Areas “*at or below*” the target goal had increased to three – including Albuquerque, Navajo, and Tucson. Of the areas showing improvement, Tucson showed the greatest percentage change (-15.8% reduction in the CHD mortality rate between 1996-1998 and 2002-2004). The remaining IHS Areas, (except Bemidji) while showing improvement, have not yet achieved the target goal established by Healthy People 2010.

Aberdeen, Bemidji, and Oklahoma are three IHS Areas that have baseline CHD mortality rates in excess of 300 deaths (per 100,000 population). Aberdeen and Oklahoma areas achieved significant improvements between baseline and the most recent period of measurements with Aberdeen experiencing a -27.1% reduction and Oklahoma a -16.7% reduction in CHD mortality. However, current rates for both areas are still above the Healthy People 2010 target rate so additional improvements are necessary.

The improvement seen with individual IHS Areas is also apparent in the total IHS CHD mortality rate which declined -14.8% from 271.2 at baseline to 231.1 in 2002-2004. However, despite these improvements, Table 1 indicates that disparities between the AI/AN and other U.S. populations are present. While the U.S. all races and white populations had higher baseline CHD mortality rates relative to the AI/AN population, these population experienced greater percentage declines (both on the order of -16%) than the IHS age-adjusted CHD mortality rate. Therefore, despite encouraging progress toward the Healthy People 2010 goal further improvements are still needed.

Table 1
Age-Adjusted Mortality Rates for Deaths Due to Coronary Heart Disease
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	271.2	243.8	231.1	166.0	-14.8%
Aberdeen	425.8	362.5	310.6	166.0	-27.1%
Alaska	243.7	225.6	200.6	166.0	-17.7%
Albuquerque	141.5	141.7	123.8	166.0	-12.5%
Bemidji	330.4	392.1	345.9	166.0	4.7%
Billings	289.0	302.2	271.8	166.0	-6.0%
California	220.1	211.0	198.7	166.0	-9.7%
Nashville	282.8	231.9	218.2	166.0	-22.8%
Navajo	180.6	167.6	155.3	166.0	-14.0%
Oklahoma	352.2	280.7	293.3	166.0	-16.7%
Phoenix	231.6	229.4	208.6	166.0	-9.9%
Portland	275.2	238.8	224.9	166.0	-18.3%
Tucson	180.6	201.4	152.1	166.0	-15.8%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	277.7	257.6	232.3	166.0	-16.3%
White	273.4	253.4	228.2	166.0	-16.5%

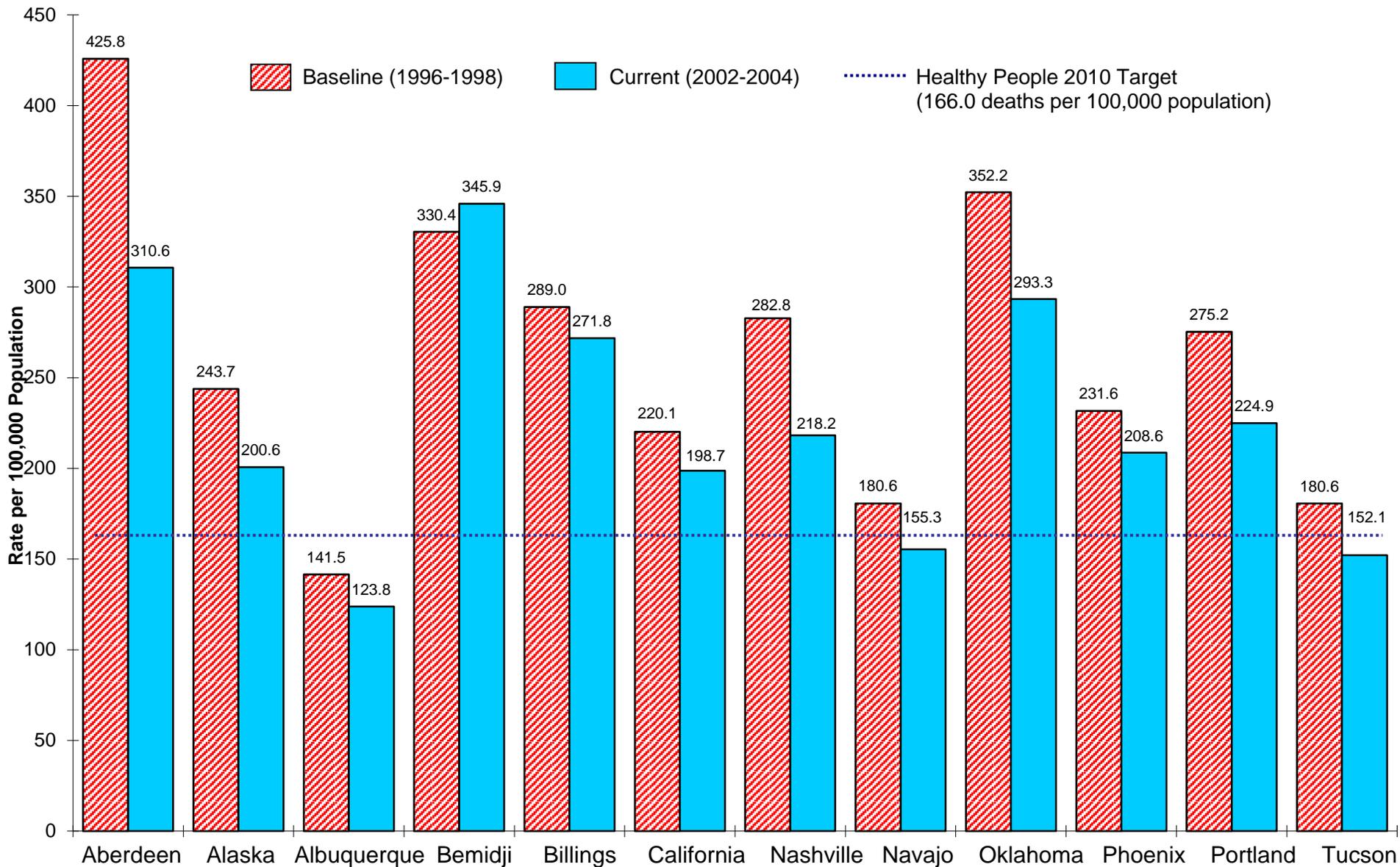
^{1/} Includes ICD-9 codes 402, 410-414, and 429.2 (1996-1998 data). A comparability ratio of 0.9914 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes I11 and I20-I15 (1999-2004).

^{3/} Healthy People 2010 Objective No. 12-1. Reduce coronary heart disease deaths. For all populations, the HP 2010 target rate is 166 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 1
Age-Adjusted Coronary Heart Disease Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 166.0 CHD deaths/100,000 population, which was established for all populations.

CEREBROVASCULAR

Healthy People 2010 outlined a number of objectives related to cerebrovascular disease or stroke. One important goal is to reduce the number of deaths caused by stroke. Similarly to how the coronary heart disease mortality objective was identified, Healthy People 2010 identified a target goal that was based on a -20% reduction in the U.S. all races stroke mortality rate. The age-adjusted U.S. all races stroke mortality rate was 60 deaths (per 100,000 population) in 1998 leading to establish a target rate of 48 stroke deaths (per 100,000 population). This target goal applies to all U.S. population groups including the American Indian and Alaska Native population.

Table 2 presents age-adjusted stroke mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 2 illustrates the changes that have taken place in stroke mortality rates between the baseline and most recent time periods for each IHS Area.

The results shown in Table 2 indicate that the overall IHS stroke mortality rate is similar to that for the U.S. all races and U.S. white populations, both at baseline and during the most recent measurement period. Age-adjusted stroke mortality rates for the U.S. all races and U.S. white populations have declined more than -12% whereas the total IHS population has declined more than -18% since baseline. All population groups have not yet achieved the target rate.

Table 2 and Figure 2 also show substantial variability in stroke mortality trends among IHS areas. Five of the twelve areas have current stroke mortality rates that are below the Healthy People 2010 target. Several other areas have current mortality rates that are above the target rate but have made substantial progress in reducing stroke mortality. For example, the Bemidji Area had the highest stroke mortality rate at baseline (117.3 stroke deaths) but has achieved a -44% reduction to reach a current mortality rate of 66.0 stroke deaths. The Portland Area had the second highest stroke mortality rate at baseline (96.2 stroke deaths) but has also achieved a -29% reduction to a current level mortality rate of 68.7, somewhat higher than the Healthy People 2010 target. (Mortality rates are per 100,000 U.S. standard population).

Other IHS Areas with large percentage reductions in stroke mortality include Navajo and Tucson, both of which experienced a -37% reduction and have current mortality rates below the target level. Although most areas showed some degree of stroke mortality reduction, two exceptions are Nashville and Oklahoma. Both of these IHS Areas showed slight increases in stroke mortality over the time period examined and both Areas have current stroke mortality levels that are above the Healthy People 2010 target.

Table 2
Age-Adjusted Mortality Rates for Deaths Due to Cerebrovascular Disease
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	62.7	63.7	50.9	48.0	-18.8%
Aberdeen	85.6	68.6	54.6	48.0	-36.2%
Alaska	81.6	76.6	71.4	48.0	-12.5%
Albuquerque	45.6	48.9	33.4	48.0	-26.8%
Bemidji	117.3	71.7	66.0	48.0	-43.7%
Billings	87.7	91.4	49.6	48.0	-43.4%
California	50.1	64.1	46.9	48.0	-6.4%
Nashville	49.9	60.4	50.0	48.0	0.2%
Navajo	45.6	47.9	28.7	48.0	-37.1%
Oklahoma	57.8	64.6	58.8	48.0	1.7%
Phoenix	43.3	48.3	42.1	48.0	-2.8%
Portland	96.2	88.7	68.7	48.0	-28.6%
Tucson	71.5	69.4	44.9	48.0	-37.2%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	61.1	60.9	53.5	48.0	-12.4%
White	59.0	58.8	51.4	48.0	-12.9%

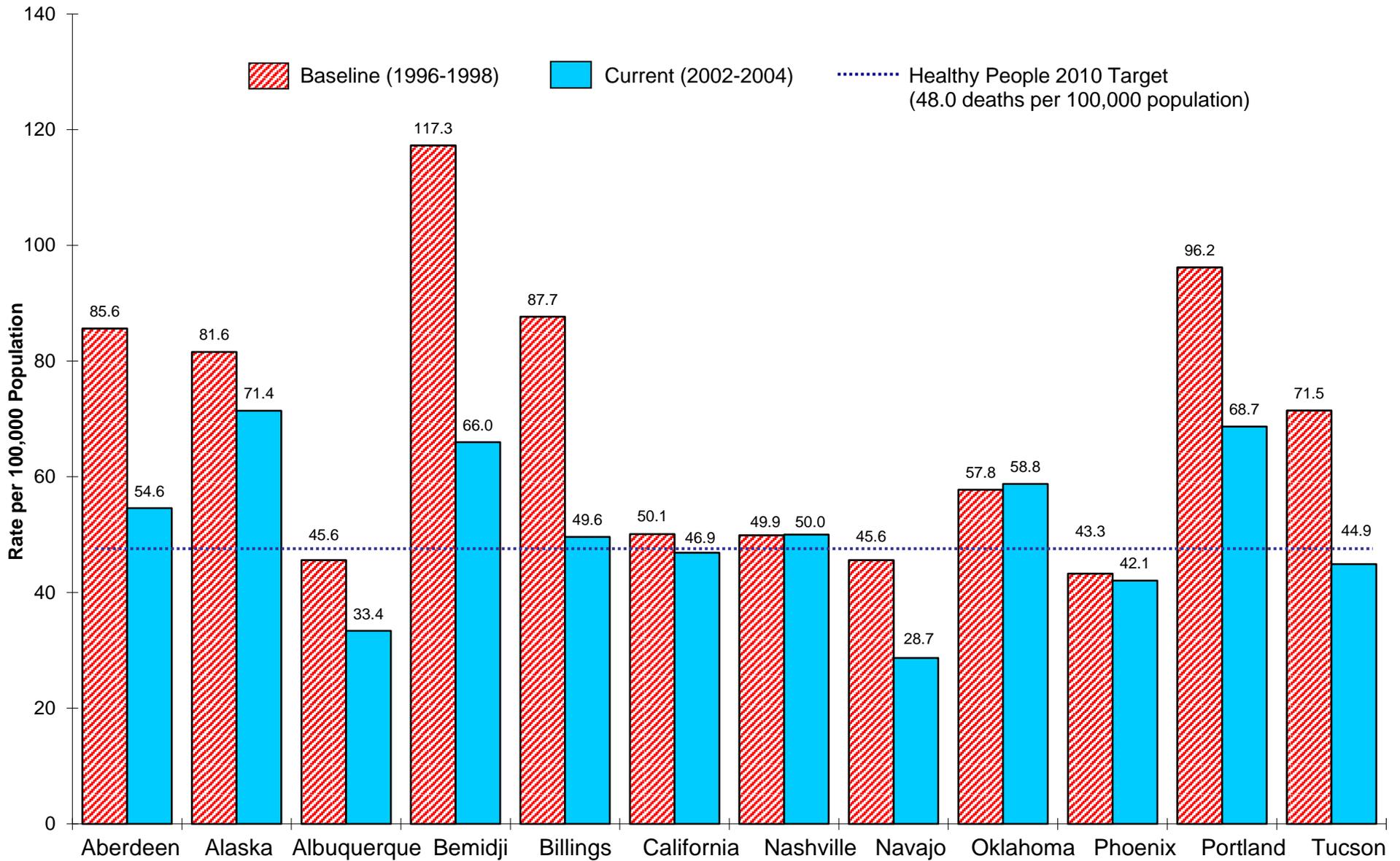
^{1/} Includes ICD-9 codes 430-438 (1996-1998 data). A comparability ratio 1.0588 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes I60 - I69 (1999-2004).

^{3/} Healthy People 2010 Objective No. 12-7. Reduce stroke deaths. For all populations, the HP 2010 target rate is 48 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 2
Age-Adjusted Cerebrovascular Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 48.0 cerebrovascular deaths/100,000 population, which was established for all populations.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Chronic obstructive pulmonary disease (COPD), which includes bronchitis and emphysema, is a significant cause of disability and mortality. COPD also represents an important target area for intervention efforts aimed at smoking reduction, early diagnosis, and appropriate medical therapy. A stated goal of Healthy People 2010 is to reduce the number of deaths caused by COPD. Healthy People 2010 identified a target goal based on a 60% reduction in the U.S. all races COPD mortality rate. The age-adjusted U.S. all races COPD mortality rate among adults aged 45 or older was 119.4 deaths (per 100,000 population) in 1998, leading to an established target goal of 60 COPD deaths (per 100,000 population). This target goal applies for all U.S. population groups including the American Indian and Alaska Native population.

The COPD rate computations used by Healthy People 2010 differ from those reported in mortality publications by the National Center for Health Statistics (NCHS) and also differ from statistics reported in the Indian Health Service (IHS) publications "Trends in Indian Health" and Regional Differences in Indian Health." While NCHS and IHS publications report age-adjusted COPD deaths using data from all age groups, Healthy People 2010 computations are based only on adults aged 45 and older. As a result, the COPD rates provided in this report are considerably higher than those reported in other IHS publications.

Table 3 presents age-adjusted COPD mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the IHS population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 3 illustrates the changes that have taken place in COPD mortality rates between the baseline and most recent time periods for each IHS Area.

As shown in Table 3, the overall IHS COPD mortality rate is lower than that observed in either the U.S. all races population or the U.S. white population, both at baseline and during the subsequent follow-up periods. However, the overall IHS COPD mortality rate (117.9 during 2002-2004) is still well above the Healthy People 2010 target of 60 COPD deaths (per 100,000 population).

Table 3 and Figure 3 indicate that while there is considerable variability across IHS Areas, most Areas are still above the Healthy People 2010 target. Only the Navajo Area (28.5) is currently below the target level, although Tucson and Albuquerque are currently within 10% of the target with mortality rates (61.3 and 63.5, respectively). Three IHS areas, Aberdeen, Bemidji, and Billings currently have COPD mortality rates above 200.0 (per 100,000 population). Of some concern is the steadily increasing COPD mortality rate observed for the Aberdeen Area and to a lesser extent the Oklahoma Area. In the aggregate, these results suggest that while the age-adjusted rate for the total IHS population is below that of the U.S. all races or white population considerable progress must still be made in order to attain the Healthy People 2010 target goal of 60 COPD deaths (per 100,000 persons) aged 45 and older.

Table 3
Age-Adjusted Mortality Rates for Deaths Due to Chronic Obstructive Pulmonary Diseases Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population Aged 45+)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	112.0	121.3	117.9	60.0	5.3%
Aberdeen	140.6	186.7	215.3	60.0	53.1%
Alaska	221.4	205.7	182.4	60.0	-17.6%
Albuquerque	64.9	47.1	63.5	60.0	-2.2%
Bemidji	262.0	243.1	206.3	60.0	-21.3%
Billings	230.3	210.7	211.8	60.0	-8.0%
California	112.8	137.5	128.1	60.0	13.6%
Nashville	70.6	84.2	70.1	60.0	-0.7%
Navajo	44.6	39.5	28.5	60.0	-36.1%
Oklahoma	98.8	109.5	132.3	60.0	33.9%
Phoenix	77.6	95.3	69.8	60.0	-10.1%
Portland	150.1	185.0	166.5	60.0	10.9%
Tucson	91.2	66.1	61.3	60.0	-32.8%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	123.1	125.5	122.7	60.0	-0.3%
White	128.0	131.0	129.0	60.0	0.8%

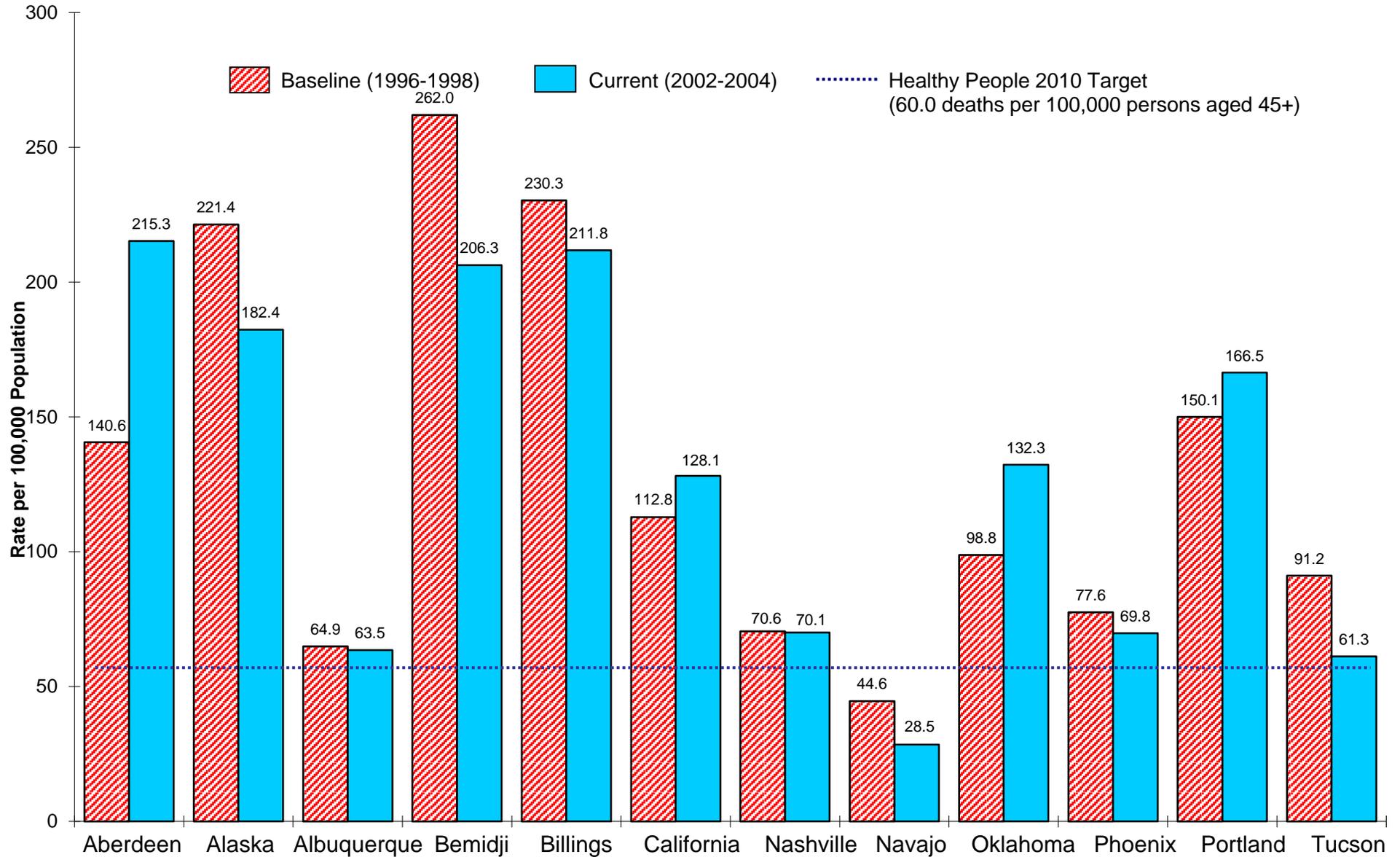
^{1/} Includes ICD-9 codes 490-496 (1996-1998 data). A comparability ratio 1.0478 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes J40-J47 (1999-2004).

^{3/} Healthy People 2010 Objective No. 24-10. Reduce chronic obstructive pulmonary diseases among adults. For all populations, the HP 2010 target rate is 60 deaths per 100,000 population aged 45+.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 3
Age-Adjusted Chronic Obstructive Pulmonary Disease Death Rates
Among Adults Aged 45 and Older, by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 60.0 COPD deaths/100,000 persons aged 45+, which was established for all populations.

DIABETES MELLITUS DEATHS

Healthy People 2010 recognized diabetes as a major health challenge and a source of significant health disparities. The increasing prevalence of diabetes as well as increases in complications associated with diabetes, represents a significant and growing problem for the American Indian and Alaska Native (AI/AN) population. An important objective of Healthy People 2010 is to reduce the diabetes death rate. For the U.S. all races population in 1997, approximately 75 deaths (per 100,000 population) were related to diabetes. Healthy People 2010 established a target rate of 45 deaths (per 100,000 population), based on an approximately 43% improvement in the U.S. all races mortality rate. This target goal applies to all racial and ethnic groups including AI/AN population.

It is important to note that the computation of diabetes-related deaths differs from the computations used for other Healthy People 2010 mortality objectives. While most mortality computations focus on the principal “underlying” cause of death recorded on the death certificate, Healthy People 2010 computations of diabetes evaluate all “contributing” causes noted on the death certificate, in addition to the “underlying” cause. Evaluating “contributing” as well as “underlying” causes is important because prior work by the National Center for Health Statistics had indicated that many deaths related to diabetes are missed if only the “underlying” cause is evaluated. For Healthy People 2010, any death with a mention of diabetes as either an “underlying” or “contributing” cause is therefore counted as diabetes-related. Diabetes mortality rates reported here therefore are higher than those reported in other Indian Health Service (IHS) publications which are based solely on the “underlying” cause.

Table 4 presents age-adjusted diabetes-related mortality rates for the IHS population by area and time period. Figure 4 illustrates the changes that have taken place in mortality rates between the baseline and most recent periods. When using the Healthy People 2010 method of diabetes-related mortality computation, AI/AN rates cannot be simultaneously adjusted for the misreporting of race. Therefore, the diabetes-related mortality data presented in Table 4 and Figure 4 are **not** further adjusted for race misreporting.

The results shown in Table 4 and Figure 4 indicate that significant health disparities exist between the IHS population and other U.S. populations. During 2002-2004 the age-adjusted diabetes-related mortality rate for the total IHS population was 74.2 deaths (per 100,000 population). This rate was three times that observed in the U.S. white population. Three IHS Areas, Aberdeen, Bemidji, and Billings currently have diabetes-related mortality rates above 100.0 (per 100,000 population). The lowest mortality rate in 2002-2004 (19.2) was seen in Alaska. Eleven of the 12 IHS Areas showed declines over the time period examined.

These results indicate that when the definition of diabetes-related deaths is broadened to capture any mention of diabetes on the death certificate, the resultant diabetes mortality rates are even higher than previously reported.

Table 4
Age-Adjusted Mortality Rates for Deaths Due to Diabetes
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	77.1	77.7	74.2	45.0	-3.8%
Aberdeen	141.5	119.3	123.9	45.0	-12.4%
Alaska	19.5	20.3	19.2	45.0	-1.5%
Albuquerque	97.1	86.6	85.6	45.0	-11.8%
Bemidji	132.8	111.7	113.3	45.0	-14.7%
Billings	108.4	80.8	107.8	45.0	-0.6%
California	51.0	50.6	44.0	45.0	-13.7%
Nashville	83.9	88.4	66.7	45.0	-20.5%
Navajo	60.8	67.4	57.2	45.0	-5.9%
Oklahoma	73.7	86.0	88.1	45.0	19.5%
Phoenix	97.6	87.8	81.5	45.0	-16.5%
Portland	72.1	58.5	60.9	45.0	-15.5%
Tucson	119.6	157.8	76.6	45.0	-36.0%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	23.7	25.0	25.3	45.0	6.8%
White	21.3	22.8	23.0	45.0	8.0%

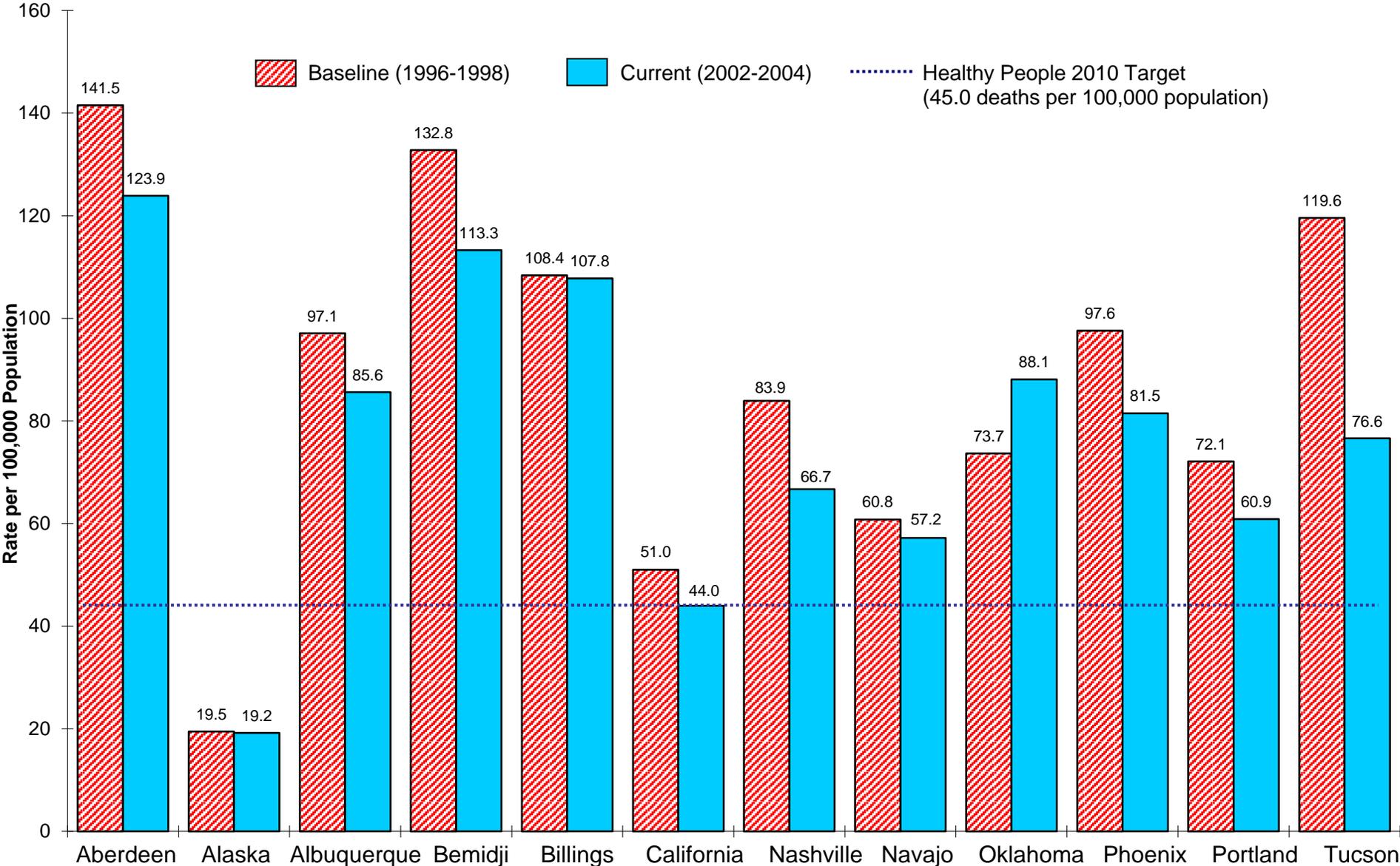
^{1/} Includes ICD-9 code 250 (1996-1998 data). A comparability ratio 1.0082 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes E10-E14 (1999-2004).

^{3/} Healthy People 2010 Objective No. 5-5. Reduce diabetes death rates. For all populations, the HP 2010 target rate is 45 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population.

Figure 4
Age-Adjusted Diabetes-Related Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population. Diabetes-related deaths include all deaths with any mention of diabetes on the death certificate. The Healthy People 2010 target is based on a single goal of 45.0 diabetes deaths/100,000 population, which was established for all populations.

CANCER (ALL SITES)

As the second leading cause of death in the U.S. cancer is an important focal area for Healthy People 2010. A number of objectives aimed at reducing cancer deaths were outlined including a reduction in the overall cancer death rate. An age-adjusted target goal of 158.6 deaths (per 100,000 population), was established by Healthy People 2010 for all population groups including the American Indian and Alaska Native population. This target rate represents a 23% improvement in the overall cancer rate for the U.S. all races population.

Table 5 presents age-adjusted cancer mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 5 illustrates the changes that have taken place in cancer mortality rates between the baseline and most recent time periods for each IHS area.

As shown in Table 5, the total IHS population has lower age-adjusted cancer mortality rates than either the U.S. all races or U.S. white population both at baseline and during the two follow-up periods. All three total population groups (U.S. all races, U.S. white, and total IHS) have shown steady declines over the three time periods examined. However, the percent reduction for the total IHS population (-3.4%) was less than that seen in either the U.S. all races or U.S. white populations (-6.6% and -5.8% respectively). The current total IHS rate of 180.7 is still 14% above the target value of 158.6. (Mortality rates are per 100,000 U.S. standard population).

Table 5 and Figure 5 both illustrate that substantial variability in cancer mortality exists among IHS areas. Currently, IHS areas appear to be equally divided in terms of whether they are above or below the Healthy People 2010 target. Six areas are presently above and six areas are presently below the target goal of 158.6 deaths (per 100,000 population). The lowest cancer rates are currently observed in the Navajo Area, which experienced an -11% reduction since baseline. The greatest reduction since baseline occurred in the Tucson Area (180.6 vs. 135.0, a -25% reduction). The next largest change since baseline occurred in the Bemidji Area which had the highest cancer mortality rate at baseline 372.9 cancer deaths (per 100,000 persons). Since baseline, the Bemidji cancer rate has declined to 297.8, a -20% reduction. In contrast to these reductions, five areas showed increases in cancer mortality between 1996-1998 and 2002-2004. Four of the five areas with mortality increases are still below the Healthy People 2010 target. However, the Oklahoma Area showed cancer mortality rates consistently above the Healthy People 2010 target goal and had an overall cancer mortality increase of 5% between baseline and follow-up.

In summary, some areas have already achieved or progressed toward achieving the cancer mortality reduction goal established by Healthy People 2010. However, further reduction must still occur in other areas in order for the IHS population to reach the Healthy People 2010 target.

Table 5
Age-Adjusted Mortality Rates for Deaths Due to Cancer (All Sites)
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	1996-1998 ^{1/} <u>(Baseline)</u>	1999-2001 ^{2/}	2002-2004 ^{2/} <u>Current</u>	2010 ^{3/} <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	187.0	184.0	180.7	158.6	-3.4%
Aberdeen	273.7	252.2	251.1	158.6	-8.3%
Alaska	278.0	249.5	264.3	158.6	-4.9%
Albuquerque	106.4	117.5	117.5	158.6	10.4%
Bemidji	372.9	278.2	297.8	158.6	-20.1%
Billings	260.9	297.1	247.1	158.6	-5.3%
California	131.6	146.5	143.5	158.6	9.0%
Nashville	148.0	152.1	148.9	158.6	0.6%
Navajo	132.3	132.5	118.3	158.6	-10.6%
Oklahoma	202.8	205.7	212.6	158.6	4.8%
Phoenix	126.2	141.9	136.4	158.6	8.1%
Portland	187.6	195.4	179.7	158.6	-4.2%
Tucson	180.6	113.9	135.0	158.6	-25.2%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	203.5	199.6	190.1	158.6	-6.6%
White	200.0	197.2	188.5	158.6	-5.8%

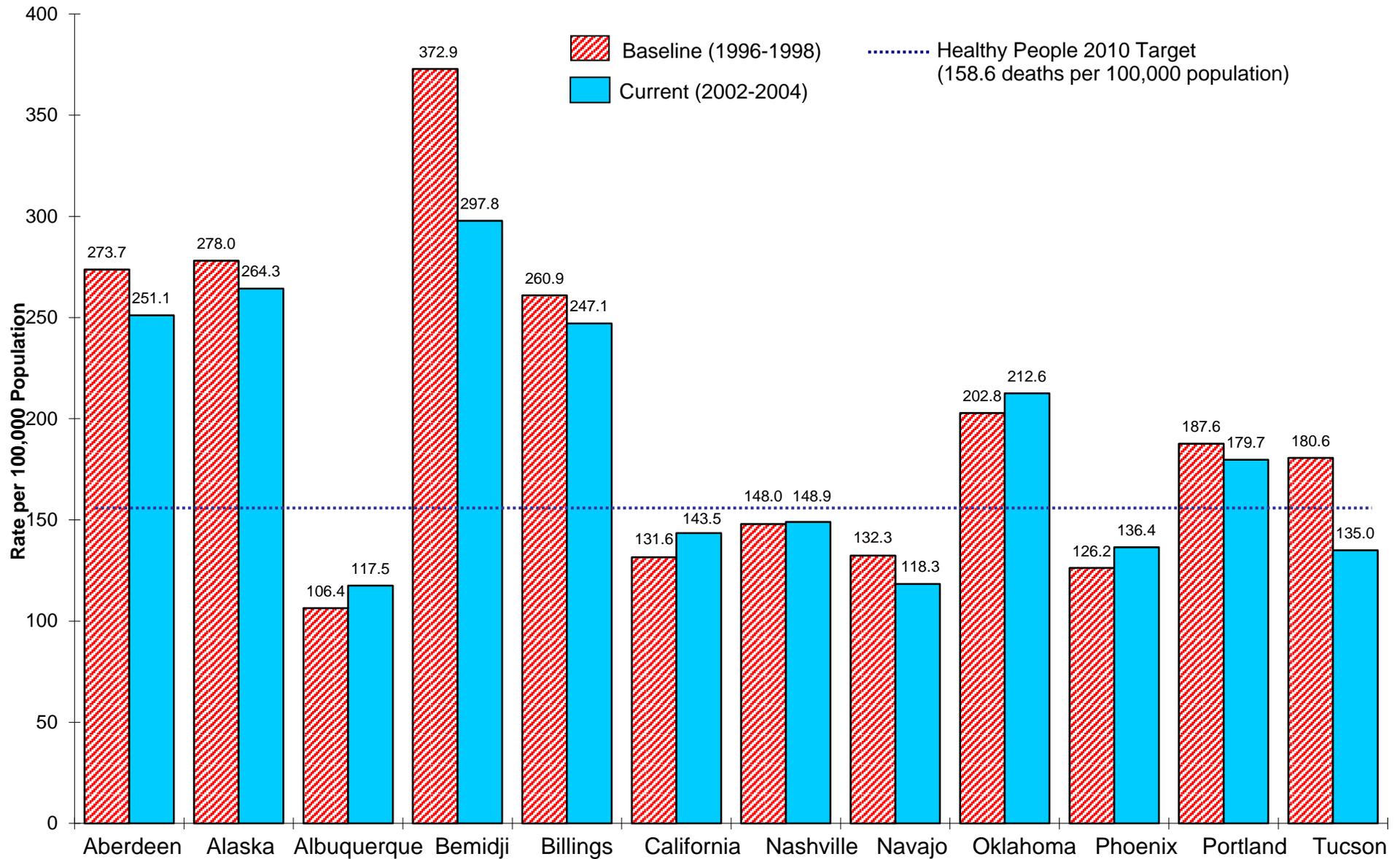
^{1/} Includes ICD-9 codes 140-208 (1996-1998 data). A comparability ratio 1.0068 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C00-C97 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-1. Reduce cancer death rates. For all populations, the HP 2010 target rate is 158.6 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 5
Age-Adjusted Cancer (All Sites) Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 158.6 cancer deaths/100,000 population, which was established for all populations.

LUNG CANCER

In addition to objectives aimed at reducing the overall cancer death rate, Healthy People 2010 also addresses major types of cancer including lung cancer. According to the Healthy People 2010 lung cancer is the most common cause of cancer deaths for both genders. For the U.S. all races population there were 57.6 lung cancer deaths (per 100,000 population) in 1998. (This rate was age-adjusted to the year 2000 standard population). Healthy People 2010 established a target goal of 43.3 lung cancer deaths (per 100,000 population) for all population groups including the American Indian and Alaska Native population. This target goal represents a -22% reduction in the U.S. all races lung cancer mortality rate.

Table 6 represents age-adjusted lung cancer mortality rates for years 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 6 illustrates the changes that have taken place for lung cancer mortality rates between the baseline and most recent time periods for each IHS area.

The baseline rate of 48.8 observed for the total IHS population was lower than either the U.S. all races or U.S. white population rates. However, while the U.S. all races and U.S. white populations both experienced reductions (-6% and -5% respectively), between baseline and follow-up, the total IHS rate increased by 2%. Large differences also exist among IHS areas both in the baseline rate and in the change that had occurred since baseline. The lowest lung cancer rate is seen in the Navajo Area. With a baseline rate of 8.9, the Navajo Area was already well below the Healthy People 2010 and has sustained or lowered that rate slightly since baseline. The next lowest area, Albuquerque, had a baseline rate of 11.9 which has increased to 15.2, still well below the target threshold. (All mortality rates are age-adjusted per 100,000 U.S. standard population).

Other areas, however, experienced either high rates at baseline or have experienced substantial increases since baseline. The highest baseline rate (150.8) was observed for Bemidji. However, the Bemidji Area has experienced a substantial decline of -24% in lung cancer mortality since the baseline period. The Billings Area had the second highest baseline rate (87.1) and has also experienced a significant reduction of -22% to a current rate of 68.4. Of some concern is the lung cancer mortality increases observed in the Nashville Area. (All mortality rates are age-adjusted per 100,000 U.S. standard population).

Further follow-up periods will be needed in order to track area-specific lung cancer trends with great precision.

Table 6
Age-Adjusted Mortality Rates for Deaths Due to Lung Cancer
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	48.8	49.1	49.8	43.3	2.0%
Aberdeen	79.7	88.3	81.2	43.3	1.9%
Alaska	84.7	67.8	80.0	43.3	-5.5%
Albuquerque	11.9	11.6	15.2	43.3	27.7%
Bemidji	150.8	102.9	115.1	43.3	-23.7%
Billings	87.1	119.9	68.4	43.3	-21.5%
California	40.0	49.6	38.2	43.3	-4.5%
Nashville	28.5	47.5	48.8	43.3	71.2%
Navajo	8.9	5.8	8.5	43.3	-4.5%
Oklahoma	54.0	58.5	63.3	43.3	17.2%
Phoenix	22.8	22.3	27.0	43.3	18.4%
Portland	60.0	56.9	59.3	43.3	-1.2%
Tucson	19.9	13.3	20.7	43.3	4.0%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	57.5	56.1	54.1	43.3	-5.9%
White	57.4	56.2	54.5	43.3	-5.1%

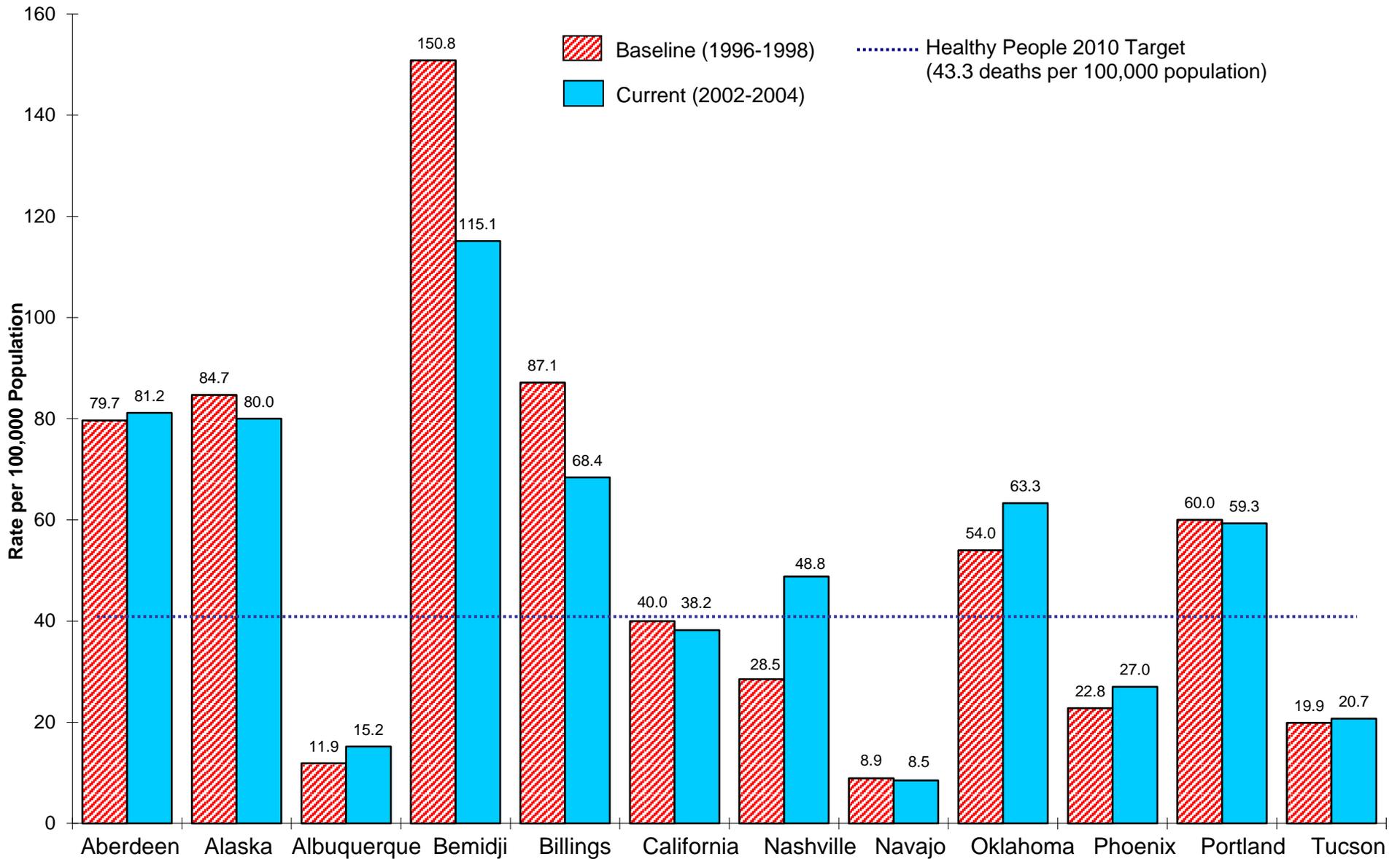
^{1/} Includes ICD-9 code 162 (1996-1998 data). A comparability ratio 0.9837 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C33-C34 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-2. Reduce lung cancer death rates. For all populations, the HP 2010 target rate is 43.3 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 6
Age-Adjusted Lung Cancer Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 43.3 lung cancer deaths/100,000 population, which was established for all populations.

COLORECTAL CANCER

Colorectal cancer is the second leading cause of cancer death in the United States. Healthy People 2010 established a target age-adjusted colorectal mortality rate of 13.7 deaths (per 100,000 population). This target which applies to all populations was based on 37% improvement in the U.S. all races colorectal cancer mortality rate.

Table 7 presents age-adjusted colorectal cancer mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 7 illustrates the changes that have taken place in colorectal cancer mortality rates between the baseline and most recent time periods for each IHS area.

The results for the total IHS population shown in Table 7 indicate that in comparison to the baseline rate of 21.7 there has been a modest but steady reduction to the current rate of 19.4. This represents an overall decline of 10.6% since baseline. The IHS total population current overall rate 19.4 is very similar to the current U.S. all races rate of 19.1 but both are higher than the current white race rate 18.6 (per 100,000 population). The current rate of 19.4 is also substantially higher than the 2010 the Healthy People 2010 target goal of 13.7 deaths (per 100,000 population).

There were six IHS areas that had increases in rates as compared to baseline ranging from 5.2% (Phoenix) to 40.3% (California). The six areas with increases were Phoenix (5.2%), Billings (10.3%), Portland (17.6%), Albuquerque (21.4%), Nashville (38.0%), and California (40.3%).

Six of the 12 IHS areas had declines ranging from -2.7% (Alaska) to -82.2% (Tucson). In addition to the large decline in the Tucson Area there were two other areas with substantial declines: Aberdeen (-35.9%) and Bemidji (-35.5%). Three other areas showed notable but less substantial declines: Oklahoma (-22.3%), Navajo (-14.1%) and Alaska (-2.7%).

There are three areas that are already below the 2010 target goal of 13.7. These areas include Tucson (3.1), Navajo (7.9), and Phoenix (10.2). Tucson also had the greatest decrement colorectal mortality rate with the current rate of 3.1 (per 100,000 population) being 82.2% below the baseline rate for this area.

Overall these results suggest that the total IHS population has made progress that is similar to that attained by the U.S. all races and U.S. white populations. However, all three populations need further reductions in colorectal cancer mortality in order to reach the goals established by Healthy People 2010. Individual IHS areas vary in their colorectal cancer mortality rates and in the amount of progress that must be made to achieve the Healthy People 2010 goal.

Table 7
Age-Adjusted Mortality Rates for Deaths Due to Colorectal Cancer
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	21.7	18.9	19.4	13.7	-10.6%
Aberdeen	38.4	20.4	24.6	13.7	-35.9%
Alaska	37.2	36.0	36.2	13.7	-2.7%
Albuquerque	12.6	11.5	15.3	13.7	21.4%
Bemidji	54.9	29.9	35.4	13.7	-35.5%
Billings	20.3	32.9	22.4	13.7	10.3%
California	14.9	13.4	20.9	13.7	40.3%
Nashville	15.0	15.2	20.7	13.7	38.0%
Navajo	9.2	8.2	7.9	13.7	-14.1%
Oklahoma	27.8	24.6	21.6	13.7	-22.3%
Phoenix	9.7	10.2	10.2	13.7	5.2%
Portland	18.2	21.1	21.4	13.7	17.6%
Tucson	17.6	12.0	3.1	13.7	-82.2%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	21.6	20.9	19.1	13.7	-11.6%
White	21.1	20.4	18.6	13.7	-11.8%

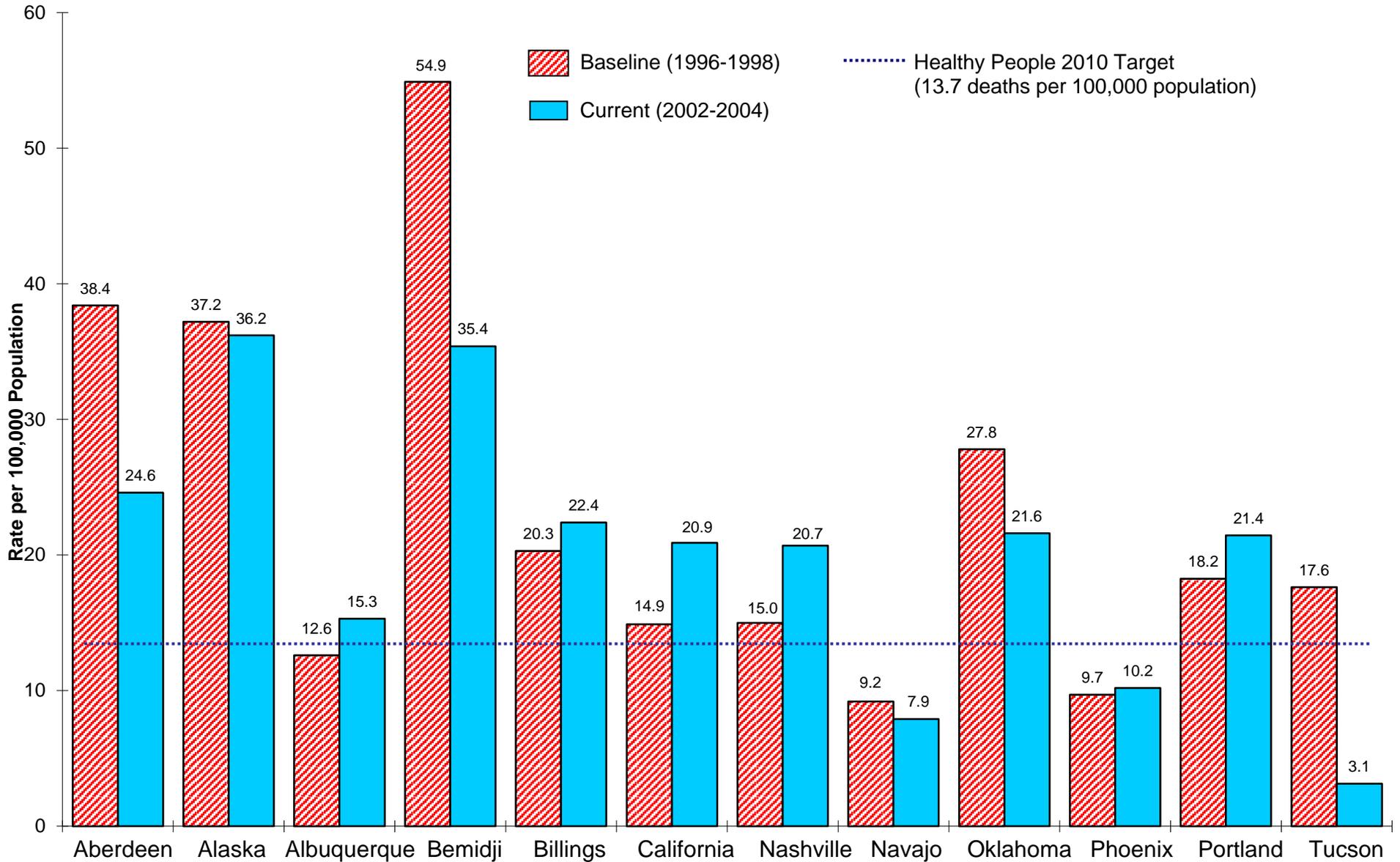
^{1/} Includes ICD-9 codes 153-154 (1996-1998 data). A comparability ratio 0.9993 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C18-C21 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-5. Reduce colorectal cancer death rates. For all populations, the HP 2010 target rate is 13.7 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 7
Age-Adjusted Colorectal Cancer Death Rates,
by IHS Area and Time Period



NOTE: Rates are age adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 13.7 deaths/100,000 population, which was established for all populations.

BREAST CANCER

Although breast cancer is the most common type of cancer diagnosed in women, breast cancer mortality can be greatly reduced with proper screening, diagnosis, and treatment. Healthy People 2010 identified breast cancer mortality reduction as an important goal and established a target breast cancer mortality rate of 21.3 deaths (per 100,000 population). This target of 21.3 which represents a 26% improvement in the U.S. all races population mortality rate was established for all populations including the American Indian and Alaska Native population.

Table 8 represents age-adjusted breast cancer mortality rates 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, and 2003) for the U.S. all races and U.S. white populations are also shown. Figure 8 illustrates the changes that have taken place in breast cancer mortality between the baseline and most recent time periods for each IHS Area.

The age-adjusted breast cancer mortality rate for IHS as a whole was lower, both at baseline and at follow-up, than both the U.S. all races and U.S. white population rates. The total IHS rates were consistently below the Healthy People 2010 target.

Some variability is seen across individual IHS Areas. While seven of the twelve areas had rates in 2002-2004 that were below the Healthy People 2010 target, five areas – Aberdeen, Alaska, Bemidji, Billings, and Oklahoma – had breast cancer mortality rates that were above the target goal.

Overall these results suggest that the IHS population is largely on track to meet the Healthy People 2010 target for breast cancer mortality but intervention efforts should continue to ensure that progress is attained across all IHS areas.

Table 8
Age-Adjusted Mortality Rates for Deaths Due to Breast Cancer Among Women
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Females)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	19.8	17.9	20.0	21.3	1.0%
Aberdeen	29.8	16.9	23.8	21.3	-20.1%
Alaska	24.6	23.7	23.8	21.3	-3.3%
Albuquerque	8.4	15.4	9.3	21.3	10.7%
Bemidji	22.1	24.3	22.7	21.3	2.7%
Billings	24.5	15.7	32.7	21.3	33.5%
California	13.7	8.3	20.0	21.3	46.0%
Nashville	15.4	21.5	17.2	21.3	11.7%
Navajo	14.9	13.2	11.2	21.3	-24.8%
Oklahoma	24.8	23.8	28.7	21.3	15.7%
Phoenix	9.3	12.6	19.3	21.3	107.5%
Portland	29.8	18.9	14.3	21.3	-52.0%
Tucson	26.0	10.0	14.3	21.3	-45.0%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	28.7	27.1	25.2	21.3	-12.2%
White	28.1	26.6	24.6	21.3	-12.5%

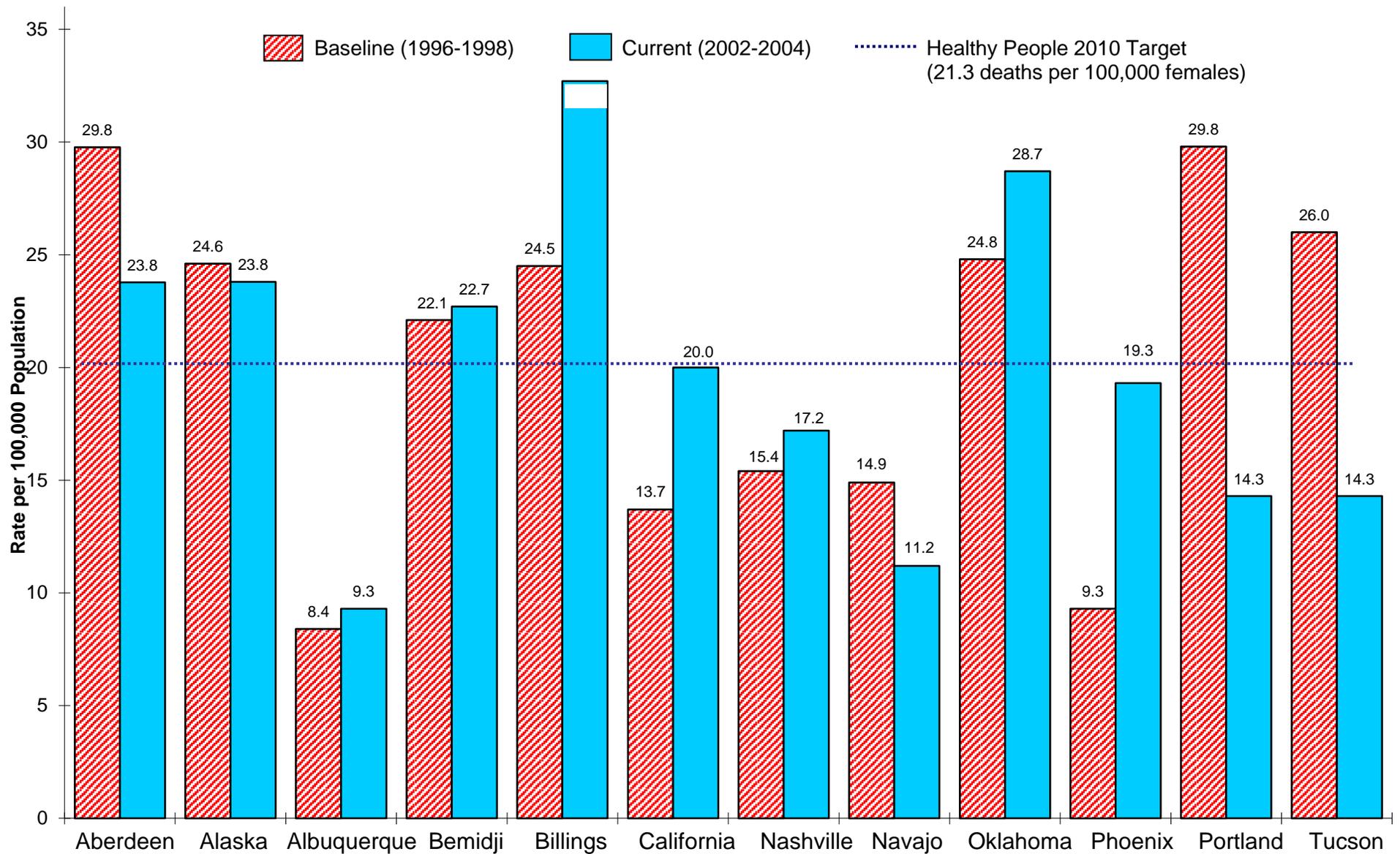
^{1/} Includes ICD-9 codes 174-175 (1996-1998 data). A comparability ratio 1.0056 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C50 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-3. Reduce the breast cancer death rate. For all populations, the HP 2010 target rate is 21.3 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 8
Age-Adjusted Breast Cancer Death Rates Among Women,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 21.3 breast cancer deaths/100,000 females, which was established for all populations.

CERVICAL CANCER

Cervical cancer is the 10th most common cancer occurring among U.S. women. Healthy People 2010 noted that most cervical cancer deaths could be prevented with regular cervical cancer screening. Healthy People 2010 identified a target goal of 2.0 deaths (per 100,000 females) – this target was based on a “better than the best” approach ensuring that all population groups would experience improvement if the target were achieved. The target goal was established for all populations including the American Indian and Alaska Native population.

Table 9 represents age-adjusted cervical cancer mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, and 2003) for the U.S. all races and U.S. white populations are also shown. Figure 9 illustrates the changes that have taken place in cervical cancer mortality between the baseline and most recent time periods for each IHS Area.

The results shown in Table 9 and Figure 9 suggest some important disparities in cervical cancer mortality. At baseline, the U.S. all races and white population mortality rates were both lower than the IHS total population mortality rate. Although the overall IHS cervical cancer mortality rate has declined nearly -12% since baseline, this decline is not as great as that which has occurred in the U.S. all races and white populations (-19% and -21%, respectively). This suggests that although progress is occurring in reducing cervical cancer mortality in the IHS population more progress is needed to reduce the population disparities that are present.

The data shown in Table 9 and Figure 9 also suggest that variability exists among IHS areas in cervical cancer mortality. Only one area, California, had mortality rates below the target level during the most recent measurement period (2002-2004). The areas with the highest cervical cancer mortality rates appear to be Aberdeen, Albuquerque, Bemidji, Billings, Oklahoma, and Phoenix. Several IHS areas appear to have experienced substantial reductions in cervical cancer mortality rates since baseline. These include California, Nashville, Navajo, and Tucson which all experienced reductions of greater than -30%. However, because the numbers of deaths contributing to the area-specific rates are relatively small, these observed area-specific changes over time should be interpreted with caution.

Table 9
Age-Adjusted Mortality Rates for Deaths Due to Cervical Cancer
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Females)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	5.2	4.4	4.6	2.0	-11.5%
Aberdeen	6.0	11.6	8.6	2.0	43.3%
Alaska	2.6	1.4	2.9	2.0	11.5%
Albuquerque	2.2	0.9	4.5	2.0	104.5%
Bemidji	6.2	8.6	6.1	2.0	-1.6%
Billings	----	5.3	7.6	2.0	—
California	3.9	1.8	1.6	2.0	-59.0%
Nashville	5.8	3.0	3.5	2.0	-39.7%
Navajo	5.7	5.4	3.5	2.0	-38.6%
Oklahoma	7.9	3.1	7.5	2.0	-5.1%
Phoenix	4.9	5.8	4.4	2.0	-10.2%
Portland	2.8	1.0	2.5	2.0	-10.7%
Tucson	6.6	3.0	2.3	2.0	-65.2%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	3.1	2.8	2.5	2.0	-19.4%
White	2.8	2.5	2.2	2.0	-21.4%

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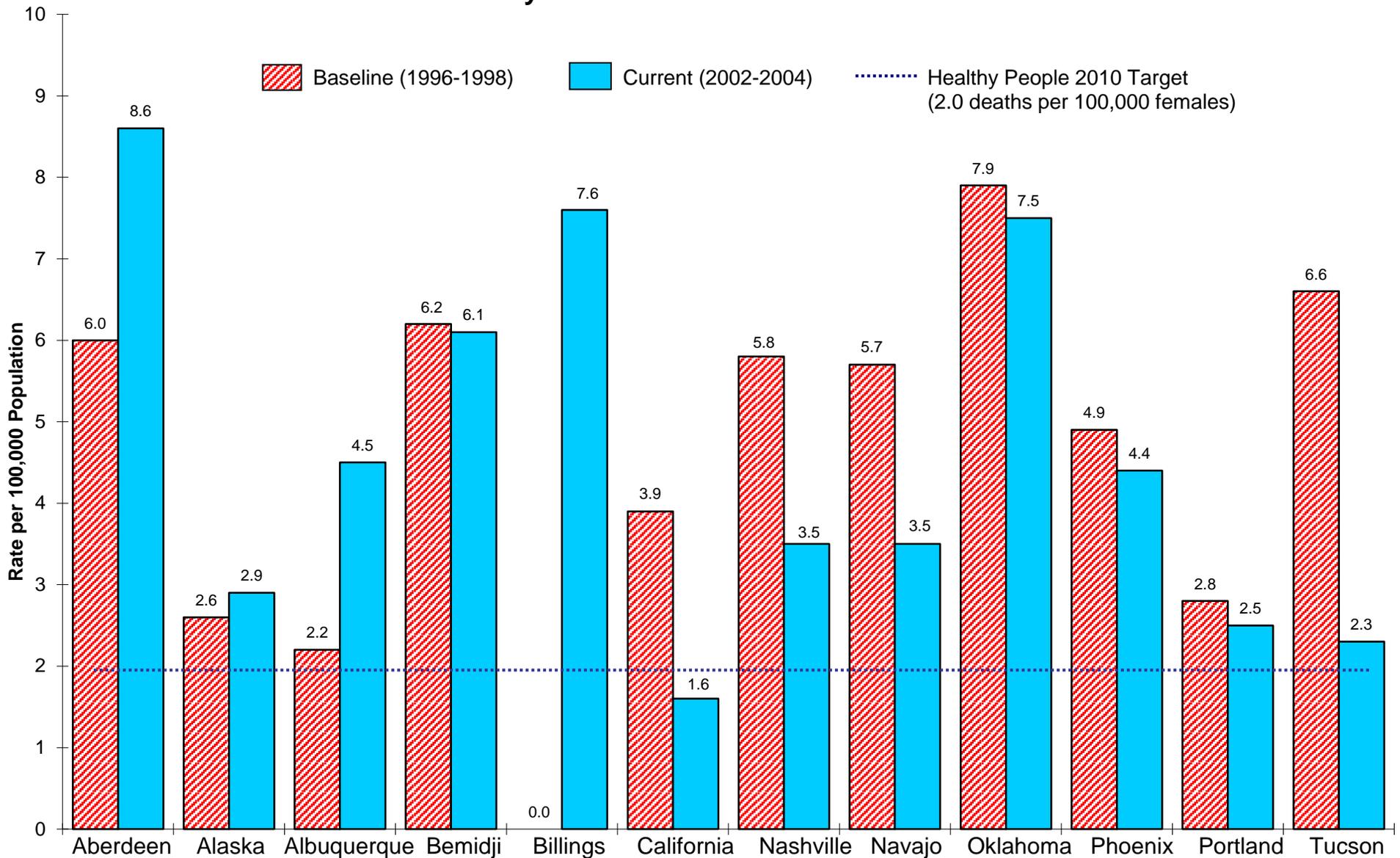
^{1/} Includes ICD-9 code 180 (1996-1998 data). A comparability ratio 0.9871 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C53 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-4. Reduce the death rate from cancer of the uterine cervix. For all populations, the HP 2010 target rate is 2.0 cervical cancer deaths per 100,000 females.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 9
Age-Adjusted Cervical Cancer Death Rates Among Women,
by IHS Area and Time Period



0.0 = No cervical cancer deaths for years 1996-1998.

NOTE: Rates are age-adjusted to the 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on state death certificates. The 2010 target is based on single goal of 2.0 cervical cancer deaths/100,000 females which was established for all populations.

PROSTATE CANCER

Prostate cancer is the second leading cause of cancer death among U.S. men. Many prostate cancer deaths could be prevented with early detection and treatment. Healthy People 2010 identified a target goal of 28.8 deaths (per 100,000 males) – representing a 16% improvement in the U.S. all races prostate cancer mortality rate. The target goal of 28.8 was established for all populations including the American Indian and Alaska Native population.

Table 10 represents age-adjusted prostate cancer mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, and 2003) for the U.S. all races and U.S. white populations are also shown. Figure 10 illustrates the changes that have taken place in prostate cancer mortality between the baseline and most recent time periods for each IHS area.

The results shown in Table 10 suggest that for the total IHS population the current rate of 23.2 (per 100,000 males) is below the 2010 target goal of 28.8 (per 100,000 males). The current total IHS population rate is also below the current U.S. all races rate of 26.5 (per 100,000 males) as well as the white rate of 24.4 (per 100,000 males). Nevertheless, there is still substantial variability in prostate cancer rates by IHS Areas. Bemidji, Aberdeen, Billings, and Oklahoma all have current rates above the 2010 target goal of 28.8 deaths (per 100,000 males).

Three areas showed increases in rates as compared to baseline: Phoenix (20.6%), Aberdeen (6.8%), and Navajo (2.9%). All other areas showed declines in rates compared to baseline ranging from -4.8% (Billings) to -51.3% (Portland). Alaska has the lowest current rate of 9.9 (per 100,000 males) and has made substantial progress with an overall reduction of -36.9% as compared to baseline.

These results indicate that IHS is largely on track for meeting the prostate cancer mortality goals established by Healthy People 2010. Still, some additional progress is needed in several areas to ensure that all IHS areas meet the mortality reduction goals set forth in Healthy People 2010.

Table 10
Age-Adjusted Mortality Rates for Deaths Due to Prostate Cancer
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Males)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	26.9	23.8	23.2	28.2	-13.8%
Aberdeen	33.9	28.7	36.2	28.2	6.8%
Alaska	15.7	33.3	9.9	28.2	-36.9%
Albuquerque	18.1	15.8	14.3	28.2	-21.0%
Bemidji	52.9	56.2	43.6	28.2	-17.6%
Billings	35.3	63.0	33.6	28.2	-4.8%
California	23.3	18.0	21.6	28.2	-7.3%
Nashville	19.1	24.4	14.7	28.2	-23.0%
Navajo	20.6	21.4	21.2	28.2	2.9%
Oklahoma	39.2	21.3	31.5	28.2	-19.6%
Phoenix	13.1	19.0	15.8	28.2	20.6%
Portland	26.7	21.5	13.0	28.2	-51.3%
Tucson	22.8	18.8	14.0	28.2	-38.6%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	34.2	30.4	26.5	28.8	-22.5%
White	31.5	27.2	24.4	28.8	-22.5%

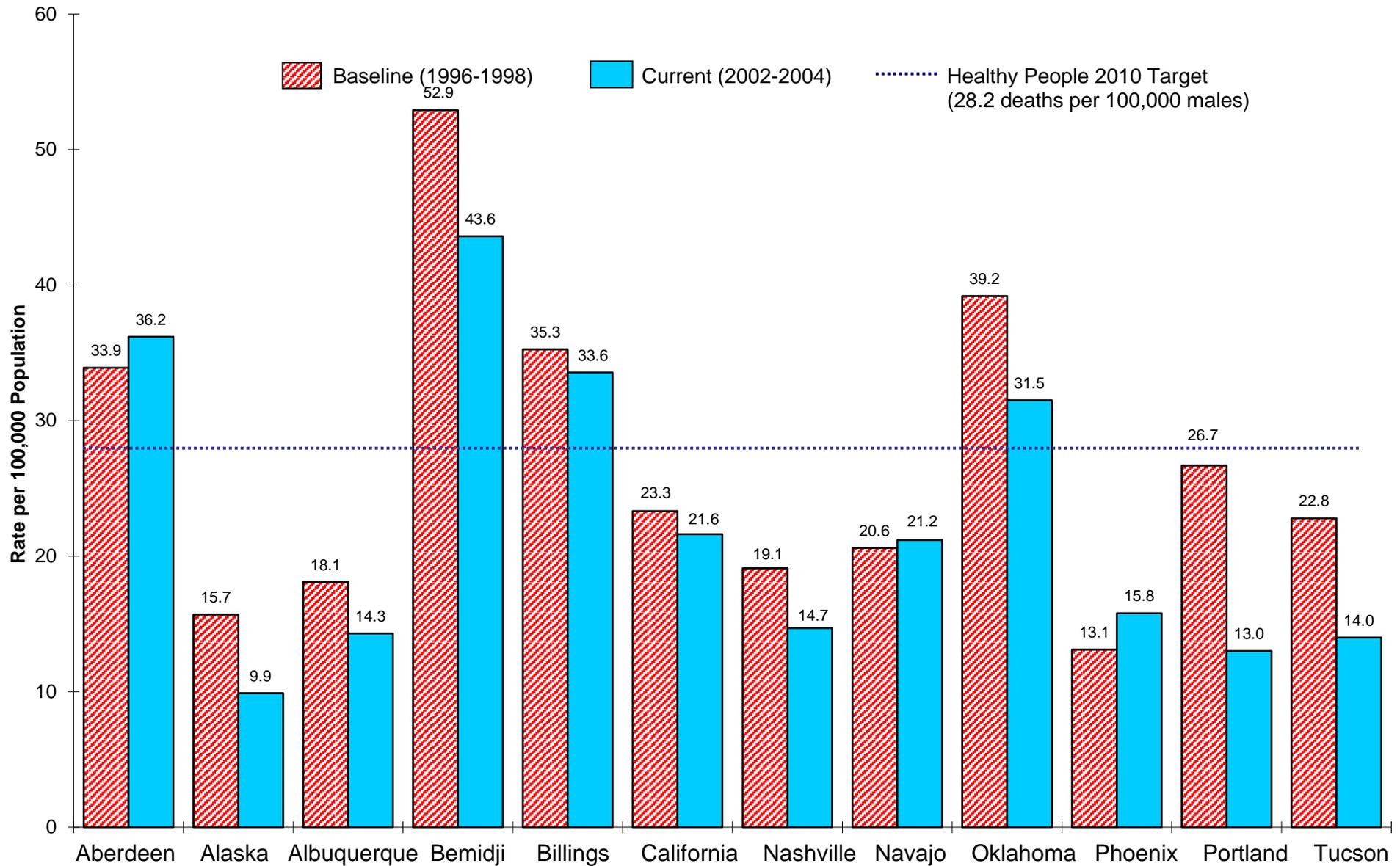
^{1/} Includes ICD-9 code 185 (1996-1998 data). A comparability ratio 1.0134 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes C61 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-7. Reduce the prostate cancer death rate. For all populations, the HP 2010 target rate is 28.8 prostate cancer deaths per 100,000 males.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 10
Age-Adjusted Prostate Cancer Death Rates Among Men,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 28.2 prostate cancer deaths/100,000 males, which was established for all populations.

HUMAN IMMUNODEFICIENCY VIRUS (HIV)

Despite major advancements in the treatment of HIV/AIDS, the disease remains an important cause of disability and death. One goal of Healthy People 2010 is to reduce HIV/AIDS deaths through efforts aimed at prevention, diagnosis, and treatment. In 1998, the U.S. all races population experienced an age-adjusted HIV death rate of 4.9 deaths (per 100,000 population). The lowest HIV death rate of 0.8 (per 100,000 populations) was observed among the U.S. white population. Using a “better than the best” approach, Healthy People 2010 therefore established a target rate of 0.7 HIV deaths (per 100,000 population). This target goal applies to all population groups including the American Indian and Alaska Native (AI/AN) population.

Table 11 represents age-adjusted HIV mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, and 2003) for the U.S. all races and U.S. white populations are also shown. Figure 11 illustrates the changes that have taken place in HIV mortality between the baseline and most recent time periods for each IHS area.

The results shown in Table 11 and Figure 11 indicate that the 2002-2004 HIV mortality rate in the IHS population is slightly higher than the U.S. white population rate but is lower than the U.S. all races rate. The total IHS, U.S. all races and U.S. white population rates are all above the Healthy People 2010 goal of 0.7 HIV deaths (per 100,000 population). Only one IHS area (Billings) had an HIV mortality rate in 2002-2004 that met the Healthy People 2010 objective. The highest IHS area rate for years 2002-2004 is seen for the Portland Area – Portland’s age-adjusted HIV mortality rate of 5.7 is considerably above the Healthy People 2010. Other areas with relatively high rates in 2002-2004 are Phoenix (4.7), Alaska (3.8), and Nashville (3.5). It is also apparent that a substantial amount of variability across time periods is present for individual areas. As a result of the absolute number of area-specific HIV deaths being small, period-to-period variability should be interpreted with caution.

These results indicate that further progress is needed for all U.S. populations, including the IHS population, in order to meet the HIV mortality reduction objective set forth by Healthy People 2010.

Table 11
Age-Adjusted Mortality Rates for Deaths Due to HIV Infection
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	3.3	3.1	3.1	0.7	-6.1%
Aberdeen	3.2	3.0	1.7	0.7	-46.9%
Alaska	1.8	5.5	3.8	0.7	111.1%
Albuquerque	2.4	1.1	2.6	0.7	8.3%
Bemidji	3.1	2.1	2.2	0.7	-29.0%
Billings	3.1	1.3	----	0.7	----
California	4.0	2.7	2.5	0.7	-37.5%
Nashville	4.0	5.3	3.5	0.7	-12.5%
Navajo	1.2	1.0	2.3	0.7	91.7%
Oklahoma	4.2	4.6	3.0	0.7	-28.6%
Phoenix	4.3	4.8	4.7	0.7	9.3%
Portland	4.7	2.8	5.7	0.7	21.3%
Tucson	1.0	3.2	1.2	0.7	20.0%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	6.0	5.2	4.7	0.7	-21.7%
White	3.4	2.8	2.5	0.7	-26.5%

---- Quantity zero

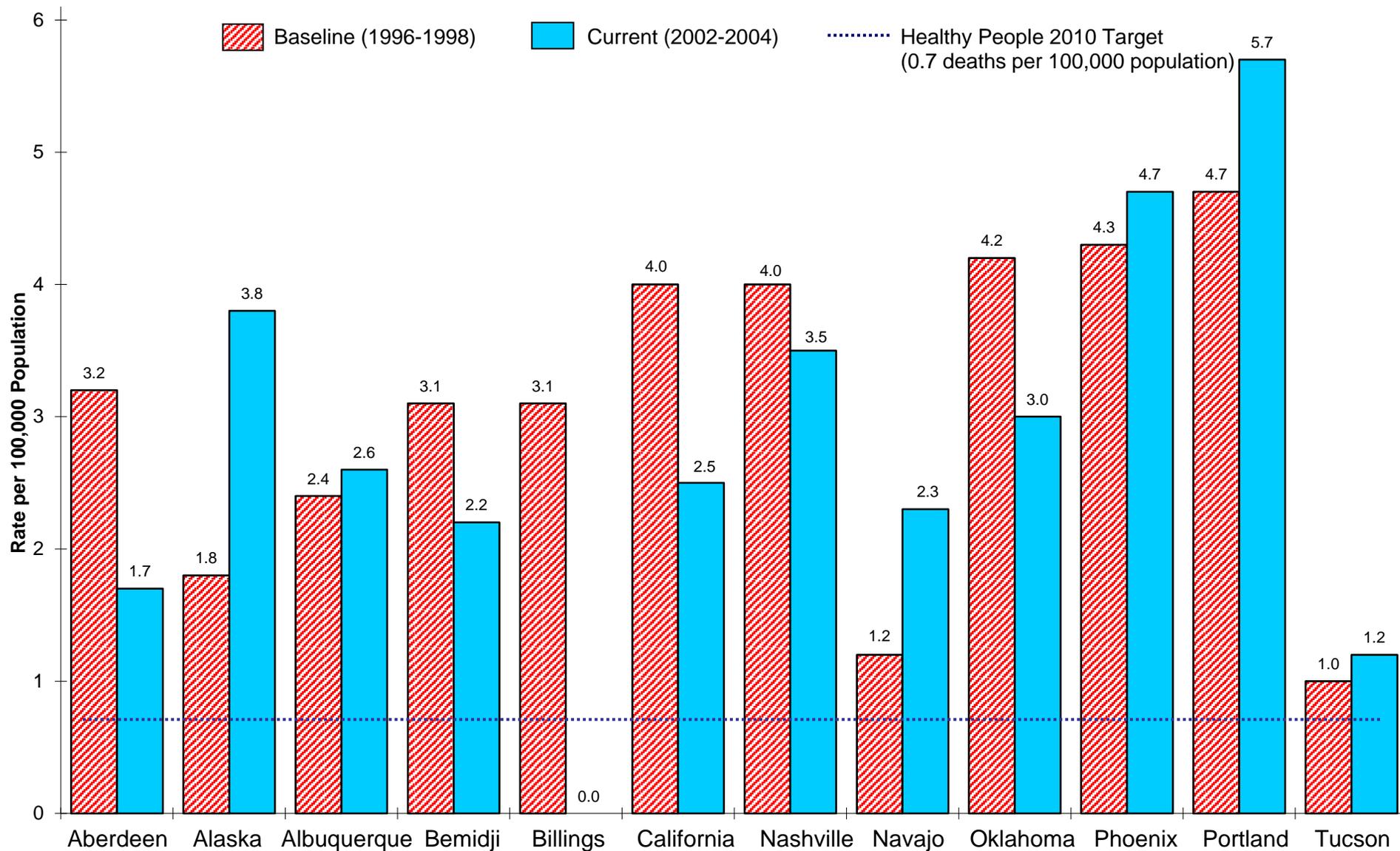
^{1/} Includes ICD-9 codes 042-044 (1996-1998 data). A comparability ratio 1.0637 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes B20-B24 (1999-2004).

^{3/} Healthy People 2010 Objective No. 3-5. Reduce deaths from HIV infection. For all populations, the HP 2010 target rate is 0.7 deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 11
Age-Adjusted HIV Infection Death Rates,
by IHS Area and Time Period



0.0 = No HIV deaths for years 1996-1998.

NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 0.7 HIV deaths/100,000 population, which was established for all populations.

UNINTENTIONAL INJURIES

Healthy People 2010 identified deaths due to unintentional injuries as an important area for mortality reduction. Using a “better than the best” approach, Healthy People 2010 established a target goal of 17.5 injury deaths (per 100,000 population). This target of 17.5 applies to all population groups including the American Indian and Alaska Native population.

Table 12 represents age-adjusted unintentional injury mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, and 2003) for the U.S. all races and U.S. white populations are also shown. Figure 12 illustrates the changes that have taken place in unintentional injury mortality between the baseline and most recent time periods for each IHS area.

The results shown in Table 12 and Figure 12 suggest that all U.S. populations experience greater unintentional injury mortality than the goal outlined in Healthy People 2010. Therefore, progress needs to be made across all populations. However, it is also clear that the IHS population experiences significantly more unintentional injury mortality than the U.S. all races and U.S. white populations. During the most recent measurement period of 2002-2004, the overall IHS age-adjusted rate was 94.8, which was more than twice that seen for either the U.S. all races or U.S. white populations, and more than five times the Healthy People 2010 goal of 17.5. However, while the U.S. all races and U.S. white populations have not shown recent progression toward the Healthy People 2010 goal (both rates have increased over the measurement period), the IHS total population unintentional injury mortality rate has declined (-2.4%).

The IHS area-specific data shown in Table 12 and Figure 12 also indicate that there is important variation across IHS areas in unintentional injury mortality rates. Three areas appear to have unintentional injury mortality rates that are consistently very high: Aberdeen, Billings, and Navajo. The lowest IHS rates are consistently seen in the California and Nashville areas. However, although these areas display the lowest IHS unintentional injury mortality rates, both areas' rates are still well above the Healthy People 2010 goal (California's 2002-2004 rate is 59.6 and Nashville's rate is 59.0 for the same time period). This is in contrast to the Healthy People 2010 goal of 17.5. (Mortality rates are age-adjusted per 100,000 population).

The greatest percentage reductions in unintentional injury mortality have occurred in Phoenix (-20.2%) and Alaska (-14.4%). In contrast, rates in the Oklahoma area have steadily increased since baseline with a 2002-2004 rate that is 22.5% greater than the 1996-1998 rate in that area.

These results indicate that unintentional prevention efforts must be continued to reduce IHS population disparities in unintentional mortality and that more progress is necessary to attain the unintentional reduction objectives established in Healthy People 2010.

Table 12
Age-Adjusted Mortality Rates for Deaths Due to Unintentional Injuries
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	97.1	88.9	94.8	17.5	-2.4%
Aberdeen	137.4	114.4	146.0	17.5	6.3%
Alaska	110.2	124.5	94.3	17.5	-14.4%
Albuquerque	90.2	73.8	86.6	17.5	-4.0%
Bemidji	91.7	108.8	99.2	17.5	8.2%
Billings	137.4	132.9	149.1	17.5	8.5%
California	56.3	43.9	59.6	17.5	5.9%
Nashville	54.5	38.8	59.0	17.5	8.3%
Navajo	151.1	131.6	133.2	17.5	-11.8%
Oklahoma	65.8	75.0	80.6	17.5	22.5%
Phoenix	120.9	99.3	96.5	17.5	-20.2%
Portland	89.4	69.0	83.8	17.5	-6.3%
Tucson	125.6	105.9	120.7	17.5	-3.9%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	35.5	35.1	37.5	17.5	5.6%
White	35.0	35.2	38.3	17.5	9.4%

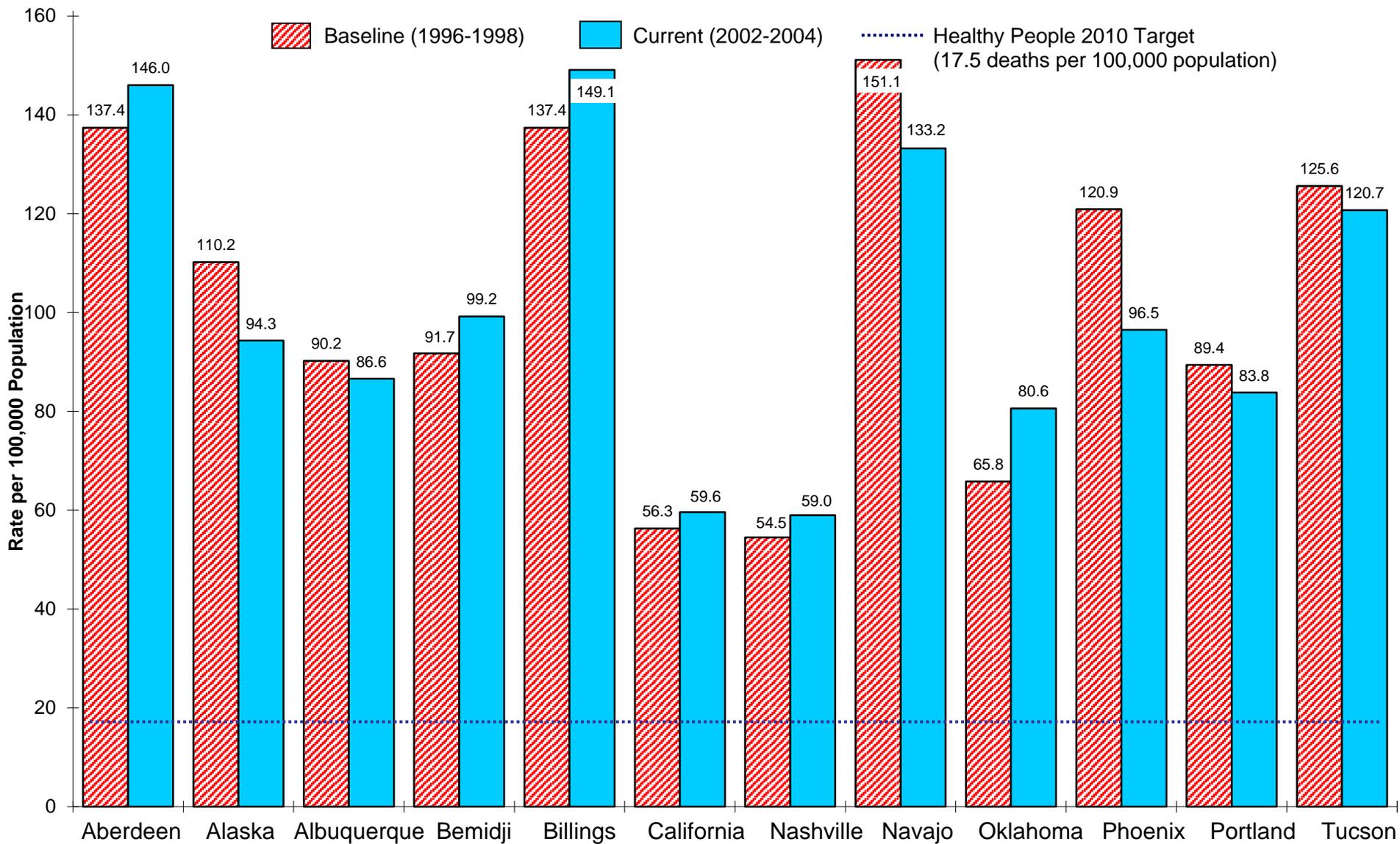
^{1/} Includes ICD-9 codes E800-E869 and E880-E929 (1996-1998 data). A comparability ratio 1.0305 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes V01-X59 and Y85-Y86 (1999-2004).

^{3/} Healthy People 2010 Objective No. 15-13. Reduce deaths caused by unintentional injuries. For all populations, the HP 2010 target rate is 17.5 unintentional injury deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 12
Age-Adjusted Unintentional Injury Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 17.5 injury deaths/100,000 population, which was established for all populations.

HOMICIDE

Violence prevention including a reduction in homicides is an important aim of Healthy People 2010. Using a “better than the best” approach, Healthy People 2010 established a target rate of 3.0 homicides (per 100,000 population). The target rate applies to all population groups including the American Indian and Alaska Native population.

Table 13 presents age-adjusted homicide mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 13 illustrates the changes that have taken place in homicide mortality rates between the baseline and most recent time periods for each IHS area.

The results shown in Table 13 and Figure 13 suggest that overall the IHS population has made some progress over time toward this goal but homicide rates are greater in the IHS population than in the U.S. all races or U.S. white populations. For years 2002-2004 the IHS population homicide rate (11.8) is nearly twice that of the U.S. all races population and nearly four times the Healthy People 2010 goal of 3.0 homicides (per 100,000 population). Although the total IHS homicide rate has declined by -6.3% since baseline this decline is less than the -14.3% and -16.3% declines observed in the U.S. all races and U.S. white populations, respectively.

The data shown in Table 13 and Figure 13 also indicate that there is considerable variability across IHS service areas in the homicide rate. During 2002-2004 the highest rates were observed in Tucson (22.6), Albuquerque (16.5), and Billings (16.2). The lowest current rate is observed in Nashville which at 3.4 is the only IHS area rate that approaches the Healthy People 2010 goal of 3.0. The IHS area-specific results also indicate that there is year-to-year variability in mortality associated with homicides. Looking at change since baseline, five areas have experienced reductions in homicides, most notably Nashville (-64.9%), Oklahoma (-27.1%), and Alaska (-25.7%). However, several other areas experienced substantial increases between 1996-1998 and 2002-2004, including Tucson (83.7%), California (73.7%), Albuquerque (26.9%), and Billings (25.6%). However, given the year-to-year variability that is present the percentage differences between 1996-1998 and 2002-2004 should be interpreted with caution.

Collectively these results suggest that the IHS population continues to experience higher homicide rates than either the U.S. all races or U.S. white populations and consistently experiences homicide rates well in excess of the goal set forth by Healthy People 2010. Further efforts aimed at violence prevention may be needed to reduce this important population health disparity and to achieve the goals of Healthy People 2010.

Table 13
Age-Adjusted Mortality Rates for Deaths Due to Homicide
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	12.6	11.4	11.8	3.0	-6.3%
Aberdeen	13.0	15.3	13.7	3.0	5.4%
Alaska	14.0	20.6	10.4	3.0	-25.7%
Albuquerque	13.0	9.4	16.5	3.0	26.9%
Bemidji	10.1	8.1	11.1	3.0	9.9%
Billings	12.9	13.3	16.2	3.0	25.6%
California	5.7	5.5	9.9	3.0	73.7%
Nashville	9.7	9.4	3.4	3.0	-64.9%
Navajo	18.1	13.1	15.6	3.0	-13.8%
Oklahoma	14.4	11.0	10.5	3.0	-27.1%
Phoenix	15.9	15.6	13.7	3.0	-13.8%
Portland	8.0	6.4	8.2	3.0	2.5%
Tucson	12.3	14.7	22.6	3.0	83.7%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	7.0	5.8	6.0	3.0	-14.3%
White	4.3	3.6	3.6	3.0	-16.3%

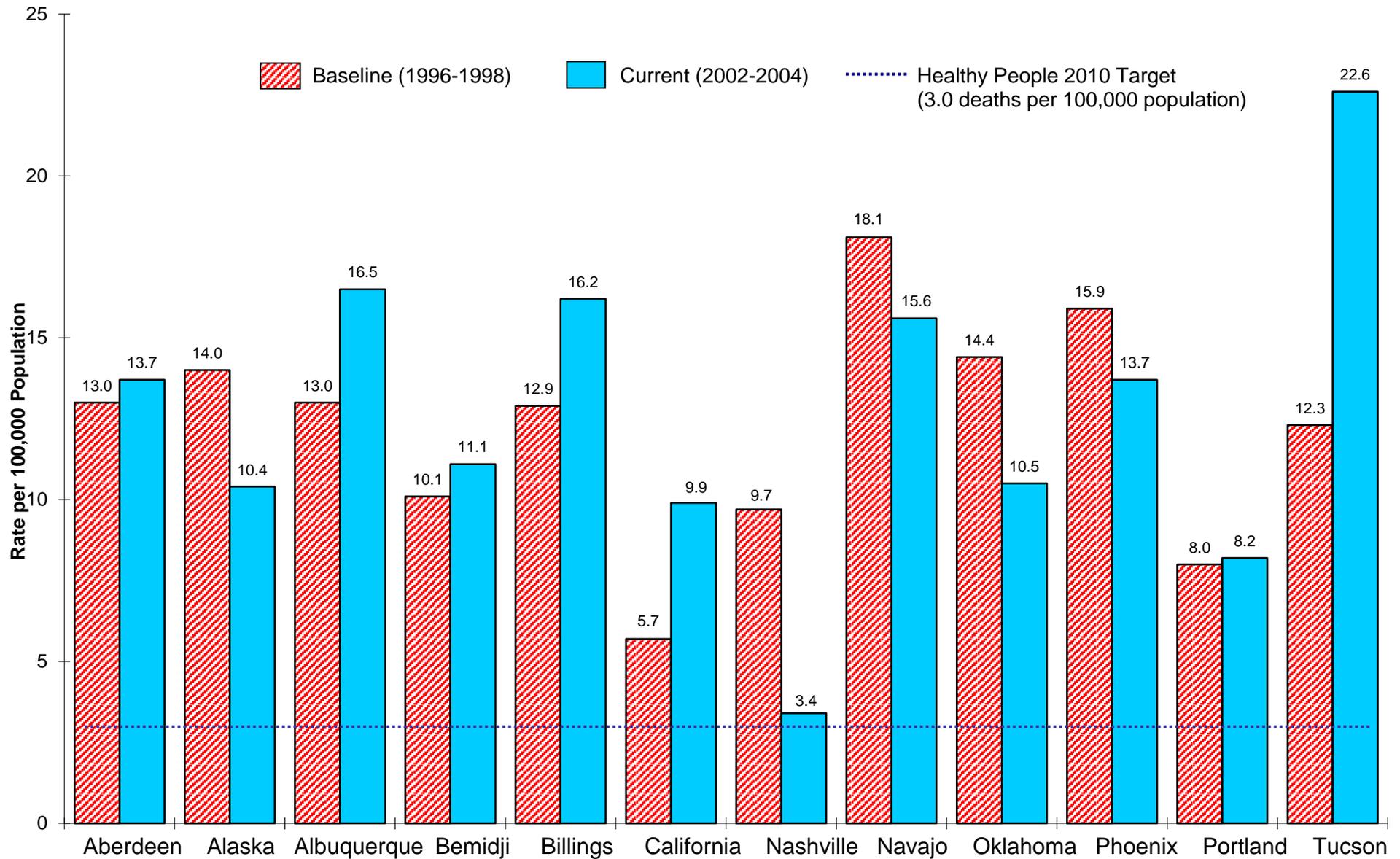
^{1/} Includes ICD-9 codes E960-E969 (1996-1998 data). A comparability ratio 0.9983 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes X85-Y09 and Y87.1 (1999-2004).

^{3/} Healthy People 2010 Objective No. 15-32. Reduce deaths caused by homicides. For all populations, the HP 2010 target rate is 3.0 homicides per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 13
Age-Adjusted Homicide Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 3 homicides/100,000 population, which was established for all populations.

SUICIDE

Suicide reduction was identified by Healthy People 2010 as an important objective within the domain of mental health. Using a “better than the best” approach, Healthy People 2010 established a target rate of 5.0 suicides (per 100,000 population). The target rate of 5.0 applies to all population groups including the American Indian and Alaska Native (AI/AN) population.

Table 14 presents age-adjusted suicide mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 14 illustrates the changes that have taken place in suicide mortality rates between the baseline and most recent time periods for each IHS area.

The current total IHS age-adjusted suicide rate of 17.9 (per 100,000 population) is still substantially above the age-adjusted U.S. all races rate (10.8) and the comparable U.S. white rate (11.8). All of these rates are still substantially above the 2010 target goal of 5 deaths (per 100,000 population). Moreover, there has been no progress in reduction of the overall IHS rate with no change (0.0%) between the current rate and the baseline rate.

There is great variability in suicide rates according to IHS area and also great variability in reduction of rates. In the Nashville Area, which already had the lowest rate at baseline at 7.2 (per 100,000 population), there was a reduction of -43.1% to 4.1 (per 100,000 population) and is the only area where the rate is below the 2010 target goal of 5 deaths (per 100,000 population).

Age-adjusted suicide rates increase in six of the twelve areas: Billings (38.3%), Albuquerque (36.9%), Phoenix (18.5%), Oklahoma (18.2%), Alaska (4.8%), and Navajo (4.3%). Alaska has the highest current rate of 43.5 (per 100,000 population) and this rate has increase 4.8% since baseline. Although Nashville had the lowest baseline rate of 7.2 (per 100,000 population) this area had the greatest reduction of -43.1% to 4.1 (per 100,000 persons). Several other areas had substantial declines, notably: Tucson (-27.1%), Bemidji (-26.7%), and Portland (-22.2%).

Despite these encouraging reductions in suicide in several IHS areas the overall results indicate that population disparities with respect to suicide continue to affect the IHS population.

Table 14
Age-Adjusted Mortality Rates for Deaths Due to Suicide
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	17.9	17.0	17.9	5.0	0.0%
Aberdeen	28.6	22.4	25.3	5.0	-11.5%
Alaska	41.5	38.5	43.5	5.0	4.8%
Albuquerque	14.1	17.3	19.3	5.0	36.9%
Bemidji	26.2	18.6	19.2	5.0	-26.7%
Billings	18.8	20.9	26.0	5.0	38.3%
California	11.8	5.5	11.0	5.0	-6.8%
Nashville	7.2	6.8	4.1	5.0	-43.1%
Navajo	16.3	19.1	17.0	5.0	4.3%
Oklahoma	13.7	14.5	16.2	5.0	18.2%
Phoenix	12.4	16.6	14.7	5.0	18.5%
Portland	21.2	16.4	16.5	5.0	-22.2%
Tucson	25.5	23.1	18.6	5.0	-27.1%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	11.2	10.4	10.8	5.0	-3.6%
White	12.1	11.3	11.8	5.0	-2.5%

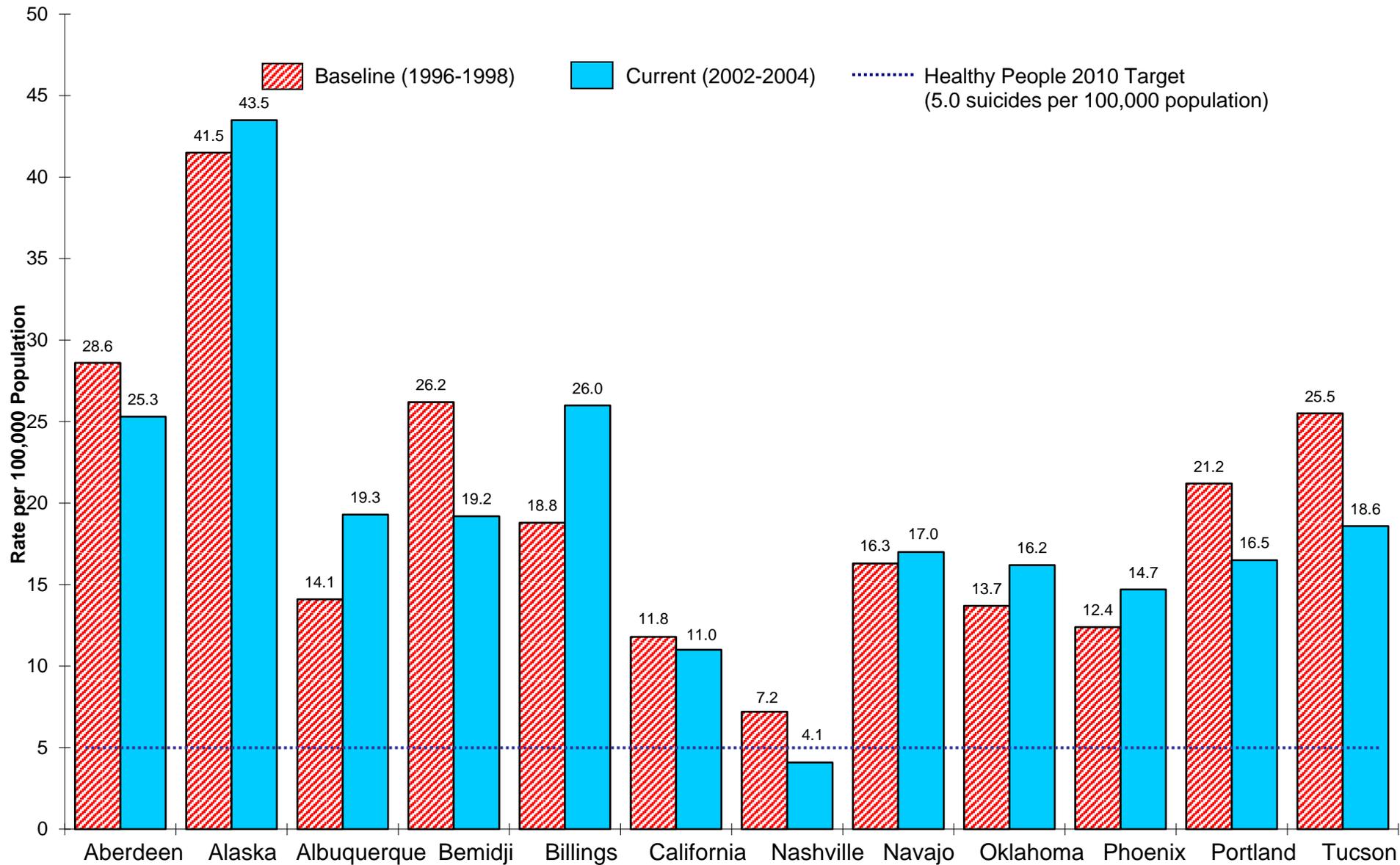
^{1/} Includes ICD-9 codes E950-E959 (1996-1998 data). A comparability ratio 0.9962 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes X60-X84 and Y87.0 (1999-2004).

^{3/} Healthy People 2010 Objective No. 18-1. Reduce deaths caused by suicides. For all populations, the HP 2010 target rate is 5.0 suicides deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 14
Age-Adjusted Suicide Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 5.0 suicides/100,000 population, which was established for all populations.

CIRRHOSIS OF THE LIVER

Reducing the number of deaths attributable to liver cirrhosis was identified by Healthy People 2010 as an important goal within the broad domain of substance abuse reduction. Using a “better than the best” target-setting method, Healthy People 2010 established a target goal of 3.0 deaths (per 100,000 population). The target goal of 3.0 applies to all populations including the American Indian and Alaska Native population.

Table 15 presents age-adjusted cirrhosis of the liver mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 15 illustrates the changes that have taken place in cirrhosis of the liver mortality rates between the baseline and most recent time periods for each IHS area.

The IHS age-adjusted cirrhosis death rates shown in Table 15 and Figure 15 are in sharp contrast to the U.S. all races and U.S. white rates. The current total IHS rate of 39.1 is more than four times the U.S. all races and U.S. white rates and is 13 times the target goal of 3.0. The IHS area-specific data shown in Table 15 and Figure 15 also illustrates that there is substantial heterogeneity across IHS service areas in cirrhosis mortality rates. The IHS service areas with the highest current rates are Aberdeen, Billings, and Tucson (77.2, 69.7, and 68.3, respectively). The Alaska Area has consistently shown the lowest rate but Alaska’s current age-adjusted rate of 19.6 is still more than six times the Healthy People 2010 goal. (Rates are age-adjusted per 100,000 population).

IHS total rates and area-specific rates indicate that cirrhosis of the liver remains an important area of health disparity between AIAN and the general population. The results shown in Table 15 and Figure 15 suggest that progress is being made in some IHS areas. Seven of the 12 IHS areas have shown declines in cirrhosis mortality between 1996-1998 and 2002-2004. Dramatic reductions have occurred in Tucson (-25.8%), Nashville (-18.0%), and Bemidji (-14.4%). However, these reductions are largely offset by cirrhosis mortality increases in several other areas most notably California (36.0%), Alaska (17.4%), and Billings (16.8%). Although progress is being made in some areas additional intervention efforts are still necessary to reduce mortality associated with cirrhosis of the liver.

Table 15
Age-Adjusted Mortality Rates for Deaths Due to Cirrhosis of the Liver
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	39.0	40.6	39.1	3.0	0.3%
Aberdeen	83.3	79.2	77.2	3.0	-7.3%
Alaska	16.7	21.7	19.6	3.0	17.4%
Albuquerque	53.2	68.4	48.6	3.0	-8.6%
Bemidji	41.8	32.8	35.8	3.0	-14.4%
Billings	59.7	55.5	69.7	3.0	16.8%
California	26.7	33.9	36.3	3.0	36.0%
Nashville	29.4	33.7	24.1	3.0	-18.0%
Navajo	32.3	31.5	33.4	3.0	3.4%
Oklahoma	29.8	29.8	29.6	3.0	-0.7%
Phoenix	54.4	57.4	51.9	3.0	-4.6%
Portland	38.8	37.7	39.6	3.0	2.1%
Tucson	92.0	82.1	68.3	3.0	-25.8%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	9.5	9.5	9.3	3.0	-2.1%
White	9.5	9.6	9.6	3.0	1.1%

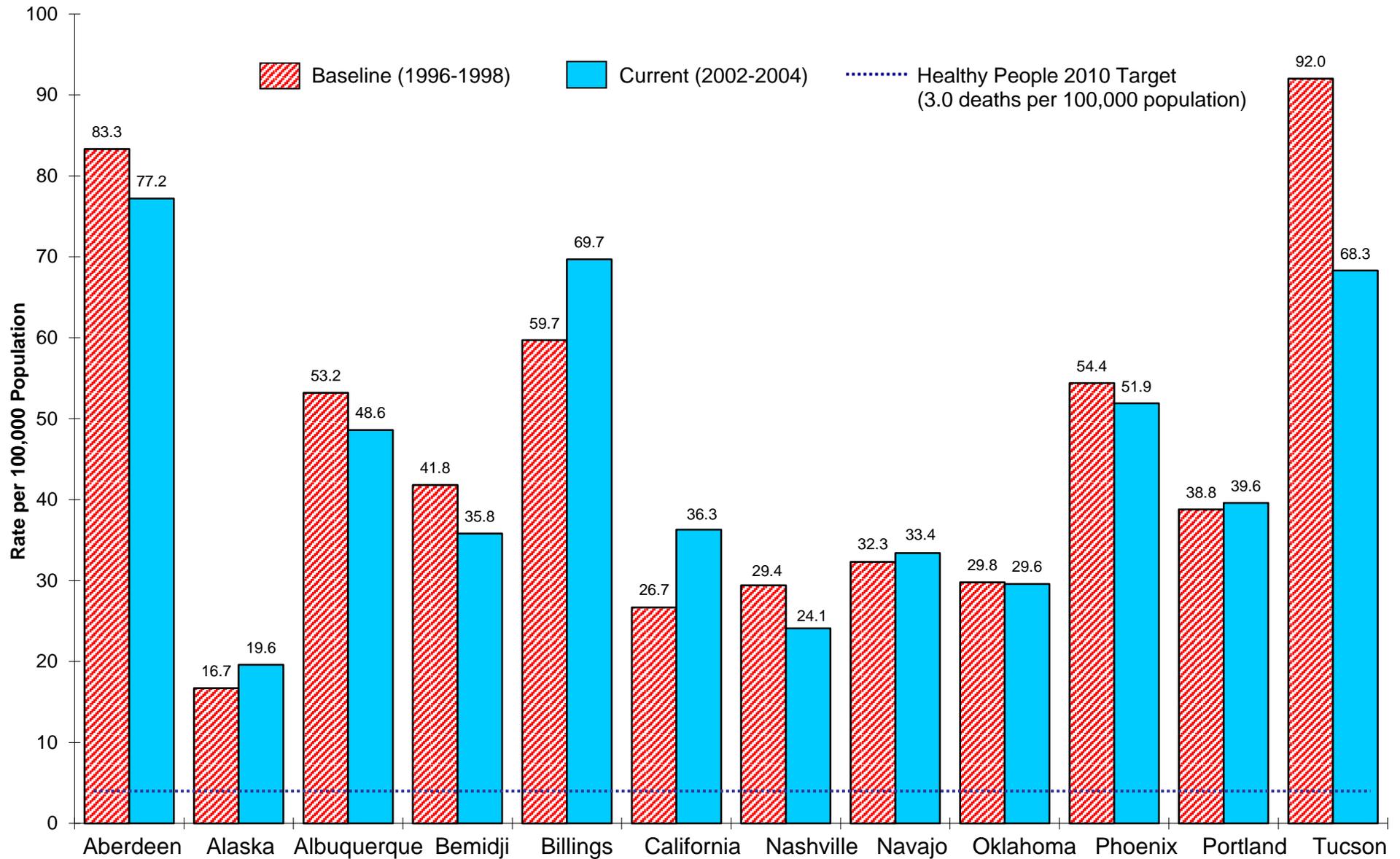
^{1/} Includes ICD-9 code 571 (1996-1998 data). A comparability ratio 1.0367 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes K70 and K73-K74 (1999-2004).

^{3/} Healthy People 2010 Objective No. 26-2. Reduce deaths caused by cirrhosis of the liver. For all populations, the HP 2010 target rate is 3.0 cirrhosis of the liver deaths per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 15
Age-Adjusted Cirrhosis of the Liver Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 3.0 cirrhosis deaths/100,000 population, which was established for all populations.

DRUG-INDUCED DEATHS

Reducing drug-induced deaths is defined in Healthy People 2010 as an important objective related to substance abuse reduction. The category of drug-related deaths includes a broad constellation of ICD-9 and ICD-10 codes related to drug psychosis, drug dependence, suicide, and intentional or accidental poisoning that may result from drug use. Healthy People 2010 used a “better than the best” approach to establish a target goal. The lowest drug-induced mortality rate in 1998 was 1.2 which occurred among Asian and Pacific Islanders. The Healthy People 2010 target was therefore set below at 1.0 death (per 100,000 population). Meeting this target will require substantial reductions in drug-induced deaths for most population groups.

Table 16 presents age-adjusted drug-induced mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 16 illustrates the changes that have taken place in drug-induced mortality rates between the baseline and most recent time periods for each IHS area.

The data shown in Table 16 and Figure 16 suggest that most U.S. populations including U.S. all races, U.S. white, and IHS populations are considerably above the Healthy People 2010 target of 1.0 drug-induced death (per 100,000 population). The total IHS population rate (15.0) for years 2002-2004 is substantially higher than both the U.S. all races and U.S. white population rates. All three populations (U.S. all races, U.S. white, and total IHS) appear to have experienced some increase in drug-induced mortality rates since baseline. Therefore, it does not appear that progress toward the Healthy People 2010 goal is being attained in any major population group including the IHS population.

Table 16 and Figure 16 also show that there is also variability among IHS service areas. During 2002-2004 the highest age-adjusted drug-induced mortality rates occurred in Tucson (38.9) and Portland (36.6). In contrast the lowest rates were seen in the Navajo (3.2) and Nashville (8.5) areas. Most IHS areas appear to have experienced increases in the age-adjusted drug-induced mortality rate since baseline. Although it is possible that some of this increase may reflect measurement changes in ICD-9 and ICD-10 coding relating to drug-induced deaths, it is also apparent that increases have occurred between the two most recent time periods (1999-2001) and (2002-2004) for which ICD-10 codes were consistently used. The apparent increases in drug-induced mortality in the IHS population will require further monitoring in order to understand this trend. It is clear that further intervention efforts are necessary to reduce drug-induced mortality and to achieve progress toward the goal outlined in Healthy People 2010.

Table 16
Age-Adjusted Mortality Rates for Drug-Induced Deaths
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	10.4	9.2	15.0	1.0	44.2%
Aberdeen	11.0	7.3	12.6	1.0	14.5%
Alaska	10.4	14.1	17.9	1.0	72.1%
Albuquerque	6.3	4.0	10.5	1.0	66.7%
Bemidji	6.6	10.4	19.4	1.0	193.9%
Billings	10.3	9.5	19.0	1.0	84.5%
California	18.2	6.0	18.2	1.0	0.0%
Nashville	3.8	3.6	8.5	1.0	123.7%
Navajo	3.4	3.4	3.2	1.0	-5.9%
Oklahoma	8.9	8.9	12.8	1.0	43.8%
Phoenix	14.1	9.1	15.4	1.0	9.2%
Portland	24.4	17.5	26.6	1.0	9.0%
Tucson	28.2	33.5	38.9	1.0	37.9%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	5.8	7.0	9.9	1.0	70.7%
White	5.7	7.1	10.4	1.0	82.5%

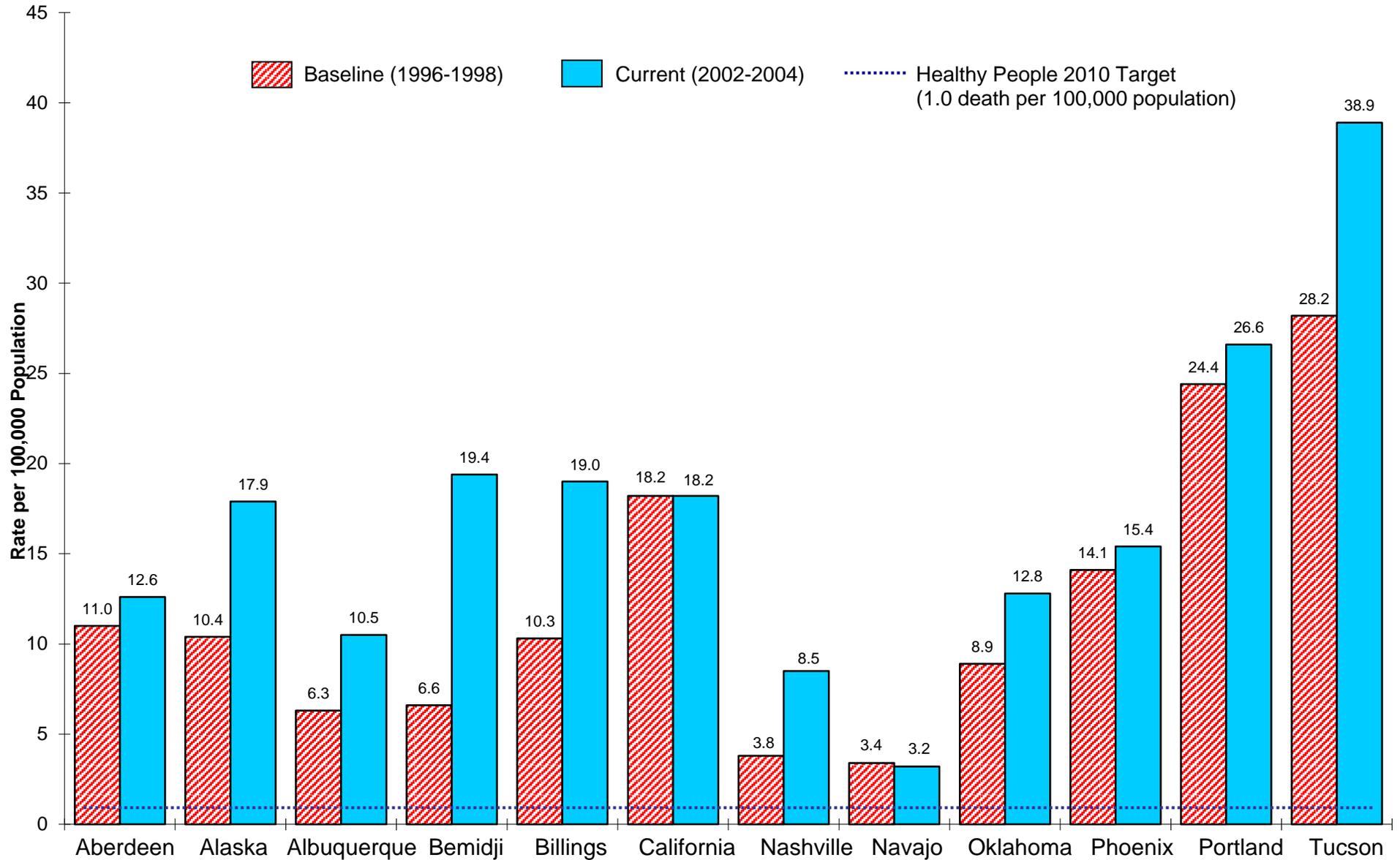
^{1/} Includes ICD-9 codes 292, 304, 305.2-305.9, E850-E858, E950.0-E950.5, E962.0, and E980.0-E980.5 (for 1996-1998 data). A comparability ratio of 1.1950 was applied to 1996-1998 data to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, and F19.7-F19.9 (for 1999-2004 data).

^{3/} Healthy People 2010 Objective No.26-3. Reduce drug-induced deaths. For all populations, the HP 2010 target rate is 1.0 drug-induced death per 100,000 population.

NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 16
Age-Adjusted Drug-Induced Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 1.0 drug-induced death/100,000 population, which was established for all populations.

MOTOR VEHICLE CRASHES

Healthy People 2010 recognized motor vehicle crashes as a significant health problem for the United States. Motor vehicle crashes are a leading cause of death for younger U.S. age groups including persons aged 5 to 29. Because many motor vehicle crash deaths may be prevented through key safety practices, such as wearing seat belts, Healthy People 2010 established motor vehicle crash deaths as an area where significant improvements could be attained by 2010. Healthy People 2010 used a “better than the best” approach to establish a target goal of 9.2 motor vehicle crash deaths (per 100,000 population).

Table 17 presents age-adjusted motor vehicle crash mortality rates for 1996-1998, 1999-2001, and 2002-2004 for the Indian Health Service (IHS) population by service area. Mid-year rates for each period (corresponding to 1997, 2000, 2003) for the U.S. all races and U.S. white populations are also shown. Figure 17 illustrates the changes that have taken place in motor vehicle crash mortality rates between the baseline and most recent time periods for each IHS area.

The IHS data shown in Table 17 and Figure 17 present a striking contrast to the data for other population groups. The 2002-2004 overall IHS motor vehicle crash mortality rate of 51.0 is much higher than the U.S. all races rate (15.4) and the U.S. white rate (15.7). Although both the U.S. all races and U.S. white crash mortality rates are nearly double the Healthy People 2010 target, the IHS rate is more than five times the target goal. Comparison of current with baseline data further suggests that little progress has been made in reducing motor vehicle crash deaths in the total IHS population. The IHS service areas with the highest current rates are Billings (92.1) and Aberdeen (88.9). Both of these areas have also experienced crash mortality increases (16.9% and 22.8%, respectively) between 1996-1998 and 2002-2004. Alaska, California, Oklahoma and Bemidji are four areas that have lower current crash mortality rates than Billings and Aberdeen but have experienced increases of 20% or more since baseline. The remaining six areas have experienced either constant or declining motor vehicle crash rates since the baseline period. The most notable decrease has occurred for the Tucson Area whose crash mortality rate fell from 66.6 deaths in 1996-1998 to 43.2 deaths for years 2002-2004, a -35% decrease.

Taken in the aggregate the IHS data shown in Table 17 and Figure 17 indicate that much more progress is needed in reducing motor vehicle crash deaths in order to achieve the goals outlined in Healthy People 2010.

Table 17
Age-Adjusted Mortality Rates for Deaths Due to Motor Vehicle Crashes
Among American Indian and Alaska Native Population, by IHS Area
1996-1998, 1999-2001, and 2002-2004
(Rate per 100,000 Population)

<u>IHS Area</u>	<u>1996-1998^{1/}</u> <u>(Baseline)</u>	<u>1999-2001^{2/}</u>	<u>2002-2004^{2/}</u> <u>Current</u>	<u>2010^{3/}</u> <u>Target</u> <u>Goal</u>	<u>% Change</u> <u>Between</u> <u>Baseline and</u> <u>Current Rate</u>
IHS Total	43.2	48.1	51.0	9.2	18.1%
Aberdeen	72.4	69.1	88.9	9.2	22.8%
Alaska	23.2	32.2	29.7	9.2	28.0%
Albuquerque	43.7	45.4	42.8	9.2	-2.1%
Bemidji	47.1	60.0	56.5	9.2	20.0%
Billings	78.8	81.3	92.1	9.2	16.9%
California	24.8	25.1	31.0	9.2	25.0%
Nashville	33.5	23.8	33.5	9.2	0.0%
Navajo	85.2	80.4	78.7	9.2	-7.6%
Oklahoma	37.2	38.1	45.5	9.2	22.3%
Phoenix	67.2	60.3	53.5	9.2	-20.4%
Portland	40.7	33.9	38.0	9.2	-6.6%
Tucson	66.6	49.8	43.2	9.2	-35.1%
<i>U.S. Mid-Year Rates</i>	<i>(1997)</i>	<i>(2000)</i>	<i>(2003)</i>		
All Races	15.9	15.4	15.4	9.2	-3.1%
White	16.0	15.6	15.7	9.2	-1.9%

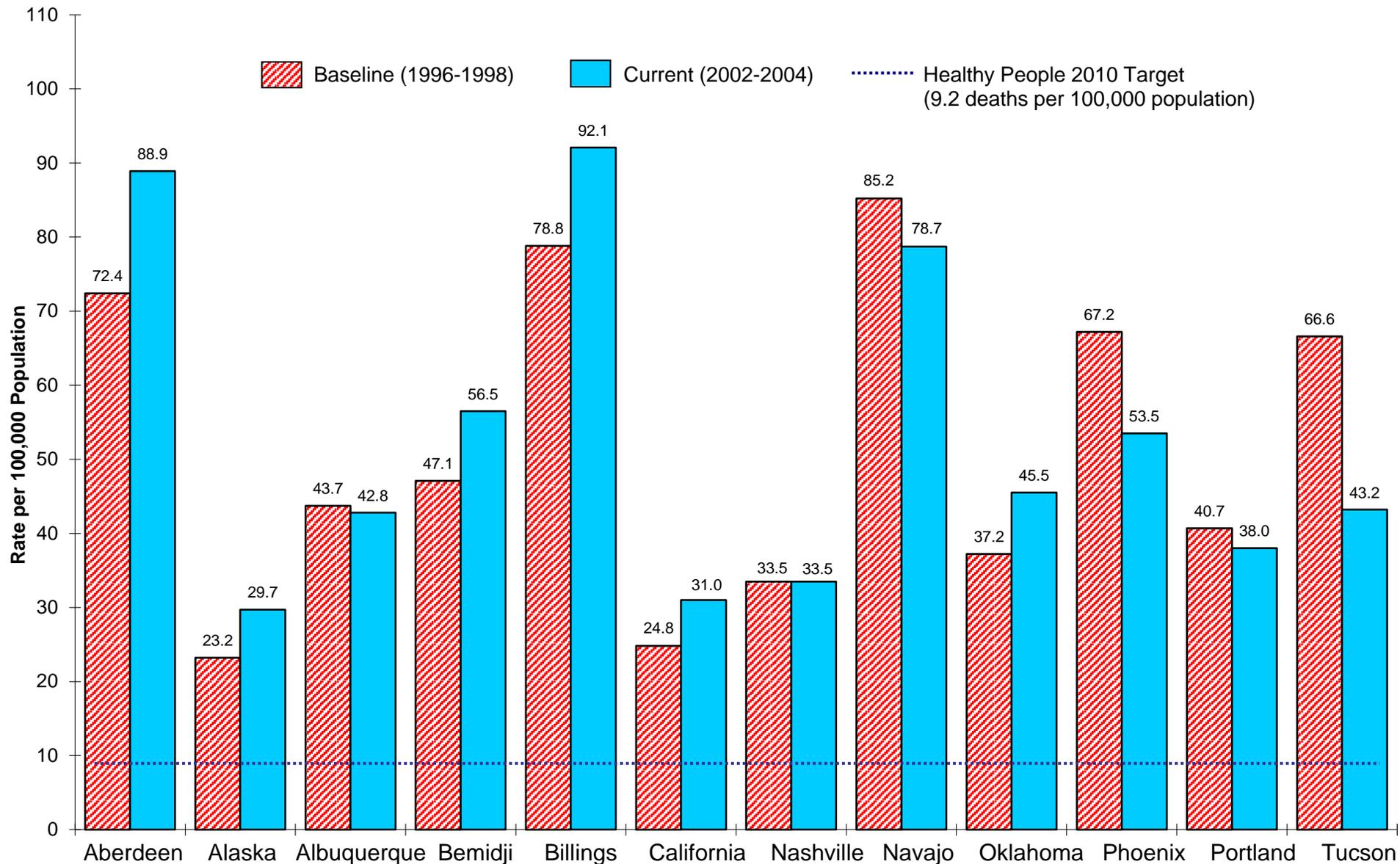
Healthy People 2010 Objective No.15-15. Reduce deaths caused by motor vehicle crashes. For all populations, the HP 2010 target rate is 9.2 deaths per 100,000 persons.

^{1/} Includes ICD-9 codes E810-E825 (1996-1998 data). A comparability ratio of 0.9754 was applied to 1996-1998 to allow comparison of ICD-9 and ICD-10 coded data.

^{2/} ICD-10 codes V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2 (1999-2004 data).

NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates.

Figure 17
Age-Adjusted Motor Vehicle Crash Death Rates,
by IHS Area and Time Period



NOTE: Rates are age-adjusted to the year 2000 standard population, and are adjusted to compensate for misreporting of American Indian/Alaska Native race on death certificates. The 2010 target is based on a single goal of 9.2 crash deaths/100,000 population, which was established for all populations.

FINAL

U.S. Department of Health and Human Services, Indian Health Service. *Tracking Regional Indian Health Status Objectives*, October, 2011.