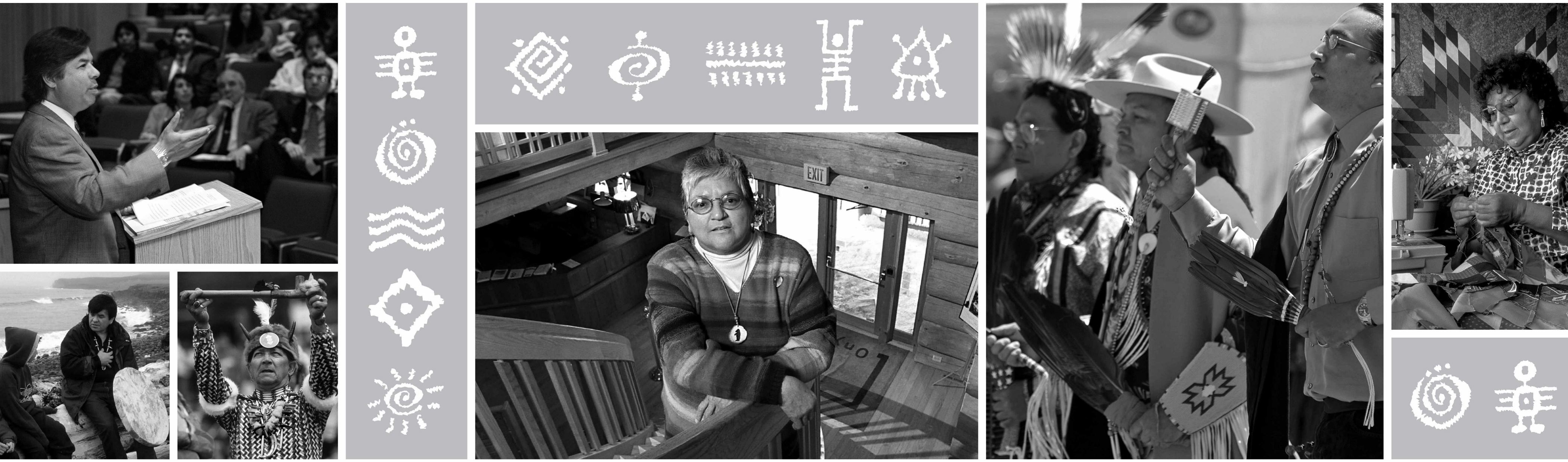
Atlas of Heart Disease and Stroke



Among American Indians and Alaska Natives

2005

Suggested Citation

Casper ML, Denny CH, Coolidge JN, Williams GI Jr, Crowell A, Galloway JM, Cobb N. *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and Indian Health Service; 2005.

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To view interactive maps of heart disease and stroke mortality or download sections of this atlas, visit http://www.cdc.gov/cvh/maps.

Acknowledgments

The authors would like to thank the following people for their valuable contributions to the publication of this atlas: Janet Croft, George Mensah, and Darwin Labarthe for their continued support and enthusiasm; Elizabeth Barnett, Joel Halverson, and Valerie Braham for their initial vision and expertise in developing the first three atlases of heart disease and stroke; Mark Conner for his wonderful creativity and talent in developing the cover design; Mark Harrison for desktop publishing; Andrea Saddlemeir for her SAS expertise and her graciousness in assisting with analyses at a critical time; Kan Zheng for his valued assistance with data entry and quality control; and the following reviewers for their helpful comments on earlier drafts: Kurt J. Greenlund and H. Wayne Giles, National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), CDC, and Phil Smith, Indian Health Service.

In addition, the authors would like to acknowledge the exceptional work performed by CDC staff in the National Center for Health Statistics in maintaining the National Vital Statistics System, as well as that of CDC staff in NCCDPHP in maintaining the Behavioral Risk Factor Surveillance System. Without the rigorous and systematic surveillance work performed by these staff members in close collaboration with state departments of health, producing this *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* would not be possible.

Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives

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A Message from the Director of CDC

As the nation's prevention agency, the Centers for Disease Control and Prevention (CDC) is committed to reducing the burden of heart disease and stroke, which are the first and third leading causes of death and major contributors to disability in the United States. These two cardiovascular diseases are largely preventable, and targeted public health efforts can help reduce their impact. To meet this challenge, CDC works to monitor temporal and geographic trends in heart disease and stroke rates among different racial and ethnic groups, to strengthen the delivery of primary and secondary preventive health services to all such groups, and to implement policy changes that support the alleviation of disparities among all U.S. residents.

Among American Indians and Alaska Natives, heart disease and stroke are the first and sixth leading causes of death. I am pleased to provide you with the *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives*, which presents the mortality rates and distribution of common risk factors for these diseases for this population in geographic units that allow communities to see where they stand. This information is essential to helping health professionals and policy makers at local, state, and national levels identify populations at greatest risk for cardiovascular disease and in greatest need of prevention efforts. This atlas provides county-level maps of heart disease and stroke mortality, as well as state maps of the geographic patterns of common risk factors. The magnitude of the burden of these risk factors also is compared for American Indians and Alaska Natives, Asians and Pacific Islanders, blacks, Hispanics, and whites. The comprehensive information provided in this atlas will allow health officials to tailor their prevention efforts to specific communities as needed.

This publication is the fourth in a series of CDC atlases related to cardiovascular disease. However, it is the first to focus on geographic patterns of heart disease and stroke mortality and risk factors for a specific racial/ethnic group in the United States. I encourage you to use these data to improve the delivery of preventive health services and to create heart-healthy and stroke-free living and working environments for all American Indians and Alaska Natives.

Julie Louis Gerberding, MD, MPH
Director
Centers for Disease Control and Prevention

A Message from the Director of IHS

The Indian Health Service (IHS), an agency of the U.S. Department of Health and Human Services (HHS), is the principal federal health care provider and advocate for the health of American Indians and Alaska Natives. Employing a community-based system of care, the IHS is the primary source of personal and public health care services for the majority of the nation's estimated 2.4 million American Indians and Alaska Natives. The IHS is the only source of care for the many American Indian and Alaska Native people who live on or near a reservation in remote and poverty-stricken areas of the country where other sources of health care are less available.

Heart disease has become the leading cause of death among American Indians and Alaska Natives, and stroke is the sixth leading cause of death. The incidence of coronary heart disease among American Indians and Alaska Natives occurs at rates almost double that of non-Indian communities. In addition to the higher rates of cardiovascular disease compared with the general U.S. population, the burden of premature cardiovascular disease among the American Indian and Alaska Native population also appears greater than for other racial and ethnic populations in the United States.

The *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* provides insights into the geographic disparities in heart disease and stroke experienced by American Indians and Alaska Natives. Health information contained in publications such as this will support efforts at the community level—developed by the community and focused on the individual and the community as a whole—in conjunction with the support and collaborative efforts of public health institutions, federal and state agencies, universities, and service organizations, to eliminate cardiovascular disease among American Indians and Alaska Natives.

The *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* provides information to assist in the successful implementation of efforts to reach the two overarching goals of *Healthy People 2010*, which are ". . . to increase the quality and years of healthy life and to eliminate health disparities," and to support the successful implementation of HHS's Steps to a HealthierUS Initiative. This publication is an important and significant step toward these goals.

Charles W. Grim, DDS

Charles W. Grim, DDS, MHSA
Assistant Surgeon General
Director, Indian Health Service

Foreword

I am pleased to present the *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives*. The maps in this atlas highlight the great diversity—in culture, language, history, and the burden of heart disease and stroke—that exists among American Indian and Alaska Native populations of the United States.

This landmark document supports the elimination of health disparities, one of the two overarching goals of *Healthy People 2010*, and addresses the important need to reduce the risk for heart disease and stroke among American Indians and Alaska Natives. The maps in this atlas present county-by-county heart disease and stroke mortality rates, as well as state-specific prevelances of eight major risk factors for heart disease and stroke. Public health professionals at local, state, and national levels will be able to use this information to tailor prevention resources to the populations of American Indians and Alaska Natives who need additional services the most.

Mortality trends for heart disease and stroke indicate that the rate of decline among American Indians and Alaska Natives has been relatively slow since the early 1970s. This observation is in stark contrast to the large declines in heart disease and stroke mortality reported for the total U.S. population during the same period. These alarming trends underscore the importance of enhancing our efforts to support innovative, community-based strategies for reducing the risk for heart disease and stroke among American Indians and Alaska Natives. We can expect to achieve the greatest cardiovascular health benefits through prevention. The *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* indicates where prevention programs and policies are most needed and can have the greatest benefit.

We hope that you will find this publication to be a valuable resource as you design programs and policies to prevent heart disease and stroke in your communities.

Darwin R. Labarthe, MD, MPH, PhD
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1 Introduction

Introduction

During the last four decades, significant changes have occurred in the health of American Indian and Alaska Native (AI/AN) people. Although infectious diseases such as tuberculosis and gastroenteritis were rampant among Native Americans in the first half of the 20th century, they are no longer ranked in the leading causes of death and disability for this population.[1] With many infectious diseases under control today, AI/AN people are living longer. Like many other Americans, they are now experiencing chronic diseases such as heart disease and stroke as dominant risks to their health and longevity.

Disease Burden

Heart disease and stroke are the first and sixth leading causes of death, respectively, among AI/AN people,[2] as well as major causes of disability. Mortality trends for heart disease indicate that the rate of decline among AI/AN people has been relatively slow since 1972, with virtually no decline from 1989 through 1997.[2] This trend is in stark contrast to the large declines in heart disease mortality reported for the total U.S. population since the early 1970s.[2,3] Consequently, although heart disease death rates for AI/AN people were 21% lower than the total U.S. population in the early 1970s, they were 20% higher by the late 1990s.[2]

A similar trend exists for stroke mortality. From 1972 through 1985, stroke death rates for AI/AN people declined, but at a slower rate than that reported for the total U.S. population.[2] From 1985 through 1997, virtually no decline in stroke death rates was reported for the AI/AN population. By the end of the 1990s, stroke death rates were 14% higher for AI/AN people than for the total U.S. population.[2]

Recent studies of individual AI/AN tribes and communities highlight the heavy burden of heart disease among AI/AN people.[4,5] In 1999, the National Heart, Lung, and Blood Institute (NHLBI) funded the Strong Heart Study, which was conducted among 13 tribes. The study reported that the incidence of coronary heart disease among American Indians was nearly double that reported in the Atherosclerotic Risk in

Communities (ARIC) Study of atherosclerosis in four non-Indian communities.[6] Other recent studies have reported that both the prevalence of heart disease and the percentages of premature deaths are higher among Native Americans than among any other racial or ethnic group in the United States.[7,8]

Risk Factors

During the past several decades, marked increases in the prevalence of many risk factors for heart disease and stroke have been reported among AI/AN people.[4] These increases place AI/AN populations at increased risk for subsequent rises in death rates from heart disease and stroke. In 2003, the Centers for Disease Control and Prevention (CDC) reported that the prevalence of self-reported obesity among AI/AN people was 23.9%, diabetes was 9.7%, cigarette smoking was 32.2%, and physical inactivity was 32.5%.[9] All are risk factors for heart disease and stroke.

In addition, two recent studies that collected extensive data on heart disease and stroke risk factors among specific AI/AN communities found high prevalences of insulin resistance syndrome, renal injury, lower extremity arterial disease, hypertension, elevated cholesterol levels, and diabetes. These studies included the Inter-Tribal Heart Project conducted collaboratively by CDC, the Indian Health Service (IHS), and tribal leaders of the Menominee Reservation in Wisconsin and two Chippewa Reservations in Minnesota,[10–16] as well as the Strong Heart Study conducted among 13 tribes in Arizona, Oklahoma, North Dakota, and South Dakota.[17–20]

Diabetes is a particularly important risk factor for heart disease and stroke among AI/AN people because diabetes prevalence in this population is increasing so rapidly. Before World War II, diabetes was uncommon in this population.[21] Today, an estimated 9.7% of the AI/AN population has diabetes, compared with 5.7% of non-AI/AN populations in the United States.[9] The diabetes death rate was 52.8/100,000 among AI/AN people during 1996–1998, compared with 13.5/100,000 for all U.S. racial and ethnic groups.[2] In a study of people hospitalized for stroke in

Arizona during 1990–1996, the prevalence of diabetes was nearly twice as high for AI/AN people (62%) as it was for Hispanics (36%) and more than three times as high as for whites (17%).[22]

Data Limitations

There is a paucity of data on the burden of heart disease and stroke among AI/AN people in the United States. Data that are collected as part of national surveys are limited by very small sample sizes. For example, the series of National Health and Nutrition Examination Surveys (NHANES I, II, and III), which collected information on medical histories, demographics, and behaviors related to health and nutrition for the civilian, noninstitutionalized population of the United States, did not report data for AI/AN populations because the sample sizes were too small. Data that are collected for individual tribes and communities do not necessarily represent the overall Native American population because of the large variations in the prevalence of risk factors, as well as the disparities in mortality observed among different tribes and communities across the United States.[9,23]

Mortality data for AI/AN people are more readily available than survey data. CDC's National Center for Health Statistics maintains a database of death certificates for all U.S. citizens. However, AI/AN people are sometimes misreported as "white" on death certificates, especially in areas distant from traditional AI/AN reservations.[2] A 1996 study by the IHS found that the degree of misreporting varied from 1.2% in Arizona to 28% in Oklahoma and 30.4% in California.[24] Another report found that race was coded incorrectly on death certificates for 26.6% of AI/AN people nationwide.[25]

To address the problem of misreporting of AI/AN race on death certificates, the death rates presented in the most recent edition of *Trends in Indian Health* have been adjusted to account for misreporting.[2] A recent study highlights how the misreporting of AI/AN race has led to underestimates of mortality rates for heart disease and stroke among AI/AN people when the data were not adjusted to account for this misreporting.[26] The results of this study indicate that after adjustment for misreporting, the mortality rates for heart disease and stroke among AI/AN people (195.9 per 100,000) were substantially higher than those among whites (159.1) or those among the total U.S. population (166.1) and that the magnitude of these disparities is increasing over time.[26] Unfortunately, because adjustment factors are not available at the county level, the maps of heart disease and stroke mortality rates in this atlas are based on data that have not been adjusted for misreporting of race among AI/AN decedents.

Looking Ahead

The data that are available for AI/AN people have increased awareness among members of the public health community, health care practitioners, and Native Americans of the significance and severity of heart disease and stroke among AI/AN populations. Effectively preventing heart disease and stroke in this population and reducing disparities in both the prevalence of these conditions and the quality of care available requires an innovative and multidimensional approach. Prevention strategies should be more intensive to address the growing risk factors, and they should be culturally appropriate, taking into account the wide variations among tribes and communities. These strategies should be developed in partnership with tribal and AI/AN communities with input from individuals, their families, and community organizations.

As part of CDC's Racial and Ethnic Approaches to Community Health (REACH) 2010 project, eight AI/AN communities are establishing community coalitions, identifying priority concerns, and implementing programs and policies designed to reduce people's risk for chronic diseases such as heart disease and stroke. During 2001–2002, the REACH 2010 Risk Factor Survey was conducted in 21 minority communities, including two AI communities. The study reported that American Indians had the highest prevalences of cardiovascular disease, obesity, current smoking, and diabetes.[27] These results underscore the need for enhanced national efforts to eliminate the heavy burden of cardiovascular disease and its risk factors among AI/AN populations.

Strong support from national public health agencies and institutions—such as that provided currently by IHS, CDC, and NHLBI—is also important. These agencies are part of the U.S. Department of Health and Human Services (HHS), which has established national health objectives for the next decade, including the overarching goals of increasing quality and years of healthy life and eliminating health disparities among racial and ethnic groups.[28] By highlighting the burden of heart disease and stroke among Native Americans, this *Atlas of Heart Disease and Stroke Among American Indians and Alaska Natives* can help achieve these goals.

Indian Health Service

The IHS is a subagency of HHS and is responsible for providing federal health services to AI/AN people.[29] This responsibility is based on the special relationship between the federal government and the 560 Native American tribes that it recognizes. This government-to-government relationship is based on Article 1, Section 8, of the U.S. Constitution and has been given form and substance by numerous treaties, laws, Supreme Court decisions, and executive orders.

The IHS is the federal health care provider and health advocate for AI/AN people. Services are provided directly and through health programs contracted to and operated by individual tribes. The federal system consists of 36 hospitals, 61 health centers, 49 health stations, and 5 residential treatment centers. Another 34 urban health projects provide a variety of health and referral services.

The agency strives to ensure that comprehensive, culturally acceptable personal and public health services are available and accessible to AI/AN people. Its mission is to work in partnership with AI/AN people to raise the physical, mental, social, and spiritual health of this population to the highest level possible.

In addition, the IHS is responsible for educating people who work in health delivery programs that AI/AN people are American citizens who are eligible for services from all federal, state, and local health programs. In addition, the IHS is the principal federal health advocate for building health coalitions, networks, and partnerships with tribal nations, other government agencies, and nonfederal organizations (e.g., academic medical centers, private foundations) for the benefit of AI/AN people.

The delivery of IHS health services is managed by local administrative units called service units, which serve the same function as county or city health departments. Some service units are responsible for several small reservations, while some large reservations are served by several different service units.

Service units also are grouped into larger management jurisdictions on the basis of cultural, demographic, and geographic characteristics of different tribes. These larger jurisdictions are administered by the following 12 area offices: Aberdeen, Alaska, Albuquerque, Bemidji, Billings, California, Nashville, Navajo, Oklahoma, Phoenix, Portland, and Tucson.

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2 National Maps of Heart Disease and Stroke Mortality Among American Indians and Alaska Natives

American Indians and Alaska Natives

American Indian and Alaska Native (AI/AN) people made up 1.5% of the U.S. population ages 35 years and older in 2000. During 1996–2000, the age-adjusted heart disease death rate for AI/AN people in this age group was 352/100,000.

The national map of age-adjusted, spatially smoothed heart disease death rates for all AI/AN people shows considerable geographic disparity across the 806 counties for which sufficient data existed to calculate rates. County death rates ranged from 65 to 2,606/100,000. The quintile ranking for each county is depicted on the national map, with the darkest color representing counties with the highest rates and the lightest color representing counties with the lowest rates. The map indicates that the highest heart disease death rates were located primarily in South and North Dakota, Wisconsin, and Michigan. Smaller concentrations of counties in the top quintile also were observed along the North Carolina–South Carolina border and in Mississippi and Oklahoma. Counties with the lowest rates were located largely in California and Florida, with groupings of low-rate counties also found in parts of Illinois, Texas, the Northeast, and the Southwest.

Women and Men

During 1996–2000, the age-adjusted death rate for heart disease was 278/100,000 for AI/AN women and 445/100,000 for AI/AN men ages 35 and older. The maps of age-adjusted, spatially smoothed heart disease death rates for AI/AN women and men show considerable geographic disparity across the counties for which sufficient data existed to calculate rates. For women, county death rates ranged from 60 to 1,110/100,000. For men, the range was 108 to 2,374/100,000.

The maps for women and men indicate slightly different geographic patterns than the patterns for the total population. This difference can be largely attributed to the small number of counties with sufficient data to calculate rates for women and men separately. The patterns for women and men are similar, with groups of counties with high rates in Oregon, northern California, and Arizona.

A Note on Methods

Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was diseases of the heart, defined according to the *International Classification of Diseases* (*ICD-9* codes 390–398, 402, and 404–429; *ICD-10* codes I00–I09, I11, I13, I20–I51).[1,2] Heart disease death rates were age-adjusted to the 2000 U.S. population and spatially smoothed using a spatial moving average. A detailed explanation of the methods used to generate the death rates and create the maps can be found in Appendix B.

A Cautionary Note

Decedents of certain racial and ethnic minorities are sometimes misreported as "white" on death certificates; in particular, American Indians have been significantly underreported on death certificates.[3–5] In a 1996 Indian Health Service study, misclassification of American Indians ranged from 1.2% in Arizona to 28% in Oklahoma and 30.4% in California.[6] Consequently, the true heart disease death rates for AI/AN people were probably higher during 1996–2000 than indicated on the maps, and the magnitude of geographic disparity displayed on the maps may be biased.

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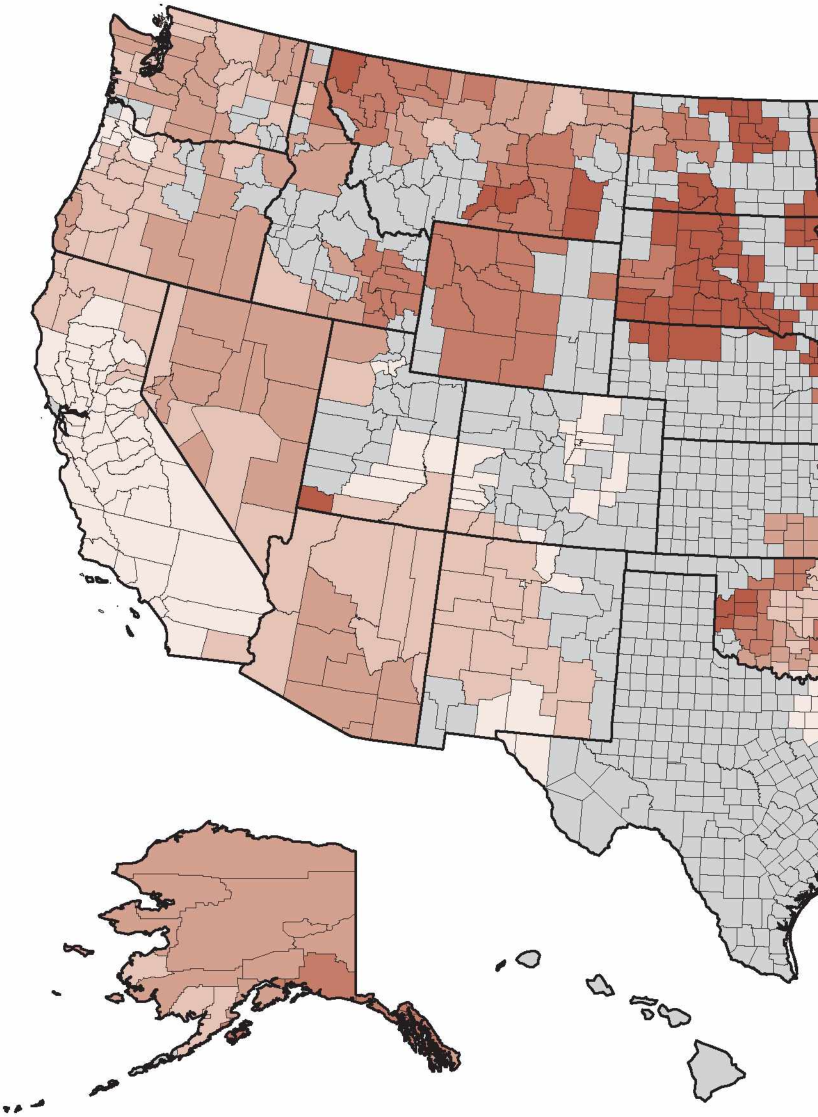
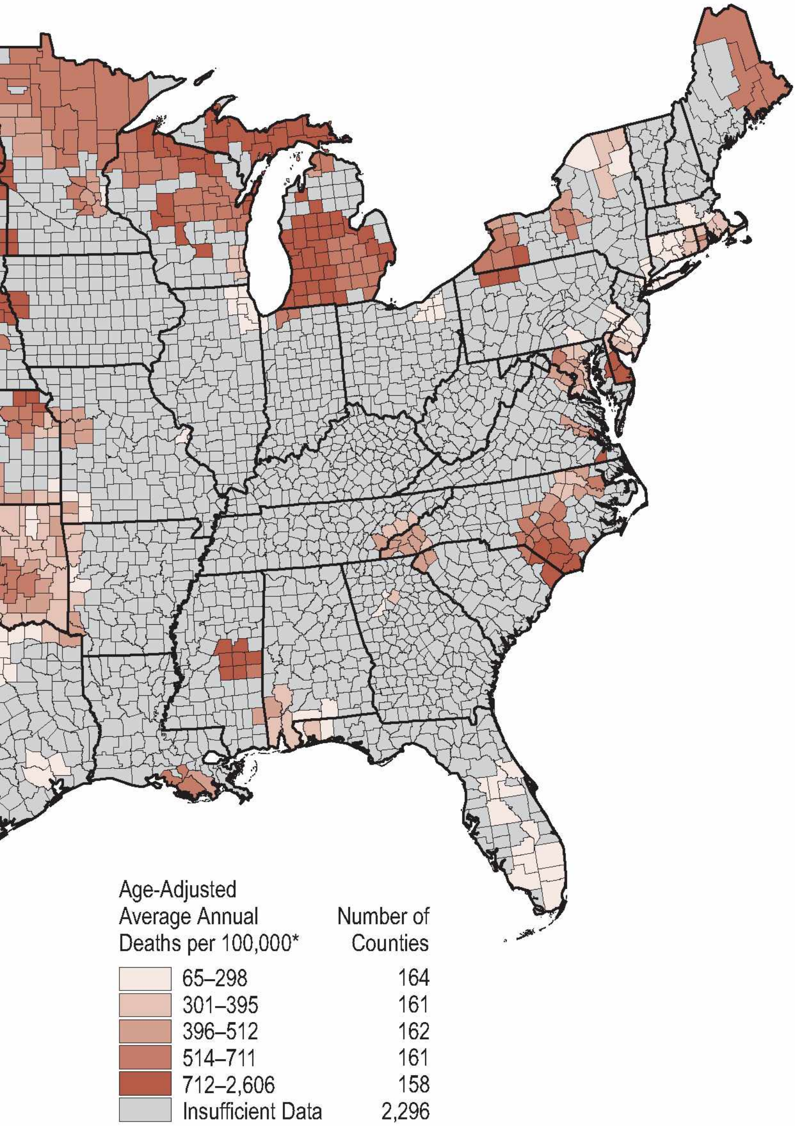
Smoothed County Heart Disease Death Rates 1996–2000

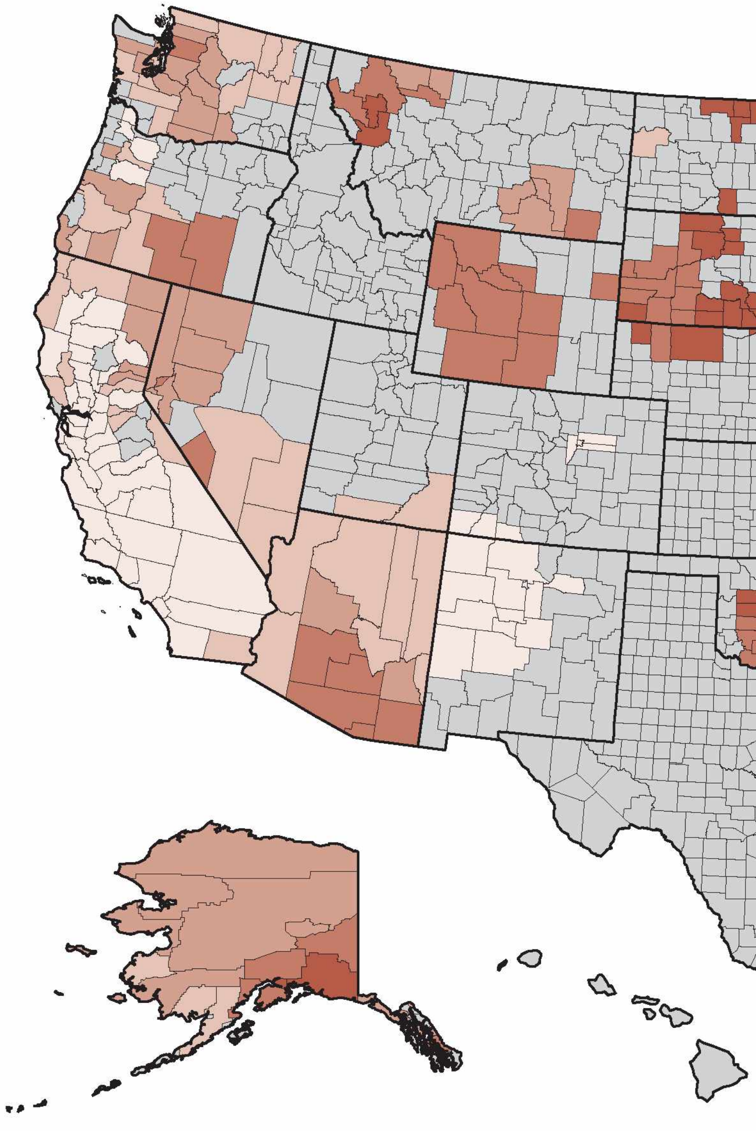


* Heart disease death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indians and Alaska Natives Ages 35 Years and Older

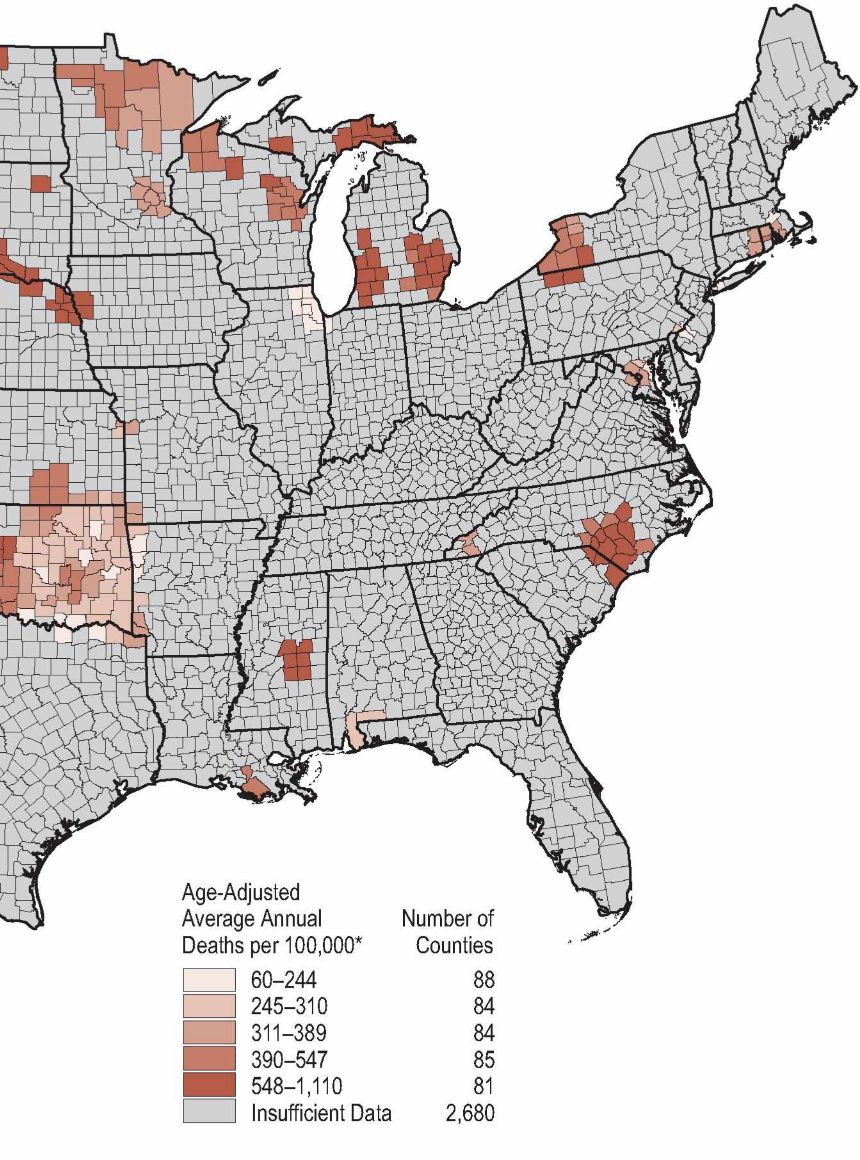


Smoothed County Heart Disease Death Rates 1996–2000

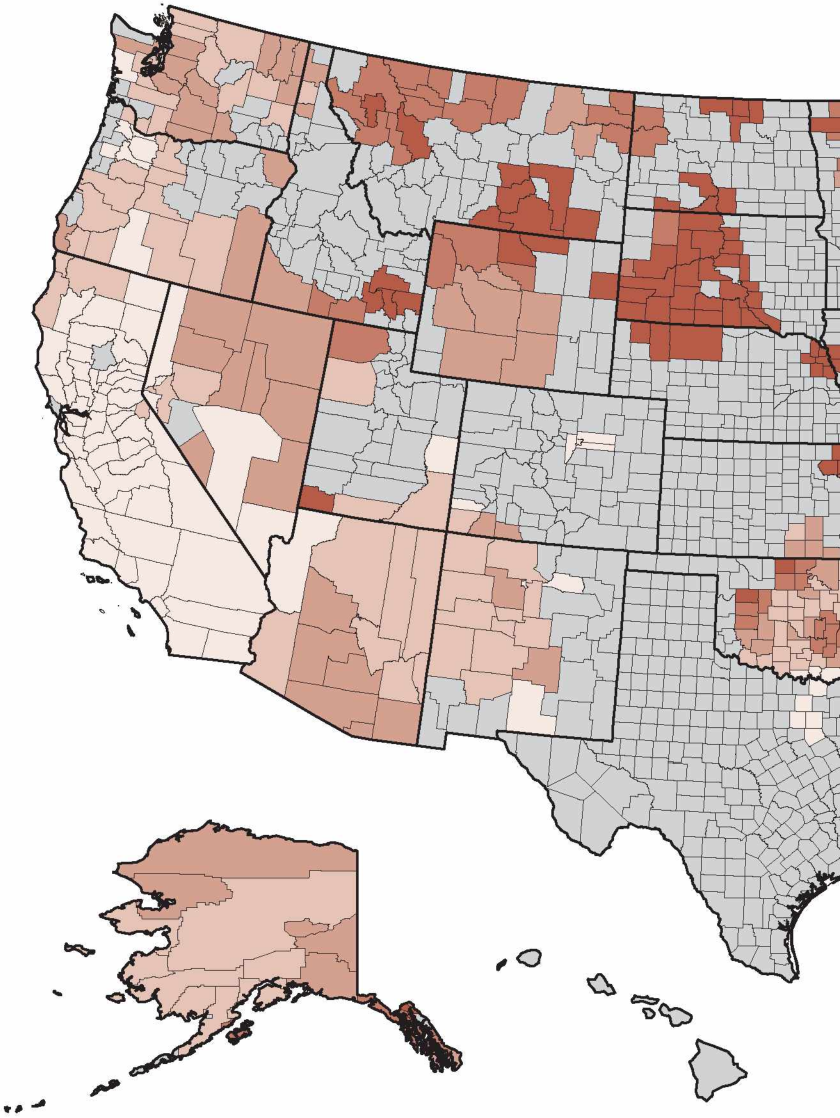


* Heart disease death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indian and Alaska Native Women
Ages 35 Years and Older

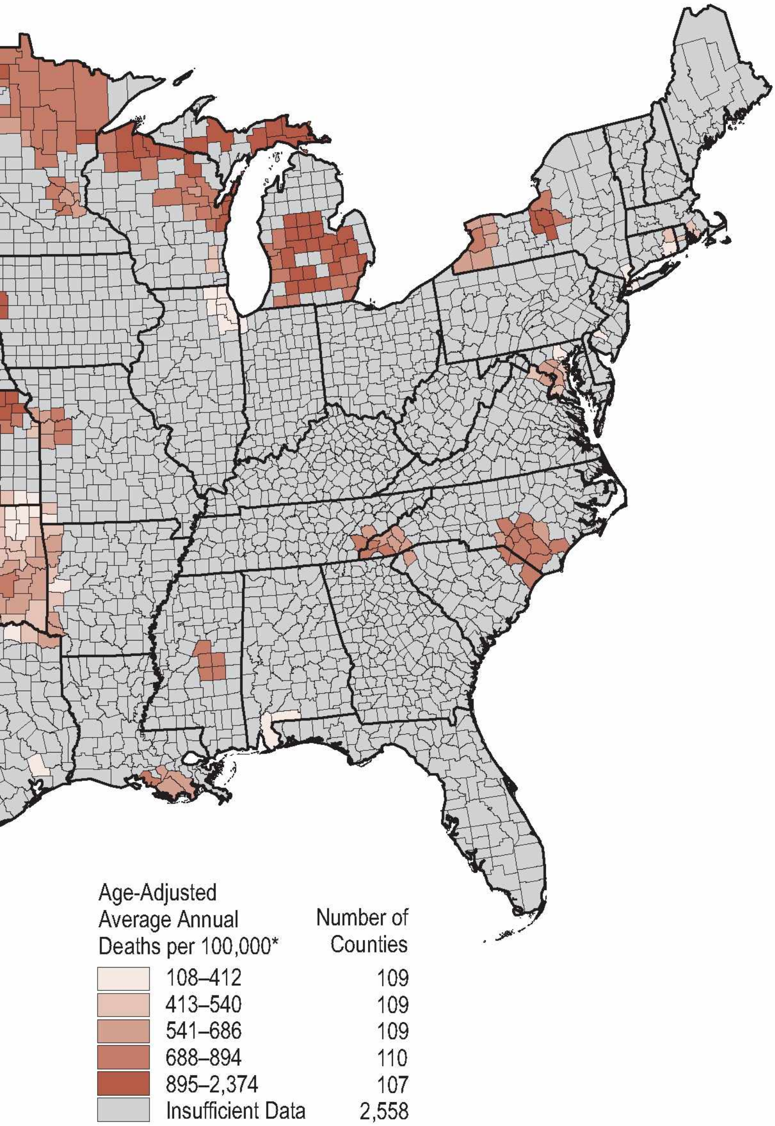


Smoothed County Heart Disease Death Rates 1996–2000



* Heart disease death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indian and Alaska Native Men
Ages 35 Years and Older



American Indians and Alaska Natives

American Indian and Alaska Native (AI/AN) people made up 1.5% of the U.S. population ages 35 years and older in 2000. During 1991–1998, the age-adjusted stroke death rate for AI/AN people in this age group was 79/100,000.

The national map of age-adjusted, spatially smoothed stroke death rates for all AI/AN people shows considerable geographic disparity across the 303 counties for which sufficient data existed to calculate rates. County death rates ranged from 29 to 272/100,000. The quintile ranking for each county is depicted on the national map, with the darkest color representing counties with the highest rates and the lightest color representing counties with the lowest rates. The map suggests somewhat of a north–south gradient in stroke mortality among AI/AN people. Counties with high rates were reported primarily in the northern states of Alaska, Washington, Idaho, Montana, Wyoming, South Dakota, Wisconsin, and Minnesota. Counties with low rates were reported primarily in central Oklahoma and southern California. Exceptions to the north–south gradient were high rates in counties along the North Carolina–South Carolina border and along the southern tip of Louisiana.

Women and Men

During 1991–1998, the age-adjusted death rate for stroke was 77/100,000 for AI/AN women and 80/100,000 for AI/AN men ages 35 and older. The maps of age-adjusted, spatially smoothed stroke death rates for AI/AN women and men show considerable geographic disparity across the counties for which sufficient data existed to calculate rates. For women, county death rates ranged from 35 to 291/100,000. For men, the range was 33 to 291/100,000.

The maps for women and men indicate slightly different geographic patterns than the patterns for the total population. This difference can be largely attributed to the small number of counties with sufficient data to calculate rates for women and men separately. The patterns for women and men are similar, with groups of counties with high rates in Oregon, northern California, and Arizona.

A Note on Methods

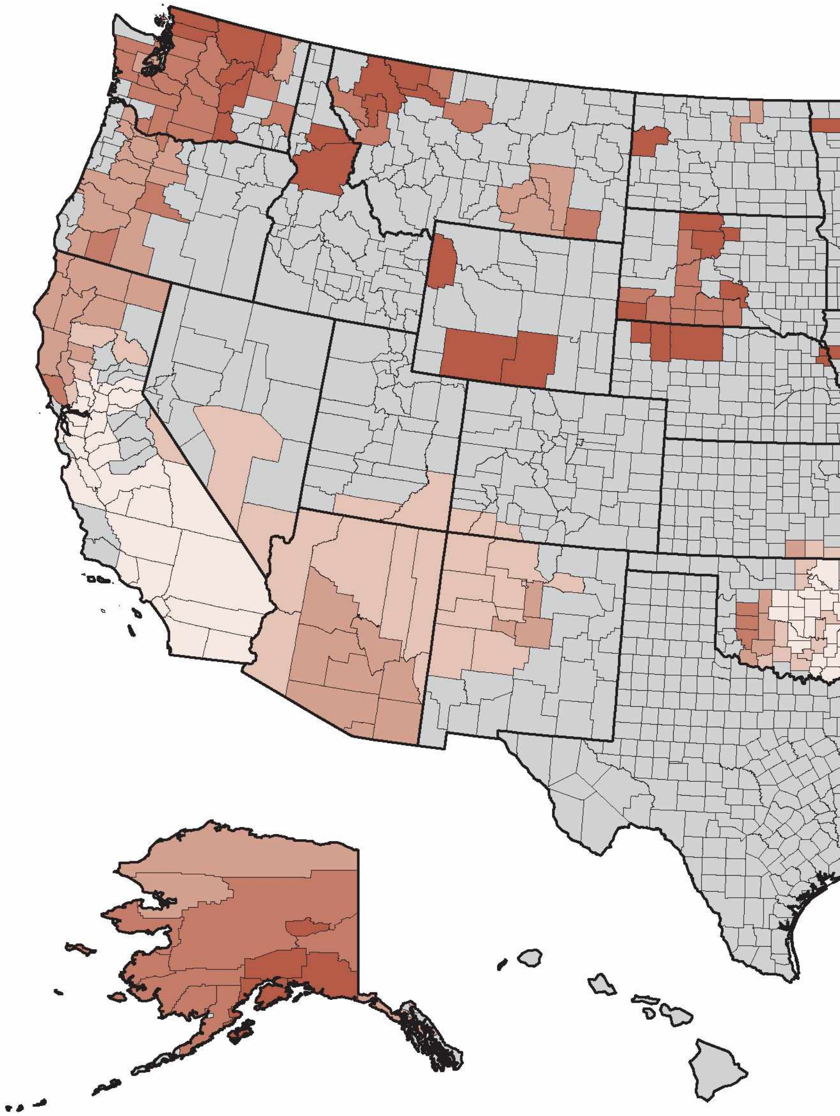
Stroke deaths were defined as those for which the underlying cause of death listed on the death certificate was cerebrovascular disease, defined according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (codes 430–438).[1] Stroke death rates were age-adjusted to the 2000 U.S. population and spatially smoothed using a spatial moving average. A detailed explanation of the methods used to generate the death rates and create the maps can be found in Appendix B.

A Cautionary Note

Decedents of certain racial and ethnic minorities are sometimes misreported as "white" on death certificates; in particular, American Indians have been significantly underreported on death certificates.[2–4] In a 1996 Indian Health Service study, misclassification of American Indians ranged from 1.2% in Arizona to 28% in Oklahoma and 30.4% in California.[5] Consequently, the true stroke death rates for AI/AN people were probably higher during 1991–1998 than indicated on the maps, and the magnitude of geographic disparity displayed on the maps may be biased.

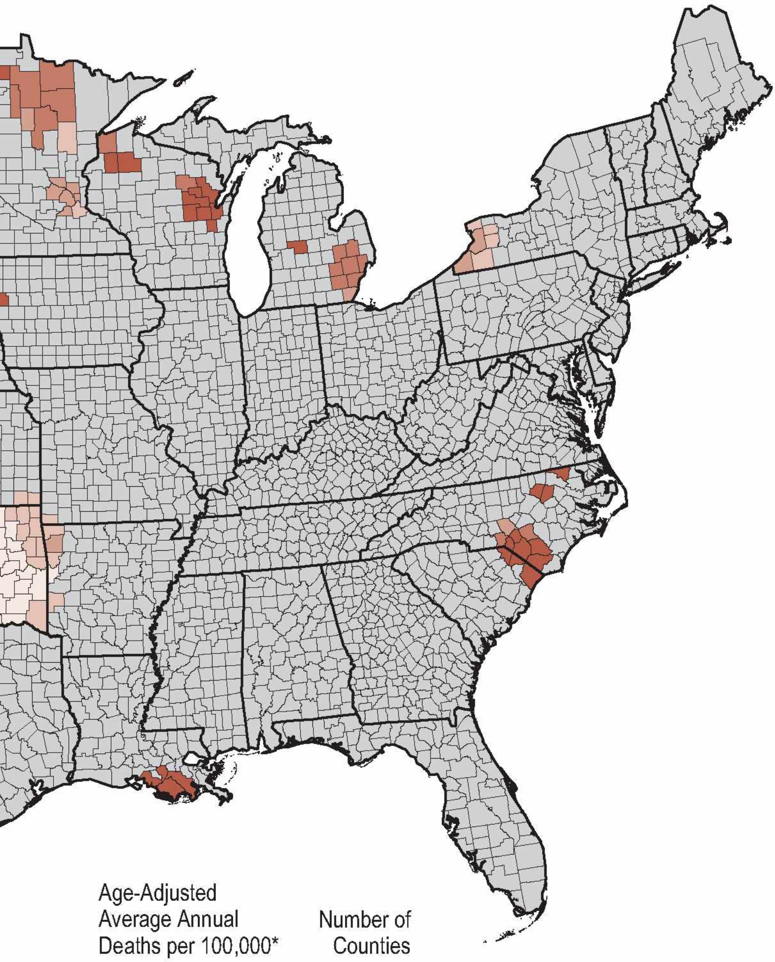
1. U.S. Department of Health and Human Services. *International Classification of Diseases, 9th Revision, Clinical Modification.* Washington, DC: Public Health Service, Health Care Financing Administration; 1980.
2. Frost F, Shy K. Racial differences between linked birth and infant death records in Washington State. *American Journal of Public Health* 1980;70(9):974–6.
3. Hahn RA, Mulinare J, Teutsch SM. Inconsistencies in coding of race and ethnicity between birth and death in US infants: a new look at infant mortality, 1983 through 1985. *JAMA* 1992;267(2):259–63.
4. Kennedy RD, Deapen RE. Differences between Oklahoma Indian infant mortality and other races. *Public Health Reports* 1991;106(1):97–8.
5. Indian Health Service. *Adjusting for Miscoding of Indian Race on State Death Certificates*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service; 1996.

Smoothed County Stroke Death Rates 1991–1998



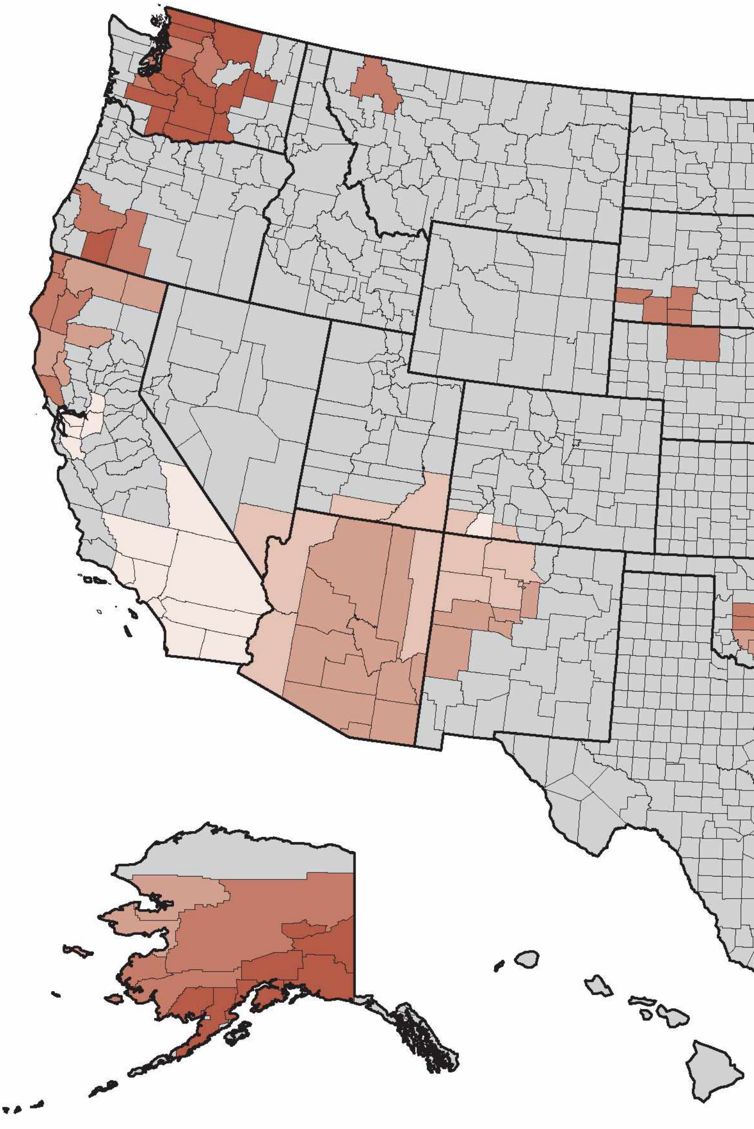
* Stroke death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indians and Alaska Natives
Ages 35 Years and Older



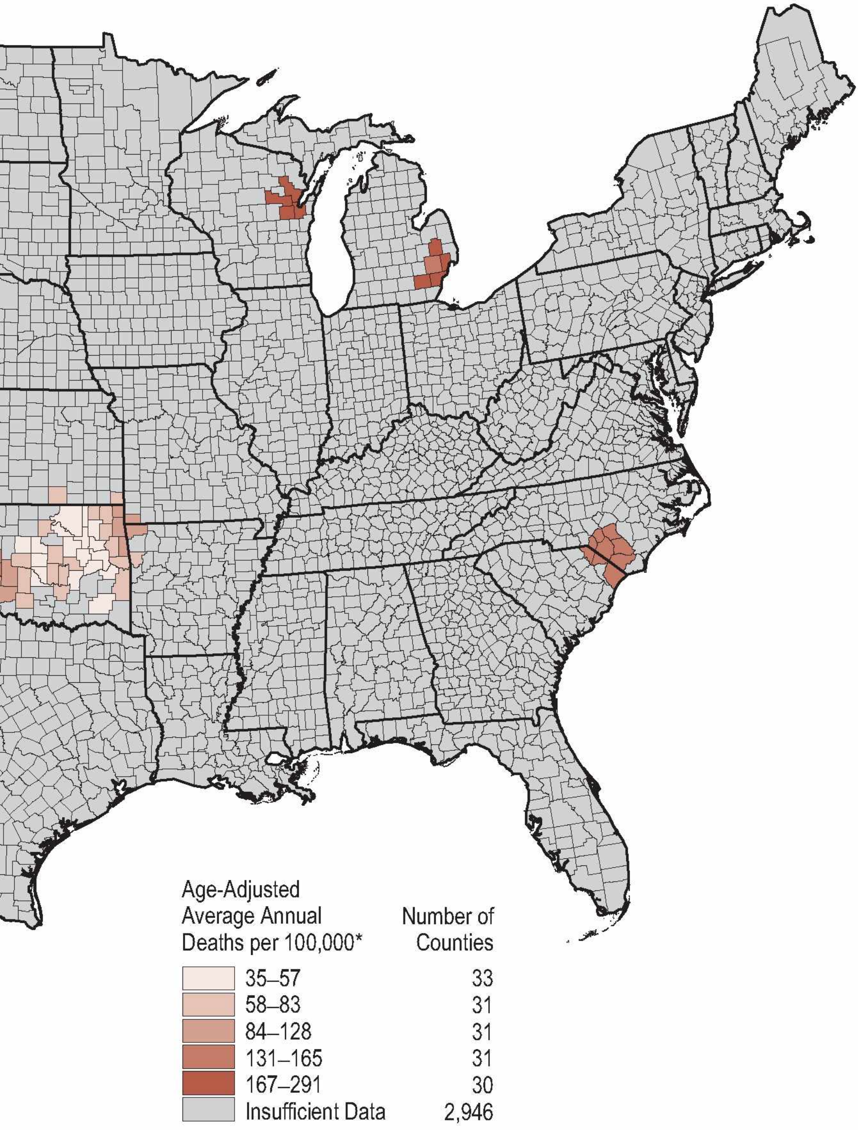
Age-Adjusted Average Annual Deaths per 100,000*	Number of Counties
29–62	61
63–97	61
98–131	61
132–171	60
172–272	60
Insufficient Data	2,799

Smoothed County Stroke Death Rates 1991–1998

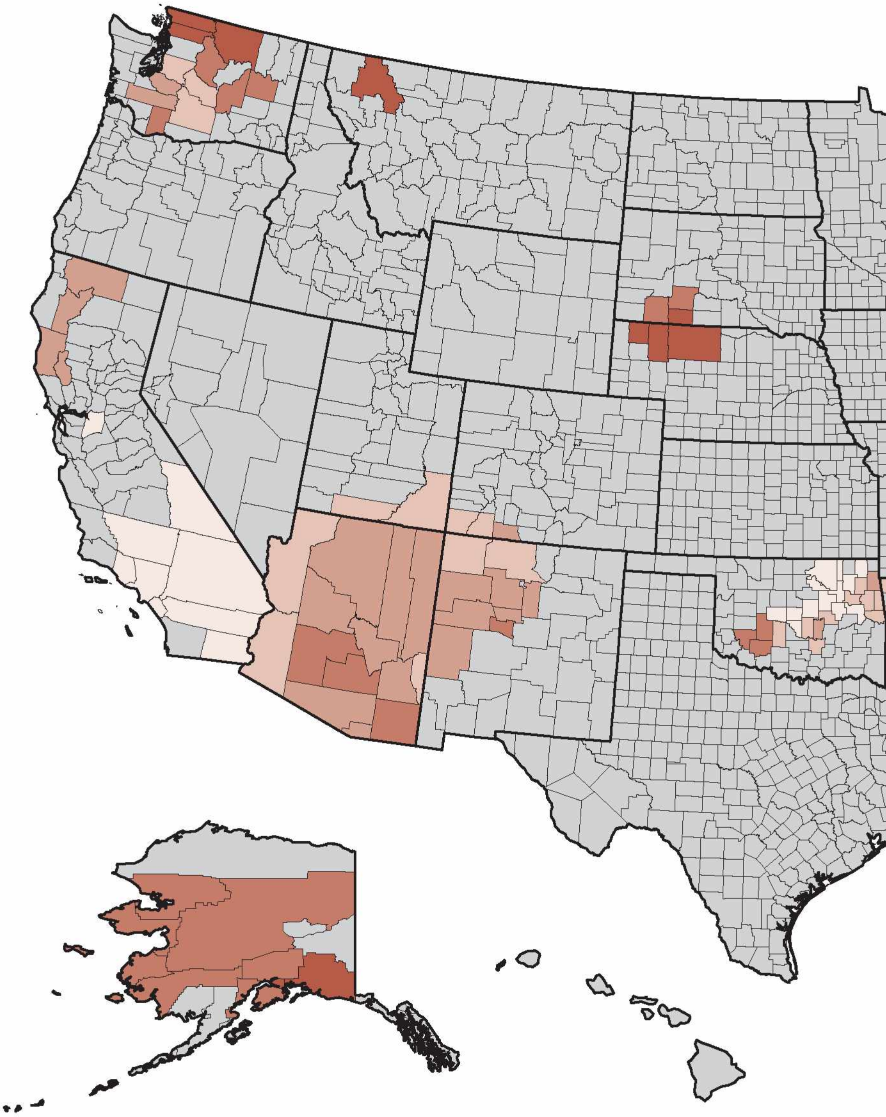


* Stroke death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indian and Alaska Native Women Ages 35 Years and Older

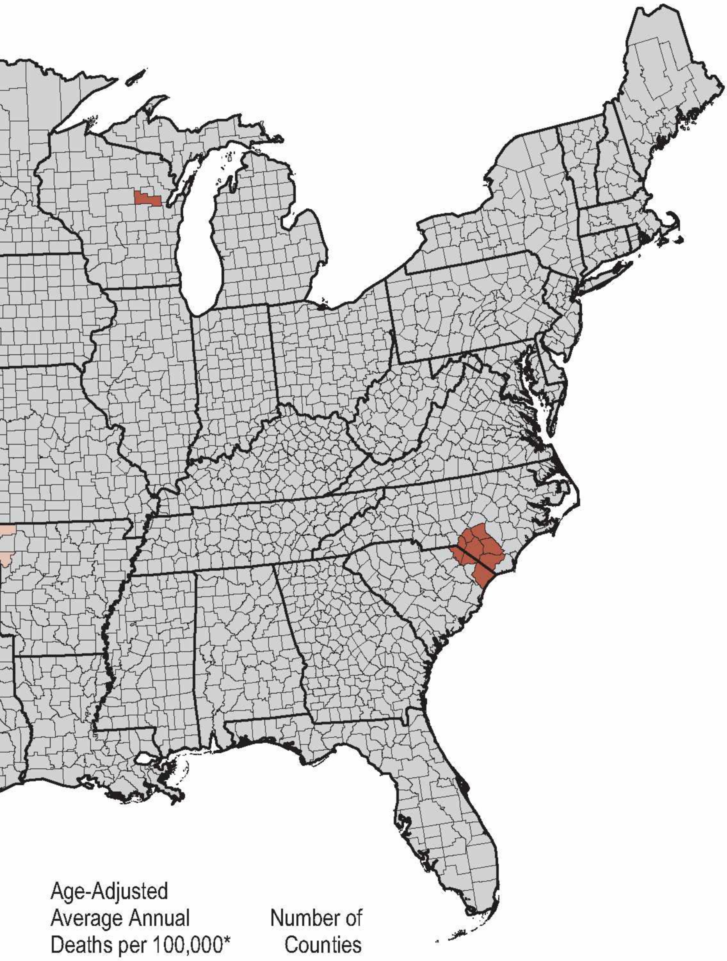


Smoothed County Stroke Death Rates 1991–1998



* Stroke death rates are spatially smoothed to enhance the stability of rates in counties with small populations. See Appendix B for details.

American Indian and Alaska Native Men Ages 35 Years and Older



Age-Adjusted Average Annual Deaths per 100,000*	Number of Counties
33–64	22
65–88	23
89–122	23
125–176	20
182–291	20
Insufficient Data	2,994

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3 Risk Factors for Heart Disease and Stroke Among American Indians and Alaska Natives, by State

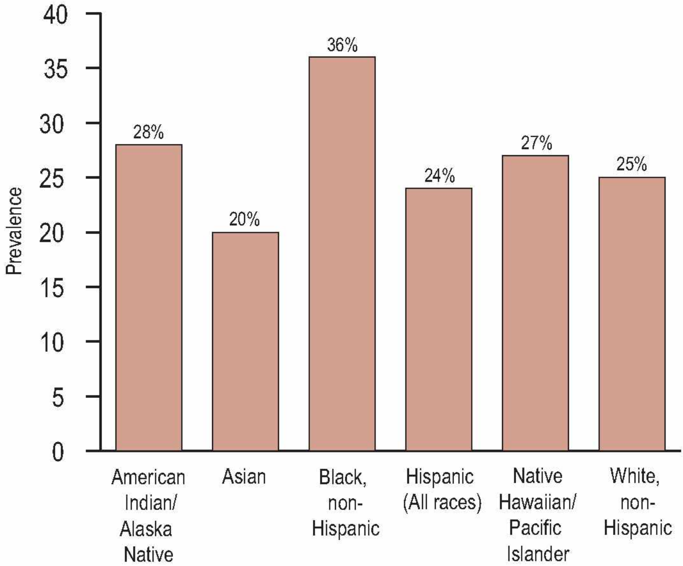
High Blood Pressure

High blood pressure (hypertension) is a major risk factor for heart disease and stroke. For every 20 mm Hg systolic or 10 mm Hg diastolic increase in blood pressure, there is a doubling of deaths from both ischemic heart disease and stroke, according to the *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (*Hypertension* 2003;42:1206–52).

The JNC7 report also notes that only 34% of Americans with high blood pressure have it under control. Research shows that even a 5 mm Hg decrease in diastolic blood pressure can reduce heart disease risk by 21% (*Arch Intern Med* 2001;161:2657–60). A systolic blood pressure <120 mm Hg and a diastolic blood pressure <80 mm Hg is considered normal.

The IHS is working to better identify and reduce high blood pressure among American Indian and Alaska Native (AI/AN) people—for example, through electronic alerts to health care providers and audits of patients' charts. It also is administering

Figure 1. Prevalence of Self-Reported High Blood Pressure Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001 and 2003 Combined



numerous diabetes grants that include strategies to reduce high blood pressure and other cardiovascular risk factors.

CDC funds state programs to assess the prevalence of high blood pressure, increase compliance with treatment guidelines among managed care organizations, and prevent high blood pressure in the United States, with special programs tailored to minority groups and inner-city residents.

Definition of High Blood Pressure

We defined self-reported high blood pressure on the basis of the following Behavioral Risk Factor Surveillance System (BRFSS) question: "Have you ever been told by a doctor, nurse, or other health care professional that you have high blood pressure?" This question was only asked in odd-numbered years, so the data for this analysis are from 2001 and 2003. Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

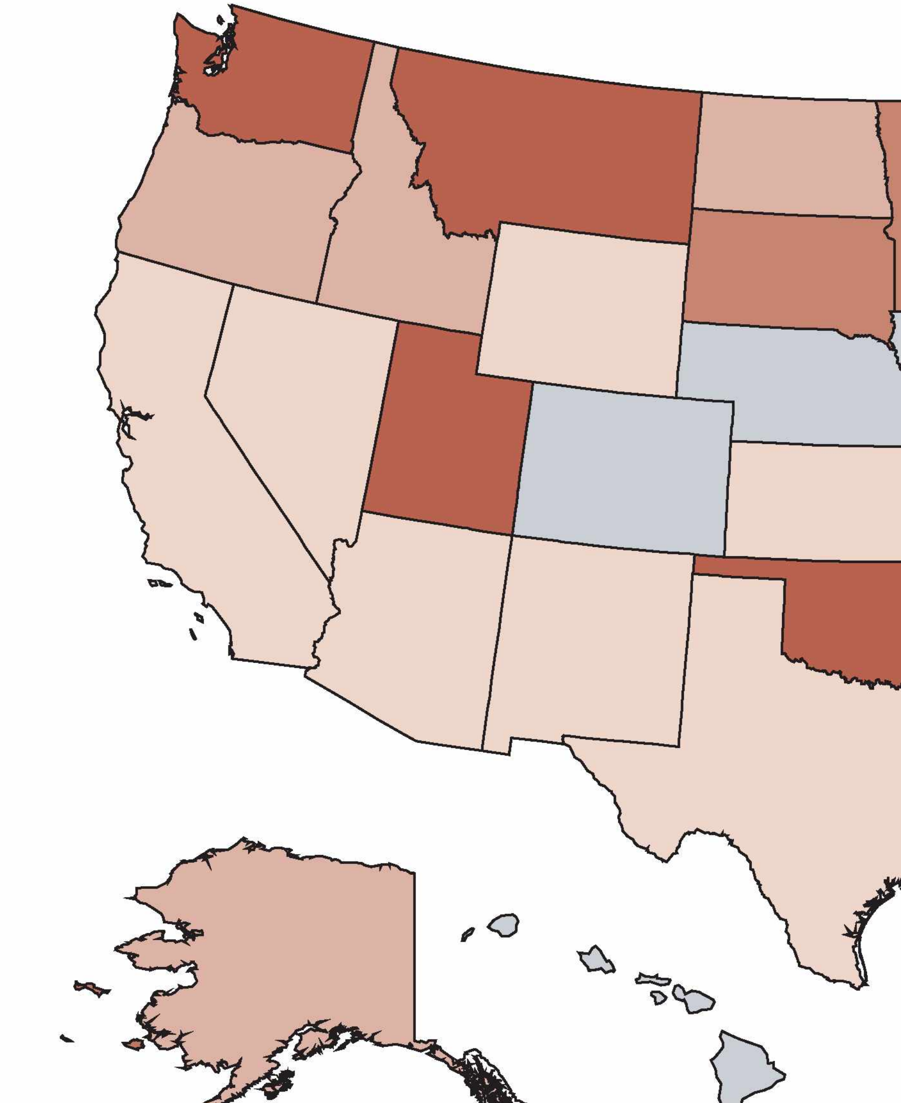
We found substantial state-to-state differences in the prevalence of high blood pressure among AI/AN people (see facing map and Table 1). A 1.8-fold difference existed between the midpoint of the lowest quartile (20%) and that of the highest quartile (35%).

The national prevalence among all AI/AN people was 28%. Prevalences were 26% for women and 29% for men. AI/AN people ranked second among U.S. racial/ethnic groups (see Figure 1).

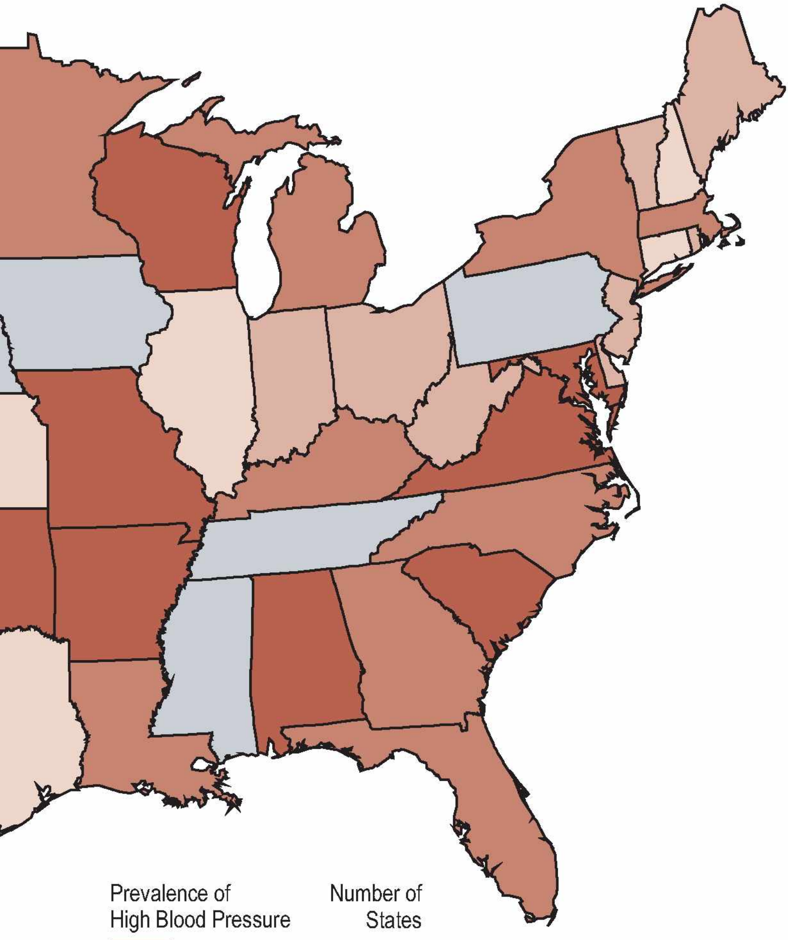
A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of high blood pressure and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported High Blood Pressure 2001 and 2003 Combined



American Indians and Alaska Natives
Ages 18 Years and Older



Prevalence of High Blood Pressure	Number of States
16.4–23.3	10
23.5–29.1	11
29.2–30.4	11
31.5–38.8	11
Insufficient Data	7

Table 1. Prevalence of Self-Reported High Blood Pressure Among American Indians and Alaska Natives, by State,

	Total Population			Women			Men		
State	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†
Alabama	76	38.8	27.5–50.1	36	‡		40	‡	26.9–56.8
Alaska	1047	28.5	24.5–32.5	592	33.0	28.0–37.9	455	24.5	19.0–30.0
Arizona	272	21.7	14.3–29.2	176	19.5	10.6–28.5	96	27.5	16.0–39.0
Arkansas	107	35.1	26.8–43.4	62	29.4	22.2–36.7	45	‡	
California	86	23.0	14.0–31.9	58	18.0	8.9–27.0	28	‡	
Colorado	48	‡	15.1–34.9	32	‡		16	‡	
Connecticut	76	23.3	12.9–33.7	37	‡		39	‡	
Delaware	63	29.2	17.0–41.3	34	‡		29	‡	
District of Columbia	23	‡		9	‡		14	‡	
Florida	102	30.3	18.3–42.3	53	30.3	14.6–45.9	49	‡	
Georgia	102	29.3	20.6–38.0	55	37.4	27.1–47.6	47	‡	
Hawaii	43	‡		21	‡		22	‡	
Idaho	124	27.9	19.7–36.2	76	28.7	17.5–39.8	48	‡	
Illinois	75	19.3	9.7–28.9	44	‡		31	‡	
Indiana	68	29.0	19.6–38.4	36	‡		32	‡	
Iowa	26	‡		16	‡		10	‡	
Kansas	89	23.2	14.1–32.4	51	24.1	12.1–36.1	38	‡	
Kentucky	71	29.4	17.2–41.5	28	‡		43	‡	
Louisiana	92	30.3	20.5–40.2	60	31.4	19.3–43.6	32	‡	
Maine	63	28.8	17.0–40.7	36	‡		27	‡	
Maryland	74	32.1	19.6–44.5	39	‡		35	‡	
Massachusetts	95	29.8	20.1–39.6	60	25.8	19.4–32.3	35	‡	
Michigan	56	29.4	17.7–41.2	31	‡		25	‡	
Minnesota	53	30.4	17.5–43.2	30	‡		23	‡	
Mississippi	45	‡		28	‡		17	‡	
Missouri	88	34.3	21.2–47.5	45	‡		43	‡	
Montana	744	32.2	27.1–37.3	449	33.5	27.6–39.3	295	31.7	24.3–39.1
Nebraska	46	‡		27	‡		19	‡	
Nevada	84	22.9	16.1–29.7	40	‡		44	‡	
New Hampshire	73	19.2	9.7–28.7	37	‡		36	‡	
New Jersey	95	28.8	16.4–41.1	54	27.6	15.1–40.2	41	‡	
New Mexico	356	19.9	14.5–25.4	201	19.8	12.2–27.4	155	19.6	11.3–27.8

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	73	29.6	16.3–42.8	47	‡		26	‡	
North Carolina	298	29.8	22.5–37.0	193	34.6	25.0–44.1	105	24.5	13.7–35.3
North Dakota	161	29.1	20.8–37.4	100	22.4	14.2–30.6	61	40.0	27.2–52.8
Ohio	63	27.3	17.3–37.2	33	‡		30	‡	
Oklahoma	898	33.4	30.2–36.6	573	34.3	30.2–38.4	325	32.5	27.4–37.5
Oregon	110	24.0	15.1–32.9	55	27.0	13.2–40.8	55	23.5	10.9–36.1
Pennsylvania	37	‡		20	‡		17	‡	
Rhode Island	69	23.5	14.4–32.5	36	‡		33	‡	
South Carolina	90	33.1	24.0–42.2	46	‡		44	‡	
South Dakota	491	29.9	25.6–34.1	317	30.4	25.3–35.5	174	29.4	22.3–36.4
Tennessee	37	‡		21	‡		16	‡	
Texas	103	22.5	14.2–30.7	56	20.4	10.4–30.3	47	‡	
Utah	56	37.8	25.4–50.1	29	‡		27	‡	
Vermont	77	26.5	14.7–38.2	35	‡		42	‡	
Virginia	68	33.2	21.4–44.9	32	‡		36	‡	
Washington	392	31.9	24.7–39.1	210	28.9	20.3–37.5	182	33.1	22.6–43.7
West Virginia	59	27.9	16.8–39.0	26	‡		33	‡	
Wisconsin	89	31.5	24.2–38.8	48	‡		41	‡	
Wyoming	101	16.4	9.0–23.8	61	13.3	4.5–22.1	40	‡	
United States	**7734**	**27.7**	**25.4–29.8**	**4491**	**26.1**	**23.3–28.9**	**3243**	**29.1**	**25.8–32.3**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	2206	29.1	25.6–32.6	1332	29.0	24.6–33.4	874	29.0	23.8–34.3
Northern Plains	1835	29.8	25.5–34.1	1115	27.5	21.9–33.1	720	32.0	25.6–38.4
Southwest	816	23.3	18.6–28.0	478	21.1	14.8–27.4	338	26.6	21.0–32.2
Pacific Coast	712	24.8	17.9–31.6	399	19.8	12.3–27.4	313	31.4	20.0–42.7
Alaska	1047	28.5	24.5–32.5	592	33.0	28.0–37.9	455	24.5	19.0–30.0

* Data are based on “yes” responses to the following BRFSS question: “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?” Data are for adults ≥18 years, are age–adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC’s *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

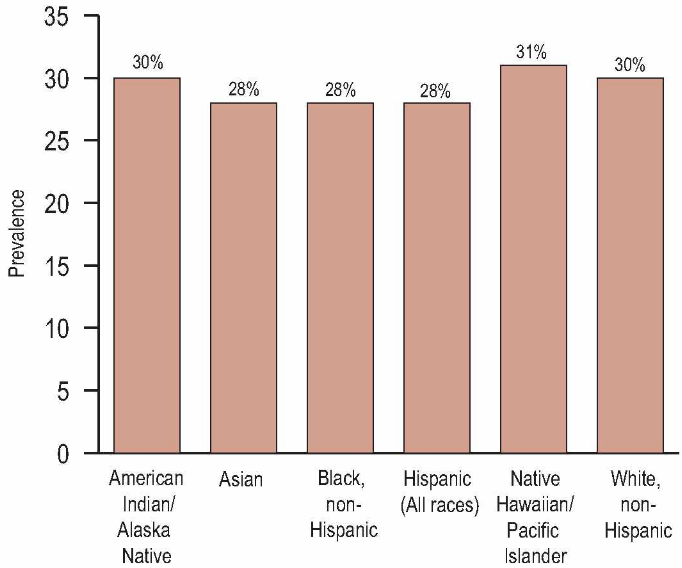
High Cholesterol

Studies have shown that people with blood cholesterol levels in the highest 10% of the population are four times more likely to die of heart disease and stroke than those with cholesterol levels in the lowest 10% (*MMWR* 1992;41[36]). Diet modification, physical activity, weight control, and medication can help to lower blood cholesterol levels, according to the American Heart Association.

Cholesterol is a fatty substance that the human body needs to function properly. When there is too much cholesterol in the body, it deposits in arteries, causing them to narrow. People with blood cholesterol levels >240 mg/dL are considered to be at high risk for heart disease and stroke (National Cholesterol Education Program).

Prevalence of high cholesterol is increasing among American Indian and Alaska Native (AI/AN) people (*MMWR* 2003;52 [47]1148–52). In response, the IHS has developed several programs to ensure appropriate screening and to improve control of this risk factor. Sample activities include educating people

Figure 2. Prevalence of Self-Reported High Cholesterol Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001 and 2003 Combined



about the dangers of high cholesterol levels, implementing electronic systems for quality assurance and reminders to health care providers, and awarding diabetes and cardiovascular health grants to tribes and AI/AN communities.

CDC currently funds 32 states and the District of Columbia to develop strategies and implement programs that reduce the prevalence of heart disease and stroke and related risk factors, including high cholesterol.

Definition of High Cholesterol

We defined self-reported high cholesterol on the basis of "yes" answers to the following Behavioral Risk Factor Surveillance System (BRFSS) question: "Have you ever been told by a doctor or other health professional that your cholesterol is high?" This question was only asked in odd-numbered years, so the data for this analysis are from 2001 and 2003. Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

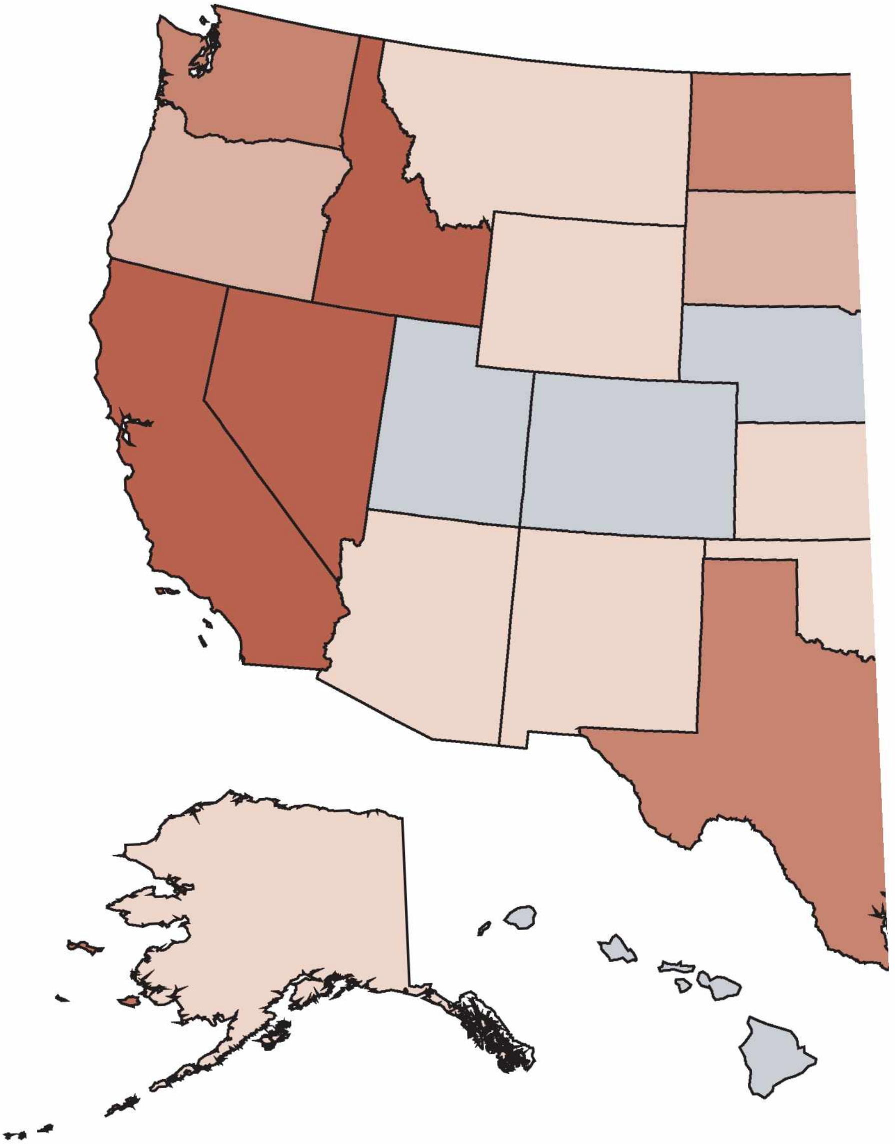
We found substantial state-to-state differences in the prevalence of high cholesterol among AI/AN people (see facing map and Table 2). A greater than 1.8-fold difference existed between the midpoint of the lowest quartile (23%) and that of the highest quartile (41%). Many of the states in the eastern half of the United States did not have sufficient data (i.e., <50 BRFSS respondents) to calculate a stable prevalence.

The national prevalence for all AI/AN people was 30%. Prevalences were similar for women (29%) and men (31%). The prevalence for AI/AN people was similar to those for other U.S. racial/ethnic groups (see Figure 2).

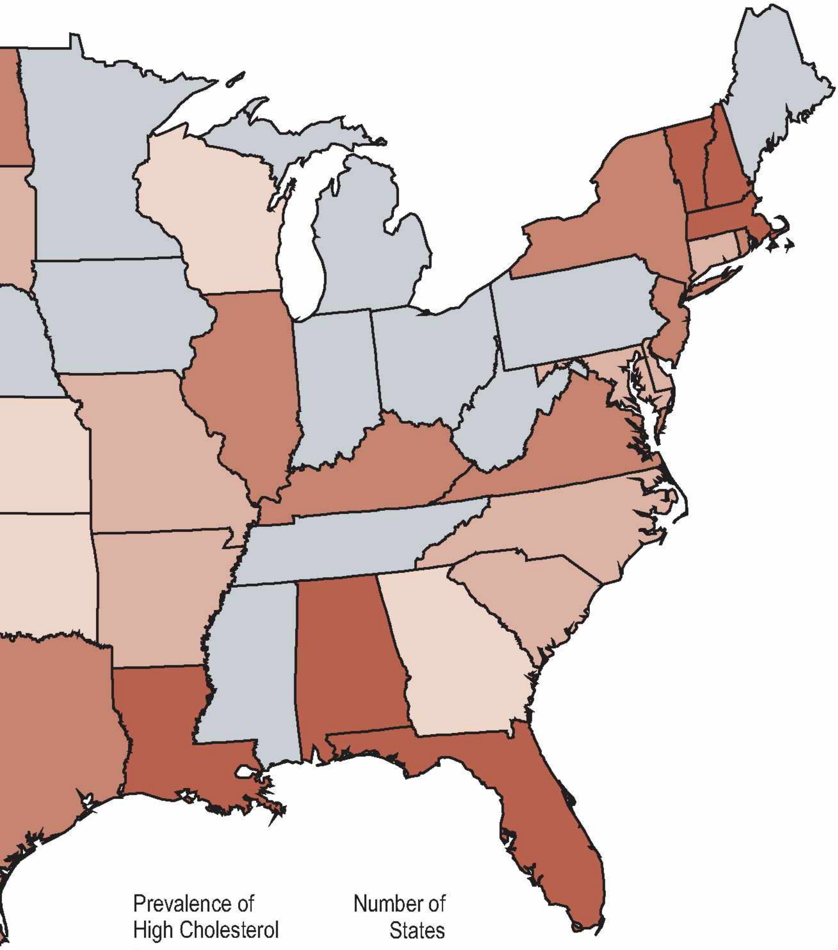
A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of high cholesterol and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported High Cholesterol 2001 and 2003 Combined



American Indians and Alaska Natives Ages 18 Years and Older



Prevalence of High Cholesterol	Number of States
20.4–26.1	9
26.2–28.7	9
29.0–33.1	9
33.5–47.4	9
Insufficient Data	14

Table 2. Prevalence of Self-Reported High Cholesterol Among American Indians and Alaska Natives, by State,

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
Alabama	52	47.4	34.6–60.3	24	‡		28	‡	
Alaska	579	22.6	18.2–27.0	334	21.0	15.7–26.4	245	24.4	17.4–31.3
Arizona	164	20.4	11.9–28.9	111	13.7	6.6–20.8	53	37.3	21.9–52.6
Arkansas	76	27.5	18.8–36.2	50	26.8	17.4–36.2	26	‡	
California	68	40.6	28.8–52.3	44	‡		24	‡	
Colorado	36	‡		26	‡		10	‡	
Connecticut	59	28.7	17.2–40.2	25	‡		34	‡	
Delaware	53	26.2	14.1–38.2	29	‡		24	‡	
District of Columbia	23	‡		9	‡		14	‡	
Florida	77	33.6	21.1–46.0	41	‡		36	‡	
Georgia	77	20.6	11.2–29.9	39	‡		38	‡	
Hawaii	37	‡		17	‡		20	‡	
Idaho	88	33.5	23.5–43.4	58	33.0	20.5–45.4	30	‡	
Illinois	51	29.2	16.6–41.8	30	‡		21	‡	
Indiana	48	‡		27	‡		21	‡	
Iowa	15	‡		9	‡		6	‡	
Kansas	69	25.1	15.6–34.6	41	‡		28	‡	
Kentucky	59	32.5	19.1–45.9	21	‡		38	‡	
Louisiana	68	33.8	21.4–46.1	44	‡		24	‡	
Maine	44	‡		26	‡		18	‡	
Maryland	64	26.9	16.2–37.6	35	‡		29	‡	
Massachusetts	76	34.7	24.2–45.1	48	‡		28	‡	
Michigan	44	‡	18.9–50.6	23	‡		21	‡	
Minnesota	40	‡		23	‡		17	‡	
Mississippi	27	‡		15	‡		12	‡	
Missouri	71	27.0	15.5–38.5	38	‡		33	‡	
Montana	485	26.1	20.7–47.3	305	28.9	21.3–36.4	180	23.1	16.1–30.0
Nebraska	30	‡		20	‡		10	‡	
Nevada	59	40.6	26.2–54.9	27	‡		32	‡	
New Hampshire	52	34.1	20.4–47.8	28	‡		24	‡	
New Jersey	74	30.8	20.0–41.7	44	‡		30	‡	
New Mexico	233	24.9	19.3–30.4	136	22.3	15.8–28.9	97	27.0	17.7–36.3

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	52	32.5	18.1–46.8	35	‡		17	‡	
North Carolina	216	27.4	19.2–35.5	134	29.8	19.0–40.6	82	24.2	12.7–35.6
North Dakota	107	29.0	19.8–38.2	67	30.9	20.0–41.9	40	‡	
Ohio	40	‡		22	‡		18	‡	
Oklahoma	639	24.2	20.8–27.7	409	25.9	21.2–30.6	230	22.8	17.6–28.1
Oregon	76	26.9	16.3–37.5	42	‡		34	‡	
Pennsylvania	27	‡		14	‡		13	‡	
Rhode Island	63	29.1	18.4–39.7	33	‡		30	‡	
South Carolina	68	27.0	16.2–37.7	38	‡		30	‡	
South Dakota	328	27.3	22.2–32.4	217	24.2	17.6–30.8	111	31.0	23.8–38.2
Tennessee	31	‡		17	‡		14	‡	
Texas	83	33.1	23.9–42.3	44	‡		39	‡	
Utah	36	‡		21	‡		15	‡	
Vermont	58	37.0	24.9–49.2	30	‡		28	‡	
Virginia	59	29.8	16.8–42.8	29	‡		30	‡	
Washington	280	32.2	24.3–40.4	146	29.4	19.9–38.9	134	35.0	24.0–46.0
West Virginia	45	‡		22	‡		23	‡	
Wisconsin	68	23.1	13.6–32.7	39	‡		29	‡	
Wyoming	72	24.5	15.1–33.9	43	‡		29	‡	
United States	**5346**	**30.0**	**27.3–32.7**	**3149**	**28.6**	**25.3–31.9**	**2197**	**31.1**	**27.1–35.1**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	1620	29.1	25.3–32.9	971	31.7	26.4–37.0	649	26.5	21.3–31.8
Northern Plains	1237	29.2	23.7–34.7	773	26.9	20.4–33.3	464	31.3	23.0–39.5
Southwest	528	22.9	17.4–28.3	321	18.6	12.5–24.7	207	30.3	21.5–39.1
Pacific Coast	512	37.8	28.9–46.8	290	29.3	19.0–39.7	222	47.0	34.0–60.0
Alaska	579	22.6	18.2–27.0	334	21.0	15.7–26.4	245	24.4	17.4–31.3

* Data are based on "yes" responses to the following BRFSS question: "Have you ever been told by a doctor or other health professional that your blood cholesterol is high?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996.*

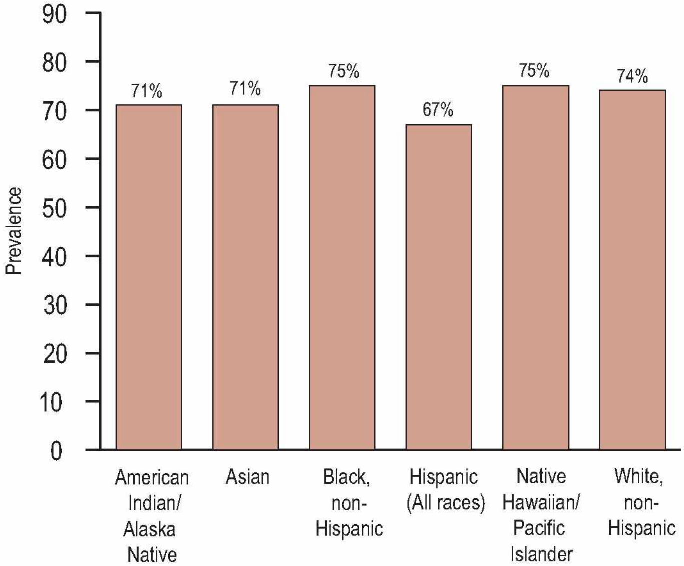
Cholesterol Screening

Screening for blood cholesterol levels in the general population is important because high cholesterol can be lowered with medication and behavior change. Studies have shown that a 1% decrease in cholesterol level can reduce the risk for heart disease and stroke by 2% (*MMWR* 1992;41[36]). Cholesterol levels <200 mg/dL are considered desirable (National Cholesterol Education Program, http://hin.nhlbi.nih.gov/ncep.htm).

In 1998, about 67% of U.S. residents ages ≥20 years reported having their cholesterol level checked within the past 5 years (*Healthy People 2010*). *Healthy People 2010* calls for raising this proportion to 80%. National guidelines recommend that people ages ≥20 years have their cholesterol measured at least once every 5 years (National Heart, Lung, and Blood Institute).

The IHS is working to increase cholesterol screening among American Indian and Alaska Native (AI/AN) people. It is developing an electronic system to notify health care providers of current national guidelines, remind them to screen

Figure 3. Prevalence of Self-Reported Cholesterol Screening Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001 and 2003 Combined



patients, and track compliance. The IHS also is administering numerous diabetes and cardiovascular health grants that include strategies (e.g., cholesterol screening) to reduce cardiovascular risk factors.

CDC currently funds 32 states and the District of Columbia to 1) develop strategies, such as policy, environmental, and systems changes, that improve prevalence of cholesterol screening and 2) conduct activities to reduce the burden of heart disease and stroke.

Definition of Cholesterol Screening

We defined self-reported cholesterol screening on the basis of "yes" responses to the following Behavioral Risk Factor Surveillance System (BRFSS) question: "Have you ever had your blood cholesterol checked?" This question was only asked in odd-numbered years, so the data for this analysis are from 2001 and 2003. Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

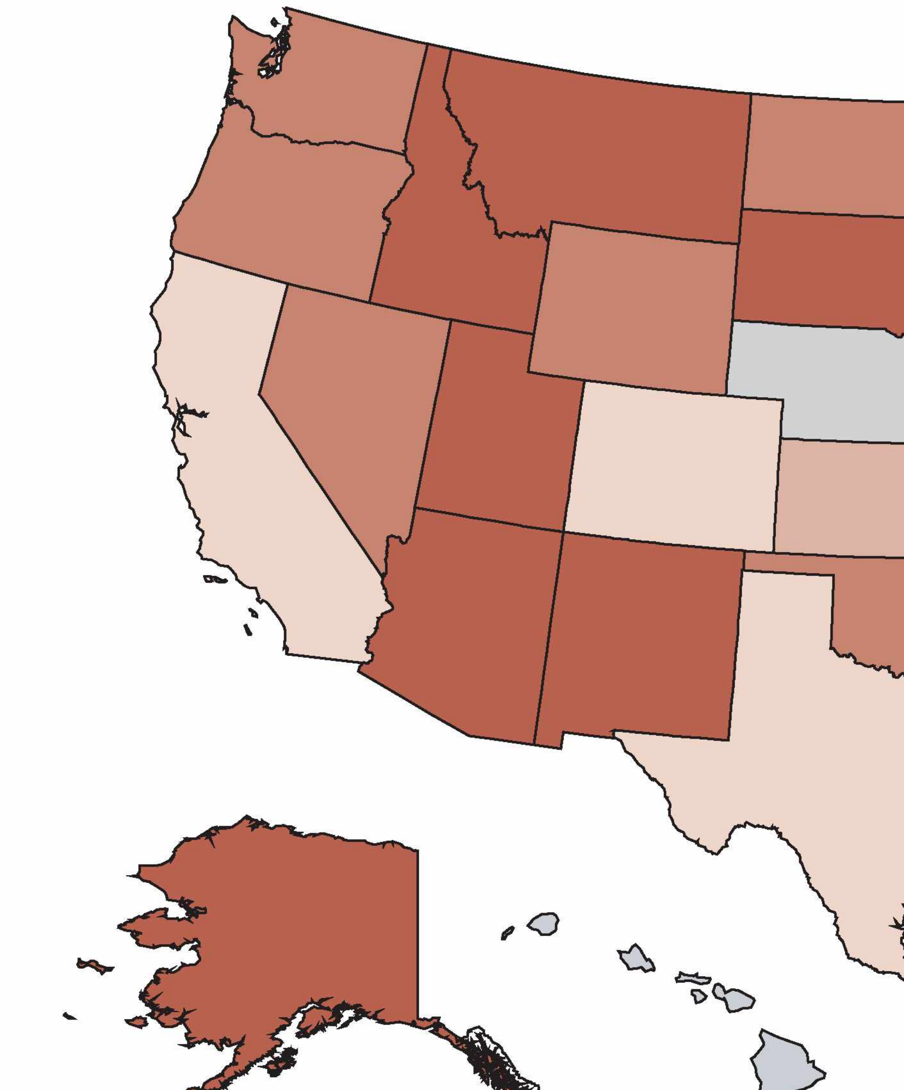
We found state-to-state differences in cholesterol screening prevalence among AI/AN people (see facing map and Table 3). A 1.3-fold difference existed between the midpoint of the lowest quartile (61%) and that of the highest quartile (82%).

The national prevalence for all AI/AN people was 71%. Prevalences were similar for women (72%) and men (71%). The prevalence for AI/AN people was higher than that for Hispanics, the same as Asians, and somewhat lower than other U.S. racial/ethnic groups (see Figure 3).

A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely higher than the true prevalence of cholesterol screening and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported Cholesterol Screening 2001 and 2003 Combined



American Indians and Alaska Natives Ages 18 Years and Older

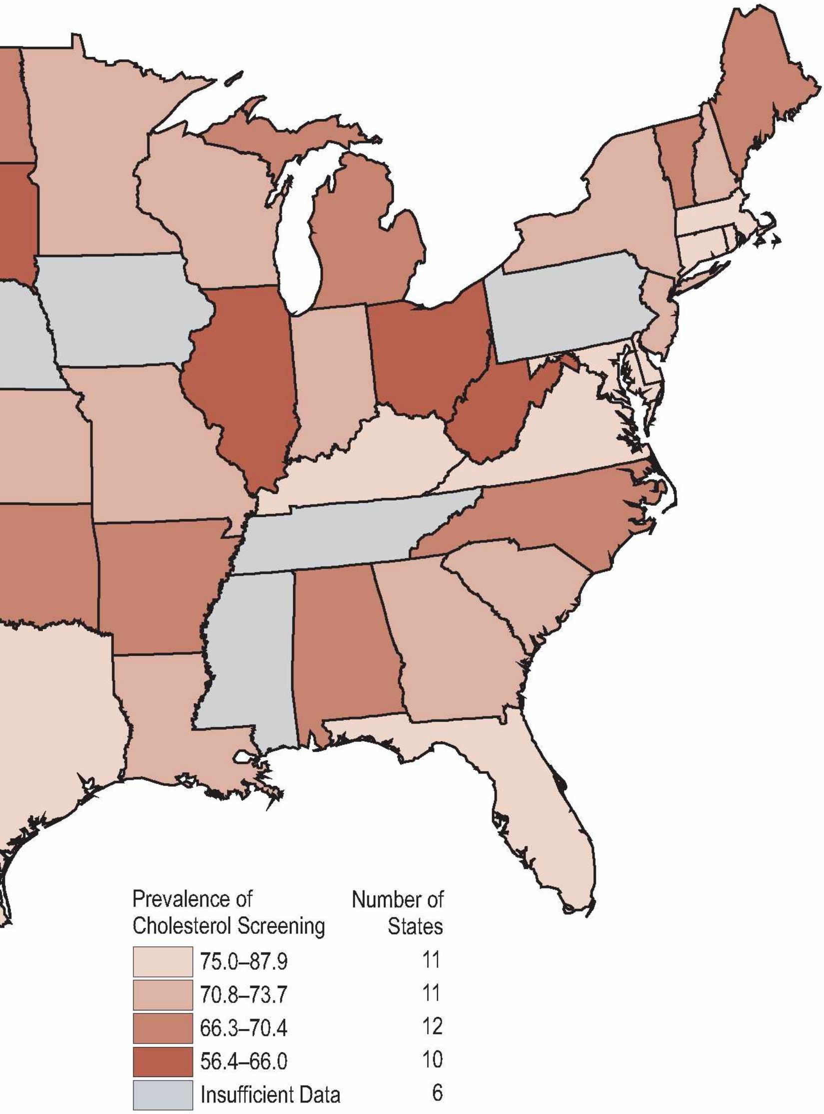


Table 3. Prevalence of Self-Reported Cholesterol Screening Among American Indians and Alaska Natives,

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
Alabama	75	66.4	55.3–77.5	35	‡		40	‡	49.9–77.6
Alaska	992	59.6	55.4–63.7	560	59.0	53.8–64.3	432	60.2	53.9–66.6
Arizona	268	59.8	52.0–67.7	175	61.5	51.6–71.4	93	56.8	45.1–68.6
Arkansas	104	66.3	56.0–76.5	62	79.0	68.3–89.7	42	‡	
California	83	75.0	63.4–86.6	55	79.0	67.5–90.5	28	73.3	57.2–89.4
Colorado	46	80.2	70.3–90.1	31	‡		15	‡	
Connecticut	72	82.1	71.4–92.9	35	‡		37	‡	
Delaware	63	81.8	72.5–91.1	34	‡		29	‡	
District of Columbia	23	‡		9	‡		14	‡	
Florida	99	76.7	66.8–86.6	52	68.2	54.0–82.5	47	‡	
Georgia	96	72.7	64.5–81.0	52	67.7	59.2–76.2	44	‡	
Hawaii	43	‡		21	‡		22	‡	
Idaho	118	63.0	52.8–73.2	72	69.1	56.0–82.2	46	‡	
Illinois	72	60.2	47.3–73.1	42	‡		30	‡	
Indiana	66	71.2	61.2–81.1	34	‡		32	‡	
Iowa	26	‡		16	‡		10	‡	
Kansas	87	72.2	62.0–82.4	49	‡		38	‡	
Kentucky	67	79.1	68.4–89.8	27	‡		40	‡	
Louisiana	89	72.9	63.7–82.1	59	69.6	59.1–80.1	30	‡	
Maine	61	66.3	55.2–77.4	35	‡		26	‡	
Maryland	69	87.2	79.1–95.3	36	‡		33	‡	
Massachusetts	93	77.8	69.5–86.0	58	87.5	81.0–93.9	35	‡	
Michigan	56	66.8	56.9–76.7	31	‡		25	‡	
Minnesota	52	72.8	59.6–86.0	30	‡		22	‡	
Mississippi	44	‡		27	‡		17	‡	
Missouri	85	73.7	63.7–83.7	44	‡		41	‡	
Montana	725	65.6	61.0–70.2	438	69.6	64.2–75.0	287	61.6	54.1–69.1
Nebraska	43	‡		26	‡		17	‡	
Nevada	82	69.6	58.0–81.3	38	‡		44	‡	
New Hampshire	71	71.6	59.9–83.2	36	‡		35	‡	
New Jersey	91	72.2	59.1–85.3	52	86.6	76.5–96.8	39	‡	
New Mexico	351	66.0	60.3–71.8	197	69.6	61.8–77.3	154	62.4	53.9–70.9

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.[†]**	**Respondents**	**%**	**95% C.I.[†]**	**Respondents**	**%**	**95% C.I.[†]**
New York	72	70.8	62.1–79.6	46	‡		26	‡	
North Carolina	289	70.2	61.2–79.2	187	74.7	68.2–81.3	102	66.2	52.2–80.3
North Dakota	160	66.6	58.8–74.3	100	64.9	55.3–74.4	60	69.2	57.2–81.3
Ohio	61	56.4	45.8–67.0	32	‡		29	‡	
Oklahoma	867	70.1	66.8–73.5	553	69.0	64.7–73.4	314	71.6	66.6–76.6
Oregon	104	70.4	61.6–79.2	53	82.3	72.0–92.7	51	62.9	50.2–75.6
Pennsylvania	37	‡	57.5–89.4	20	‡		17	‡	
Rhode Island	69	82.0	74.7–89.3	36	‡		33	‡	
South Carolina	87	73.6	64.5–82.7	43	‡		44	‡	
South Dakota	483	64.9	60.3–69.4	311	66.2	60.7–71.7	172	62.7	55.0–70.3
Tennessee	38	‡		21	‡		17	‡	
Texas	100	79.1	71.1–87.2	54	69.4	58.6–80.3	46	‡	
Utah	54	64.9	50.4–79.4	29	‡		25	‡	
Vermont	74	66.4	56.2–76.6	34	‡		40	‡	
Virginia	68	87.9	79.6–96.3	32	‡		36	‡	
Washington	377	69.1	62.6–75.6	201	69.1	61.7–76.6	176	68.3	59.2–77.5
West Virginia	59	63.3	52.3–74.4	26	‡		33	‡	
Wisconsin	89	71.8	60.2–83.4	48	‡		41	‡	
Wyoming	98	68.7	59.7–77.7	59	66.4	55.7–77.1	39	‡	
United States	**7498**	**71.0**	**68.7–73.3**	**4353**	**71.9**	**68.8–75.0**	**3145**	**70.6**	**67.4–73.8**

Region[§]	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	2141	26.5	23.5–29.5	1289	27.2	23.6–30.8	852	25.9	21.4–30.4
Northern Plains	1798	30.6	26.0–35.3	1093	29.1	23.0–35.2	705	31.3	25.3–37.3
Southwest	801	35.0	30.3–39.6	470	32.4	25.9–38.9	331	37.7	31.5–43.8
Pacific Coast	682	72.4	64.0–80.9	381	77.3	67.8–86.9	301	69.6	58.5–80.7
Alaska	992	40.4	36.3–44.6	560	41.0	35.7–46.2	432	39.8	33.4–46.1

* Data are based on "yes" responses to the following BRFSS question: "Have you ever had your blood cholesterol checked?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

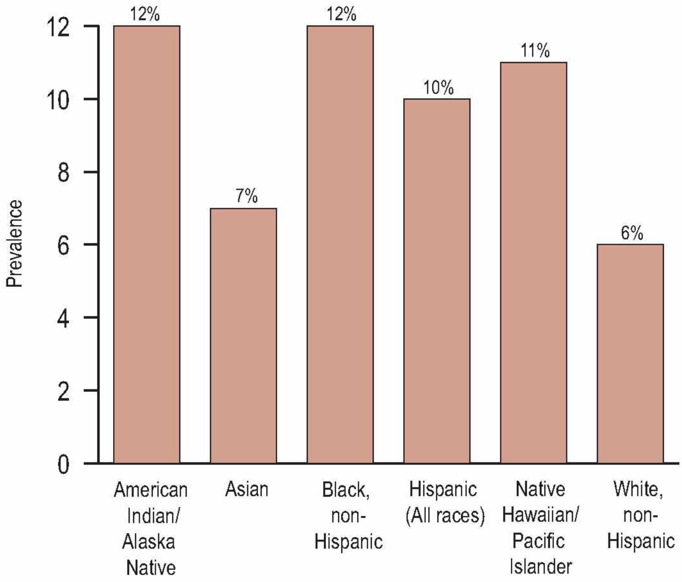
Diabetes

Diabetes is the sixth leading cause of death in the United States, accounting for more than 200,000 deaths each year. More than 18 million Americans have diabetes, and the disease costs nearly $132 billion annually (http://www.cdc.gov/nccdphp/aag/aag_ddt.htm). Surprisingly, about one-third of people with diabetes are unaware that they have the disease (*Diabetes Care* 1998;21:518–24).

Adults with diabetes are 2–4 times more likely than those without diabetes to die of heart disease or stroke (http://www.cdc.gov/diabetes). High blood pressure, high blood cholesterol, and obesity—all risk factors for heart disease and stroke—also are common among people with diabetes.

Diabetes was once rare among American Indian and Alaska Native (AI/AN) people, but the prevalence is rising dramatically. The IHS recently received a significant increase in funding to prevent and control diabetes among AI/AN people. In addition, it has funded numerous community grants and prevention efforts, as well as an agressive medical intervention program.

Figure 4. Prevalence of Self-Reported Diabetes Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001–2003



In 2001, CDC and the National Institutes of Health conducted a landmark clinical trial that found that Americans at risk for diabetes can reduce this risk 58% with lifestyle changes in diet and exercise. CDC also supports 59 state and territorial diabetes prevention and control programs (http://www.cdc.gov/diabetes/news/docs/dpp.htm).

Definition of Diabetes

We defined self-reported diabetes on the basis of "yes" responses to the following Behavioral Risk Factor Surveillance System (BRFSS) question during 2001–2003: "Have you ever been told by a doctor that you have diabetes?" Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

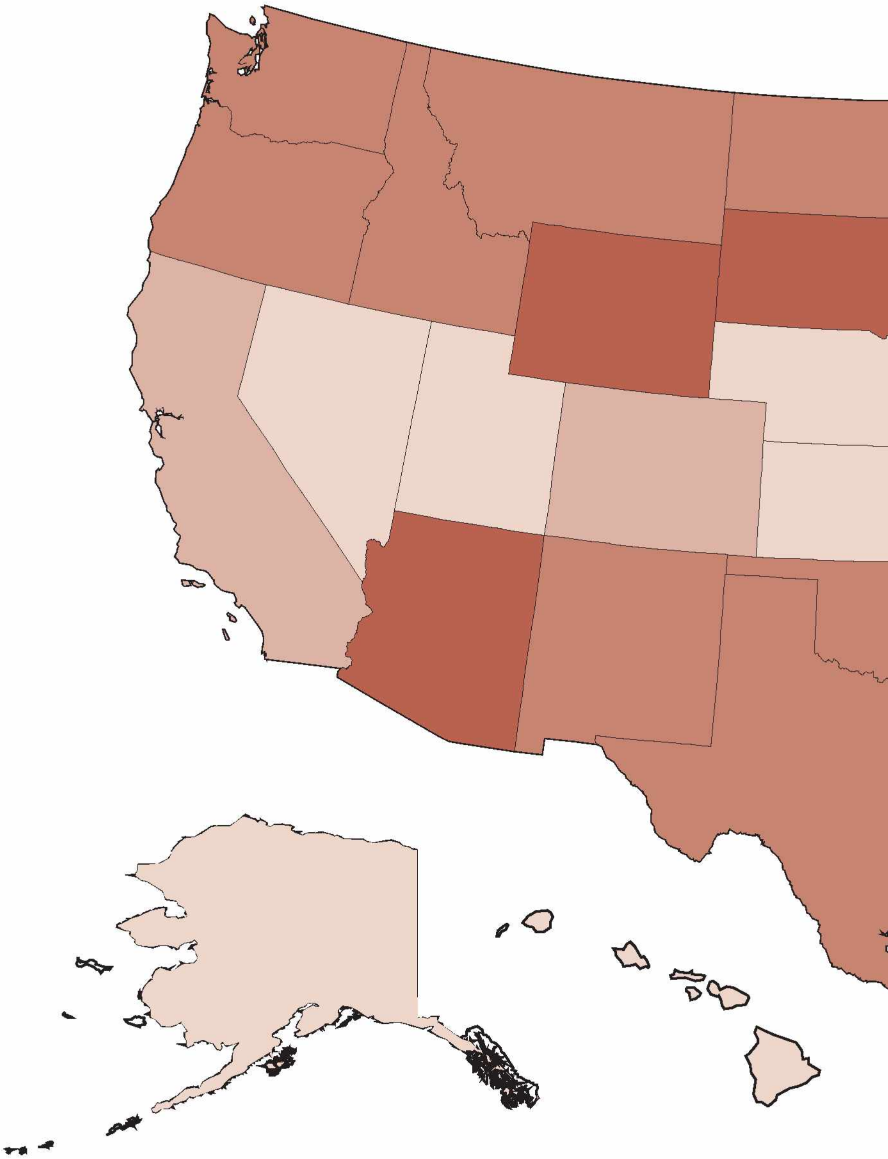
We found dramatic state-to-state differences in the prevalence of diabetes among AI/AN people (see facing map and Table 4). A threefold difference existed between the midpoint of the lowest quartile (5.7%) and that of the highest quartile (18%).

The national prevalence for all AI/AN people was 12%. Prevalences were similar for women (12%) and men (11%). They also were highest in the Northern Plains (14%) and lowest in Alaska (5%) (see Table 4). The prevalence for AI/AN people was the same as that for blacks (see Figure 4).

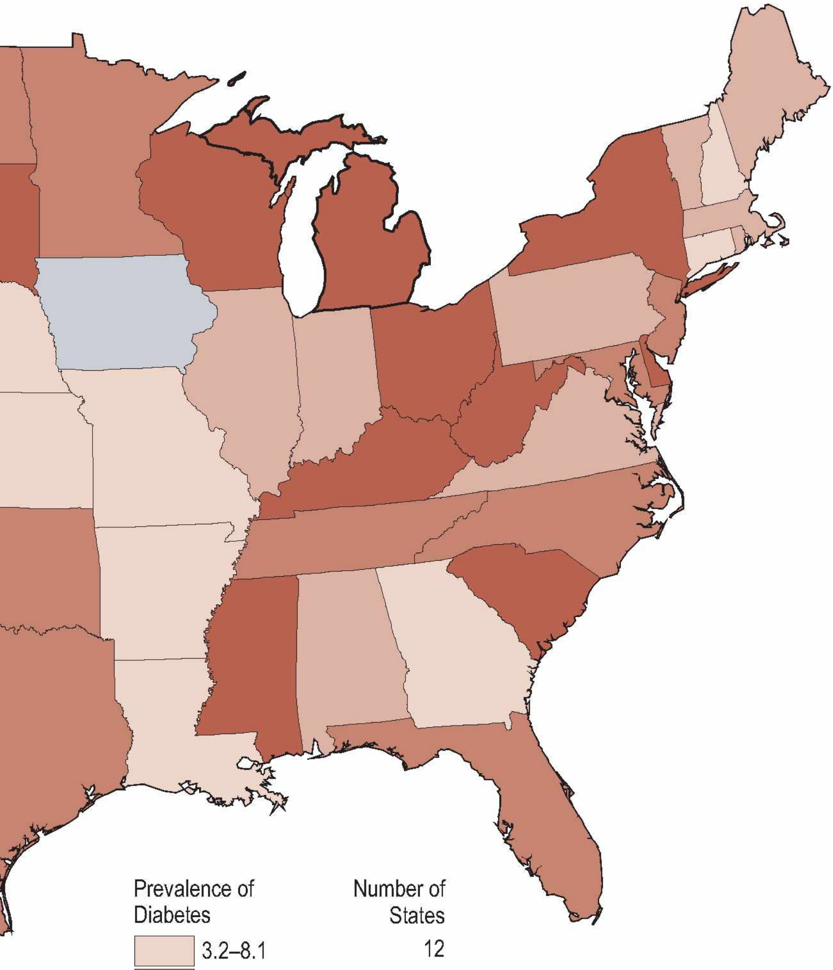
A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of diabetes and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported Diabetes 2001–2003



American Indians and Alaska Natives Ages 18 Years and Older



Prevalence of Diabetes	Number of States
3.2–8.1	12
8.2–10.6	11
10.8–13.6	14
13.7–21.5	12
Insufficient Data	1

Table 4. Prevalence of Self-Reported Diabetes Among American Indians and Alaska Natives, by State,

	Total Population			Women			Men		
State	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†
Alabama	118	10.6	3.9–17.3	59	13.6	2.2–25.1	59	10.2	1.4–18.9
Alaska	1581	5.1	3.3–6.9	912	4.7	2.7–6.7	669	5.6	2.6–8.6
Arizona	395	15.0	9.6–20.4	254	15.4	9.2–21.6	141	14.1	5.7–22.5
Arkansas	168	7.8	3.7–11.8	94	8.8	3.6–14.0	74	6.4	0–12.9
California	120	10.4	4.5–16.3	75	12.1	4.1–20.0	45	‡	
Colorado	80	10.4	0.9–19.8	53	8.2	0–17.4	27	‡	
Connecticut	102	6.6	1.4–11.8	51	4.9	0–11.5	51	7.6	0.9–14.3
Delaware	86	13.7	6.1–21.2	46	‡		40	‡	
District of Columbia	32	‡	5.6–20.9	14	‡		18	‡	
Florida	155	13.2	5.7–20.8	79	12.5	2.7–22.4	76	13.5	3.0–24.1
Georgia	139	3.2	0.6–5.7	73	1.3	0–3.3	66	3.7	0.4–6.9
Hawaii	82	6.6	1.3–11.9	45	‡		37	‡	
Idaho	189	12.0	6.9–17.1	115	14.9	7.6–22.1	74	8.4	2.4–14.5
Illinois	117	10.1	5.1–15.0	68	10.7	3.8–17.6	49	‡	
Indiana	118	8.4	3.0–13.7	63	11.0	3.8–18.3	55	6.2	0–13.3
Iowa	39	‡		25	‡		14	‡	
Kansas	137	8.0	3.6–12.3	80	12.1	4.2–20.0	57	5.6	0.8–10.4
Kentucky	99	14.4	3.6–25.2	36	‡		63	9.0	0.7–17.2
Louisiana	150	7.4	2.6–12.1	97	9.4	2.1–16.6	53	8.0	0–17.0
Maine	90	9.2	2.9–15.6	50	11.0	2.9–19.1	40	‡	
Maryland	102	12.3	3.6–20.9	52	9.9	2.1–17.6	50	10.8	0.3–21.3
Massachusetts	148	8.2	2.2–14.3	89	7.6	1.9–13.2	59	9.0	0–19.7
Michigan	102	17.5	9.9–25.1	55	15.1	5.4–24.8	47	‡	
Minnesota	85	12.7	6.0–19.3	49	‡		36	‡	
Mississippi	63	21.5	10.9–32.1	42	‡		21	‡	
Missouri	159	6.3	2.6–10.1	77	5.4	0–11.3	82	8.2	2.8–13.7
Montana	1088	12.8	10.2–15.4	659	12.8	9.4–16.3	429	13.2	9.4–17.0
Nebraska	74	8.0	1.3–14.6	45	‡		29	‡	
Nevada	132	4.8	1.9–7.7	68	6.2	1.0–11.4	64	6.3	0.8–11.7
New Hampshire	126	8.1	3.2–13.0	58	6.1	0.3–12.0	68	9.5	2.4–16.6
New Jersey	129	10.8	3.0–18.6	73	5.3	0–10.5	56	16.2	3.4–28.9
New Mexico	552	12.2	8.6–15.7	314	14.2	9.5–18.9	238	10.0	5.0–15.0

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	107	17.3	9.7–24.9	66	17.6	6.5–28.8	41	‡	
North Carolina	481	13.1	8.3–17.9	306	16.8	10.4–23.1	175	9.6	2.5–16.8
North Dakota	250	12.7	7.2–18.2	156	13.1	6.4–19.8	94	12.8	3.2–22.4
Ohio	98	17.8	9.2–26.4	46	‡	0.1–19.0	52	17.3	8.2–26.5
Oklahoma	1372	13.6	11.5–15.6	858	13.7	11.2–16.1	514	13.4	10.0–16.8
Oregon	164	12.8	7.1–18.5	89	11.2	3.8–18.7	75	14.4	6.0–22.8
Pennsylvania	98	10.4	4.3–16.4	48	‡		50	13.2	3.3–23.0
Rhode Island	99	8.2	2.9–13.4	53	8.3	1.7–15.0	46	‡	
South Carolina	122	17.9	10.8–25.1	64	13.9	8.5–19.3	58	18.3	7.0–29.6
South Dakota	670	18.5	14.7–22.4	426	17.3	12.8–21.7	244	20.3	14.0–26.6
Tennessee	56	12.4	2.0–22.8	27	‡		29	‡	
Texas	164	10.8	5.0–16.5	95	9.1	3.2–15.1	69	13.4	2.5–24.2
Utah	90	5.0	0–10.5	46	‡		44	‡	
Vermont	119	10.0	4.4–15.6	48	‡		71	12.6	5.1–20.0
Virginia	101	10.1	3.1–17.2	47	‡		54	11.8	3.6–20.1
Washington	475	10.8	6.8–14.8	256	16.7	9.5–23.9	219	6.1	2.2–10.0
West Virginia	76	14.2	6.9–21.6	36	‡		40	‡	
Wisconsin	144	13.7	6.1–21.3	76	21.2	11.0–31.4	68	5.9	0.7–11.1
Wyoming	144	13.7	7.6–19.8	84	18.3	9.9–26.6	60	7.1	0–14.9
United States	**11587**	**11.9**	**10.4–13.4**	**6697**	**12.4**	**10.3–14.5**	**4890**	**11.4**	**9.4–13.4**
Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	3406	13.0	10.7–15.4	2037	13.4	10.3–16.4	1369	12.7	9.1–16.3
Northern Plains	2714	13.6	10.9–16.4	1638	15.1	11.3–18.9	1076	12.2	8.3–16.1
Southwest	1249	11.6	8.8–14.5	735	11.9	8.5–15.3	514	11.5	6.8–16.3
Pacific Coast	948	11.0	6.5–15.5	535	13.0	6.6–19.4	413	7.7	3.1–12.4
Alaska	1581	5.1	3.3–6.9	912	4.7	2.7–6.7	669	5.6	2.6–8.6

* Data are based on "yes" responses to the following BRFSS question: "Have you ever been told by a doctor that you have diabetes?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

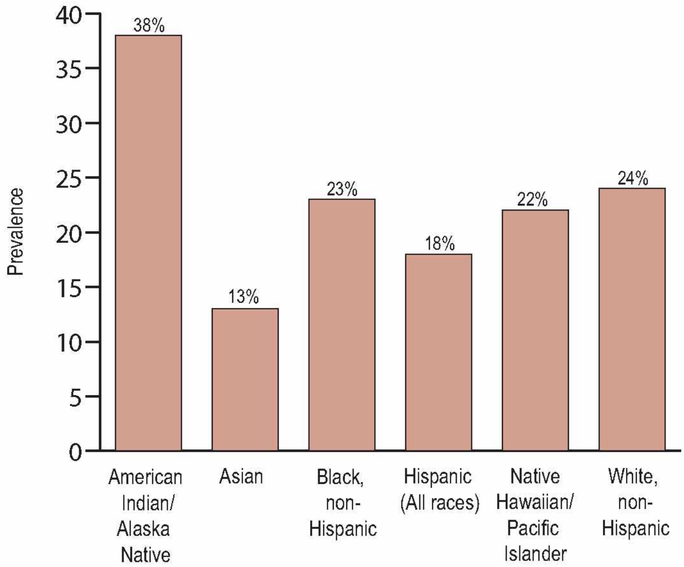
§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

Cigarette smoking is a major cause of heart disease and stroke, accounting for 30% of all U.S. deaths from coronary heart disease (*Circulation* 1997;96:3243–7). Cigarette smokers are 2–4 times more likely than nonsmokers to develop coronary heart disease (*Reducing the Health Consequences of Smoking: 25 Years of Progress*; 1989) and twice as likely to suffer a stroke (*Circulation* 1997;96:3243–7). For both conditions, the smoking-related risk for death increases if other CHD risk factors are present.

CDC provides national leadership for a comprehensive approach to reducing tobacco use that includes preventing young people from starting to smoke, eliminating human exposure to secondhand smoke, promoting smoking cessation, and eliminating disparities in tobacco use among different populations. CDC also funds eight tribal tobacco control support centers, which provide resources for tobacco prevention and cessation in American Indian and Alaska Native (AI/AN) communities.

Tobacco control programs in AI/AN communities must distinguish between traditional ceremonial use and addictive

Figure 5. Prevalence of Self-Reported Cigarette Smoking Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001–2003



abuse of tobacco. In ceremonial settings, small amounts of tobacco are used, and the potential for addiction or health problems is low (*BMJ* 1997;75:1690–3). IHS offers numerous tobacco cessation programs, many of which were developed with partners and other federal agencies. In areas with high smoking prevalences, IHS actively promotes cessation through clinic-based and community programs.

Definition of Cigarette Smoking

We defined self-reported current cigarette smoking on the basis of responses to two questions from the Behavioral Risk Factor Surveillance System (BRFSS) during 2001–2003. The first was, “Have you smoked at least 100 cigarettes in your entire life?” Respondents who answered “yes” were then asked a follow-up question: “Do you now smoke cigarettes every day, some days, or not at all?” People who reported smoking at least 100 cigarettes in their lifetime and smoking now every day or some days were defined as current smokers. Age-adjusted prevalences were calculated for adults ages ≥18 years.

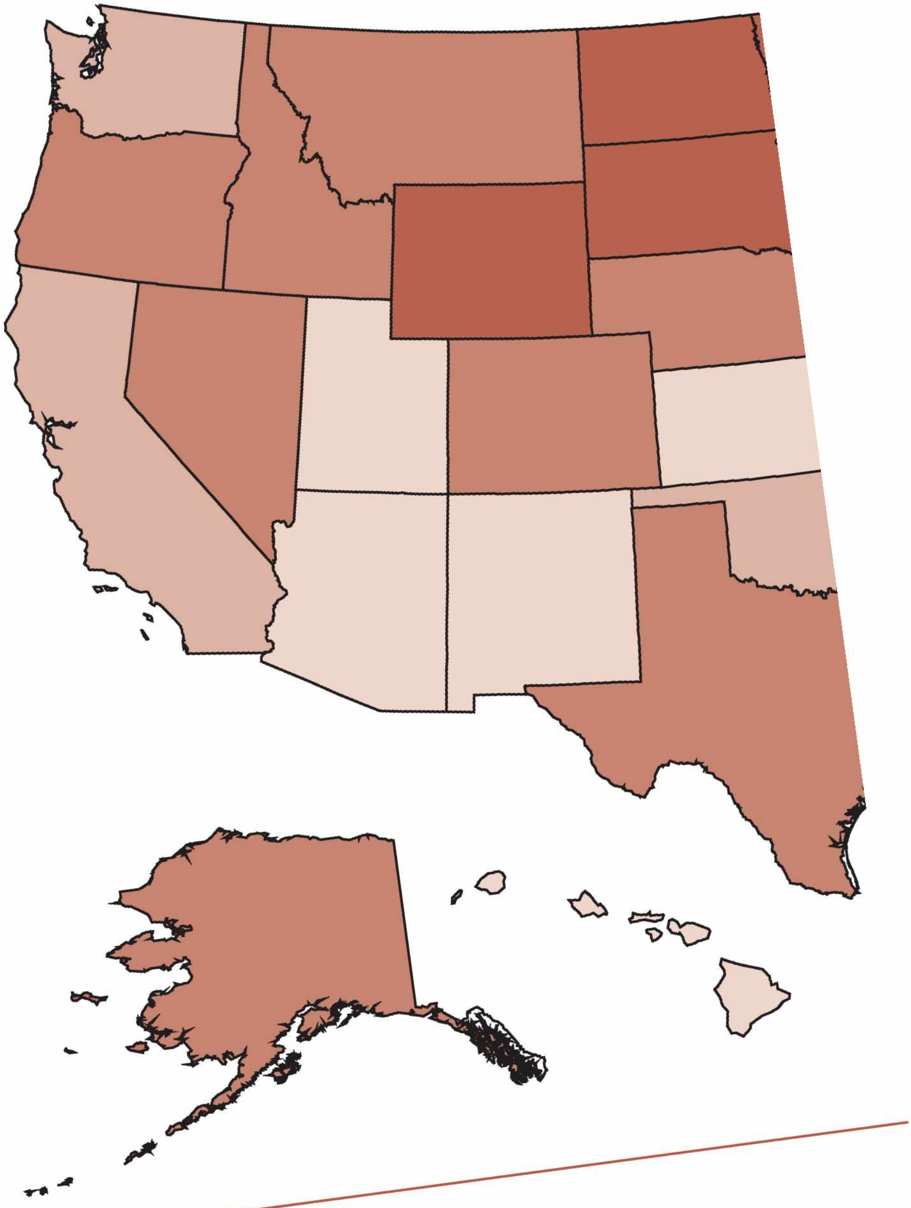
Prevalence Variations

We found dramatic state-to-state differences in smoking prevalence among AI/AN people (see facing map and Table 5). A twofold difference existed between the midpoint of the lowest quartile (21%) and that of the highest quartile (50%). The national prevalence for all AI/AN people was 38%, with men (42%) smoking more than women (34%). This gender difference is similar to that observed for the general U.S. population. The Northern Plains (41.3%) and Alaska (41.1%) had the highest prevalence (41%), whereas the Southwest had the lowest (21%) (see Table 5). AI/AN people had the highest smoking prevalence among U.S. racial/ethnic groups (see Figure 5).

A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of cigarette smoking and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported Cigarette Smoking 2001–2003



American Indians and Alaska Natives Ages 18 Years and Older

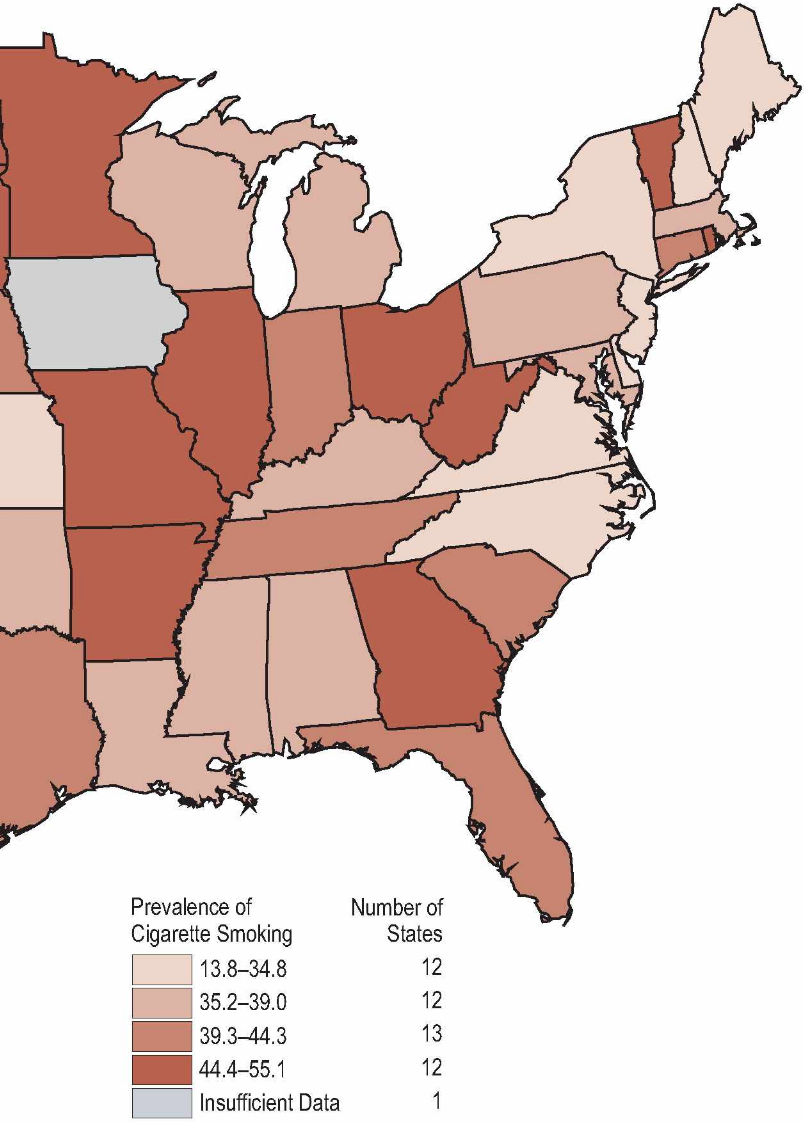


Table 5. Prevalence of Self-Reported Cigarette Smoking Among American Indians and Alaska Natives, by State,

State	Total Population			Women			Men		
	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†
Alabama	118	38.8	28.7–48.8	59	35.7	24.3–47.1	59	39.9	26.3–53.6
Alaska	1573	41.1	37.4–44.7	904	37.3	32.9–41.8	669	45.3	39.7–50.9
Arizona	396	13.8	9.6–18.0	255	12.8	7.7–17.9	141	15.1	8.3–21.9
Arkansas	169	44.4	35.8–52.9	95	45.3	34.0–56.6	74	43.8	31.5–56.0
California	120	36.7	27.1–46.2	75	31.3	20.2–42.4	45	‡	
Colorado	79	43.7	29.8–57.5	52	52.1	36.3–67.9	27	‡	
Connecticut	101	42.8	32.5–53.0	50	37.0	23.1–51.0	51	42.6	30.1–55.1
Delaware	86	34.6	23.3–45.9	46	‡		40	‡	
District of Columbia	31	‡		14	‡		17	‡	
Florida	156	42.7	32.0–53.5	80	41.1	30.5–51.6	76	39.8	24.3–55.4
Georgia	139	46.2	36.0–56.4	73	33.5	20.1–46.8	66	53.3	38.6–67.9
Hawaii	82	23.5	11.1–35.9	45	‡		37	‡	
Idaho	189	39.6	32.1–47.1	115	38.4	28.9–47.9	74	40.9	28.7–53.2
Illinois	117	49.3	39.2–59.3	68	42.9	31.4–54.3	49	‡	
Indiana	119	44.3	34.6–54.0	63	37.5	25.0–49.9	56	53.2	39.5–67.0
Iowa	39	‡		25	‡		14	‡	
Kansas	137	32.1	23.9–40.2	80	35.5	24.7–46.3	57	29.1	17.3–40.9
Kentucky	99	38.5	27.5–49.4	36	‡		63	43.0	27.4–58.6
Louisiana	150	37.4	29.0–45.7	97	34.5	24.0–45.0	53	38.4	25.7–51.2
Maine	89	34.2	24.7–43.8	49	‡		40	‡	
Maryland	102	37.4	27.0–47.8	52	19.0	9.0–29.0	50	46.3	32.8–59.8
Massachusetts	148	36.3	26.8–45.9	89	31.7	20.7–42.7	59	43.9	28.3–59.5
Michigan	101	37.0	27.1–47.0	54	32.8	19.6–46.0	47	‡	
Minnesota	85	49.4	38.6–60.3	49	‡		36	‡	
Mississippi	62	39.0	26.4–51.6	41	‡		21	‡	
Missouri	158	48.9	39.5–58.4	77	33.6	22.1–45.0	81	54.1	42.5–65.6
Montana	1089	42.5	38.3–46.8	659	45.7	40.2–51.3	430	38.7	32.3–45.2
Nebraska	74	41.2	29.7–52.7	45	‡		29	‡	
Nevada	132	40.3	29.1–51.6	68	36.2	21.2–51.1	64	47.5	32.4–62.6
New Hampshire	126	32.3	23.6–41.1	58	40.3	26.8–53.8	68	26.9	17.1–36.7
New Jersey	129	25.6	14.3–36.9	73	23.6	10.5–36.7	56	26.8	10.0–43.5
New Mexico	552	17.1	12.6–21.7	314	9.9	6.3–13.4	238	24.7	16.8–32.6

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2000–2003*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	107	34.8	23.3–46.2	66	21.5	11.2–31.8	41	‡	
North Carolina	481	33.7	26.3–41.0	305	29.4	21.3–37.5	176	37.6	27.3–47.8
North Dakota	250	48.4	41.6–55.2	156	58.1	49.5–66.6	94	35.3	25.6–45.0
Ohio	97	53.7	41.9–65.6	45	‡		52	65.3	53.5–77.0
Oklahoma	1371	37.9	34.7–41.0	858	33.9	30.2–37.6	513	42.3	37.4–47.3
Oregon	164	39.7	31.6–47.9	89	39.0	26.8–51.2	75	42.8	32.7–52.8
Pennsylvania	98	35.2	24.2–46.3	48	‡		50	35.3	21.6–49.0
Rhode Island	97	55.1	43.7–66.6	52	57.8	43.7–72.0	45	‡	
South Carolina	122	43.1	33.6–52.5	63	37.6	26.8–48.5	59	41.2	28.1–54.3
South Dakota	670	44.6	40.0–49.2	426	42.4	37.1–47.7	244	49.0	41.5–56.5
Tennessee	56	39.3	25.9–52.6	27	‡		29	‡	
Texas	164	43.1	34.8–51.3	95	45.0	33.8–56.2	69	41.3	28.9–53.7
Utah	90	19.4	8.5–30.3	46	‡		44	‡	
Vermont	119	45.6	36.4–54.9	48	‡		71	49.9	38.6–61.2
Virginia	101	31.0	20.0–41.9	47	‡		54	40.0	25.5–54.5
Washington	476	38.1	31.1–45.2	255	34.2	25.2–43.2	221	41.2	31.1–51.3
West Virginia	76	54.9	44.2–65.5	36	‡		40	‡	
Wisconsin	144	37.5	28.0–47.0	76	22.5	12.2–32.8	68	51.2	37.0–65.4
Wyoming	145	53.5	44.5–62.5	85	49.1	37.4–60.9	60	57.5	44.2–70.8
United States	**11575**	**38.1**	**36.1–40.0**	**6683**	**33.6**	**31.3–35.9**	**4892**	**42.3**	**39.2–45.3**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	3401	38.9	35.8–42.1	2032	35.3	34.8–38.8	1369	42.0	36.9–46.9
Northern Plains	2716	41.3	37.4–45.2	1638	36.8	32.1–41.0	1078	46.2	40.0–52.3
Southwest	1249	20.7	17.4–24.0	735	18.7	14.4–22.9	514	24.3	19.0–29.5
Pacific Coast	949	36.8	30.1–43.6	534	32.1	24.0–40.2	415	42.1	31.3–52.8
Alaska	1573	41.1	37.4–44.7	904	37.3	32.9–41.8	669	45.3	30.1–35.3

* Data are based on "yes" responses to the following BRFSS question: "Have you smoked at least 100 cigarettes in your entire life?" Respondents who answered "yes" were then asked, "Do you now smoke every day, some days, or not at all?" People who reported smoking at least 100 cigarettes in their lifetime and smoking now every day or some days were defined as current smokers. Data are for adults $\geq$18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

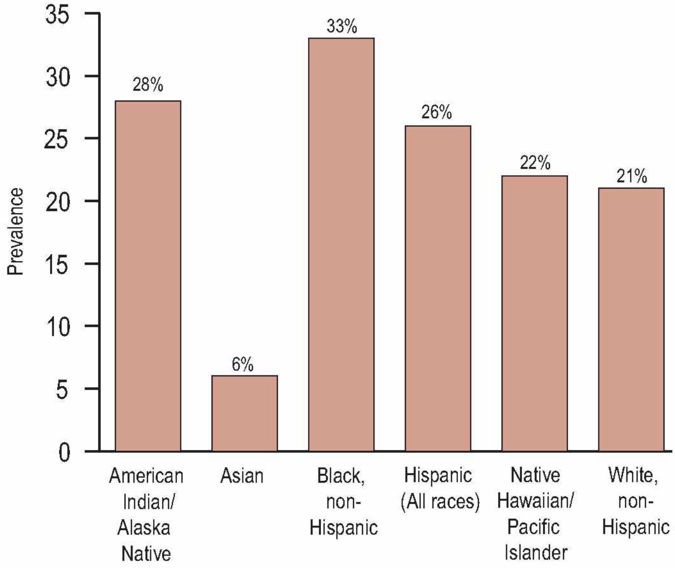
Obesity

Obesity and a sedentary lifestyle account for about $90 billion in direct health care costs each year (http://www.cdc.gov/nccdphp/aag/aag_dnpa.htm). Obesity also increases the nation's prevalence of weight-related risk factors for cardiovascular disease, including high blood pressure, high blood cholesterol, and diabetes (*Arch Intern Med* 2004;164:249–58).

Preventing or reducing these risk factors by eating a healthy diet and increasing physical activity can lower a person's risk for heart disease and stroke. For example, losing at least 10 lbs and maintaining that loss for 36 months can lower a person's blood pressure significantly (*Ann Intern Med* 2001;134:1–11).

CDC provides national leadership for obesity control through programs that promote increased fruit and vegetable consumption (e.g., 5 A Day for Better Health) and physical activity (e.g., KidsWalk-to-School) among adults and children. CDC also sponsors 12 state programs to help prevent obesity by improving nutrition and increasing physical activity in these states.

Figure 6. Prevalence of Self-Reported Obesity Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001–2003



The high prevalence of obesity among American Indian and Alaska Native (AI/AN) people is contributing to a high incidence of diabetes in this population. The IHS recently received a significant increase in funding to prevent and control diabetes among AI/AN people. It is implementing community and health care system programs as part of the IHS Director's Prevention Initiative.

Definition of Obesity

We defined self-reported obesity on the basis of questions from the Behavioral Risk Factor Surveillance System (BRFSS) that asked respondents their height and weight during 2001–2003. We used this information to calculate respondents' body mass index (BMI). People with a BMI ≥30.0 were considered obese. Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

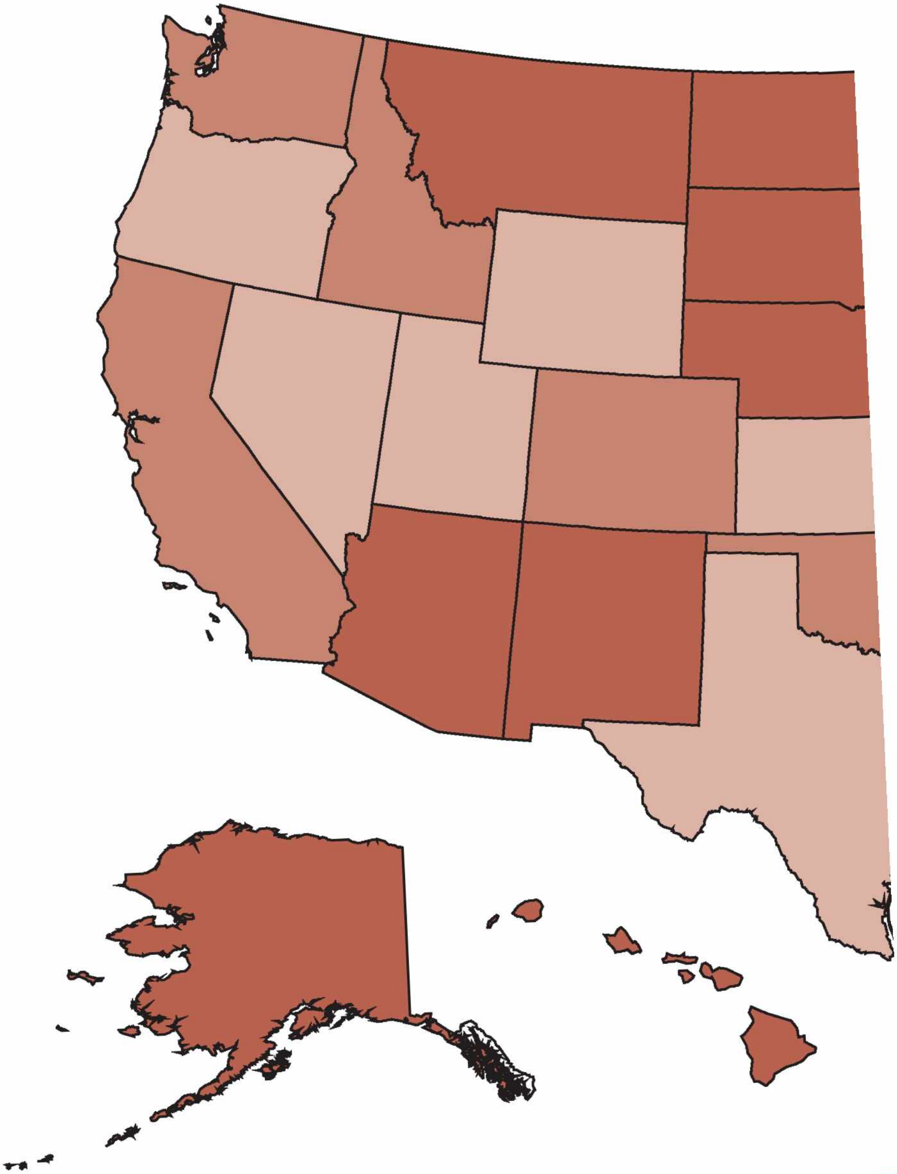
We found dramatic state-to-state differences in the prevalence of obesity among AI/AN people (see facing map and Table 6). A twofold difference existed between the midpoint of the lowest quartile (17%) and that of the highest quartile (36%).

The national prevalence for all AI/AN people was 28%. Prevalences were similar for women (28%) and men (27%). AI/AN people ranked second among U.S. racial/ethnic groups, with only blacks having a higher prevalence (see Figure 6).

A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of obesity and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for details).

Prevalence of Self-Reported Obesity
2001–2003



American Indians and Alaska Natives Ages 18 Years and Older

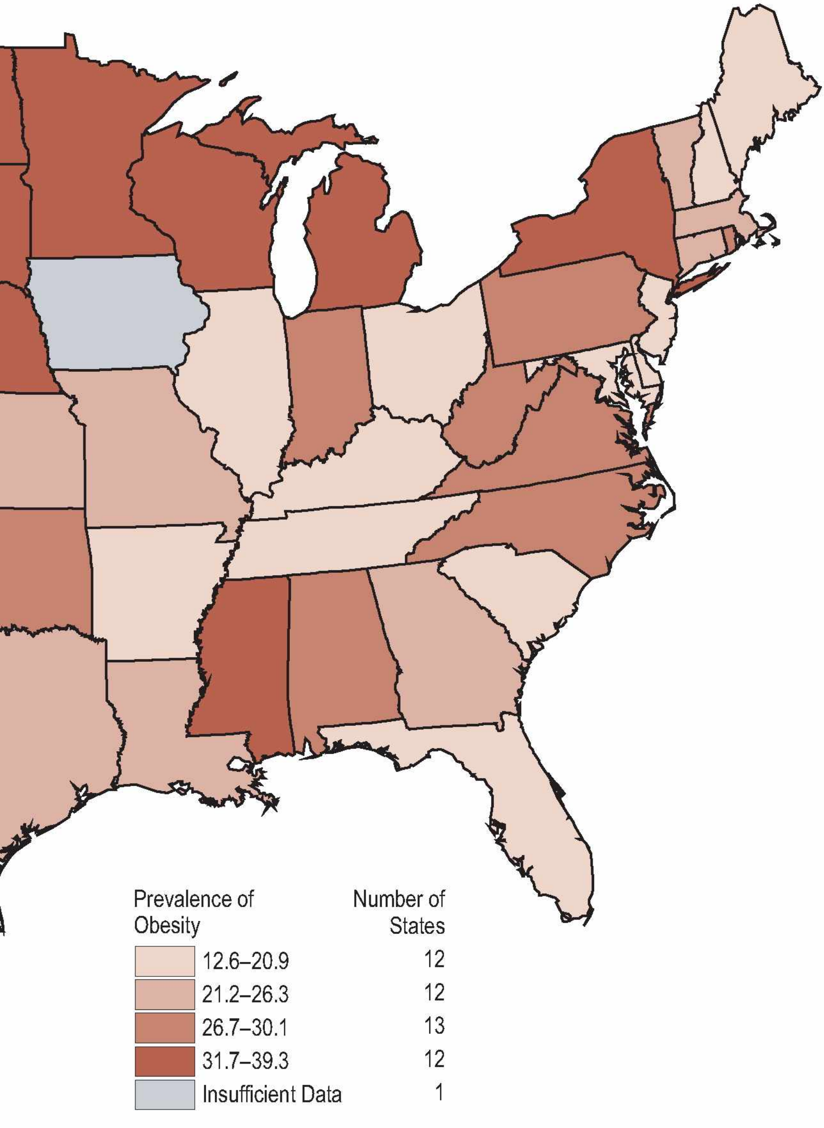


Table 6. Prevalence of Self-Reported Obesity Among American Indians and Alaska Natives, by State,

State	Total Population Respondents	Total Population %	Total Population 95% C.I.†	Women Respondents	Women %	Women 95% C.I.†	Men Respondents	Men %	Men 95% C.I.†
Alabama	116	29.4	20.6–38.2	57	35.8	20.6–51.1	59	27.6	17.5–37.7
Alaska	1521	29.1	25.5–32.6	856	32.3	27.3–37.4	665	25.4	20.6–30.1
Arizona	383	35.2	28.5–42.0	246	32.8	24.1–41.5	137	35.5	26.4–44.5
Arkansas	164	20.1	13.8–26.4	91	22.0	13.5–30.5	73	18.2	8.8–27.4
California	119	28.0	19.3–36.7	75	28.8	18.3–39.2	44	‡	13.7–40.4
Colorado	76	28.9	16.9–40.8	49	‡	16.6–40.2	27	‡	
Connecticut	98	21.2	12.0–30.4	48	‡		50	27.9	14.4–41.3
Delaware	80	16.8	8.5–25.2	40	‡		40	‡	
District of Columbia	31	‡		13	‡		18	‡	
Florida	153	17.0	9.4–24.5	78	11.9	4.5–19.4	75	21.1	9.7–32.4
Georgia	135	25.1	16.9–33.3	70	28.7	15.9–41.4	65	23.2	12.7–33.6
Hawaii	80	34.2	18.7–49.8	44	‡		36	‡	
Idaho	177	29.5	22.0–37.1	104	39.1	28.1–50.1	73	18.9	9.7–28.1
Illinois	110	19.2	10.8–27.7	65	20.6	10.9–30.2	45	‡	
Indiana	112	28.5	19.5–37.5	56	33.0	19.6–46.4	56	24.9	12.5–37.2
Iowa	38	‡		24	‡		14	‡	
Kansas	130	26.2	18.2–34.2	74	21.4	11.6–31.1	56	33.2	21.0–45.4
Kentucky	93	20.1	10.8–29.3	31	‡		62	28.5	13.2–43.8
Louisiana	140	23.4	15.8–31.1	89	18.7	9.7–27.6	51	33.0	19.2–46.8
Maine	80	19.1	10.9–27.3	41	‡		39	‡	
Maryland	99	12.6	5.8–19.4	49	‡		50	17.7	6.7–28.8
Massachusetts	134	21.5	12.5–30.4	76	28.6	17.6–39.6	58	16.2	5.2–27.2
Michigan	98	35.6	23.8–47.3	51	32.8	20.3–45.4	47	‡	
Minnesota	83	38.1	26.9–49.2	47	‡		36	‡	
Mississippi	59	39.3	25.1–53.6	38	‡		21	‡	
Missouri	153	24.8	16.7–32.9	72	24.3	13.4–35.2	81	24.5	14.1–34.9
Montana	1061	38.0	33.7–42.3	634	35.3	29.3–41.2	427	41.5	35.4–47.6
Nebraska	70	35.0	22.2–47.8	42	‡		28	‡	
Nevada	128	24.1	12.5–35.6	65	26.7	13.3–40.1	63	15.1	6.8–23.3
New Hampshire	120	20.6	13.3–27.9	53	14.5	5.3–23.6	67	24.4	14.2–34.5
New Jersey	123	15.9	7.5–24.4	68	13.6	4.4–22.9	55	21.5	7.5–35.5
New Mexico	537	31.7	26.6–36.8	303	34.2	27.3–41.1	234	29.3	22.3–36.3

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	101	39.1	26.9–51.2	62	38.8	26.1–51.5	39	‡	
North Carolina	465	29.1	22.7–35.6	293	31.3	22.7–39.9	172	27.2	17.9–36.5
North Dakota	244	36.0	28.1–43.9	151	34.0	24.3–43.8	93	37.1	25.1–49.2
Ohio	94	18.2	10.3–26.1	43	‡		51	18.7	7.9–29.5
Oklahoma	1319	29.7	26.9–32.6	811	29.9	26.2–33.5	508	29.6	25.1–34.0
Oregon	155	29.3	21.2–37.5	80	22.5	13.2–31.8	75	34.5	22.3–46.6
Pennsylvania	96	26.7	15.9–37.5	46	‡		50	21.1	10.9–31.4
Rhode Island	94	28.0	17.2–38.8	50	31.3	17.5–45.1	44	‡	
South Carolina	117	20.9	13.2–28.5	58	17.1	8.8–25.5	59	20.9	10.7–31.1
South Dakota	656	36.4	31.8–40.9	411	33.4	28.2–38.7	245	39.3	32.1–46.6
Tennessee	52	18.8	9.7–27.8	24	‡		28	‡	
Texas	160	25.9	18.3–33.5	92	26.6	16.1–37.1	68	27.5	14.8–40.2
Utah	90	25.4	15.2–35.5	46	‡		44	‡	
Vermont	110	23.3	14.4–32.3	41	‡		69	20.6	11.0–30.3
Virginia	99	28.0	17.4–38.5	45	‡		54	27.9	15.1–40.7
Washington	455	30.1	23.4–36.7	238	32.6	24.1–41.0	217	28.6	19.3–37.9
West Virginia	75	27.8	17.3–38.4	35	‡		40	‡	
Wisconsin	141	32.3	24.5–39.9	73	35.0	24.2–45.7	68	27.6	17.3–37.9
Wyoming	143	24.0	16.2–31.8	84	24.7	14.7–34.6	59	20.7	9.8–31.5
United States	**11167**	**27.8**	**25.9–29.7**	**6332**	**28.3**	**25.7–30.9**	**4835**	**27.1**	**24.5–29.7**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	3262	26.7	23.9–29.6	1913	27.7	24.0–31.4	1349	25.9	21.8–30.0
Northern Plains	2646	35.1	30.7–39.5	1573	35.9	30.6–41.1	1073	33.1	27.1–39.2
Southwest	1214	31.7	27.5–35.8	709	30.9	25.3–36.5	505	30.8	25.8–35.9
Pacific Coast	906	29.0	22.7–35.4	497	30.0	21.8–38.1	409	27.9	18.7–37.0
Alaska	1521	29.1	25.5–32.6	856	32.3	27.3–37.4	665	25.4	20.6–30.1

* Data are based on self-reported height and weight from the BRFSS, which was used to calculate body mass index (BMI). BMI >30.0 was considered obese. Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

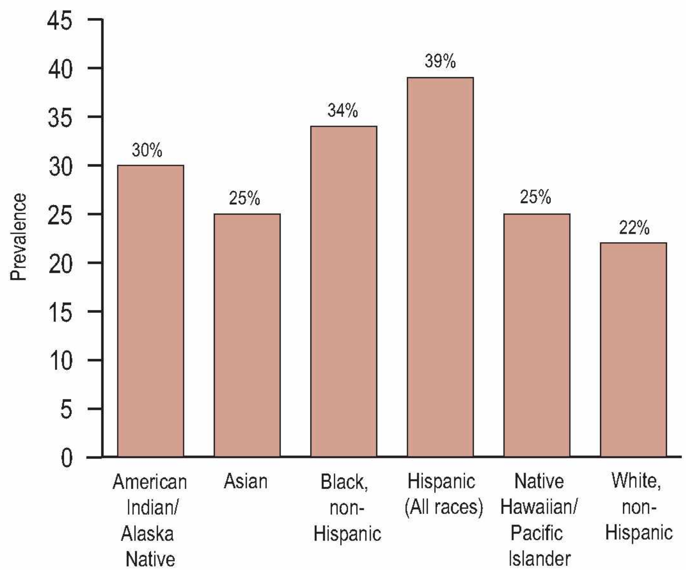
§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

Physical inactivity and unhealthy diets are leading causes of preventable death in the United States (*JAMA* 2004;291: 1238–42). In addition to reducing a person's risk for death, increased physical activity can reduce the risk for chronic diseases and conditions such as cardiovascular disease, diabetes, obesity, and musculoskeletal conditions (*Proceedings of the 1992 International Conference on Physical Activity, Fitness and Health;* 1994).

CDC recommends at least 30 minutes of moderate-intensity physical activity (e.g., walking briskly, mowing the lawn, dancing, swimming, bicycling) at least 5 days a week (*Physical Activity and Health: A Report of the Surgeon General;* 1996).

Healthy People 2010 calls for reducing the proportion of the total U.S. population with no leisure-time physical activity to 20%. It also seeks to increase the proportion of people who regularly participate in moderate physical activity to 30%.

Figure 7. Prevalence of Self-Reported Physical Inactivity Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001–2003



The IHS is implementing community-based programs that promote healthier diets and increased physical activity among American Indian and Alaska Native (AI/AN) people in the context of their traditional values and cultures.

Definition of Physical Inactivity

We defined self-reported physical inactivity on the basis of "no" responses to the following Behavioral Risk Factor Surveillance System (BRFSS) question during 2001–2003: "During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?" Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

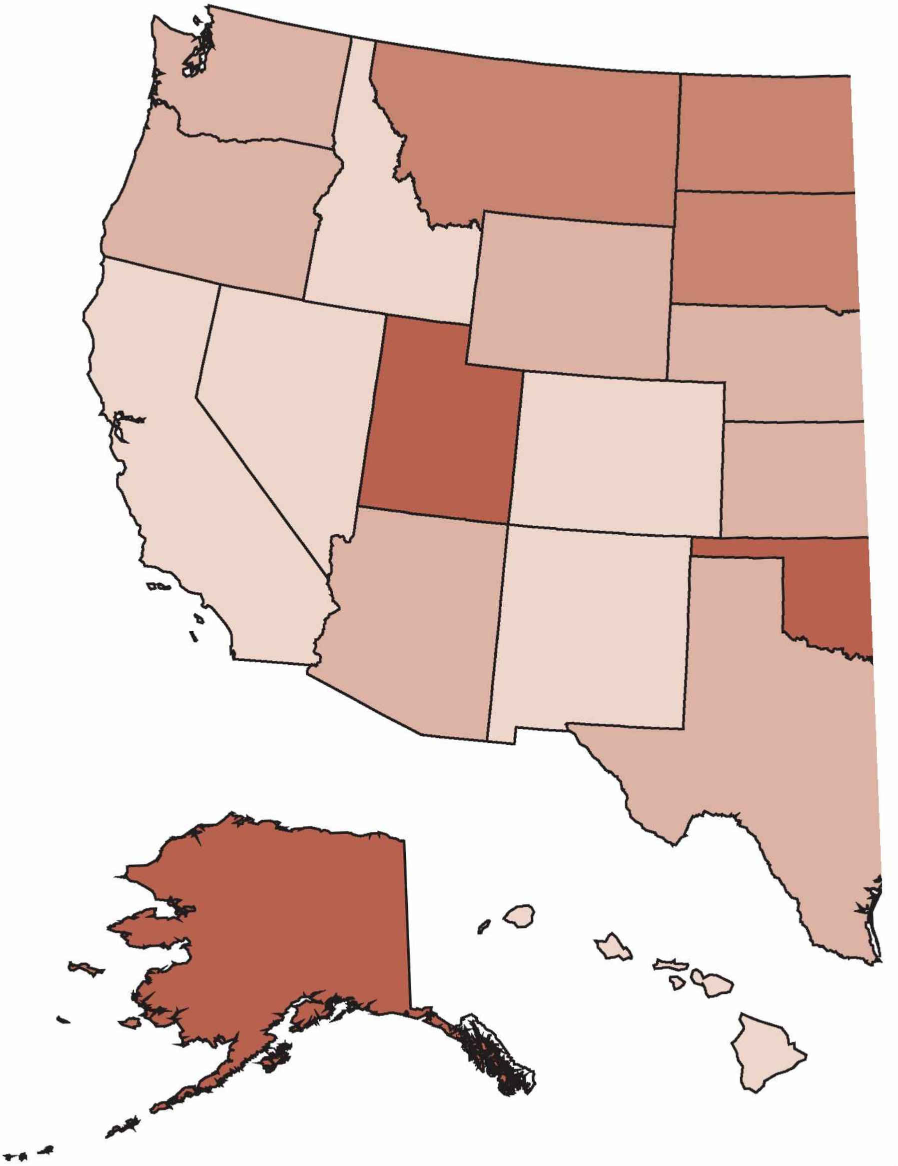
We found dramatic state-to-state differences in the prevalence of physical inactivity among AI/AN people (see facing map and Table 7). A 1.7-fold difference existed between the midpoint of the lowest quartile (23%) and that of the highest quartile (40%).

The national prevalence for all AI/AN people was 30%. The prevalence was higher for women (32%) than for men (28%). The prevalence for AI/AN people was lower than those for blacks and Hispanics and somewhat higher than those for other U.S. racial/ethnic groups (see Figure 7).

A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of physical inactivity and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for more details).

Prevalence of Self-Reported Physical Inactivity 2001–2003



American Indians and Alaska Natives Ages 18 Years and Older

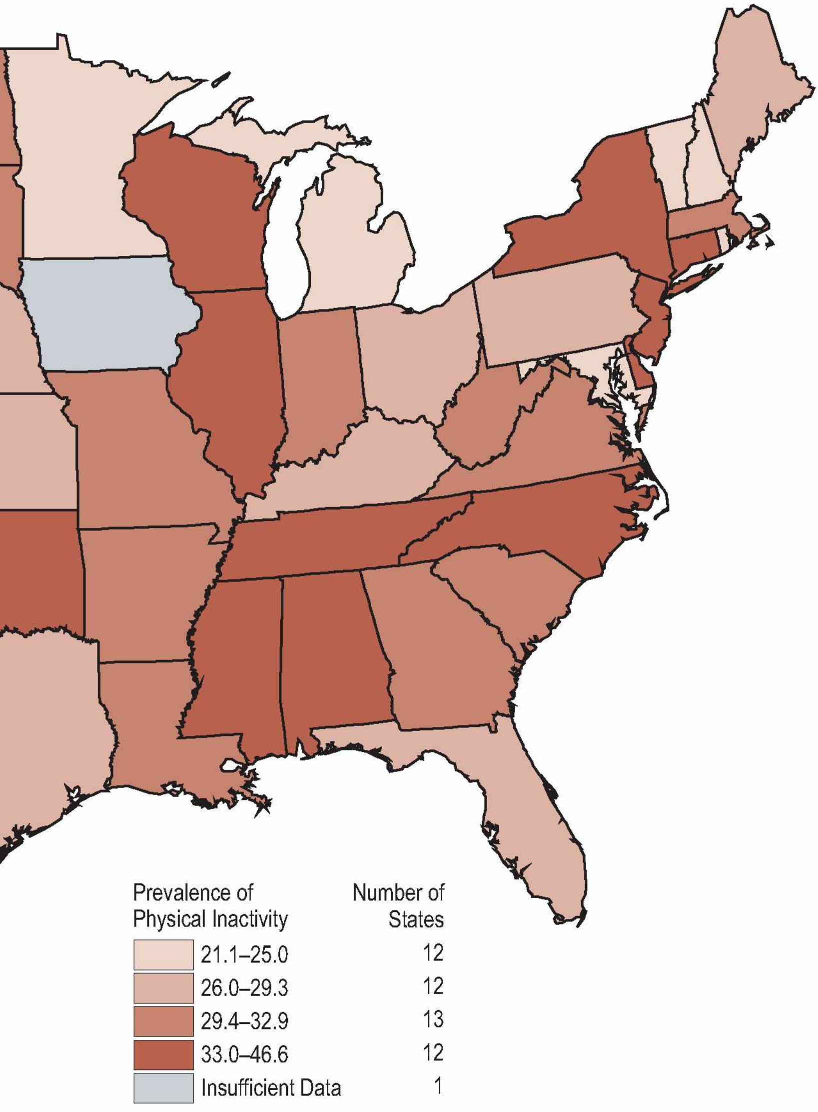


Table 7. Prevalence of Self-Reported Physical Inactivity Among American Indians and Alaska Natives, by State,

State	Total Population			Women			Men		
	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†
Alabama	118	35.2	24.0–46.4	59	34.7	22.0–47.4	59	37.6	22.4–52.9
Alaska	1582	32.5	28.6–36.3	910	38.4	32.9–43.9	672	25.8	21.3–30.4
Arizona	394	27.9	21.1–34.7	254	30.4	21.7–39.2	140	24.4	14.7–34.1
Arkansas	169	32.9	25.0–40.8	95	33.9	23.2–44.6	74	29.7	18.8–40.6
California	113	21.6	13.4–29.7	71	20.8	11.7–29.9	42	‡	
Colorado	80	21.1	9.9–32.4	53	22.4	9.6–35.1	27	‡	
Connecticut	102	46.6	35.3–57.8	51	46.7	33.5–59.9	51	41.7	27.4–56.0
Delaware	86	35.4	22.2–48.7	46	‡		40	‡	
District of Columbia	32	‡		14	‡		18	‡	
Florida	155	29.3	19.6–39.0	80	34.3	20.2–48.3	75	26.2	13.8–38.5
Georgia	139	29.4	19.6–39.2	73	30.6	18.5–42.6	66	28.0	15.6–40.5
Hawaii	82	25.0	13.8–36.2	45	‡		37	‡	
Idaho	188	23.1	16.2–29.9	114	19.9	11.4–28.4	74	26.0	15.9–36.1
Illinois	117	33.0	23.8–42.3	68	33.5	21.5–45.4	49	‡	
Indiana	119	32.5	23.2–41.7	63	30.7	19.2–42.2	56	34.0	20.8–47.3
Iowa	39	‡		25	‡		14	‡	
Kansas	137	28.6	20.2–36.9	80	22.2	12.2–32.3	57	32.2	20.3–44.1
Kentucky	99	28.1	18.2–37.9	36	‡		63	33.2	22.2–44.1
Louisiana	150	32.8	24.8–40.9	97	34.4	24.8–44.1	53	37.6	25.3–49.9
Maine	90	27.0	17.3–36.6	50	24.7	14.4–34.9	40	‡	
Maryland	102	24.9	14.0–35.8	52	40.0	24.7–55.3	50	16.5	5.5–27.5
Massachusetts	148	31.2	21.0–41.4	89	39.7	27.1–52.4	59	23.0	9.8–36.2
Michigan	102	24.6	15.9–33.3	55	18.7	8.3–29.1	47	‡	
Minnesota	85	23.7	14.1–33.3	49	‡		36	‡	
Mississippi	63	38.0	24.4–51.5	42	‡		21	‡	
Missouri	159	31.0	23.4–38.6	77	26.2	15.3–37.0	82	36.8	26.6–47.0
Montana	1088	31.5	27.2–35.7	658	31.3	25.6–37.0	430	32.2	26.2–38.1
Nebraska	74	28.9	18.1–39.8	45	‡		29	‡	
Nevada	132	24.5	13.2–35.9	68	32.5	16.5–48.5	64	13.7	6.3–21.1
New Hampshire	126	21.9	14.6–29.2	58	26.3	14.1–38.4	68	18.5	9.9–27.1
New Jersey	129	40.6	27.2–54.0	73	39.9	25.4–54.3	56	38.7	23.7–53.7
New Mexico	552	23.7	19.3–28.1	314	26.5	20.7–32.4	238	20.2	14.3–26.1

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	106	34.5	23.5–45.5	65	42.6	29.4–55.7	41	‡	
North Carolina	483	38.1	30.9–45.3	307	37.2	28.8–45.6	176	39.0	27.6–50.4
North Dakota	251	30.2	23.0–37.4	156	27.1	19.0–35.3	95	35.4	23.9–46.9
Ohio	97	27.5	17.5–37.5	46	‡		51	32.4	18.6–46.2
Oklahoma	1374	34.4	31.5–37.3	859	38.5	34.7–42.2	515	29.7	25.3–34.1
Oregon	164	28.5	21.2–35.8	89	24.9	15.2–34.6	75	32.8	21.8–43.9
Pennsylvania	96	28.4	16.8–40.0	48	‡		48	‡	
Rhode Island	99	21.6	13.2–30.1	53	35.1	23.1–47.1	46	‡	
South Carolina	123	31.3	21.8–40.8	64	21.0	11.2–30.9	59	38.2	24.2–52.3
South Dakota	671	31.6	27.1–36.1	426	30.3	24.9–35.7	245	33.6	26.6–40.6
Tennessee	56	38.1	25.2–51.0	27	‡		29	‡	
Texas	164	28.8	21.2–36.3	95	35.4	25.0–45.9	69	20.7	10.2–31.2
Utah	90	36.9	26.0–47.8	46	‡		44	‡	
Vermont	119	23.9	15.7–32.1	48	‡		71	24.1	13.7–34.5
Virginia	101	32.4	22.4–42.4	47	‡		54	23.9	11.1–36.8
Washington	475	26.8	20.3–33.3	255	30.3	21.4–39.2	220	24.6	15.9–33.4
West Virginia	76	30.3	19.7–40.9	36	‡		40	‡	
Wisconsin	144	36.9	28.6–45.1	76	37.5	26.4–48.5	68	37.2	24.8–49.5
Wyoming	145	26.0	18.5–33.5	85	28.0	18.1–37.9	60	24.9	13.5–36.3
United States	**11585**	**29.7**	**27.9–31.6**	**6692**	**31.6**	**29.1–34.0**	**4893**	**28.1**	**25.4–30.7**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	3408	32.5	29.6–35.4	2039	36.2	32.4–40.0	1369	29.1	24.8–33.4
Northern Plains	2718	29.9	26.4–33.4	1638	29.9	25.2–34.5	1080	30.4	25.3–35.5
Southwest	1248	26.3	22.5–30.2	735	28.4	23.1–33.8	513	22.9	17.9–27.8
Pacific Coast	940	23.1	17.2–29.0	529	22.0	15.0–28.9	411	24.3	14.9–33.7
Alaska	1582	32.5	28.6–36.3	910	38.4	32.9–43.9	672	25.8	21.3–30.4

* Data are based on "yes" responses to the following BRFSS question: "During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996*.

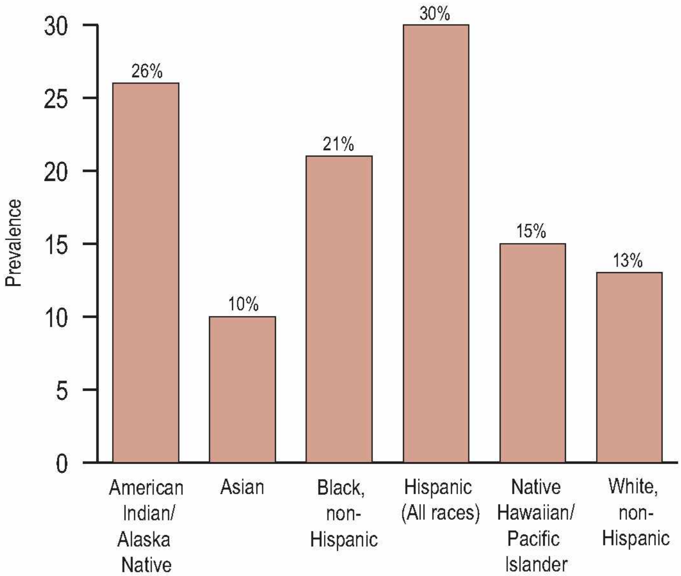
Poor Health

Self-perception of health is often used as a representative measurement of a range of factors that can affect a person's general health and functional status. For example, studies show that a person's perception of his general health can predict his risk for death and disability. Even after adjusting for socioeconomic (e.g., education) and health risk (e.g., number of physician visits) variables, people who report poor or fair health have an approximately twofold greater risk of death (*Am J Epidemiol* 1999;149:41–66).

People who report poor health also are more likely to think that they are at greater risk of having a heart attack (*Behav Med* 2000;26:4–13). In addition, self-perception of poor health has been linked to risk factors associated with heart disease and stroke, such as diabetes, smoking, high blood pressure, and physical inactivity (*MMWR* 1996;46:906–11).

To support the *Healthy People 2010* goal of increasing Americans' quality and years of healthy life, CDC developed

Figure 8. Prevalence of Self-Reported Poor Health Among Adults ≥18 Years by Race/Ethnicity, BRFSS, 2001–2003



the Healthy Days surveillance measure to monitor leading health indicators such as physical activity, obesity, and tobacco use (*Measuring Healthy Days;* 2000). The resulting data can guide policy changes designed to improve the health of the nation and decrease the number of people reporting poor general health.

Definition of Poor Health

We defined self-reported poor health on the basis of "poor" responses to the following Behavioral Risk Factor Surveillance System (BRFSS) question during 2001–2003: "Would you say that in general your health is excellent, very good, good, fair, or poor?" Age-adjusted prevalences were calculated for adults ages ≥18 years.

Prevalence Variations

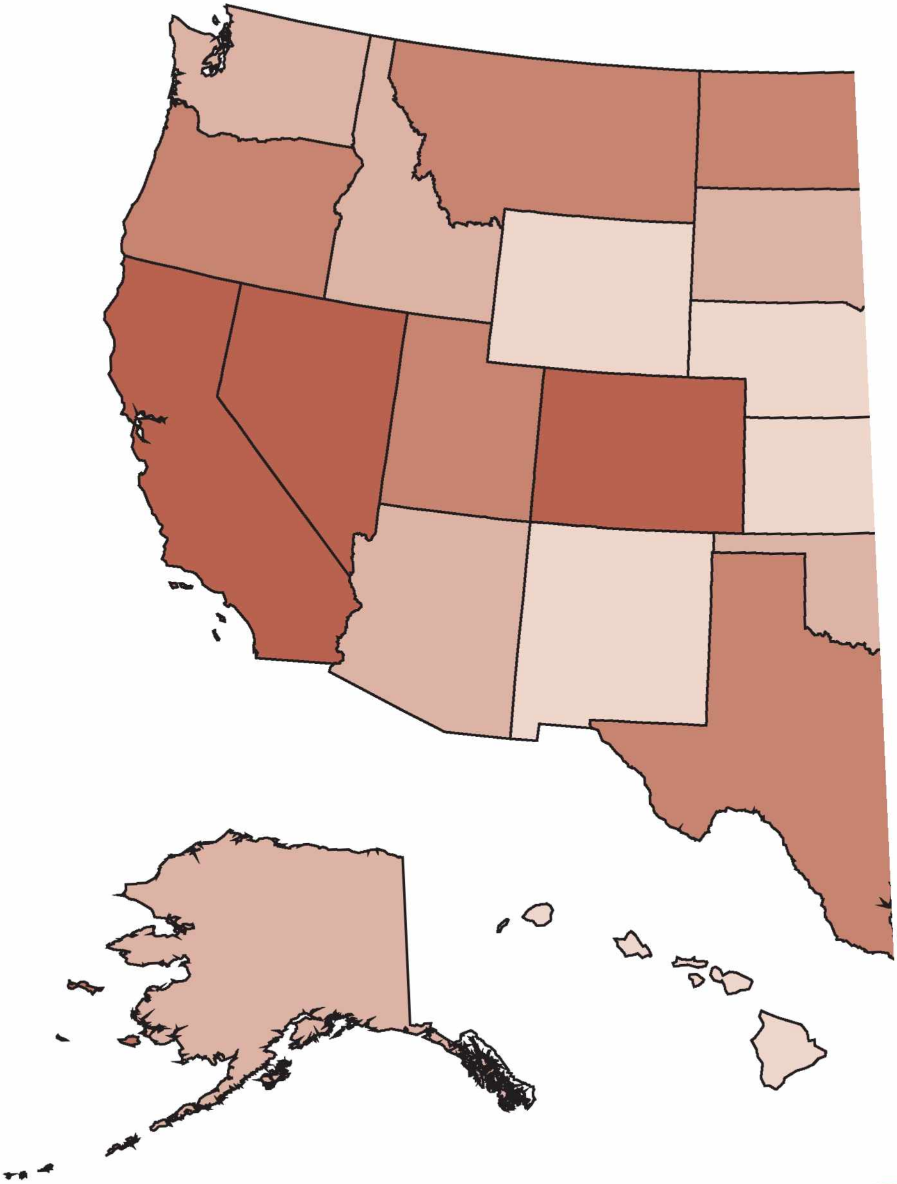
We found substantial state-to-state differences in the prevalence of poor health among American Indian and Alaska Native (AI/AN) people (see facing map and Table 8). A two-fold difference existed between the midpoint of the lowest quartile (18%) and that of the highest quartile (36%).

The national prevalence for all AI/AN people was 26%. The prevalence was higher for women (28%) than for men (24%). AI/AN people ranked second among U.S. racial/ethnic groups, with only Hispanics having a higher prevalence (see Figure 8).

A Cautionary Note

Prevalences are based on a sample of AI/AN people surveyed by telephone for the BRFSS. They are likely lower than the true prevalence of poor health and are more representative of AI/AN people living in urban rather than rural areas or on reservations (see Appendix B for more details).

Prevalence of Self-Reported Poor Health 2001–2003



American Indians and Alaska Natives
Ages 18 Years and Older

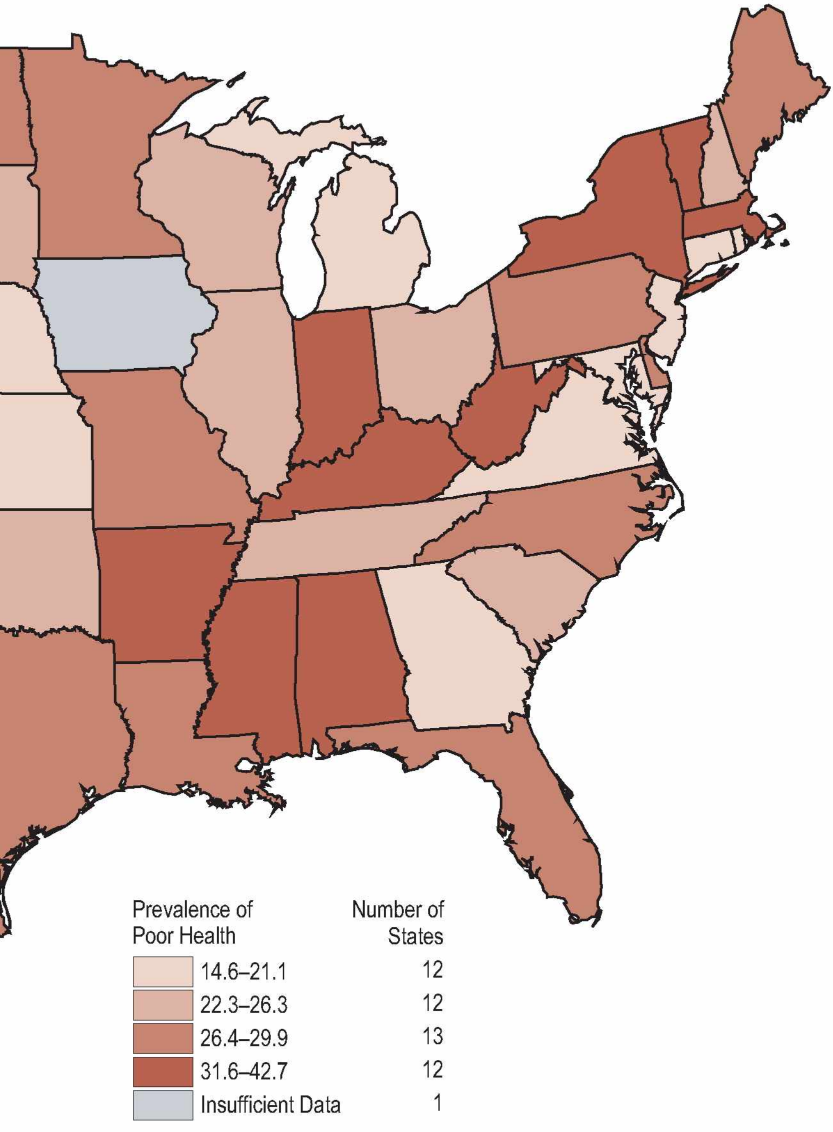


Table 8. Prevalence of Self-Reported Poor Health Among American Indians and Alaska Natives, by State,

	Total Population			Women			Men		
State	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†	Respondents	%	95% C.I.†
Alabama	118	35.6	26.5–44.6	59	40.5	31.3–49.7	59	34.0	21.6–46.4
Alaska	1581	22.3	18.7–25.9	910	24.0	18.6–29.3	671	20.8	16.1–25.4
Arizona	393	25.7	18.6–32.8	255	23.6	15.4–31.7	138	31.2	21.1–41.2
Arkansas	166	32.7	24.9–40.5	93	29.7	20.2–39.2	73	36.3	24.3–48.2
California	120	32.1	22.6–41.7	75	34.9	23.4–46.3	45	‡	
Colorado	80	33.1	25.1–41.1	53	34.6	24.7–44.5	27	‡	
Connecticut	101	16.6	8.4–24.9	50	19.6	7.7–31.5	51	13.7	4.3–23.0
Delaware	86	28.4	17.2–39.5	46	‡	13.4–42.0	40	‡	
District of Columbia	32	‡	3.2–23.4	14	‡		18	‡	
Florida	155	28.0	18.9–37.0	80	34.9	22.0–47.7	75	22.1	10.7–33.5
Georgia	138	20.3	12.6–28.0	72	24.7	13.1–36.4	66	17.3	7.8–26.7
Hawaii	82	18.9	6.7–31.1	45	‡		37	‡	
Idaho	188	25.0	18.1–31.8	115	28.8	19.8–37.9	73	20.0	10.7–29.3
Illinois	116	25.2	17.2–33.2	67	29.2	78.5–39.8	49	‡	
Indiana	119	34.1	24.4–43.8	63	37.3	24.6–49.9	56	29.9	15.7–44.1
Iowa	39	‡		25	‡		14	‡	
Kansas	137	19.0	11.9–26.1	80	22.5	12.2–32.9	57	15.1	6.5–23.7
Kentucky	99	37.6	25.6–49.7	36	‡		63	34.2	23.0–45.4
Louisiana	149	29.1	21.5–36.7	96	31.4	21.1–41.6	53	22.4	11.4–33.5
Maine	89	26.6	16.9–36.3	50	29.8	16.8–42.8	39	‡	
Maryland	101	20.9	10.2–31.5	52	16.2	6.4–26.0	49	‡	
Massachusetts	148	32.1	21.8–42.4	89	33.9	22.8–44.9	59	28.3	13.5–43.0
Michigan	102	20.0	11.4–28.5	55	24.5	11.9–37.2	47	‡	
Minnesota	85	29.8	20.1–39.5	49	‡		36	‡	
Mississippi	61	38.7	25.3–52.1	40	‡		21	‡	
Missouri	159	29.1	20.3–37.8	77	28.4	17.8–38.9	82	28.6	17.3–40.0
Montana	1089	28.3	24.3–32.2	659	30.4	25.1–35.7	430	25.8	20.4–31.2
Nebraska	74	19.7	9.3–30.0	45	‡		29	‡	
Nevada	132	36.6	25.9–47.2	68	39.9	26.4–53.5	64	25.8	12.5–39.1
New Hampshire	126	23.4	15.7–31.1	58	33.4	21.7–45.2	68	17.2	7.3–27.1
New Jersey	129	14.6	5.7–23.6	73	11.1	3.0–19.1	56	17.1	3.9–30.4
New Mexico	551	16.6	12.9–20.4	314	21.7	16.4–27.0	237	11.9	7.0–16.8

Note: To compare these prevalances with those for the total U.S. population, see Appendix A.

Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

	Total Population			Women			Men		
State	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**	**Respondents**	**%**	**95% C.I.†**
New York	107	31.6	21.2–42.0	66	26.9	15.7–38.1	41	‡	
North Carolina	481	28.1	21.9–34.4	305	28.8	21.5–36.0	176	27.4	17.7–37.1
North Dakota	250	29.9	22.7–37.1	156	31.8	23.0–40.6	94	28.2	16.4–39.9
Ohio	98	26.3	16.3–36.3	46	‡		52	21.7	10.3–33.1
Oklahoma	1370	24.1	21.6–26.6	858	26.3	23.1–29.6	512	21.7	17.7–25.6
Oregon	163	26.4	19.5–33.3	89	23.4	14.6–32.3	74	27.8	17.6–38.0
Pennsylvania	98	27.5	17.0–38.1	48	‡		50	28.4	14.9–41.8
Rhode Island	99	15.9	8.7–23.1	53	18.8	8.2–29.4	46	‡	
South Carolina	121	25.1	16.3–34.0	63	19.9	9.4–30.4	58	27.0	15.1–39.0
South Dakota	667	22.7	18.7–26.6	423	24.1	19.4–28.7	244	21.1	14.9–27.2
Tennessee	56	25.1	15.9–34.3	27	‡		29	‡	
Texas	164	26.4	19.0–33.7	95	29.0	18.9–39.1	69	21.4	11.1–31.6
Utah	89	28.5	16.3–40.6	45	‡		44	‡	
Vermont	119	31.6	22.1–41.2	48	‡		71	37.5	25.0–50.0
Virginia	101	21.1	12.8–29.4	47	‡		54	23.9	13.7–34.1
Washington	477	22.6	16.8–28.4	256	27.2	19.1–35.2	221	19.8	12.0–27.6
West Virginia	76	42.7	31.1–54.2	36	‡		40	‡	
Wisconsin	144	22.6	14.4–30.9	76	21.7	10.8–32.7	68	23.3	11.0–35.6
Wyoming	144	19.8	12.6–26.9	85	26.4	16.7–36.1	59	8.7	1.9–15.5
United States	**11569**	**26.2**	**24.4–28.1**	**6685**	**28.0**	**25.5–30.5**	**4884**	**24.3**	**21.7–27.0**

Region§	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**	**Respondents**	**%**	**95% C.I.**
East	3398	26.6	23.9–29.3	2032	28.5	25.0–32.1	1366	24.4	20.6–28.3
Northern Plains	2713	24.8	21.3–28.2	1636	26	21.5–30.6	1077	23.8	18.9–28.7
Southwest	1245	25.6	21.6–29.5	735	26.6	21.5–31.8	510	23.7	18.3–29.2
Pacific Coast	948	29.2	22.4–36.0	535	32.2	23.7–40.7	413	25.3	15.4–35.2
Alaska	1581	22.3	18.7–25.9	910	24	18.6–29.3	671	20.8	16.1–25.4

* Data are based on people who answered "poor" to the following BRFSS question: "Would you say that in general your health is excellent, very good, good, fair, or poor?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

‡ Estimates for states with <50 respondents are considered unstable and are not reported.

§ The Indian Health Service (IHS) provides services to American Indians and Alaska Natives in 35 states. Only these 35 states were used for the regional estimates. Regions are defined as follows: East = Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Texas, Oklahoma, and Kansas. Northern Plains = Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Southwest = Arizona, Colorado, Nevada, New Mexico, and Utah. Pacific Coast = California, Idaho, Oregon, and Washington. Alaska = Alaska. These regional definitions were first used in CDC's *Health Behaviors of American Indians and Alaska Natives: Findings from the Behavioral Risk Factor Surveillance System, 1993–1996.*

A

Risk Factors for Heart Disease and Stroke Among the Total U.S. Population, by State

Table A-1. Prevalence of Self-Reported High Blood Pressure Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

State	Respondents	%	95% C.I.†
Alabama	6072	31.8	30.5–33.0
Alaska	5470	23.7	22.1–25.3
Arizona	6400	22.8	21.4–24.2
Arkansas	7075	28.8	27.7–29.9
California	8712	24.1	23.1–25.1
Colorado	6048	21.6	20.5–22.7
Connecticut	12799	22.9	22.2–23.7
Delaware	7487	27.1	25.9–28.3
District of Columbia	3834	28.1	26.5–29.7
Florida	9562	25.2	24.1–26.3
Georgia	12052	28.7	27.7–29.7
Hawaii	8751	23.0	22.0–24.0
Idaho	9740	23.9	23.0–24.8
Illinois	7411	24.7	23.7–25.7
Indiana	9394	26.0	25.1–26.9
Iowa	8564	23.8	22.9–24.8
Kansas	9109	23.1	22.2–23.9
Kentucky	15073	29.5	28.5–30.5
Louisiana	9978	28.7	27.8–29.7
Maine	4750	24.3	23.1–25.5
Maryland	8739	25.8	24.7–26.8
Massachusetts	15883	22.8	22.0–23.5
Michigan	7310	26.8	25.7–27.9
Minnesota	7829	22.0	21.2–22.9
Mississippi	7393	32.8	31.6–33.9
Missouri	8357	26.1	25.0–27.3
Montana	7321	22.9	21.7–24.0
Nebraska	8601	22.2	21.4–23.1
Nevada	5519	24.4	22.9–26.0
New Hampshire	8959	22.6	21.7–23.5
New Jersey	17000	24.9	24.1–25.6
New Mexico	9067	20.6	19.7–21.5
New York	9277	25.1	24.2–26.1
North Carolina	15513	27.7	26.7–28.7
North Dakota	5468	23.2	22.1–24.3
Ohio	7149	25.6	24.5–26.8
Oklahoma	12091	27.5	26.6–28.4
Oregon	6493	23.6	22.6–24.7
Pennsylvania	7264	25.6	24.5–26.6
Rhode Island	8035	26.2	25.2–27.2
South Carolina	8996	28.7	27.7–29.7
South Dakota	10285	23.4	22.6–24.2
Tennessee	5481	29.4	28.1–30.7
Texas	11851	26.2	25.4–27.0
Utah	7654	22.9	21.8–24.1
Vermont	8465	21.8	21.0–22.7
Virginia	8274	25.4	24.3–26.4
Washington	22709	24.1	23.4–24.9
West Virginia	6403	30.9	29.8–32.1
Wisconsin	7348	23.5	22.5–24.5
Wyoming	6983	22.9	21.9–23.9
United States	**455998**	**25.5**	**25.3–25.7**

* Data are based on "yes" responses to the following BRFSS question: "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-2. Prevalence of Self-Reported High Cholesterol Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

State	Respondents	%	95% C.I.†
Alabama	4766	31.1	29.5–32.6
Alaska	3953	26.7	24.8–28.6
Arizona	4957	28.9	27.3–30.6
Arkansas	5390	28.1	26.8–29.4
California	6801	29.7	28.5–31.0
Colorado	4743	28.2	26.8–29.7
Connecticut	10727	27.3	26.4–28.3
Delaware	6236	29.9	28.5–31.3
District of Columbia	3241	28.3	26.5–30.1
Florida	7816	28.7	27.4–30.0
Georgia	9652	31.1	29.9–32.3
Hawaii	6778	23.6	22.3–24.9
Idaho	7146	27.1	25.9–28.2
Illinois	5718	29.4	28.1–30.8
Indiana	7292	29.0	27.9–30.1
Iowa	6769	26.8	25.7–28.0
Kansas	6947	26.3	25.2–27.4
Kentucky	11549	30.5	29.3–31.8
Louisiana	7507	27.0	25.9–28.1
Maine	3962	28.5	26.9–30.0
Maryland	7348	30.5	29.1–31.8
Massachusetts	13335	28.7	27.8–29.6
Michigan	5989	32.4	31.1–33.8
Minnesota	6399	27.6	26.5–28.8
Mississippi	5531	29.3	28.0–35.1
Missouri	6404	28.7	27.3–30.2
Montana	5543	25.2	23.7–26.6
Nebraska	6411	25.8	24.5–27.0
Nevada	4140	33.0	31.0–35.1
New Hampshire	7526	29.7	28.6–30.9
New Jersey	14235	29.2	28.3–30.2
New Mexico	6799	23.1	22.0–24.2
New York	7590	30.1	28.9–31.3
North Carolina	12524	28.9	27.7–30.0
North Dakota	4211	26.9	25.5–28.2
Ohio	5579	29.9	28.8–31.4
Oklahoma	9304	27.6	26.5–28.7
Oregon	5002	28.6	27.2–29.9
Pennsylvania	5798	29.6	28.4–30.9
Rhode Island	6836	30.9	29.6–32.2
South Carolina	7410	28.2	27.1–29.4
South Dakota	7911	26.1	25.1–27.2
Tennessee	4198	28.7	27.2–30.2
Texas	9011	30.4	29.4–31.4
Utah	5558	26.8	25.4–28.5
Vermont	7025	27.4	26.3–28.5
Virginia	6801	29.5	28.2–30.8
Washington	17950	28.2	27.3–29.1
West Virginia	5168	33.2	31.8–34.7
Wisconsin	5827	27.5	26.3–28.7
Wyoming	5528	29.5	28.2–30.8
United States	**360841**	**29.3**	**29.1–29.6**

* Data are based on "yes" responses to the following BRFSS question: "Have you ever been told by a doctor or other health professional that your blood cholesterol is high?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-3. Prevalence of Self-Reported Cholesterol Screening Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001 and 2003 Combined*

State	Respondents	%	95% C.I.†
Alabama	5919	73.0	71.7–74.2
Alaska	5268	68.9	67.2–70.6
Arizona	6254	71.1	69.4–72.7
Arkansas	6826	69.6	68.4–70.9
California	8581	71.5	70.4–72.6
Colorado	5885	71.5	70.2–72.8
Connecticut	12493	78.5	77.6–79.4
Delaware	7347	77.8	76.5–79.0
District of Columbia	3744	81.2	79.6–82.7
Florida	9356	77.0	75.7–78.2
Georgia	11602	75.5	74.4–76.5
Hawaii	8599	73.3	72.1–74.5
Idaho	9412	66.5	65.4–67.5
Illinois	7249	70.5	69.3–71.7
Indiana	9131	71.7	70.7–72.7
Iowa	8308	70.0	68.9–71.2
Kansas	8821	70.3	69.3–71.4
Kentucky	14483	72.7	71.6–73.8
Louisiana	9634	72.3	71.3–73.3
Maine	4610	75.5	74.0–76.9
Maryland	8529	78.6	77.5–79.7
Massachusetts	15466	80.9	80.1–81.6
Michigan	7107	74.1	72.9–75.2
Minnesota	7549	75.6	74.6–76.7
Mississippi	7059	70.6	69.4–71.8
Missouri	8114	70.9	69.6–72.2
Montana	7136	68.2	66.8–69.7
Nebraska	8353	66.7	65.6–67.9
Nevada	5347	69.3	67.6–71.0
New Hampshire	8740	77.5	76.5–78.5
New Jersey	16633	77.9	77.1–78.8
New Mexico	8865	67.9	66.8–69.1
New York	9048	76.2	75.1–77.3
North Carolina	15074	74.7	73.5–75.8
North Dakota	5323	69.8	68.5–71.1
Ohio	6951	72.0	70.8–73.3
Oklahoma	11637	70.6	69.6–71.7
Oregon	6283	68.4	67.1–69.6
Pennsylvania	7070	73.7	72.5–74.8
Rhode Island	7829	80.7	79.5–81.8
South Carolina	8768	77.8	76.7–78.9
South Dakota	9994	68.7	67.7–69.6
Tennessee	5320	72.0	70.6–73.4
Texas	11565	70.3	69.4–71.2
Utah	7391	69.2	68.0–70.5
Vermont	8241	75.4	74.4–76.5
Virginia	8065	76.2	75.0–77.5
Washington	22014	71.3	70.5–72.1
West Virginia	6208	74.2	73.0–75.5
Wisconsin	7206	72.5	71.3–73.7
Wyoming	6829	72.1	70.9–73.2
United States	**443236**	**73.3**	**73.1–73.6**

* Data are based on "yes" responses to the following BRFSS question: "Have you ever had your blood cholesterol checked?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-4. Prevalence of Self-Reported Diabetes Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

State	Respondents	%	95% C.I.†
Alabama	9149	8.8	8.2–9.4
Alaska	8152	5.1	4.3–5.8
Arizona	9600	6.2	5.6–6.9
Arkansas	10947	7.3	6.8–7.9
California	12924	7.4	6.8–8.0
Colorado	10075	4.9	4.4–5.4
Connecticut	18273	5.7	5.3–6.1
Delaware	11483	7.1	6.5–7.7
District of Columbia	6196	8.5	7.7–9.4
Florida	15632	7.3	6.8–7.8
Georgia	17057	7.7	7.3–8.2
Hawaii	14688	6.3	5.7–6.8
Idaho	14755	6.0	5.6–6.4
Illinois	14481	7.0	6.5–7.4
Indiana	15129	7.2	6.8–7.6
Iowa	12210	5.9	5.4–6.3
Kansas	13682	5.9	5.5–6.3
Kentucky	22083	7.3	6.9–7.8
Louisiana	14976	7.9	7.4–8.4
Maine	7172	6.7	6.1–7.3
Maryland	13081	7.0	6.4–7.5
Massachusetts	23228	5.7	5.3–6.0
Michigan	13203	7.6	7.1–8.1
Minnesota	12319	4.9	4.5–5.3
Mississippi	11446	9.7	9.1–10.3
Missouri	13054	6.7	6.1–7.2

State	Respondents	%	95% C.I.†
Montana	11318	5.2	4.8–5.7
Nebraska	12962	5.6	5.2–6.0
Nevada	8673	6.1	5.4–6.8
New Hampshire	13924	5.7	5.3–6.1
New Jersey	23087	6.6	6.1–7.0
New Mexico	13718	6.0	5.6–6.4
New York	13692	7.0	5.3–6.0
North Carolina	22182	7.4	7.1–8.1
North Dakota	8450	5.5	4.5–8.3
Ohio	11194	7.7	9.1–10.3
Oklahoma	18836	7.0	6.6–7.4
Oregon	9553	5.9	5.4–6.4
Pennsylvania	20623	7.0	6.5–7.4
Rhode Island	11823	6.0	5.6–6.5
South Carolina	13468	8.6	8.0–9.1
South Dakota	15055	6.2	5.8–6.6
Tennessee	8660	8.4	7.8–9.1
Texas	17909	7.9	7.4–8.3
Utah	11723	5.5	4.9–6.0
Vermont	12675	5.5	5.0–5.9
Virginia	12641	6.6	6.1–7.1
Washington	27627	6.1	5.7–6.5
West Virginia	9738	8.8	8.2–9.4
Wisconsin	11683	5.4	4.9–5.8
Wyoming	10507	5.3	22.6–25.5
United States	**696716**	**7.0**	**6.9–7.1**

* Data are based on "yes" responses to the following BRFSS question: "Have you ever been told by a doctor that you have diabetes?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-5. Prevalence of Self-Reported Cigarette Smoking Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

State	Respondents	%	95% C.I.†
Alabama	9146	24.7	23.7–25.8
Alaska	8142	26.2	24.7–27.6
Arizona	9597	22.2	20.8–23.5
Arkansas	10928	26.1	25.1–27.1
California	12910	16.6	15.8–17.4
Colorado	10061	20.0	19.1–21.0
Connecticut	18236	20.1	19.3–20.8
Delaware	11476	24.1	22.9–25.2
District of Columbia	6184	21.2	19.9–22.5
Florida	15605	24.1	23.1–25.0
Georgia	17016	22.8	22.0–23.7
Hawaii	14710	19.7	18.9–20.6
Idaho	14730	19.7	18.9–20.5
Illinois	14457	23.2	22.4–24.0
Indiana	15122	27.2	26.4–28.0
Iowa	12192	22.9	22.0–23.8
Kansas	13677	21.7	20.9–22.5
Kentucky	22055	31.6	30.6–32.5
Louisiana	14929	25.0	24.2–25.8
Maine	7164	24.4	23.2–25.5
Maryland	13046	20.9	20.0–21.9
Massachusetts	23178	19.4	18.8–20.1
Michigan	13194	25.4	24.5–26.3
Minnesota	12295	21.6	20.8–22.5
Mississippi	11419	26.1	25.1–27.0
Missouri	13027	27.0	25.9–28.1

State	Respondents	%	95% C.I.†
Montana	11299	21.2	20.2–22.3
Nebraska	12948	21.7	20.8–22.6
Nevada	8659	25.8	24.5–27.2
New Hampshire	13902	22.9	22.1–23.7
New Jersey	23030	20.1	19.2–21.1
New Mexico	13689	22.3	21.4–23.1
New York	13650	22.6	21.8–23.5
North Carolina	22119	25.6	24.7–26.5
North Dakota	8438	21.8	20.8–22.8
Ohio	11174	26.8	25.8–27.8
Oklahoma	18822	27.1	26.3–28.0
Oregon	9535	21.5	20.5–22.5
Pennsylvania	20593	25.6	24.8–26.5
Rhode Island	11797	23.3	22.4–24.2
South Carolina	13441	26.0	25.1–27.0
South Dakota	15035	22.9	22.1–23.7
Tennessee	8654	25.9	24.8–27.0
Texas	17882	22.2	21.4–22.9
Utah	11711	12.4	11.7–13.2
Vermont	12649	21.2	20.4–22.0
Virginia	12615	22.8	21.8–23.8
Washington	27557	21.1	20.3–21.8
West Virginia	9729	29.0	28.0–30.1
Wisconsin	11676	23.2	22.3–24.2
Wyoming	10495	23.5	22.6–24.5
United States	**695595**	**22.7**	**22.5–22.9**

* Data are based on "yes" responses to the following BRFSS question: "Have you smoked at least 100 cigarettes in your entire life?" Respondents who answered "yes" were then asked, "Do you now smoke every day, some days, or not at all?" People who reported smoking at least 100 cigarettes in their lifetime and smoking now every day or some days were defined as current smokers. Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-6. Prevalence of Self-Reported Obesity Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

State	Respondents	%	95% C.I.†
Alabama	8838	26.4	25.3–27.4
Alaska	7891	23.3	21.9–24.7
Arizona	9162	19.6	18.4–20.8
Arkansas	10543	24.0	21.1–25.0
California	12517	21.5	20.6–22.3
Colorado	9723	15.8	14.9–16.6
Connecticut	17266	18.2	17.5–18.9
Delaware	10901	22.4	21.4–23.4
District of Columbia	5941	21.0	19.6–22.4
Florida	14847	19.2	18.4–20.1
Georgia	16328	23.8	22.9–24.7
Hawaii	14312	17.2	16.3–18.1
Idaho	14094	21.0	20.2–21.8
Illinois	13701	22.2	21.3–23.0
Indiana	14546	25.0	24.2–25.8
Iowa	11679	23.3	22.4–24.2
Kansas	12994	22.6	21.8–23.4
Kentucky	20933	24.9	24.0–25.8
Louisiana	14250	25.1	24.3–25.9
Maine	6824	19.8	18.8–20.9
Maryland	12516	20.3	19.4–21.2
Massachusetts	21917	17.2	16.6–17.8
Michigan	12791	25.1	24.2–26.0
Minnesota	11951	21.7	20.9–22.5
Mississippi	10928	27.5	26.5–28.5
Missouri	12562	23.5	22.5–24.5

State	Respondents	%	95% C.I.†
Montana	10856	18.8	17.8–19.8
Nebraska	12287	22.7	21.8–23.6
Nevada	8247	20.5	19.2–21.9
New Hampshire	13221	19.1	18.3–19.8
New Jersey	21829	19.4	18.5–20.3
New Mexico	13174	20.0	19.1–20.8
New York	13028	20.6	19.8–21.4
North Carolina	20937	23.5	22.6–24.4
North Dakota	8114	22.8	21.8–23.8
Ohio	10604	23.4	22.4–24.4
Oklahoma	17911	23.5	22.8–24.3
Oregon	9124	20.8	19.9–21.8
Pennsylvania	19791	23.1	22.3–23.9
Rhode Island	11198	18.3	17.5–19.2
South Carolina	12942	24.4	23.5–25.4
South Dakota	14435	22.0	21.2–22.7
Tennessee	8231	24.3	23.2–25.3
Texas	16944	25.0	24.2–25.7
Utah	11341	20.1	19.1–21.1
Vermont	12189	18.6	17.8–19.4
Virginia	12131	22.0	21.1–23.0
Washington	26365	20.6	19.9–21.3
West Virginia	9350	27.0	26.0–28.0
Wisconsin	11275	21.6	20.7–22.5
Wyoming	10223	19.8	18.9–20.6
United States	**665702**	**22.1**	**21.9–22.3**

* Data are based on self-reported height and weight from the BRFSS, which were used to calculate body mass index (BMI) using the following formula: {[Weight in lbs. x 0.4536]/[(height in inches x 0.2540)^2]} x 100. BMI ≥30.0 was considered obese. Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-7. Prevalence of Self-Reported Physical Inactivity Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

State	Respondents	%	95% C.I.[†]
Alabama	9154	29.3	28.3–30.4
Alaska	8156	21.9	20.5–23.3
Arizona	9604	21.8	20.6–23.1
Arkansas	10945	29.0	28.0–30.0
California	12673	23.9	23.0–24.9
Colorado	10075	18.7	17.8–19.7
Connecticut	18286	22.1	21.4–22.9
Delaware	11492	26.4	25.3–27.4
District of Columbia	6196	22.8	21.5–24.2
Florida	15639	27.2	26.2–28.2
Georgia	17064	26.3	25.4–27.2
Hawaii	14722	17.7	16.9–18.5
Idaho	14752	19.8	19.0–20.5
Illinois	14484	27.0	26.1–27.9
Indiana	15135	26.7	225.9–27.5
Iowa	12213	22.9	22.1–23.8
Kansas	13697	24.9	24.1–25.7
Kentucky	22116	30.2	29.3–31.0
Louisiana	14978	33.3	32.5–34.2
Maine	7174	22.7	21.6–23.7
Maryland	13090	23.0	22.0–23.9
Massachusetts	23248	21.7	21.0–22.3
Michigan	13213	23.0	22.1–23.9
Minnesota	12333	16.1	15.4–16.9
Mississippi	11457	32.2	31.2–33.2
Missouri	13054	25.8	24.8–26.8
Montana	11320	20.1	19.1–21.1
Nebraska	12966	24.4	23.5–25.3
Nevada	8677	24.2	22.8–25.6
New Hampshire	13938	19.8	19.0–20.6
New Jersey	23090	26.3	25.3–7.3
New Mexico	13721	24.1	23.2–24.9
New York	13686	26.9	26.0–27.8
North Carolina	22202	27.0	26.1–27.9
North Dakota	8448	22.7	21.7–23.7
Ohio	11202	25.8	24.8–26.8
Oklahoma	18852	31.1	30.3–32.0
Oregon	9554	19.0	18.1–19.9
Pennsylvania	20618	23.3	22.5–24.1
Rhode Island	11834	24.0	23.1–24.9
South Carolina	13465	24.8	23.9–25.7
South Dakota	15051	23.2	22.4–24.0
Tennessee	8673	32.7	31.5–33.8
Texas	17920	28.3	27.5–29.1
Utah	11719	18.6	17.7–19.5
Vermont	12676	19.0	18.3–19.8
Virginia	12642	23.4	22.5–24.3
Washington	27635	16.7	16.1–17.4
West Virginia	9743	28.9	27.9–29.9
Wisconsin	11690	19.7	18.9–20.6
Wyoming	10515	21.0	20.1–21.8
United States	**696787**	**25.1**	**24.9–25.3**

* Data are based on "no" responses to the following BRFSS question: "During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

Table A-8. Prevalence of Self-Reported Poor Health Among the Total U.S. Population, by State, Behavioral Risk Factor Surveillance System (BRFSS), 2001–2003*

State	Respondents	%	95% C.I.†	State	Respondents	%	95% C.I.†
Alabama	9136	20.0	19.2–20.9	Montana	11299	12.7	11.9–13.4
Alaska	8151	13.3	12.2–14.4	Nebraska	12949	12.8	12.2–13.4
Arizona	9555	15.6	14.5–16.7	Nevada	8677	16.2	15.0–17.4
Arkansas	10928	18.8	18.0–18.6	New Hampshire	13903	10.6	10.1–11.2
California	12925	15.9	15.1–16.7	New Jersey	23005	14.8	14.0–15.6
Colorado	10062	13.0	12.2–13.8	New Mexico	13704	17.0	16.3–17.8
Connecticut	18241	11.8	11.2–12.4	New York	13619	16.4	15.6–17.2
Delaware	11483	13.9	13.0–14.7	North Carolina	22147	18.9	18.1–197
District of Columbia	6181	12.7	11.7–13.7	North Dakota	8419	12.7	11.9–13.4
Florida	15550	15.4	14.6–16.2	Ohio	11179	13.7	13.0–14.5
Georgia	17021	16.7	16.0–17.4	Oklahoma	18801	18.0	17.4–18.6
Hawaii	14710	11.8	11.1–12.5	Oregon	9541	15.5	14.7–16.4
Idaho	14732	13.5	12.9–14.1	Pennsylvania	20594	14.2	13.5–14.8
Illinois	14471	14.6	13.9–15.2	Rhode Island	11813	14.0	13.3–14.7
Indiana	15111	15.7	15.0–16.3	South Carolina	13380	16.5	15.8–17.3
Iowa	12185	11.1	10.4–11.7	South Dakota	15030	12.3	11.7–12.9
Kansas	13666	12.5	11.9–13.1	Tennessee	8667	19.4	18.5–20.3
Kentucky	22069	22.6	21.8–23.3	Texas	17885	20.5	19.9–21.2
Louisiana	14910	17.2	16.5–17.9	Utah	11712	11.6	10.9–12.4
Maine	7151	13.6	12.7–14.4	Vermont	12651	10.9	10.3–11.4
Maryland	13063	12.7	12.0–13.5	Virginia	12621	13.6	12.8–14.3
Massachusetts	23177	12.5	11.9–13.0	Washington	27604	13.2	12.7–13.8
Michigan	13197	14.3	13.6–15.0	West Virginia	9712	23.1	22.2–24.0
Minnesota	12309	11.1	10.5–11.7	Wisconsin	11654	11.5	10.8–12.2
Mississippi	11414	23.2	22.4–24.1	Wyoming	10482	11.9	11.2–12.5
Missouri	13030	16.3	15.5–17.1	**United States**	**695476**	**15.7**	**15.5–15.9**

* Data are based on people who answered "poor" to the following BRFSS question: "Would you say that in general your health is excellent, very good, good, fair, or poor?" Data are for adults ≥18 years, are age-adjusted to the 2000 U.S. population, and are weighted for the probability of sampling.

† Confidence interval.

B Methodological and Technical Notes

County Definitions

We used Federal Information Processing Standard (FIPS)[1] codes to link county definitions across multiple data sets in this atlas. To ensure accurate linking of counties across the data sets, the following modifications were made:

Independent Cities

The following independent cities were retained in the geographic database as discrete entities separate from adjacent counties.

Independent City	State	Original FIPS Code	Modified FIPS Code
Baltimore	Maryland	24510	24007
St. Louis	Missouri	29510	29191
Carson City	Nevada	32510	32025
Suffolk	Virginia	51800	51123

Alaska

Original County	Original County FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Aleutian Islands East	2013	Aleutian Islands	2010
Aleutian Islands West	2016	Aleutian Islands	2010
Denali Borough	2068	Yukon-Koyukuk	2290
Kobuk	2140	Yukon-Koyukuk	2290
Skagway-Hoonah-Angoon	2232	Skagway-Yakutat-Angoon	2231
Yakutat	2282	Skagway-Yakutat-Angoon	2231

Arizona

Original County	Original County FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Yuma	4027	LaPaz	4012

Hawaii

Original County	Original County FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Kalawao	15005	Maui	15009

Virginia

Virginia has 34 independent cities. We used the 1996 Area Resource File database[2] to incorporate data from these cities into their adjacent counties, which is standard practice.

Independent City	Independent City FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Bedford	51515	Bedford	51019
Bristol	51520	Washington	51191
Buena Vista	51530	Rockbridge	51163
Charlottesville	51540	Albemarle	51003
Clifton Forge	51560	Allegheny	51005
Colonial Heights	51570	Chesterfield	51041
Covington	51580	Allegheny	51005
Danville	51590	Pittsylvania	51143
Emporia	51595	Greensville	51081
Fairfax	51600	Fairfax	51059
Falls Church	51610	Fairfax	51059
Franklin	51620	South Hampton	51175
Fredericksburg	51630	Spotsylvania	51177
Galax	51640	Grayson	51077
Harrisonburg	51660	Rockingham	51165
Hopewell	51670	Prince George	51149
Lexington	51678	Rockbridge	51163
Lynchburg	51680	Campbell	51031
Manassas	51683	Prince William	51153
Manassas Park	51685	Prince William	51153
Martinsville	51690	Henry	51089

Continued on next page

Independent City	Independent City FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Norfolk	51710	Norfolk	51129
Petersburg	51730	Dinwiddie	51053
Portsmouth	51740	Norfolk	51129
Radford	51750	Montgomery	51121
Richmond	51760	Henrico	51087
Roanoke	51770	Roanoke	51161
Salem	51775	Roanoke	51161
South Boston	51780	Halifax	51083
Staunton	51790	Augusta	51015
Waynesboro	51820	Augusta	51015
Williamsburg	51830	James City	51095
Winchester	51840	Frederick	51069

Yellowstone National Park

Original County	Original County FIPS Code	Incorporated into Adjacent County	Modified FIPS Code
Yellowstone National Park (Part), Montana	30113	Park	30067

Data Sources

Heart Disease and Stroke Mortality Data

We obtained death certificate data through the National Center for Health Statistics' National Vital Statistics System, which is a compilation of statistics from all death certificates filed in the 50 states and the District of Columbia.[3] Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was diseases of the heart, defined according to the *International Classification of Diseases* (*ICD-9* codes 390–398, 402, and 404–429; *ICD-10* codes I00–I09, I11, I13, I20–I51).[4,5] Stroke deaths were defined as those for which the underlying cause of death listed on the death certificate was cerebrovascular disease (*ICD-9-CM* codes 430–438).[4] For each decedent, underlying cause of death, age, race, ethnicity, gender, and county of residence at the time of death were abstracted from computerized death certificate files.

Population Data

For heart disease mortality rates during 1996–2000, we used postcensal population estimates for 1996–1999 and a special "bridged-race" version of the 2000 census population estimates that allowed us to aggregate the data across 1996–2000. CDC's National Center for Health Statistics has produced bridged-race versions of 2000 census data to allow comparisons between these data and earlier reports, which used fewer race/ethnicity categories (see the **Definition of American Indians and Alaska Natives** section on pages 64–65 of this appendix for a discussion of race/ethnicity categories used for federal data collection).[6] For stroke mortality rates during 1991–1998, we used postcensal estimates calculated by the U.S. Bureau of the Census through extrapolation of linear trends in population growth and intercounty migration patterns between the 1980 and 1990 censuses.

Map Projections

We used several different map projections to produce the county-level maps in this publication. For the contiguous United States, an Albers Conic Equal Area projection was used. For Alaska, the Miller's Cylindrical projection was used. For the Hawaii map, we used geographic coordinates (latitude and longitude). Neither Alaska nor Hawaii is in proper geographic scale relative to the continental United States on the national maps. The combination of different projections and scales allowed for presentation of a relatively familiar orientation of these geographic features.

The coordinate information for the contiguous 48 states was projected using the Albers Conic Equal Area projection with the following parameters:

Spheroid: Clarke 1866	Central Meridian: -96.000
1st Standard Parallel: 29.500	2nd Standard Parallel: 45.500
False Easting: 0.000	False Northing: 0.000
Reference Latitude: 37.500	

The coordinate information for Alaska used the Miller's Cylindrical projection with the following parameters:

Spheroid: Sphere	Central Meridian: 0.000

Definition of American Indians and Alaska Natives

The definition for American Indian and Alaska Native (AI/AN) people used in this publication is based on the definition established in 1977 by Directive 15 of the Office of Management and Budget (OMB), which is the federal agency that defines standards for government publications.[7] The categories are not based on biological or anthropological concepts. OMB developed categories for racial and ethnic groups in response to the need for standardized data for record keeping and data collection and presentation by federal agencies (e.g., to conduct federal surveys, collect decennial census data, and monitor civil rights laws).

In 1997, OMB issued new race and ethnicity categories following criticism that the categories did not reflect the country's increasing diversity. All federal agencies were instructed to begin collecting and analyzing data using the new categories no later than January 1, 2003. However, the census and vital statistics data used in this publication were collected before the 1997 directive was implemented. Consequently, the racial and ethnic categories analyzed here are consistent with the 1977 directive.

The 1977 definition for American Indian or Alaska Native is as follows: A person having origins in any of the original peoples of North America and who maintains tribal affiliation or community attachment.

Spatial Geometry

The geographic database used for the county-level maps in this publication came from the Environmental Systems Research Institute's (ESRI) ArcUSA database, which includes spatial geometry and characteristics of all U.S. counties. ESRI modified the 1973 Digital Line Graph source data produced by the U.S. Geological Survey to update county boundaries through 1988. The geographic scale of the spatial geometry (i.e., linework) used is 1:2 million, which is sufficient to identify major county features. Mortality and population data were linked to county geography using FIPS codes.

Calculation of Spatially Smoothed and Age-Adjusted Death Rates

Rationale for Spatial Smoothing

Although county death rates provide a high degree of spatial specificity, rates in counties with small populations and few heart disease or stroke deaths can be unstable. This problem is particularly relevant when examining geographic disparities among AI/AN populations because many counties have small or nonexistent numbers of this population. We used two approaches to reduce the statistical instability of county death rates for heart disease and stroke: 1) temporal aggregation of the data (1996–2000 for heart disease, 1991–1998 for stroke) and 2) application of a statistical procedure known as spatial smoothing.

We chose to spatially smooth heart disease and stroke death rates using a spatial moving average. The number of deaths (numerators) and population counts (person-year denominators) for each county were combined with the deaths and population counts of the immediate neighboring counties (i.e., contiguous counties), and then divided to produce an average rate. We used the contiguity matrix for all U.S. counties from the 1996 Area Resource File database to identify contiguous counties and to perform spatial smoothing. Thus, a single county's heart disease or stroke mortality rate actually represents an average of the rates of that county and all of its contiguous neighbors.

Calculation of Death Rates

Spatially smoothed and age-adjusted death rates were calculated at the county level for all AI/AN people and again for AI/AN women and men separately. Heart disease and stroke deaths were obtained from the National Vital Statistics System and included all deaths for which the underlying cause of death reported on the death certificates was diseases of the heart (*ICD-9-CM* codes 390–398, 402, or 404–429: *ICD-10* codes I00–I09, I11, I13, or I20–I51) or cerebrovascular disease (*ICD-9-CM* codes 430–438).[4,5] Population data were obtained from the U.S. Bureau of the Census.

For each county, deaths (numerators) and population counts (denominators) for 10-year age groups (i.e., ages 35–44, 45–54, 55–64, 65–74, 75–84, and ≥85 years) were summed across the years. County numerators and denominators were then combined with numerators and denominators of all neighboring counties. Neighboring counties were defined solely by contiguity (as opposed to distance). The combined numerators were divided by the combined denominators to produce spatially smoothed, age-specific (i.e., by 10-year age group) death rates. These spatially smoothed rates were then directly age-adjusted to the 2000 U.S. population for 10-year age groups starting at 35. These calculations were repeated separately by gender.

Two constraints were applied to the calculation of county death rates. A stroke death rate was not calculated for any county for which the total number of stroke deaths in that county plus its neighbors was fewer than 20 during 1991–1998.[8] A heart disease death rate was not calculated for any county for which the total number of heart disease deaths in that county plus its neighbors was fewer than 20 during 1996–2000. To avoid calculating rates for counties that had no AI/AN population but whose neighboring counties had significant populations, rates were calculated only for counties with a population count of 5 or more (i.e., person-years were ≥5) during 1996–2000 for heart disease and 1991–1998 for stroke.

Unfortunately, death rates could not be adjusted to account for misreporting of AI/AN people as "white" on death certificates (see the **Introduction**, page 2, for a discussion of this issue). Although the Indian Health Service (IHS) has established a series of weights that can be used to estimate more accurate death rates for AI/AN populations, these weights are designed to be applied to IHS areas, not U.S. counties.[9] Because the weights were calculated on the basis of deaths from all causes combined, even the adjusted heart disease and stroke death rates for AI/AN people may still be less than the true rates for this population.[10]

Standard Population Weights

Because we calculated directly age-adjusted heart disease and stroke death rates for people ages 35 years and older, but not for the entire age range of the population, we had to recalculate the standard weights for the 2000 U.S. standard population. New weights for age groups 35–44 through ≥85 years were calculated using a two-step procedure. First, we calculated the sum of the original 2000 standard weights for 10-year age groups 35–44 through ≥85 years. Second, for each age group, we divided the original weight by the sum of the weights for ages ≥35 years. The resulting quotients are the new standard population weights. The weights were rounded to two decimal places and used to calculate directly age-adjusted death rates for people ages ≥35 years.

2000 U.S. Projected Standard Population Weights

Age Group (yrs)	Weight
All ages	1.000000
<1	0.013818
1	0.013687
2–4	0.041630
5	0.014186
6–8	0.042966
9	0.015380
10–11	0.030069
12–14	0.042963
15–17	0.043035
18–19	0.029133
20–24	0.066478
25–29	0.064530
30–34	0.071044
35–39	0.080762
40–44	0.081851
45–49	0.072118
50–54	0.062716
55–59	0.048454
60–64	0.038793
65–69	0.034264
70–74	0.031773
75–79	0.027000
80–84	0.017842
≥85	0.015508

2000 U.S. Projected Standard Population Weights for Age Groups ≥35 Years

Age Group (yrs)	Weight
35–44	0.32
45–54	0.26
55–64	0.17
65–74	0.13
≥85	0.03

Contiguity Matrix for Alaska

We used the contiguity matrix for all U.S. counties from the 1996 Area Resource File database to perform spatial smoothing of heart disease and stroke mortality rates for this publication. However, this database did not include information for counties in Alaska, because Alaska was considered to be a single geographic unit. Because we are interested in the geographic patterns of heart disease and stroke mortality within the state, we created the following contiguity matrix for the counties in Alaska:

FIPS Codes for Alaska's 23 Counties	FIPS Codes for Neighboring Counties*							
	1	2	3	4	5	6	7	8
2010	2164							
2020	2170	2261	2122					
2050	2070	2270	2170	2164	2290	2122		
2060	2164	2070						
2070	2164	2060	2050					
2090	2290	2240						
2100	2231	2110						
2110	2100	2280						
2122	2020	2170	2050	2164	2150	2261		
2130	2201	2280						
2150	2122	2164						
2164	2060	2070	2050	2122	2010			
2170	2290	2240	2261	2020	2050	2122		
2180	2270	2290	2188					
2185	2188	2290						
2188	2185	2290	2180					
2201	2280	2130						
2220	2231	2280						
2231	2261	2100	2220	2110	2280			
2240	2290	2090	2170	2261				
2261	2240	2170	2020	2231	2122			
2270	2290	2050	2180					
2280	2220	2201	2231	2130				
2290	2185	2188	2270	2050	2170	2240	2090	2180

* Each county can be bordered by as few as one or as many as eight neighboring counties.

Data Source

We obtained data for eight important risk factors for heart disease and stroke from the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS data are collected monthly by state departments of health through telephone interviews of noninstitutionalized adults aged 18 years or older. The states use a multistage design for stratified random sampling of the telephone numbers dialed. Complete details of the BRFSS methodology have been published elsewhere.[11–13]

The BRFSS includes a set of core questions that are asked every year in all states, as well as a set of rotating core questions that are asked every other year. This publication presents prevalence data for the following risk factors included in the annual core questions: diabetes, cigarette smoking, obesity, physical inactivity, and poor health. From the rotating questions that are asked in odd-numbered years, it presents data on high blood pressure, high blood cholesterol, and cholesterol screening.

BRFSS core questions are available in English and Spanish. If the interviewer determines that the respondent is not proficient in either language, the interviewer does not administer the survey and notes that the interview was ended because of a language barrier.

Once the monthly state data are collected, they are sent to CDC to be edited and checked for accuracy. CDC staff members aggregate the monthly data files for each state to create annual totals. These totals are then weighted according to the respondents' probability of being sampled, given the race, age, and gender of the population from which they were selected. Weighting is based on the most current census data for each state. The prevalence of each risk factor for each state is calculated from the weighted data.

Because of the small number of AI/AN respondents in the BRFSS, we combined data for 2001–2003 to increase the precision of our estimates. Prevalence estimates for states that reported fewer than 50 AI/AN respondents were considered unreliable and are not presented in this publication.[14]

Telephone Coverage

A recent study indicates that about 17% of AI/AN people do not have telephones in their homes.[15] This percentage is higher than that of any other U.S. racial/ethnic group. The percentages within this population vary sharply depending on where people live; only 47% of AI/AN people living on reservations have telephones compared with 75% of those who live in rural areas and 88% of those who live in urban areas.[15,16]

Other studies have found that AI/AN people who live in households without telephones are more likely to be physically inactive and to smoke cigarettes.[17–19] Therefore, the findings reported in this atlas are more likely to represent AI/AN people who live in urban areas and not on reservations, and they likely underestimate the prevalence of some risk factors for heart disease and stroke.

Definition of Risk Factors

For this publication, we defined eight risk factors for heart disease and stroke on the basis of specific questions from the BRFSS during 2001–2003. As of 1996, state health departments also can ask about regular aspirin use, prior history of heart disease, and prior history of stroke on their BRFSS questionaires. However, only a few states do so, and many of these states do not have large enough AI/AN populations to generate stable estimates. Therefore, data for these heart disease and stroke risk factors are not included in this atlas.

Map Projection

We combined two map projections to produce the risk factor maps in this publication. For the contiguous United States, an Albers Conic Equal Area projection was used. For Alaska, the Miller's Cylindrical projection was used. Neither Alaska nor Hawaii is in proper geographic scale relative to the continental United States on the risk factor maps. The combination of different projections and scales allowed for presentation of a relatively familiar orientation of these geographic features.

Definition of American Indians and Alaska Natives

Respondents to the BRFSS were asked to select a race of origin from the following list: White, Black or African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian/Alaska Native, or Other (Specify). Only those respondents selecting American Indian/Alaska Native were included in this atlas.

Spatial Geometry

The geographic database used for the risk factor maps in this publication came from the Environmental Systems Research Institute's (ESRI) ArcUSA database, which includes spatial geometry and characteristics of all U.S. counties. The geographic scale of the spatial geometry used is 1:42,874,983, which is sufficient to identify state features.

Risk Factor	Definition
High Blood Pressure	Based on "yes" responses to the following question: "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"
High Cholesterol	Based on "yes" responses to the following question: "Have you ever been told by a doctor or other health professional that your blood cholesterol is high?"
Cholesterol Screening	Based on "yes" responses to the following question: "Have you ever had your blood cholesterol checked?"
Diabetes	Based on "yes" responses to the following question: "Have you ever been told by a doctor that you have diabetes?"
Cigarette Smoking	Based on "yes" responses to the following question: "Have you smoked at least 100 cigarettes in your entire life?" Respondents who answered "yes" were then asked, "Do you now smoke every day, some days, or not at all?" People who reported smoking at least 100 cigarettes in their lifetime and smoking now every day or some days were defined as current smokers.
Obesity	Based on the following calculation of body mass index (BMI) from self-reported height and weight: {[weight in lbs. x 0.4536]/[(height in inches x 0.2540)2]} x 100. BMI ≥30.0 was considered obese.
Physical Inactivity	Based on "no" responses to the following question: "During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?"
Poor Health	Based on people who answered "poor" to the following question: "Would you say that in general your health is excellent, very good, good, fair, or poor?"

Calculation of Prevalence Estimates

Because of the complex survey methodology used to produce prevalence estimates for this publication, we used SUDAAN statistical software to calculate standard errors and 95% confidence intervals. The prevalences reported in this atlas are weighted according to the respondents' probability of being sampled, given the race, age, and gender of the state population from which they were selected. No statistical tests were performed for comparison, so the findings of this publication should be considered descriptive in nature.

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C

Resources

American Indian and Alaska Native Health Organizations

Native American Women's Health Education Resource Center
PO Box 572, Lake Andes, SD 57356-0572
Phone: 605-487-7072
Web site: http://www.nativeshop.org/nawherc.html

The Native American Women's Health Education Resource Center is operated by the Native American Community Board (NACB). The NACB was formed in 1985 by a group of Native Americans living on or near the Yankton Sioux Reservation in South Dakota to address pertinent issues of health, education, land and water rights, and economic development of Native American people.

National Indian Health Board
1385 S. Colorado Blvd, Suite A707, Denver, CO 80222
Phone: 303-759-3075, Fax: 303-759-3674
Web site: http://www.nihb.org

The National Indian Health Board (NIHB) represents Tribal Governments that operate their own health care delivery systems through contracting and compacting, as well as those that receive health care directly from the Indian Health Service. The NIHB is a nonprofit organization that conducts research, policy analysis, program assessment and development, national and regional meeting planning, project management, and training and technical assistance programs. These services are provided to Tribes, Area Health Boards, Tribal organizations, federal agencies, and private foundations.

Association of American Indian Physicians
1225 Sovereign Row, Suite 103, Oklahoma City, OK 73108
Phone: 405-946-7072, Fax: 405-946-7651
Web site: http://www.aaip.com

The Association of American Indian Physicians was founded to pursue excellence in Native American health care by promoting education in the medical disciplines; honoring traditional healing practices; and restoring the balance of mind, body, and spirit.

Association of Native American Medical Students
1225 Sovereign Row, C-9, Oklahoma City, OK 73108
Phone: 405-946-7072
Web site: http://www.aaip.com/anams/anams.html

The Association of Native American Medical Students was founded to provide support and a resource network for all Native Americans enrolled in the various allied health professions schools, to increase the number of Native American students in medicine and other health professions, and to promote its exposure and recognition on a national level throughout the medical community.

Indians into Medicine
University of North Dakota
School of Medicine and Health Science
PO Box 9037, Grand Forks, ND 58202-9037
Phone: 701-777-3037, Fax: 701-777-3277
Web site: http://www.med.und.nodak.edu/depts/inmed/home.htm

Indians into Medicine addresses three major problem areas: 1) too few health professionals in American Indian communities, 2) too few American Indian health professionals, and 3) the substandard level of health and health care in American Indian communities.

Indian Health Service Headquarters
The Reyes Building
801 Thompson Avenue, Suite 440
Rockville, MD 20852-1627
Phone: 301-443-1083, Fax: 301-443-4794
Web site: http://www.ihs.gov

The Indian Health Service (IHS) is an agency within the U.S. Department of Health and Human Services that is responsible for providing federal health services to American Indians and Alaska Natives. The IHS is the principal federal health care provider and health advocate for these populations, and its goal is to ensure that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indians and Alaska Natives.

National Council of Chief Medical Officers, Indian Health Service

Chief Medical Officer
Indian Health Service (IHS)
801 Thompson Avenue, Suite 440
Rockville, MD 20852

Aberdeen Area IHS
Federal Building, 115 4th Avenue, S.E.
Aberdeen, SD 57401

Alaska Area IHS
4141 Ambassador Drive
Anchorage, AK 99508

Albuquerque Area IHS
5300 Homestead Road, N.E.
Albuquerque, NM 87110

Bemidji Area IHS
522 Minnesota Avenue, N.W.
Bemidji, MN 56601

Billings Area IHS
PO Box 36600
Billings, MT 59107

California Area IHS
650 Capitol Mall, Suite 7-100
Sacramento, CA 95814

Nashville Area IHS
711 Stewarts Ferry Pike
Nashville, TN 37214-2634

Navajo Area IHS
PO Box 9020
Window Rock, AZ 86515

Oklahoma Area IHS
Five Corporate Plaza
3625 N.W. 56th Street
Oklahoma City, OK 73112

Phoenix Area IHS
Two Renaissance Square
40 N. Central Avenue, Suite 600
Phoenix, AZ 85004-4424

Portland Area IHS
1220 S.W. Third Avenue
Portland, OR 97204-2892

Tucson Area IHS
7900 South J Stock Road
Tucson, AZ 85746-9352

Federal Government Agencies

Indian Health Service Headquarters
The Reyes Building
801 Thompson Avenue, Suite 440
Rockville, MD 20852-1627
Phone: 301-443-1083, Fax: 301-443-4794
Web site: http://www.ihs.gov

The Indian Health Service (IHS) is an agency within the U.S. Department of Health and Human Services that is responsible for providing federal health services to American Indians and Alaska Natives. The IHS is the principal federal health care provider and health advocate for these populations, and its goal is to ensure that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indians and Alaska Natives.

Office of the Associate Director for Minority Health
Centers for Disease Control and Prevention (CDC)
1600 Clifton Road, MS D-39, Atlanta, GA 30333
Phone: 404-639-7210
Web site: http://www.cdc.gov/od/admh

The mission of the Office of the Associate Director for Minority Health is to improve the health of African American, Asian American and Pacific Islander, Hispanic American, and Native American and Alaska Native citizens and, where appropriate, members of similar ethnic/racial subgroups both in and outside the United States, through policy development and program analysis at the CDC and the Agency for Toxic Substances and Disease Registry.

Office of Women's Health
Centers for Disease Control and Prevention
1600 Clifton Road, MS D-51, Atlanta, GA 30333
Phone: 404-639-7230, Fax: 404-639-7331
Web site: http://www.cdc.gov/od/owh

The Office of Women's Health is dedicated to in-depth research and dissemination of information and public policy regarding women's health.

Office of Minority Health
Division of Information and Education
Rockwall II Building, Suite 1085
5515 Security Lane, Rockville, MD 20852
Phone: 301-443-5224, Fax: 301-443-1426
Web site: http://www.omhrc.gov

The Office of Minority Health, which operates under the U.S. Department of Health and Human Services, works to improve collection and analyses of data on the health of racial and ethnic minority populations, and it monitors efforts to achieve Healthy People 2010 *goals for minority health.*

The Office of Minority Health Resource Center
Division of Information and Education
Rockwall II Building, Suite 1000
5600 Fishers Lane, Rockville, MD 20857
Phone: 1-800-444-6472
Web site: http://www.omhrc.gov

The Office of Minority Health Resource Center was established to assist in the exchange of information and analyses of minority health issues. The center collects and distributes information on a wide variety of health topics and facilitates the exchange of information on minority health issues.

Office of Research on Women's Health
National Institutes of Health
Building 1, Room 201, Bethesda, MD 20892
Web site: http://www4.od.nih.gov/orwh/index.html

The goal of the Office of Research on Women's Health is to ensure that research conducted and supported by the National Institutes of Health addresses issues of women's health, and that there is appropriate inclusion of women in clinical research.

National Heart, Lung, and Blood Institute
National Institutes of Health
Building 31, Suite 4A10, MSC 2480
31 Center Drive, Bethesda, MD 20892
Web site: http://www.nhlbi.nih.gov/nhlbi/nhlbi.htm

The National Heart, Lung, and Blood Institute is a national program dedicated to research related to the causes, prevention, diagnosis, and treatment of heart, blood vessel, lung, and blood diseases, as well as sleep disorders.

National Center of Minority Health and Health Disparities
Office of Research on Minority Health
6707 Democracy Blvd., Suite 800
Bethesda, MD 20892-5465
Phone: 301-402-1366, Fax: 301-480-4049

The Office of Research on Minority Health (ORMH) was founded in 1999 by the National Institutes of Health to help solve research questions that result from the disparity of health status among Americans. The ORMH's mission is to support and promote biomedical research aimed at improving the health status of minority Americans across the life span and programs aimed at expanding the participation of under-represented minorities in all aspects of biomedical and behavioral research.

Agency for Healthcare Research and Quality
Center for Cost and Financing Studies
2101 East Jefferson Street, Suite 500
Rockville, MD 20852
Phone: 301-594-1406, Fax: 301-594-2166
Web site: http://www.ahrq.gov

The Agency for Healthcare Research and Quality (AHRQ) was established in 1989 as the Agency for Health Care Policy and Research. Reauthorizing legislation passed in November 1999 established AHRQ as the lead federal agency on quality research. AHRQ operates under the U.S. Department of Health and Human Services and is the lead agency charged with supporting research designed to improve the quality of health care, reduce its cost, and broaden access to essential services. AHRQ's broad programs of research bring practical, science-based information to medical practitioners and to consumers and other health care purchasers.

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The Minority Health Professions Foundation is a nonprofit educational, scientific, and charitable organization that provides support for professional education, research, and community services that promote optimum health among poor and minority people.

Heart Disease and Stroke Organizations

American Heart Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Web site: http://www.americanheart.org

The American Heart Association is a not-for-profit, voluntary health organization funded by private contributions. Its mission is to reduce disability and death from cardiovascular diseases and stroke.

American Stroke Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Web site: http://www.americanheart.org

The American Stroke Association is a division of the American Heart Association, which is a not-for-profit, voluntary health organization funded by private contributions. Its mission is to reduce disability and death from cardiovascular diseases and stroke.

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National Institute of Neurological Disorders and Stroke
Building 31, Room 8A-16, 31 Center Drive, MSC 2540, Bethesda, MD 20892
Phone: 301-496-5751, Fax: 301-496-0296
Web site: http://www.stroke-site.org

The Brain Attack Coalition is a group of professional, voluntary, and governmental entities dedicated to reducing the occurrence of and the disabilities and death associated with stroke. The goal of the coalition is to strengthen and promote the relationships among its *member organizations in order to help people who have had a stroke or are at risk for a stroke.*

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CDC has established cardiovascular health programs in 32 states and the District of Columbia. These programs are committed to reducing the burden of heart disease and stroke by promoting heart-healthy and stroke-free working and living environments. In addition, the Cardiovascular Health Branch at CDC performs extensive monitoring of recent trends in cardiovascular disease and conducts applied research to prevent cardiovascular disease.

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The mission of the Centers for Medicare & Medicaid Services is to serve Medicare and Medicaid beneficiaries. The goal is to launch and enhance the Medicare education campaign to help beneficiaries and their caregivers become active and informed participants in their health care decisions.

InterAmerican Heart Foundation
American Heart Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Phone: 214-706-1218, Fax: 214-373-0268 or 972-562-3807
Web site: http://www.americanheart.org

The goals of the InterAmerican Heart Foundation are to promote an environment throughout North, Central, and South America and the Caribbean conducive to the prevention of heart diseases and stroke;

to facilitate the development and growth of heart foundations; and to foster partnerships between health professionals and other sectors of society, including business and government, for the accomplishment of its mission.

National Institute of Neurological Disorders and Stroke
NIH Neurological Institute
PO Box 5801, Bethesda, MD 20824
Phone: 800-352-9424
Web site: http://www.ninds.nih.gov

The goal of the National Institute of Neurological Disorders and Stroke is to reduce the burden of neurological disease—a burden borne by every age group, by every segment of society, and by people all over the world.

National Stroke Association
9707 E. Easter Lane, Englewood, CO 80112
Phone: 303-649-9299 or 1-800-STROKES (787-6537)
Fax: 303-649-1328
Web site: http://www.stroke.org

The mission of the National Stroke Association is to reduce the incidence and impact of stroke, to save lives, and to improve the quality of care among stroke survivors.

Patient Resources

National Heart, Lung, and Blood Institute
National Institutes of Health
Building 31, 31 Center Drive, Bethesda, MD 20892
Web site: http://www.nhlbi.nih.gov/index.htm

The National Heart, Lung, and Blood Institute can supply a wealth of information regarding heart, blood, and lung diseases for patients. Resources are available on the Internet as well as via telephone and direct mail.

American Heart Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Web site: http://www.americanheart.org

The American Heart Association offers resources for heart disease patients regarding health, fitness, and dietary guidelines. Information can be obtained through the Internet, by telephone, or by direct mail.

American Stroke Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Web site: http://www.strokeassociation.org

The American Stroke Association is a division of the American Heart Association, which offers resources for heart disease patients regarding health, fitness, and dietary guidelines. Information may be obtained via the Internet, telephone, or direct mail.

Centers for Disease Control and Prevention (CDC)
1600 Clifton Road, Atlanta, GA 30333
Phone: 404-639-7000
Web site: http://www.cdc.gov

CDC is a government agency dedicated to the promotion of health and quality of life by preventing and controlling disease, injury, and disability. The CDC Web site provides information about a variety of health topics, including women's, cardiovascular, and minority health.

Michele L. Casper is an epidemiologist in the Cardiovascular Health Branch of the Centers for Disease Control and Prevention (CDC). She received her PhD in epidemiology from the University of North Carolina School of Public Health. Her research focuses primarily on the geographic, racial, and ethnic disparities in cardiovascular disease.

Clark H. Denny is an epidemiologist in the Cardiovascular Health Branch of CDC. He received his PhD in sociology from Emory University, specializing in demography. He has 8 years of experience studying the health behaviors of American Indians and Alaska Natives.

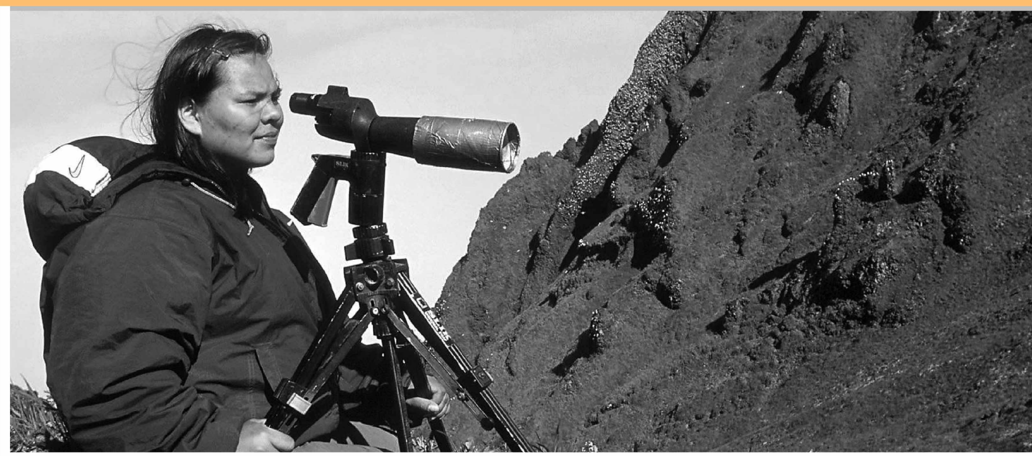
Jonathan N. Coolidge was an Association of the Schools of Public Health fellow working in the Cardiovascular Health Branch of CDC in 2004. He is now attending Albany Medical College. He received his MPH from Emory University, concentrating in epidemiology, and his BA in biology from the College of the Holy Cross.

G. Ishmael Williams, Jr., is a Geographic Information Systems (GIS) analyst in the Cardiovascular Health Branch of CDC. He received his MA in anthropology from the University of Arkansas and has more than 15 years of experience in GIS research, spanning archeology, environmental management, and public health.

Amanda Crowell is a writer-editor in the National Center for Chronic Disease Prevention and Health Promotion of CDC. She attended the University of Alabama, majoring in English.

James M. Galloway, MD, FACP, FACC, is the senior cardiologist for the Indian Health Service (IHS) and is based at the University of Arizona. His primary focus is the optimal prevention, detection, and control of cardiovascular disease among American Indians and Alaska Natives.

Nathaniel Cobb is the principal chronic disease epidemiologist for IHS. He received his MD from Harvard Medical School. He did his residency at the University of New Mexico and then a fellowship in epidemiology at CDC.



U.S. Department Of Health and Human Services

Centers for Disease Control and Prevention

Indian Health Service