Men and Heart Disease

An Atlas of Racial and Ethnic Disparities in Mortality
First Edition

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A Message from the Director of the Centers for Disease Control and Prevention

As the Nation's prevention agency, the Centers for Disease Control and Prevention (CDC) is committed to reducing the burden of heart disease — the leading cause of death and a major contributor to disability in the United States. Deaths from heart disease are largely preventable, and with targeted public health efforts, we can alleviate much of the heavy burden of this disease. To meet this challenge, CDC works to closely monitor geographic and temporal trends in heart disease among racial and ethnic groups, strengthen the delivery of primary and secondary preventive health services to all such groups, and implement policy changes that support heart-healthy environments for all residents of the United States.

Among men, mortality rates for heart disease are higher than the rates for all forms of cancer combined. Approximately 356,598 men die of heart disease each year, and approximately 5.8 million men alive today have suffered a heart attack or angina pectoris (chest pain). In addition, the burden of heart disease among men is not equally distributed among racial and ethnic groups within the United States. *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality* comprehensively describes the unequal distribution of heart disease among these groups.

In addition, *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality* provides health professionals and concerned citizens at the local, state, and national levels with information essential to identifying populations of men at greatest risk of heart disease and in greatest need of prevention efforts. *Men and Heart Disease* provides, for the first time, county-level maps of heart disease for men of the five largest racial and ethnic groups in the United States — American Indians and Alaska Natives, Asians and Pacific Islanders, Blacks, Hispanics, and Whites. In addition, *Men and Heart Disease* includes maps that depict geographic patterns of local economic and medical care resources and population distributions for each racial and ethnic group. These maps provide crucial information for tailoring prevention efforts to the communities in need.

This publication is the second in a series of atlases related to cardiovascular disease that are being developed through a collaboration between CDC and West Virginia University. The first atlas was *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*.

Now, I am pleased to share *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality* with you. I encourage you to use these data to improve the delivery of preventive health services and to create heart-healthy environments for all men.

Jeffrey P. Koplan, M.D., M.P.H.
Director, Centers for Disease Control and Prevention

A Message from the Centers for Disease Control and Prevention's Associate Director for Minority Health

There is an increasing awareness of the health needs of minority populations in the United States. Government and nongovernment health agencies are beginning to identify the gaps in health care and health outcomes that exist among racial and ethnic groups and are beginning to develop strategies to reduce these gaps. Since the inception of the Centers for Disease Control and Prevention's (CDC) Office of Minority Health in 1988, this Office has been committed to improving the health status of racial and ethnic minority populations throughout the United States.

A central focus of our activities in the Office of Minority Health is implementing the Department of Health and Human Services' Initiative to Eliminate Racial and Ethnic Disparities in Health. Cardiovascular disease is one of the six health status areas that have been targeted for eliminating such disparities by the year 2010. We recognize that to achieve this goal, a major national commitment to identifying and addressing the underlying causes of the racial and ethnic disparities is required. New insights are needed to understand the determinants of the racial and ethnic disparities in cardiovascular disease and to apply our knowledge toward eliminating these gaps. In this regard, *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality* is a timely publication that provides a new perspective on the racial and ethnic patterns of cardiovascular disease at the community level.

The maps will enable health researchers to develop new hypotheses regarding the determinants of the geographic patterns of heart disease for each racial and ethnic group, and will also enable health professionals in local, state, and national health agencies to design new programs and policies tailored to the needs of the communities with the highest rates of heart disease mortality.

As we continue to identify the health needs of racial/ethnic minority populations, additional opportunities will arise to expand and modify our public health and medical care strategies for preventing and treating heart disease among all men.

Walter W. Williams, M.D., M.P.H.
Associate Director for Minority Health
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I am pleased to present *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*. Heart disease is the leading cause of death for men and women of all racial and ethnic groups. While approximately half of all heart disease deaths occur among men and half among women, more than 70 percent of premature heart disease deaths (i.e., before age 65) occur among men.

This landmark document supports the Department of Health and Human Services' Initiative to Eliminate Racial and Ethnic Disparities in Health and addresses the important need to reduce the risk of heart disease among men of all racial and ethnic groups. The maps in *Men and Heart Disease* depict heart disease mortality rates among men, county-by-county, for the entire United States, and identify the places where men of each of the five major racial and ethnic groups experience the highest rates of mortality from heart disease. With this information, public health professionals at the local, state, and national levels will be able to target prevention resources to populations of men in greatest need of services.

Although mortality from heart disease has been declining for several decades, the rate of decline has varied by racial and ethnic group, resulting at times in a widening of the gap between such groups for both men and women. Moreover, recent trends indicate a slowing down in the rate of decline of heart disease mortality and underscore the importance of enhancing our efforts to support innovative community-based strategies for reducing the risk of heart disease. For men of all racial and ethnic groups (as well as for women), it is through prevention that we can expect to achieve the greatest cardiovascular health benefits. *Men and Heart Disease* indicates where those programs are most needed and can have the greatest benefit.

It is my hope that *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality* will be used to guide the distribution of funds and resources to those communities of men experiencing excess mortality from heart disease and will promote the development of culturally sensitive prevention strategies.

James S. Marks M.D., M.P.H.
Director, National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention

Section 5 (continued)

Section 5 (continued)

Introduction

Introduction

Heart disease is one of the most significant and persistent public health problems in the United States, causing a tremendous burden of premature mortality and disability. It is the leading cause of death for men of all racial and ethnic groups, and although about half of all heart disease deaths occur among men and half among women, over 70 percent of premature (i.e. before age 65 years) heart disease deaths occur among men. From the mid-1960s to the mid-1980s, Americans experienced significant declines in heart disease mortality. However, recent studies have shown that from the mid-1980s to the present, those declines have slowed considerably, and have even stopped for some population groups. In addition, there are recent findings, reported in several scientific studies, that numerous community-based public health programs to reduce heart disease risk factors and prevent onset of the disease have had only limited effectiveness. Both of these trends have created a renewed sense of urgency in the public health community to develop and implement better and more effective programs and policies to reduce the burden of heart disease on our society.

This publication reflects our conviction that one of the keys to reducing the burden of heart disease nationwide is to focus our attention on patterns of heart disease mortality in local areas. Why is it critical to understand local geographic disparities in the burden of heart disease among men? We contend that health disparities among places reflect underlying inequalities in local social environments that make some communities more health-promoting than others. The social environment provides the context within which individuals are exposed to structural risk factors (e.g. lack of economic opportunity, poverty, and social isolation) that contribute to adoption of disadvantageous behaviors (e.g. cigarette smoking, physical inactivity, poor diet). Understanding the health-promoting characteristics of local communities, and the barriers to change, is a critical first step in designing effective programs and policies. In addition, identifying the places that bear the greatest burden of heart disease mortality will permit the targeting of appropriate resources for improving the local social environment and health outcomes in those communities. A challenge for public health workers is that ameliorating the social environment in local communities will require structural and institutional changes, improvements in community social relations, and reductions in inequalities within those communities.

In *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*, we have produced an extensive series of national and state maps that present local variation in heart dis-

ease death rates for all men, American Indian and Alaska Native men, Asian and Pacific Islander men, African American men, Hispanic men, and white men for the period 1991-1995. These maps highlight both substantial racial and ethnic disparities in heart disease and the marked geographic disparities in the burden of heart disease that exist within each race and ethnicity group. In addition, we have included national maps of local indicators of the social environment. These indicators include the geographic distribution of population by race and ethnicity, availability of local economic resources, and the availability of medical care resources.

An important strength of *Men and Heart Disease* is our examination of geographic disparities in heart disease mortality for American Indian and Alaska Native men, Asian and Pacific Islander men, and Hispanic men. Previous reports have focused predominantly on reporting data for blacks and whites. While there are important data quality limitations for racial and ethnic groups other than whites and blacks, we chose to present results for men of all race and ethnicity groups. We hope that these results will both highlight the need for improved death certificate and population data quality, and provide useful information to public health agencies and advocacy groups who are working to improve health outcomes in diverse populations.

The race and ethnicity categories used in this publication have been officially adopted by the federal Office of Management and Budget (see Appendix B). Under the federal data reporting scheme, Hispanic is considered a designation of ethnicity, not race. Therefore, data for Hispanic men were included within each of the four racial categories, and were also analyzed separately. We use the terms "black" and "African American" interchangeably throughout this publication; similarly, "Latino" and "Hispanic" are used interchangeably as well.

Two perspectives on geographic disparities in heart disease among men are presented in *Men and Heart Disease:* a national perspective and a state perspective. The national perspective allows the comparison of heart disease death rates for all localities in the United States, visible on national maps that present county death rates separately for each race and ethnicity group. In contrast, the state perspective allows the comparison of heart disease death rates for all localities within a single state. *Men and Heart Disease* includes over 200 state maps, with at least two maps (for all men and white men) and up to six maps presented for each state. The national and state perspectives provide complementary information useful for targeting resources to high risk communities.

1 Racial and Ethnic Disparities in Heart Disease among Men

Although heart disease is the leading cause of mortality for men of all racial and ethnic groups within the United States, significant racial inequalities in heart disease mortality among men have been reported for over 50 years.[1] However, efforts to evaluate racial and ethnic disparities in heart disease mortality have been significantly hampered by problems of data quality, which are discussed in more detail later in this section. Data quality issues have been a particular problem for American Indians and Alaska Natives, Asian and Pacific Islanders, and Hispanics. Consequently, few previous studies have examined these groups. Studies of mortality in the 1960s and 1970s found lower rates among Japanese and Chinese men compared with white men in the United States.[2] Similar studies have found lower rates of heart disease mortality among American Indians and Alaska Natives compared with whites, although there is evidence that American Indians are at growing risk for heart disease.[2]

Most previous reports have focused on comparing heart disease outcomes between whites and blacks, the two largest racial groups in the United States. Early studies were consistent in reporting either similar or lower heart disease death rates in black men compared with white men.[3] One proposed explanation for the seemingly lower risk of heart disease among black men reported in early studies, in spite of considerable socioeconomic disadvantage, is that the transition of heart disease from a "disease of affluence" to a "disease of disadvantage" occurred later among African Americans than it did among United States whites.[4] In other words, important behavioral risk factors for heart disease such as cigarette smoking, physical inactivity, and consumption of a high-fat diet were more prevalent among people of higher social class early in the 20th century, but later became more prevalent among people of lower social class. These changes occurred as a result of dramatic societal changes in standard of living and occupational structure. Consequently, the continued socioeconomic disadvantage of African American men predicts increasing racial inequalities in heart disease mortality in the future.

More recent studies indeed have reported higher rates of, and more adverse temporal trends in, heart disease mortality among black men compared with white men, particularly among men aged less than 65 years old.[3,5] In general, black men experience earlier onset of disease, more severe disease, higher rates of complications, and more limited access to medical care than white men.[3]

An important part of the national effort to eliminate racial and ethnic disparities in heart disease must include consideration of geographic disparities both within and among racial and ethnic groups in the United States. This publication presents geographic disparities in heart disease mortality for American Indian and Alaska Native men, Asian and Pacific Islander men, black men, Hispanic men, and white men.

The Social Construction of Race

Following several experts in human evolution,[6,7] we recognize *race* and *ethnicity* as valid scientific categories but *not* as valid biological or genetic categories. The health sciences include both biological and social sciences, and from a social science perspective race and ethnicity categories reflect the reality of socially distinct groups in the United States. Ethnic groups typically share certain cultural, linguistic, and other characteristics, and often are multiracial. Contemporary race divisions are the result of historical events, in particular the often hostile encounters (e.g. wars and colonizations) between population groups that were formerly geographically isolated. Differences in physical appearance between population groups that were politically in conflict acquired inflated social significance compared with differences in physical appearance among individuals of the same group.

The idea that geographically defined human social groups, such as "Africans" or "Japanese," were actually biologically and genetically distinct human "races" or "subspecies" gained popular credence in the nineteenth and early twentieth centuries.[3] Most of the scientific evidence generated during those times to support theories of biologically distinct human races has since been discredited and disavowed by many scientists.[8-10] These contemporary scientists have demonstrated that the significance attributed to physical characteristics is wholly social and histori-

cal in origin, and does not reflect biologically or genetically important differences among people.[6] However, there is still popular belief in the mistaken idea that the superficial differences in physical appearance among people of various racial and ethnic groups must be linked to more profound and significant genetic differences in behavior, intelligence, and susceptibility to disease.

Empirical evidence from population biology demonstrates why the theory of genetically distinct races is incorrect. First, all human beings share the same genes. This is what defines us as a species. Each person has two copies of essentially all genes, because our chromosomes come in pairs – one inherited from our mother and one inherited from our father. Slight variations in the form, and sometimes the function, of individual genes do exist in human populations. These gene variations are called *alleles*. However, 75% of all human genes are monomorphic, which means that only one allele exists in all people.[6] Only a very small fraction of all human alleles severely impact gene function in a way that leads to disease. Most importantly, there are no particular alleles (whether detrimental, beneficial, or neutral) that can be found to exist in only one racial or ethnic population and not in others. For example, the allele of the hemoglobin gene that leads to sickle cell disease, typically thought to be found solely in people of African descent, is also found in some Asian populations.

In summary, the five racial and ethnic groups described in *Men and Heart Disease* are socially, but not biologically, distinct groups. Moreover, we recognize that each of these broad racial and ethnic groups includes people of tremendous diversity with regard to culture, socioeconomic status, heritage, and area of residence. If we accept the idea that different racial and ethnic groups do not vary systematically in their inherent genetic susceptibility to disease, then to what can we attribute racial and ethnic disparities in heart disease mortality? Current research suggests a number of possibilities, including differences in social class, culture, behavioral risk factors, psychosocial risk factors, and the direct effects of racism, segregation, and discrimination.[11]

Misreporting of Race and Ethnicity on Death Certificates

An important concern for examining racial and ethnic disparities in heart disease mortality is the accuracy of race and ethnicity information reported on death certificates. Separate entries are available for race (American Indian or Alaska Native, Asian or Pacific Islander, black, and white) and Hispanic origin (yes or no). Unfortunately, there is evidence from several studies that race and ethnicity are not always reported accurately on death certificates. There are instances when American Indians and Alaska Natives, along with Asian and Pacific Islanders, are mistakenly identified as white, and Hispanics are mistakenly reported as non-Hispanics. This misreporting results in artificially lower mortality rates for those racial and ethnic groups. It is uncommon for race to be misreported for blacks. Misreporting of race and ethnicity on death certificates does not significantly increase mortality rates for whites, because the number of decedents who are misidentified as white on their death certificates is small relative to the very large white population.

One study[12] compared race and ethnicity information from the Current Population Survey with similar data on death certificates for 43,000 individuals who died between 1979 and 1985. The study found that race was coded incorrectly on the death certificate for 0.8% of whites, 1.8% of blacks, 17.6% of Asian and Pacific Islanders, and 26.6% of American Indians. Hispanic ethnicity was miscoded on the death certificate for 10.3% of individuals who self-identified as Hispanic on the survey, with the greatest errors for persons who identified themselves as Cuban or "other Hispanic." A similar study found high rates of disagreement between AIDS case reports and death certificates for American Indians (46%), Asians and Pacific Islanders (12%), and Hispanics (14%).[13] A study of infant mortality in California found that rates for American Indians and Asians were significantly underestimated.[14] Correct reporting of American Indian origin on death certificates was found to be associated with tribal affiliation and percentage of American Indian ancestry in a study that linked Indian Health Service records and death certificates in Washington State.[15]

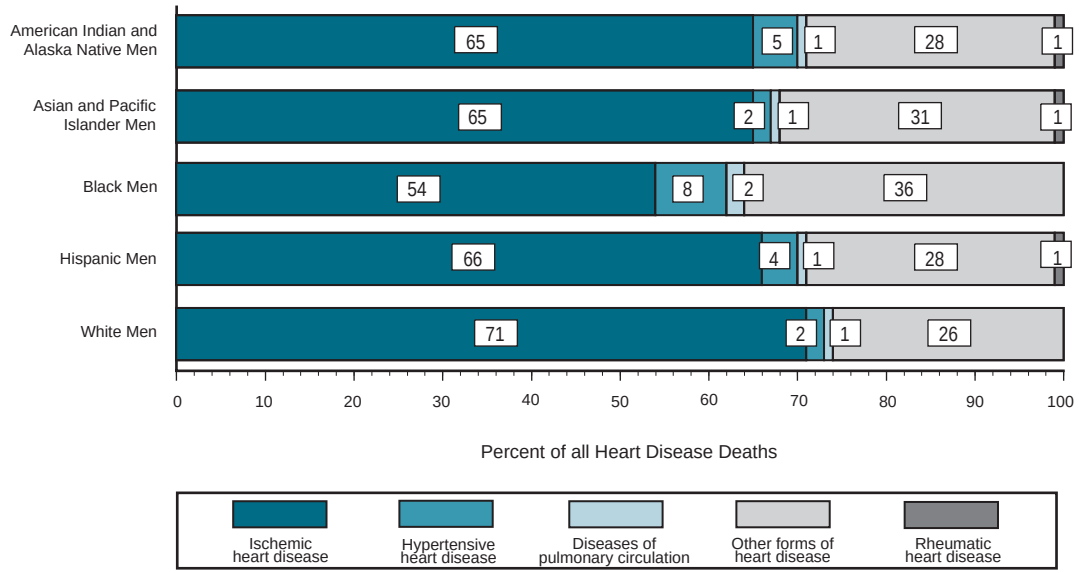
A recent report from the National Center for Health Statistics estimates that death rates (for all causes of death combined) corrected for misreporting of both race and ethnicity on the death certificates, and population undercounts in census files, would be 21% higher than currently reported for American Indians and Alaska Natives, 11% higher for Asians and Pacific Islanders, and 2% higher for Hispanics.[16] No studies to date have evaluated the extent of geographic variation in the accuracy of reporting race and ethnicity on the death certificate and in the degree of population undercounts.

Specific Categories of Heart Disease Deaths among Men

The definition of heart disease used in this study was the category "diseases of the heart" as defined by the National Center for Health Statistics (see Appendix B for details). This definition encompasses a variety of forms of heart disease including rheumatic heart disease (a consequence of untreated streptococcal infection that can cause permanent damage to the heart valves over time), diseases of pulmonary circulation, hypertensive disease, ischemic heart disease (narrowing of the coronary arteries which decreases the supply of blood to the heart), and other forms of heart disease (including pericarditis, myocarditis, mitral valve disorders, cardiomyopathy, and heart failure).

The majority of heart disease deaths among men of all racial and ethnic groups were attributable to ischemic heart disease during 1991-1995 (Figure 1.1). Specific categories of heart disease death differed most between African American men and white men. Ischemic heart disease was a more common cause of heart disease death among white men compared with black men (71 percent vs. 54 percent), while hypertensive heart disease was a more common cause of heart disease death among black men compared with white men (8 percent vs. 2 percent). Rheumatic heart disease and diseases of pulmonary circulation were rare causes of heart disease death for men of all racial and ethnic groups.

Figure 1.1
Specific categories of heart disease deaths among men 35 years of age and older, by race and ethnicity, 1991-1995



Age Distribution of Heart Disease Deaths among Men

Heart disease mortality increases dramatically with age, with elderly men (85 years and older) at highest risk of death. Heart disease deaths that occur before the age of 65 are generally considered premature, preventable deaths, and are therefore of particular public health significance. During 1991-1995, the proportion of heart disease deaths that occurred prematurely among men varied considerably by race and ethnicity (Figure 1.2). The least favorable age distribution of heart disease deaths was experienced by African American men, with 40 percent of deaths occurring among men less than 65 years old. The proportion of heart disease deaths that were premature among Latinos (including men of all races) was 37 percent. White men experienced the most favorable age distribution of heart disease mortality, with only 21 percent of deaths occurring among those less than 65 years old.

The age distributions of heart disease deaths among men differ substantially from the patterns observed for women and reported in our previous publication, *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality*.[17] A markedly larger proportion of heart disease deaths among men, compared with women, occurred before 65 years of age. The proportion of heart disease deaths that were premature for men compared with women was 40 percent vs. 22 percent for blacks, 37 percent vs. 16 percent for Hispanics, 31 percent vs. 24 percent for American Indians and Alaska Natives, 26 percent vs. 16 percent for Asians and Pacific Islanders, and 21 percent vs. 8 percent for whites.

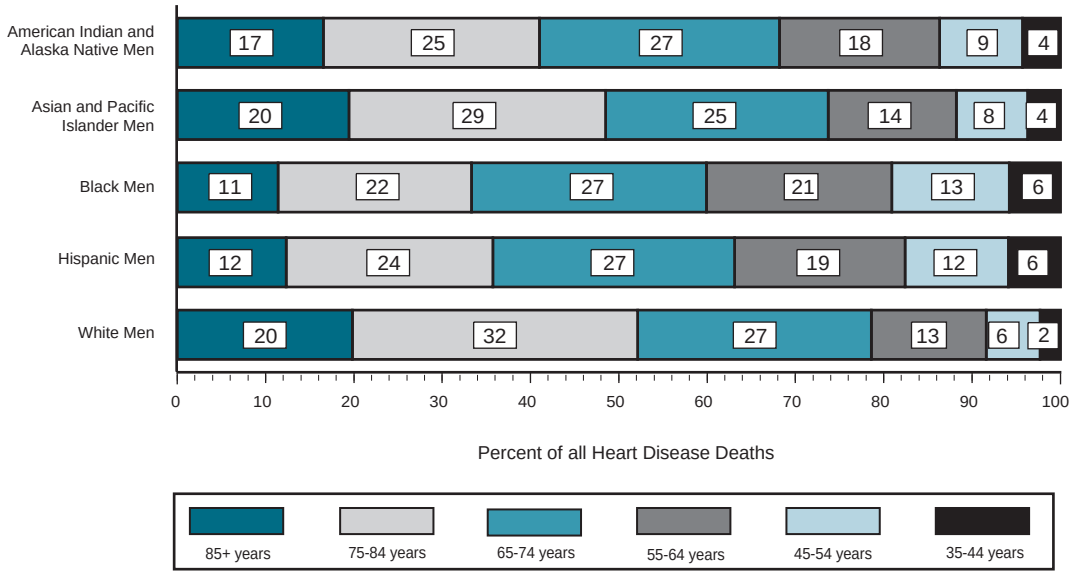
Heart Disease Death Rate Trends for 1991-1995

Disparities in the level of heart disease mortality among the five race and ethnicity groups of men were observed for the years 1991-1995 (Figure 1.3). The highest rates occurred among African American men, followed by white men, American Indian and Alaska Native men, Latinos, and Asian and Pacific Islander men. Throughout the time period, there was a more than twofold difference between the lowest rates (Asian and Pacific Islander men) and the highest rates (black men). Based on previous research, it is likely that the low heart disease death rates observed nationwide for Asian and Pacific Islander men were predominantly a reflection of the mortality experience of Asian men. A study of heart disease mortality in Hawaii found that rates for Hawaiian and other Pacific Islander men were two to six times higher than the death rates for Chinese, Philipino, and Japanese men.[18]

In 1995, the heart disease death rate among African American men was 29 percent higher than the rate for white men, 90 percent higher than the rate for American Indian and Alaska Native men, 97 percent higher than the rate for Latinos, and 126 percent higher than the rate for Asian and Pacific Islander men. However, as discussed above, misreporting of race and ethnicity on death certificates may have led to the rates reported here for American Indians and Alaska Natives and Asians and Pacific Islanders being spuriously lower than the true rates of heart disease mortality.

Although there were substantial declines in heart disease mortality among men during the 1970s and 1980s, the rate of decline slowed substantially in the 1990s. The trend data presented here indicate that there were only modest declines in heart disease death rates in the 1990s. On average, heart disease death rates dropped 1.9 percent per year for men of all racial and ethnic groups combined. (The average annual percent change in death rate was calculated by subtracting the 1991 rate from the 1995 rate, dividing by the 1991 rate, and then dividing by 4). Latinos and American Indian and Alaska Native men experienced faster declines (2.3 percent and 2.6 percent per year, respectively) than black men (1.7 percent per year) and white men (1.9 percent per year). Asian and Pacific Islander men experienced the least decline in heart disease mortality from 1991 to 1995 (1.1 percent per year).

Figure 1.2
Age distribution of heart disease deaths among men 35 years of age and older, by race and ethnicity, 1991-1995



County Variation in Heart Disease Death Rates

There was marked geographic variation in the level of heart disease death rates among men of all racial and ethnic groups during 1991-1995, as summarized in Figure 1.4. For each racial and ethnic group, the number of counties for which data were available varied, depending on county population sizes for each group. For example, rates were calculated for 3098 counties for white men, but only for 344 counties for Asian and Pacific Islander men, because the Asian and Pacific Islander population is small relative to the white population and is concentrated in certain parts of the country.

The distribution of heart disease death rates across counties for men of all races and ethnicities combined was virtually identical to the pattern observed for white men. The county at the midpoint of the heart disease death rate distribution (50th percentile) for white men had a rate of 682 deaths per 100,000 population. Asian and Pacific Islanders experienced the lowest county heart disease death rates, with a rate of 293 deaths per 100,000 population at the 50th percentile of the county distribution. Hispanic men also experienced low county rates of heart disease mortality, with a 50th percentile county rate of 407 deaths per 100,000 population. American Indian and Alaska Native men experienced relatively high county death rates for heart disease, with a 50th percentile rate of 730 deaths per 100,000 population. On average, the highest county heart disease death rates were experienced by African Americans, with a 50th percentile rate of 840 deaths per 100,000.

Geographic disparities in heart disease death rates, measured by the standard deviation of the distribution (SD) of county rates, was lowest among Asian and Pacific Islander men (SD=70 deaths per 100,000 population) and white men (SD=95 deaths per 100,000 population). Intermediate geographic variation in heart disease death rates was observed for Latinos (SD=122 deaths per 100,000 population) and black men (SD=141 deaths per 100,000 population). American Indian and Alaska Native men experienced the greatest disparities in heart disease death rates among counties (SD=497 deaths per 100,000 population), reflecting the diversity of the numerous Tribal nations which were combined for purposes of data analysis in this report.

Figure 1.3
Trends in heart disease mortality among men 35 years of age and older, by race and ethnicity, 1991-1995

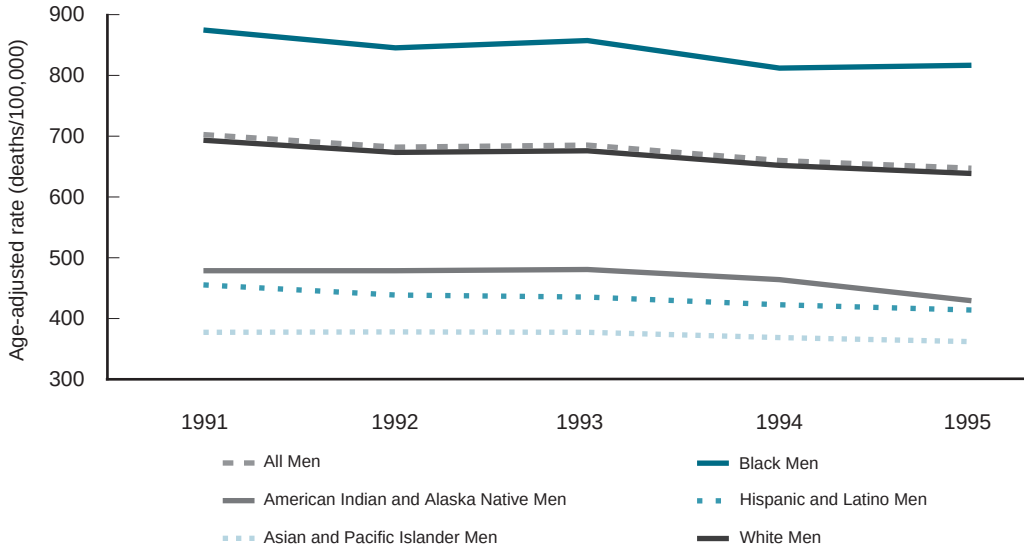


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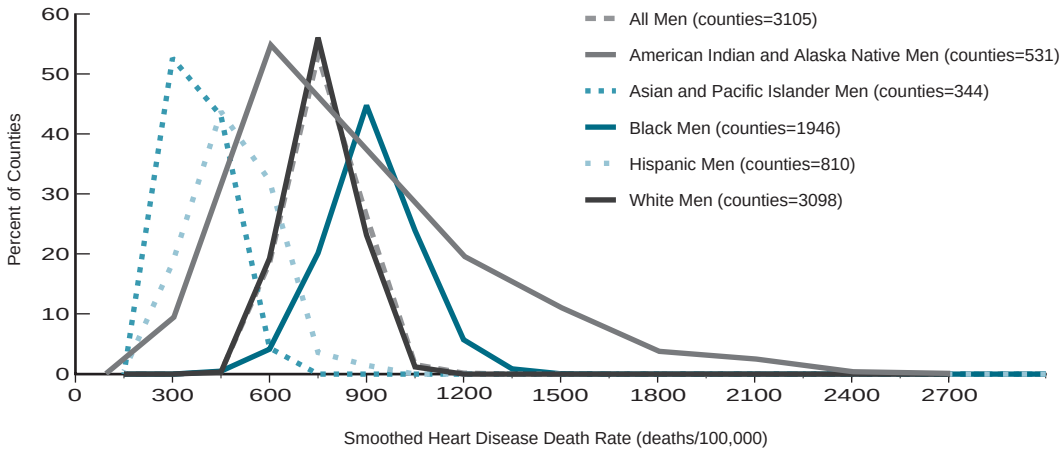
Figure 1.4
Frequency distribution of smoothed county heart disease death rates for men 35 years of age and older, by race and ethnicity, 1991-1995



2 Reader's Guide to Understanding and Interpreting the Maps

Maps have the potential to convey large amounts of complex information in an efficient and visually appealing format. Several important elements are necessary to create a well-designed and accurate map, including the *subject matter* or content of the map (in this case, heart disease death rates), the *layout* of the map (i.e., the location and meaning of different items on the page), the *projection* of the map (i.e., the method by which the earth's curved surface is translated onto a flat page), and the *scale* of the map (i.e., the size of features on the map relative to their actual size on the earth). This section describes each element, and provides additional information useful for interpreting and using the maps.

We have designed the maps in *Men and Heart Disease* to provide the reader with easy access to important information on the geographic distribution of heart disease mortality among men of diverse races and ethnicities. One of the attractions of maps is that they enable communication of huge amounts of information. Precisely because so much information is being presented, however, it is important to be aware of the strengths and limitations of map display.

Men and Heart Disease includes heart disease death rate maps for the nation as a whole and for each individual state. Our rationale for including both national and state maps was straightforward. The national maps illustrate the broadscale geographic patterns of heart disease mortality for each racial and ethnic group, and enable the reader to compare any region, state, or county with other parts of the country. The state maps allow the reader to identify the high-rate and low-rate areas within each state for each of the racial and ethnic groups.

For each state, the categories for high- and low-rate areas are based on only the county rates for that state. Consequently, the spatial pattern of heart disease death rates for a particular state on the national map looks different than the spatial pattern shown on the state map. With care, it is possible to contrast mortality patterns and rates among states and among the different racial and ethnic groups.

Calculation of Heart Disease Death Rates

Our study population consisted of men aged 35 years and older who resided in the United States during 1991-1995. County maps of heart disease mortality were created for six groups of men: all men, American Indian and Alaska Native men, Asian and Pacific Islander men, black men, Hispanic men, and white men. We calculated heart disease death rates at the county level for each group of men by using death certificate data from the National Vital Statistics System and population data collected by the Bureau of the Census. We defined a *heart disease death* as any death for which the underlying cause of death recorded on the death certificate fell into the category "diseases of the heart," as defined by the National Center for Health Statistics. This category included deaths coded 390-398, 402, 404-429 under the Ninth Revision of the International Classification of Diseases (see Appendix B for details).

Important methodological issues had to be resolved before we could map geographic patterns of heart disease mortality for men. Analyses at the county level provide a high degree of spatial specificity but are also subject to potential statistical biases. Specifically, for counties with sparse populations and small numbers of heart disease deaths, the estimated death rates were likely to have large variances which could result in many counties having estimated rates that were spuriously high or low. The issue of small populations was particularly relevant for examining patterns of heart disease mortality by race and ethnicity, because racial and ethnic populations tend to be concentrated in certain geographic regions and sparse in other regions. For all races and ethnicities, populations are more sparse in rural than in urban counties.

One of the challenges in mapping heart disease death rates at the county level is the uneven distribution of population among counties. For counties with small populations, death rates can vary substantially from year to year based on a small change in the number of deaths. These death rates are considered unstable and mapping them can result in misrepresentations of the true geographic patterns.[1] We employed two approaches to reduce the statistical variability of the county mortality rates for heart

disease: 1) temporal aggregation of the data for the five year period 1991-1995, and 2) application of a statistical procedure known as *spatial smoothing*.

Spatial smoothing involves calculating spatial moving averages for all counties.[1] Heart disease deaths (numerators) and population counts (person-year denominators) for each county were summed together with the deaths and populations of the immediate neighboring counties (i.e. contiguous counties) and then divided to produce an average rate. Stated another way, the rate shown on the map for a single county represents an average of the heart disease mortality experience of that county and all its contiguous neighbors (see Appendix B for complete details).

All rates were age-adjusted, with the 1970 U.S. population used as the standard, and are presented as deaths per 100,000 population (see Appendix B for details). On each map, counties were grouped into five categories of approximately equal number (quintiles) based on the county distribution of smoothed heart disease death rates. Counties were first ranked from lowest to highest based on heart disease death rates. The lowest one-fifth of counties were assigned to the first quintile; counties with death rates between the 20th and 40th percentiles were assigned to the second quintile; between the 40th and 60th percentiles to the third quintile; between the 60th and 80th percentiles to the fourth quintile; and the highest one-fifth of counties were assigned to the highest quintile. The use of quintiles for mapping is appropriate for smoothed death rates and helps the reader avoid over-interpreting the data.

Because the severity of heart disease mortality varied by race and ethnicity, the quintile cutpoints are different for each of the national maps, and the range of values represented by a given quintile varies from map to map. Therefore, comparisons of the spatial patterns of heart disease mortality across the maps should be limited to comparing relative differences among different groups of men. To determine whether the mortality rates were absolutely higher or lower for one race and ethnicity group than for another, the reader must study the relevant legends and compare the cutpoints. It is well worth making a mental note of the range of county heart disease death rates for each group when comparing geographic patterns across maps.

National Heart Disease Mortality Map Layouts

Each national heart disease mortality map follows a standard layout (Figure 2.1). The title in the upper left corner identifies the subject. The upper right title identifies the race or ethnicity of the men represented in the map. Most of the page is devoted to a map of the continental United States. We followed the common convention of displaying Alaska and Hawaii as insets in the lower left corner of the layout. Two cities with very large populations, New York City and the District of Columbia, are very small in area and hence difficult to see on the continental map. Therefore, these two areas are also displayed as insets. County boundaries are displayed with a thin black line, and state boundaries are displayed with a thick black line.

The legend, located beneath the map, indicates the range of county heart disease death rates in each quintile and the number of counties in each quintile. For example, among black men (see Figure 2.1) the cutpoint for the lowest quintile is 728, indicating that black men in one-fifth of counties experienced heart disease death rates less than or equal to 728 deaths per 100,000 population. Counties in each quintile are displayed in a different color on the map. Counties in the highest rate quintile are colored dark teal, while counties in the lowest rate quintile are colored light teal. Counties for which there was insufficient data to calculate a heart disease death rate are shaded gray.

National Map Projections

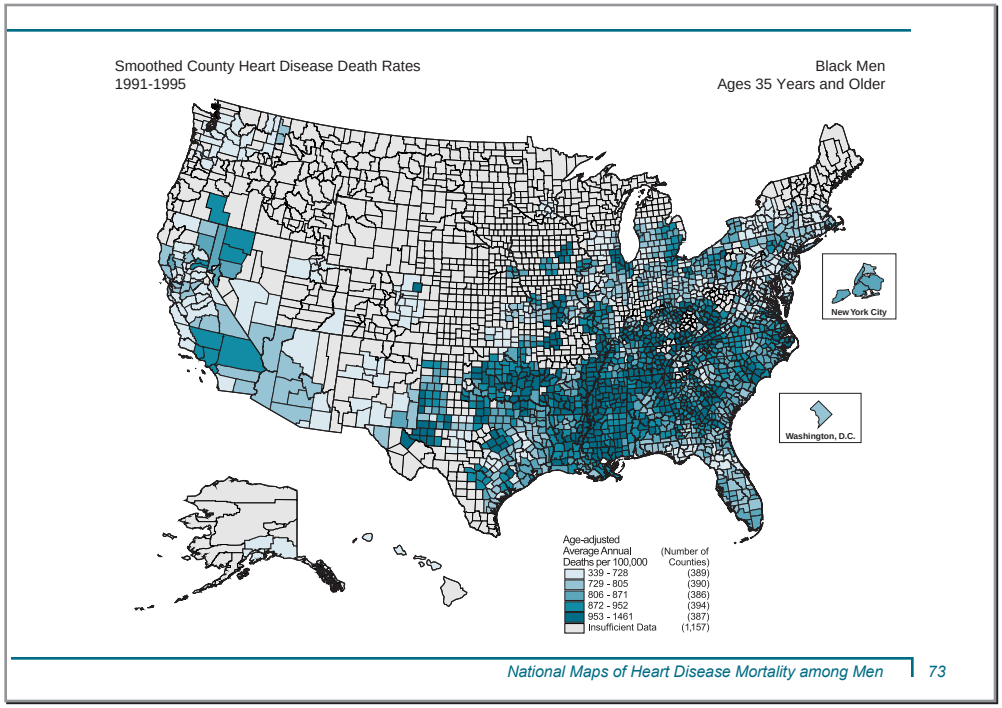
Although no flat map can perfectly represent the curved surface of the earth, use of a suitable map projection preserves essential characteristics such as relative size, shape, and orientation. For the national heart disease mortality maps, the three map projections we used maximize the visibility of spatial information. For the contiguous 48 states, we chose Albers Equal Area, a map projection that preserves the accurate presentation of relative

area and thus enhances comparison of one county with another. Alaska was projected on Miller's Cylindrical projection to provide a suitable orientation on the layout. Hawaii was presented using geographic coordinates (latitude and longitude), for reasons of shape and orientation. New York City and the District of Columbia were also presented using geographic coordinates.

Scale of the National Maps

Scale is the number of distance units on the earth represented by one distance unit on a map. Scale is a dimensionless ratio and therefore can be expressed in any set of distance units (e.g. miles, kilometers, inches, centimeters). Every national map of heart disease mortality actually contains five separate maps, each displayed at a different scale. To display the entire United States on one page, we had to compromise by displaying Alaska and Hawaii as insets. Alaska is displayed at a smaller scale than the map of the contiguous 48 states, because it is large in land area. Hawaii, New York City, and the District of Columbia are displayed at larger scales than the contiguous 48 states because these areas are relatively smaller in land area. Because these maps are thematic in nature and were not designed for displaying or measuring distances, we have chosen not to provide the exact linear scale for each map.

Figure 2.1
Example of layout for national heart disease mortality maps



Guide to National Maps of Local Social Environment

An emerging body of research has recently emphasized the importance of the social environment in influencing population patterns of heart disease mortality. Local social environments provide the context within which individuals live and work, and can create both barriers and incentives to the maintenance of healthy homes, work environments, social networks, and individual lifestyles.[2,3,4] We created several maps that represent three dimensions of the social environment relevant to geographic patterns in heart disease mortality.

The first dimension is *population distribution.* In a series of five maps, the residential location of men aged 35 years and older during 1991-1995 was portrayed separately for each racial and ethnic group. The second dimension is *local economic resources.* Using data on median family income, occupational structure, and unemployment rates for counties, an index of local economic resources was created and mapped. Finally, the third dimension is *medical care resources.* Maps of county distributions of cardiovascular specialty physicians, coronary care unit beds, and cardiac rehabilitation units were produced. Detailed information on data sources and indicator definitions can be found in Appendix B.

Evaluation of the maps of the social environment in conjunction with the heart disease mortality maps may suggest hypotheses about the determinants of geographic disparities in heart disease death rates among men. These maps also provide impor-

tant information that is useful for developing programs and policies to reduce the burden of heart disease among men.

National Population Distribution Map Layouts

One set of maps in this section, the population distribution maps, display two indicators on the same map and use a legend that may be unfamiliar to many readers. In the example shown in Figure 2.2, the first indicator is the percent of all men in each county who were black, and the second indicator is the number of black men in each county. Values of each indicator were divided into three categories. The cutpoints for the categories were chosen to best display the range of variation in population distribution across counties. Consequently, an unequal number of counties fell into each of the three categories for each variable. The categories for the percent of all men who were black were 1) less than 10 percent, 2) 10 percent-34 percent, and 3) greater than or equal to 35 percent. The categories for the number of black men were 1) fewer than 5,000, 2) 5,000-49,999, and 3) greater than or equal to 50,000. The same cutpoints were used for the maps of each racial and ethnic group.

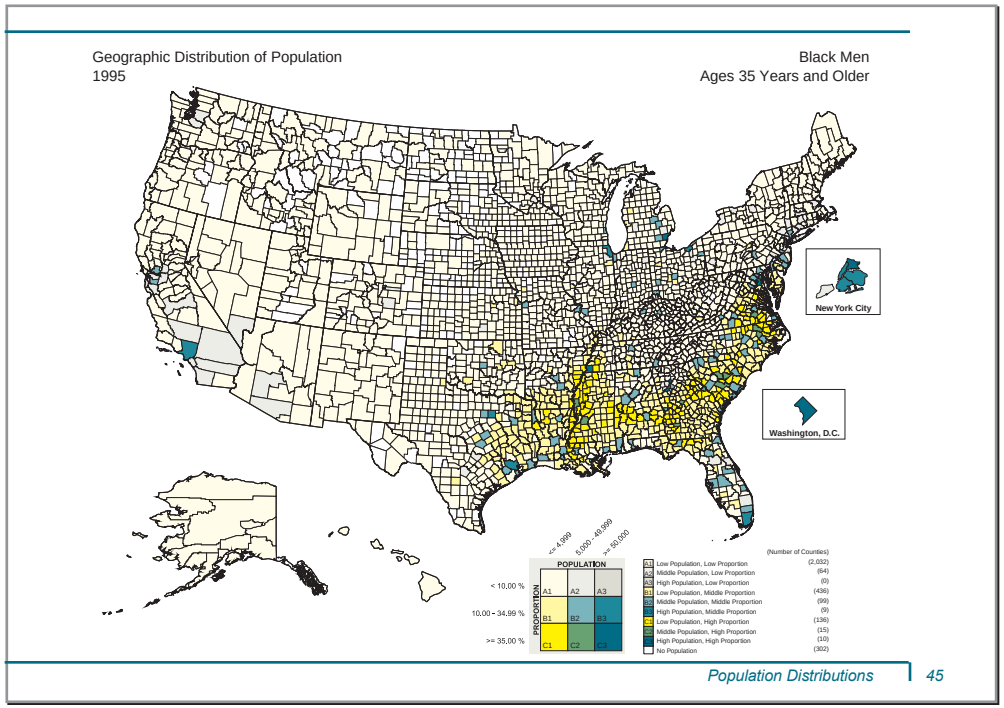
Combining the two indicators resulted in a total of nine categories for mapping, which are displayed in a grid format in the legend. There are two color axes on this grid which correspond to the two indicators. Shades of yellow-gray are used for the population number indicator, and shades of yellow are used for the population percent indicator. Categories at the top and left of the grid show low values of the indicators, while categories at the bottom and right of the grid show high values of the indicators. Numbers of counties in each category are also shown in the legend.

Guide to State Maps of Heart Disease Mortality

To create the state heart disease mortality maps, we used the same heart disease death rates that were generated for the national heart disease mortality maps. A description of the methods used to calculate the rates can be found on pages 28-29. It is important to remember that each county rate is based on a spatial moving average of that county and its neighbors. Therefore, for a county in a given state, neighboring counties that are part of adjacent states contributed to the smoothed rate for that county, even though those neighboring counties are not displayed on the state map.

There is one important difference between the national maps and the state maps. The five categories (quintiles) into which all counties are grouped on the national maps were derived from the range of heart disease death rates experienced by men in counties across the nation. Consequently, all the counties in a particular state could fall into the same quintile and be the same color on a national map. At the state level, we derived quintiles

Figure 2.2
Example of layout for national population distribution maps



based only on the smoothed heart disease death rates for counties in the state. Therefore, each state has counties that fall into five different quintile categories.

In addition, separate quintile cutpoints were generated for each racial and ethnic group within each state. Our rationale for having separate cutpoints by race and ethnicity was the same as for the national heart disease mortality maps, namely, we wanted to display the full range of geographic variability for each racial or ethnic group of men. Therefore, comparisons of the spatial patterns of heart disease mortality across the maps should be limited to comparisons of the relative differences among different groups of men. To determine whether the mortality rates were absolutely higher or lower for one racial or ethnic group compared with another, the reader must study the relevant legends and compare the cutpoints. It is well worth making a mental note of the range of county heart disease death rates for each group when comparing geographic patterns across maps.

State Map Layouts

As with the national maps, for ease of use we have standardized the map layouts at the state level. The page layout for the state maps is presented in Figure 2.3, and uses Arizona as an example. The number of maps produced for each state varies, depending on the number of racial and ethnic groups that had sufficient population sizes to permit mapping of heart disease death rates. The number of maps per state ranges from a minimum of two (maps for all men and maps for white men are displayed for all states) to a maximum of six. States for which there are two or three maps have a single-page layout, and states for which there are four to six maps have a double-page layout.

For single-page layouts, the map title, the first point of reference for the reader, appears at the top right with the state name at top left. On double-page layouts, the title appears at top right on even numbered pages and top left on odd numbered pages. The state name can also be used as a quick tab index. The label for race and ethnicity appears at top right on all maps. The legend appears at either the bottom right or bottom center on each map. Counties in the highest rate quintile are colored dark teal, and counties in the lowest rate quintile are colored light teal. Counties for which there were insufficient data to calculate a heart disease death rate are shaded gray.

For each state, a table is displayed on the bottom left side of the first page of the layout. This table includes summary data for the state as a whole. State population counts for 1995 are provided for each racial and ethnic group. Since all Hispanic men were also included in one of the four race categories, the population count for all men represents the sum of the four race groups only. Heart disease death rates for men of each race and ethnicity are presented in this table. For some states, a particular racial and ethnic group may not have a county map displayed but will have an overall heart disease death rate presented in the table. This is not an error but simply reflects the fact that there were not two counties with sufficient data to generate rates (the minimum necessary for a map) but that there were sufficient data for the state as a whole to calculate a rate for that racial or ethnic group.

State Map Projections

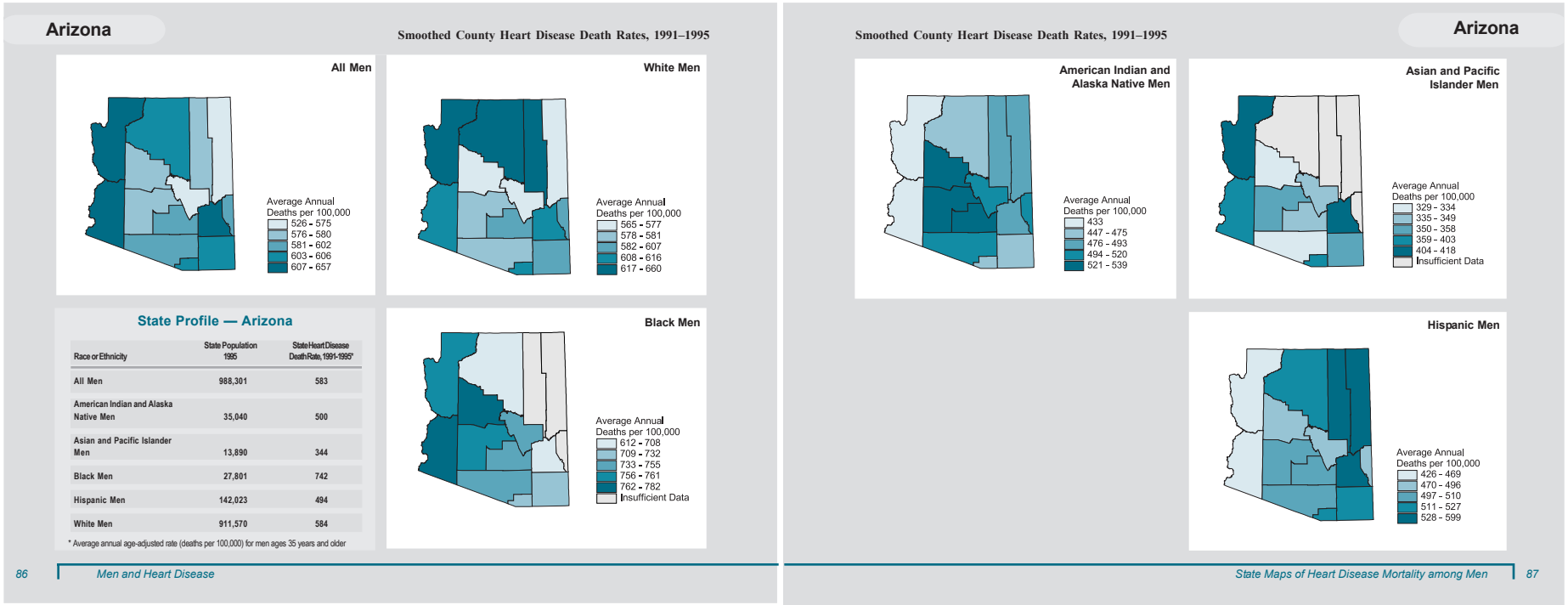
All states were projected using the State Plane system. Every state has a separate, official State Plane system of map projection based on the shape and orientation of the state. Each State Plane system has a standard projection or series of projections based on the Transverse Mercator or Lambert's Conformal projection. In the case of states with multiple State Plane zones, we used the central zone, or the zone that caused minimum distortion to the state as a whole. The benefit of using the State Plane projection is that other geographic information for each state is likely to be available in the same projection, which makes comparison with external data more convenient.

Scale of the State Maps

For each state, the scale is consistent across the maps for different racial and ethnic groups. However, each state is mapped at a different scale compared with other states because we used the largest scale that would fit the layout, in order to maximize the

size of the state image. Therefore, states with a small land area were mapped at a larger scale than states with a larger land area. Comparisons among states should be performed recognizing that, for different states, a unit length on the page does not represent the same distance on the ground. It is useful to use the national map as a point of reference when comparing individual state maps. Because these maps are thematic and were not designed for displaying or measuring distances, we have not provided the exact linear scale for each map.

Figure 2.3
Example of layout for state heart disease mortality maps



[1] Cressie N. *Statistics for Spatial Data*. New York: Wiley, 1991.

[2] Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources, and coronary mortality among U.S. blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8(3):184-191.

[3] Robert SA. Community-level socioeconomic status effects on adult health. *Journal of Health and Social Behavior* 1998; 39:18-37.

[4] Wing S, Casper M, Hayes C, Dargent-Molina P, Riggan W, Tyroler HA. Changing association between community occupational structure and ischaemic heart disease mortality in the United States. *Lancet* 1987; 11(7):1067-1070.

3 Local Social Environment and Men's Risk for Heart Disease Mortality

Social Environment and Heart Disease

Most contemporary heart disease prevention efforts focus on changing the behavior of individuals regarding lifestyle factors: dietary habits, leisure-time physical activity, and tobacco use.[1] Health promotion programs that focus on behavioral risk factors have been effective among adults who are highly educated, fully employed, and highly motivated to improve their health (i.e. among relatively privileged populations). However, the lifestyle approach to heart disease prevention has serious limitations for people who are at highest risk: namely, rural residents, the working class, and the poor. These groups, unfortunately, have greater exposure to risk factors such as cigarette smoking, physical inactivity, high-fat diets, and psychological stress. These groups also face substantial social, economic, and geographic barriers to risk factor reduction.

A holistic alternative to the lifestyle approach to heart disease prevention focuses on broad improvements in local social environments, recognizing that the social environment provides the context within which individuals are exposed to structural risk factors (poverty, social isolation, stressful working environments) and adopt detrimental behaviors (cigarette smoking, physical inactivity, poor diets).[2,3] Under this model, primary prevention of heart disease can be achieved through community-wide improvements in the social environment, including full employment in healthy work environments, access to affordable healthy foods and recreational facilities, freedom from bigotry and discrimination, and opportunities for social interaction and participation in civic life.[4]

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[1] U.S. Department of Health and Human Services. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* DHHS Pub. No.(PHS) 91-50212. Washington DC: U.S. Government Printing Office, 1991.

[2] Sclar ED. Community economic structure and individual well-being: a look behind the statistics. *International Journal of Health Services* 1980; 10:563-579.

[3] Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources, and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8(3):184-191.

[4] Wing S. Social inequalities in the decline of coronary mortality. *American Journal of Public Health* 1988; 78:1415-6.

In this section of *Men and Heart Disease*, we examined several aspects of local social environments that are relevant for primary and secondary prevention of heart disease mortality. The three indicators of the quality of the social environment that we examined were: race or ethnicity-specific population distributions, local economic resources, and medical care resources.

The first set of maps depicts the *population distribution* for each racial and ethnic group for whom heart disease mortality data were analyzed. There are dramatic patterns of spatial concentration of racial and ethnic minorities in particular localities and regions within the United States. Geographic segregation and concentration of particular racial and ethnic groups are important predictors of access to economic opportunities, social services, and medical care resources.

Local economic resources for all counties in the United States were examined with a summary index composed of three measures: white collar employment, unemployment, and family incomes. Local economic resources often determine the availability of resources for healthful living, including safe and affordable foods and recreational facilities.

Finally, *medical care resources*, particularly those related to treatment and rehabilitation of patients with heart disease, were examined. Lack of local availability of medical care resources often means prohibitively expensive and time-consuming travel to a physician or hospital in a distant location for a patient with heart disease.[5,6] We examined local availability of three specific heart disease care resources: cardiovascular disease specialty physicians, coronary care unit beds, and cardiac rehabilitation units.

[5] Behringer B. Health care services in Appalachia, in Couto RA, Harris G, Simpson NK (eds); *Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control*. Bethesda, MD: National Cancer Institute; 1994:62-80.

[6] Whiteis DG. Third world medicine in first world cities: capital accumulation, uneven development and public health. *Social Science and Medicine* 1998; 47:795-808.

In 1990, there were over 120 million men of all ages, races, and ethnicities living in counties across the United States.[1] Each racial and ethnic group has its own unique geographic pattern of population clusters, concentrations, and dispersion. Each pattern reflects differences in migration histories, social and economic opportunities, political conditions, recent immigration rates, cultural preferences, and fertility rates.

The United States population is becoming more diverse by race and Hispanic origin. For example, from 1994 to 1995 the population of Asian and Pacific Islanders increased 3.8 percent, the Latino population increased 3.5 percent, and the African American, American Indian, and Alaska Native populations increased 1.5 percent while the white population increased only 0.8 percent.[2] Population projections from the Bureau of the Census suggest that by 2050 the white non-Hispanic population may drop to 52.5 percent of the United States population compared with its 1990 level of 75.7 percent. Latinos may then be the second largest group comprising 22.5 percent of the population, followed by blacks (15.7 percent), Asian and Pacific Islanders (10.3 percent) and American Indians and Alaska Natives (1.1 percent).[3]

It is important to remember that, in this book, populations defined by race (Asians and Pacific Islanders, American Indians and Alaska Natives, African Americans, and whites) are not mutually exclusive of the population defined by Hispanic origin. In other words, each of the four race groups includes men of Latino ethnicity; similarly, the Hispanic population includes men of all races. The population totals for "all men" result from the sum of the population totals for each of the four race groups.

Recent migration patterns within the United States have strongly influenced the distribution of population by race and ethnicity. Specific migration flows include: 1) a movement away from rural areas into the cities, 2) a countermovement away from cities and suburbs to nearby nonmetropolitan counties, and 3) interregional movements predominantly driven by economic opportunities, largely from east to west, but increasingly from north to south and away from California to the north and east.[4]

The maps in this section portray two dimensions of the population distribution for each of the racial and ethnic groups. Counties are categorized according to the number of men in each racial and ethnic group as well as the percentage of men in the county who belong to each racial and ethnic group. These two dimensions allow the reader to identify the counties with the largest populations of men within each racial and ethnic group while also noting where each racial and ethnic group is most heavily concentrated.

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[1] Bureau of the Census. *General Population Characteristics: United States.* 1990 Census of Population. 1990 CP-1-1. Washington DC: U.S. Government Printing Office.

[2] Deardorf KE, Montgomery P. National population trends. in U.S. Bureau of the Census, current population reports, series p23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office, 1995.

[3] Day JC. National population projections. in U.S. Bureau of the Census, current population reports, series p23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office: 1995.

[4] Paterson JH. *North America.* Oxford: Oxford University Press, 1994, pp.58-60.

American Indian and Alaska Native Men

According to the Bureau of the Census, in 1990 there were 1,959,234 American Indians and Alaska Natives living in the United States, of whom 49 percent were male (n = 986,186)[1]. With over 500 federally recognized tribes, there is substantial geographic, cultural, historical and linguistic diversity among American Indian and Alaska Native peoples. The tribes also vary in size, with only four tribes having greater than 100,000 members: Cherokee, Navajo, Chippewa, and Sioux[2].

In 1990, nearly one-half of the American Indian and Alaska Native population lived in the West, 29 percent lived in the South, 17 percent lived in the Midwest and six percent lived in the Northeast[1]. The concentration of American Indians and Alaska Natives in the West and the small population sizes in the Northeast reflect the effects of the Indian Removal Bill passed in 1830 which mandated the removal of all Indians east of the Mississippi River[3]. Many of the Tribal Nations from the East were forced to resettle in what is now Oklahoma. In 1990, Oklahoma was the state with the largest population of American Indians and Alaska Natives. More than one half of the American Indian and Alaska Native population lived in just 6 states - all located in the West: Oklahoma, California, Arizona, New Mexico, Alaska and Washington[2]. The tribal nations currently residing in the East are descendants of small bands of Indians who escaped removal and managed to remain on their native lands. The largest American Indian populations in the east are located in New York and North Carolina[3].

The map (opposite) depicts the county distribution of the population of American Indian and Alaska Native men ages 35 years and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who were American Indian or Alaska Native (labeled *proportion* on the legend) are displayed on the map. Counties were assigned to one of nine categories based on both population size and proportion of men who were American Indian or Alaska Native. Counties of the lightest color on the map had fewer than 5,000 American Indian and Alaska Native men who comprised less than 10 percent of all men ages 35 years and older. An increasing intensity of grey represents increasing population size and increasing intensity of yellow represents greater proportions of American Indian and Alaska Native men. The deepest turquoise represents counties with a combination of the largest numbers and highest proportions of American Indian and Alaska Native men.

Counties with the highest proportions of American Indian and Alaska Native men were located primarily in the following western states: Alaska, Arizona, New Mexico, Utah, North Dakota, South Dakota, and Montana. None of the counties in the United States had populations of American Indian and Alaska Native men larger than 50,000. Fewer than 4,999 American Indian and Alaska Native men (comprising less than 10 percent of the male population) live in the vast majority of US counties. This pattern reflects the fact that only 22.3 percent of the American Indian and Alaska Native population live on reservations[2] and most of the 314 reservations and trust lands have a population smaller than 1,000 (only 10 reservations had populations greater than 7,000; see table). With the exception of Los Angeles and Phoenix, American Indian and Alaska Native men live predominantly in nonmetropolitan areas.

Ten Reservations with the Largest Numbers of American Indians and Alaska Natives: 1990

Navajo (AZ, NM, UT*)	143,405
Pine Ridge (NE, SD*)	11,182
Fort Apache (AZ)	9,825
Gila River (AZ)	9,116
Papago (AZ)	8,480
Rosebud (SD*)	8,043
San Carlos (AZ)	7,110
Zuni Pueblo (AZ, NM)	7,073
Hopi (AZ*)	7,061
Blackfeet (MT)	7,025

* includes trust lands

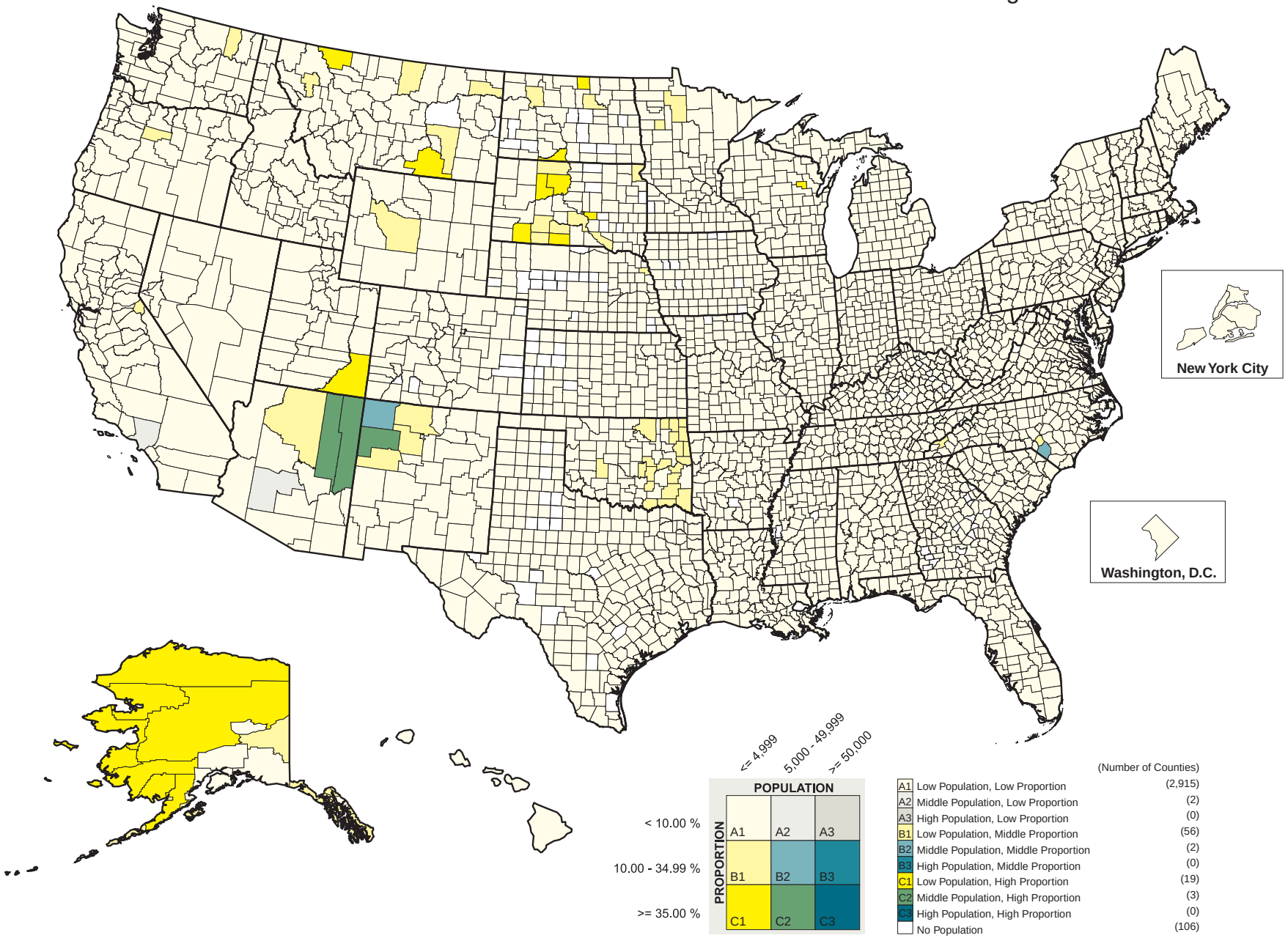
[1] Paisano EL. The American Indian, Eskimo, and Aleut Population. in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995.* US Government Printing Office, Washington DC, 1995. Census of Population and Housing STF1Table P012E.

[2] Bureau of the Census. *We the First Americans.* Washington DC: U.S. Government Printing Office, September 1993.

[3] Snipp CM. *American Indians: The First of this Land.* New York: Russel Sage Foundation, 1989.

Geographic Distribution of Population
1995

American Indian and Alaska Native Men
Ages 35 Years and Older

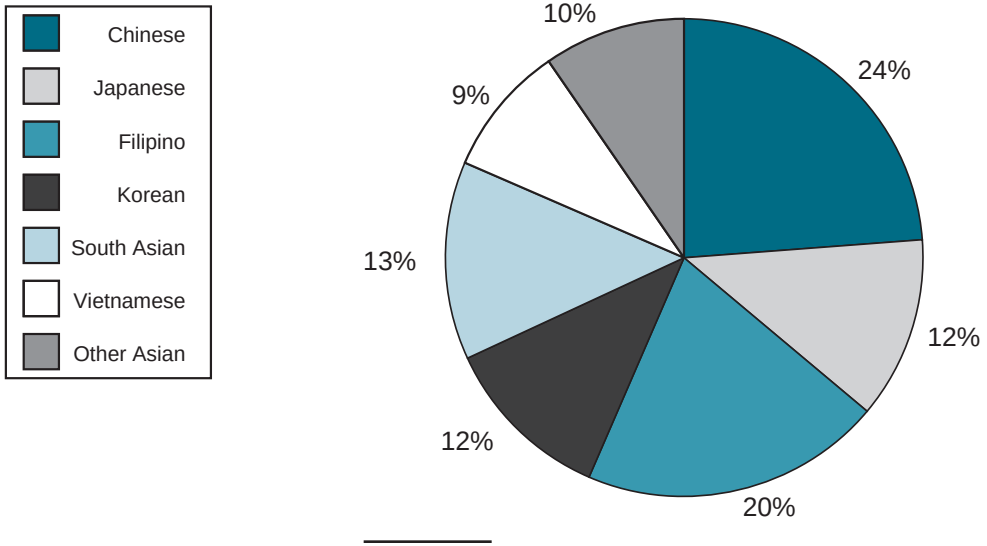


Asian and Pacific Islander Men

The Asian and Pacific Islander population of the United States is highly diverse in ethnicity, language, and country of origin. In 1990 the census counted 7.3 million Asians and Pacific Islanders, who comprised about three percent of the total population and of whom 49 percent were male (n = 3,558,038)[1]. Asians and Pacific Islanders in the United States reside predominantly in metropolitan areas, and are also more likely to reside in central cities than non-Hispanic whites.[1]

Asians of various ethnicities comprise 95 percent of the total Asian and Pacific Islander population.[2] About half of Asians in the United States are of Chinese, Japanese, or Korean ethnicity. Other significant groups include Filipinos, South Asians (Indians, Pakistanis, Bangladeshis, and Sri Lankans), and Vietnamese. Overall, 66 percent of Asians in the United States were born in foreign countries, but the percent who were foreign born varies considerably by ethnicity. In 1990, only 32 percent of persons of Japanese ethnicity were foreign-born.[2]

Figure 3.1
Asian populations in the United States, 1990



Pacific Islanders comprise approximately five percent of the total Asian and Pacific Islander population. Most Pacific Islanders were Hawaiian (58 percent) in 1990, followed by Samoan (17 percent), Guamanian (14 percent) and all other (11 percent).[3] Pacific Islanders reside predominantly in the western United States; in 1990 75 percent of Pacific Islanders lived in either Hawaii or California. Only 13 percent of Pacific Islanders living in the United States in 1990 were born outside the United States.

The map (opposite) depicts the county distribution of the population of Asian and Pacific Islander men ages 35 years and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who were Asian or Pacific Islander (labeled *proportion* on the legend) are displayed on the map. Counties were assigned to one of nine categories based on population size and proportion of men who were Asian or Pacific Islander. Counties of the lightest color had fewer than 5,000 Asian and Pacific Islander men who comprised less than 10 percent of all men ages 35 years and older. The increasing intensity of grey in the map legend represents increasing population size and the increasing intensity of yellow represents greater proportions of Asian and Pacific Islander men. The counties shaded the deepest turquoise have a combination of both the largest numbers and the highest proportions of Asian and Pacific Islander men.

Although only 401 counties in the United States had no Asian or Pacific Islander men ages 35 years and older in 1995, the great majority of counties (n=2,643) were included in the lowest category of both population size and proportion. High proportions of Asian and Pacific Islander men were found only in Hawaii, several counties in California, especially in the Bay Area, Los Angeles and Orange County, and in Queens County, New York (part of New York City). Moderately sized populations of Asian and Pacific Islander men resided in several metropolitan areas, including greater New York City, Chicago, Boston, suburban Washington DC, Detroit, Minneapolis, Miami, Houston, Dallas, and Seattle.

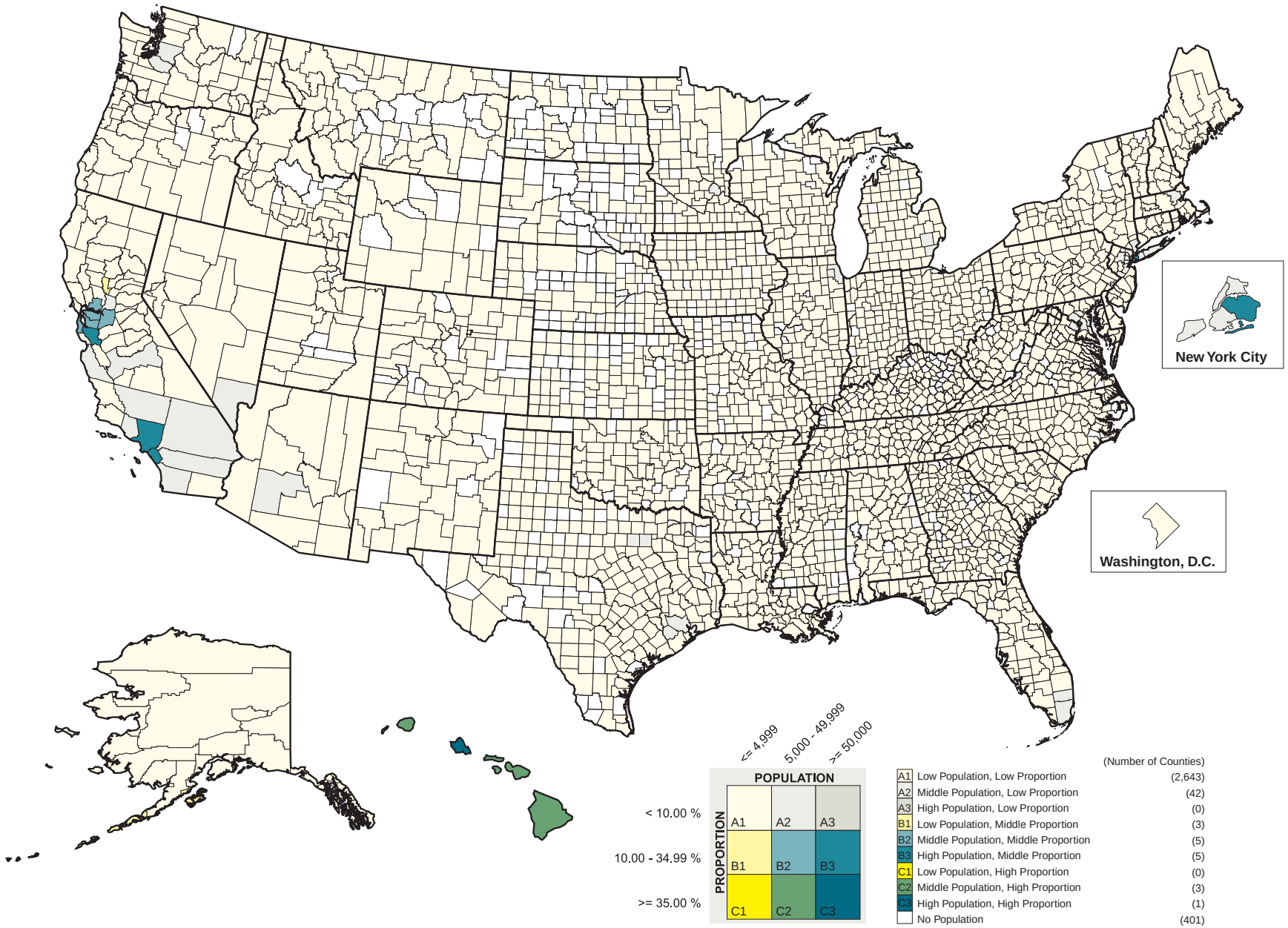
[1] Bennett CE, Martin B. The Asian and Pacific Islander Population, pp.48-49, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. U.S. Government Printing Office, Washington DC, 1995.

[2] Bureau of the Census. *We the Americans: Asians*. U.S. Government Printing Office, Washington DC, September 1993.

[3] Bureau of the Census. *We the Americans: Pacific Islanders*. U.S. Government Printing Office, Washington DC, September 1993.

Geographic Distribution of Population
1995

Asian and Pacific Islander Men
Ages 35 Years and Older



The 1990 United States census counted almost 30 million African Americans, who comprised 12 percent of the total population.[1] Of these 14,170,151 or approximately 47 percent were black men, the lowest sex ratio among racial and ethnicity groups[2]. Most black people born in the United States today are descended from West Africans who were forced to immigrate as slaves to European colonies in the Caribbean and North America during the sixteenth to the nineteenth centuries. A small but increasing proportion of United States blacks are recent immigrants from Africa, the Caribbean, South America and elsewhere. The geographic distribution of the black population reflects the original settlement of early African migrants in the South, as well as more recent internal migrations to northeastern and Midwestern cities.[3] Although today most blacks nationwide live in metropolitan areas (83.8 percent), a substantial proportion of blacks in the South live either in nonmetropolitan areas (28.0 percent) or outside of central cities (27.9 percent).[4]

The map (opposite) depicts the county distribution of the population of black men ages 35 years and older in 1995. Both numbers of men (labeled *population* on the legend) and the proportion of all men who are black (labeled *proportion* on the legend) are displayed on the map. Counties of the lightest color on the map had fewer than 5,000 black men who comprised less than 10 percent of all men ages 35 years and older. On the map, the increasing intensity of grey color is related to increasing numbers of black men and the increasing intensity of yellow is related to greater proportions of black men. Counties shaded the deepest turquoise reflect a combination of both the largest numbers and highest proportions of black men in the total male population aged 35 years and older.

Black men are the second most numerous and geographically dispersed group of men in the nation, and comprised 35 percent or more of the total population of men in 161 counties in 1995. Counties with a high proportion of black men included those in New York City, Philadelphia, Atlanta, the District of Columbia, Detroit, and Memphis, and a number of smaller metropolitan and rural counties in the southern states of Louisiana, Arkansas, Mississippi, Alabama, Florida, Georgia, South Carolina, North Carolina and Virginia. Elsewhere, black men resided predominantly in moderate to large metropolitan areas, including Chicago, Los Angeles, San Francisco, Dallas and Houston. A substantial number of counties nationwide had no black men residents in 1995 (n=302), and a majority (n=2,032) had both low populations and low proportions of black men in 1995.

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[1] Bennett CE, DeBarros KA. The Black Population, pp.44-45, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995*. Washington DC: U.S. Government Printing Office, 1995.

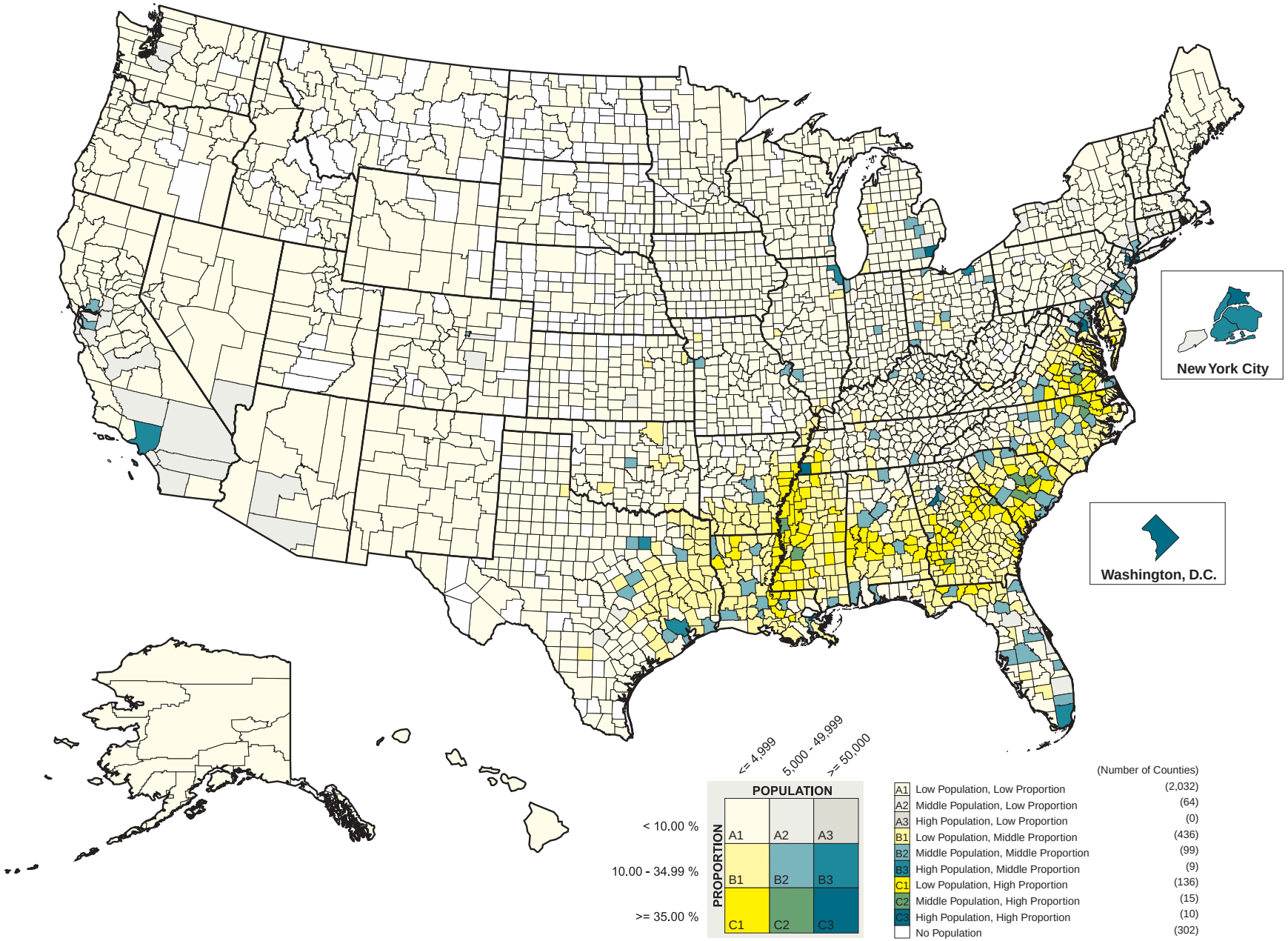
[2] Some minority groups, especially those in urban areas were undercounted by as much as 10 percent in the 1990 Census. The precision of population counts is always subject to uncertainty. See Word D L. *Who Responds/Who Doesn't? Analyzing Variation in Mail Response Rates During the 1990 Census,* Population Division Working Paper No. 19, Population Division, Washington DC: U.S. Bureau of the Census, July 1997.

[3] Smallwood AD. *The Atlas of African-American History and Politics: From the Slave Trade to Modern Times.* Boston: McGraw Hill, 1998.

[4] Bureau of the Census. *We the Americans: Blacks.* Washington DC: U.S. Government Printing Office, September 1993.

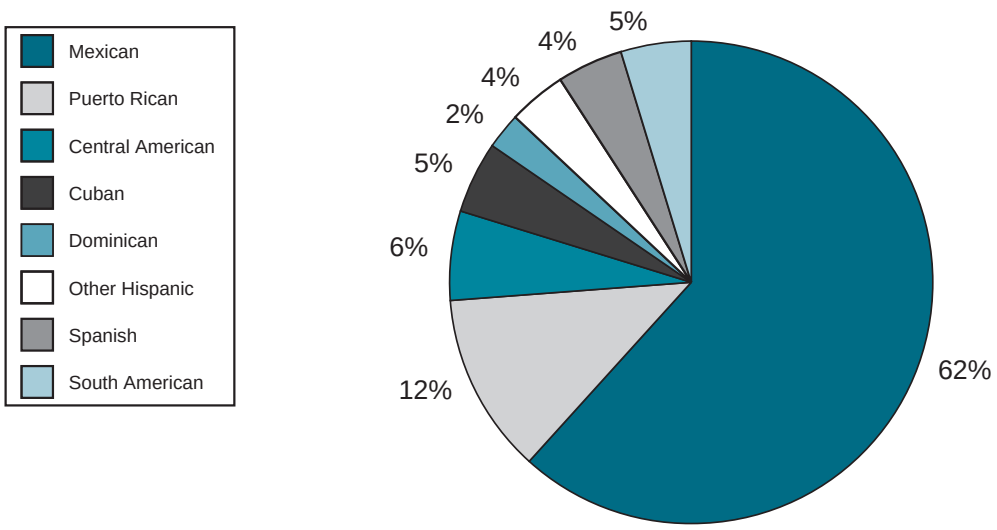
Geographic Distribution of Population
1995

Black Men
Ages 35 Years and Older



The term Hispanic, as defined by the Federal Office of Management and Budget, refers to persons of Spanish culture or origin, regardless of race. The Hispanic population in the United States includes men who refer to themselves as Latino, Chicano, Puerto Rican, and Cuban, among many other designations[1]. In 1993 there were 22.8 million persons of Hispanic origin, comprising nearly nine percent of the total population.[2] Fifty percent of the total, 11,388,059, were male. The Hispanic population is very diverse in race, ethnicity, culture, and country of origin. Most Hispanics in the United States are of Mexican origin (61.2 percent), followed by Puerto Rican origin (12.1 percent), and Central American origin (6.0 percent).[3] Of all Hispanics in the United States in 1990, the majority were native born (64.2 percent), and an additional 9.4 percent were naturalized citizens.[3]

Figure 3.2
Hispanic populations in the United States, 1990



This map (opposite) depicts the county distribution of the population of Hispanic men ages 35 years and older in 1995. Following the convention of the U.S. Bureau of the Census, we defined the population of Hispanic men to include men of all races. Similarly, the populations of men in each race group include some men of Hispanic origin. On the map, both numbers of men (labeled *population* on the legend) and the proportion of all men who were Hispanic (labeled *proportion* on the legend) are displayed. Counties of the lightest color on the map had fewer than 5,000 Hispanic men who comprised less than 10 percent of all men ages 35 years and older. In the legend, an increasing intensity of grey is related to increasing numbers of Hispanic men and the increasing intensity of yellow is related to greater proportions of Hispanic men. Counties depicted in deepest turquoise reflect a combination of both the largest numbers and highest proportions of Hispanic men.

In 1995 there were five counties that had both a large population and a high proportion of Hispanic men. These counties included the Bronx in New York City, Miami-Dade, San Antonio, El Paso, and Brownsville. Several other counties in the Southwest, Florida, and the New York City metropolitan area had moderate or high populations or proportions of Hispanic men. Populations of Hispanic men larger than 50,000 with proportions of between 10 and 35 percent were found in Los Angeles, San Francisco, and a number of agricultural counties in central California. In New Mexico, Hispanic men comprised at least ten percent of all men in every county. Whereas only 71 counties in the United States had no Hispanic men, most counties (n=2,692) had fewer than 5,000 Hispanic men in 1995.

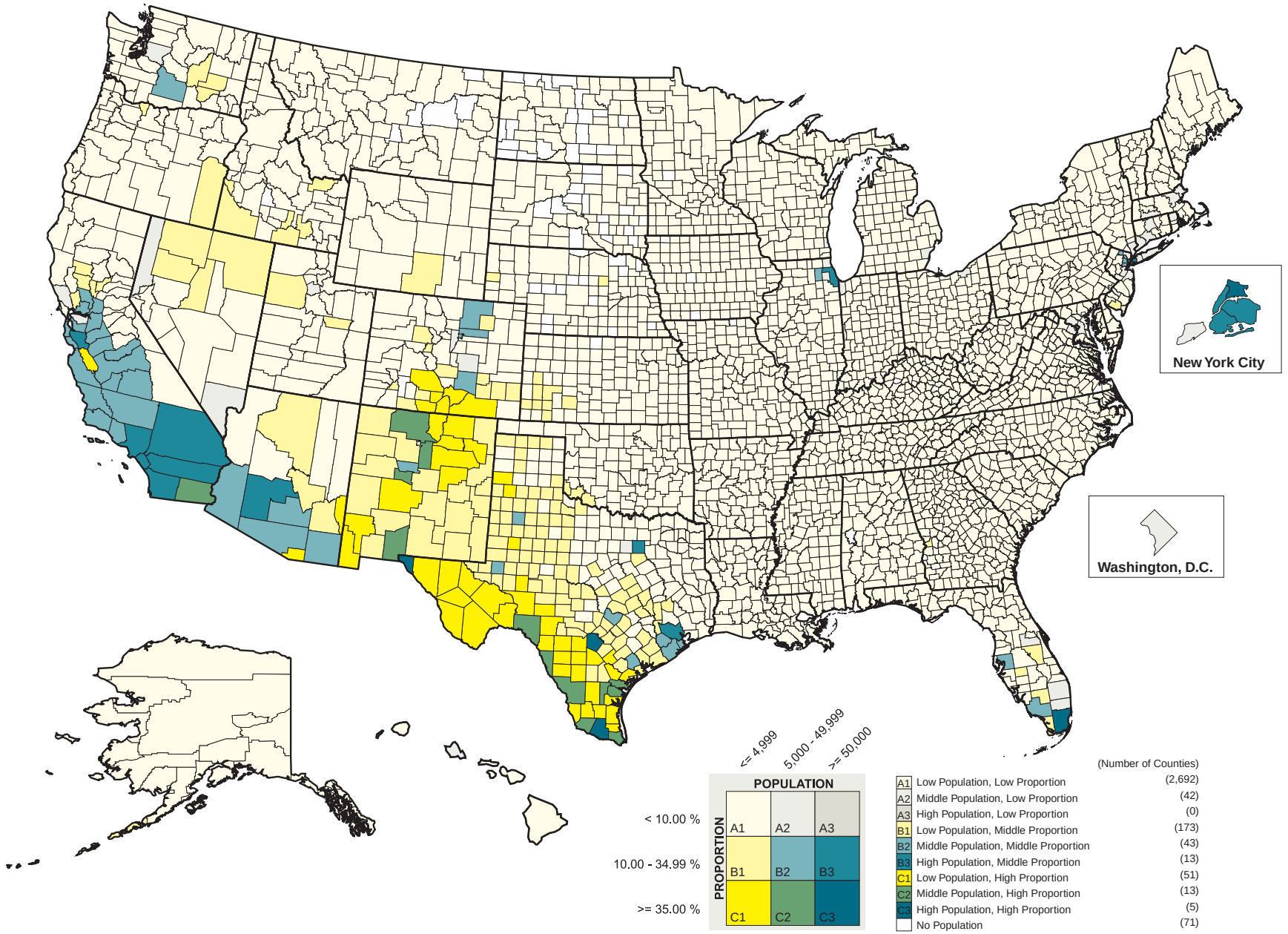
[1] Oboler S. Hispanics? That's what they call us, pp 3-5, in Delgado R, Stefancie J (eds). *The Latino/a Condition.* New York: New York University Press, 1998.

[2] Del Pinal J. The Hispanic Population, pp.46-47, in U.S. Bureau of the Census, Current Population Reports, Series P23-189, *Population Profile of the United States: 1995.* Washington DC: U.S. Government Printing Office, 1995.

[3] Bureau of the Census. *We the Americans: Hispanics.* Washington DC: U.S. Government Printing Office, September 1993.

Geographic Distribution of Population
1995

Hispanic Men
Ages 35 Years and Older



White Men

Whites are the majority population in the United States, and white men (n= 97,475,880) made up 80 percent of men from all races and ethnicities combined in 1990[1]. As with other race and ethnicity groups, there is a wide diversity of cultural and historical backgrounds within the population classified as white. This diversity is reflected in the ancestral origins of the United States population. Among the top ten most frequently reported white ancestral groups in the nation are German (23 percent of the total population), Irish (16 percent), English (13 percent), Italian (6 percent), French (4 percent) and Polish (4 percent). Although white men live in all counties across the nation, many of the subgroups are heavily concentrated in specific regions. For example, more than half the nation's Italians are found in the northeast, half the Norwegians and Czechs in the Midwest, and more than 40 percent of the Scots-Irish are found in the South.[2]

The map (opposite) depicts the county distribution of the population of white men aged 35 years and older in 1995. Both the number of men (labeled *population* on the legend) and the proportion of all men who were white (labeled *proportion* on the legend) are displayed on the map. In the legend, counties are assigned to one of nine categories based on a combination of population size and proportion of white men. Counties of the lightest color on the map had fewer than 5,000 white men, who comprised less than 10 percent of all men ages 35 years and older. The increasing intensity of grey is related to increasing population size and the increasing intensity of yellow is related to greater proportions of white men. Counties depicted in the deepest turquoise shading reflect a combination of both the largest numbers and the highest proportions of men who are white.

Regardless of population size, white men comprise at least 35 percent of the population in all but 15 counties in the United States, and there are no counties where white men account for less than 10 percent of the population. White men account for more than 35 percent in greater numbers than 50,000 in 215 counties. The 14 counties where white men number fewer than 5,000 and comprise less than 35 percent of the population are found in Alaska where the majority of the population is Alaska Native, in parts of New Mexico and South Dakota that belong to American Indian Tribal Nations, and in a handful of southern rural counties whose populations are predominantly African American.

The patterns of population size among white men reflect the overall urban-rural population distribution in the United States. Clusters of counties with more than 50,000 white men are distributed along the southern coast of California and the desert Southwest, in the Pacific Northwest, along the northeast corridor along the Atlantic, and in southern Florida. Other more dispersed clusters in the Northeast, Midwest, and South, clearly mark the locations of the nation's major cities and urban agglomerations. Surrounding many of the urban centers are counties falling into the mid-population range. Counties with fewer than 5,000 white men are widespread in the agricultural interior of the country stretching north from Southwestern Texas through the Great Plains, to Montana and the Dakotas and west through the desert and mountain West. Many counties of the rural regions of Appalachia, southern Georgia, Alabama, and the Mississippi Delta also have small populations of white men.

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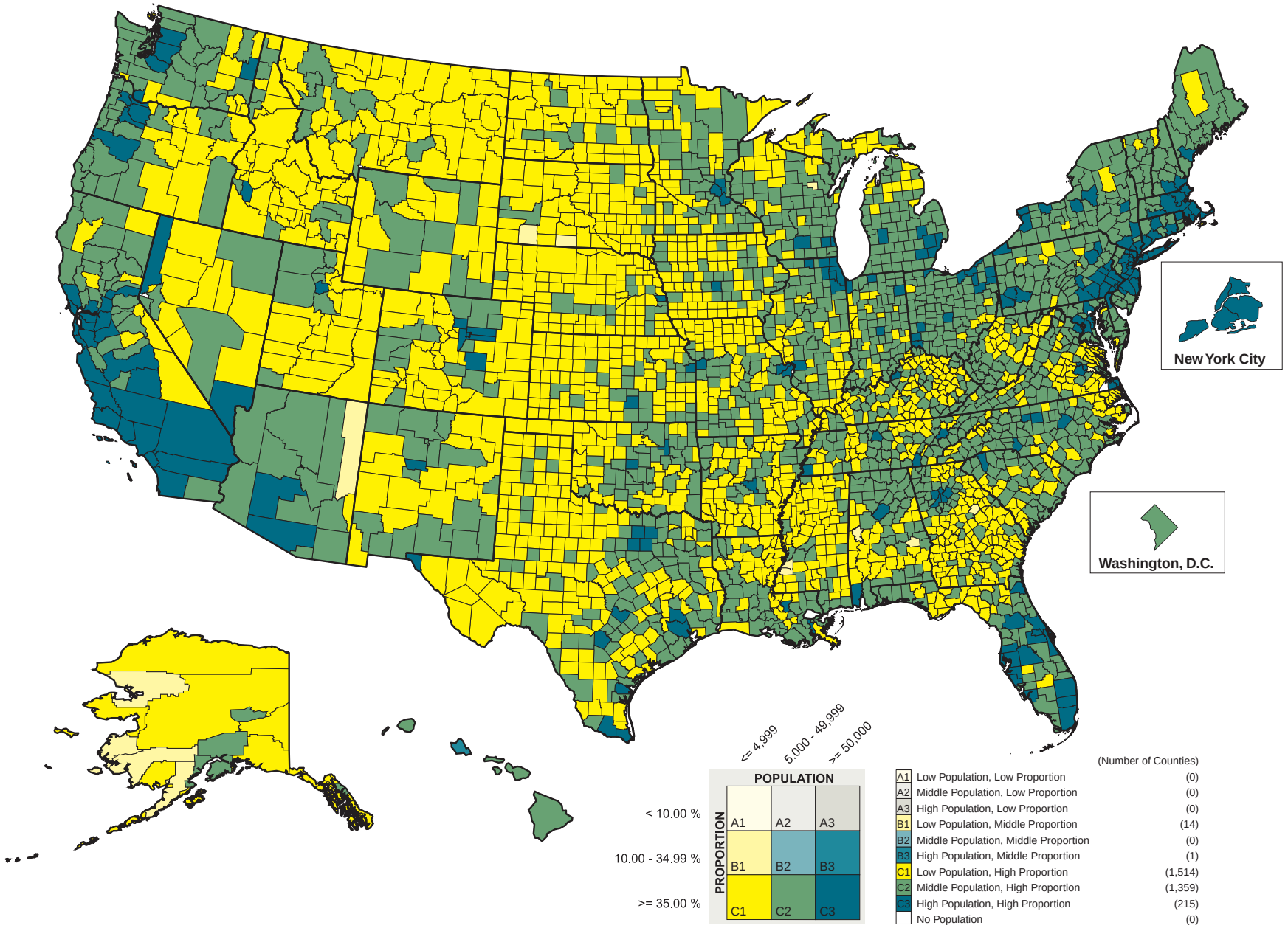
[1] Bureau of the Census. *General Population Characteristics: United States*. 1990 Census of Population. 1990 CP-1-1. Washington DC: U.S. Government Printing Office, 1993.

[2] Bureau of the Census. *We asked...You told us: Ancestry*. Census Questionnaire Content, 1990 CQC-14 Washington DC: U.S. Bureau of the Census. February 1995.

Geographic Distribution of Population
1995

White Men
Ages 35 Years and Older



In the United States, uneven development has created a highly variable landscape of socioeconomic conditions and opportunities. Uneven economic development has resulted in a concentration of wealth and resources in some areas (usually large cities) and underdevelopment of other, predominantly rural areas.[1] Underdevelopment is an historical, political, and economic process by which wealth generated within a region (by the labor of its residents) is exported outside the region (by owners of firms, factories, and mines) rather than being reinvested within the region to benefit local communities.[2] Developed economic centers, including many large metropolitan areas, typically enjoy high levels of economic activity and economies of scale that result in increased median incomes and greater availability of public, social, cultural, and health services than in smaller urban and rural areas.[3-7]

Several studies have shown that, compared with high-resource areas, local communities with low levels of economic resources, as measured by income, occupation, and education profiles, had higher rates of heart disease mortality from the 1960s to the 1980s and were slower to experience the onset of decline in heart disease mortality in the 1960s and 1970s.[3,8] Per capita government expenditures for employment, social, and health services were lower in these areas than in high economic resource areas.[3]

The uneven distribution of local economic resources within the United States poses significant barriers to the development of standardized community-wide programs and policies to reduce the burden of heart disease. Differences in the local economic infrastructure should be considered when community-based programs to prevent heart disease are being designed. Documentation of the geographic distribution of local economic resources also may suggest important directions for further research on the determinants of geographic inequalities in heart disease mortality among men.

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[1] Fox K. Uneven regional development in the United States. *Review of Radical Political Economy* 1978; 10:68-86.

[2] Lyson TA, Falk WW. Forgotten places: poor rural regions in the United States, in Lyson TA, Falk WW (eds); *Forgotten Places: Uneven Development in Rural America*. Lawrence, University of Kansas Press; 1993.

[3] Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8:184-191.

[4] Sclar ED. Community economic structure and individual well-being: a look behind the statistics. *International Journal of Health Services* 1980; 10:563-79.

[5] Barnett E, Elmes GA, Braham VE, Halverson JA, Lee JY, Loftus S. *Heart Disease in Appalachia: An Atlas of County Economic Conditions, Mortality, and Medical Care Resources.* Morgantown, WV: Prevention Research Center, West Virginia University, June 1998.

[6] Whiteis DG. Third world medicine in first world cities: capital accumulation, uneven development and public health. *Social Science and Medicine* 1998; 47:795-808.

[7] Behringer B. Health care services in Appalachia, in Couto RA, Harris G, Simpson NK (eds); *Sowing Seeds in the Mountains: Community-Based Coalitions for Cancer Prevention and Control*. Bethesda, MD: National Cancer Institute; 1994:62-80.

[8] Wing S. Social inequalities in the decline of coronary mortality. *American Journal of Public Health* 1988; 78:1415-16.

The geographic distribution of local economic resources was examined in this report with a summary index based on three measures. *Median family income* has been used independently as an indicator of economic development by social scientists.[1] *Occupational structure* was measured by the proportion of employed workers in white collar jobs—i.e., managerial, professional, technical, sales, and administrative support positions. Occupational structure reflects the division of labor within a local population and the position of a local community in the larger national and international economies.[2] The *unemployment rate* is defined as the proportion of workers in the civilian labor force who currently are not employed and who are actively looking for work. It is a direct indicator of local economic opportunity and underdevelopment. A high unemployment rate negatively affects all members of the labor force, including those who are employed, by providing leverage for employers to keep wages and benefits low.[3,4]

The three variables that composed the summary index of local economic resources (median family income, percent white collar employment, and percent unemployed) were all measured in 1990. Data for the index of local economic resources were obtained from the Area Resource File. Details about this data source can be found in Appendix B. The index was calculated by ranking all counties separately for each variable. For each variable, the counties were then categorized into deciles, and each decile was assigned a score ranging from zero to nine. Counties in the decile with the poorest economic conditions (lowest median income, lowest occupational structure, highest unemployment rate) were assigned a score of zero and counties in the decile with the most advantaged economic conditions were assigned a score of nine. For each county, the scores from the three variables were added together to arrive at the index score. Values of the index score ranged from zero (counties that were in the lowest decile for all three dimensions of the index) to 27 (counties that were in the top decile for all three dimensions of the index). Counties were divided into five groups with roughly equal ranges of index values on the map. Dark teal represents counties with the least favorable local economic resource profiles, and light teal represents counties with the most favorable profiles.

A distinctive pattern was apparent for the geographic distribution of local economic resources in 1990. Clusters of counties with very unfavorable local economic resource profiles were found in several rural, underdeveloped regions of the country. These regions included Appalachia, the Mississippi Delta, the Texas border counties, and the Cotton Belt counties of the South. Unfavorable local economic resource profiles were found in many other counties as well, mostly in rural areas. Clusters of counties with the most favorable local economic resource profiles were found in the metropolitan areas of the eastern seaboard from the District of Columbia, north through the New York City metropolitan area to Boston. Metropolitan and surrounding counties in southern Florida, the San Francisco Bay area, and southern California also had very favorable local economic resource profiles in 1990. The contrast in levels of local economic resources between rural and metropolitan counties was most apparent in Appalachia and the South. In Kentucky, the cities of Lexington and Louisville had favorable local economic resource profiles, but rural counties to the east had very unfavorable profiles. The same contrast was evident for both Nashville, TN and Jackson, MS and the surrounding rural counties.

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[1] Nielsen F, Alderson AS. The Kuznets curve and the great U-turn: income inequality in U.S. counties, 1970 to 1980. *American Sociological Review* 1997; 62:12-33.

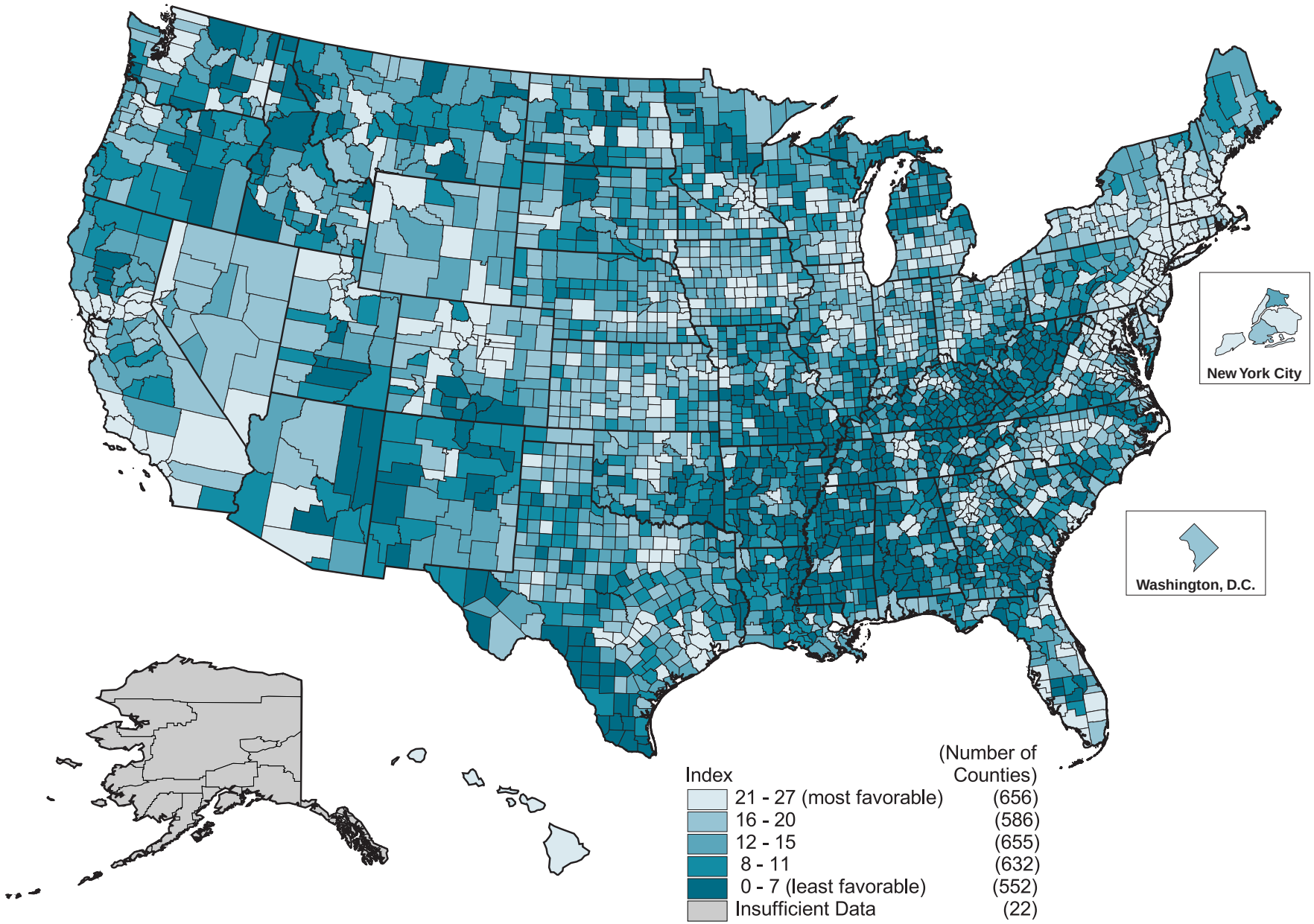
[2] Armstrong D, Barnett E, Casper M, Wing S. Community occupational structure, medical and economic resources and coronary mortality among US blacks and whites, 1980-1988. *Annals of Epidemiology* 1998; 8:184-91.

[3] Lyson TA, Falk WW (eds). *Forgotten Places: Uneven Development in Rural America*. Lawrence: University of Kansas Press, 1993.

[4] Lobao LM. *Locality and Inequality: Farm and Industry Structure and Socioeconomic Conditions*. Albany: The State University of New York Press, 1990.

Local Economic Resource Index
1990

Total Population
All Ages



The availability and accessibility of medical care resources play an important role in the secondary prevention of heart disease. The American Heart Association defines secondary prevention as "identifying and treating persons with established disease and those at very high risk of developing disease, and treating and rehabilitating patients who have had a heart attack to prevent a second cardiovascular event."[1] There are currently a number of thrombolytic therapies ("clot busters") that can save lives if administered within 12 hours after the onset of heart attack symptoms. In clinical studies, thrombolytic drugs have been associated with an overall 25 percent to 30 percent reduction in mortality from acute myocardial infarction.[2] The greatest improvements in survival occur if drugs are given within one to two hours after the onset of symptoms. Invasive cardiac procedures (e.g. angioplasty, coronary artery bypass surgery, and cardiac stenosis) can also save lives and reduce disabilities related to heart disease if they are performed in a timely fashion.

The benefits of drug treatments and surgical procedures depend on widespread recognition of the signs and symptoms of a heart attack and rapid access to quality medical care facilities and health professionals. For many men in the United States, however, there are substantial barriers to receiving needed medical care. These barriers include poverty, lack of health insurance, rural isolation, social isolation, and absence of cardiac care physicians and facilities in their communities. Men of minority racial or ethnic groups may be particularly disadvantaged in their access to medical care resources, given the geographic distribution of these populations, indicating these areas may be underserved. Local availability of three specific medical care resources was examined: cardiovascular specialty physicians, coronary care unit beds, and cardiac rehabilitation units. County data on the availability of these resources were obtained from the Area Resource File (see Appendix B for details). County-specific data were not available for Alaska.

[1] American Heart Association. *1998 Heart and Stroke Statistical Update*. Dallas, TX: American Heart Association, 1997.

[2] Ryan TJ, Anderson JL, Antman EM, et al. ACC/AHA Guidelines for the management of patients with acute myocardial infarction: executive summary. A report of the American College of Cardiology/American Heart Association Task Force on practice guidelines (Committee on Management of Acute Myocardial Infarction). *Circulation* 1996; 94:2341-50.

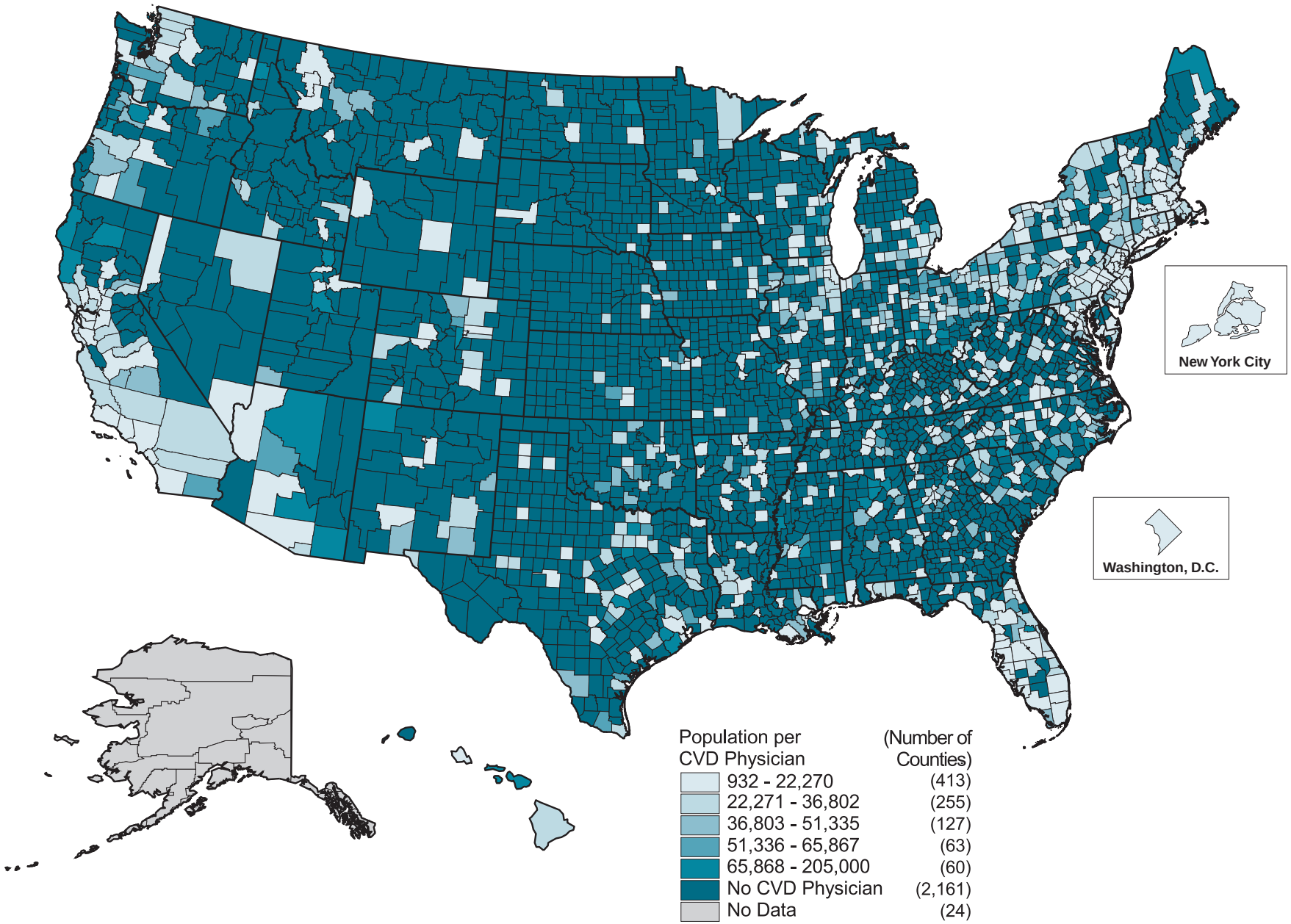
Cardiovascular Disease Specialty Physicians

Cardiovascular disease (CVD) specialty physicians have specialized training in the diagnosis of heart disease, case management, medical and surgical treatment, and cardiac rehabilitation. Given their specialized training, the presence of CVD specialty physicians in a local community increases the availability of medical and surgical interventions for heart disease.

In 1990, 70 percent of the counties in the United States had no CVD specialty physicians. For much of the western United States, the large expanse between counties that had CVD specialty physicians posed a serious obstacle to timely and appropriate cardiac care. Patients who lived in a county with no CVD specialty physicians often faced prohibitively expensive and time-consuming travel to a physician in a distant location. States with few counties that had CVD specialty physicians in 1990 included North Dakota, South Dakota, Iowa, Nebraska, Kansas, Wyoming, and Montana. In the South, where rural areas were more densely populated than rural areas in the West, many counties also did not have CVD physicians in 1990. Many counties in the South, Midwest, and Northeast that did have CVD specialty physicians had high population to physician ratios, indicating that these areas were underserved.

Metropolitan counties throughout the United States were more likely to have favorable population to CVD specialty physician ratios than nonmetropolitan counties. The most favorable population to physician ratios were observed in the most highly urbanized and densely populated areas of the country— namely, the eastern seaboard from Boston to the District of Columbia, industrial centers of the Midwest, southern California, the San Francisco Bay area, and much of Florida.

Total Population per Cardiovascular Disease (CVD) Specialty Physician
1990



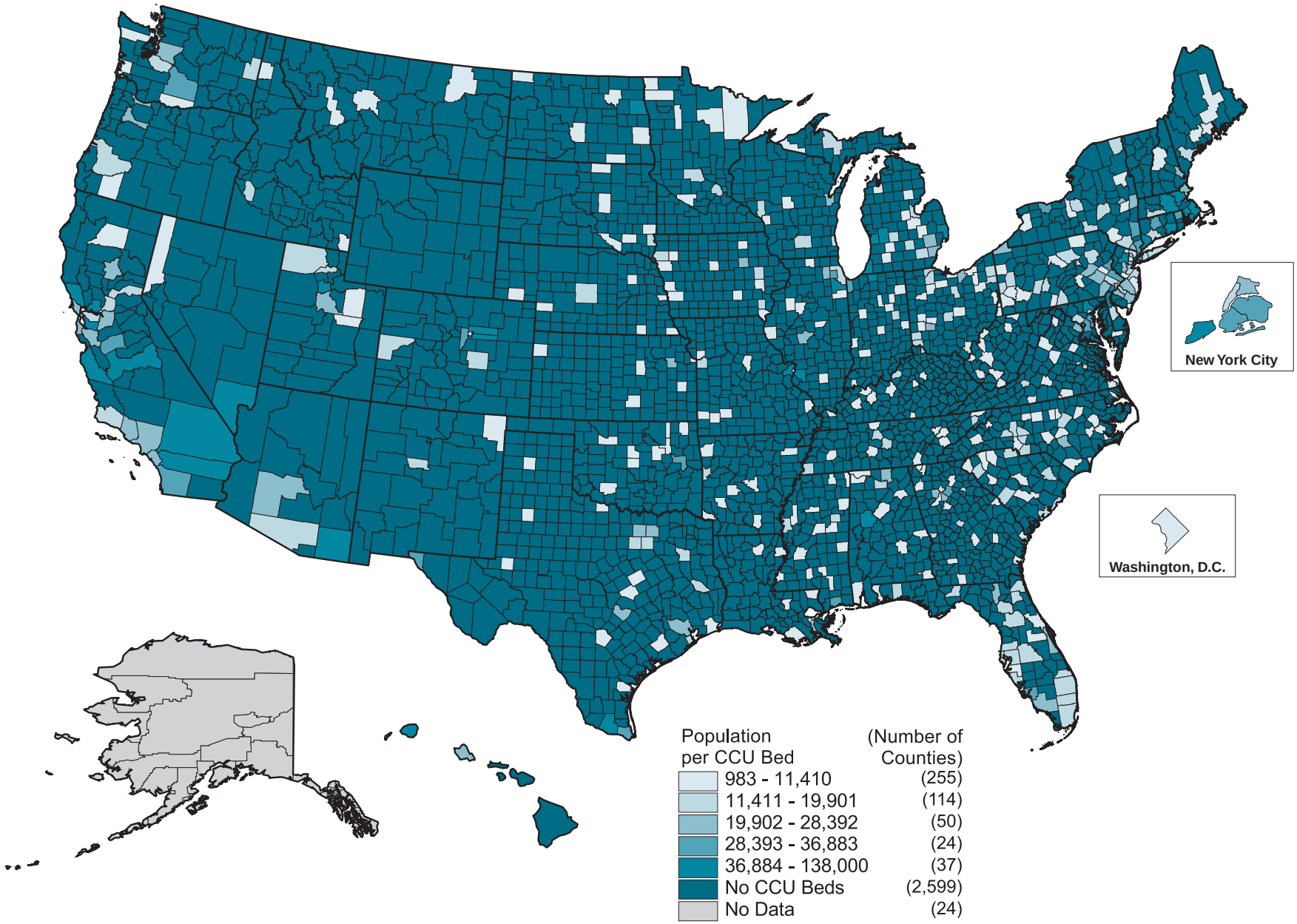
Coronary Care Unit Beds

The coronary care unit (CCU) is a vital component of medical care for acute myocardial infarction.[1] Intensive monitoring of cardiac patients for lethal arrhythmias is critical for the care of cardiac patients and has been shown to reduce hospital deaths by 30 percent. One method of measuring such care is through the availability of CCUs. However, in many communities where specialized CCUs are not available, cardiac patients may receive appropriate care in intensive care units equipped to conduct noninvasive monitoring of arrhythmias and invasive monitoring of arterial and pulmonary blood pressure. Trained staff and monitoring equipment should be available 24 hours per day.[1]

In 1993, 84 percent of the counties in the United States did not have a single CCU hospital bed. Large geographic expanses of the country were without CCUs. Clusters of counties with CCU beds were found in the metropolitan counties of the eastern seaboard, Florida, and north central and southern California, including Boston, New York, Philadelphia, Baltimore, and San Diego. Many of these metropolitan areas had high population to hospital bed ratios, however. The most favorable population to CCU hospital bed ratios were found in several metropolitan areas, including the District of Columbia, Pittsburgh, Atlanta, Birmingham, San Antonio, and Reno.

[1] Task Force on the Management of Acute Myocardial Infarction of the European Society of Cardiology. Acute myocardial infarction: pre hospital and in hospital management. *European Heart Journal* 1996; 17:43-63.

Total Population per Coronary Care Unit (CCU) Bed
1993



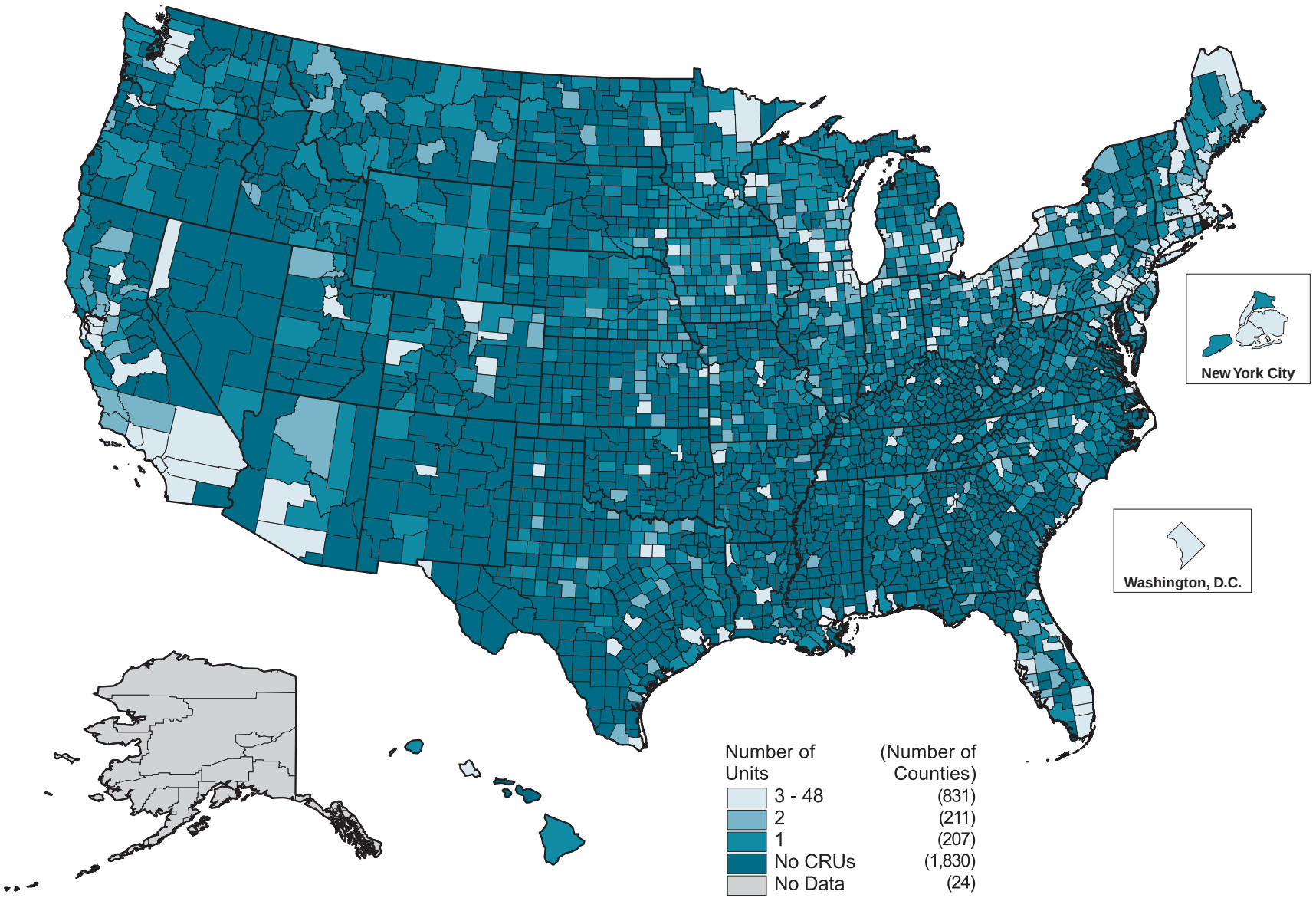
Cardiac Rehabilitation Units

Cardiac rehabilitation units are designed to provide rehabilitative services to patients who have serious heart disease or are recovering from a heart attack. Cardiac rehabilitation services are usually provided in general hospitals, and their main purpose is to lower the risk of complications and death from heart disease.[1] The goal for many patients in cardiac rehabilitation is to develop a tailored exercise program that will work toward increasing their strength and aerobic fitness, reducing their blood pressure and cholesterol levels, and maintaining their weight loss. Cardiac rehabilitation units serve more than one individual at a time; therefore we mapped the total number of facilities offering cardiac rehabilitation services in each county instead of using the population ratio.

In 1993, a majority (60 percent) of United States counties did not have a cardiac rehabilitation unit. Counties with no availability of cardiac rehabilitation services were clustered in the South, the West, and rural areas throughout the country. Most counties in or near major metropolitan areas such as New York, Chicago, Los Angeles, and Miami had three or more cardiac rehabilitation units. Many metropolitan areas throughout the country had at least one cardiac rehabilitation unit. The concentration of cardiac rehabilitation services in metropolitan areas, meant that rural residents were faced with traveling long distances to receive rehabilitative care.

[1] Agency for Health Care Policy and Research. *Cardiac Rehabilitation: Clinical Practice Guidelines No.17*. AHCPR Publication No. 96-0672. Rockville, MD: Agency for Health Care Policy and Research, October 1995.

Cardiac Rehabilitation Units (CRUs)
1993



4 National Maps of Heart Disease Mortality among Men

In this section, national geographic disparities in heart disease death rates are presented for all men, Asian and Pacific Islander men, American Indian and Alaska Native men, black men, Hispanic men, and white men. Men ages 35 years and older who resided in the United States during 1991 to 1995 were the study population. Each national map portrays spatially smoothed heart disease death rates for all counties, including Alaska, Hawaii, and the District of Columbia.

To aid in visualization, Hawaii, New York City, and the District of Columbia are shown separately on each map, at a larger scale than the 48 contiguous states. Because of its very large land area, Alaska is shown at a smaller scale than the other states. The distribution of county heart disease death rates for each group of men was divided into quintiles (five categories with an equal number of counties) for the purposes of mapping. Counties in the highest quintile of heart disease mortality are dark teal on the maps, and counties in the lowest quintile are light teal.

On the maps for African Americans, Asian and Pacific Islanders, American Indians and Alaska Natives, and Latinos, heart disease death rates were not calculated for most counties nationwide. These counties are labeled "insufficient data" on the maps. In these counties and their surrounding areas, there were fewer than 20 heart disease deaths among men of the specified racial or ethnic group over our five-year study period. For these areas of very low population and infrequent heart disease deaths, statistically reliable death rates could not be calculated (see Appendix B for more details).

For part of the study period, Oklahoma and New Hampshire did not collect data on Hispanic origin on death certificates. Consequently, we were unable to report heart disease death rates for Latino men in these states. During 1991-1993, "unknown" Hispanic origin was recorded on approximately 23 percent of death certificates for men ages 35 years and older in New York City. Therefore, the heart disease death rates we report for Latinos in New York City may be underestimates (see page 149 for details).

Heart Disease Mortality – All Men

Overall, men aged 35 years and older in the United States experienced a heart disease death rate of 675 per 100,000 population during 1991-1995. However, there was considerable variation in the magnitude of heart disease death rates among the 3,103 counties for which data were available. Rates for counties ranged from 377 to 1,102 deaths per 100,000, and the heart disease death rate at the midpoint of the top quintile (938 per 100,000) was nearly twice as high as the midpoint of the lowest quintile (490 per 100,000). The frequency distribution graph (Figure 4.1) illustrates the range of geographic variation in death rates. The color bar along the x-axis of the graph shows the range of values for each of the five groups used for mapping the geographic variation in heart disease death rates among all men.

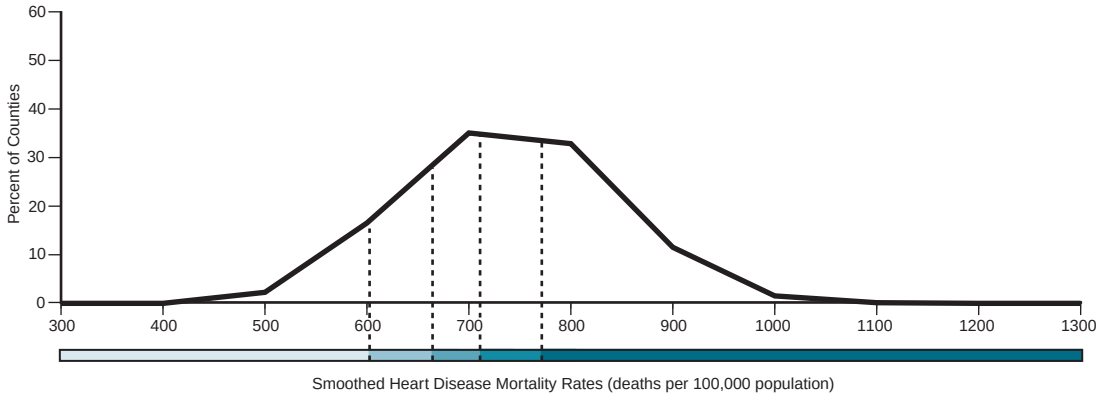
On the map (opposite) counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

There was a clear east-west gradient in levels of heart disease mortality among men during 1991-1995. Counties in the top two quintiles were located primarily within Appalachia, the Ohio-Mississippi River Valley, the Mississippi Delta, and the eastern Piedmont and coastal regions of Georgia, South Carolina, and North Carolina. In Florida, most counties experienced rates in the lowest two quintiles, while several of the northern counties had rates in the higher quintiles. Most counties in the Pacific Northwest and Rocky Mountain areas of Colorado and New Mexico were in the lowest quintile. Alaskan and Hawaiian counties had rates in the lowest two quintiles. Men who live in the upper Midwest, New England, and much of Texas experienced intermediate-level rates of heart disease mortality during 1991-1995.

A Note on Methods

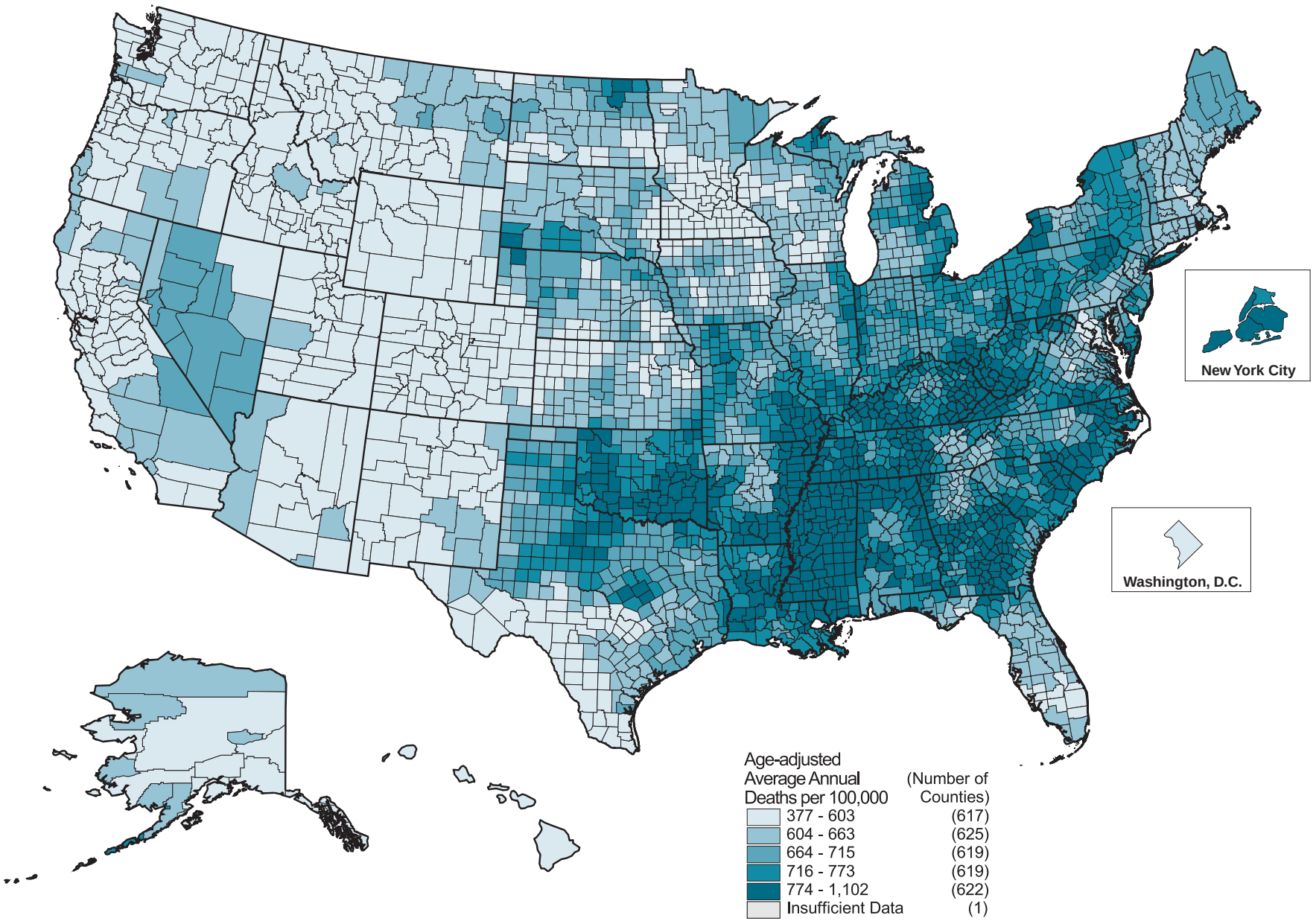
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 U.S. population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and to create the map can be found in Appendix B.

Figure 4.1
Frequency distribution of smoothed heart disease death rates for counties, all men, ages 35 and older, 1991-1995



Smoothed County Heart Disease Death Rates
1991-1995

All Men
Ages 35 Years and Older

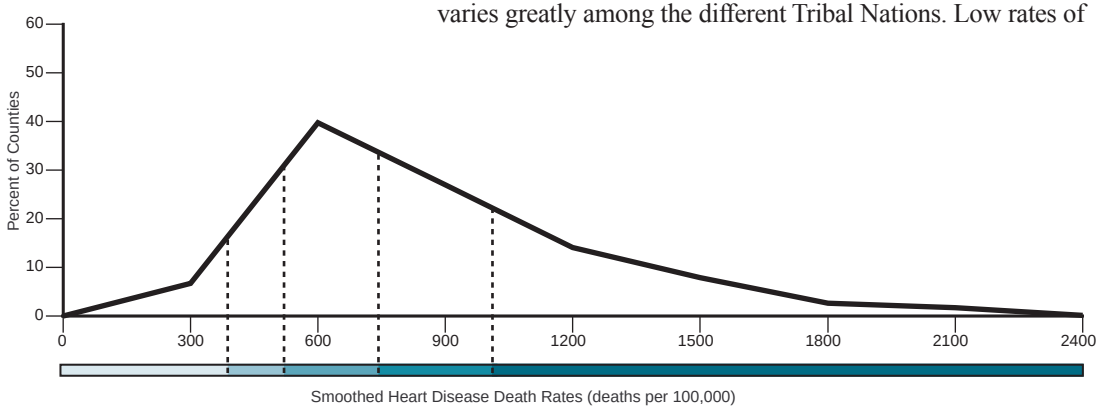


Heart Disease Mortality – American Indian and Alaska Native Men

American Indian and Alaska Native men comprised 0.6 percent of all men aged 35 years and older in the United States in 1991. For the period 1991-1995, the heart disease death rate for American Indian and Alaska Native men was 465 per 100,000 population. Considerable geographic variation in the burden of heart disease mortality was evident across the 531 counties for which data were available (Figure 4.2). Rates for counties ranged from 130 to 2,195 per 100,000. There was more than a fivefold difference in the heart disease death rate at the midpoint of the top quintile compared with the midpoint of the lowest quintile (1,594 deaths per 100,000 vs. 435 deaths per 100,000). The color bar along the x-axis of the graph shows the range of values for each of the five groups used for mapping the geographic variation in heart disease death rates among American Indian and Alaska Native men. On the map (opposite), counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

The American Indian and Alaska Native population in the United States is composed of many politically and culturally distinct Tribal Nations residing both in defined rural areas (in some cases reservations with limited political sovereignty) and in urban areas (see page 41 for a map of the geographic distribution of the American Indian and Alaska Native population of men). The map of heart disease death rates among American Indian and Alaska Native men suggests that risk for heart disease varies greatly among the different Tribal Nations. Low rates of heart disease mortality were found in large metropolitan counties and surrounding areas (New York City, San Francisco, Los Angeles, and Chicago). Low rates of heart disease mortality were also experienced by men in some parts of Oklahoma (predominantly Cherokee Nation), Arizona, and New Mexico (predominantly Navajo Nation). High rates of heart disease mortality were experienced by men in South Dakota (predominantly Dakota Nation), Montana, and Minnesota (predominantly Chippewa Nation). An area of southeastern North Carolina is home to a large group of Lumbee Indians, who are not a federally recognized tribe. American Indian men in this area also experienced high rates of heart disease mortality. American Indian men in Utah and the Pacific Northwest, and Alaska Natives experienced intermediate rates of heart disease mortality.

Figure 4.2
Frequency dstribution of smoothed heart disease death rates for counties, American Indian and Alaska Native men, ages 35 and older, 1991-1995



A Note on Methods

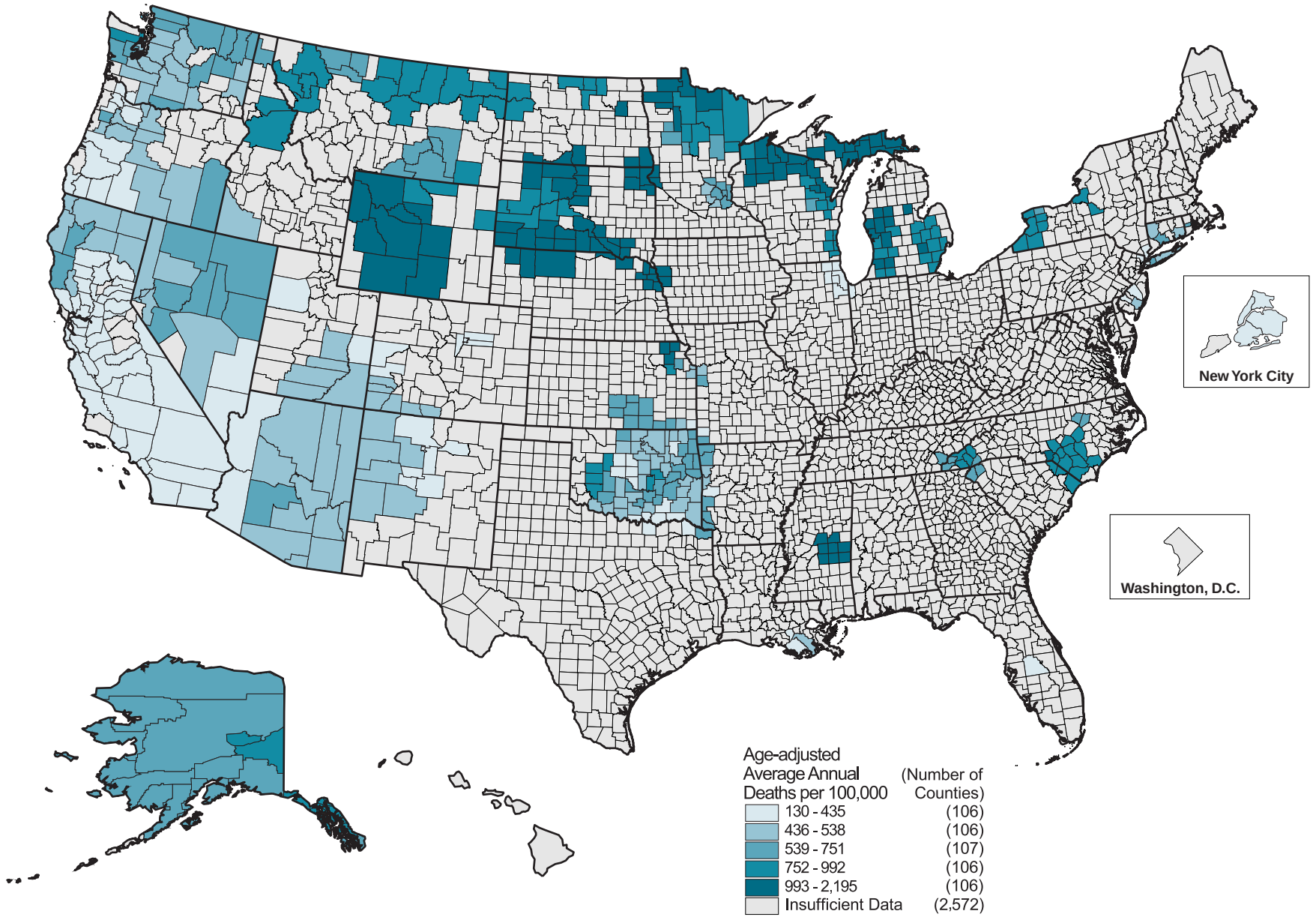
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 United States population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and create the map can be found in Appendix B.

A Cautionary Note

The race and ethnicity of decedents are not always reported accurately on death certificates. Validation studies have shown that certain racial and ethnic minorities are sometimes misreported as "white" on death certificates (see page 21). Therefore, an unknown proportion of heart disease deaths among American Indian and Alaska Native men could not be included in the data analyses for this report. Consequently, the true heart disease death rates for American Indian and Alaska Native men were probably higher during 1991-1995 than indicated in Figure 4.2 and the map. In addition, if misreporting of race on death certificates were a greater problem in certain parts of the country than in others, then the geographic patterns presented here could be biased.

Smoothed County Heart Disease Death Rates
1991-1995

American Indian and Alaska Native Men
Ages 35 Years and Older

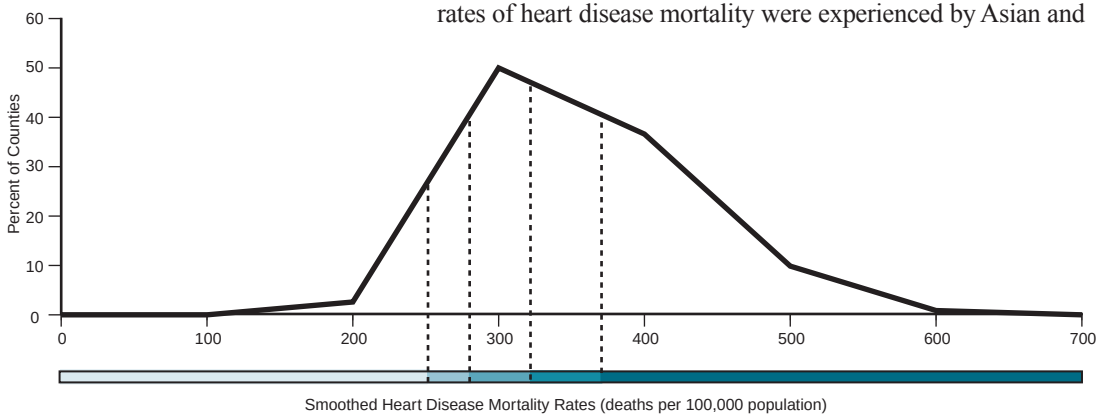


Heart Disease Mortality – Asian and Pacific Islander Men

The heart disease death rate among Asian and Pacific Islander men aged 35 years and older during 1991-1995 was 372 per 100,000. Asian and Pacific Islander men comprised 2.7 percent of all men in this age group in 1991. There were 344 counties for which there were sufficient data to calculate heart disease death rates for Asian and Pacific Islander men. There was a substantial difference in the level of heart disease mortality between the counties in the highest and lowest quintiles. The heart disease death rate at the midpoint of the top quintile (454 per 100,000) was two times higher than the midpoint of the bottom quintile (211 per 100,000). Rates for counties ranged from 172 to 537 per 100,000 (Figure 4.3). The color bar along the x-axis of the frequency distribution graph shows the range of values for each of the five groups used for mapping the geographic variation in heart disease death rates among Asian and Pacific Islander men. On the map (opposite) counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

With the exception of Hawaii, the overwhelming majority of Asian and Pacific Islander men in the United States resided in metropolitan areas during 1991-1995 (see page 43 for a map of the geographic distribution of the Asian and Pacific Islander population of men). Low rates of heart disease mortality were observed for the Miami, Tampa-St.Petersburg, Cleveland, District of Columbia, and Minneapolis metropolitan areas. High rates of heart disease mortality were experienced by Asian and Pacific Islander men in Hawaii, New York City, most of California, southern Arizona, Salt Lake City, and Detroit. Asian and Pacific Islander men in Texas, Denver, Chicago, and New Jersey experienced intermediate-level heart disease death rates.

Figure 4.3
Frequency distribution of smoothed heart disease death rates for counties, Asian and Pacific Islander men, ages 35 and older, 1991-1995



A Note on Methods

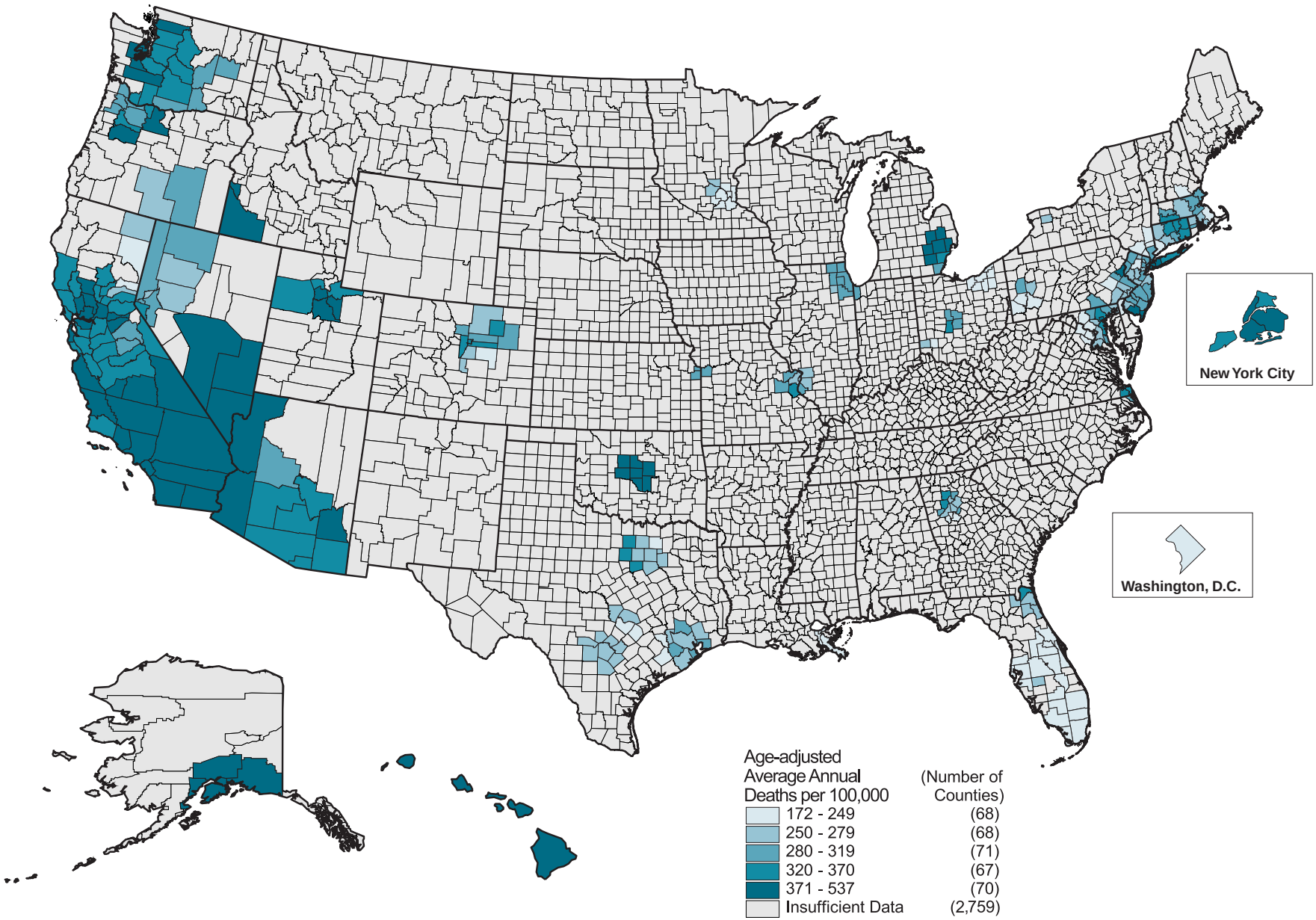
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 United States population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and create the map can be found in Appendix B.

A Cautionary Note

The race and ethnicity of decedents are not always reported accurately on death certificates. Validation studies have shown that certain racial and ethnic minorities are sometimes misreported as "white" on death certificates (see page 21). Therefore, an unknown proportion of heart disease deaths among Asian and Pacific Islander men could not be included in the data analyses for this report. Consequently, the true heart disease death rates for Asian and Pacific Islander men were probably higher during 1991-1995 than shown in Figure 4.3 and the map. In addition, if misreporting of race on death certificates were a greater problem in certain parts of the country than in others, then the geographic patterns presented here could be biased.

Smoothed County Heart Disease Death Rates
1991-1995

Asian and Pacific Islander Men
Ages 35 Years and Older



Heart Disease Mortality – Black Men

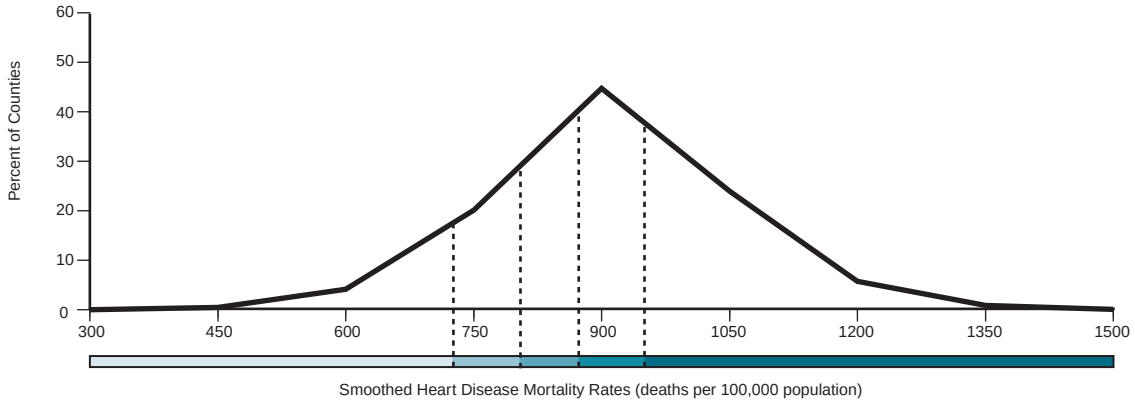
Blacks were the largest racial and ethnic minority group among men aged 35 years and older in 1991, comprising 9.4 percent of all men. Overall, African American men experienced a heart disease death rate of 841 per 100,000 during 1991-1995. However, the 1,946 counties for which sufficient data were available exhibited considerable variation in the magnitude of heart disease death rates for black men. Rates for counties ranged from 339 to 1,461 per 100,000 (Figure 4.4), and the heart disease death rate at the midpoint of the top quintile (1,207 per 100,000) was three times higher than the rate at the midpoint of the bottom quintile (534 per 100,000). The color bar along the x-axis of the frequency distribution graph shows the range of values for each of the five groups used for mapping the geographic variation in men's heart disease death rates. On the map (opposite) counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

The map of heart disease mortality among African American men indicates that the counties in the top two quintiles were concentrated primarily in the lower Mississippi River counties of Louisiana, Mississippi, and Arkansas, in rural counties throughout the South and Appalachia, and in the metropolitan areas of Chicago, St. Louis, Los Angeles, and Oklahoma City. Counties with the lowest rates of heart disease mortality for black men were found in Florida, New Mexico, northern California, the Pacific Northwest, and in the metropolitan areas of the District of Columbia, Denver, and Minneapolis. African American men in most of the Northeast and Midwest experienced intermediate rates of heart disease mortality during 1991-1995.

A Note on Methods

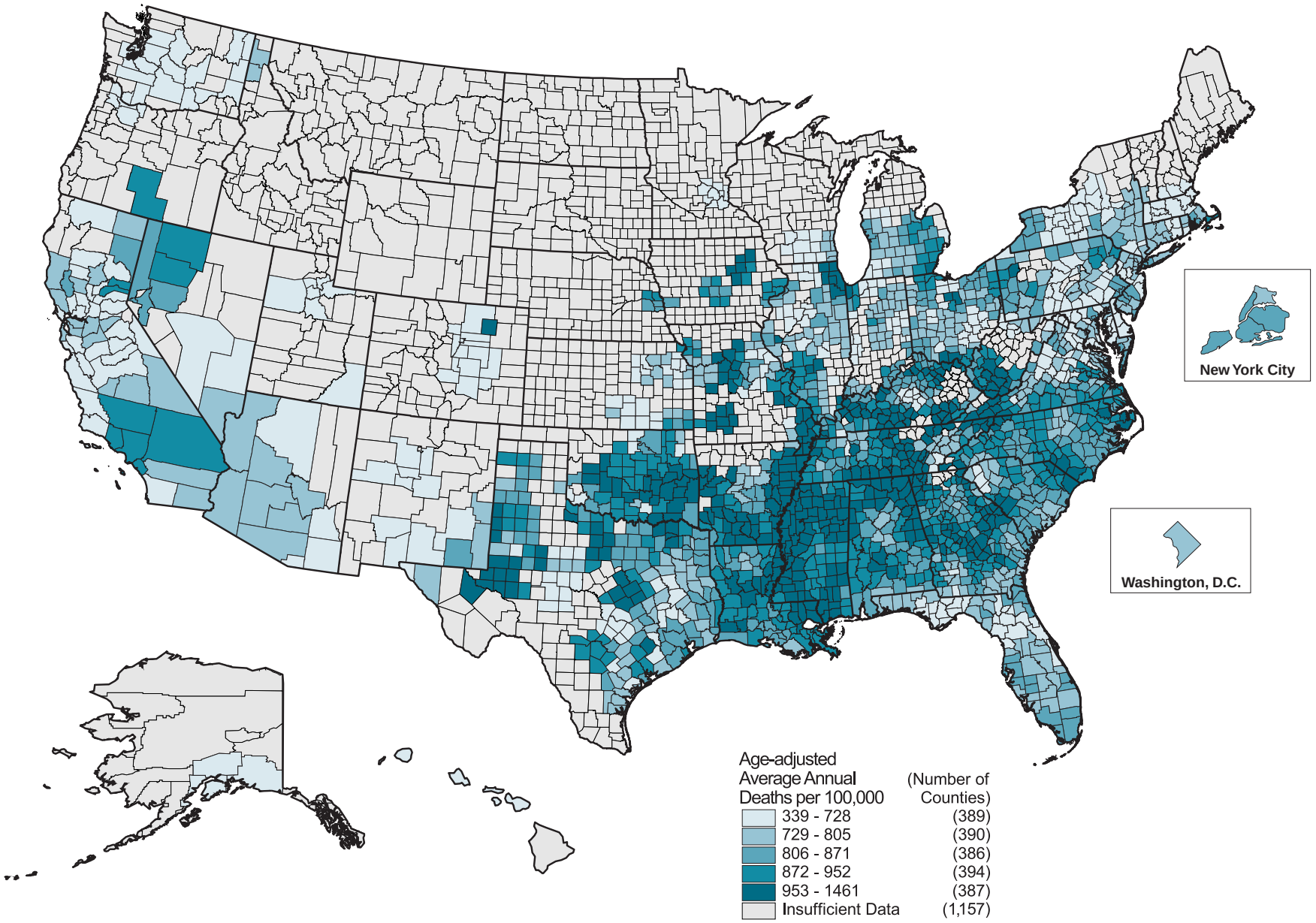
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 United States population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and create the map can be found in Appendix B.

Figure 4.4
Frequency distribution of smoothed heart disease death rates for counties, black men, ages 35 and older, 1991-1995



Smoothed County Heart Disease Death Rates
1991-1995

Black Men
Ages 35 Years and Older



Heart Disease Mortality – Hispanic Men

Latinos were the second largest racial and ethnic minority group among men aged 35 years and older in 1991, comprising 6.5 percent of all men. For the period 1991-1995, the heart disease death rate for Hispanic men was 432 per 100,000 population. Considerable geographic variation in the burden of heart disease mortality was evident across the 810 counties for which data were sufficient to calculate a rate (Figure 4.5). Rates for counties ranged from 115 to 855 deaths per 100,000. There was a threefold difference in the heart disease death rate at the midpoint of the top quintile compared with the midpoint of the lowest quintile (683 deaths per 100,000 and 211 deaths per 100,000). The color bar along the x-axis of the frequency distribution graph shows the range of values for each of the five groups used for mapping the geographic variation in men's heart disease death rates. On the map (opposite) counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

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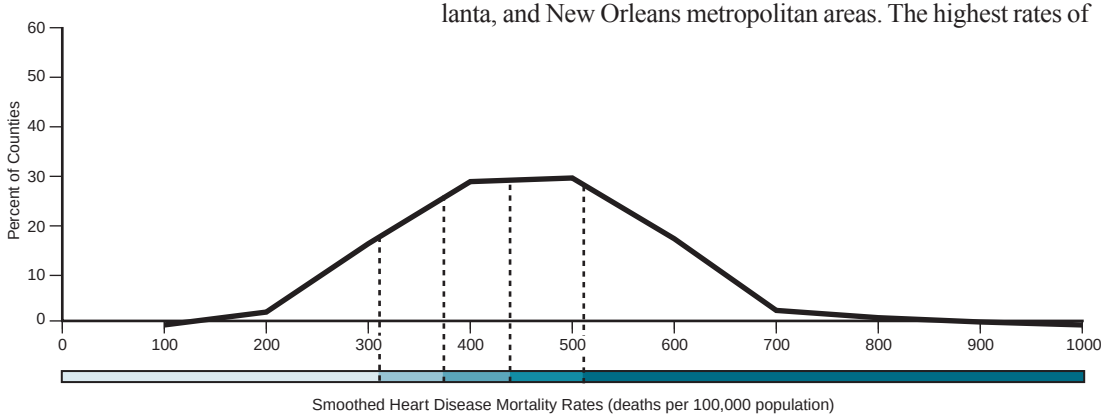
The Latino population in the United States is concentrated in both rural (predominantly Southwest) and urban/metropolitan areas (see page 47 for the geographic distribution of the Hispanic population of men). The map of heart disease death rates among Latino men shows marked geographic variation. Low rates of heart disease mortality were experienced by men in northern California and the Pacific Northwest, northern Florida, and in the Boston, Minneapolis, Washington-Baltimore, Atlanta, and New Orleans metropolitan areas. The highest rates of heart disease mortality were experienced by men in eastern Pennsylvania, Miami, and in the rural areas of Texas, New Mexico, Arizona, Colorado, and California. Latinos in New York City, upstate New York, most of Florida, southern California, and some metropolitan areas of the Southwest such as Houston, Dallas, and Denver experienced intermediate-level rates of heart disease mortality.

Figure 4.5
Frequency distribution of smoothed heart disease death rates for counties, Hispanic men, ages 35 and older, 1991-1995



A Note on Methods

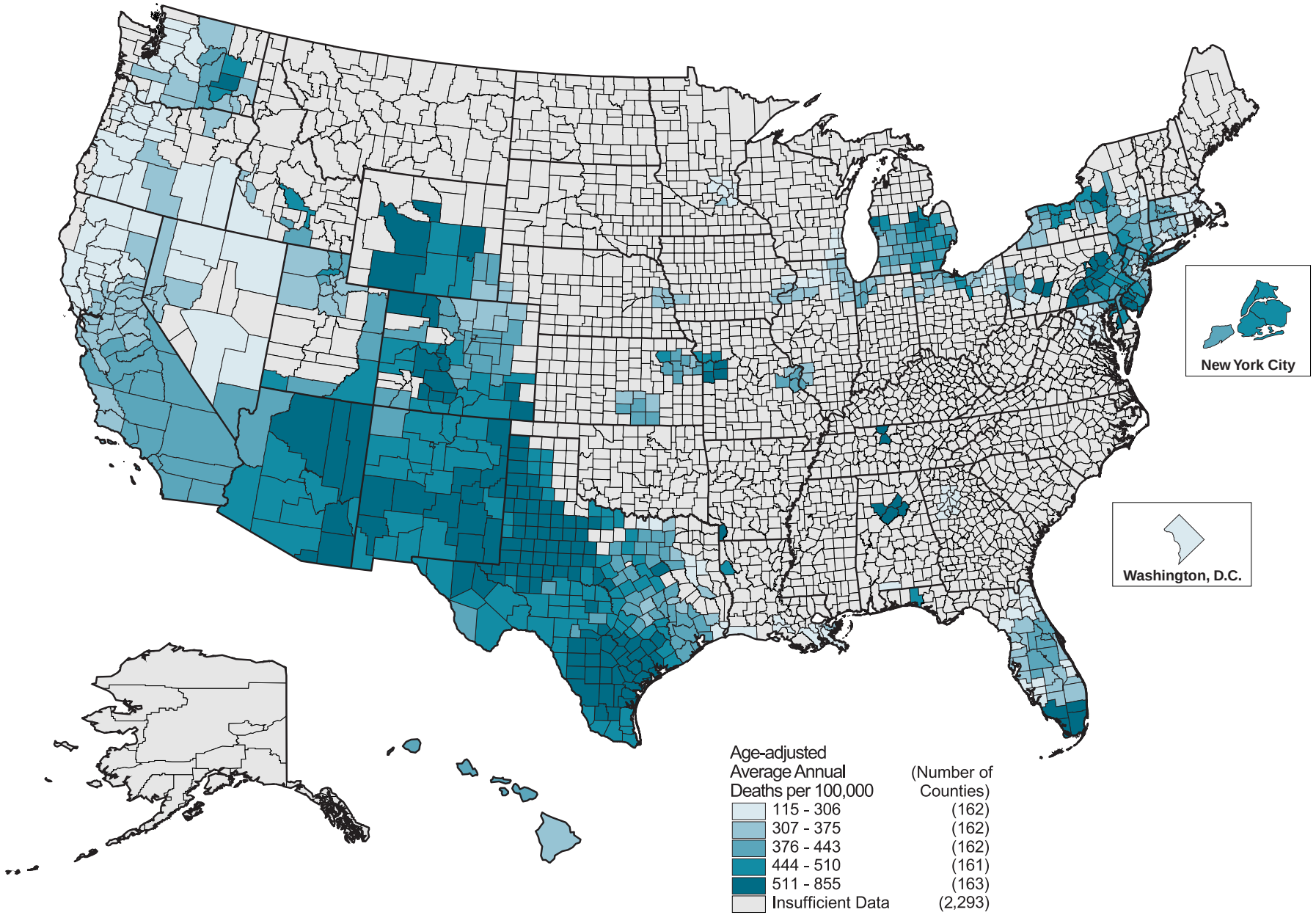
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 United States population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and create the map can be found in Appendix B.

A Cautionary Note

The race and ethnicity of decedents are not always reported accurately on death certificates. Validation studies have shown that Hispanics are sometimes misreported as non-Hispanic on death certificates (see page 21). Therefore, an unknown proportion of heart disease deaths among Latino men could not be included in the data analyses for this report. In New York City, approximately 23 percent of death certificates for men ages 35 and older recorded Hispanic origin as "unknown" during 1991-1993 (see page 149 for details). Consequently, the true heart disease death rates for Hispanic men were probably higher during 1991-1995 than shown in Figure 4.5 and this map. In addition, if misreporting of Hispanic origin on death certificates was a greater problem in certain parts of the country, then the geographic patterns presented here could be biased.

Smoothed County Heart Disease Death Rates
1991-1995

Hispanic Men
Ages 35 Years and Older



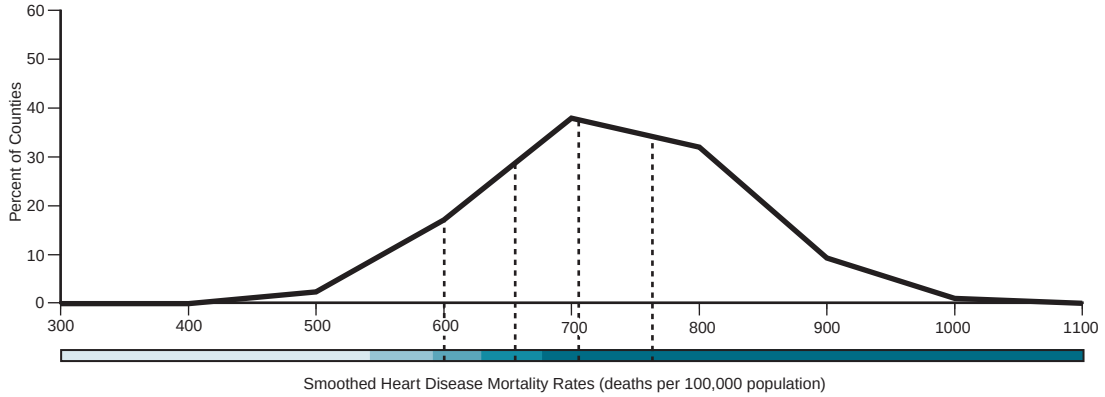
White men comprised 87.3 percent of all men aged 35 years and older in 1991. Overall, the heart disease death rate among white men was 666 per 100,000 for the period 1991-1995. Substantial geographic variation in heart disease death rates was observed among the 3,100 counties for which sufficient data were available to calculate rates. There was a substantial difference in the level of heart disease mortality between the counties in the highest and lowest quintiles (Figure 4.6). The heart disease death rate at the midpoint of the top quintile (892 per 100,000) was nearly two times higher than the midpoint of the bottom quintile (489 per 100,000). Rates for counties ranged from 377 to 1,021 per 100,000. The color bar along the x-axis of the frequency distribution graph shows the range of values for each of the five groups used for mapping the geographic variation in men's heart disease death rates. On the map (opposite), counties were divided into five groups (quintiles) with an approximately equal number of counties in each group. The colors were graded so that counties of the darkest teal were in the highest-rate quintile, and counties of the lightest teal were in the lowest-rate quintile.

A clear east-west gradient in heart disease death rates among white men was evident for 1991-1995, with the highest rates occurring predominantly in the eastern portion of the United States and the lowest rates occurring predominantly in the West. Counties in the top two quintiles were located primarily within Appalachia, the Mississippi-Ohio River Valley, Mississippi Delta, and Piedmont and coastal regions of Georgia, South Carolina, and North Carolina. In Florida, most counties had rates in the bottom two quintiles but several northern counties had rates in the higher quintiles. Other areas of low heart disease death rates for white men in the South included the metropolitan areas of Atlanta, Raleigh-Durham, and the District of Columbia. Large sections of the northwestern states south through Colorado and New Mexico had counties in the lowest quintile of heart disease mortality. Alaska and Hawaii both had counties in the lowest quintiles. Along the border between Nevada and California and in southern California, intermediate levels of heart disease mortality among white men were observed.

A Note on Methods

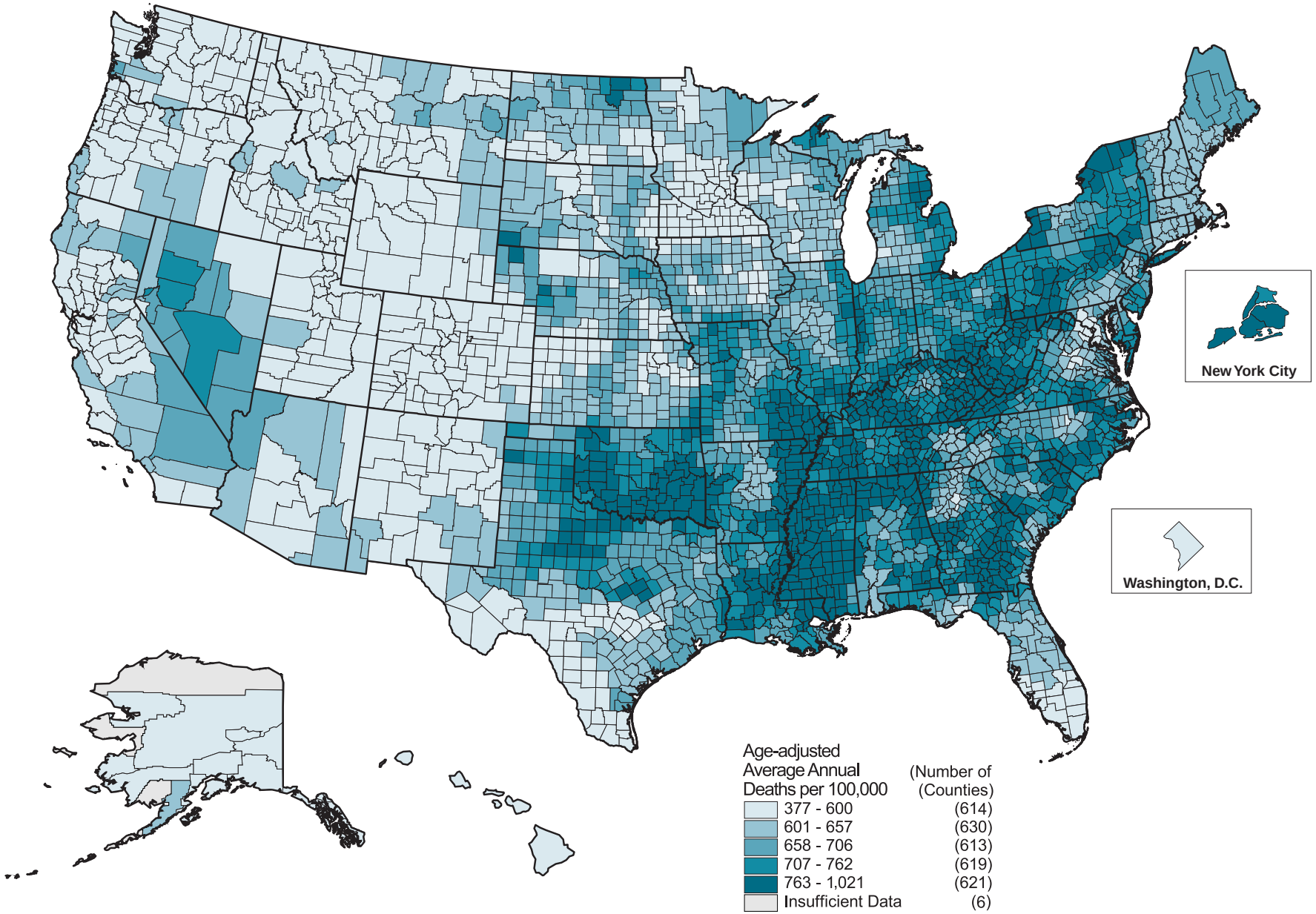
Heart disease deaths were defined as those for which the underlying cause of death listed on the death certificate was "diseases of the heart," defined according to the International Classification of Diseases, Ninth Revision (codes 390-398, 402, and 404-429). Heart disease death rates were age-adjusted, with the 1970 U.S. population used as the standard, and spatially smoothed by using a spatial moving average. A detailed explanation of the methods used to generate these death rates and create the map can be found in Appendix B.

Figure 4.6
Frequency distribution of smoothed heart disease death rates for counties, white men, ages 35 and older, 1991-1995



Smoothed County Heart Disease Death Rates
1991-1995

White Men
Ages 35 Years and Older



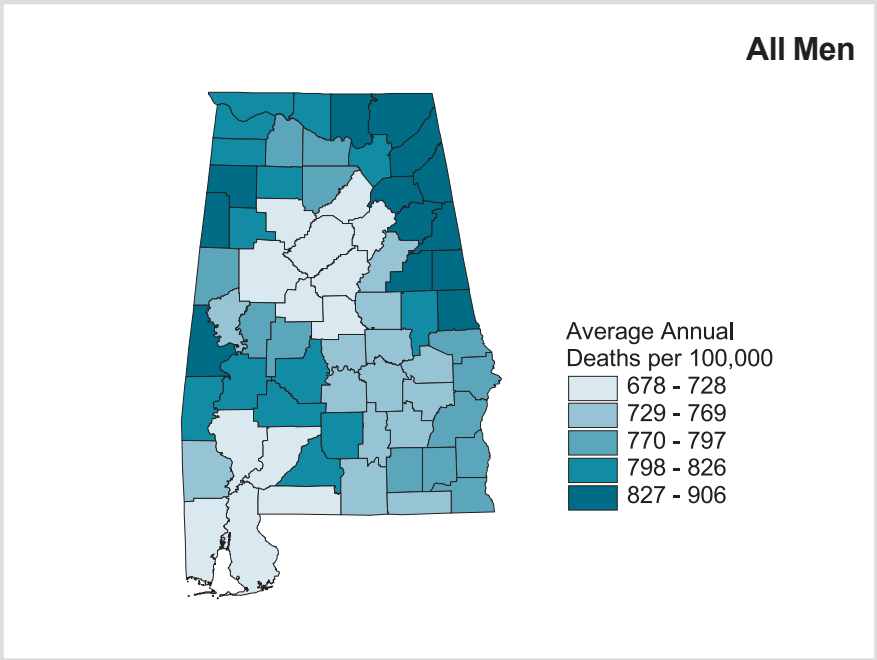
5 State Maps of Heart Disease Mortality among Men

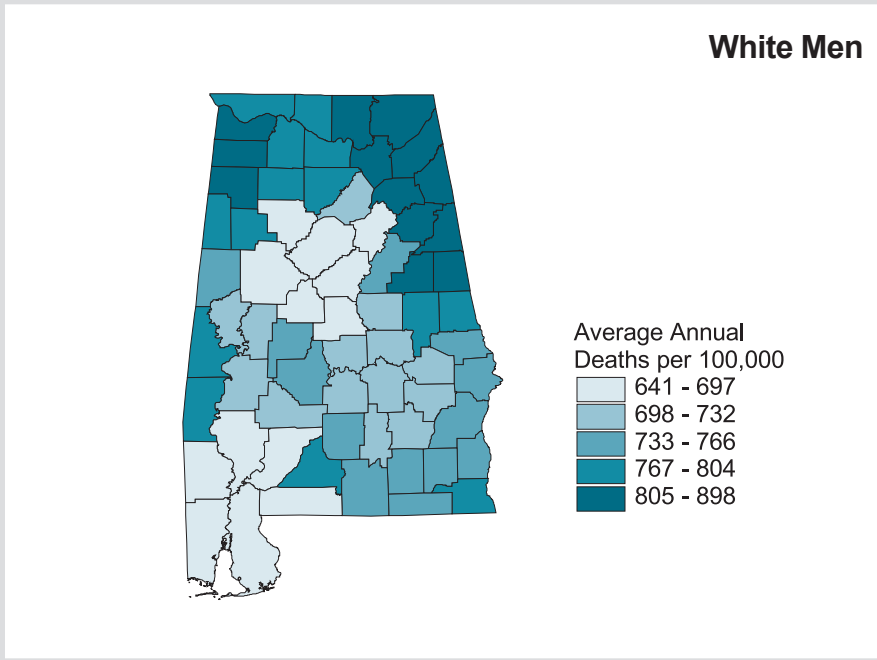
In this section, county heart disease death rates are presented separately for each state, the District of Columbia, and New York City. Separate maps are presented for all men and for each racial and ethnic group for which sufficient data were available to calculate rates. A map for a particular racial or ethnic group is presented if there were sufficient data to calculate smoothed heart disease death rates for at least two of the counties in that state. Therefore, states may have as few as two maps, one for all men and one for white men (e.g. Maine), or as many as six maps (e.g. California). The heart disease death rates on each map are spatially smoothed, and there are separate legend cutpoints (quintiles) for each separate map.

For each state, we also provide a summary table containing state-level population totals and heart disease death rates for all men and for each racial and ethnic group. Although the population totals are for 1995 only, the state heart disease death rates were calculated for the study period, 1991-1995. In addition, the state heart disease death rates presented in the tables were not spatially smoothed.

For part of the study period, 1991-1995, Oklahoma and New Hampshire did not collect data on Hispanic origin on death certificates. Consequently, we were unable to report heart disease death rates for Hispanic men in these states. During 1991-1993, "unknown" Hispanic origin was recorded on approximately 23 percent of heart disease death certificates for men ages 35 years and older in New York City. Therefore, the heart disease death rates we report for Hispanics in New York City may be underestimates (see page 149 for details).

Smoothed County Heart Disease Death Rates, 1991-1995





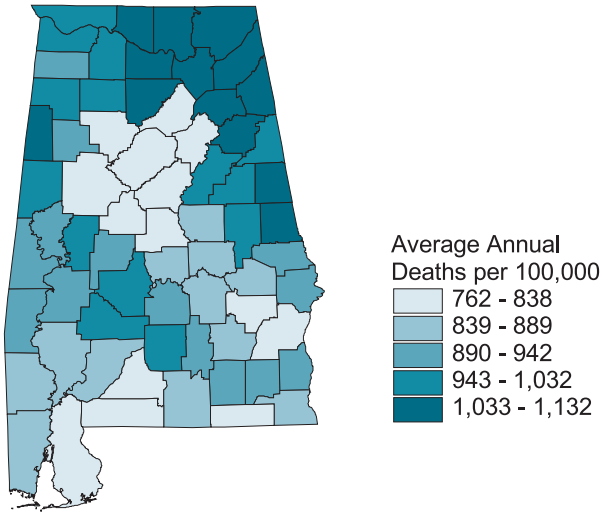
State Profile — Alabama

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	959,036	758
American Indian and Alaska Native Men	3,268	229
Asian and Pacific Islander Men	4,435	301
Black Men	188,701	882
Hispanic Men	5,785	483
White Men	762,632	736

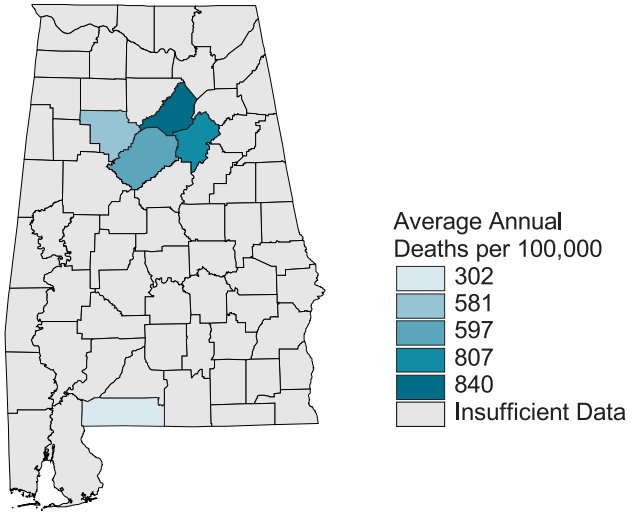
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995

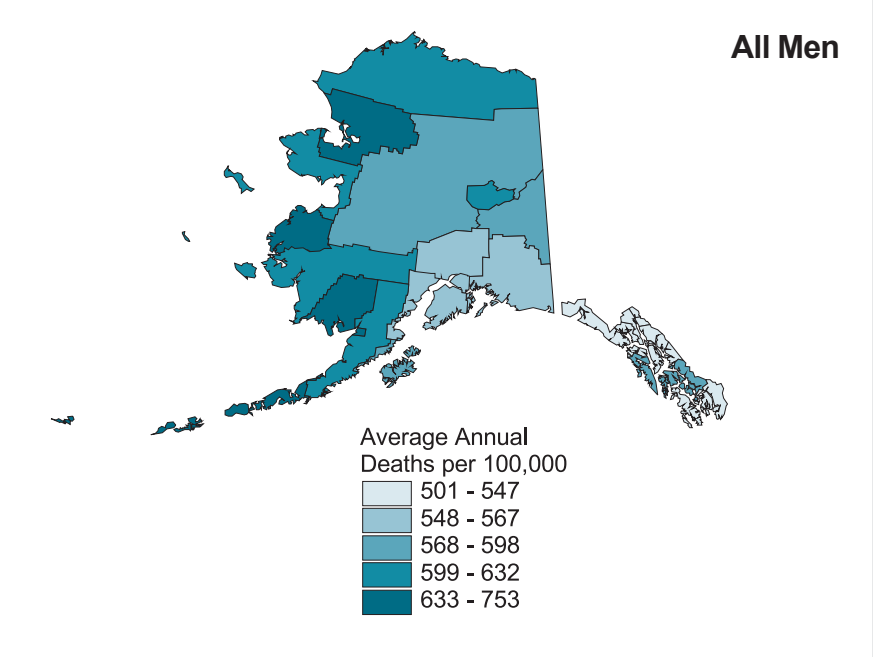
Black Men

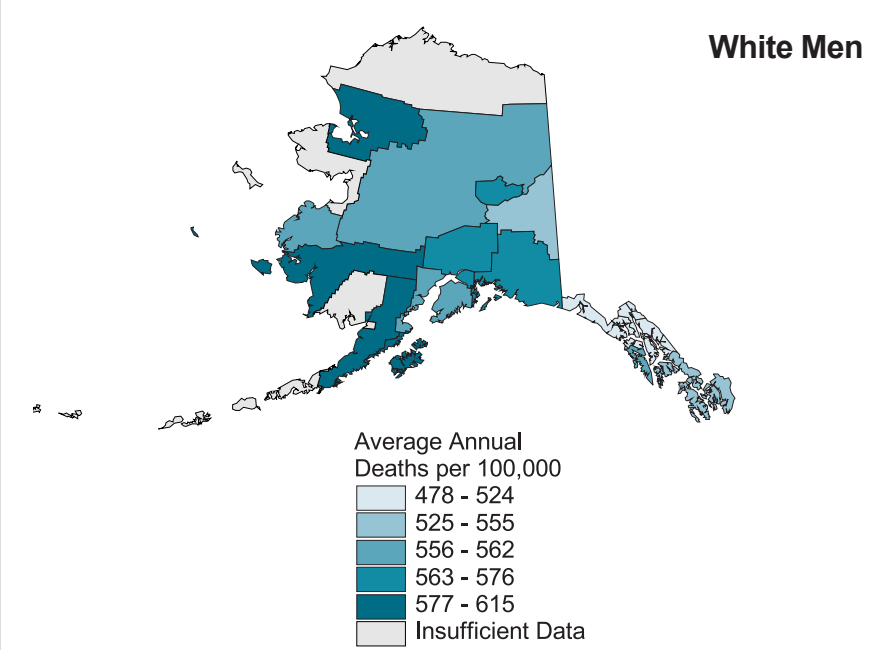


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995

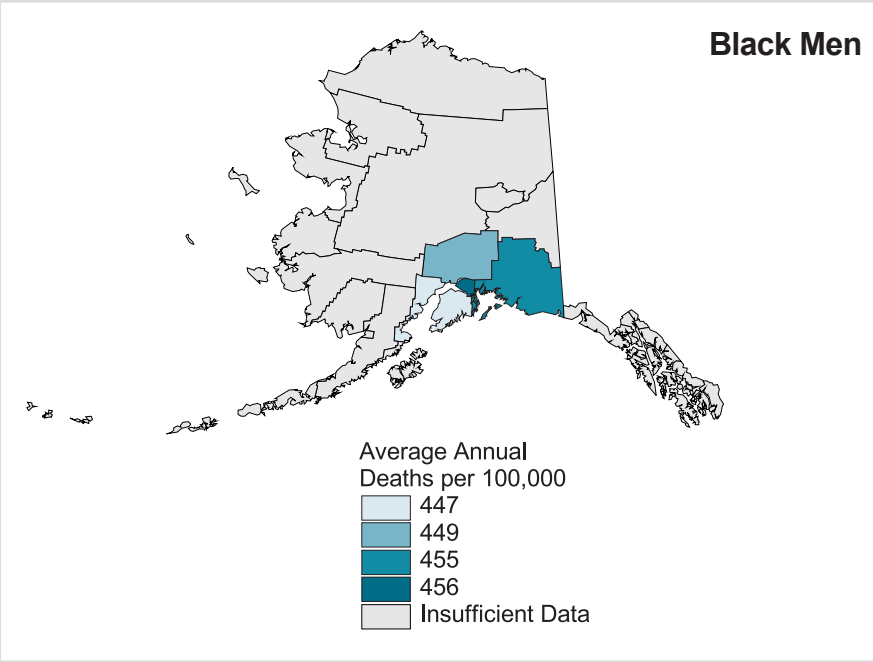




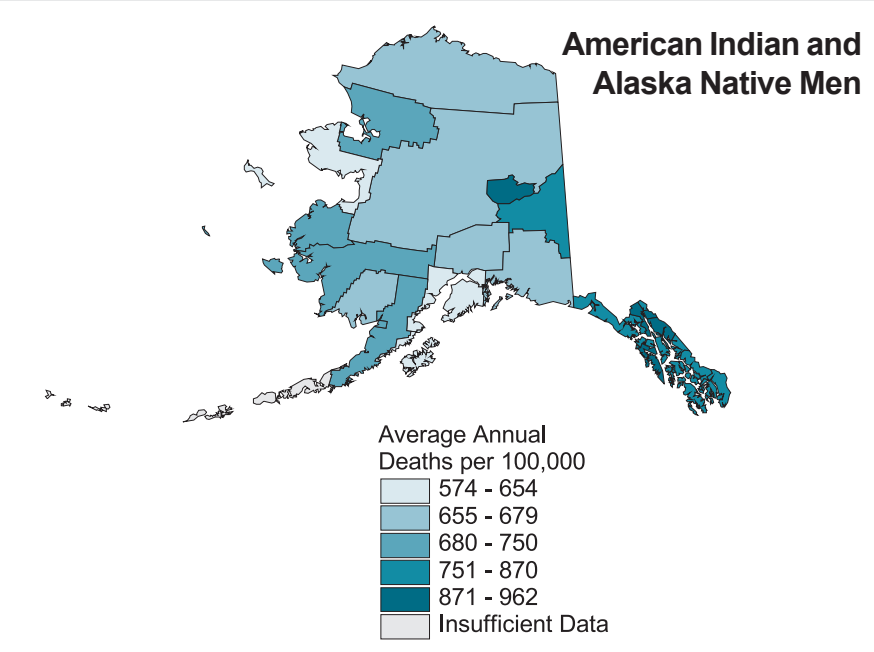
State Profile — Alaska

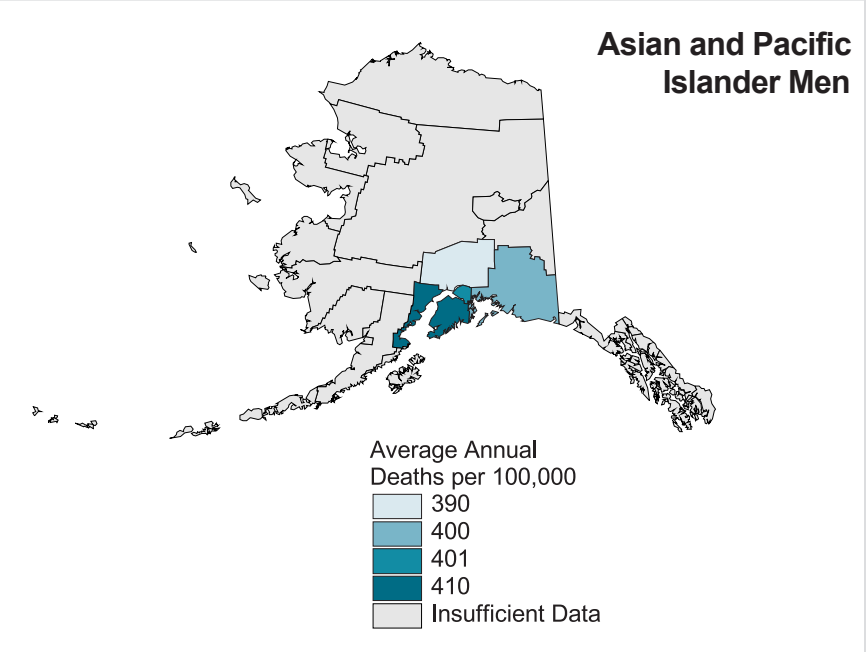
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	139,932	559
American Indian and Alaska Native Men	15,196	697
Asian and Pacific Islander Men	4,674	295
Black Men	4,363	466
Hispanic Men	3,763	Insufficient Data
White Men	115,699	550

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



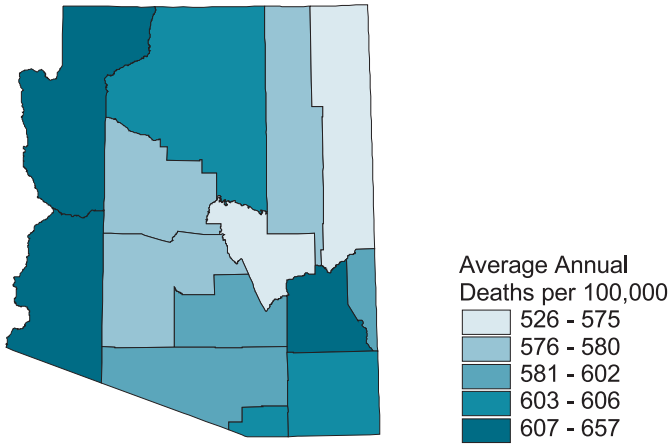
Smoothed County Heart Disease Death Rates, 1991-1995



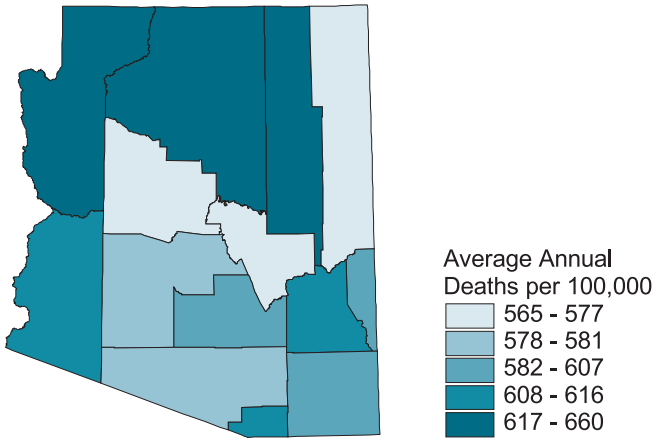


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

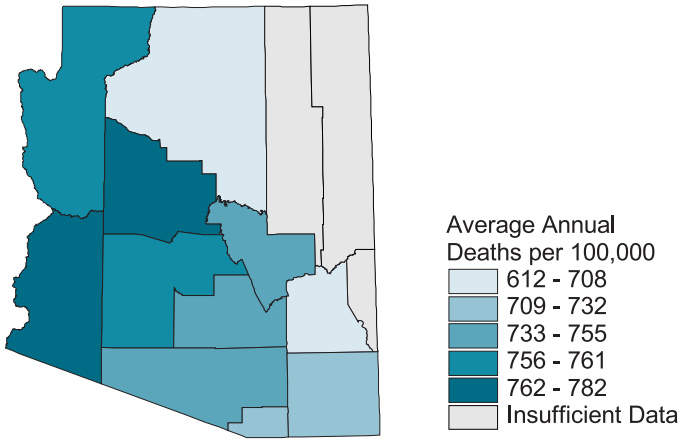


State Profile — Arizona

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	988,301	583
American Indian and Alaska Native Men	35,040	500
Asian and Pacific Islander Men	13,890	344
Black Men	27,801	742
Hispanic Men	142,023	494
White Men	911,570	584

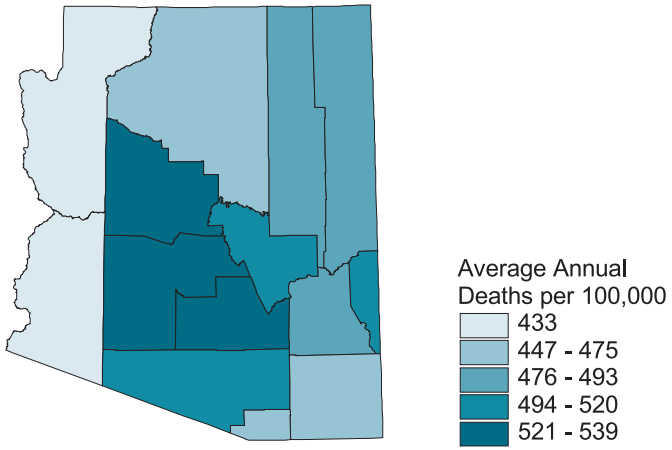
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

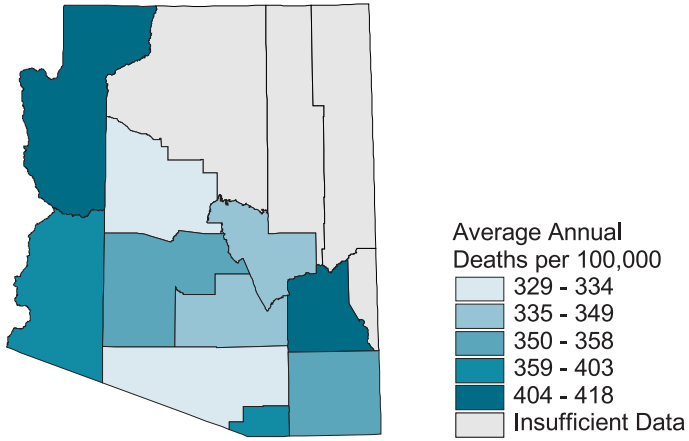


Smoothed County Heart Disease Death Rates, 1991-1995

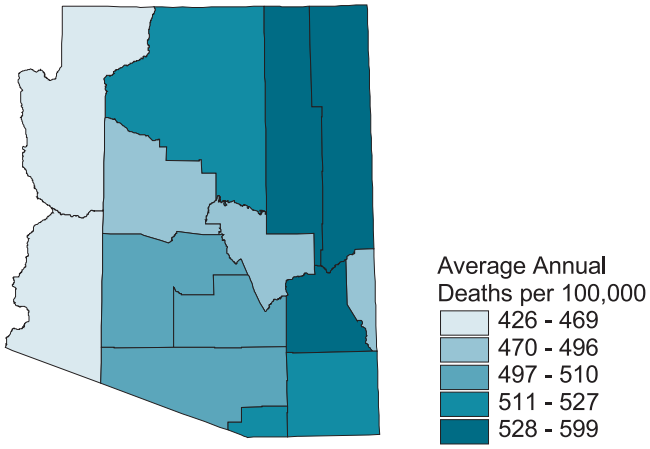
American Indian and Alaska Native Men



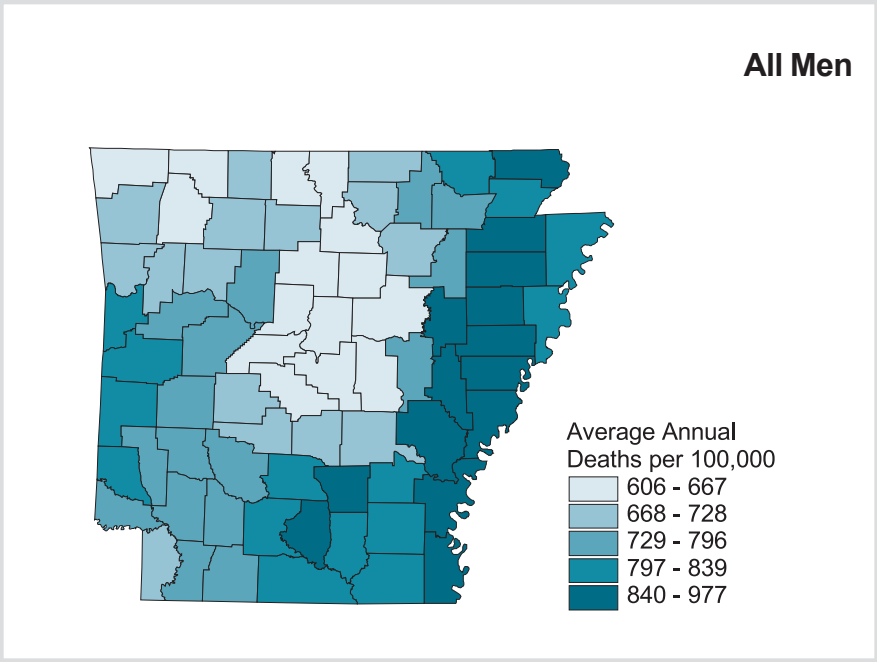
Asian and Pacific Islander Men

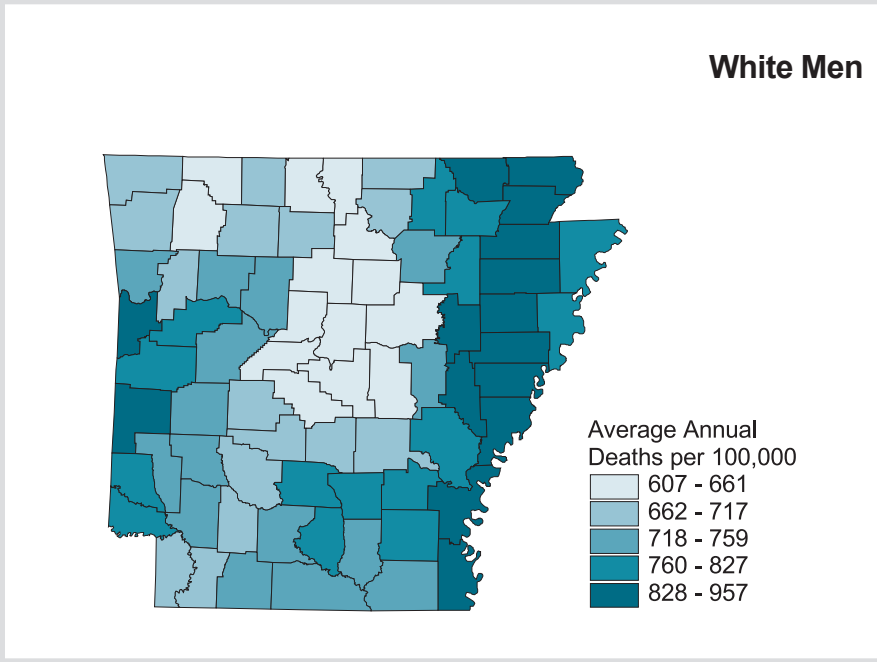


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995



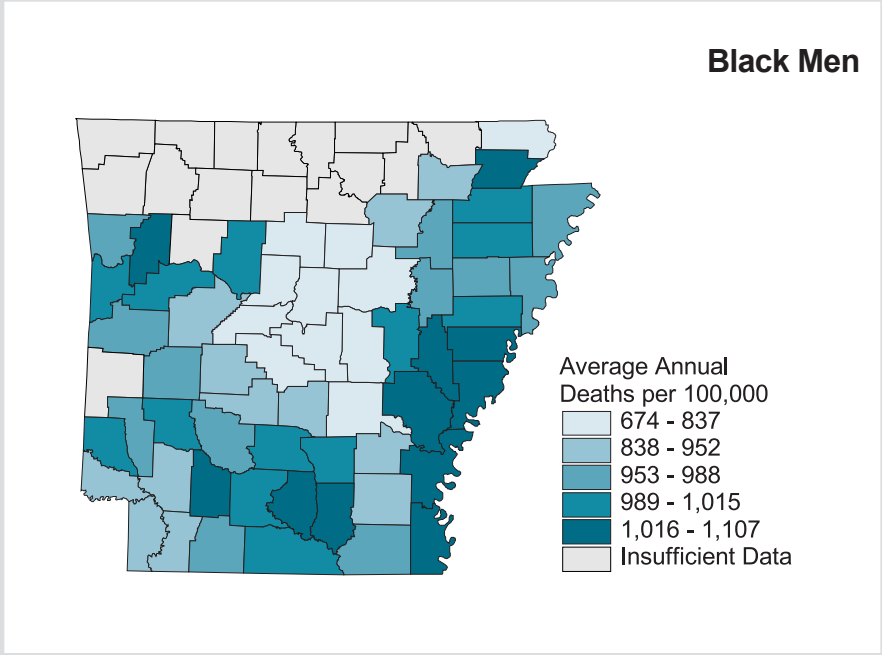


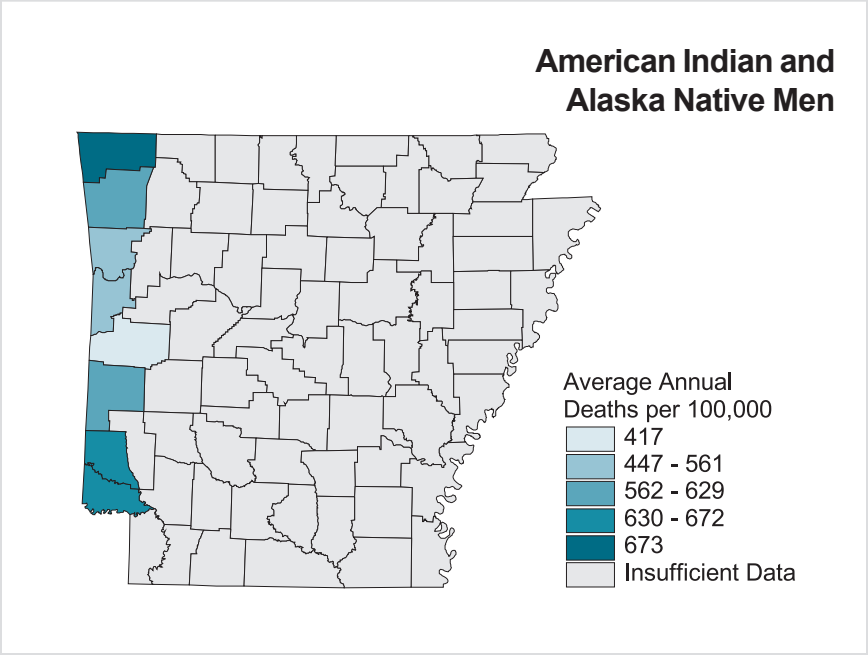
State Profile — Arkansas

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	573,132	732
American Indian and Alaska Native Men	2,568	Insufficient Data
Asian and Pacific Islander Men	2,448	586
Black Men	64,712	923
Hispanic Men	4,801	209
White Men	503,404	715

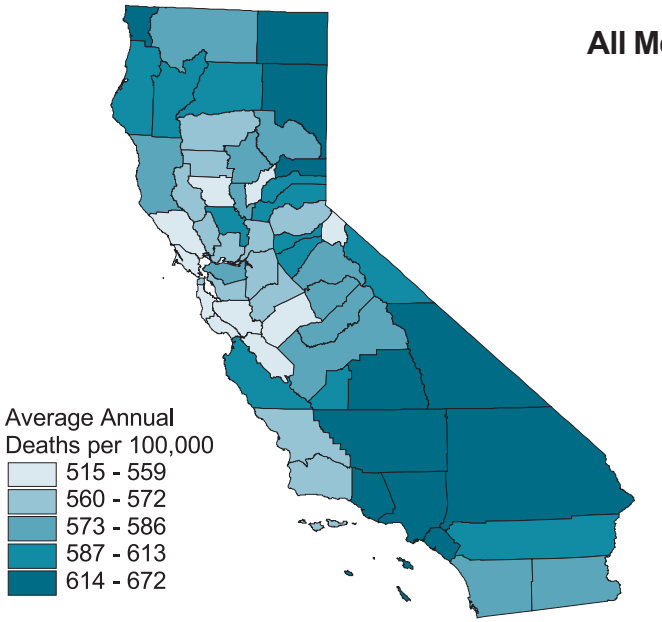
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

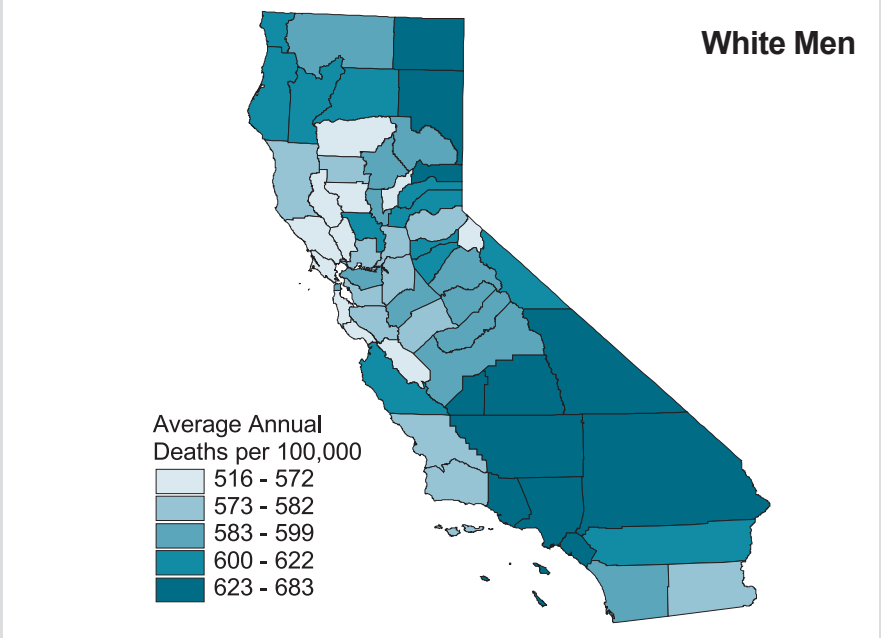
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

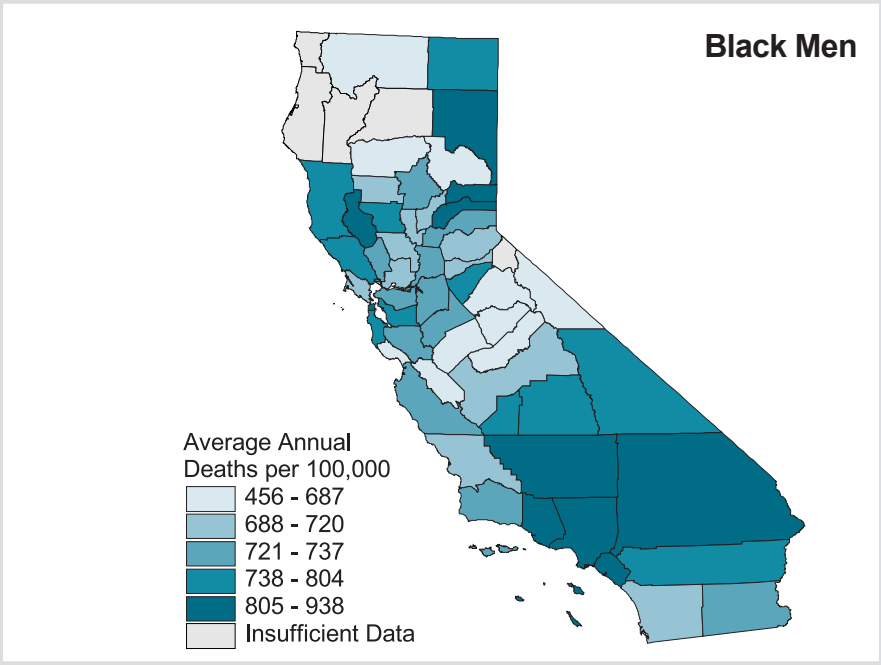




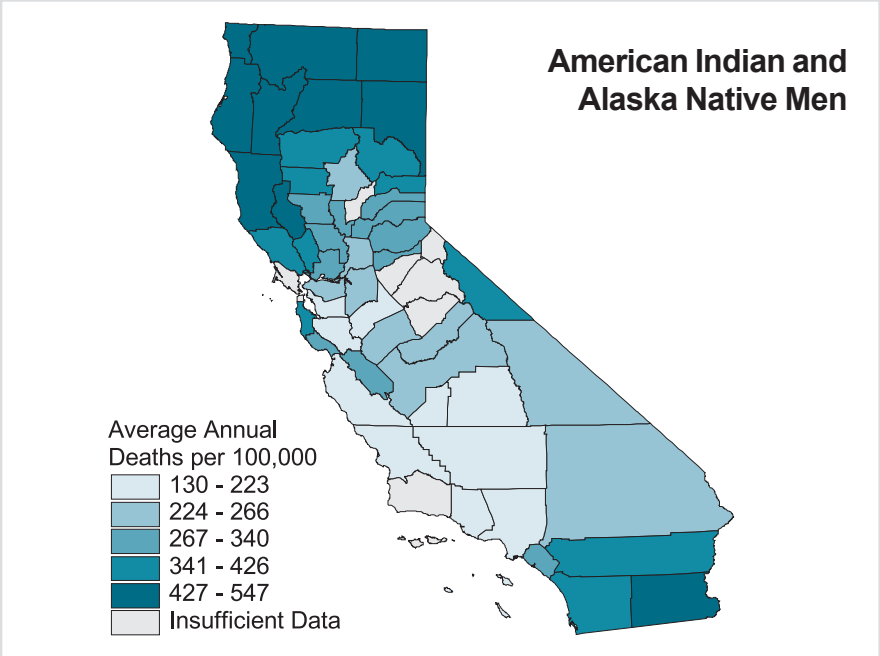
State Profile — California

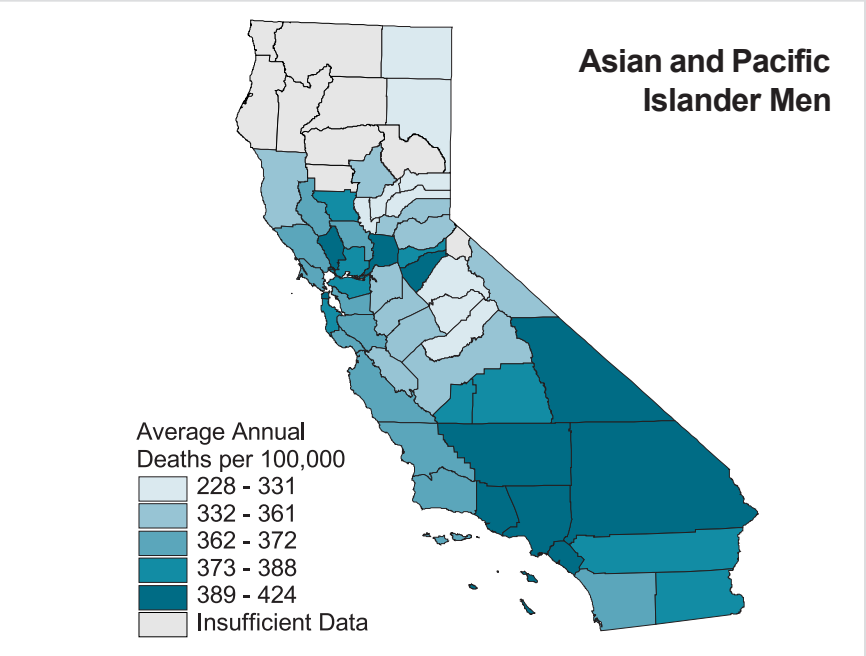
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	6,838,385	601
American Indian and Alaska Native Men	56,817	277
Asian and Pacific Islander Men	701,557	388
Black Men	451,143	819
Hispanic Men	1,410,432	403
White Men	5,628,868	608

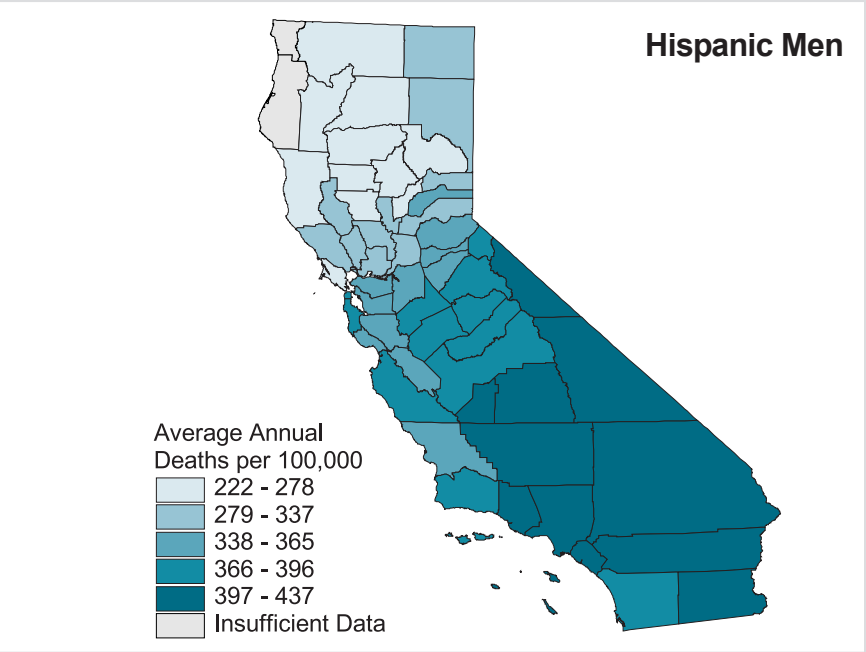
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



Smoothed County Heart Disease Death Rates, 1991-1995

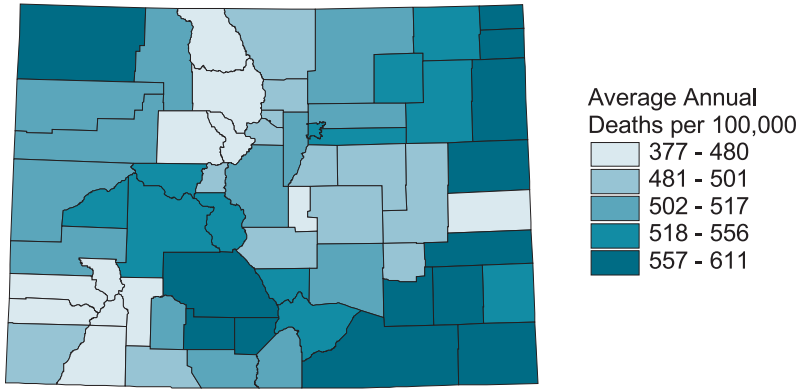




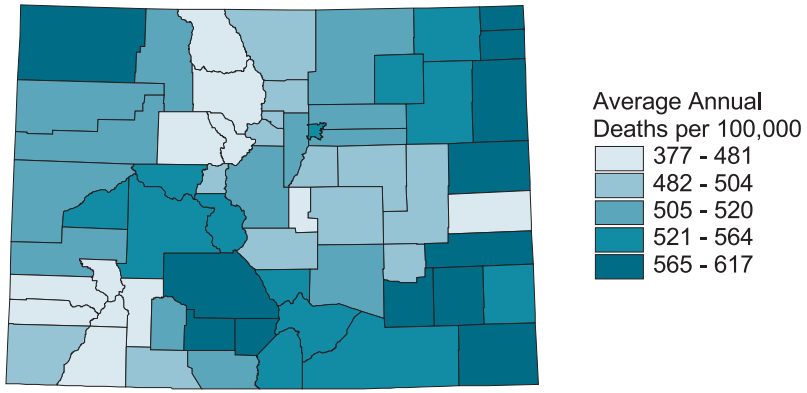


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

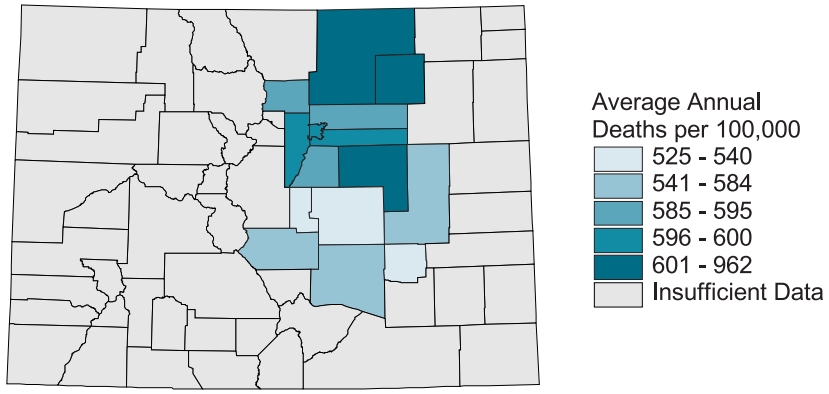


State Profile — Colorado

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	889,137	507
American Indian and Alaska Native Men	6,547	236
Asian and Pacific Islander Men	13,890	284
Black Men	32,299	586
Hispanic Men	92,611	423
White Men	836,401	508

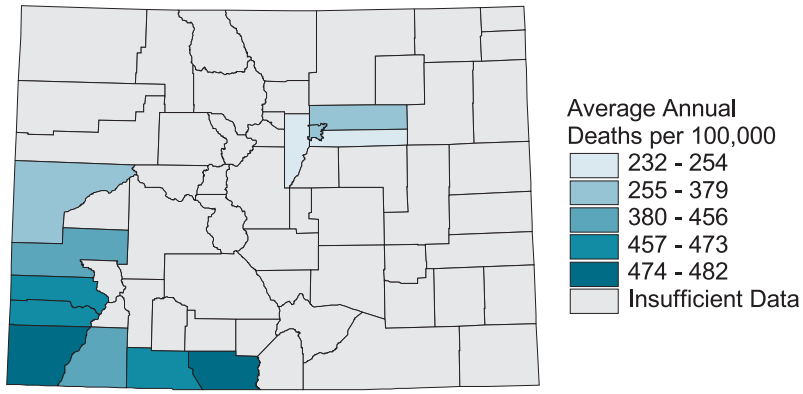
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

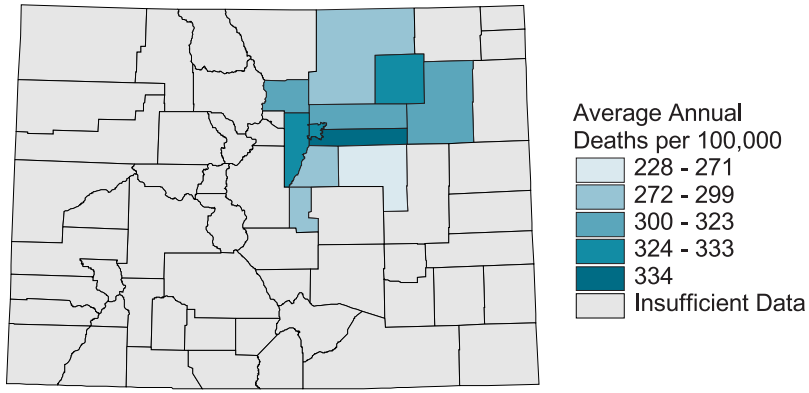


Smoothed County Heart Disease Death Rates, 1991-1995

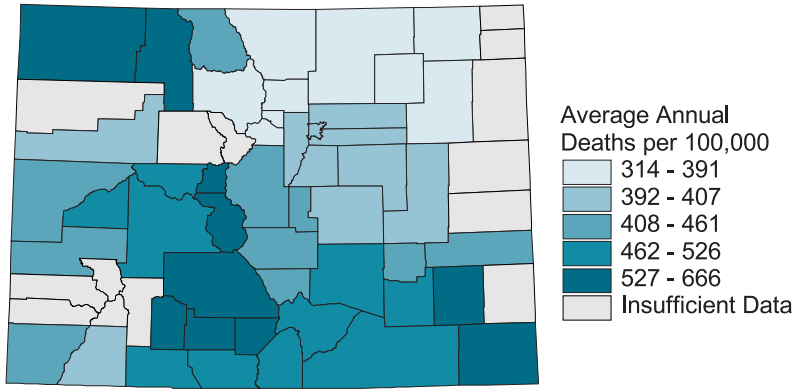
American Indian and Alaska Native Men



Asian and Pacific Islander Men

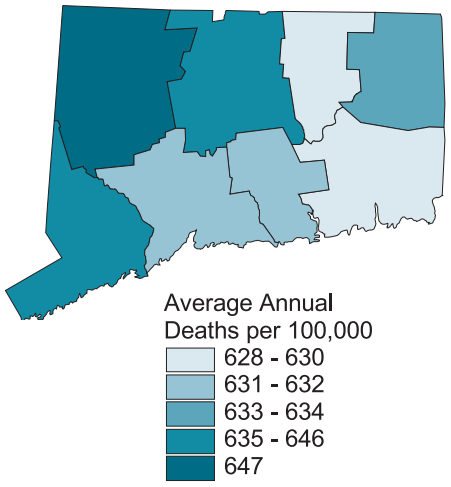


Hispanic Men

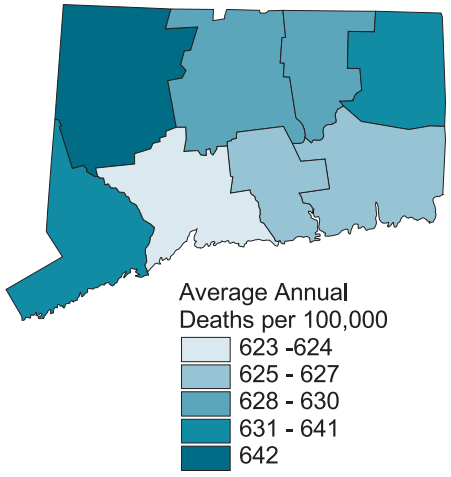


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

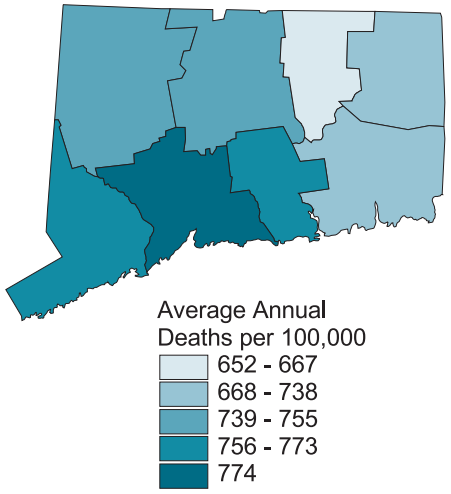


State Profile — Connecticut

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	785,861	626
American Indian and Alaska Native Men	1,505	491
Asian and Pacific Islander Men	12,858	266
Black Men	50,270	762
Hispanic Men	36,294	293
White Men	721,228	619

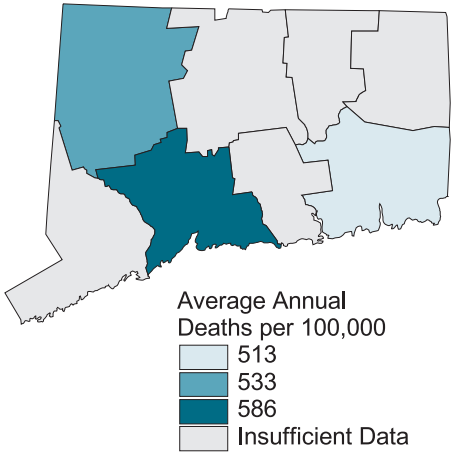
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

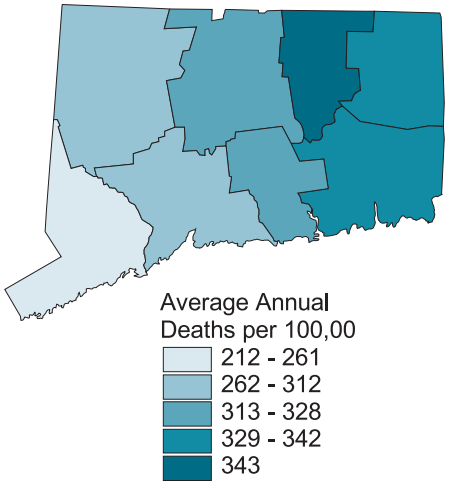


Smoothed County Heart Disease Death Rates, 1991-1995

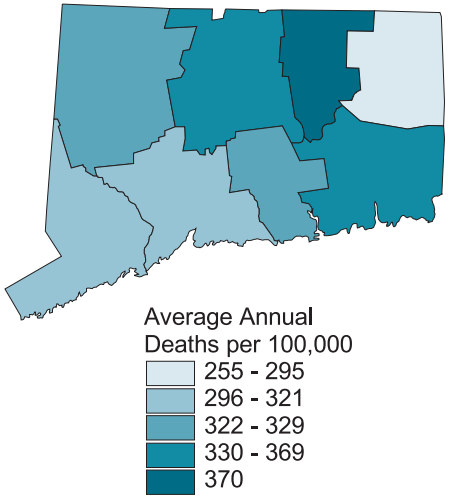
American Indian and Alaska Native Men



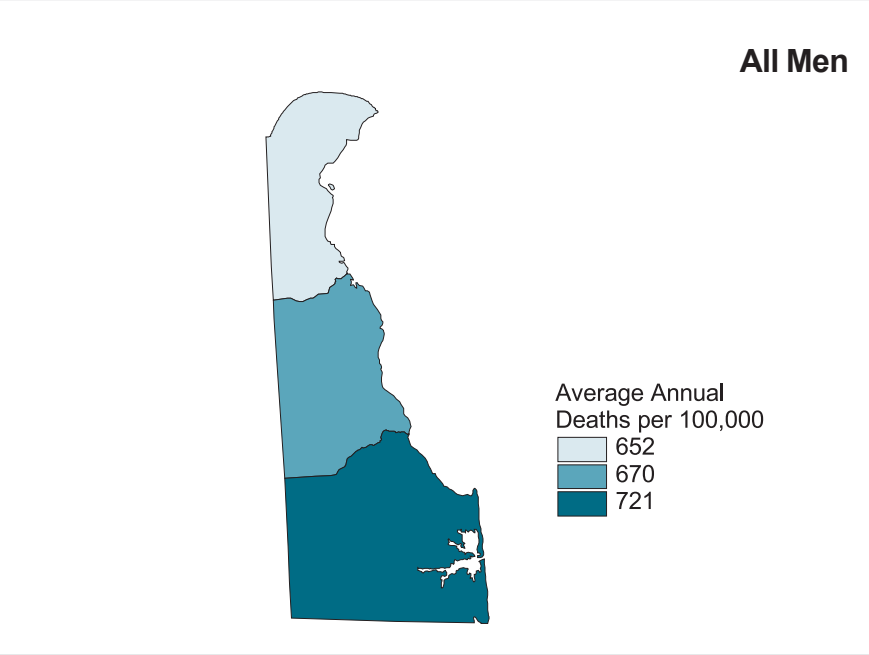
Asian and Pacific Islander Men

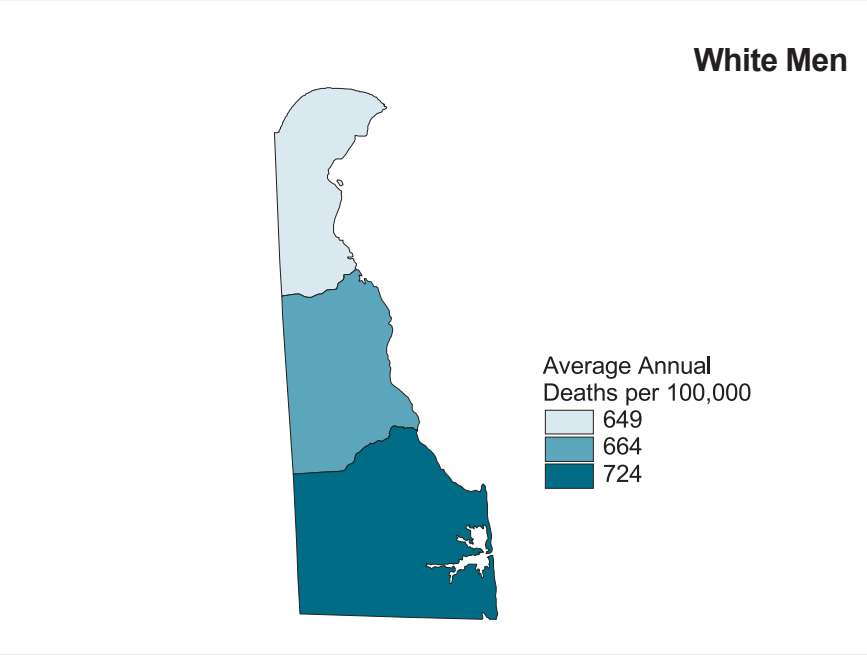


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995



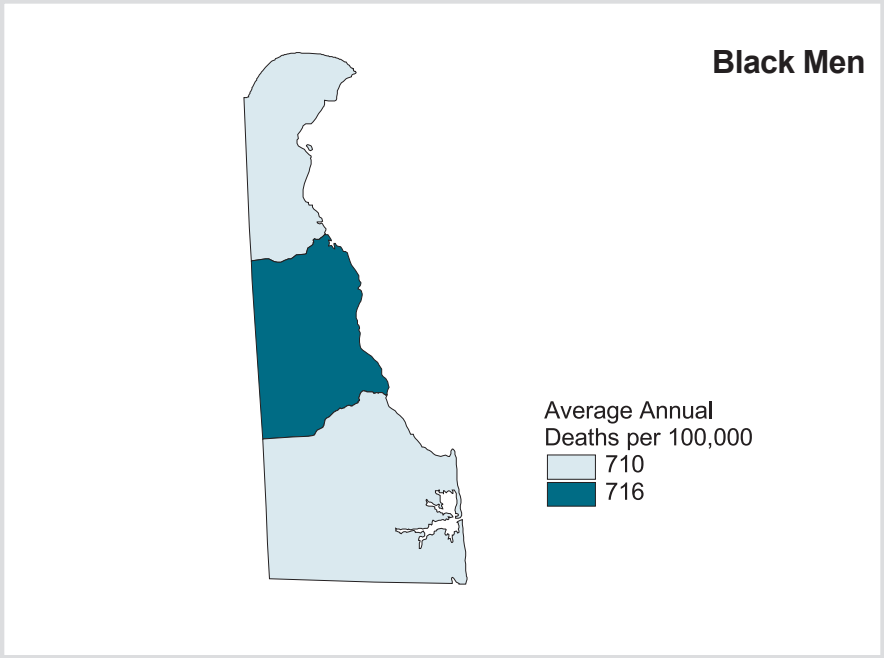


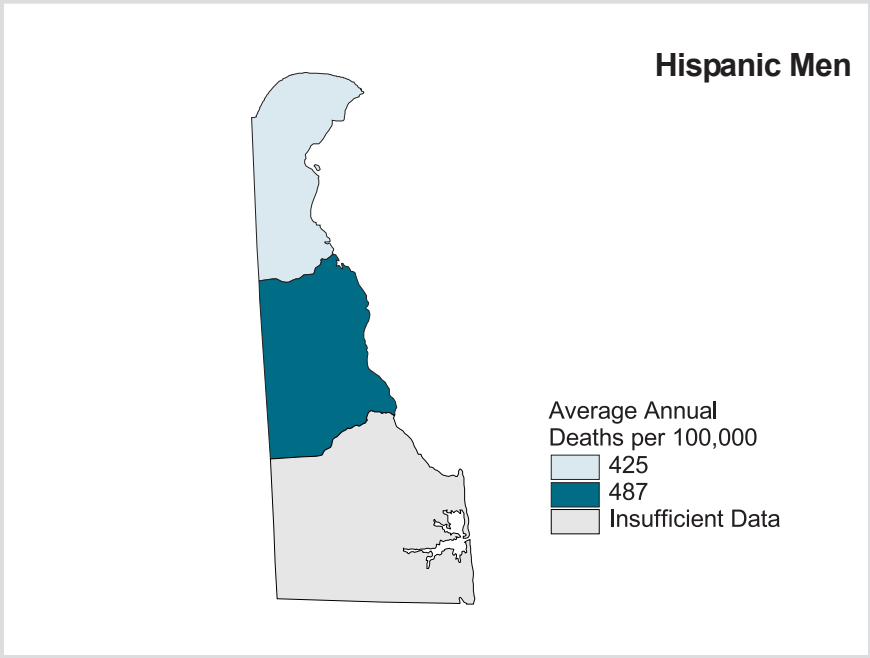
State Profile — Delaware

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	165,644	676
American Indian and Alaska Native Men	512	Insufficient Data
Asian and Pacific Islander Men	2,590	Insufficient Data
Black Men	23,544	743
Hispanic Men	3,351	492
White Men	138,998	667

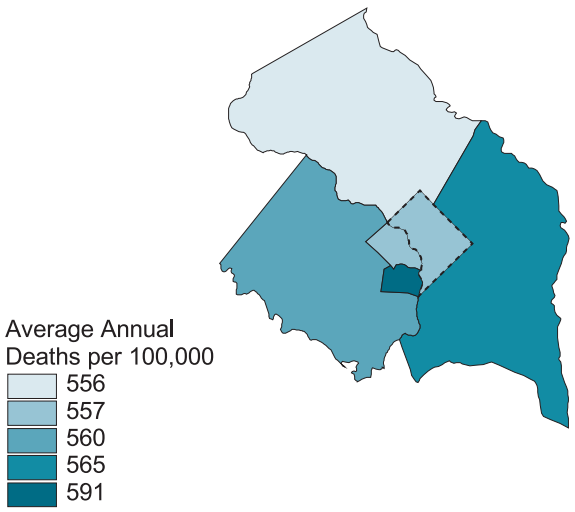
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

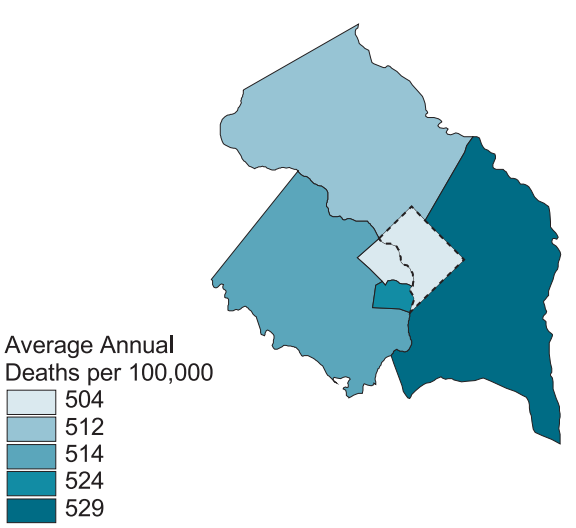
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

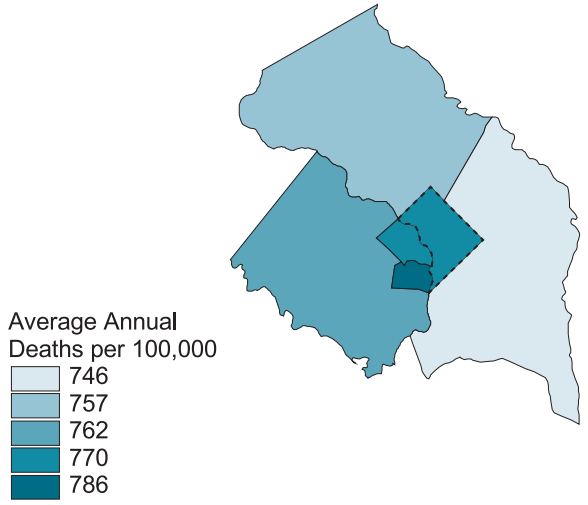




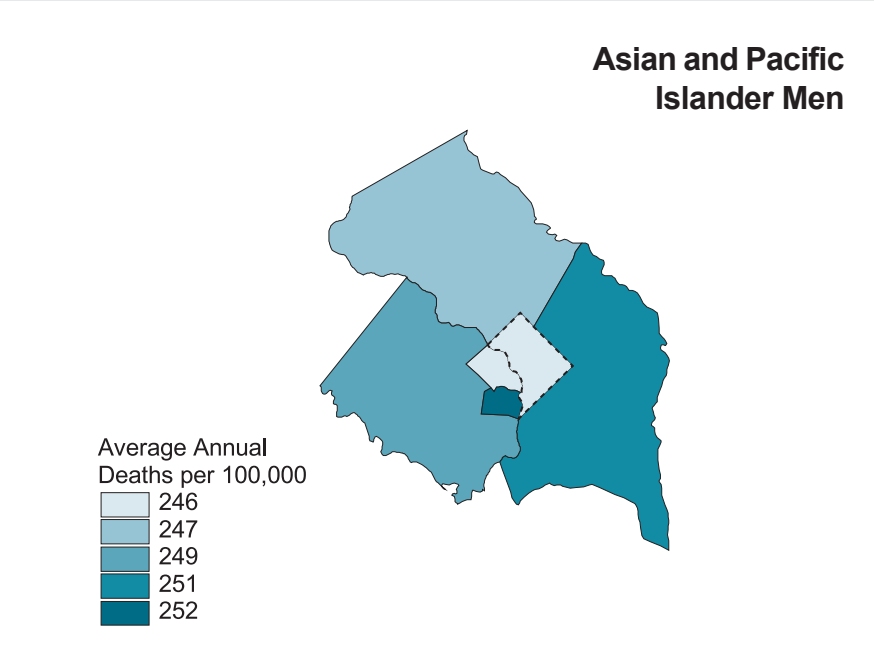
District of Columbia Profile

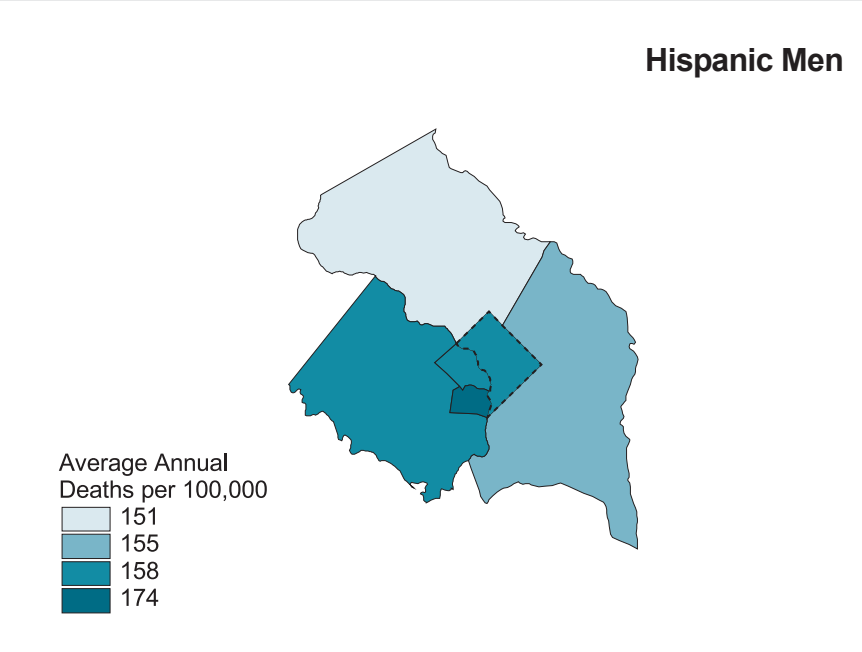
Race or Ethnicity	District Population 1995	District Heart Disease Death Rate, 1991-1995*
All Men	123,473	740
American Indian and Alaska Native Men	345	Insufficient Data
Asian and Pacific Islander Men	2,636	295
Black Men	76,007	872
Hispanic Men	6,329	Insufficient Data
White Men	44,485	505

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



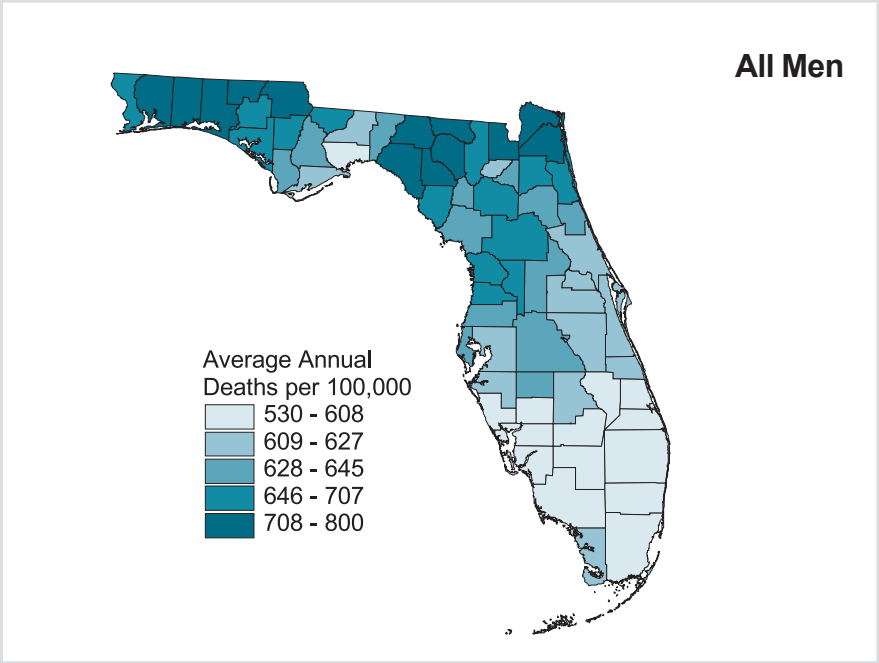
Smoothed County Heart Disease Death Rates, 1991-1995

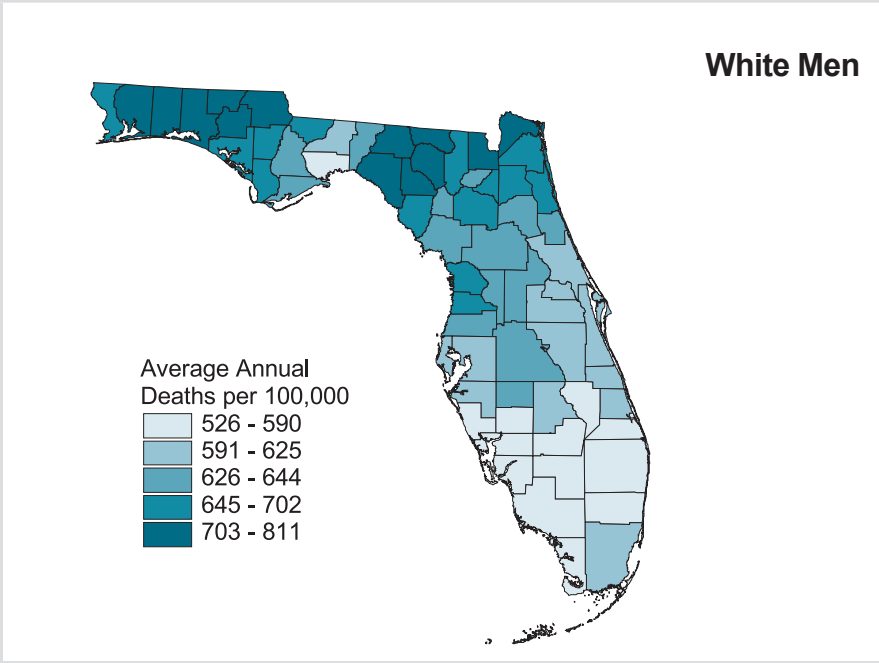




The maps of heart disease death rates for the District of Columbia display spatially smoothed rates for the District of Columbia and all contiguous counties. The District of Columbia has a dashed border on the maps. The statistical process for spatial smoothing (described in Appendix B) was performed for all counties in the United States. The heart disease death rates presented in the table for the District of Columbia (opposite) are for the District of Columbia alone and do not incorporate data from the surrounding counties.

Smoothed County Heart Disease Death Rates, 1991-1995

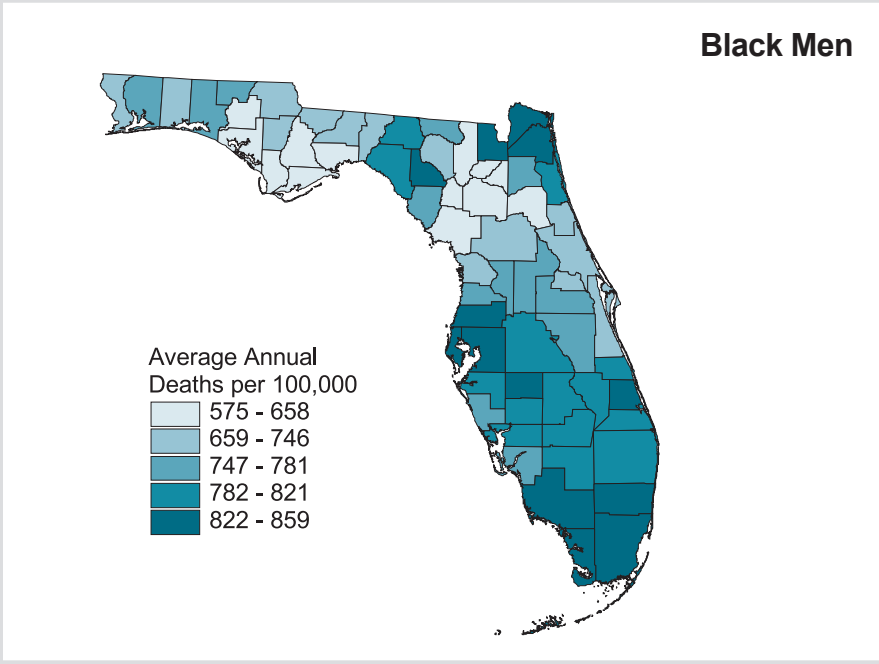




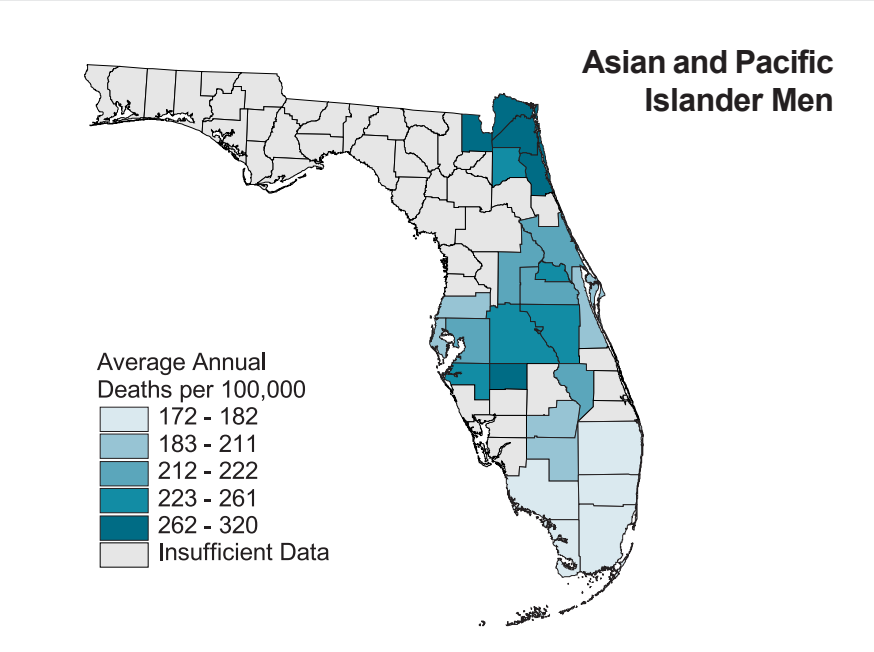
State Profile — Florida

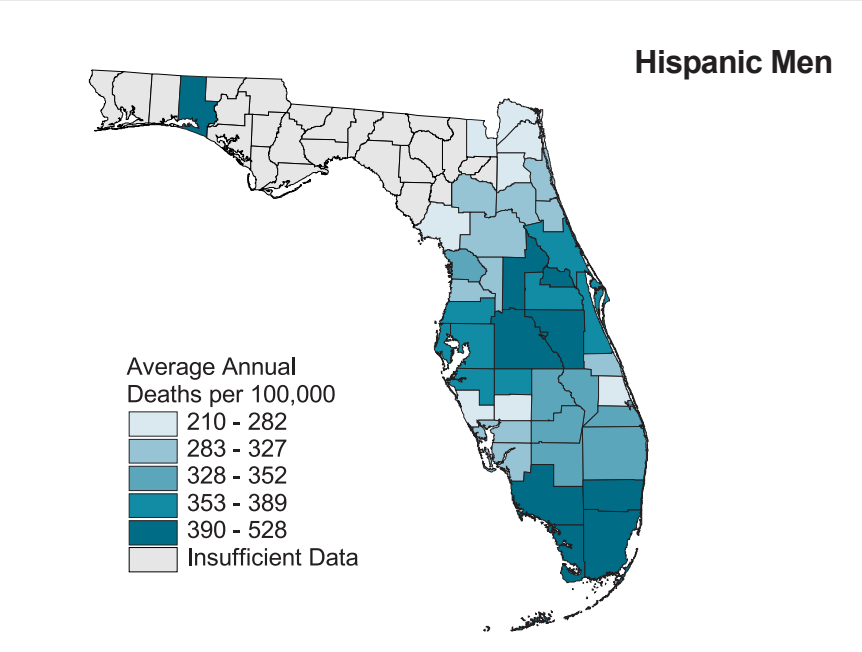
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	3,546,671	615
American Indian and Alaska Native Men	10,637	237
Asian and Pacific Islander Men	42,087	196
Black Men	357,172	776
Hispanic Men	418,364	474
White Men	3,136,775	605

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



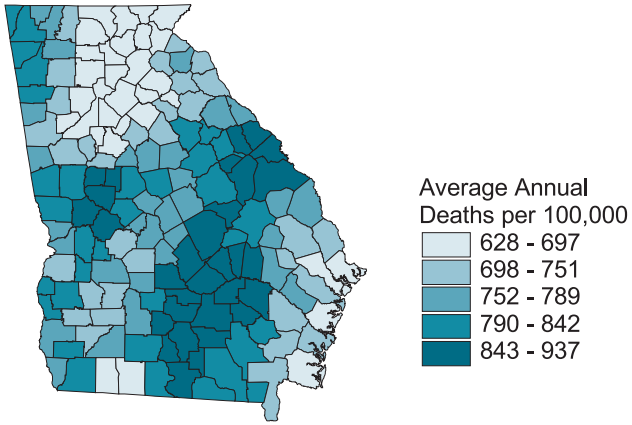
Smoothed County Heart Disease Death Rates, 1991-1995



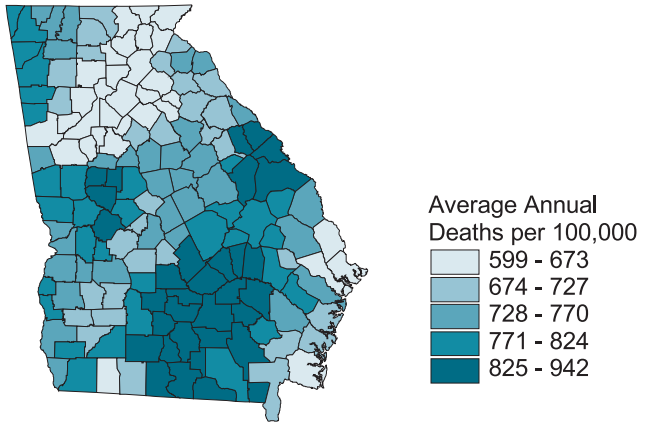


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

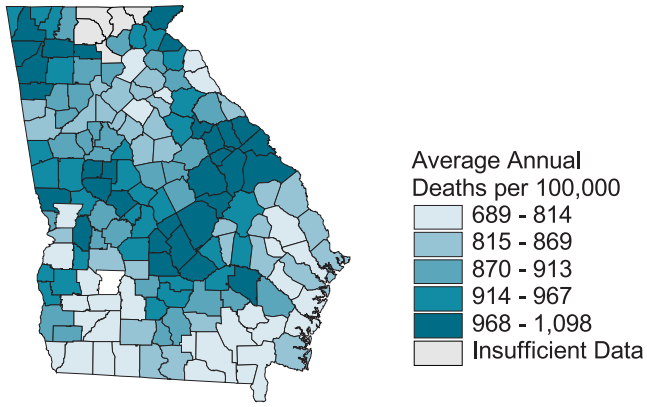


State Profile — Georgia

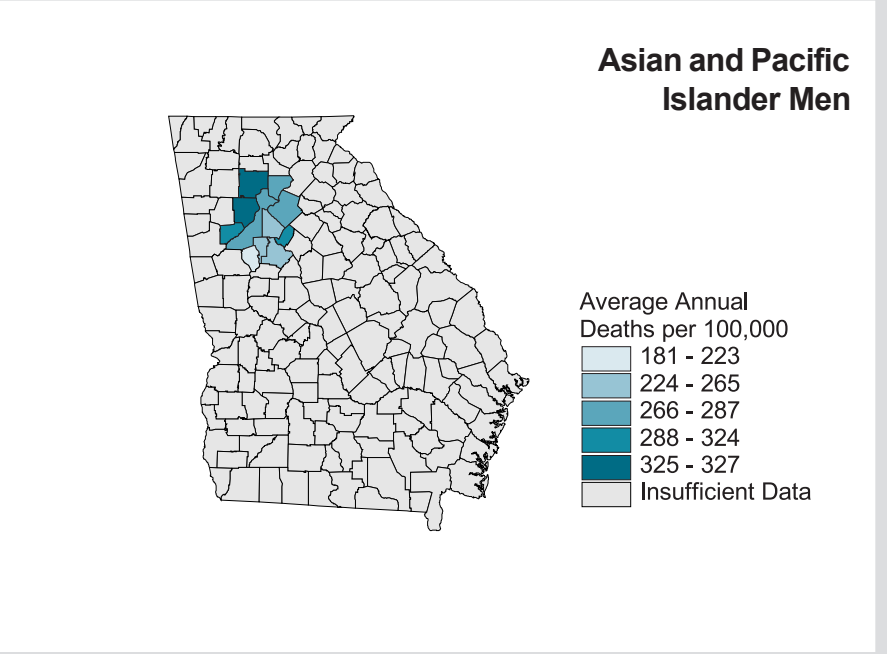
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,551,171	736
American Indian and Alaska Native Men	3,590	Insufficient Data
Asian and Pacific Islander Men	20,985	266
Black Men	334,399	888
Hispanic Men	26,772	187
White Men	1,192,197	708

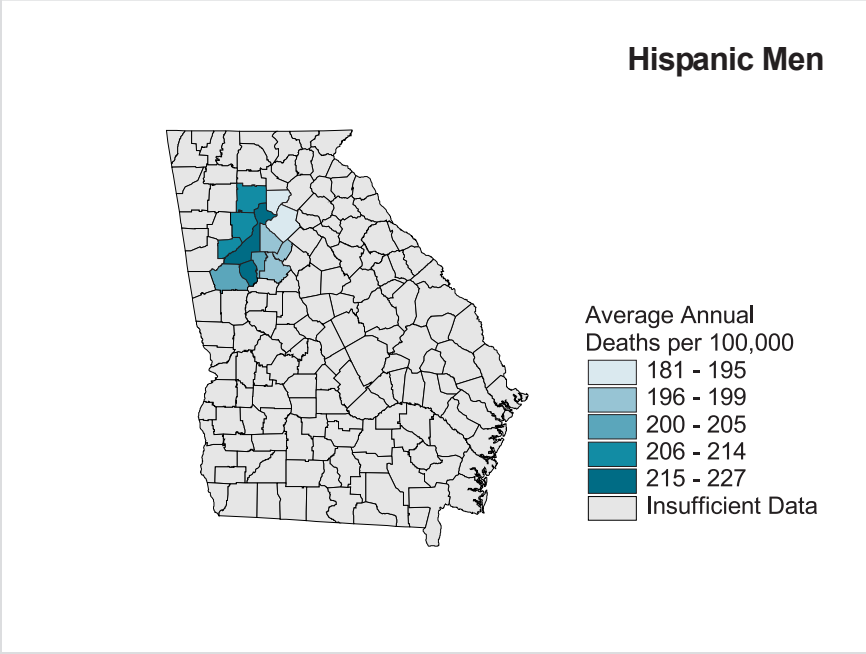
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

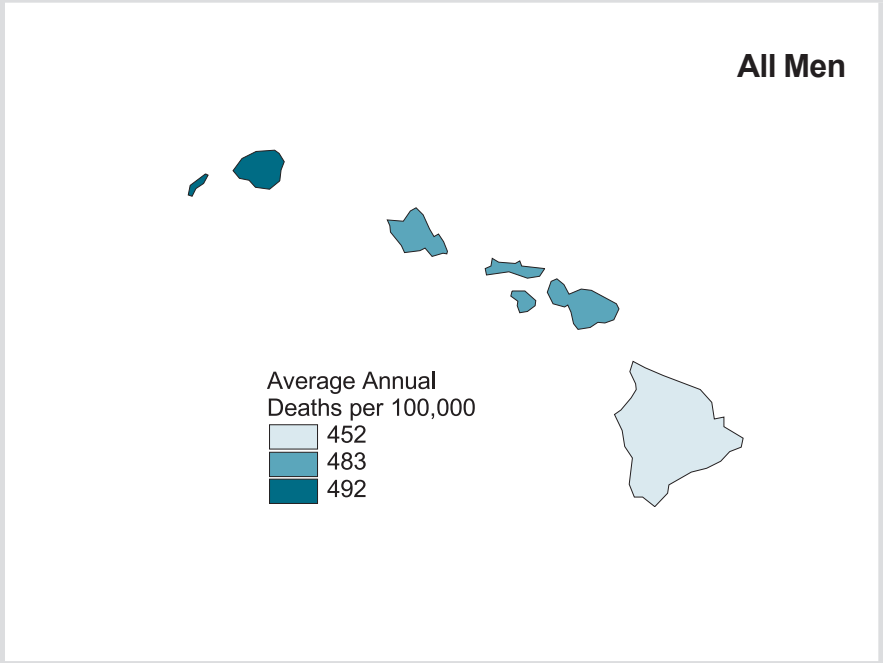


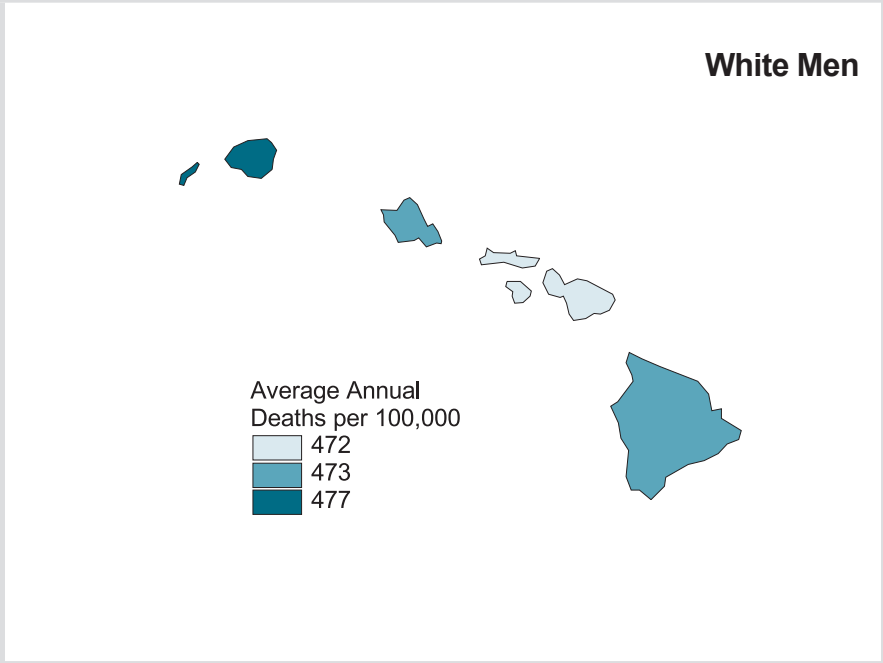
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

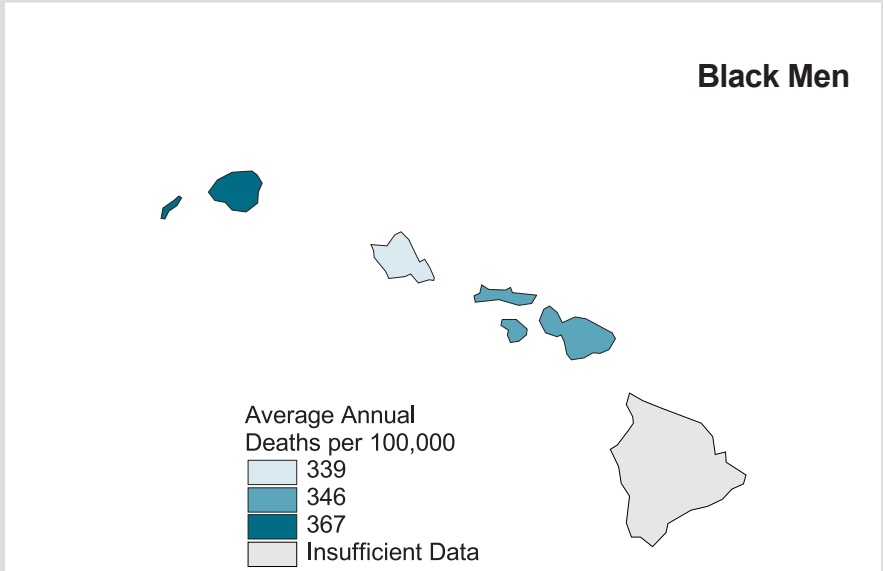




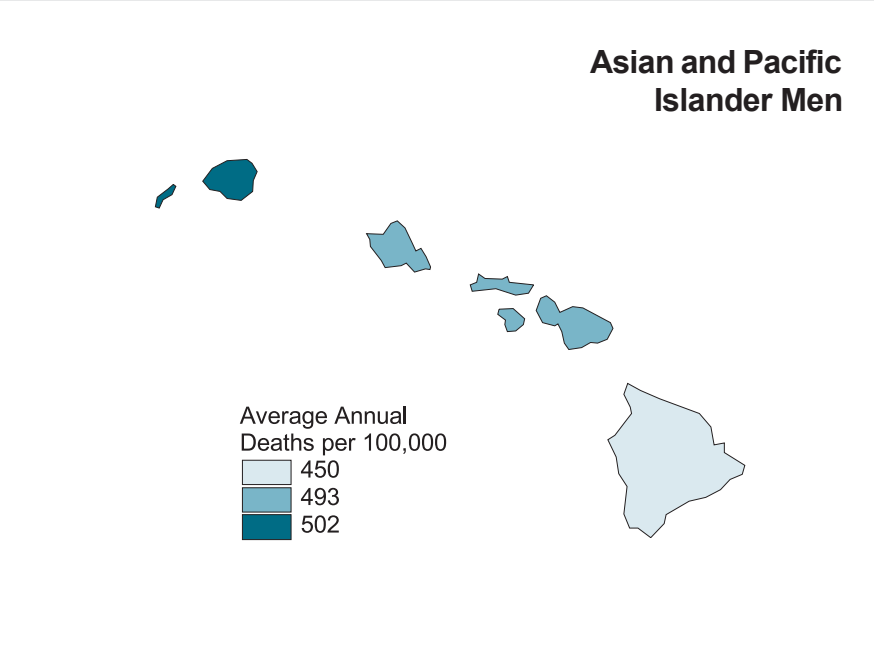
State Profile — Hawaii

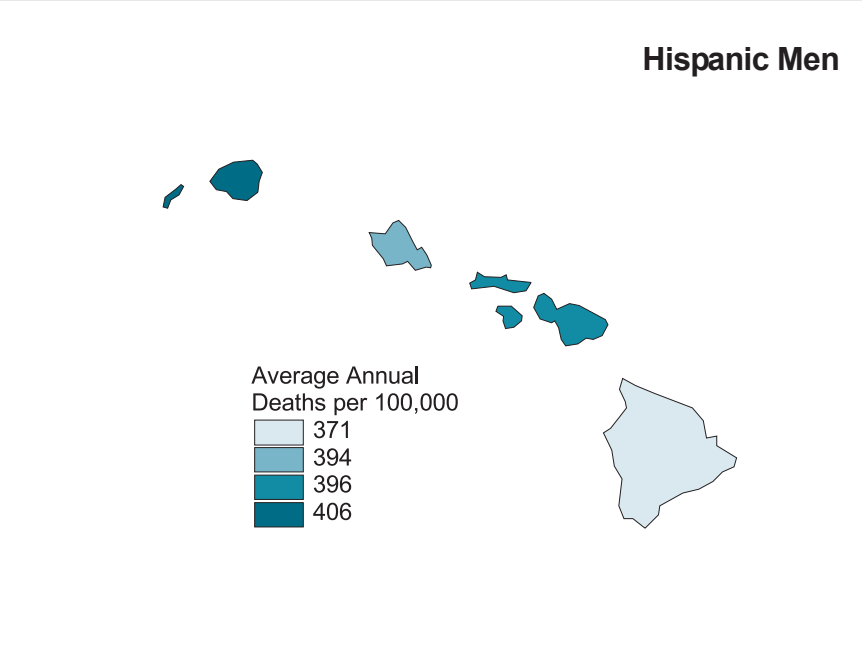
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	284,131	482
American Indian and Alaska Native Men	1,217	Insufficient Data
Asian and Pacific Islander Men	177,321	490
Black Men	5,595	338
Hispanic Men	15,882	397
White Men	99,998	476

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

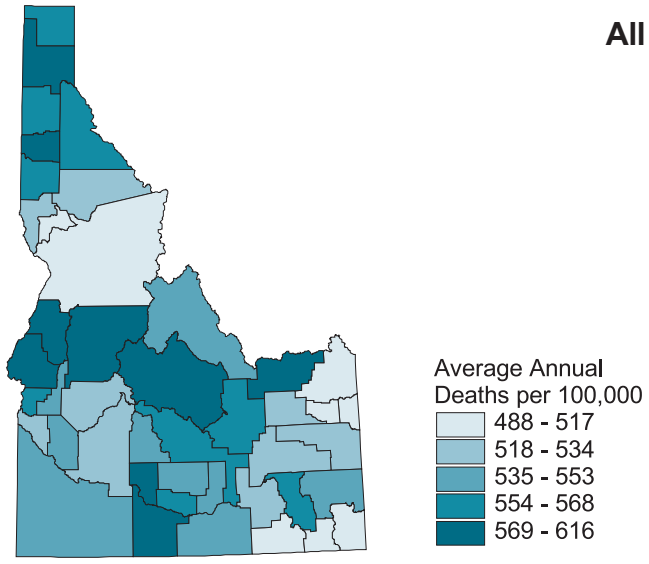


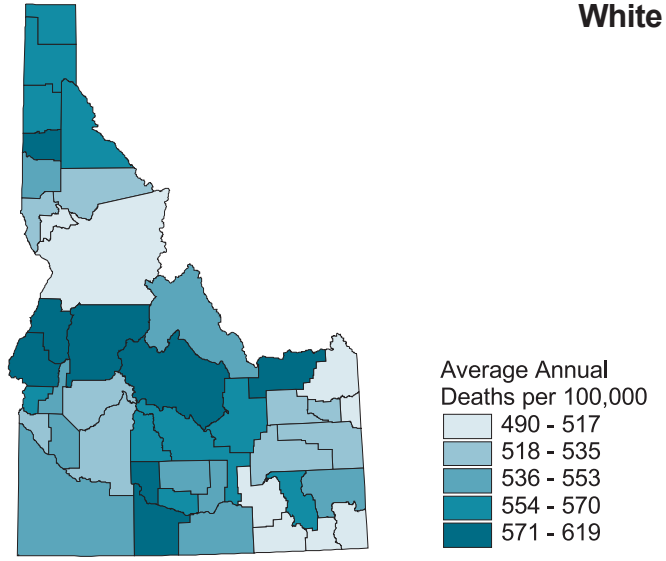
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

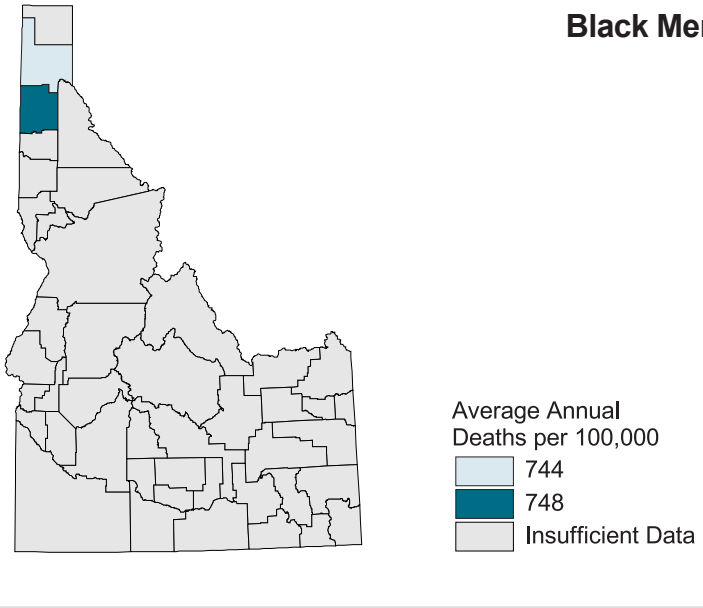




State Profile — Idaho

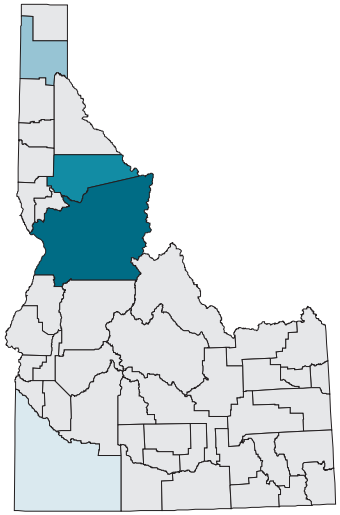
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	265,228	546
American Indian and Alaska Native Men	2,669	604
Asian and Pacific Islander Men	1,925	395
Black Men	1,064	Insufficient Data
Hispanic Men	11,257	336
White Men	259,570	546

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



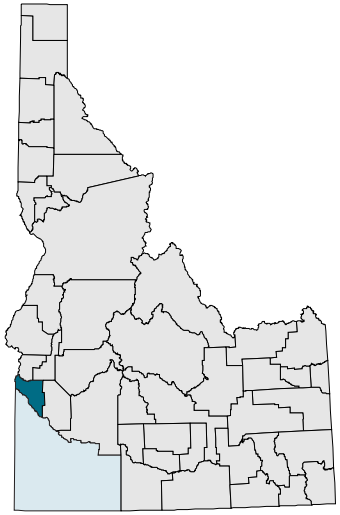
Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men



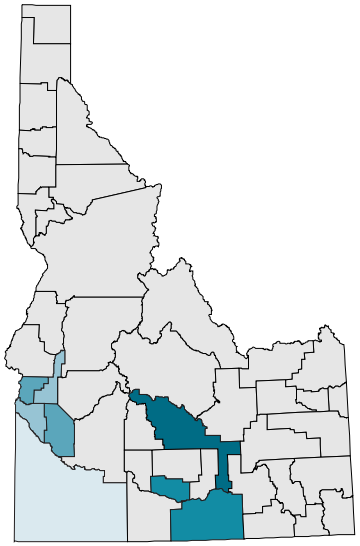
Average Annual
Deaths per 100,000
- 507
- 707
- 889
- 916
- Insufficient Data

Asian and Pacific Islander Men



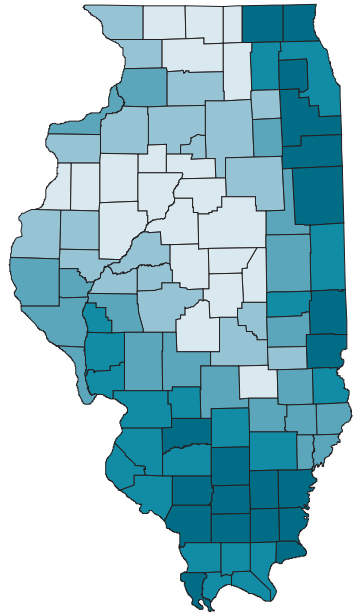
Average Annual
Deaths per 100,000
- 487
- 537
- Insufficient Data

Hispanic Men



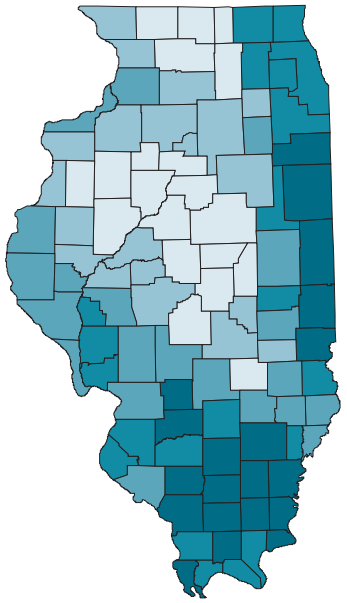
Average Annual
Deaths per 100,000
- 244 - 275
- 276 - 311
- 312 - 383
- 384 - 464
- 465
- Insufficient Data

Smoothed County Heart Disease Death Rates, 1991-1995



All Men

Average Annual
Deaths per 100,000
606 - 648
649 - 686
687 - 717
718 - 753
754 - 845



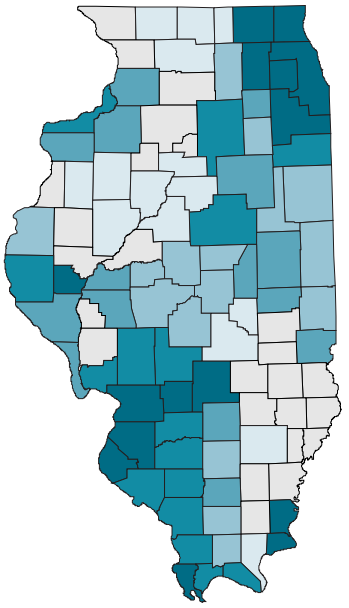
White Men

Average Annual
Deaths per 100,000
607 - 647
648 - 684
685 - 715
716 - 742
743 - 846

State Profile — Illinois

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	2,654,479	723
American Indian and Alaska Native Men	5,326	232
Asian and Pacific Islander Men	72,489	285
Black Men	308,311	944
Hispanic Men	174,456	328
White Men	2,268,353	702

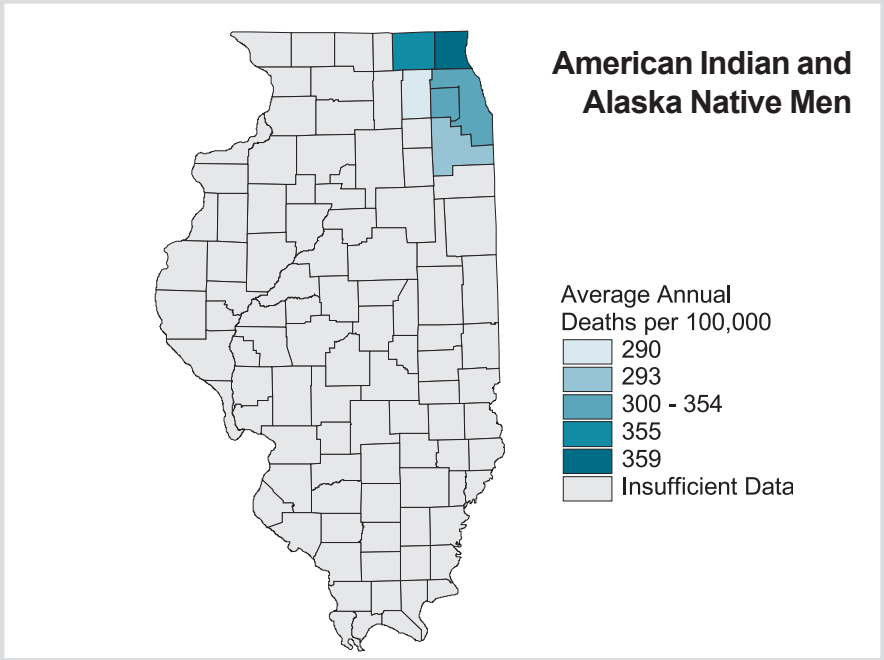
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

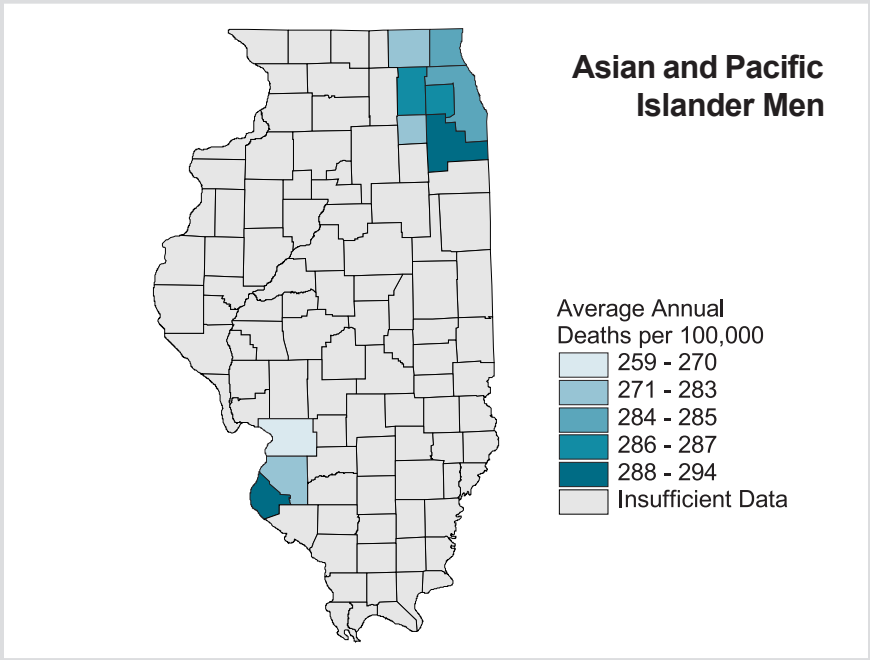


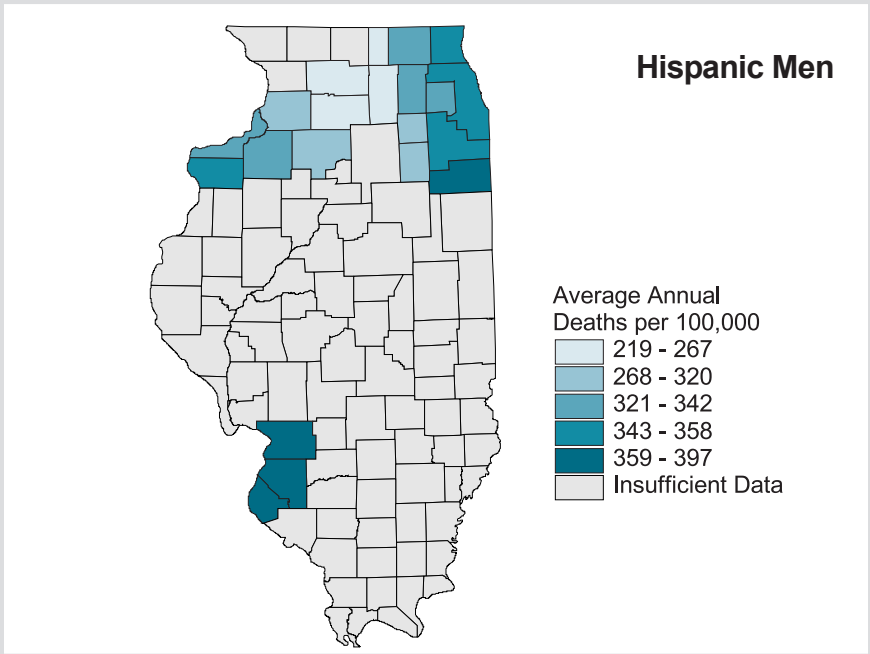
Black Men

Average Annual
Deaths per 100,000
542 - 716
717 - 767
768 - 812
813 - 918
919 - 1,033
Insufficient Data

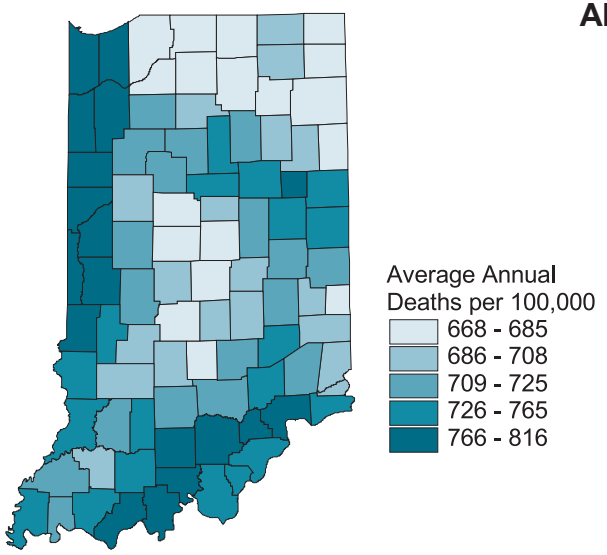
Smoothed County Heart Disease Death Rates, 1991-1995

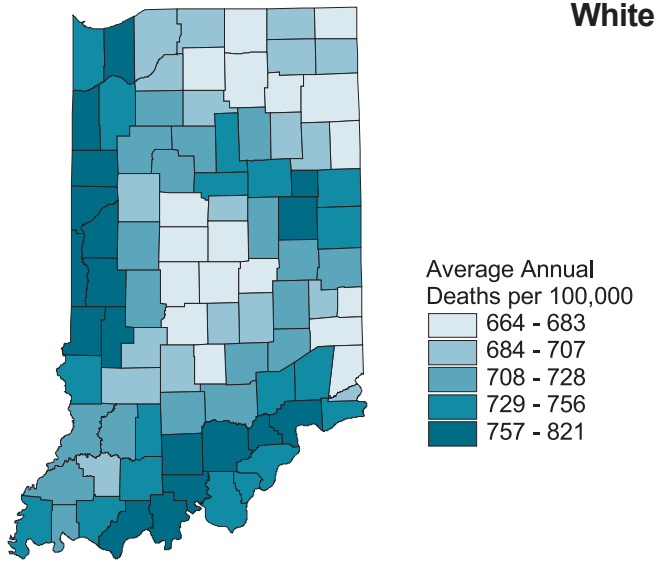






Smoothed County Heart Disease Death Rates, 1991-1995



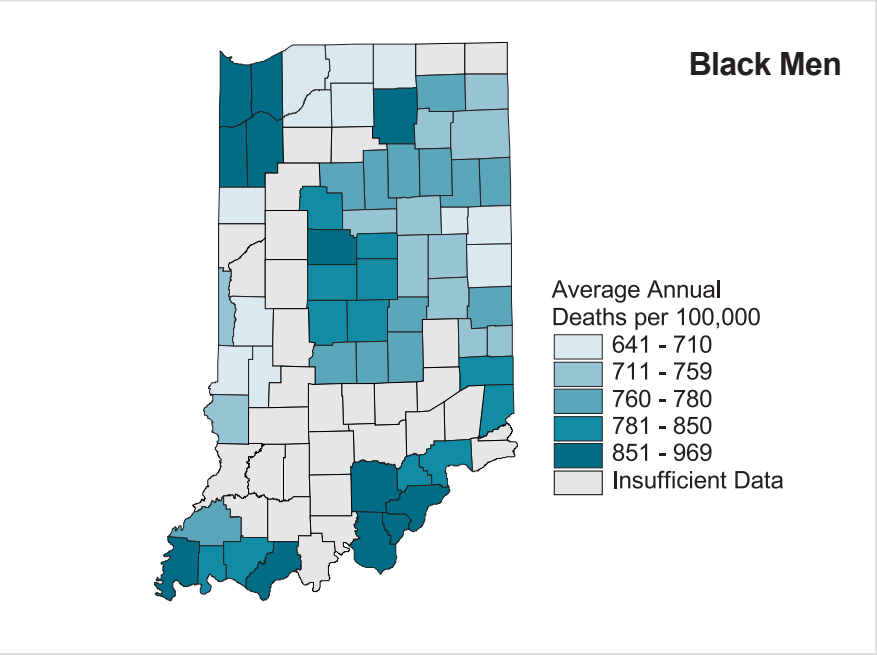


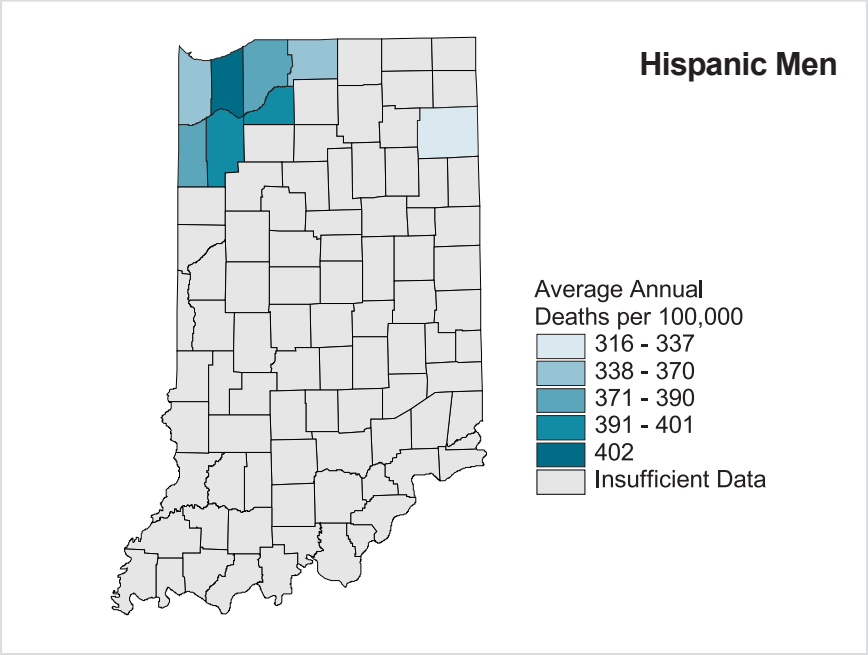
State Profile — Indiana

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,330,593	715
American Indian and Alaska Native Men	2,985	Insufficient Data
Asian and Pacific Islander Men	8,522	326
Black Men	85,137	796
Hispanic Men	21,113	351
White Men	1,233,949	712

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

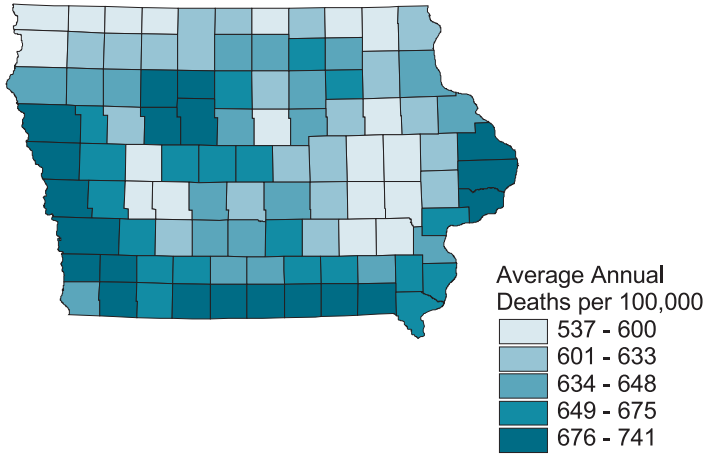
Smoothed County Heart Disease Death Rates, 1991-1995



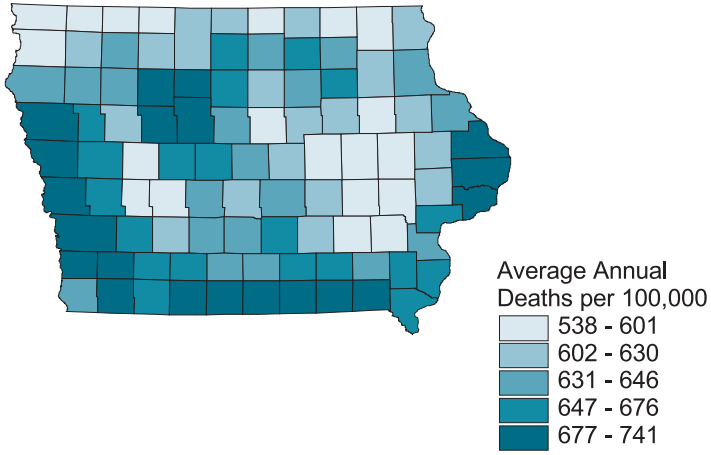


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

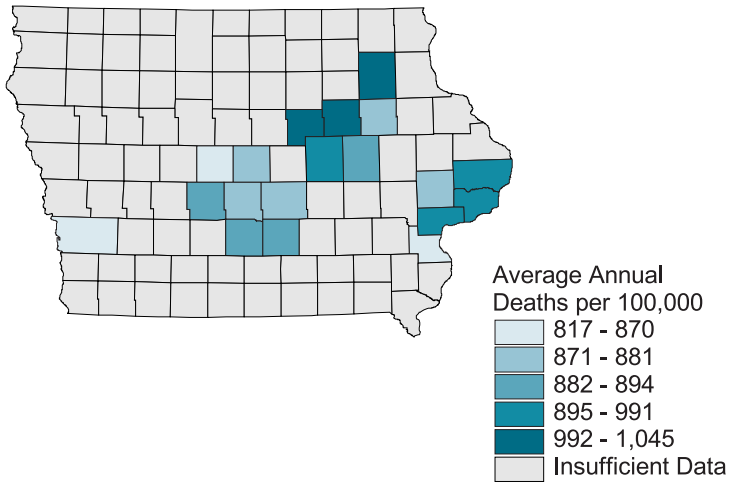


State Profile — Iowa

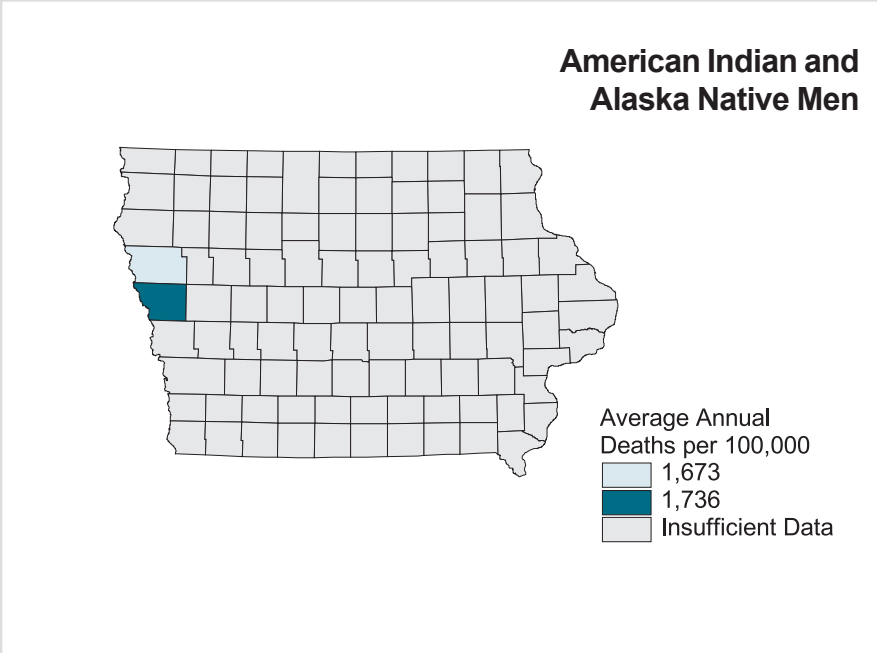
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	679,490	639
American Indian and Alaska Native Men	1,325	Insufficient Data
Asian and Pacific Islander Men	4,530	373
Black Men	9,219	814
Hispanic Men	6,670	448
White Men	664,416	638

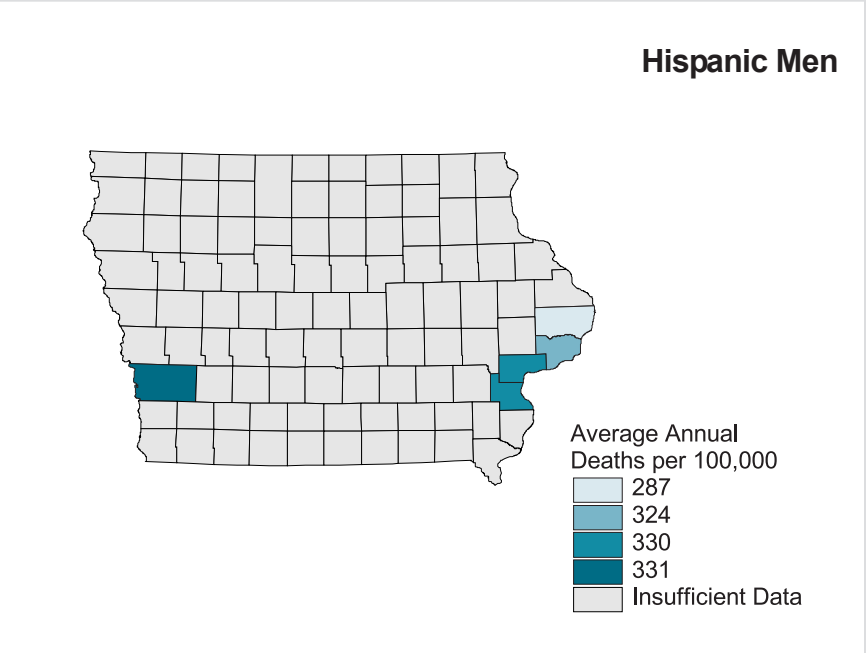
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



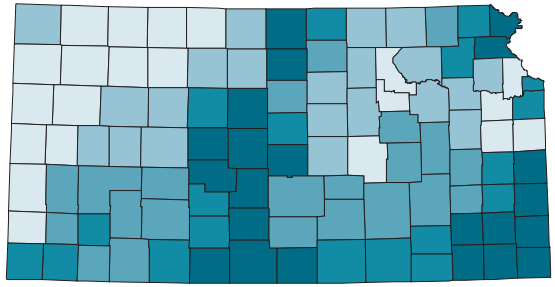
Smoothed County Heart Disease Death Rates, 1991-1995





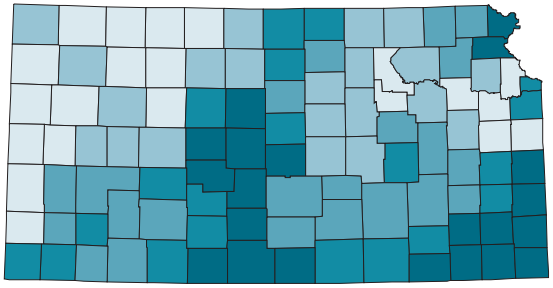
Smoothed County Heart Disease Death Rates, 1991-1995

All Men



Average Annual
Deaths per 100,000
- 434 - 581
- 582 - 610
- 611 - 634
- 635 - 660
- 661 - 779

White Men



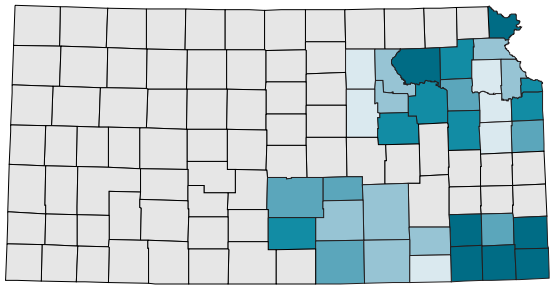
Average Annual
Deaths per 100,000
- 437 - 579
- 580 - 608
- 609 - 631
- 632 - 660
- 661 - 791

State Profile — Kansas

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	592,608	619
American Indian and Alaska Native Men	4,159	712
Asian and Pacific Islander Men	6,113	315
Black Men	28,051	698
Hispanic Men	18,452	368
White Men	554,285	617

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

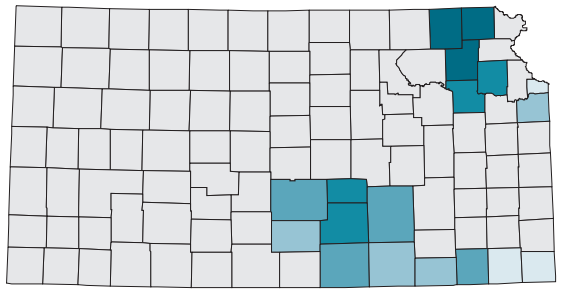
Black Men



Average Annual
Deaths per 100,000
- 576 - 658
- 659 - 711
- 712 - 730
- 731 - 764
- 765 - 929
- Insufficient Data

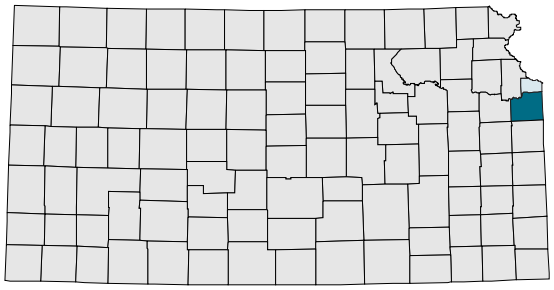
Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men



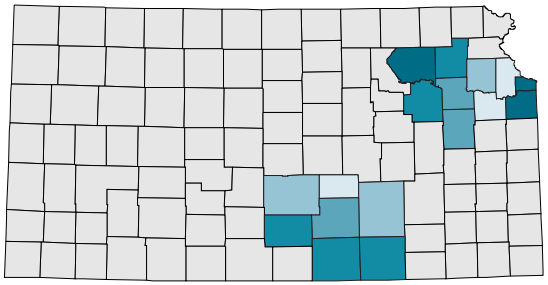
Average Annual
Deaths per 100,000
- 402 - 493
- 494 - 604
- 605 - 705
- 706 - 1,192
- 1,193 - 1,395
- Insufficient Data

Asian and Pacific Islander Men



Average Annual
Deaths per 100,000
- 280
- 287
- Insufficient Data

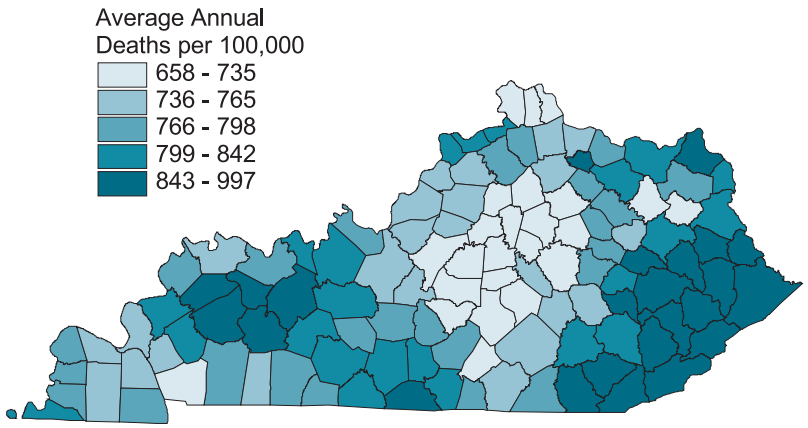
Hispanic Men



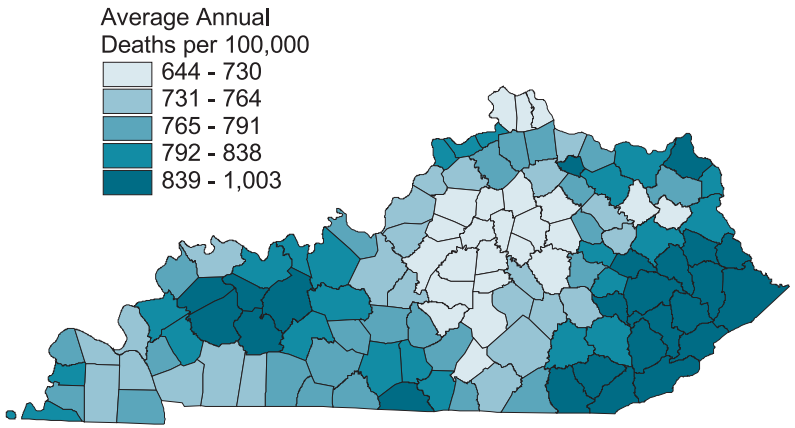
Average Annual
Deaths per 100,000
- 341 - 370
- 371 - 389
- 390 - 399
- 400 - 435
- 436 - 466
- Insufficient Data

Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

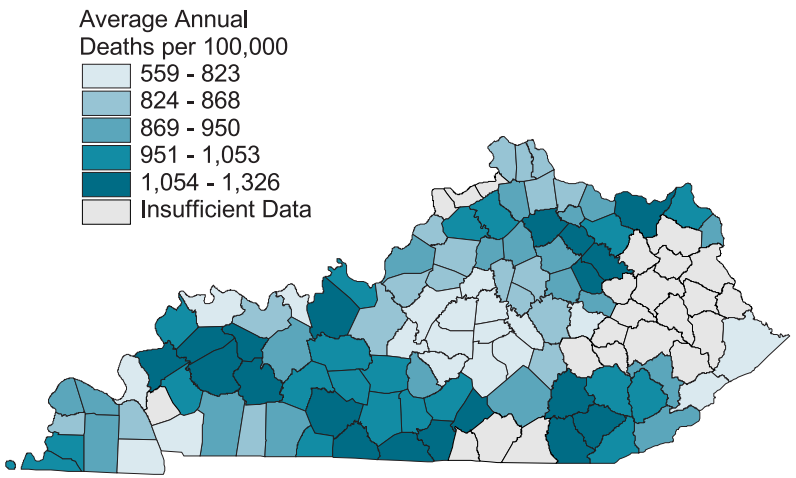


State Profile — Kentucky

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	888,583	783
American Indian and Alaska Native Men	1,350	Insufficient Data
Asian and Pacific Islander Men	3,927	Insufficient Data
Black Men	50,876	882
Hispanic Men	4,474	551
White Men	832,430	780

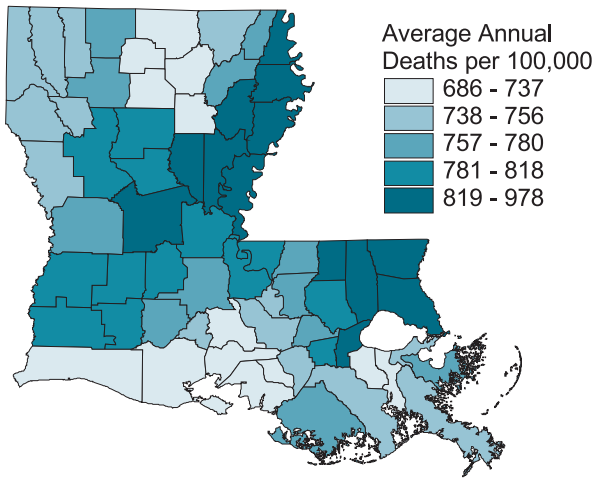
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

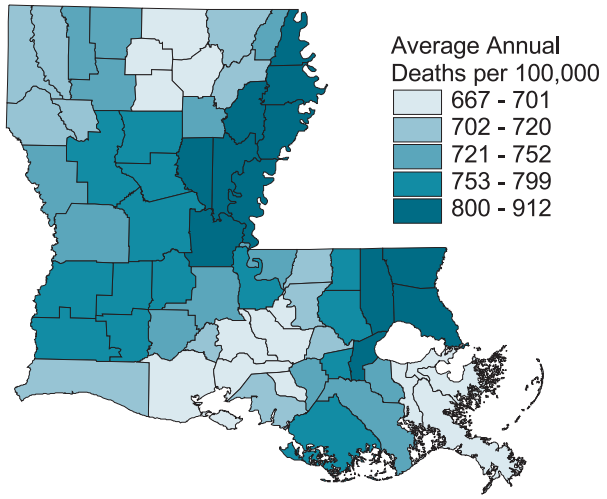


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

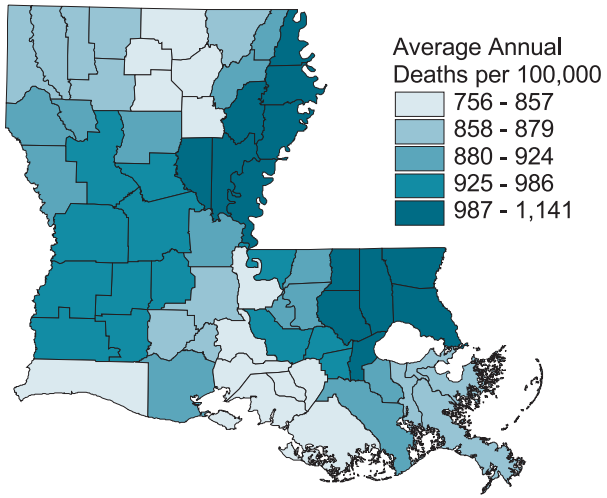


State Profile — Louisiana

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	926,174	764
American Indian and Alaska Native Men	3,683	295
Asian and Pacific Islander Men	8,683	181
Black Men	228,324	892
Hispanic Men	21,836	295
White Men	685,484	733

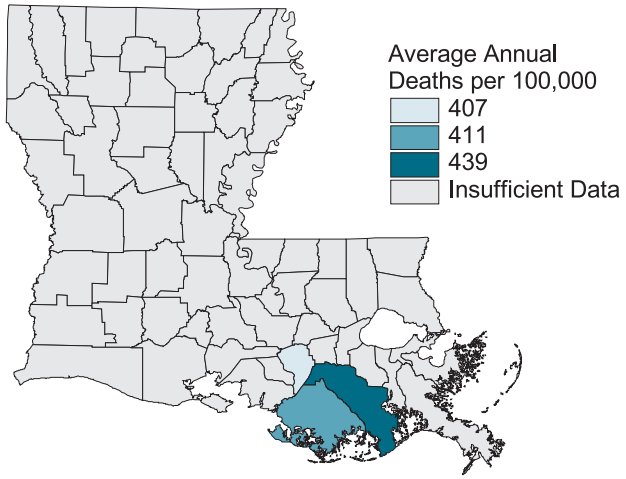
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

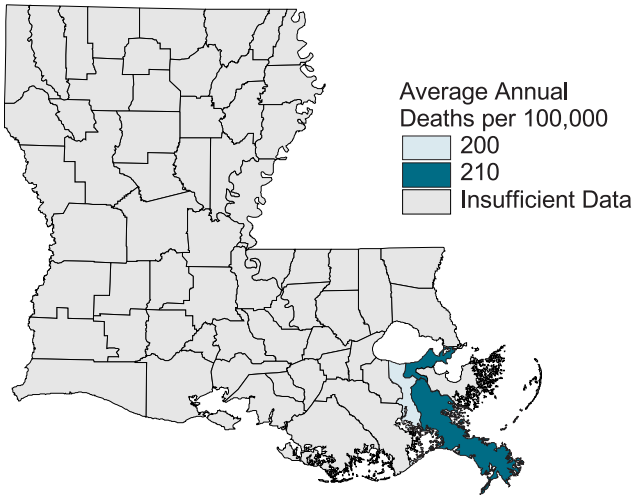


Smoothed County Heart Disease Death Rates, 1991-1995

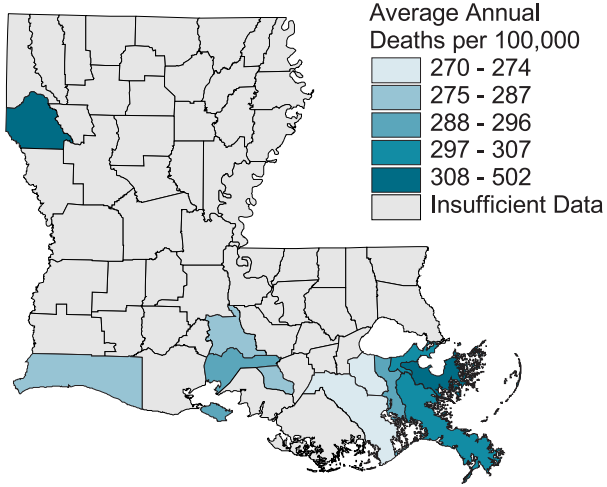
American Indian and Alaska Native Men



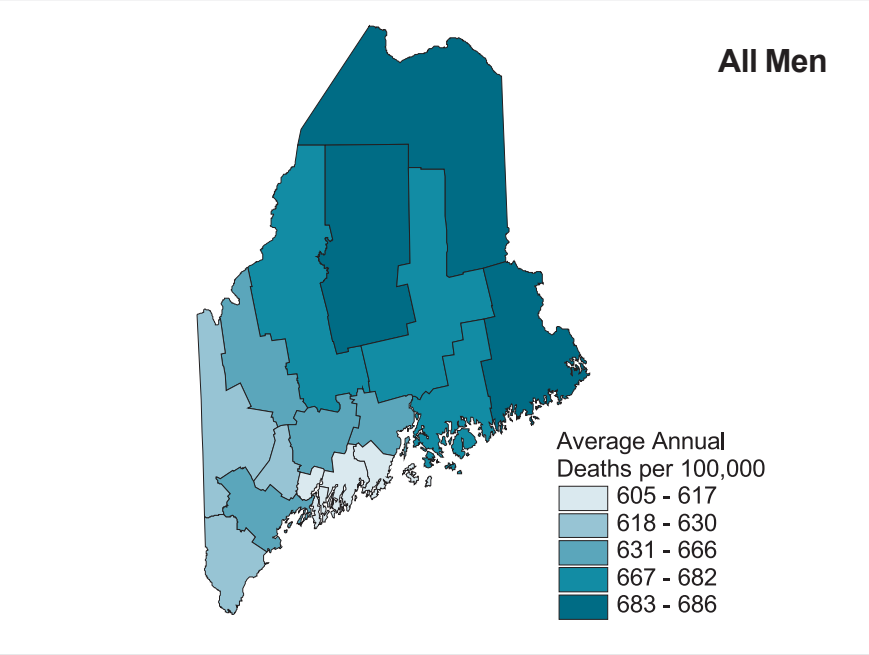
Asian and Pacific Islander Men

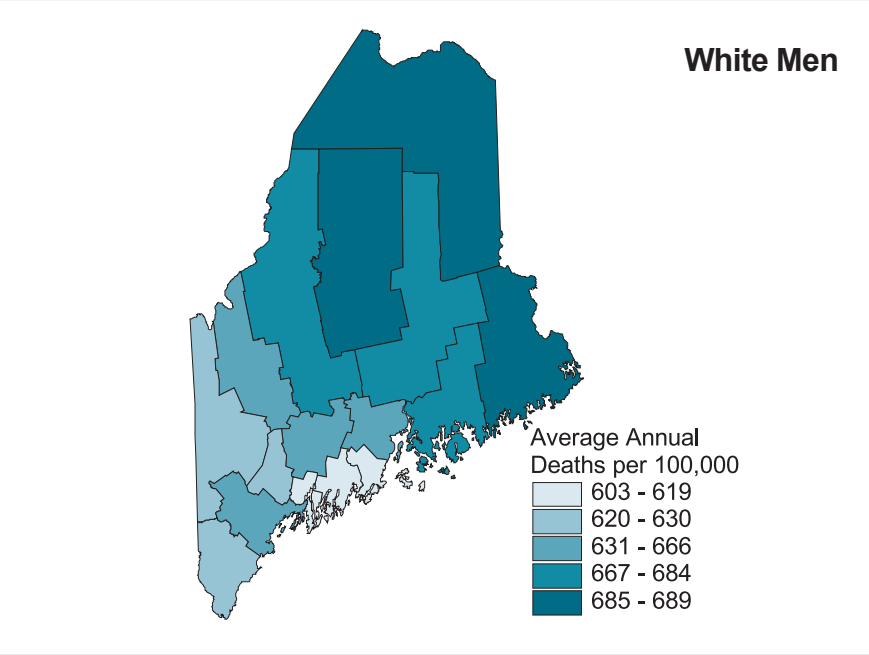


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995





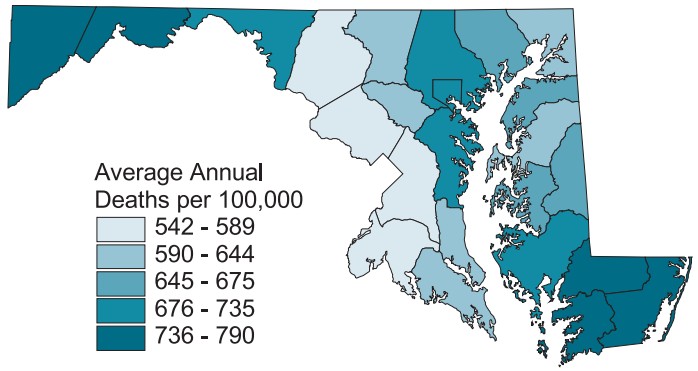
State Profile — Maine

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	303,666	641
American Indian and Alaska Native Men	1,071	Insufficient Data
Asian and Pacific Islander Men	1,188	Insufficient Data
Black Men	1,093	1069
Hispanic Men	1,237	Insufficient Data
White Men	300,314	642

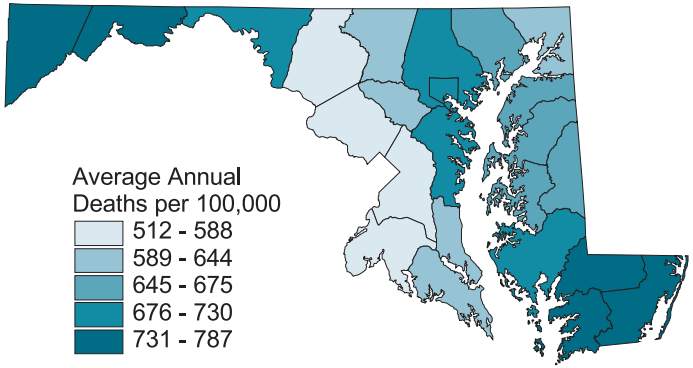
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

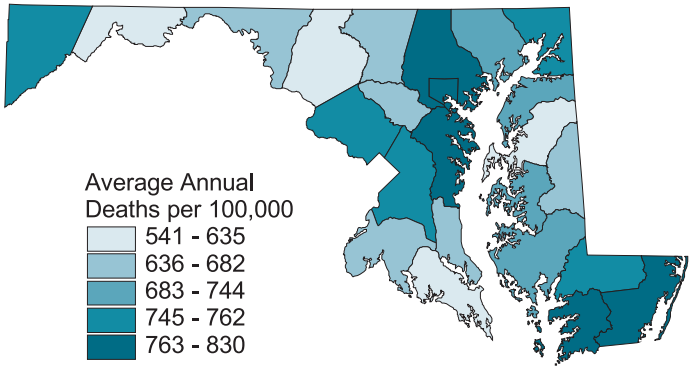


State Profile — Maryland

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,159,121	657
American Indian and Alaska Native Men	3,261	Insufficient Data
Asian and Pacific Islander Men	36,610	286
Black Men	252,031	749
Hispanic Men	27,776	140
White Men	867,219	644

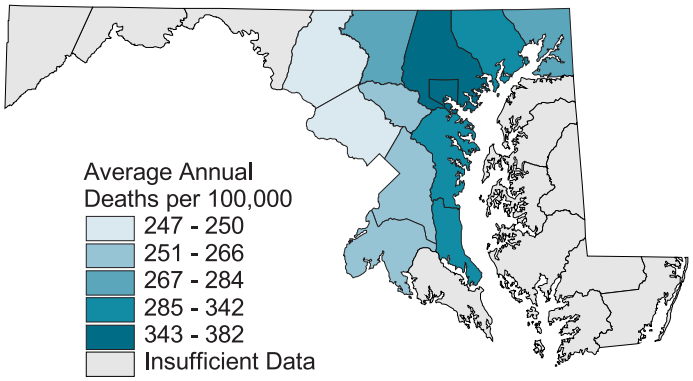
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

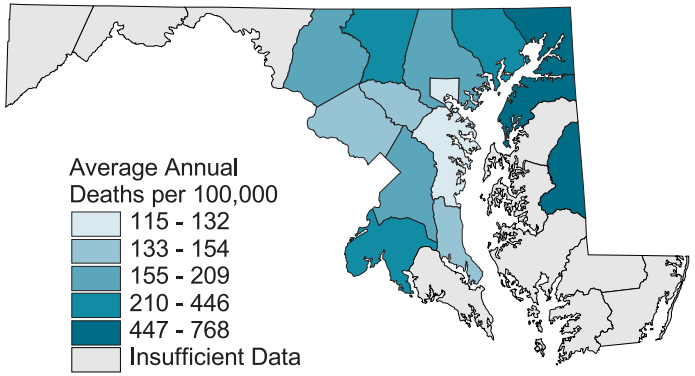


Smoothed County Heart Disease Death Rates, 1991-1995

Asian and Pacific Islander Men

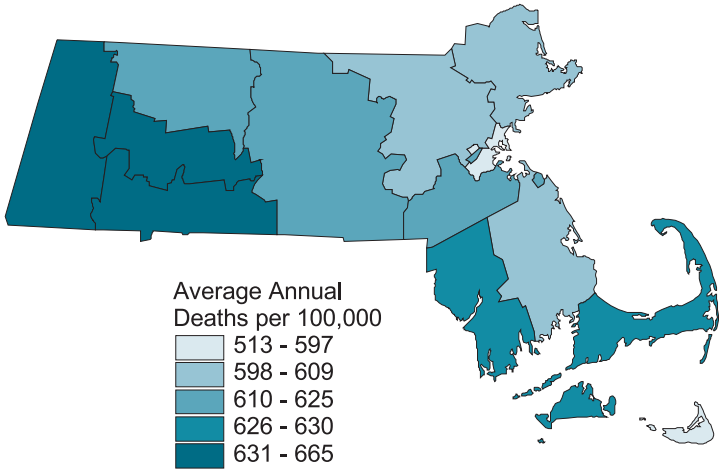


Hispanic Men

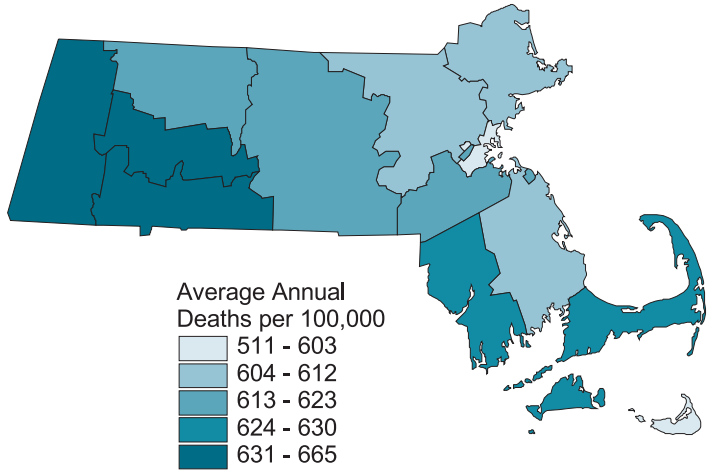


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

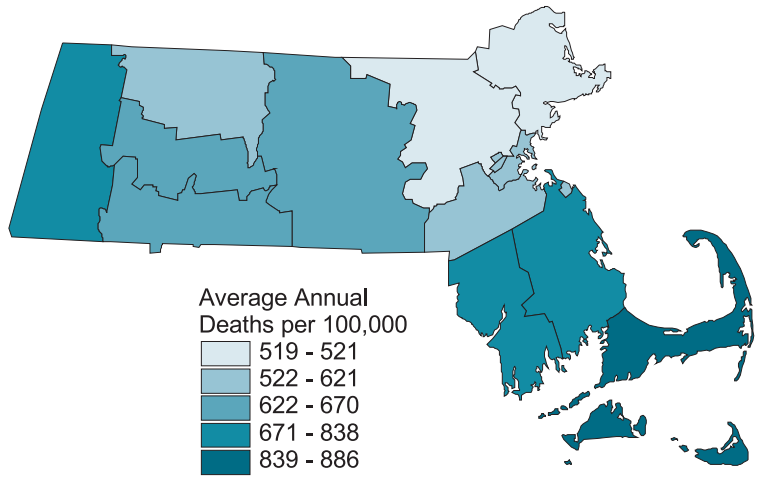


State Profile — Massachusetts

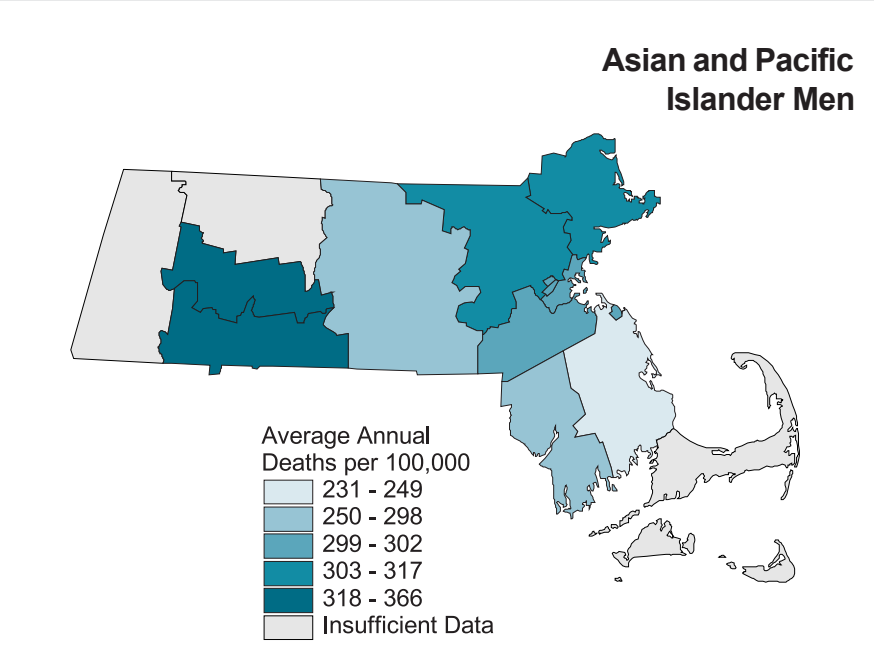
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,404,656	612
American Indian and Alaska Native Men	2,712	Insufficient Data
Asian and Pacific Islander Men	31,995	296
Black Men	61,033	580
Hispanic Men	46,239	291
White Men	1,308,916	616

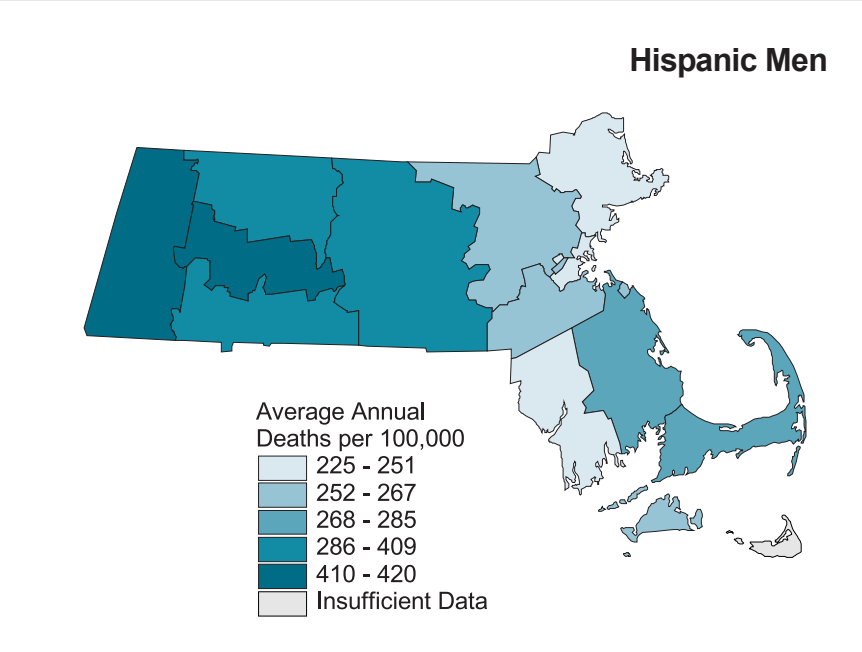
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

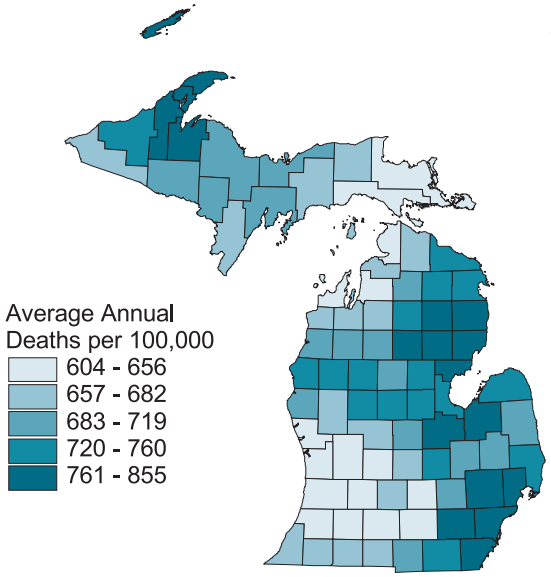


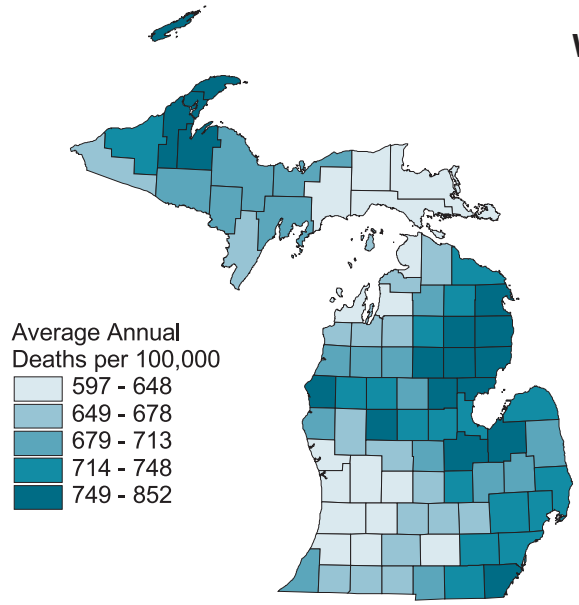
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

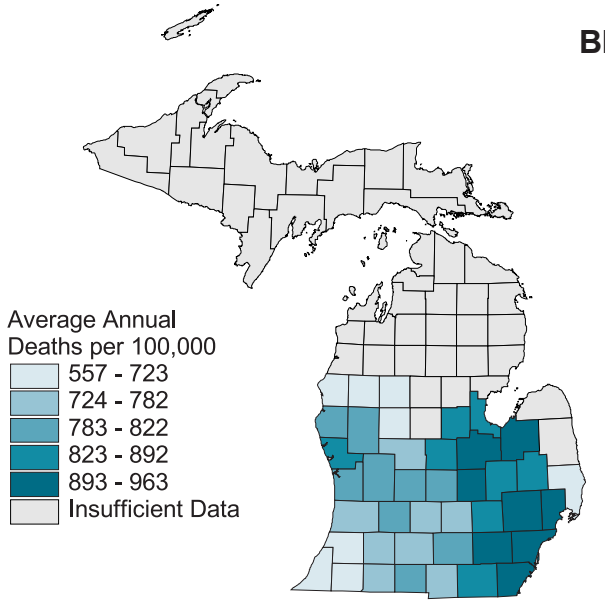




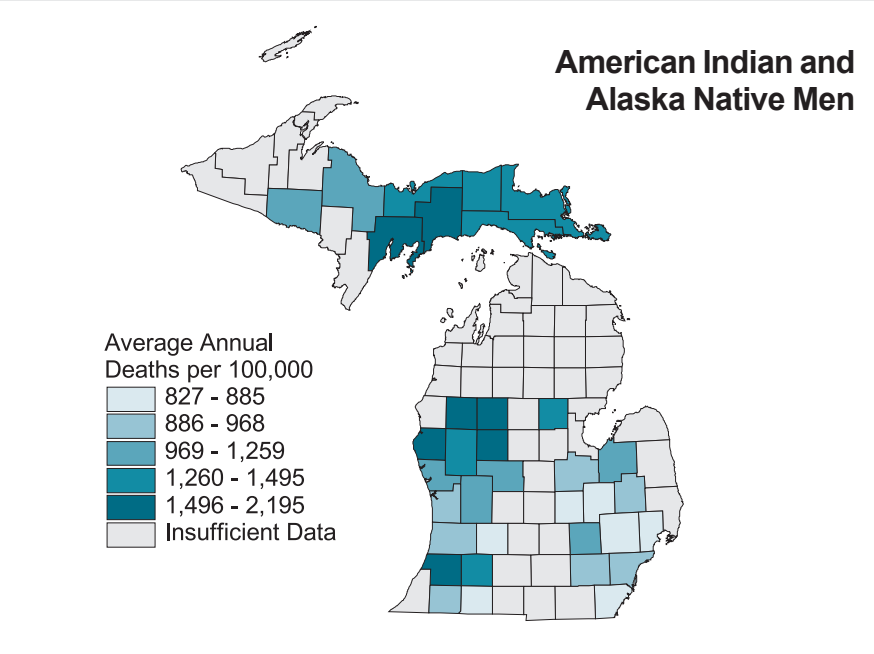
State Profile — Michigan

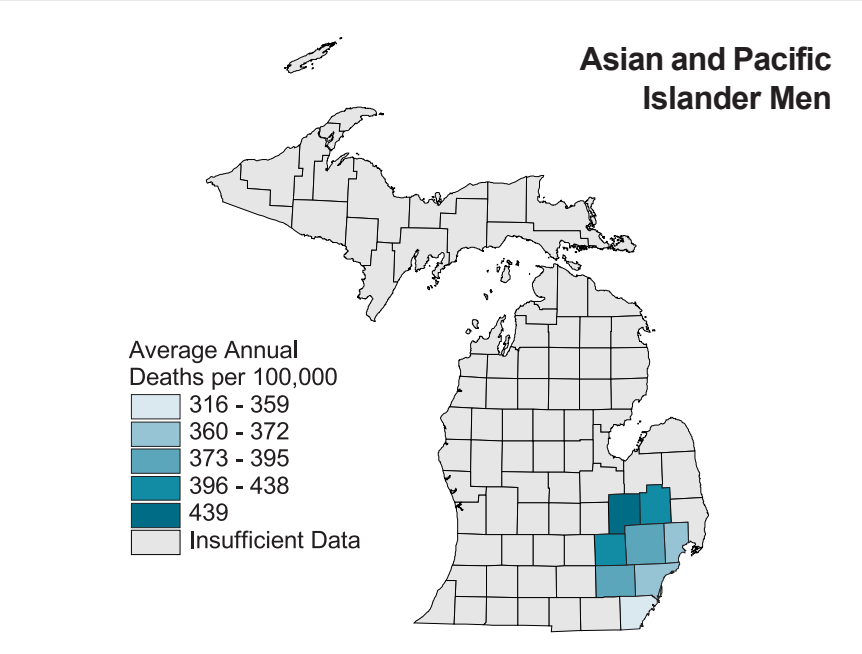
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	2,181,417	726
American Indian and Alaska Native Men	10,619	1,067
Asian and Pacific Islander Men	23,801	336
Black Men	244,909	914
Hispanic Men	38,415	445
White Men	1,902,088	704

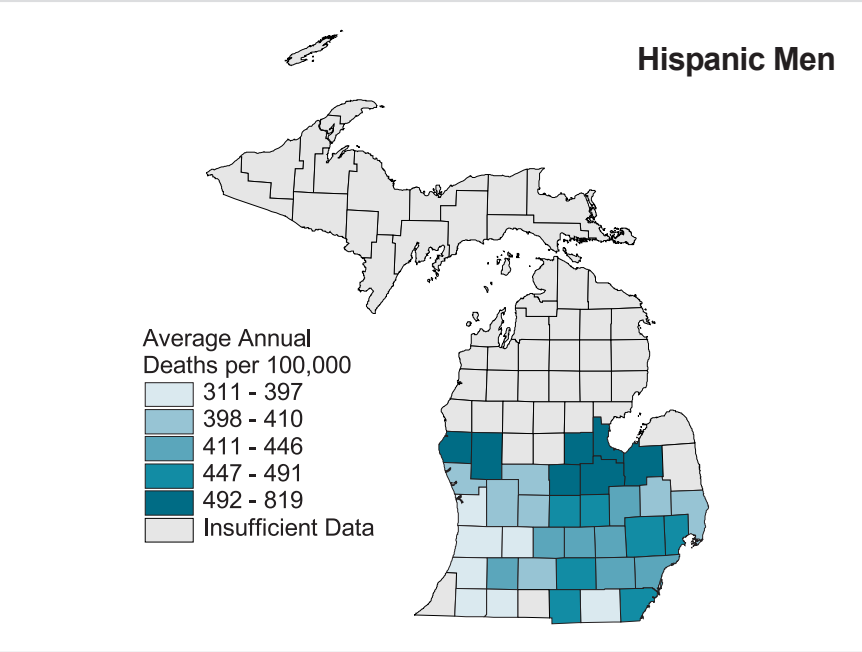
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



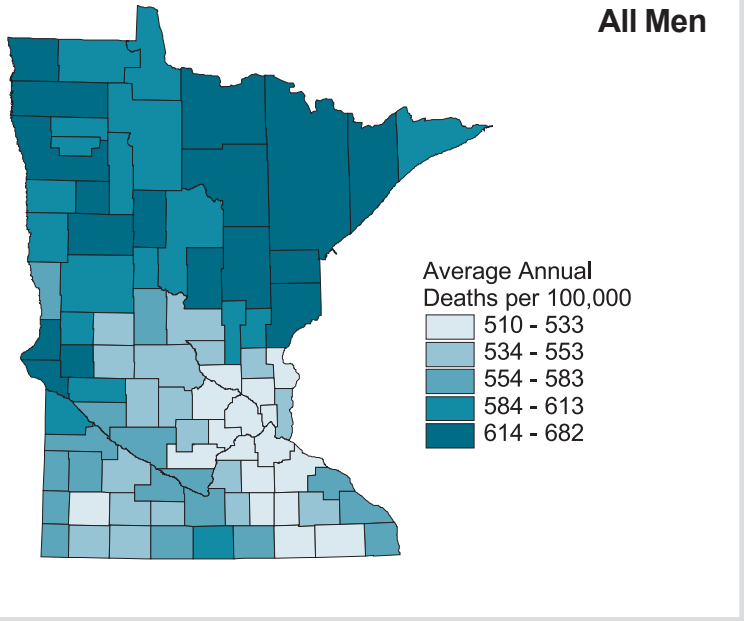
Smoothed County Heart Disease Death Rates, 1991-1995

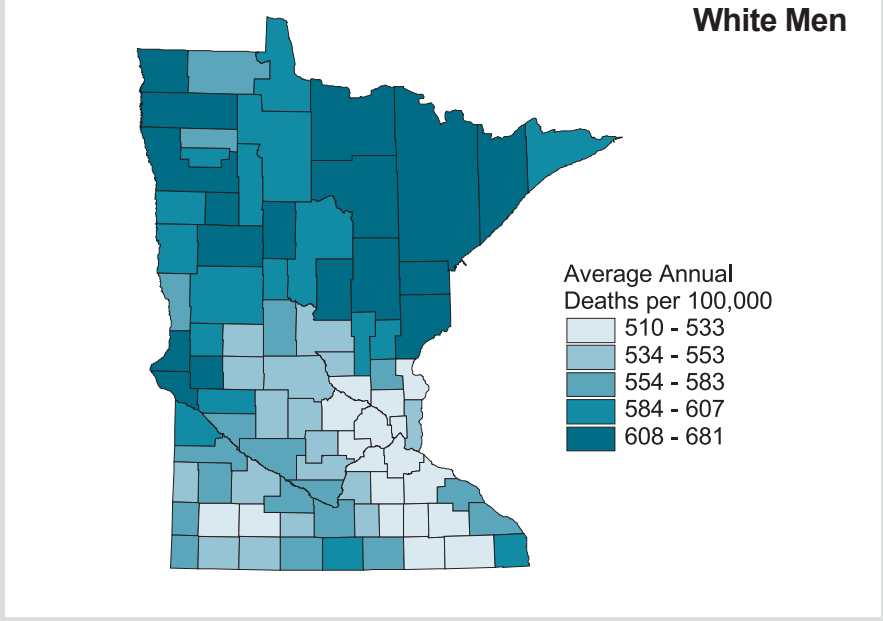






Smoothed County Heart Disease Death Rates, 1991-1995

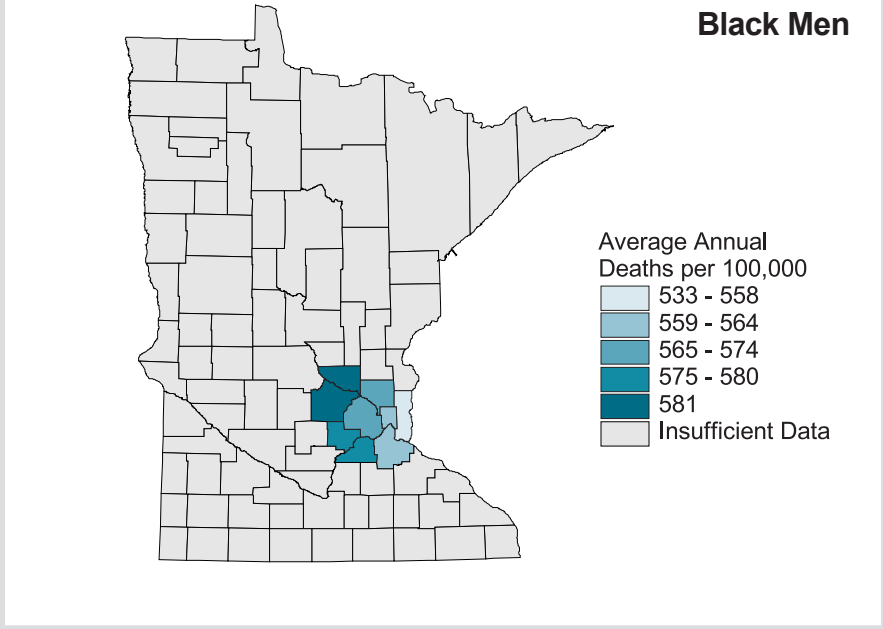




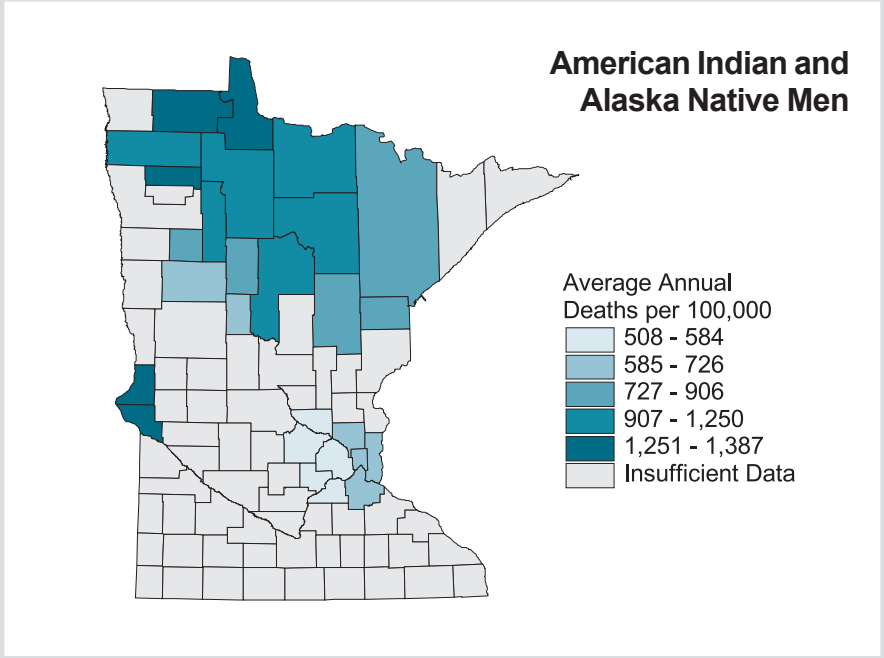
State Profile — Minnesota

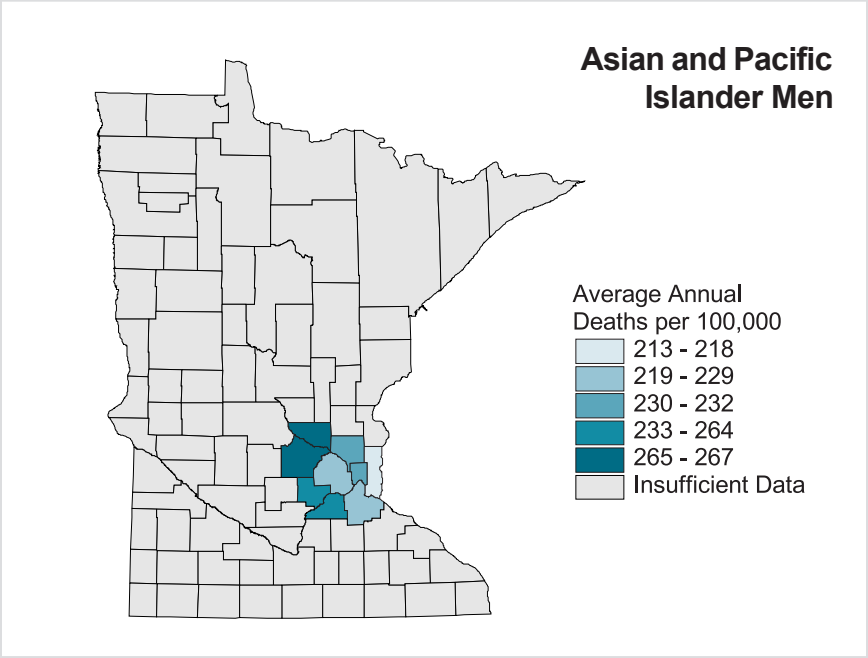
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,071,295	554
American Indian and Alaska Native Men	8,274	693
Asian and Pacific Islander Men	13,370	233
Black Men	19,675	564
Hispanic Men	10,704	250
White Men	1,029,976	554

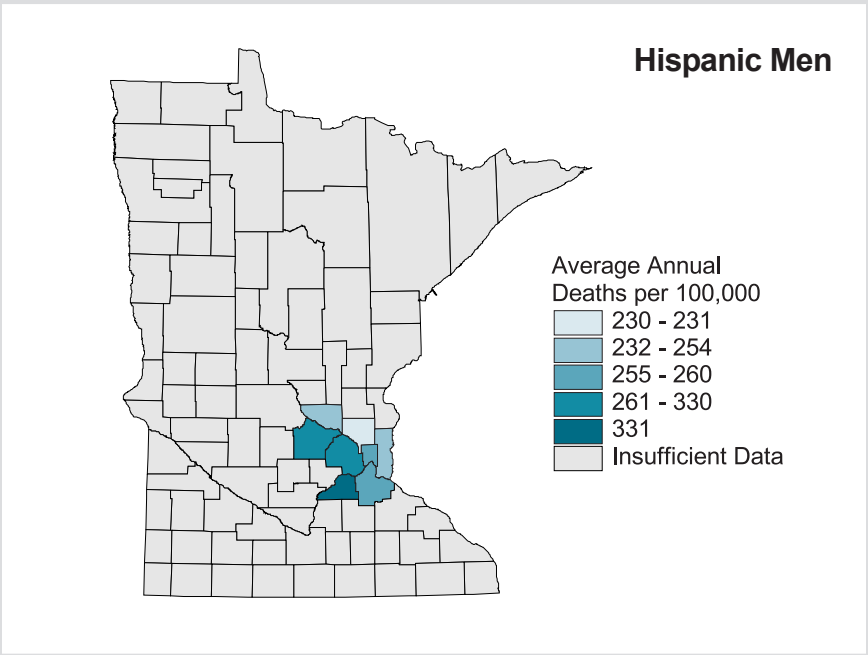
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



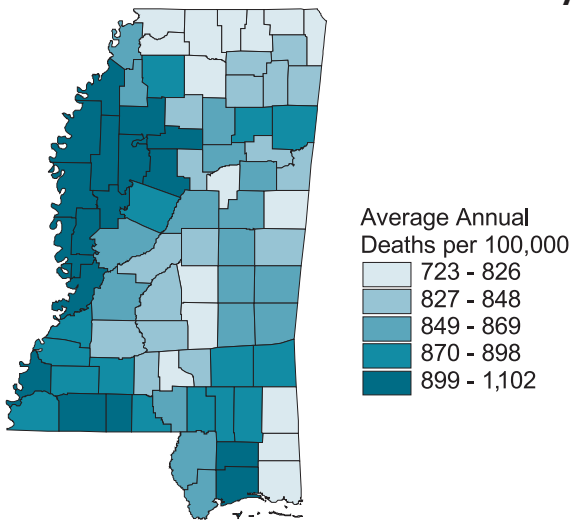
Smoothed County Heart Disease Death Rates, 1991-1995

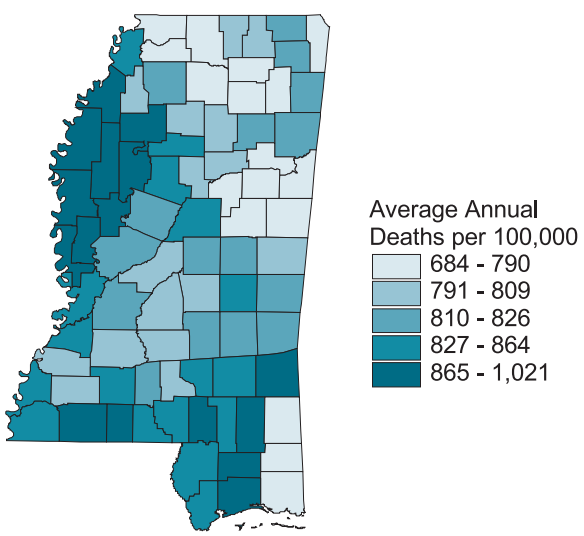






Smoothed County Heart Disease Death Rates, 1991-1995



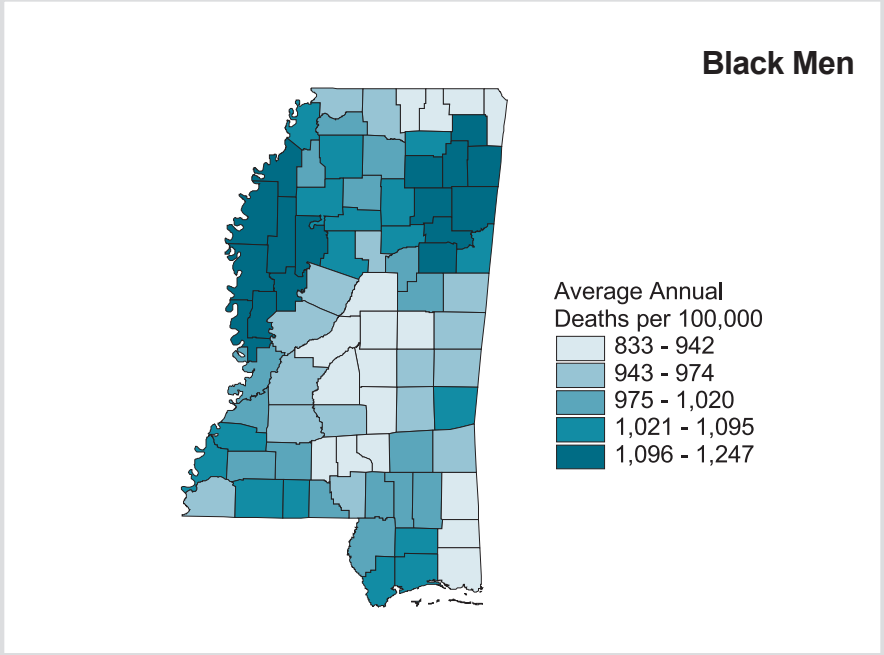


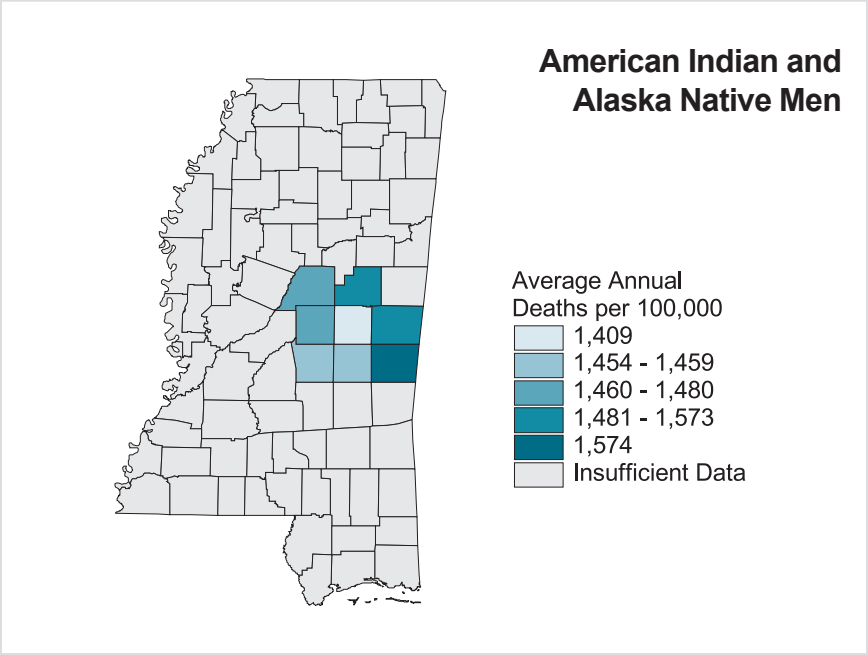
State Profile — Mississippi

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	570,354	878
American Indian and Alaska Native Men	1,545	779
Asian and Pacific Islander Men	2,590	399
Black Men	155,860	1028
Hispanic Men	3,214	272
White Men	410,359	835

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

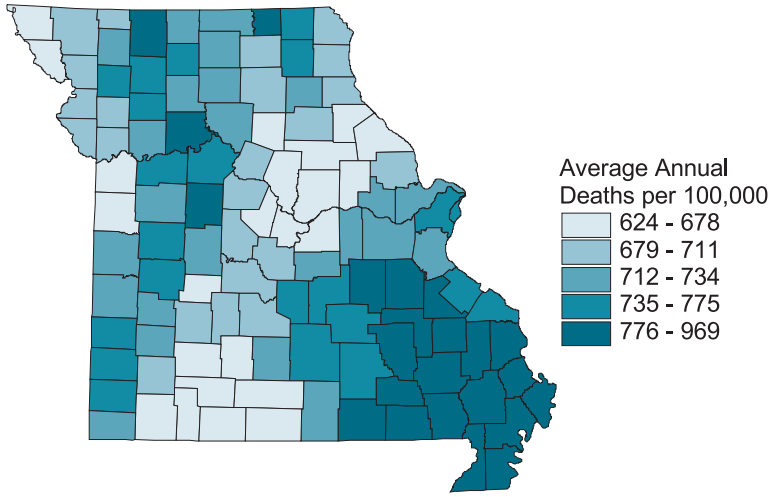
Smoothed County Heart Disease Death Rates, 1991-1995



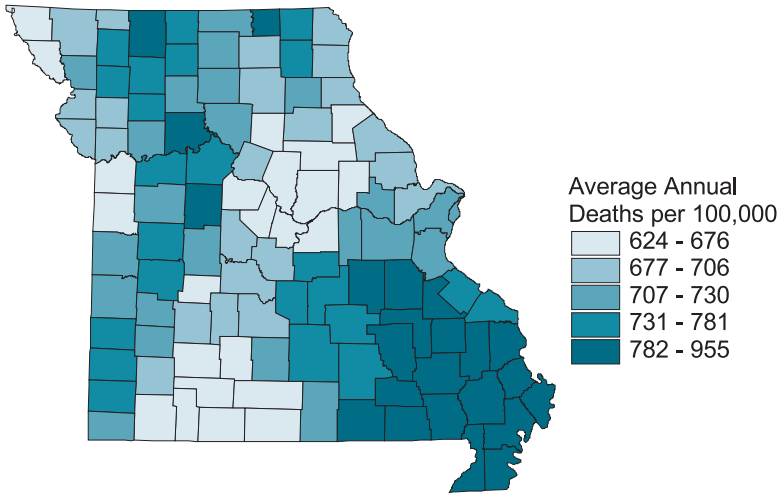


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

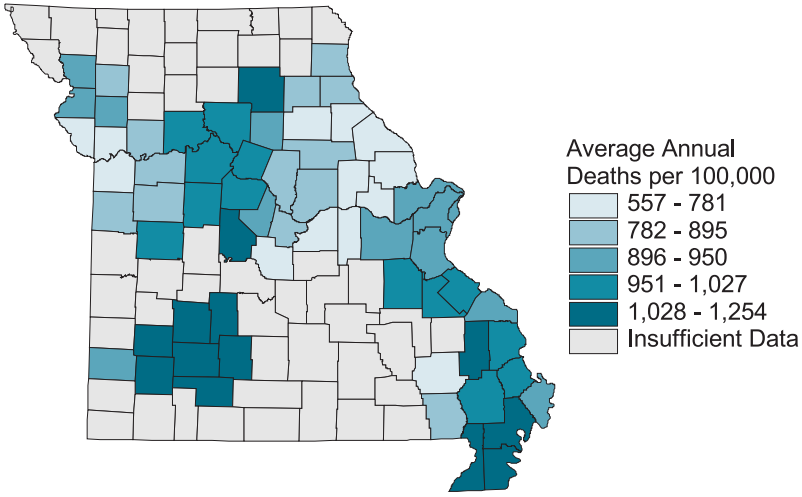


State Profile — Missouri

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,226,909	733
American Indian and Alaska Native Men	4,433	292
Asian and Pacific Islander Men	8,844	303
Black Men	101,560	895
Hispanic Men	12,425	475
White Men	1,112,072	722

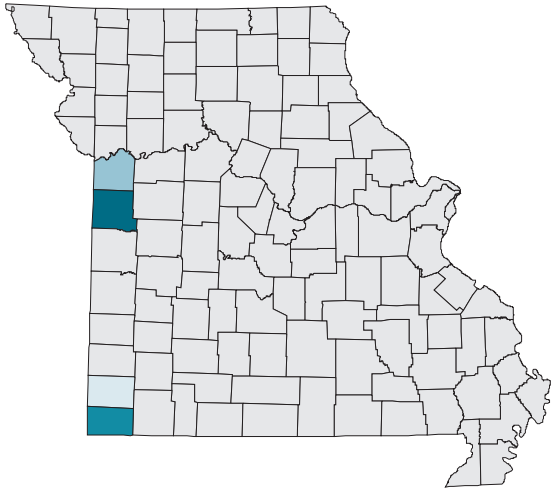
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



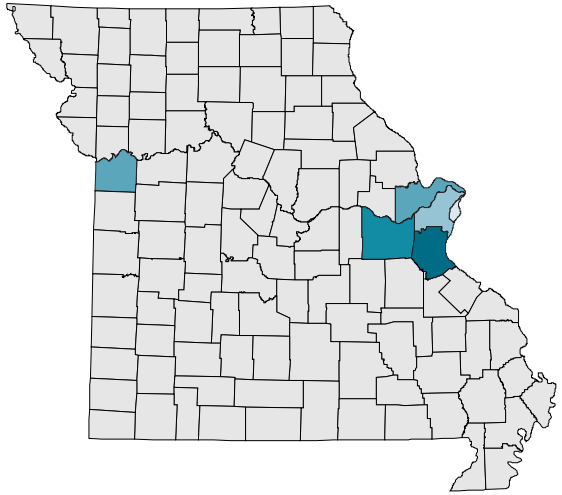
Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men



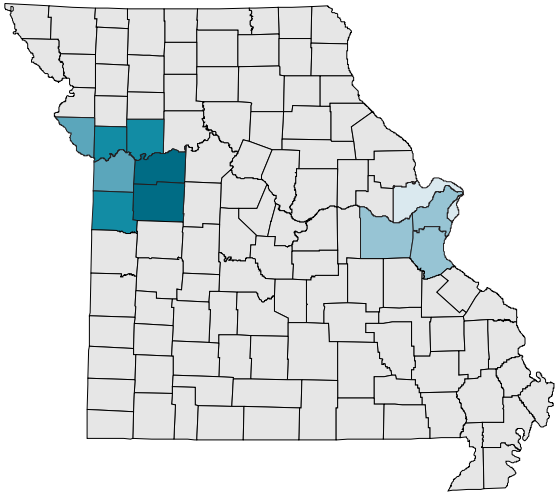
Average Annual
Deaths per 100,000
- 403
- 437
- 620
- 632
- Insufficient Data

Asian and Pacific Islander Men



Average Annual
Deaths per 100,000
- 275
- 276 - 280
- 281 - 312
- 313 - 331
- 332
- Insufficient Data

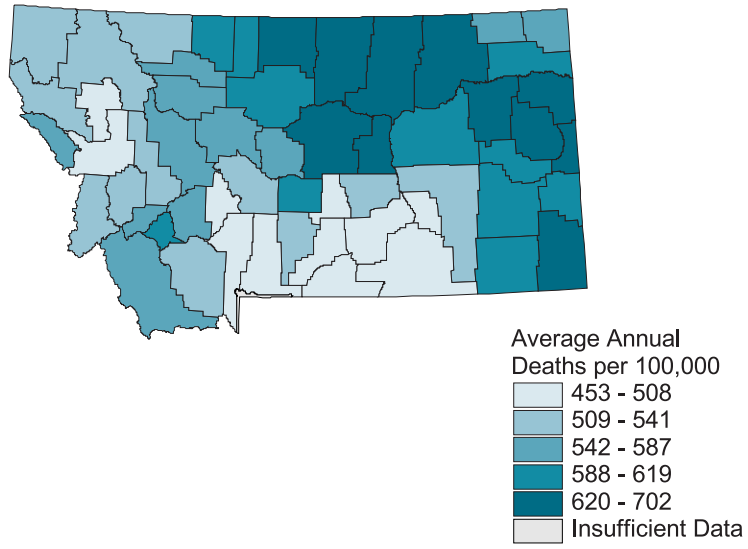
Hispanic Men



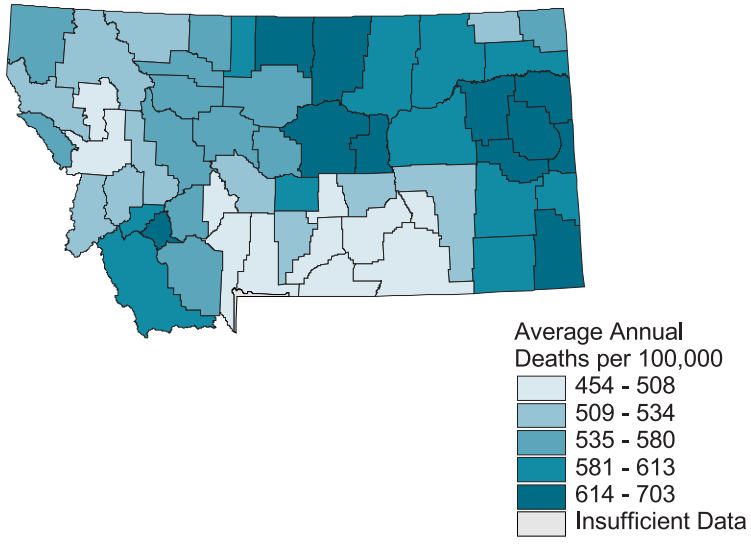
Average Annual
Deaths per 100,000
- 349 - 384
- 385 - 449
- 450 - 467
- 468 - 540
- 541 - 565
- Insufficient Data

Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

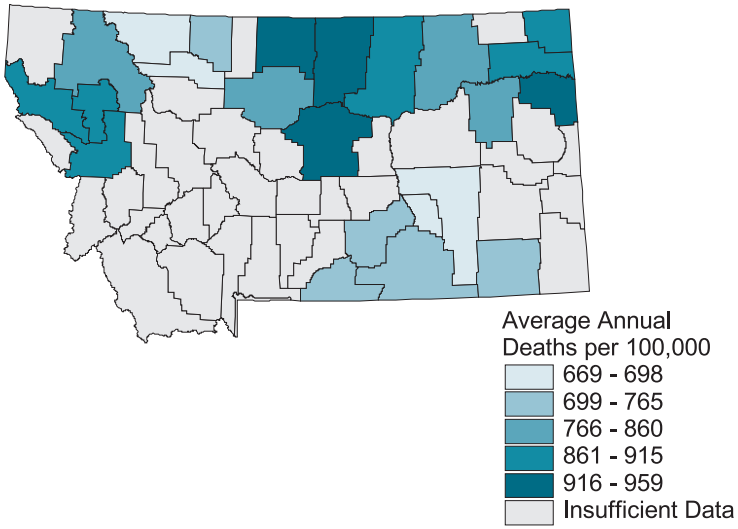


State Profile — Montana

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	218,602	544
American Indian and Alaska Native Men	7,982	766
Asian and Pacific Islander Men	621	Insufficient Data
Black Men	581	Insufficient Data
Hispanic Men	2,461	351
White Men	209,418	538

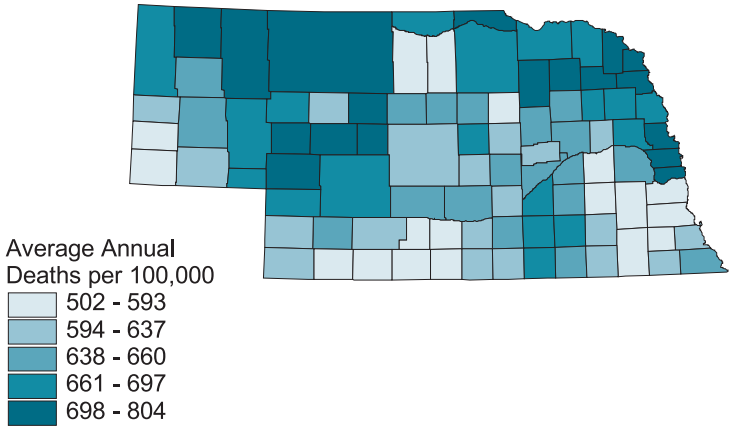
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

American Indian and Alaska Native Men

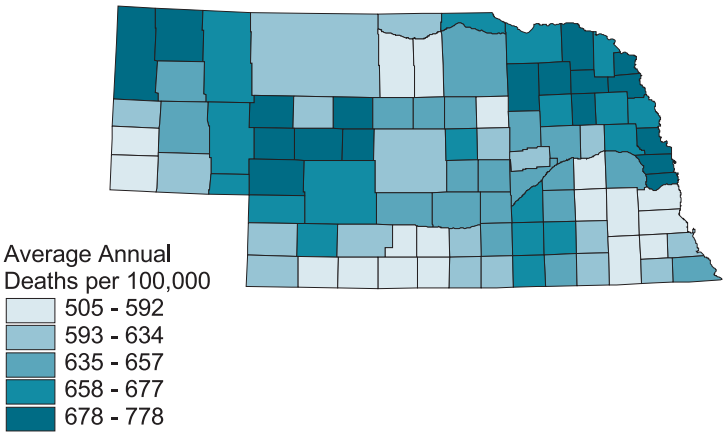


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

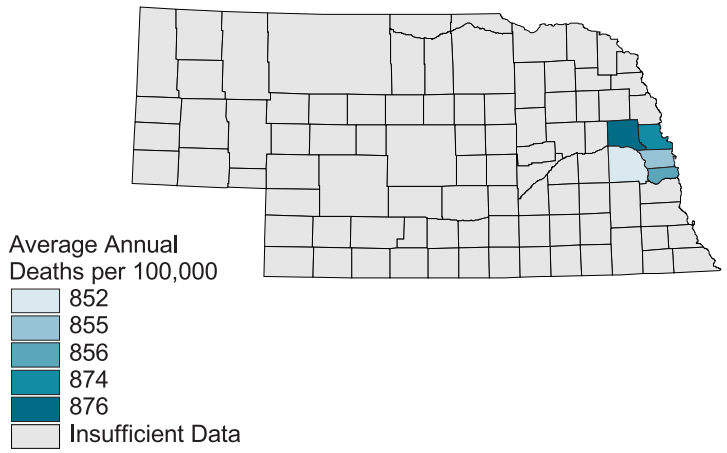


State Profile — Nebraska

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	380,219	648
American Indian and Alaska Native Men	1,944	1,079
Asian and Pacific Islander Men	2,467	Insufficient Data
Black Men	10,676	849
Hispanic Men	8,553	302
White Men	365,132	642

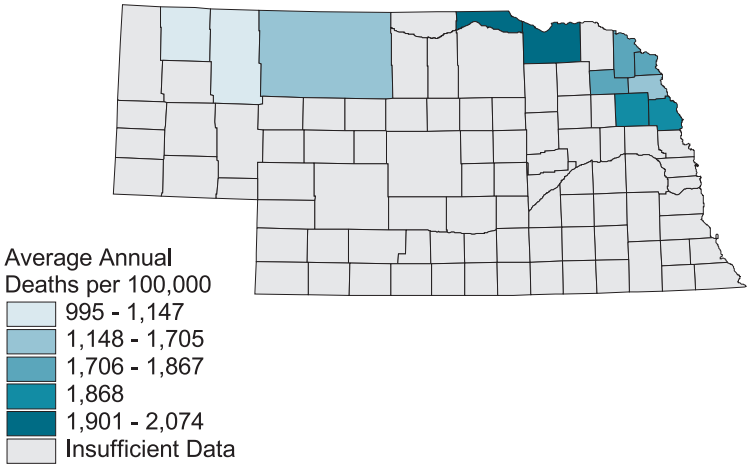
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

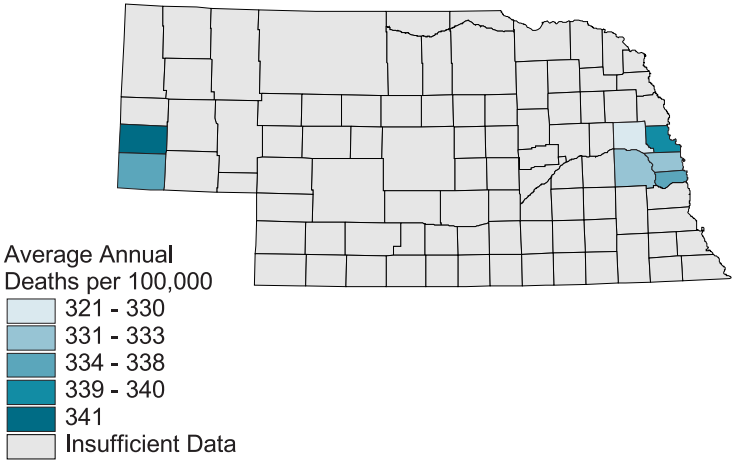


Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men

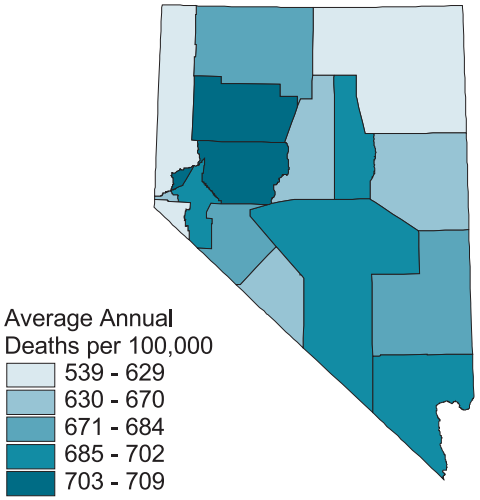


Hispanic Men

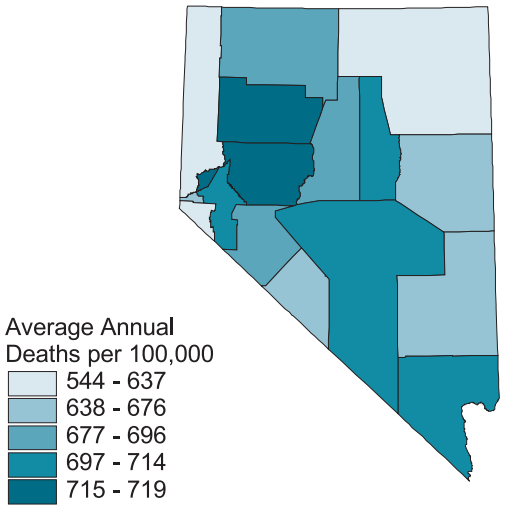


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

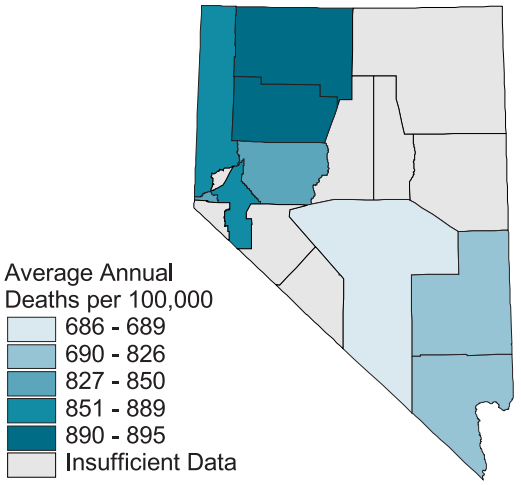


State Profile — Nevada

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	378,460	698
American Indian and Alaska Native Men	5,306	482
Asian and Pacific Islander Men	11,743	376
Black Men	20,990	708
Hispanic Men	33,739	292
White Men	340,421	707

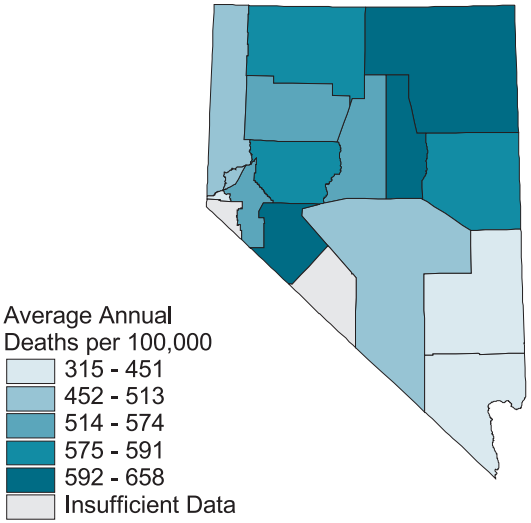
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

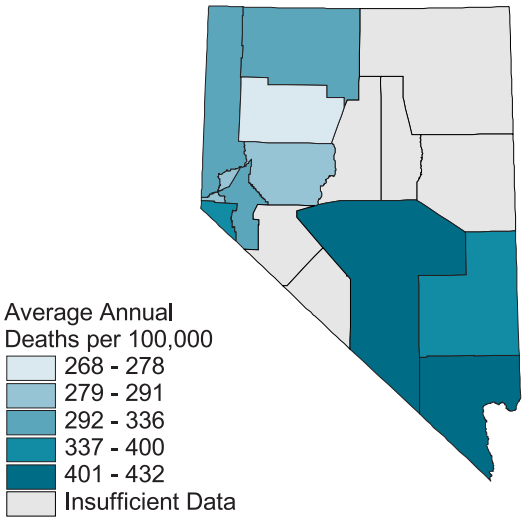


Smoothed County Heart Disease Death Rates, 1991-1995

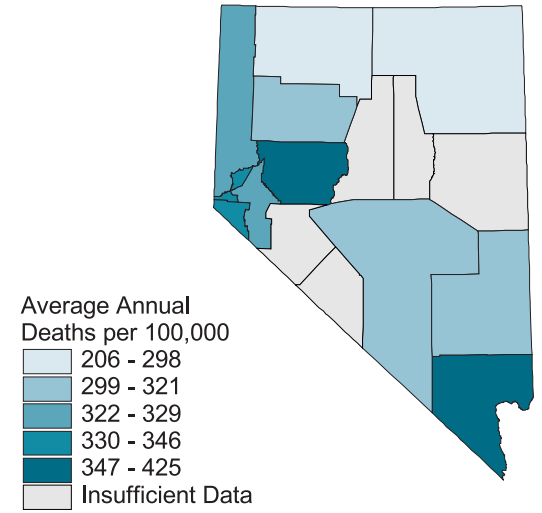
American Indian and Alaska Native Men



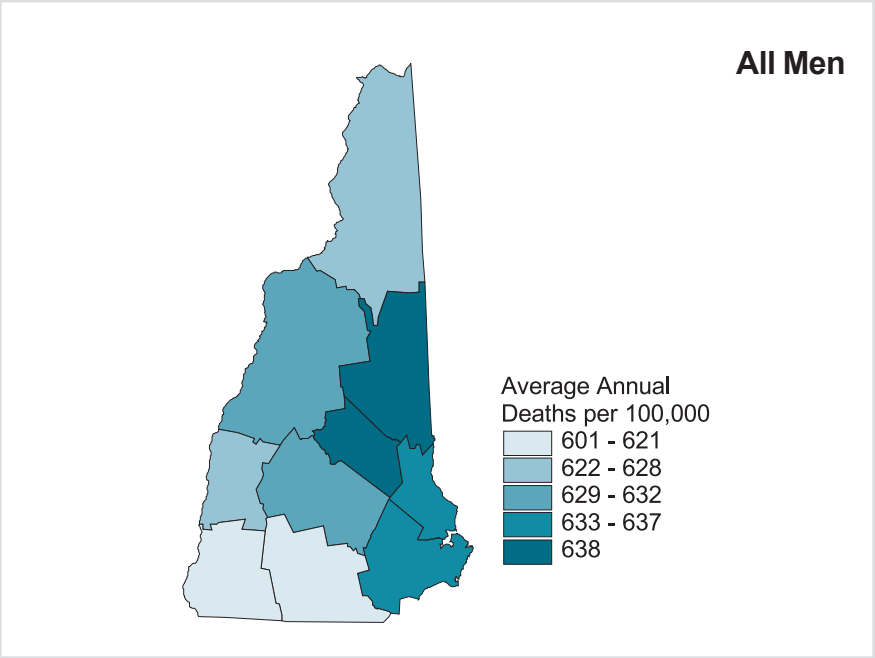
Asian and Pacific Islander Men

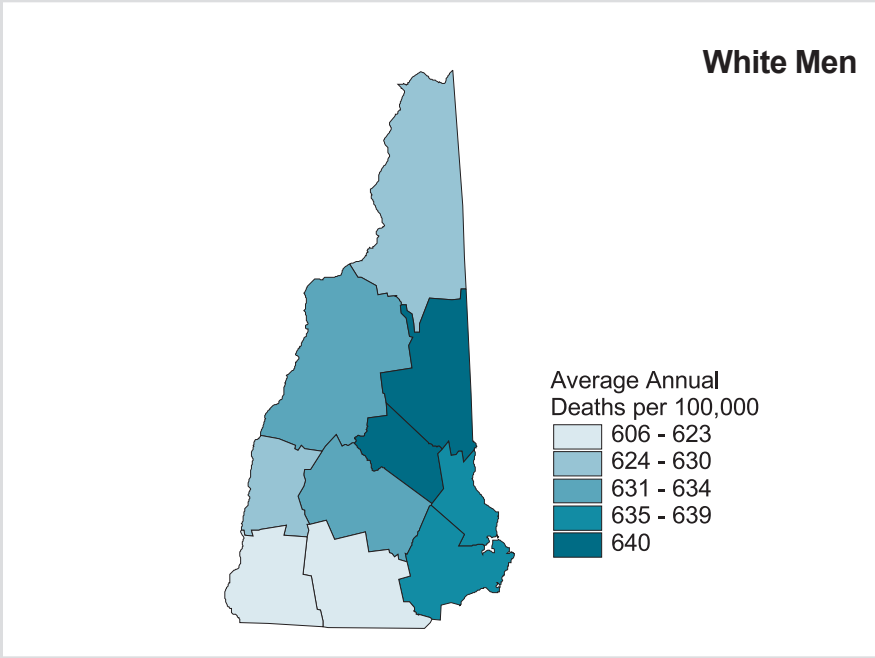


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995



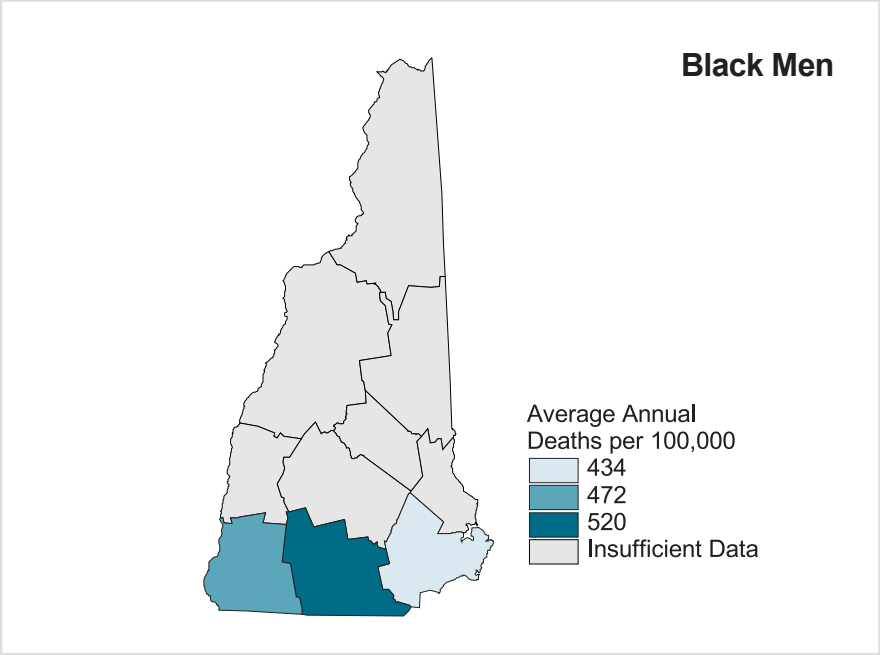


State Profile — New Hampshire

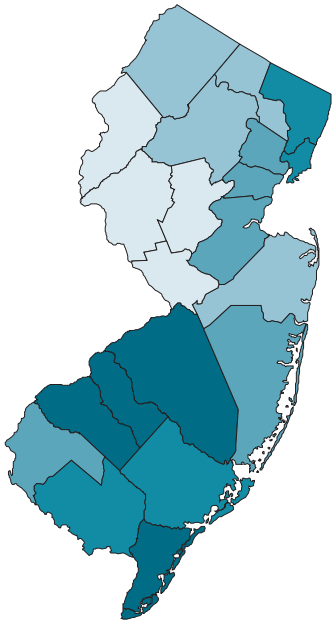
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	272,465	627
American Indian and Alaska Native Men	469	Insufficient Data
Asian and Pacific Islander Men	1,914	Insufficient Data
Black Men	1,592	Insufficient Data
Hispanic Men	2,365	Insufficient Data
White Men	268,490	629

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995

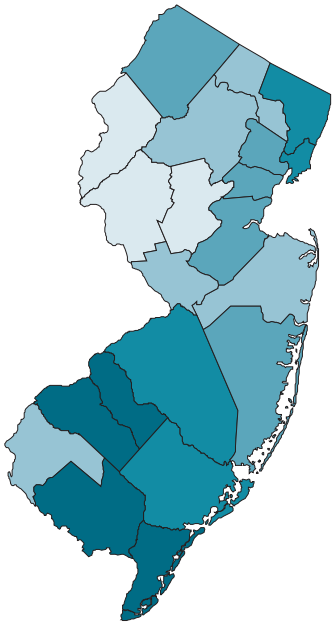


Smoothed County Heart Disease Death Rates, 1991-1995



All Men

Average Annual
Deaths per 100,000
- 616 - 659
- 660 - 683
- 684 - 713
- 714 - 731
- 732 - 778



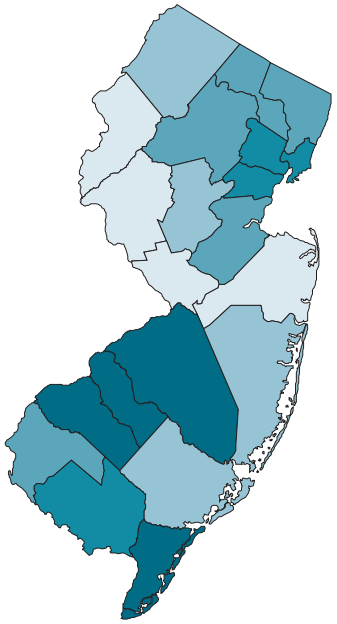
White Men

Average Annual
Deaths per 100,000
- 620 - 647
- 648 - 684
- 685 - 711
- 712 - 727
- 728 - 755

State Profile — New Jersey

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,889,779	676
American Indian and Alaska Native Men	3,962	315
Asian and Pacific Islander Men	79,574	263
Black Men	209,477	733
Hispanic Men	162,472	356
White Men	1,596,766	676

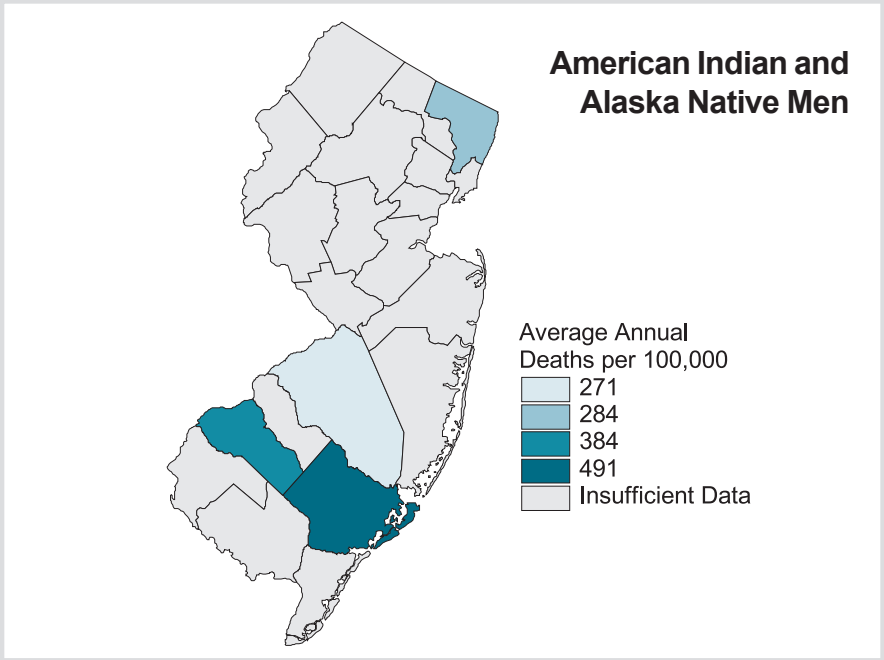
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

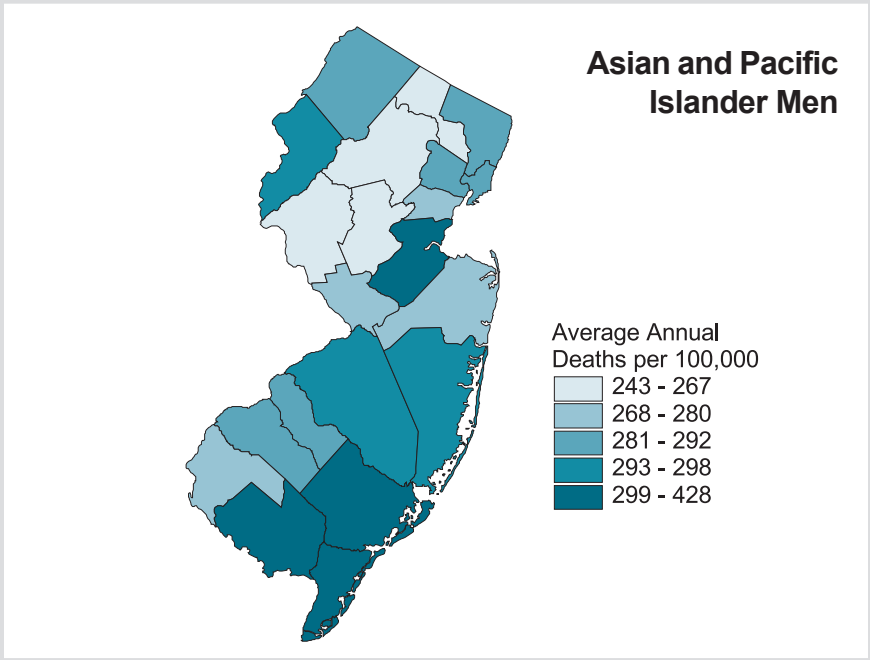


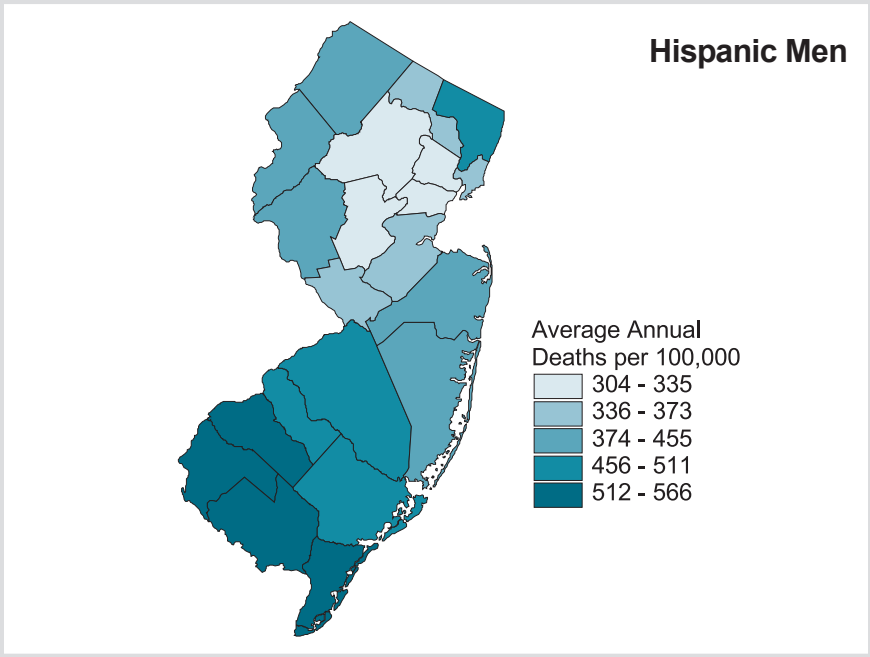
Black Men

Average Annual
Deaths per 100,000
- 659 - 711
- 712 - 740
- 741 - 764
- 765 - 820
- 821 - 871

Smoothed County Heart Disease Death Rates, 1991-1995

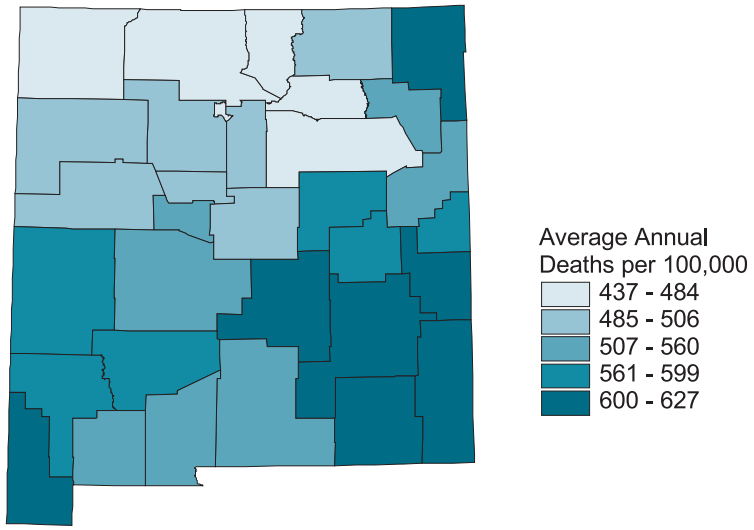




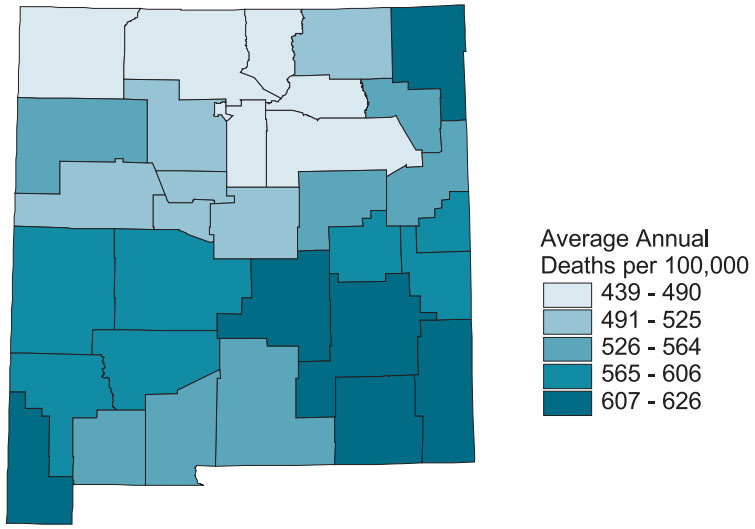


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

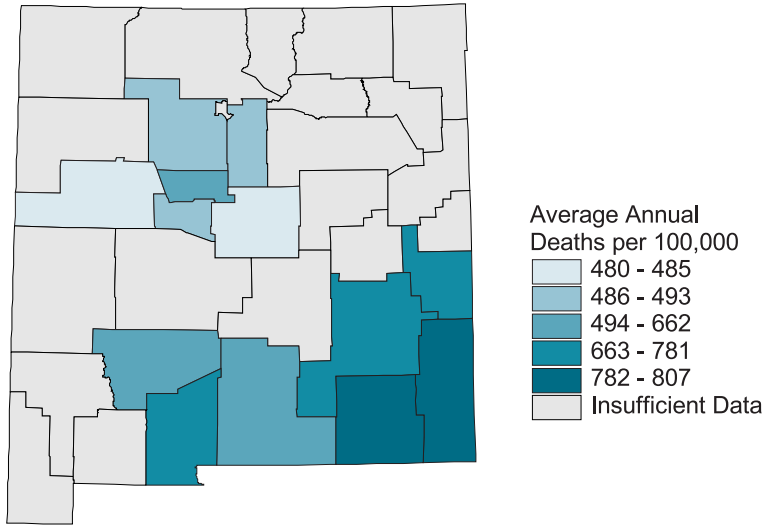


State Profile — New Mexico

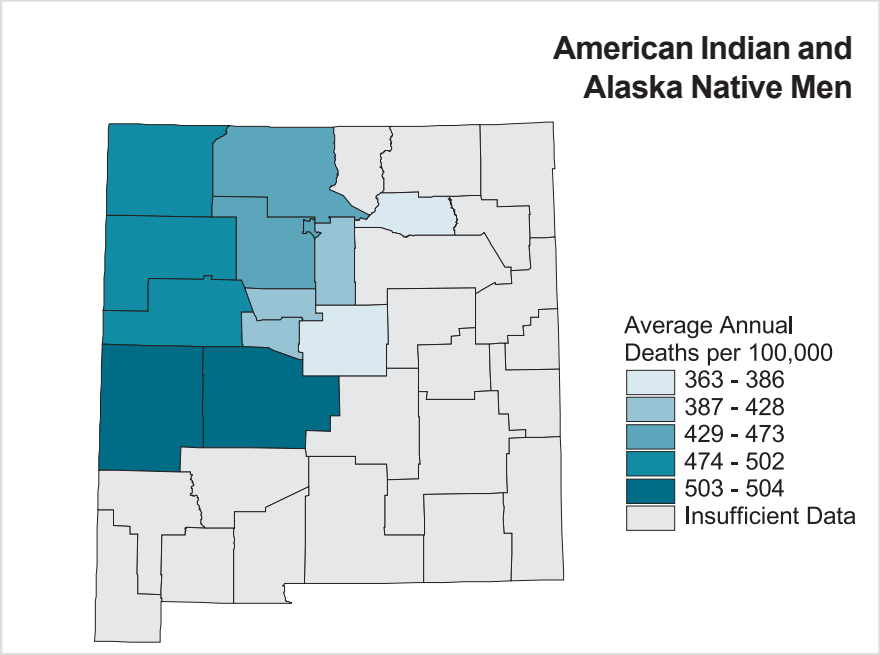
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	376,681	522
American Indian and Alaska Native Men	21,708	437
Asian and Pacific Islander Men	3,394	Insufficient Data
Black Men	8,320	530
Hispanic Men	124,985	481
White Men	343,259	528

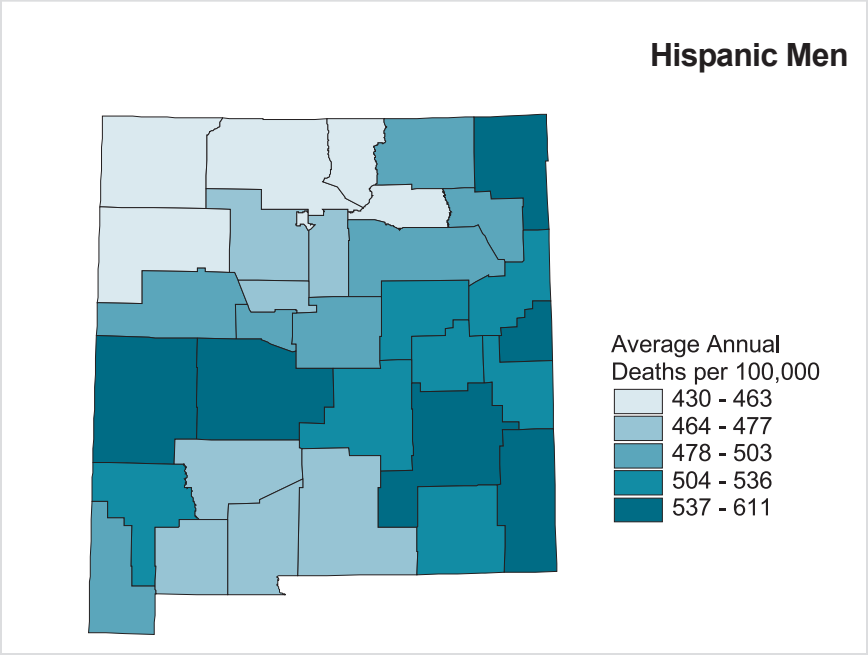
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

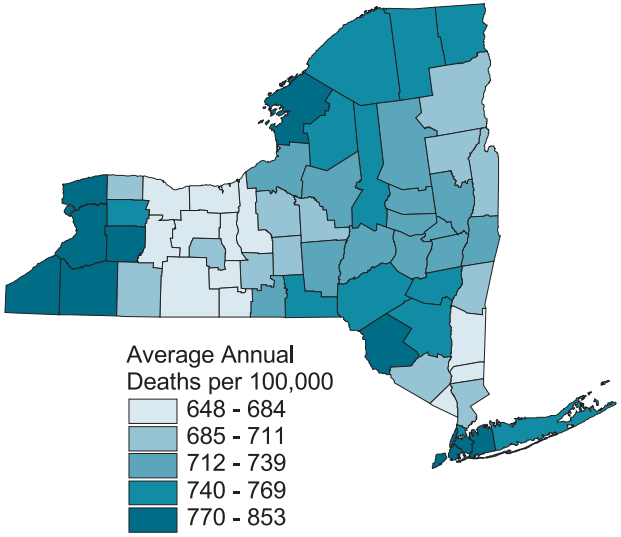


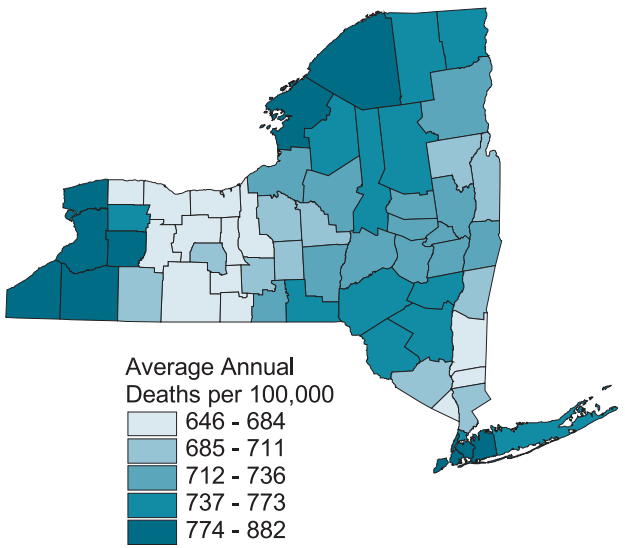
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995

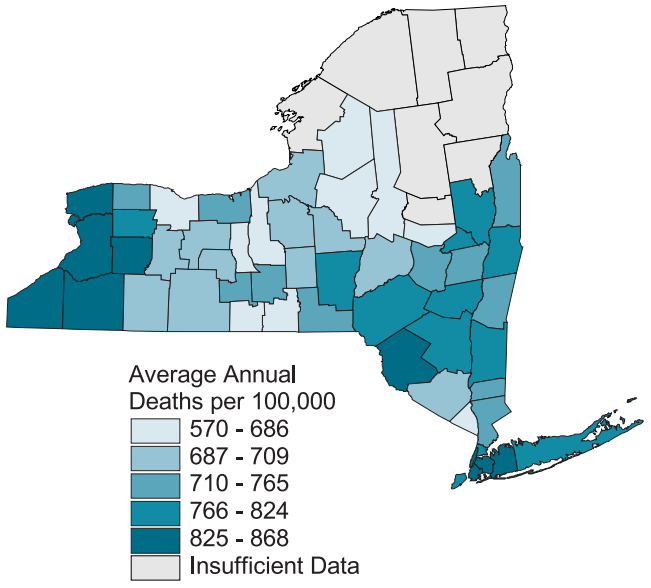




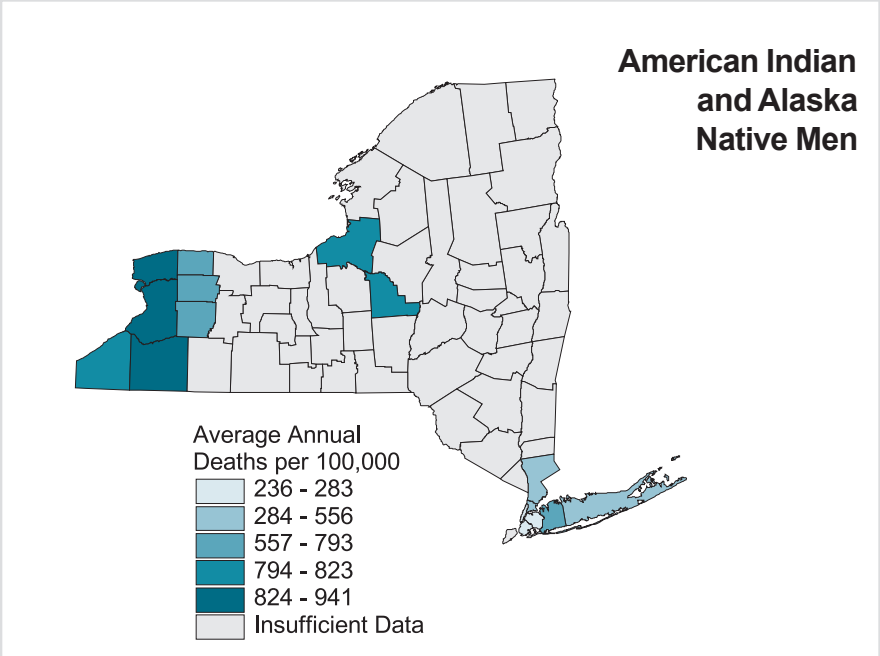
State Profile — New York

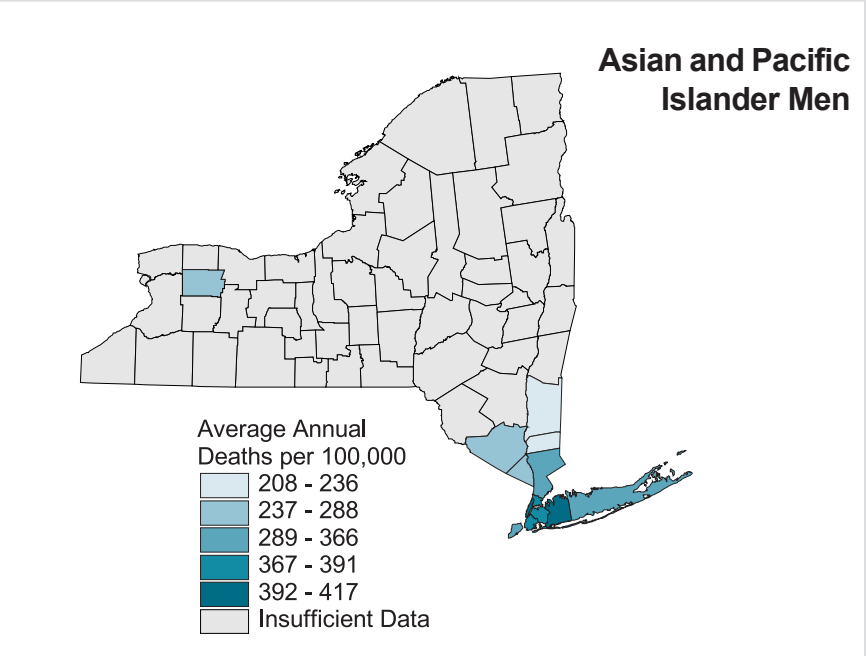
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	4,149,981	775
American Indian and Alaska Native Men	13,410	435
Asian and Pacific Islander Men	192,440	375
Black Men	569,603	812
Hispanic Men	430,971	481
White Men	3,374,528	779

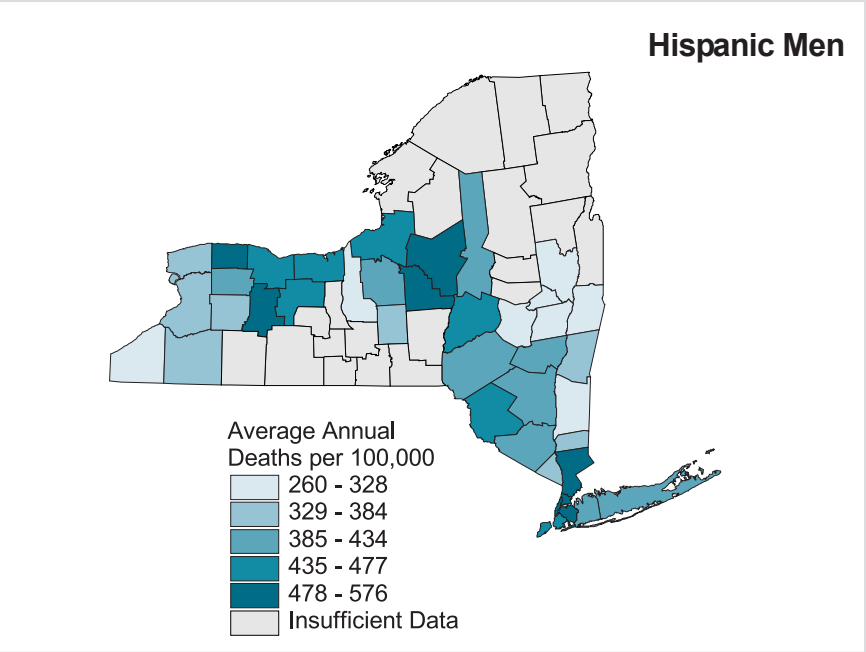
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



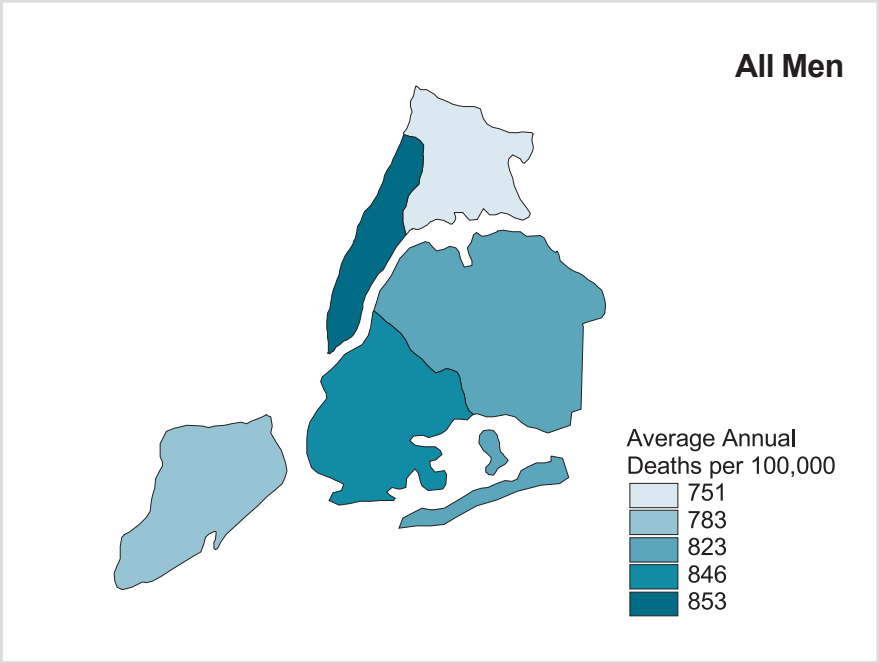
Smoothed County Heart Disease Death Rates, 1991-1995

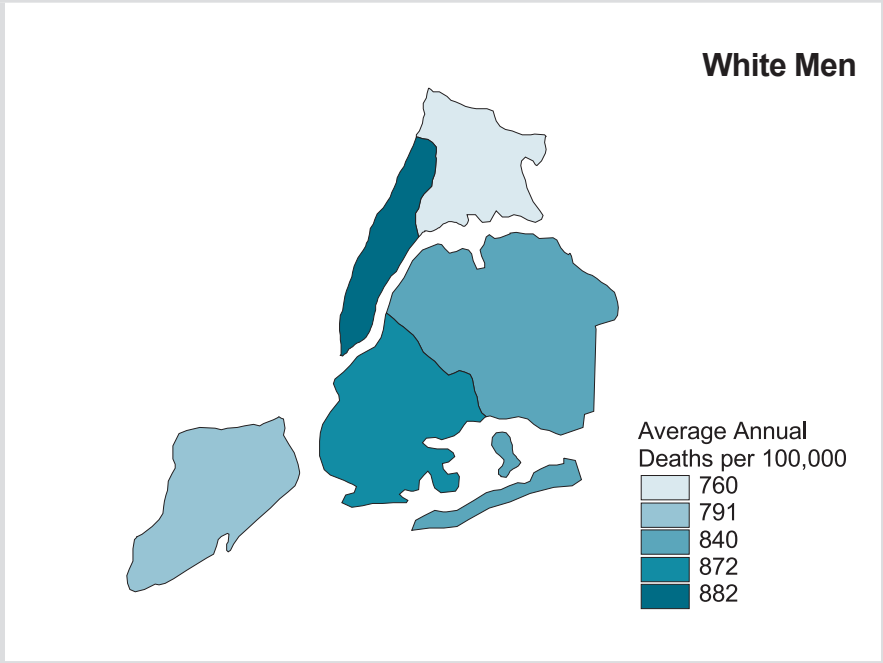






Smoothed County Heart Disease Death Rates, 1991-1995

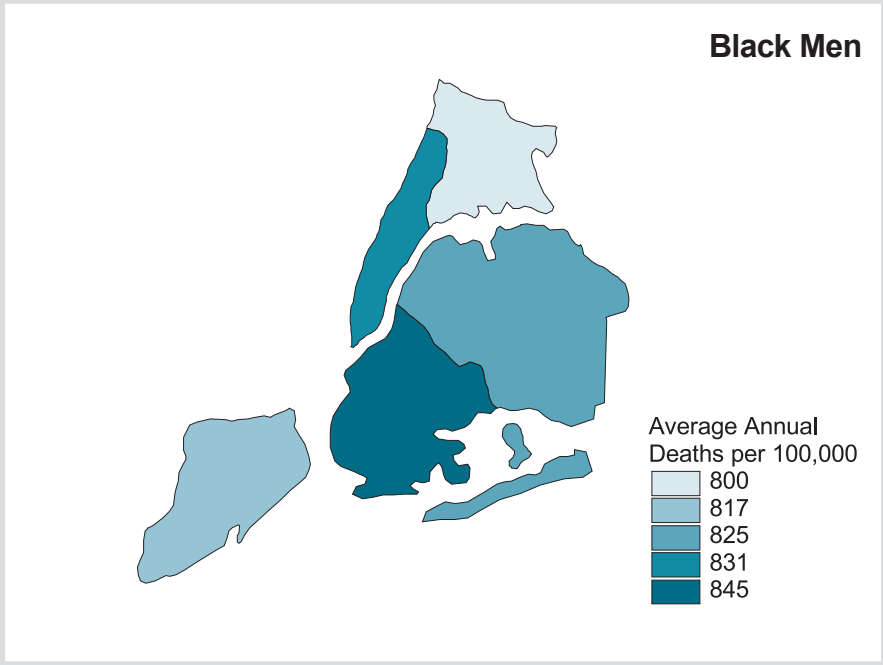




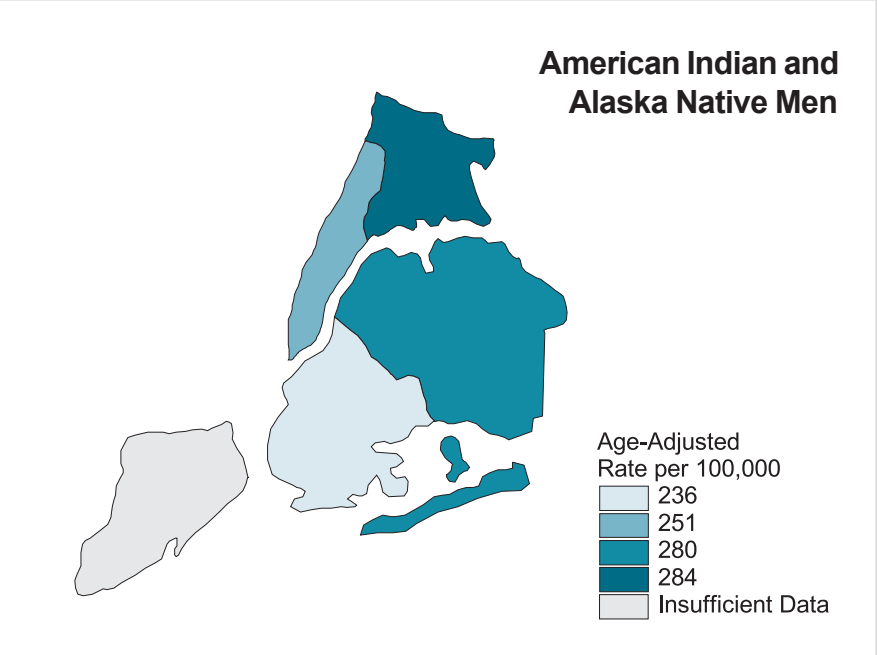
New York City Profile

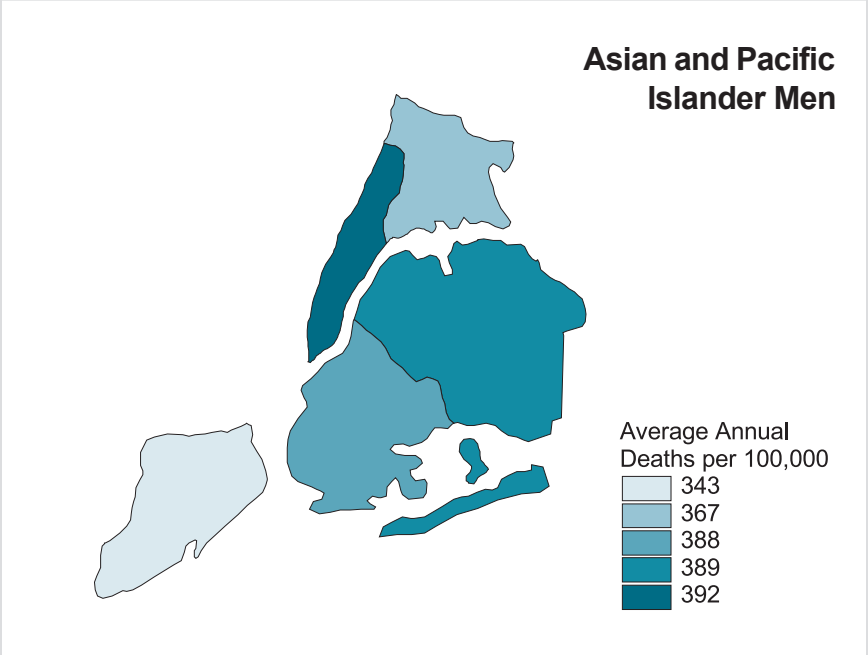
Race or Ethnicity	City Population 1995	City Heart Disease Death Rate, 1991-1995*
All Men	1,606,320	853
American Indian and Alaska Native Men	5,970	251
Asian and Pacific Islander Men	145,284	392
Black Men	415,794	831
Hispanic Men	340,136	502
White Men	1,039,272	882

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



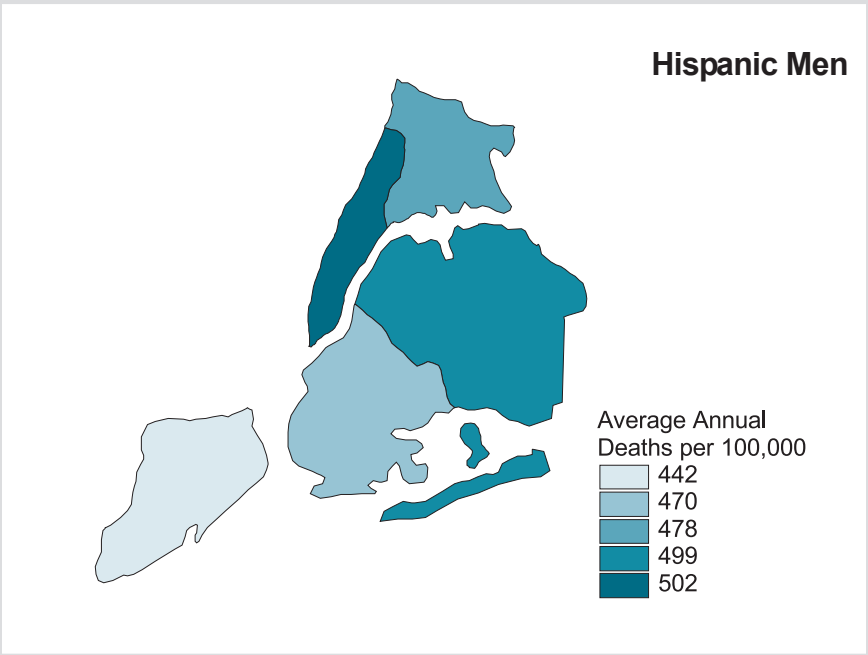
Smoothed County Heart Disease Death Rates, 1991-1995





During 1991-1993, information on Hispanic origin was not reported on approximately 23 percent of heart disease death certificates for men aged 35 years and older residing in New York City. During 1994-1995, the percent of heart disease death certificates for men that were missing information on Hispanic origin dropped to less than 3 percent. Based on a detailed examination of the New York City death certificate data for our five-year study period, we concluded that the majority of the deaths with "unknown" Hispanic origin occurred among non-Hispanic men. As evident in the table below, the percent of heart disease deaths for Hispanic men rose only slightly between 1991-1993 and 1994-1995, whereas the percent of heart disease deaths for non-Hispanic men rose markedly after reporting improved in 1994. From 1991-1993 to 1994-1995, the average annual number of heart disease deaths increased 7 percent for Hispanic men and 22 percent for non-Hispanic men, and the number of heart disease deaths with unknown Hispanic origin declined 96 percent.

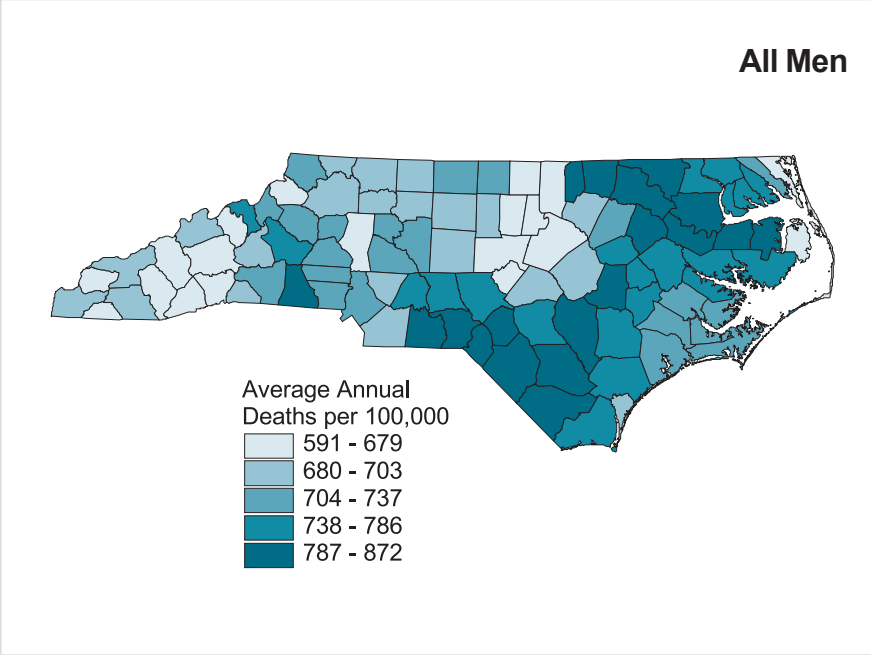
However, because a small proportion of the deaths with missing Hispanic origin data did occur among Hispanic men, it is almost certain that the heart disease death rates reported here for Hispanic men are modestly (but not severely) underestimated. In addition, the extent of underestimation may have varied among the five city boroughs; therefore prudence should be exercised in comparing individual county rates.

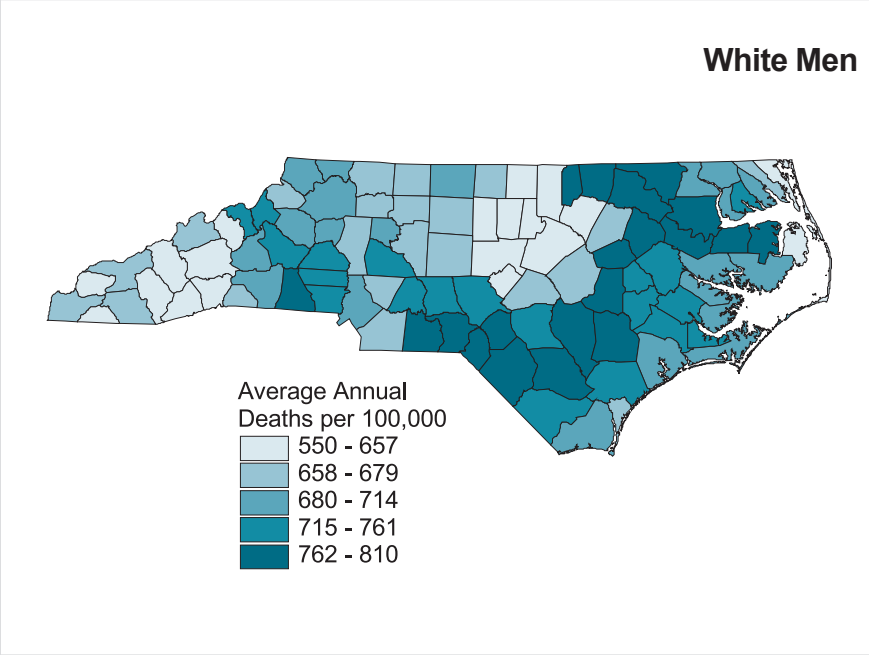


Percent Distribution of Heart Disease Deaths by Hispanic Origin for Men in New York City, 1991-1995

Hispanic Origin	1991	1992	1993	1994	1995
Non-Hispanic	71.2	68.1	68.8	86.5	87.8
Hispanic	7.9	7.8	7.9	9.4	8.8
Unknown	21.0	24.1	23.3	4.1	3.5

Smoothed County Heart Disease Death Rates, 1991-1995



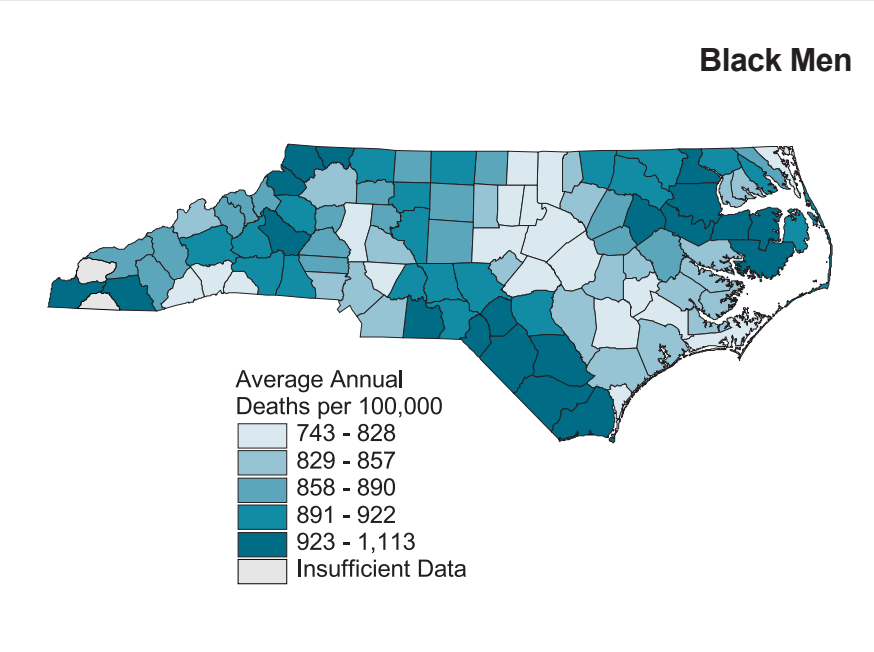


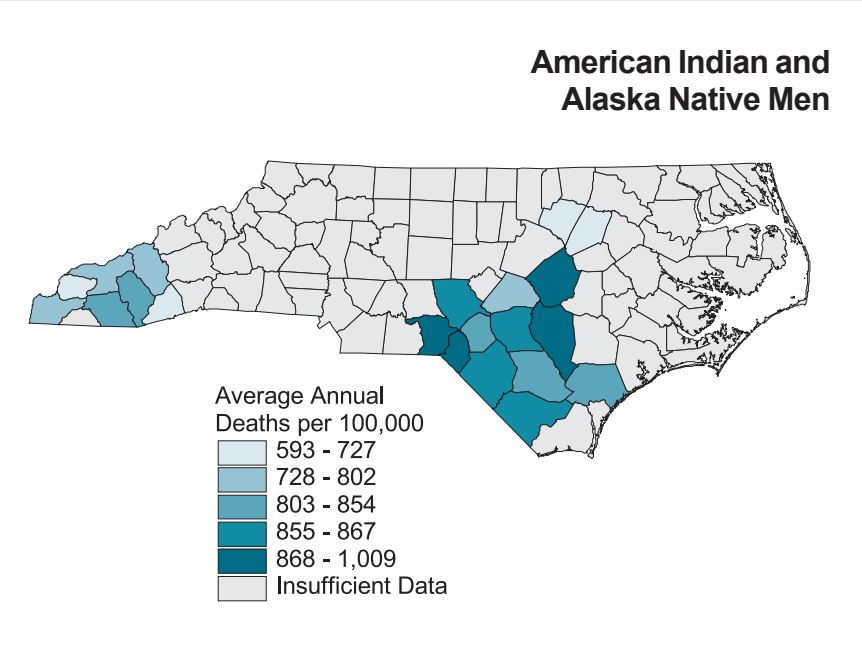
State Profile — North Carolina

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,629,973	714
American Indian and Alaska Native Men	16,096	750
Asian and Pacific Islander Men	12,359	203
Black Men	284,549	865
Hispanic Men	16,678	172
White Men	1,316,969	687

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

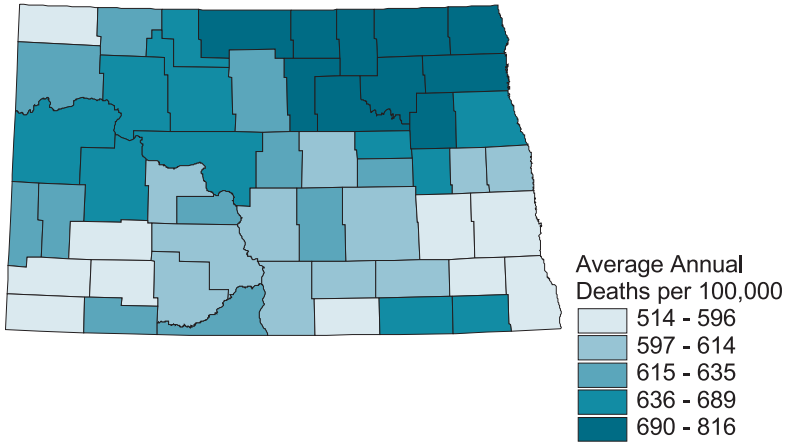
Smoothed County Heart Disease Death Rates, 1991-1995



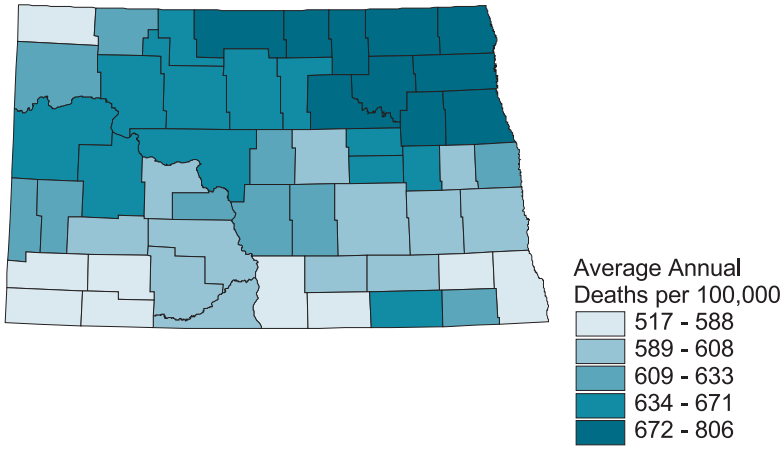


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

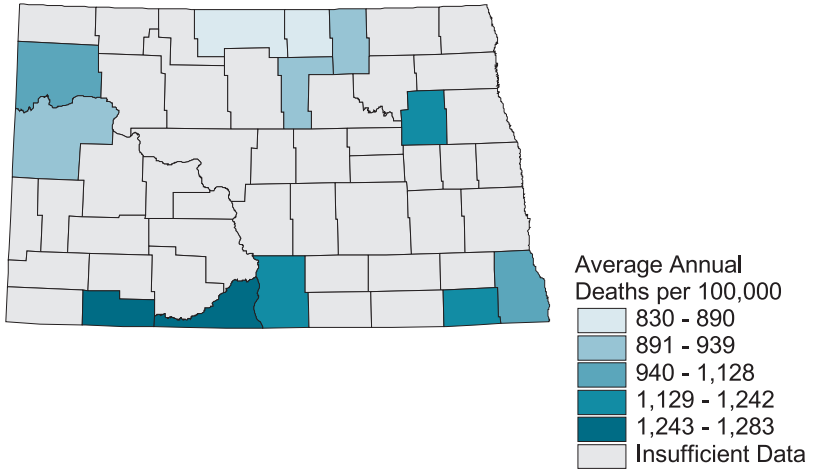


State Profile — North Dakota

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	152,496	629
American Indian and Alaska Native Men	3,478	894
Asian and Pacific Islander Men	616	Insufficient Data
Black Men	532	Insufficient Data
Hispanic Men	655	Insufficient Data
White Men	147,870	625

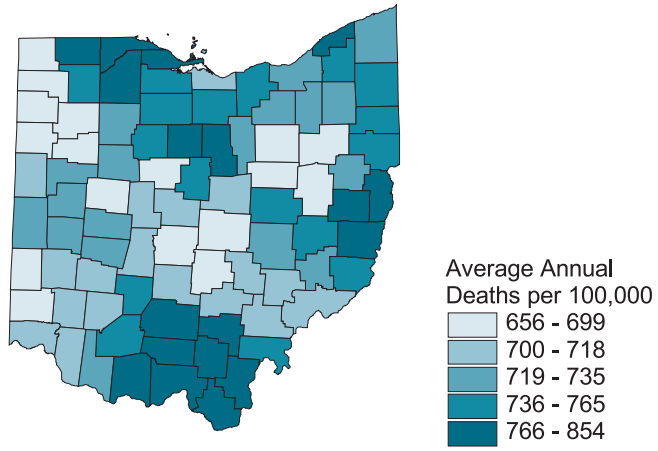
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

American Indian and Alaska Native Men

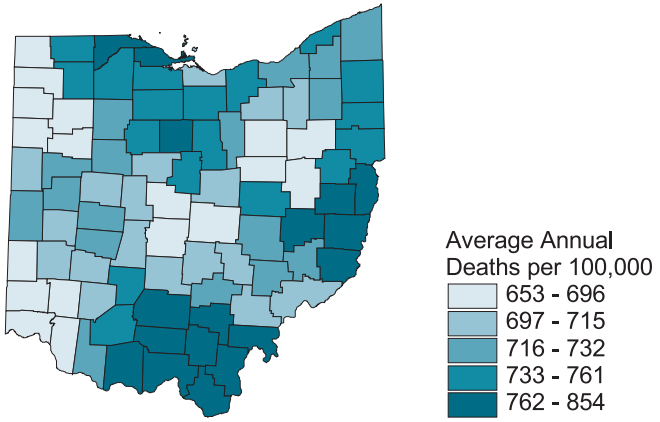


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

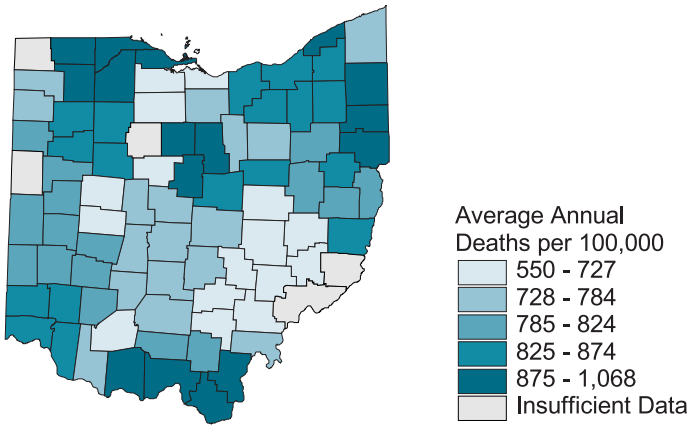


State Profile — Ohio

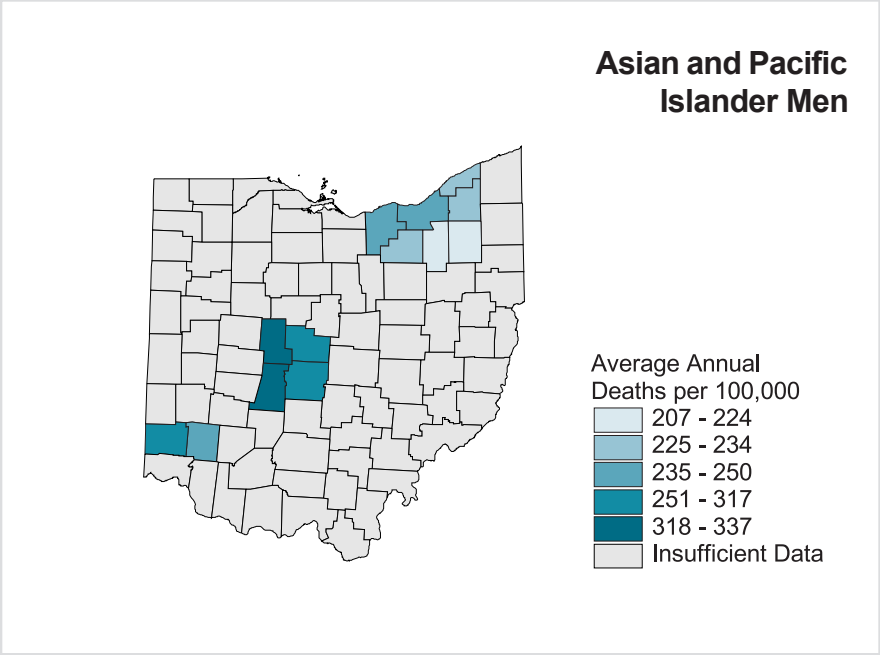
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	2,577,023	730
American Indian and Alaska Native Men	4,949	160
Asian and Pacific Islander Men	21,131	241
Black Men	229,590	828
Hispanic Men	27,547	300
White Men	2,321,353	723

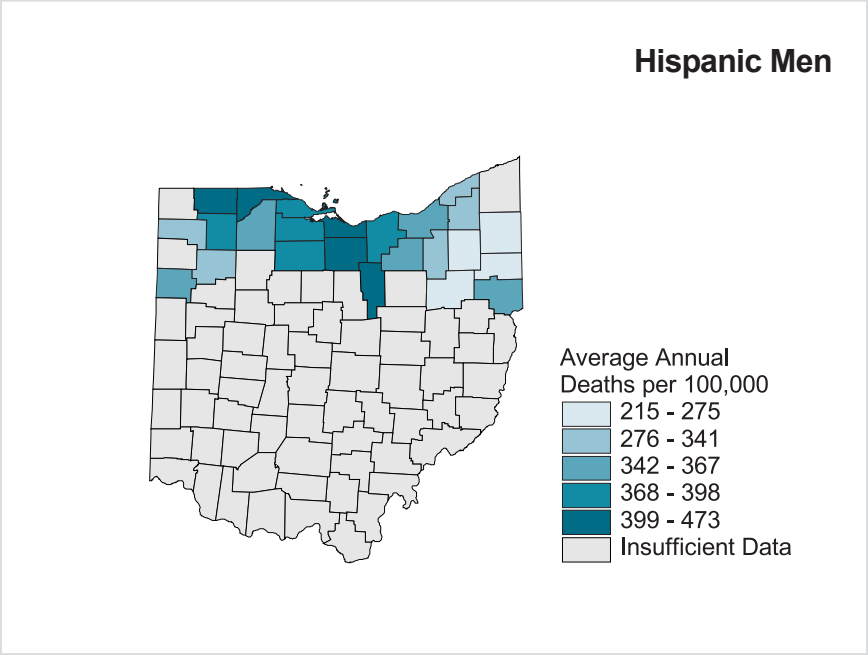
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



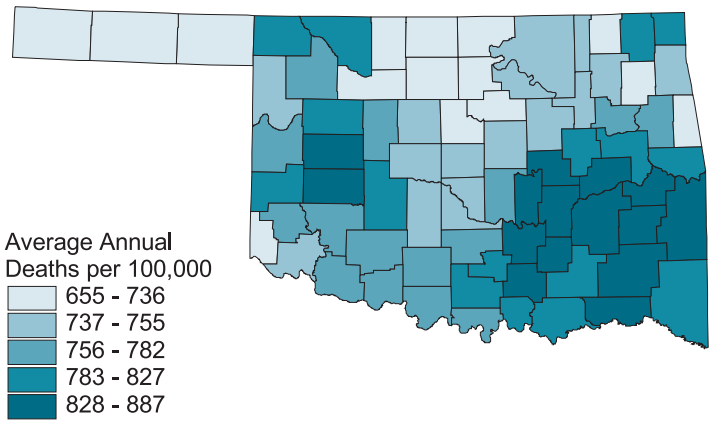
Smoothed County Heart Disease Death Rates, 1991-1995



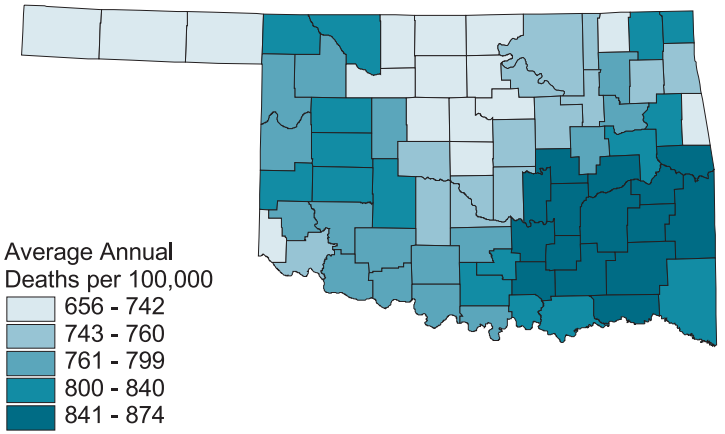


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

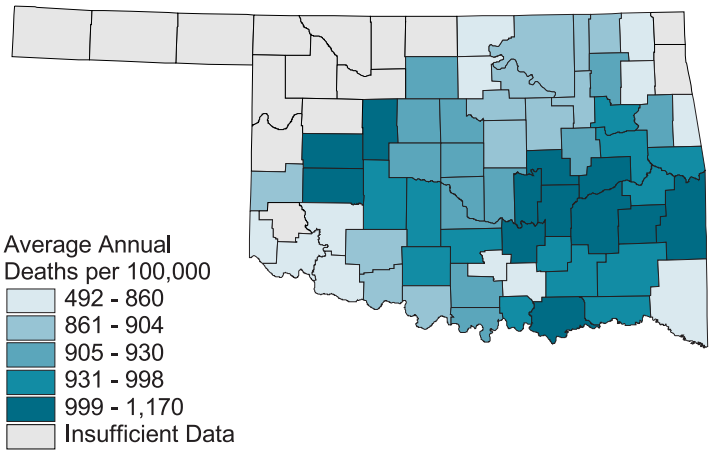


State Profile — Oklahoma

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	753,993	767
American Indian and Alaska Native Men	45,180	530
Asian and Pacific Islander Men	6,342	478
Black Men	43,884	904
Hispanic Men	16,087	Insufficient Data
White Men	658,587	775

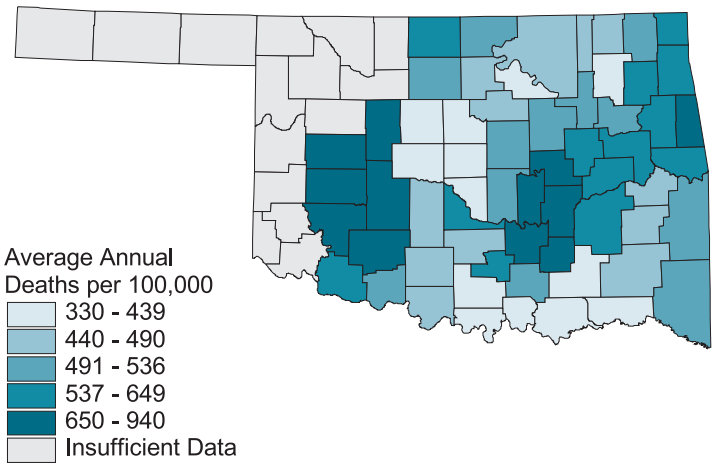
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

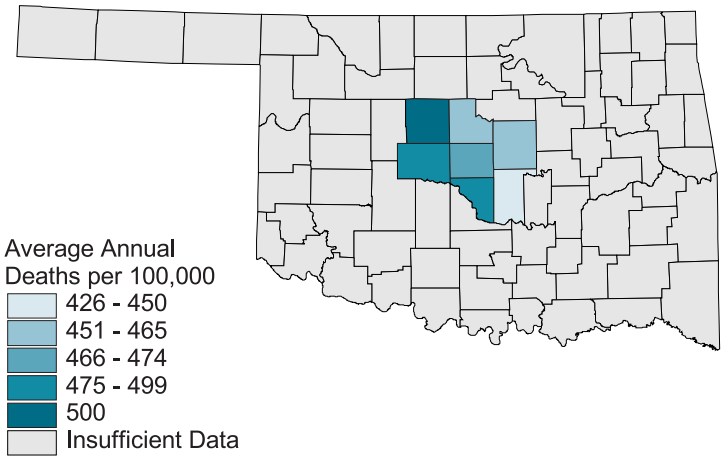


Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men

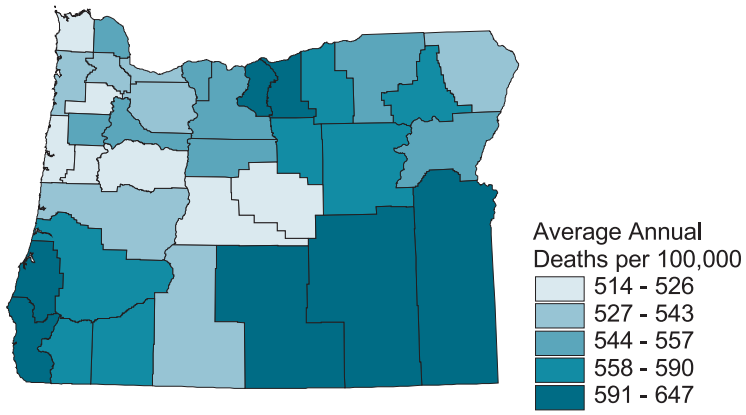


Asian and Pacific Islander Men

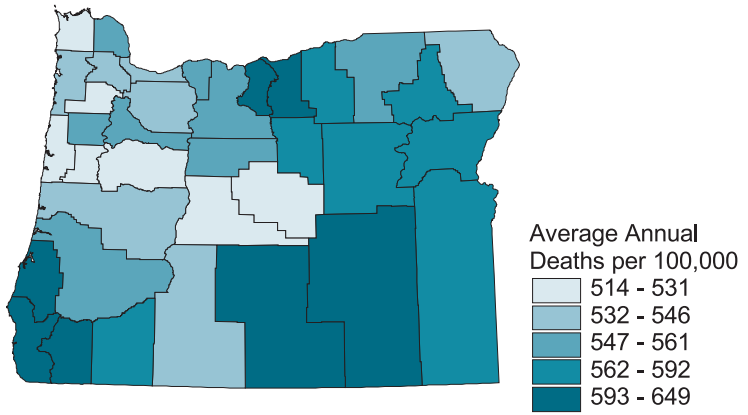


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

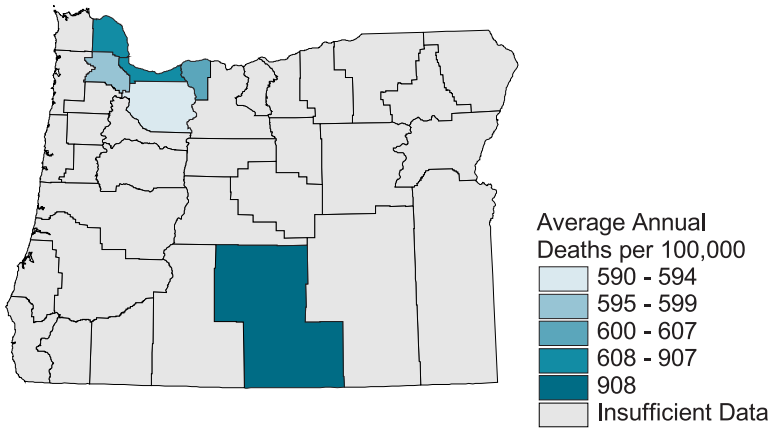


State Profile — Oregon

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	779,094	547
American Indian and Alaska Native Men	8,196	403
Asian and Pacific Islander Men	15,689	330
Black Men	10,935	573
Hispanic Men	25,738	235
White Men	744,274	550

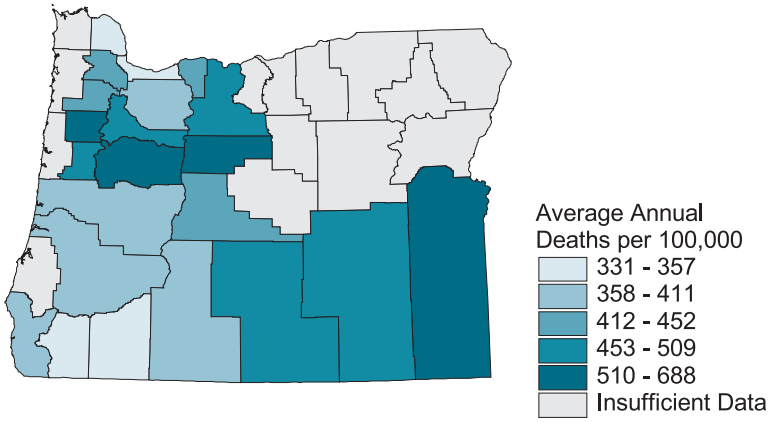
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

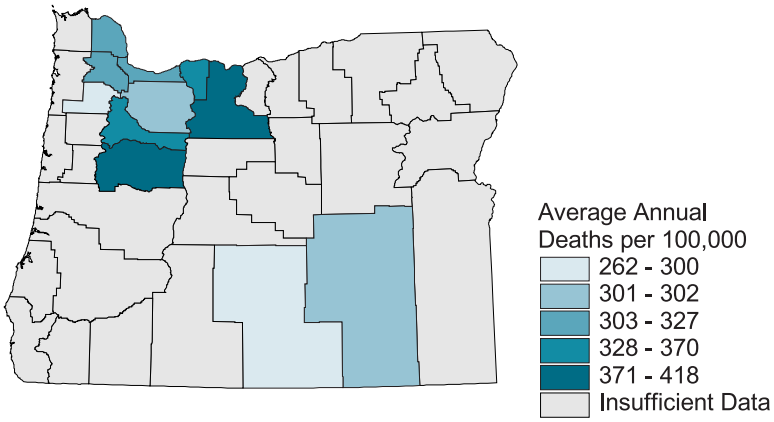


Smoothed County Heart Disease Death Rates, 1991-1995

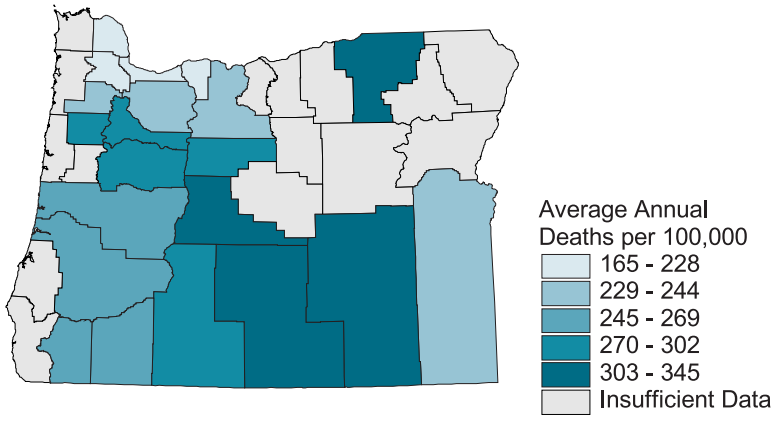
American Indian and Alaska Native Men



Asian and Pacific Islander Men

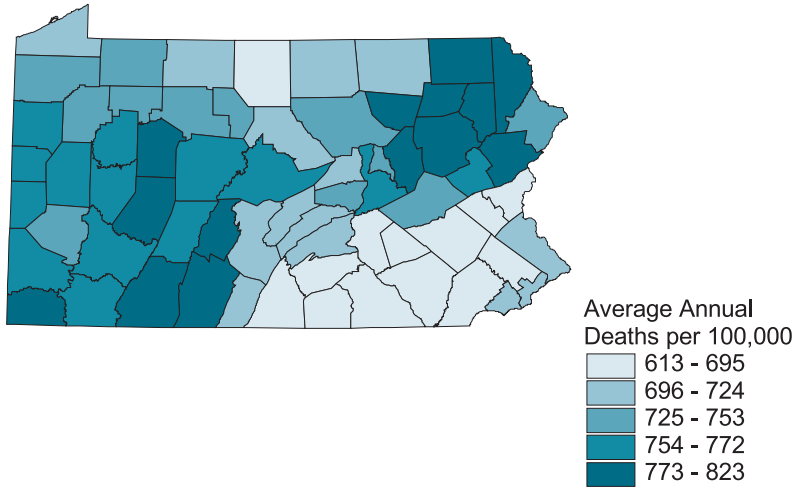


Hispanic Men

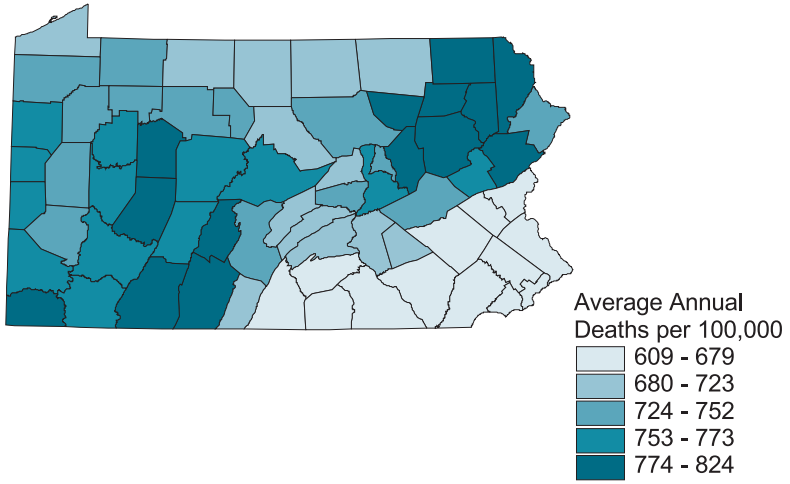


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

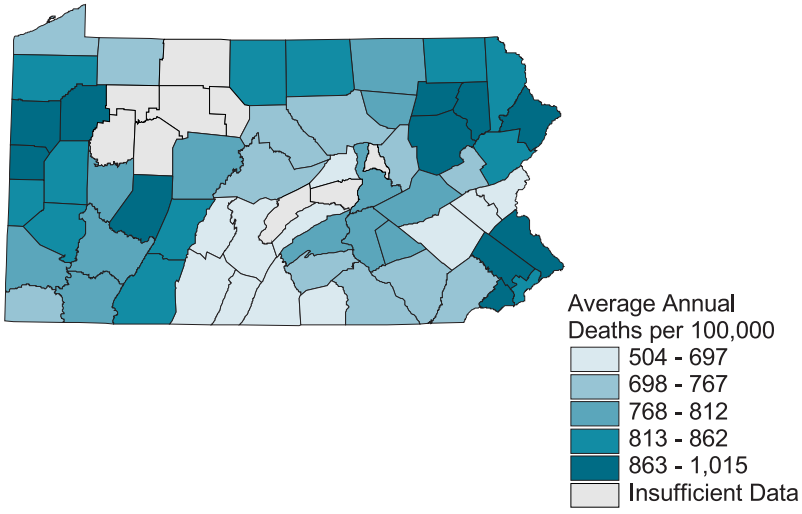


State Profile — Pennsylvania

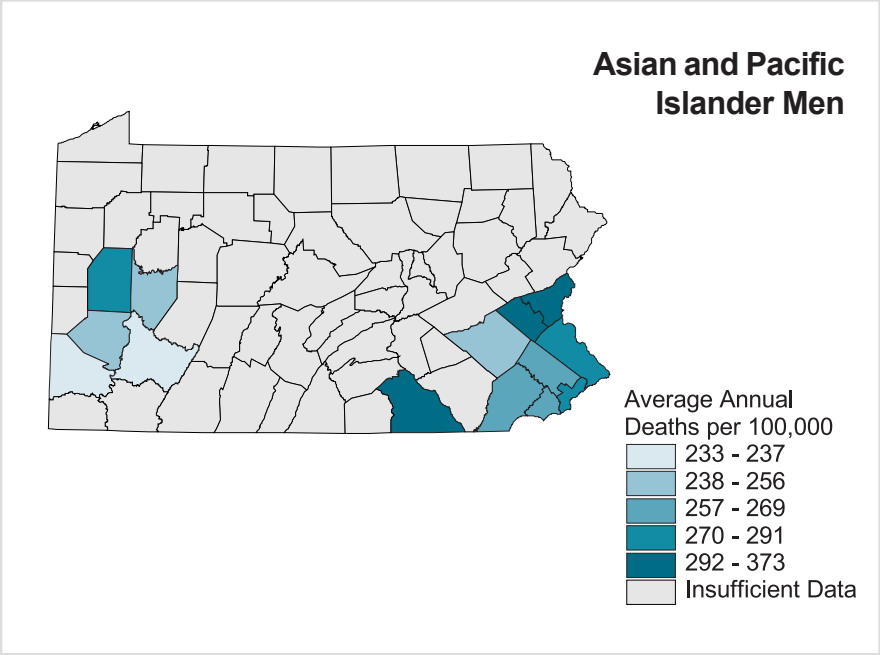
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	2,915,439	722
American Indian and Alaska Native Men	3,604	195
Asian and Pacific Islander Men	32,217	298
Black Men	216,432	853
Hispanic Men	44,595	479
White Men	2,663,186	715

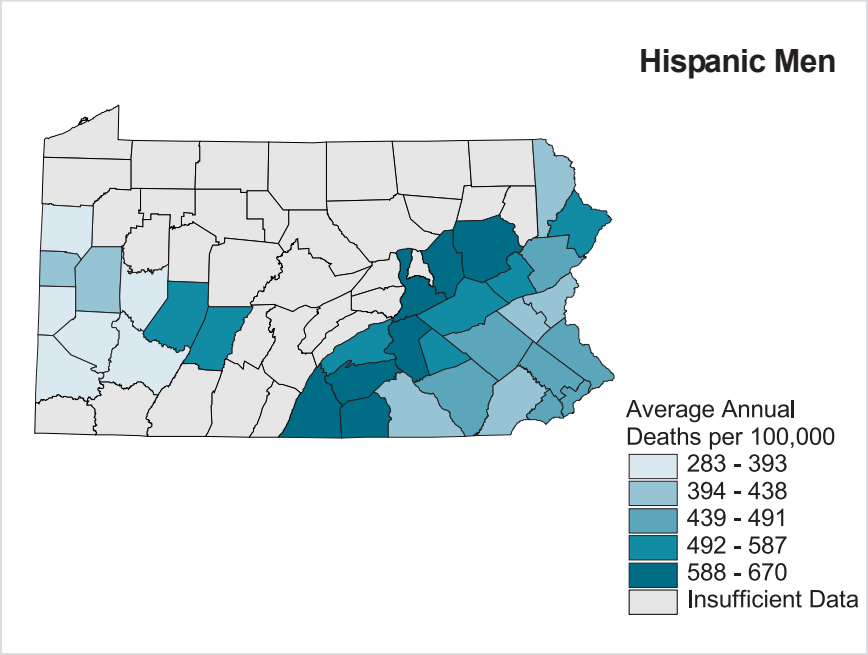
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



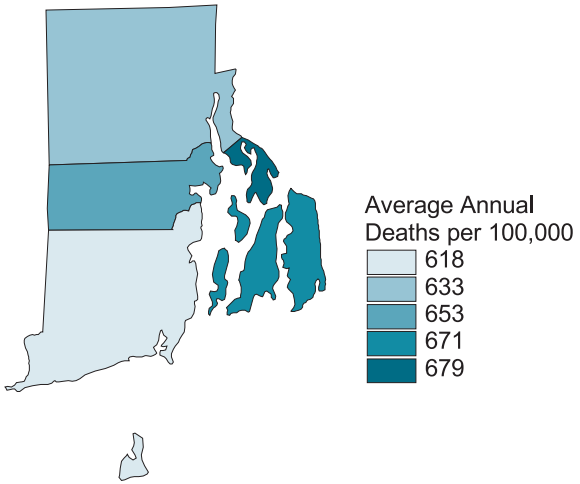
Smoothed County Heart Disease Death Rates, 1991-1995



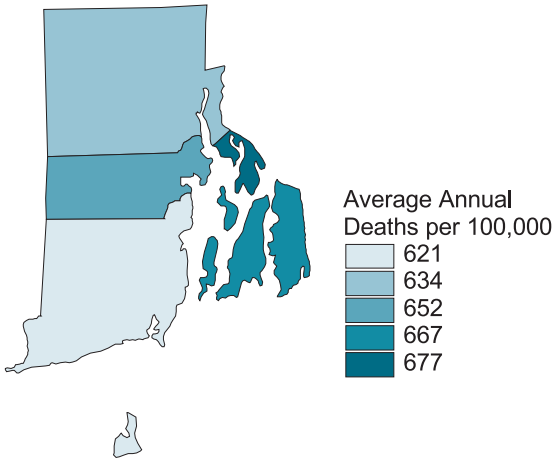


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

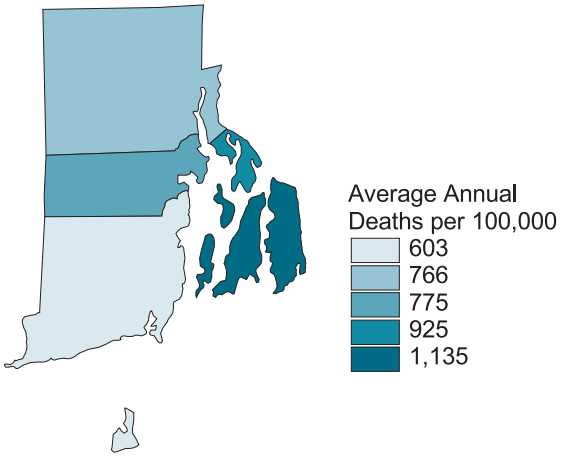


State Profile — Rhode Island

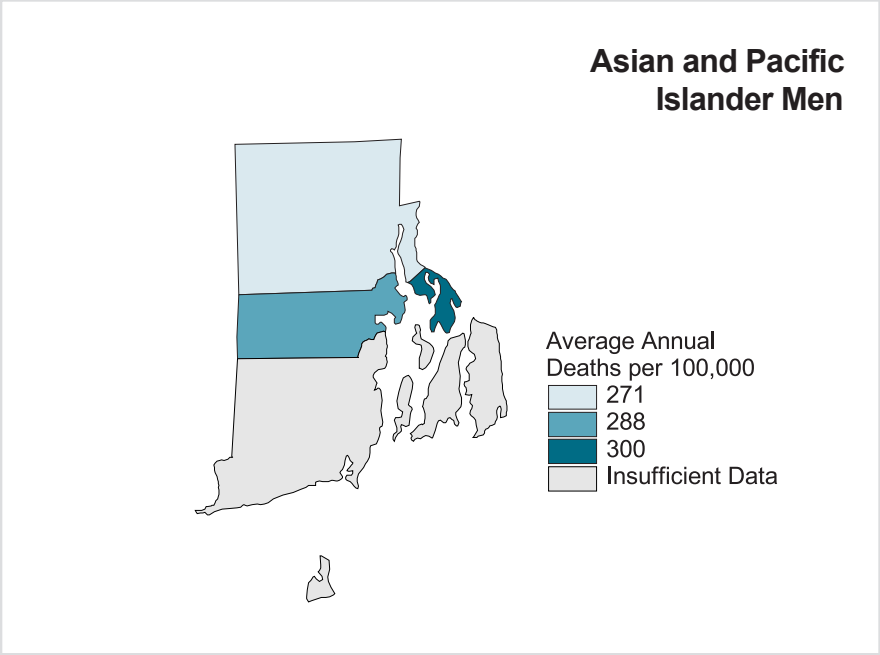
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	230,131	669
American Indian and Alaska Native Men	731	820
Asian and Pacific Islander Men	3,307	310
Black Men	7,809	847
Hispanic Men	8,283	190
White Men	218,284	666

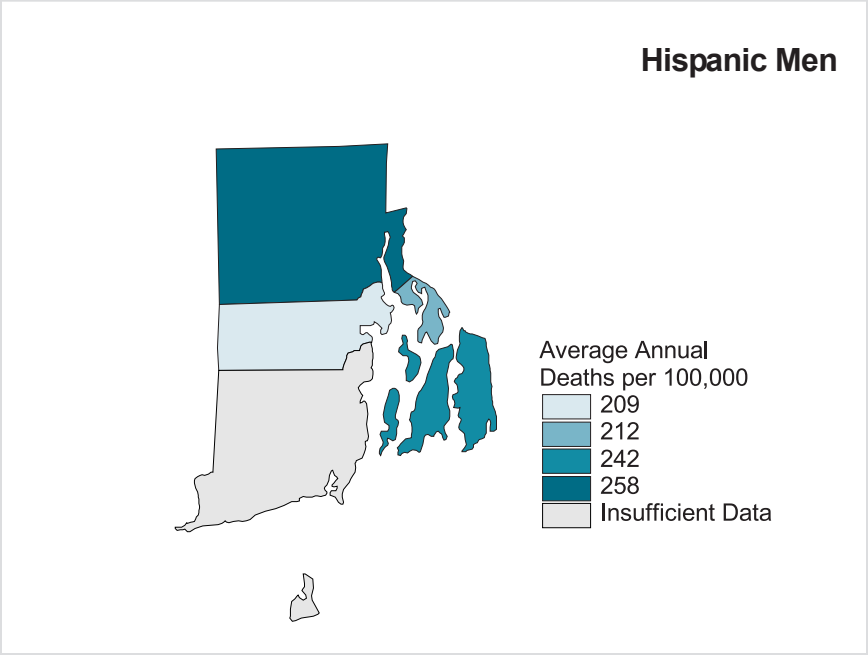
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

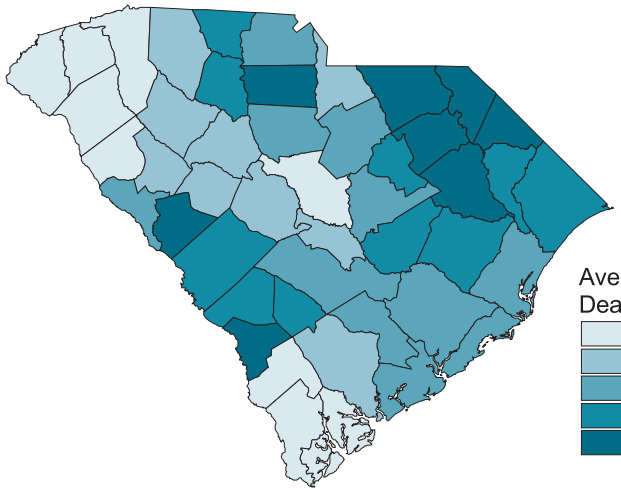


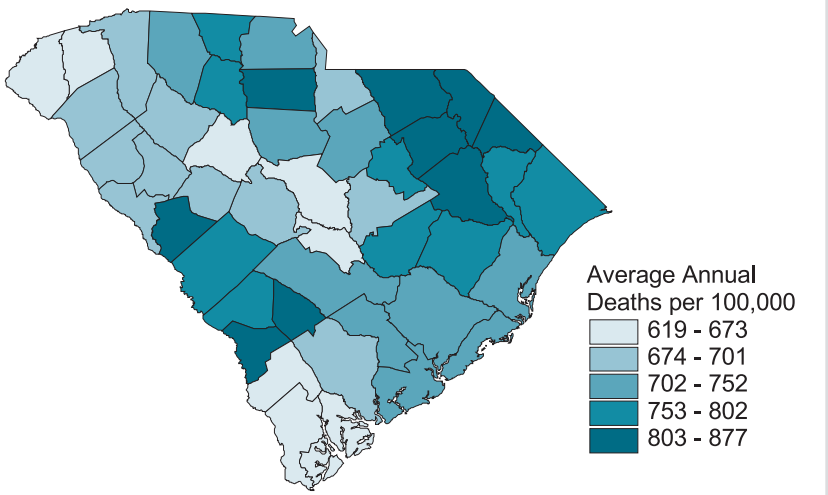
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995



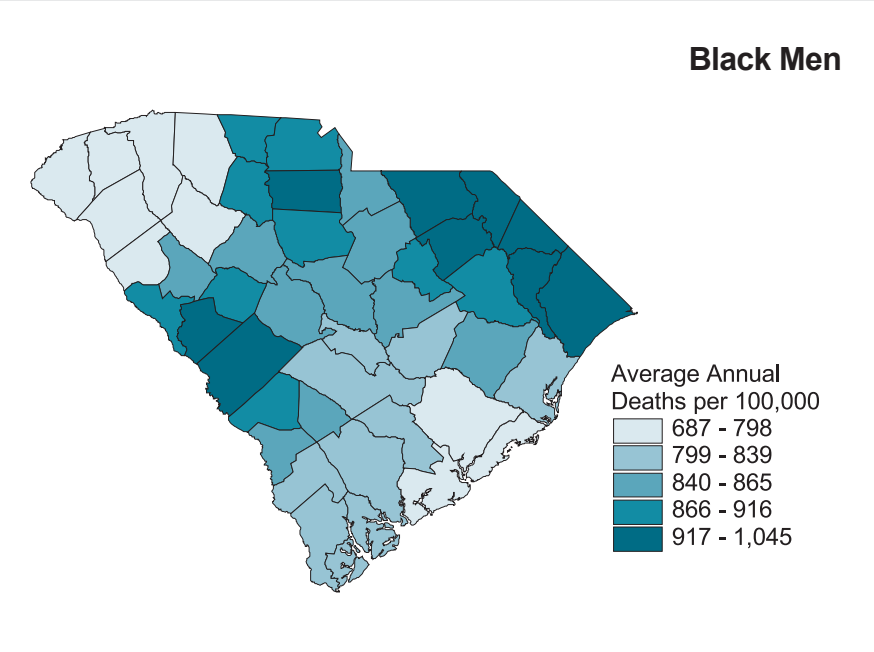


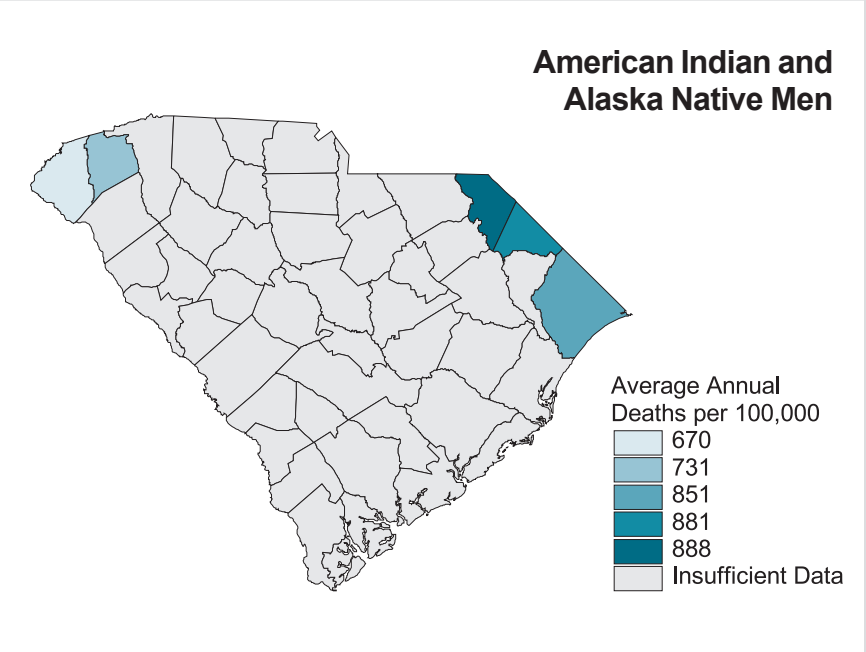
State Profile — South Carolina

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	817,783	742
American Indian and Alaska Native Men	1,692	572
Asian and Pacific Islander Men	4,620	424
Black Men	193,361	835
Hispanic Men	6,357	240
White Men	618,110	720

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

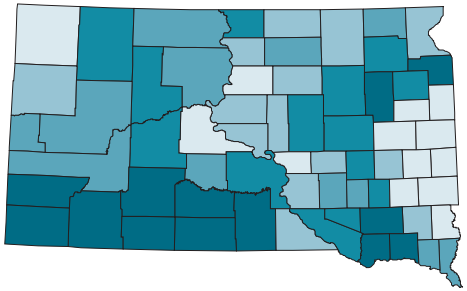
Smoothed County Heart Disease Death Rates, 1991-1995





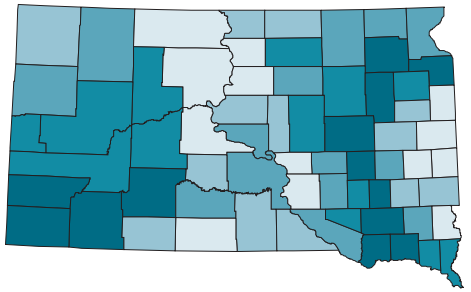
Smoothed County Heart Disease Death Rates, 1991-1995

All Men



Average Annual
Deaths per 100,000
- 532 - 610
- 611 - 637
- 638 - 655
- 656 - 680
- 681 - 866

White Men



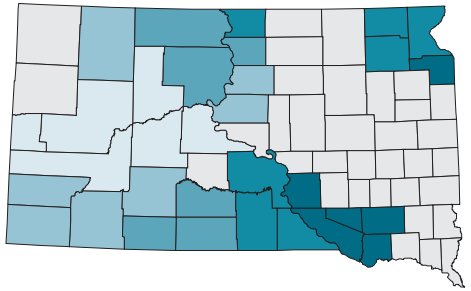
Average Annual
Deaths per 100,000
- 516 - 587
- 588 - 613
- 614 - 634
- 635 - 661
- 662 - 836

State Profile — South Dakota

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	169,472	647
American Indian and Alaska Native Men	6,612	1140
Asian and Pacific Islander Men	433	Insufficient Data
Black Men	812	Insufficient Data
Hispanic Men	912	Insufficient Data
White Men	161,615	631

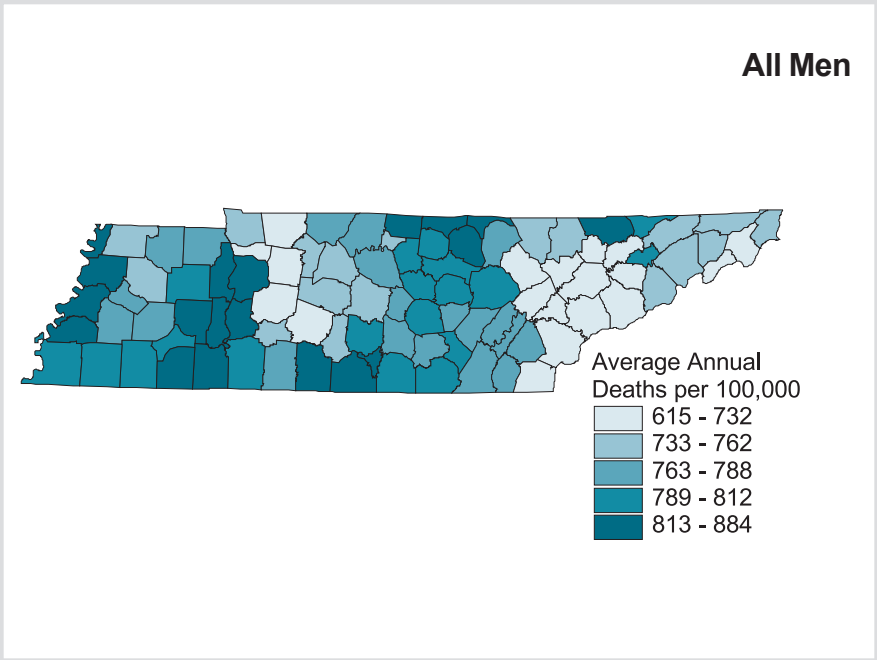
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older.
Data for Hispanics are also included within each of the four categories of race.

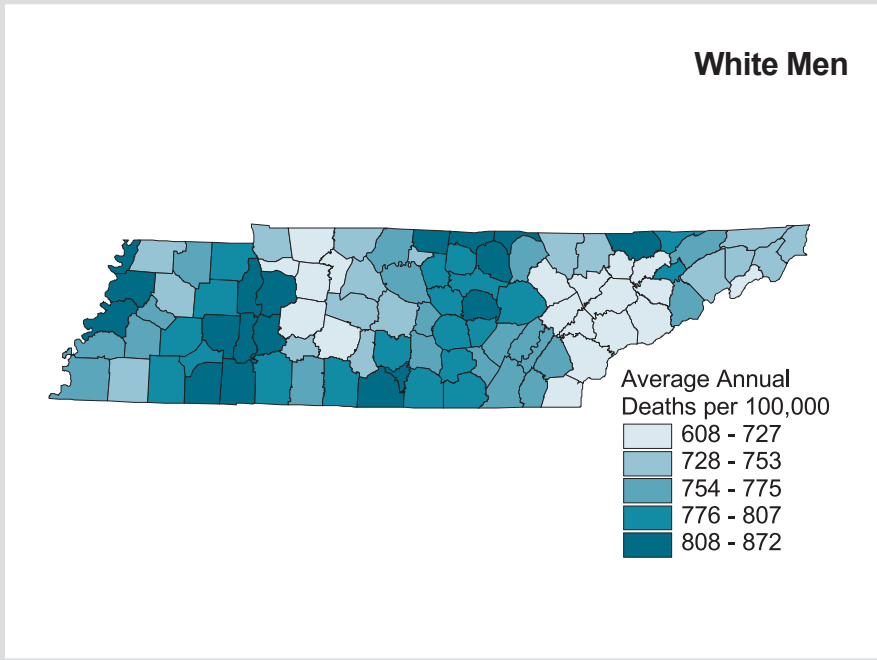
American Indian and Alaska Native Men



Average Annual
Deaths per 100,000
- 856 - 993
- 994 - 1146
- 1,147 - 1,268
- 1,269 - 1,424
- 1,425 - 1,906
- Insufficient Data

Smoothed County Heart Disease Death Rates, 1991-1995





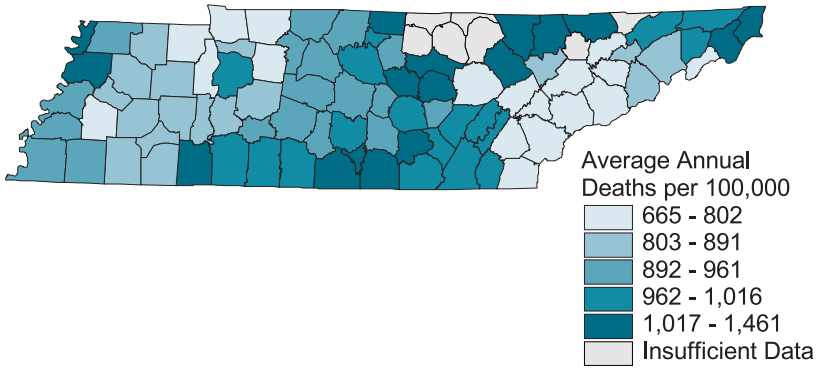
State Profile — Tennessee

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,209,613	757
American Indian and Alaska Native Men	2,597	Insufficient Data
Asian and Pacific Islander Men	7,742	441
Black Men	146,444	929
Hispanic Men	7,764	432
White Men	1,052,830	740

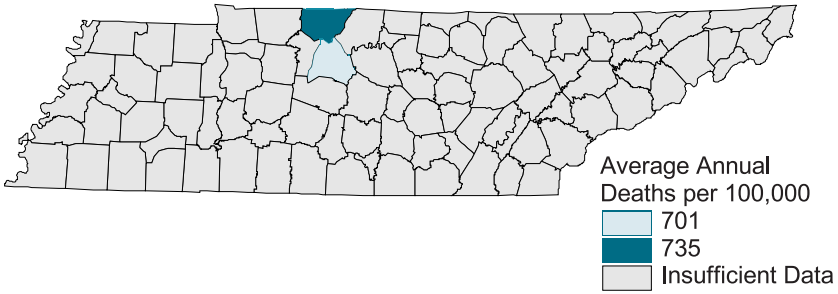
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995

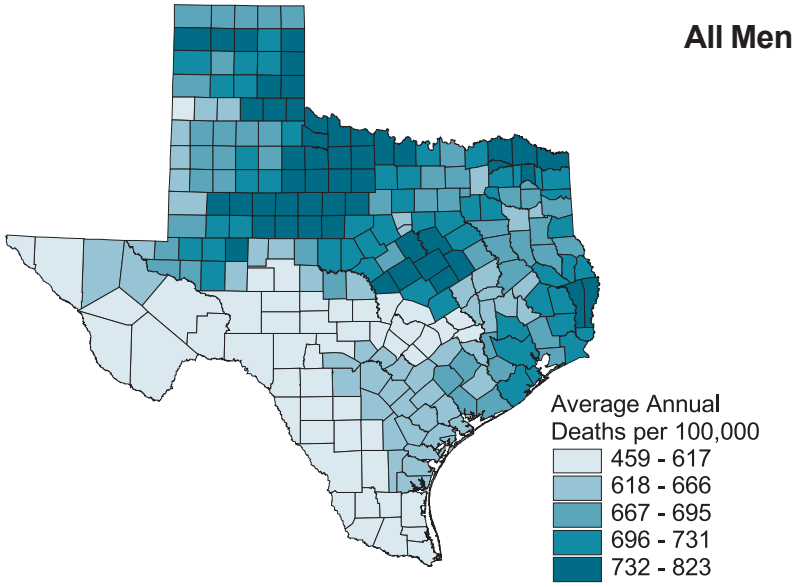
Black Men

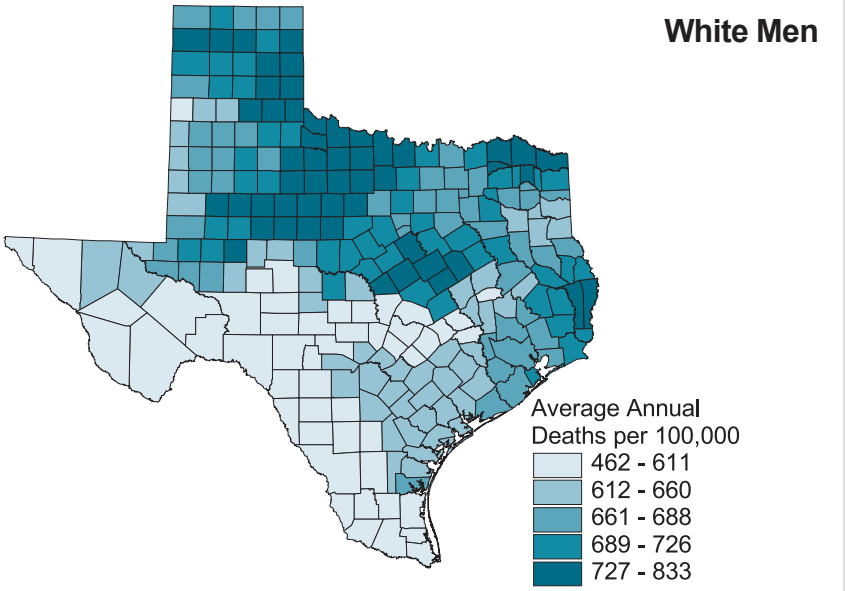


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995

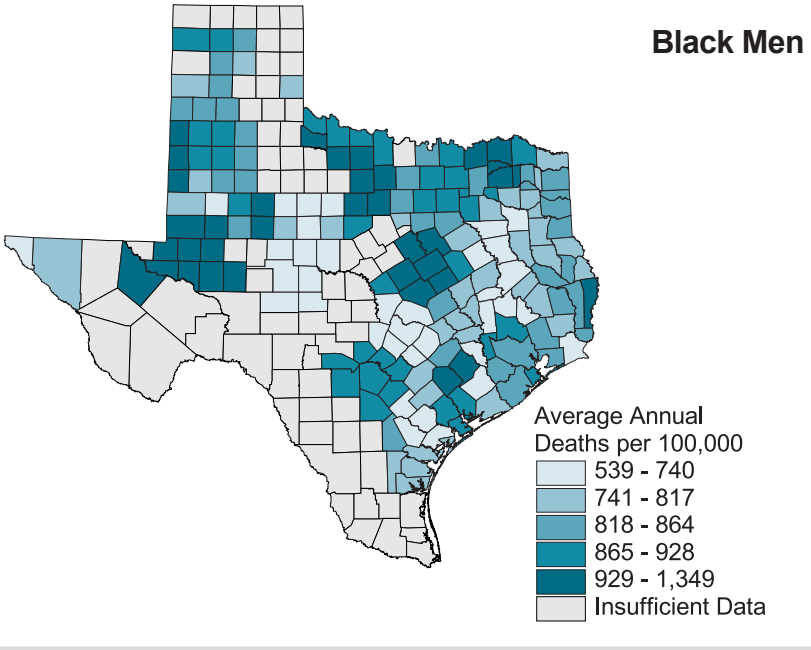




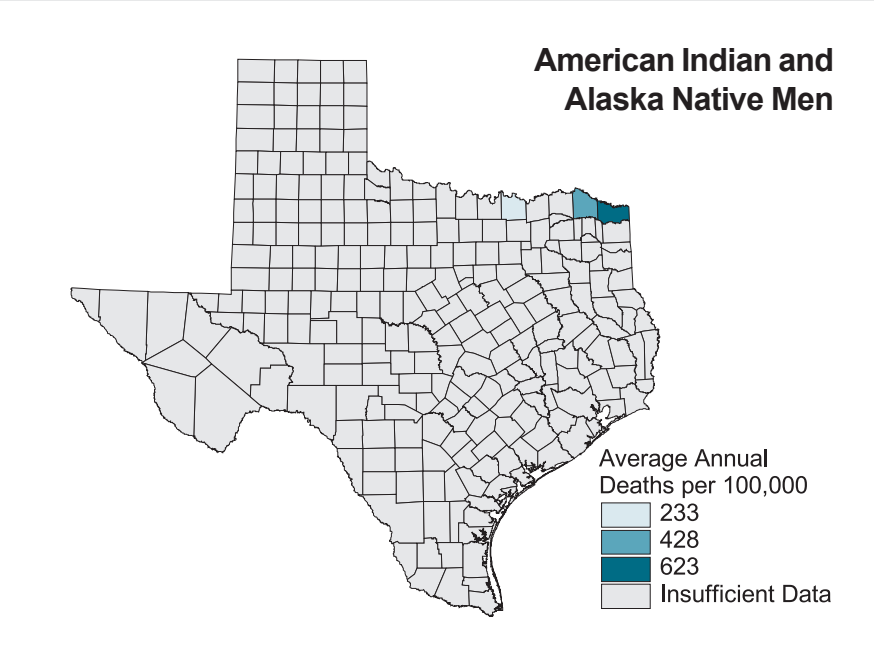
State Profile — Texas

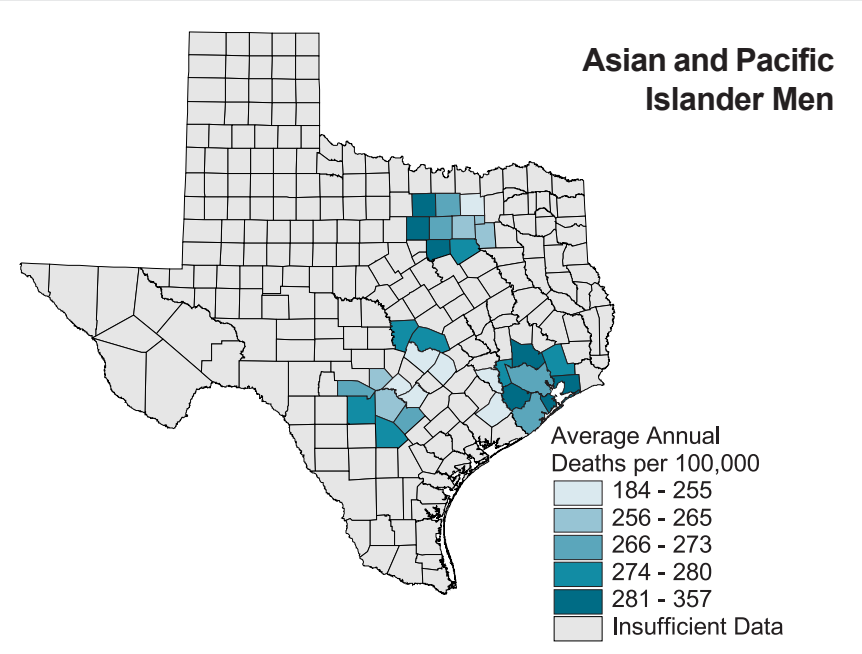
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	4,030,541	662
American Indian and Alaska Native Men	18,363	86
Asian and Pacific Islander Men	86,547	262
Black Men	410,875	829
Hispanic Men	860,454	499
White Men	3,514,756	653

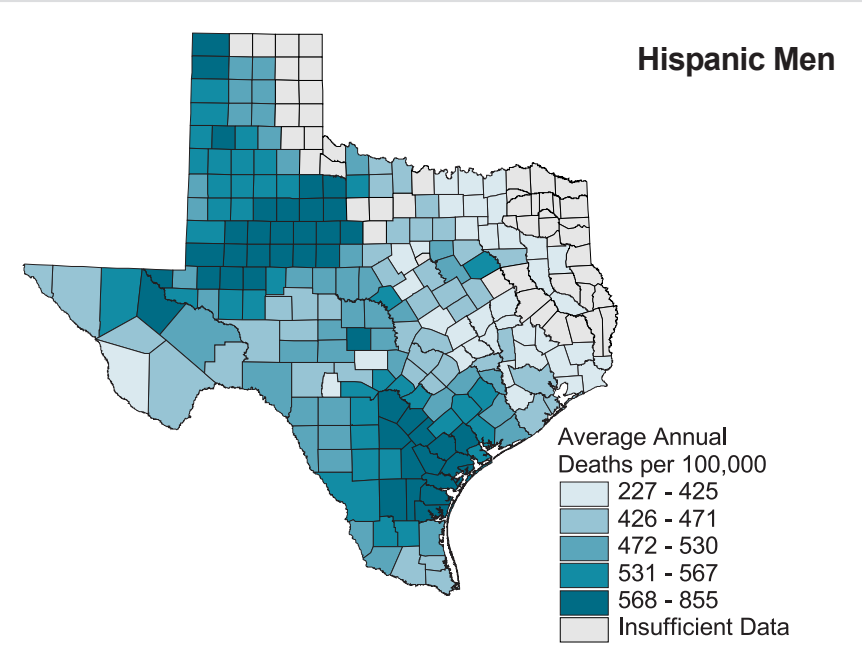
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



Smoothed County Heart Disease Death Rates, 1991-1995

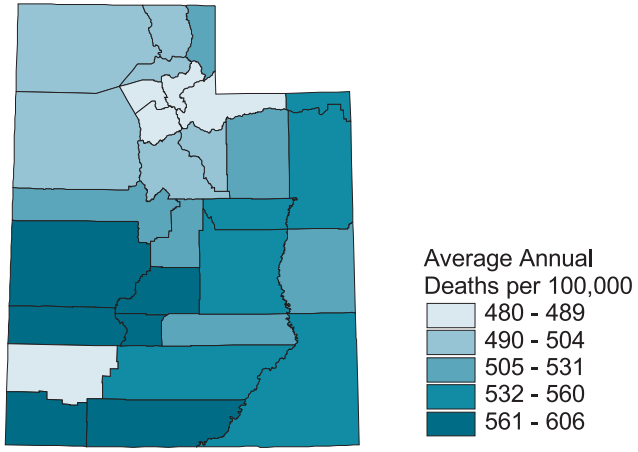




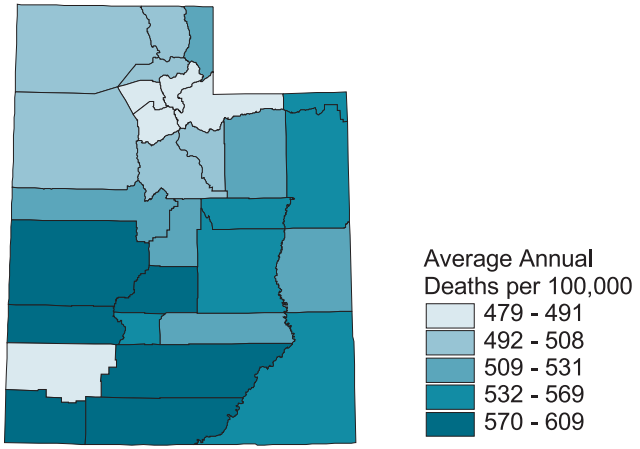


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

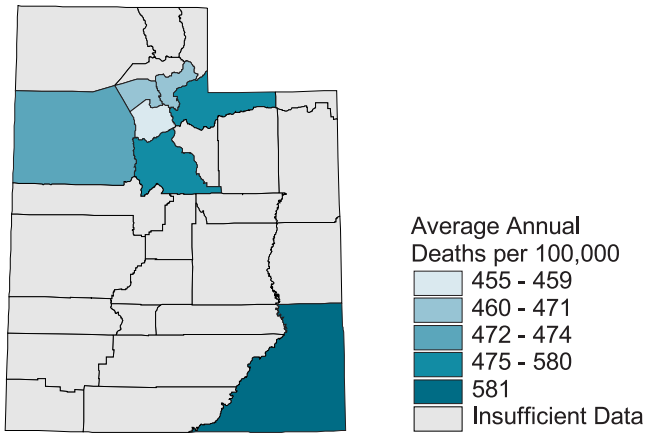


State Profile — Utah

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	360,833	492
American Indian and Alaska Native Men	3,645	399
Asian and Pacific Islander Men	6,595	348
Black Men	2,912	468
Hispanic Men	16,625	348
White Men	347,681	495

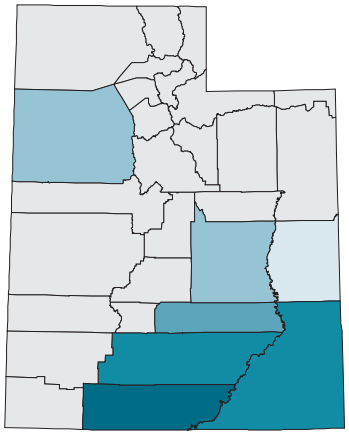
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



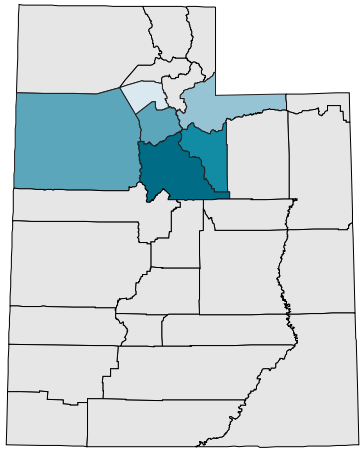
Smoothed County Heart Disease Death Rates, 1991-1995

American Indian and Alaska Native Men



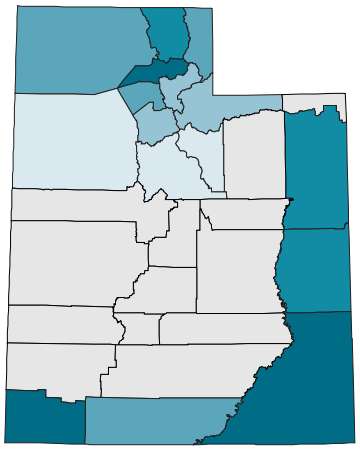
Average Annual
Deaths per 100,000
- 417
- 425 - 456
- 457 - 469
- 470 - 482
- 483
- Insufficient Data

Asian and Pacific Islander Men



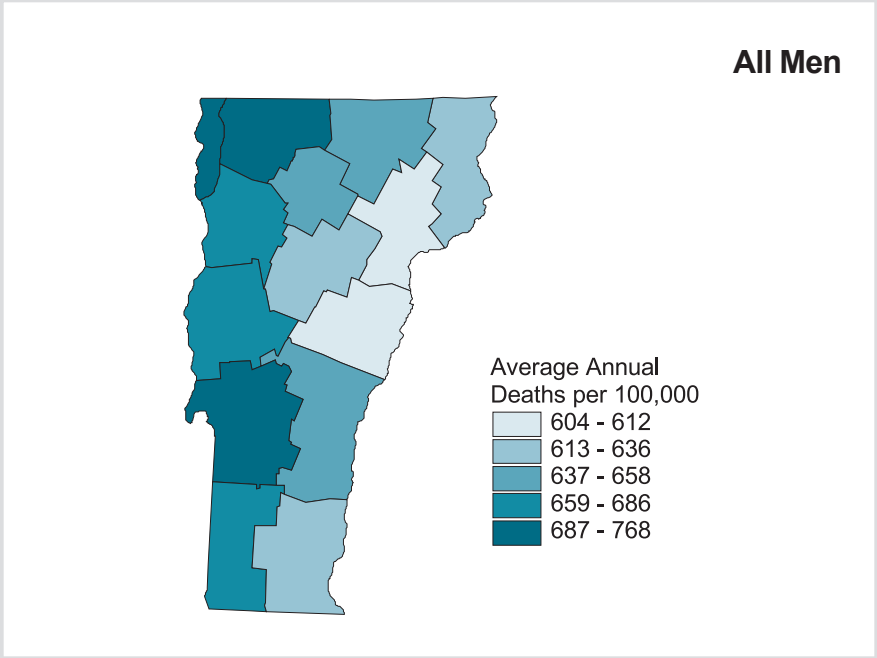
Average Annual
Deaths per 100,000
- 321 - 328
- 329 - 362
- 363 - 397
- 398 - 400
- 401
- Insufficient Data

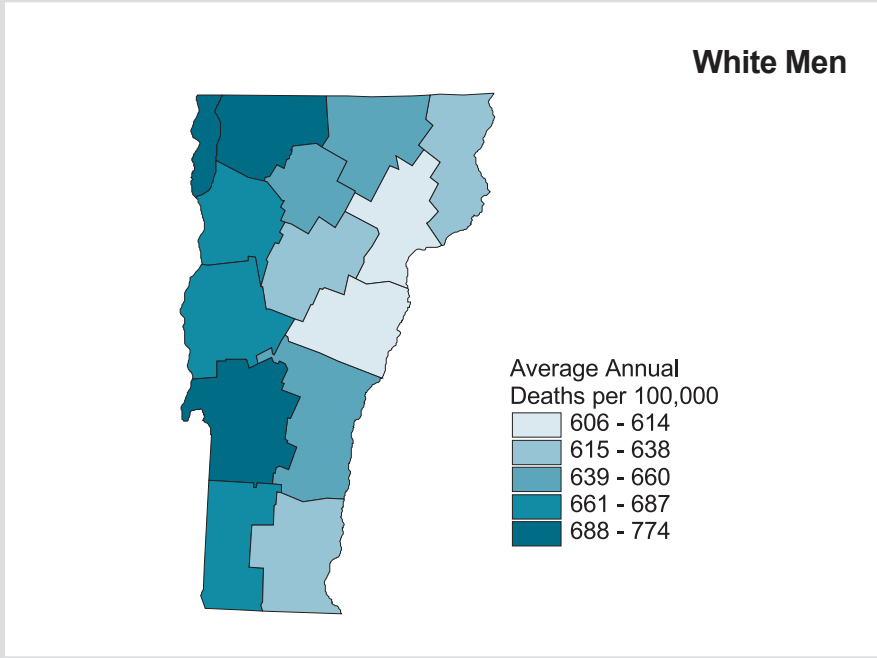
Hispanic Men



Average Annual
Deaths per 100,000
- 312 - 334
- 335 - 370
- 371 - 423
- 424 - 461
- 462 - 476
- Insufficient Data

Smoothed County Heart Disease Death Rates, 1991-1995





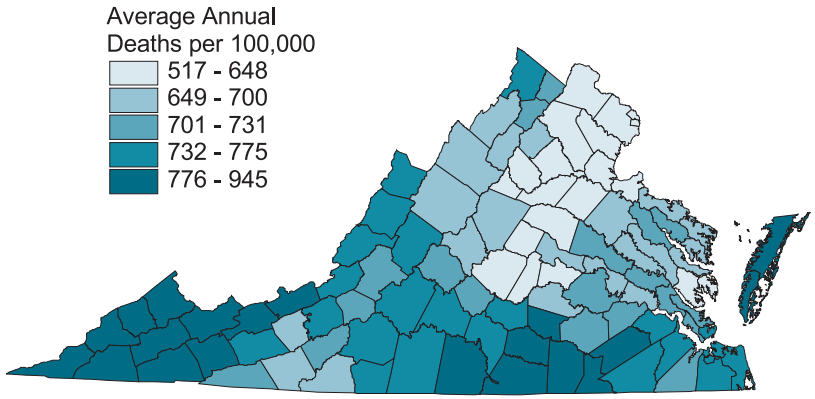
State Profile — Vermont

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	141,157	652
American Indian and Alaska Native Men	321	Insufficient Data
Asian and Pacific Islander Men	562	Insufficient Data
Black Men	484	Insufficient Data
Hispanic Men	809	Insufficient Data
White Men	139,790	653

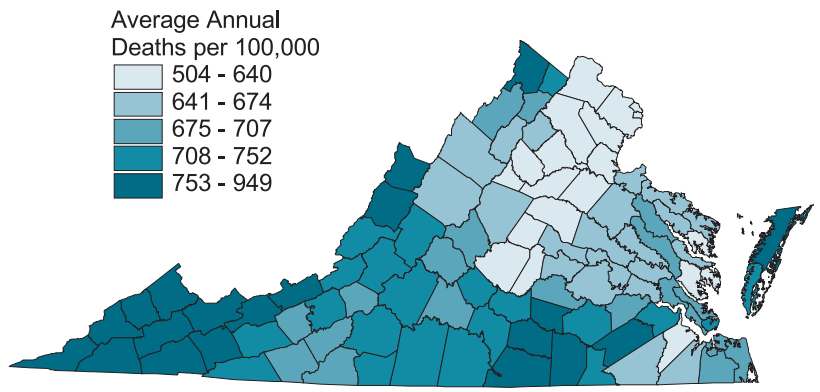
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

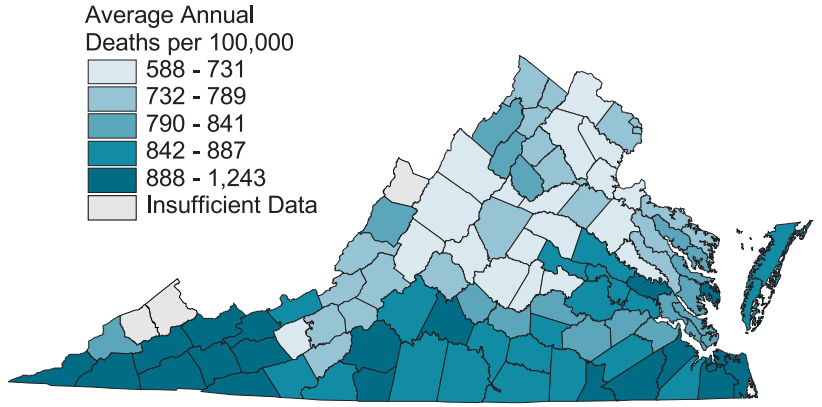


State Profile — Virginia

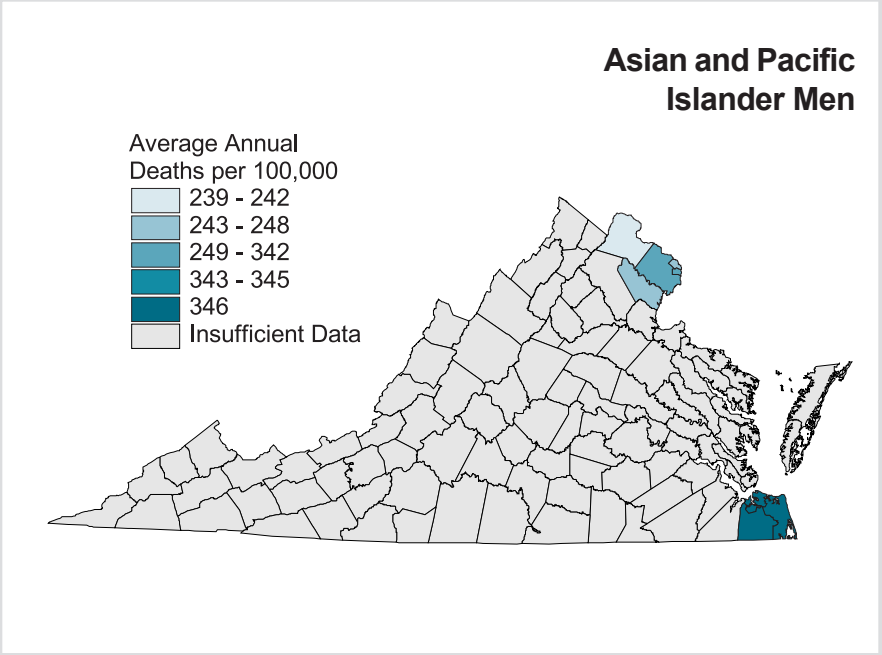
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,510,720	679
American Indian and Alaska Native Men	3,899	Insufficient Data
Asian and Pacific Islander Men	39,187	255
Black Men	248,265	839
Hispanic Men	33,589	273
White Men	1,219,369	659

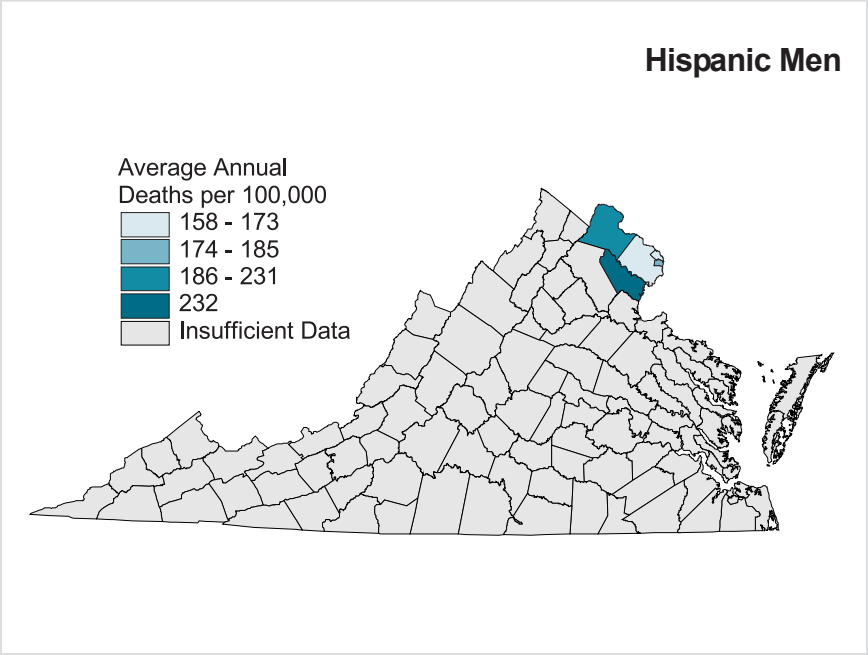
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men



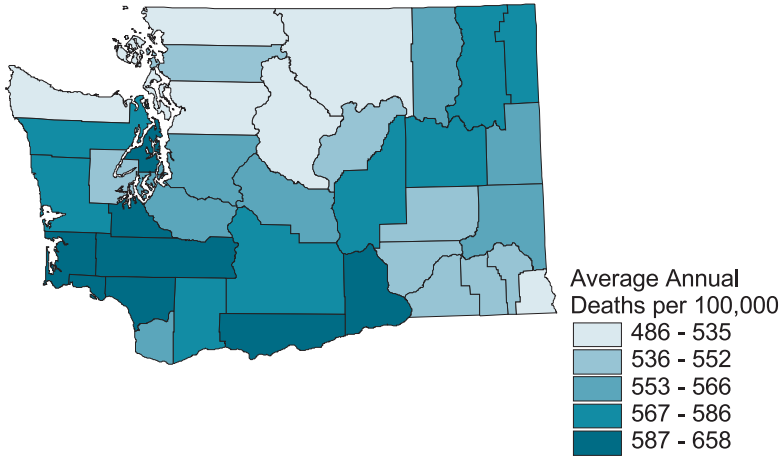
Smoothed County Heart Disease Death Rates, 1991-1995



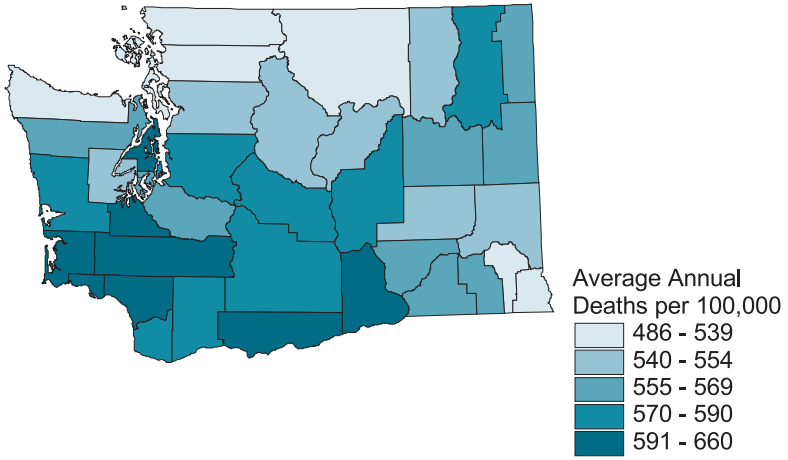


Smoothed County Heart Disease Death Rates, 1991-1995

All Men



White Men

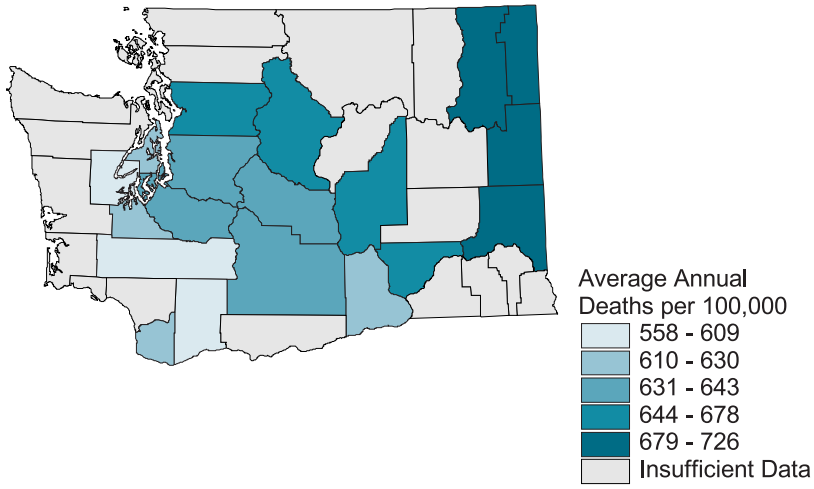


State Profile — Washington

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,296,119	557
American Indian and Alaska Native Men	17,499	530
Asian and Pacific Islander Men	50,456	348
Black Men	36,652	637
Hispanic Men	44,638	297
White Men	1,191,512	561

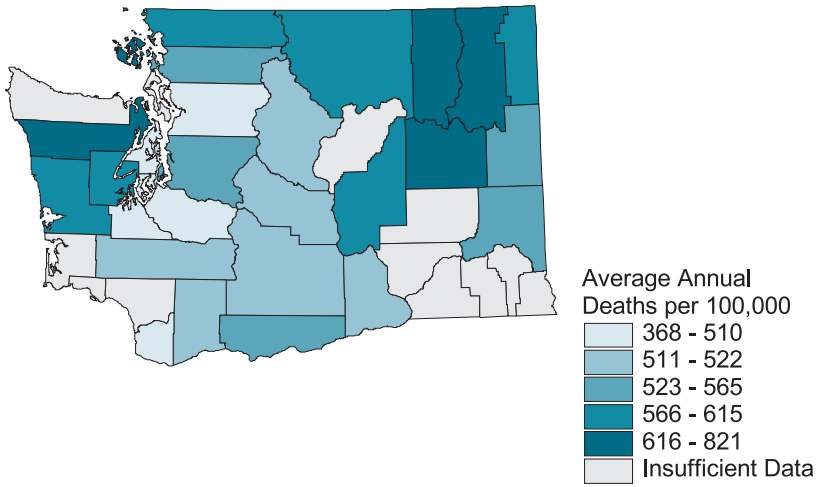
* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Black Men

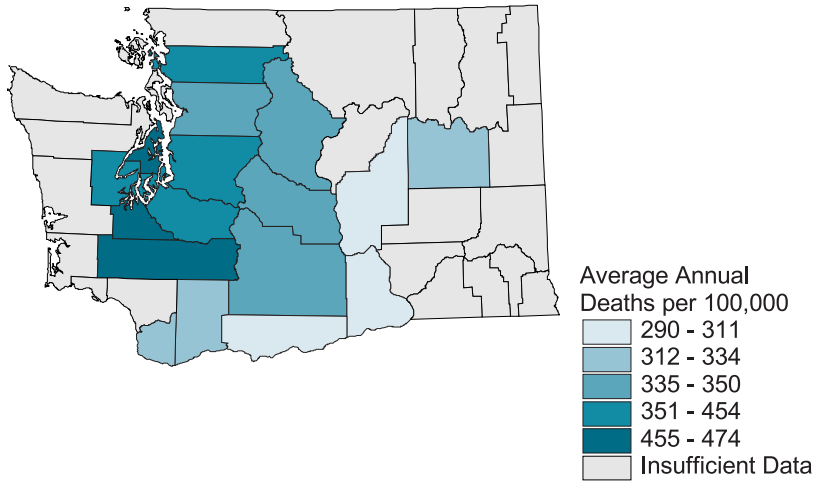


Smoothed County Heart Disease Death Rates, 1991-1995

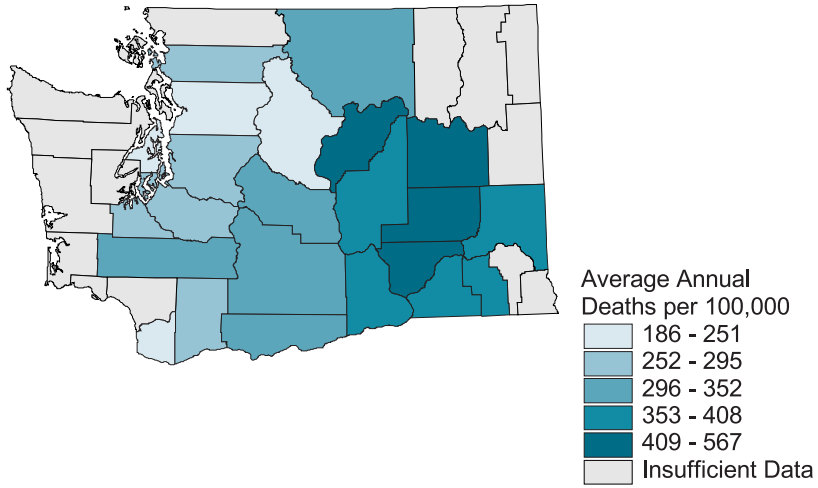
American Indian and Alaska Native Men



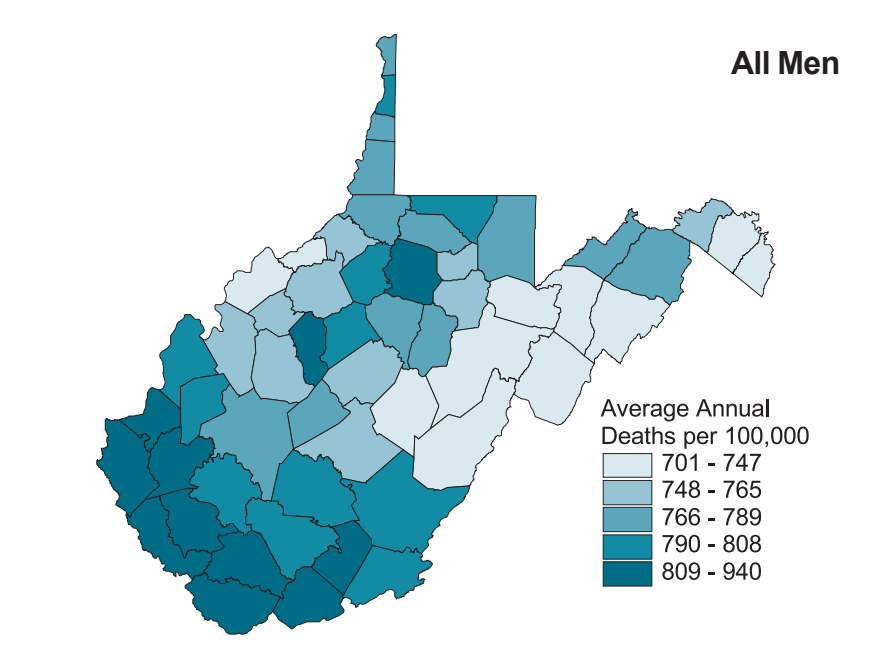
Asian and Pacific Islander Men

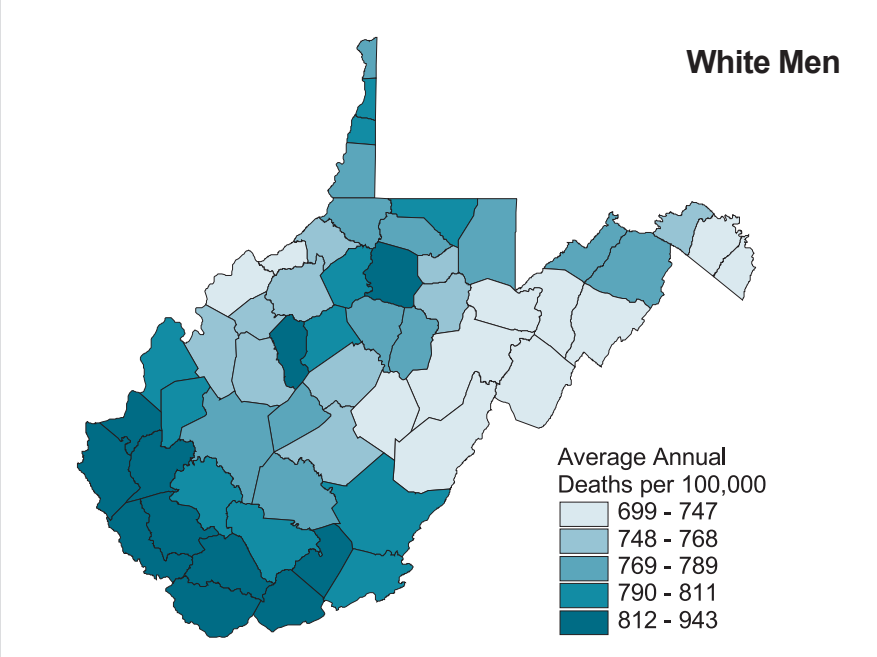


Hispanic Men



Smoothed County Heart Disease Death Rates, 1991-1995

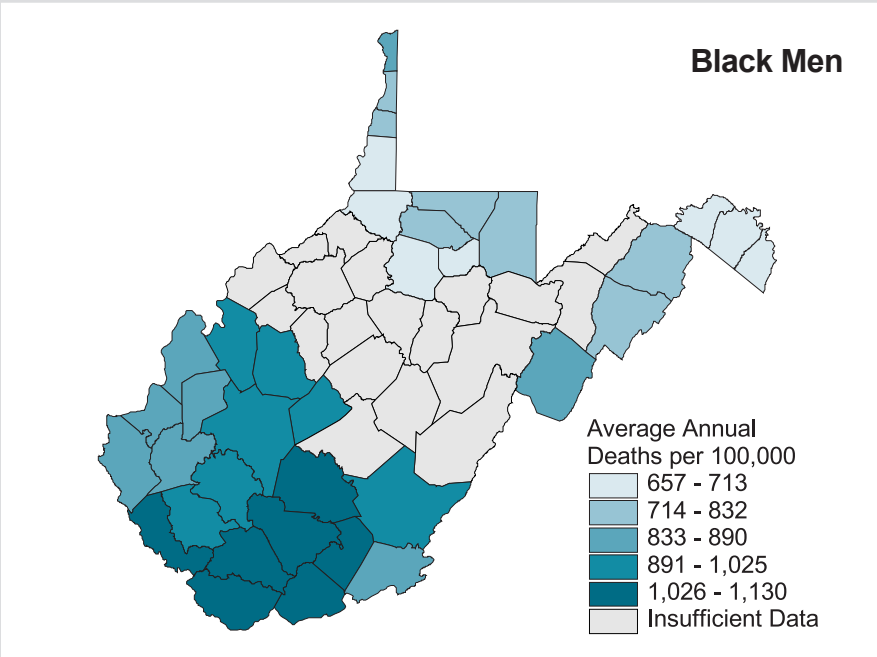




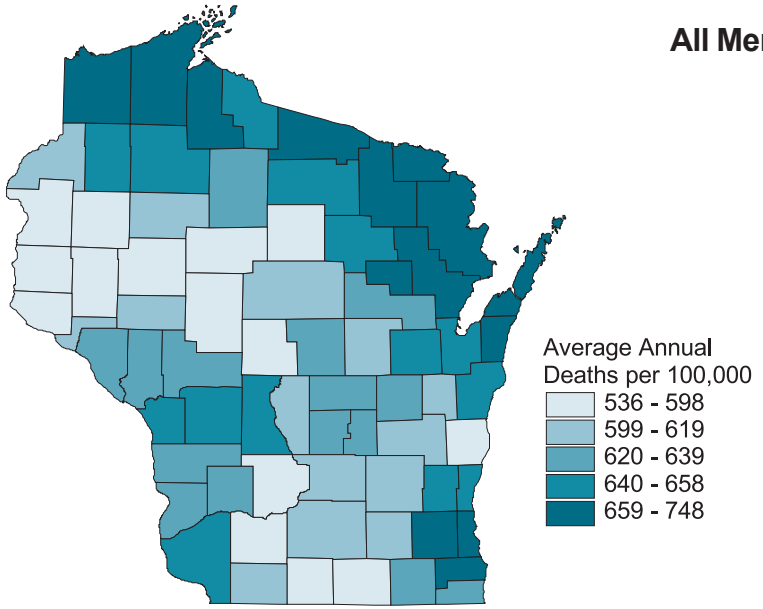
State Profile — West Virginia

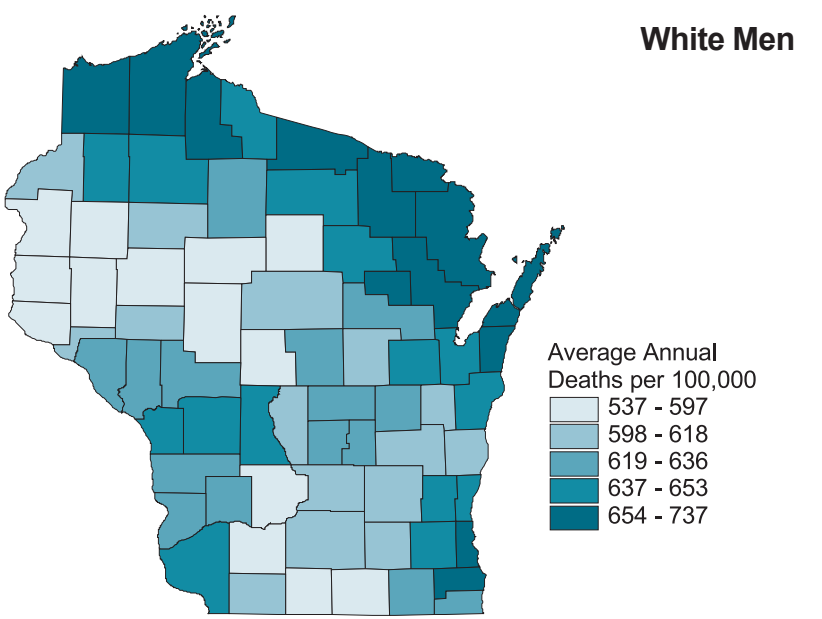
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	452,238	796
American Indian and Alaska Native Men	637	Insufficient Data
Asian and Pacific Islander Men	1,611	Insufficient Data
Black Men	11,722	940
Hispanic Men	1,930	293
White Men	438,268	795

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.



Smoothed County Heart Disease Death Rates, 1991-1995

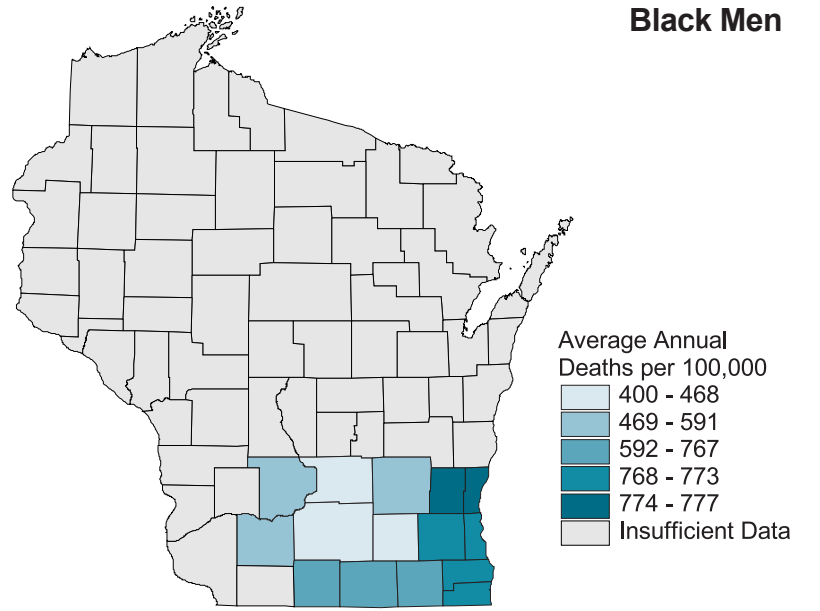




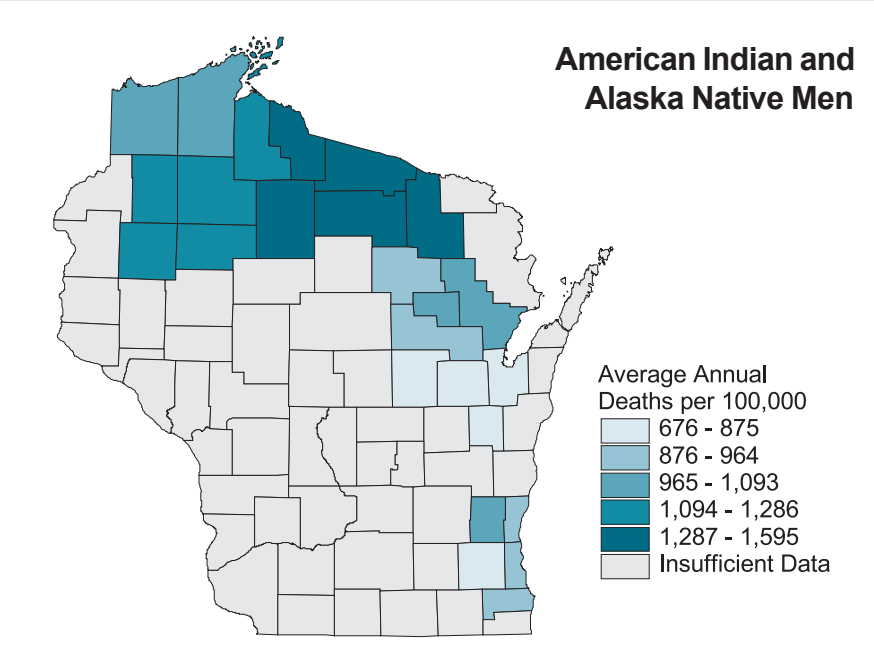
State Profile — Wisconsin

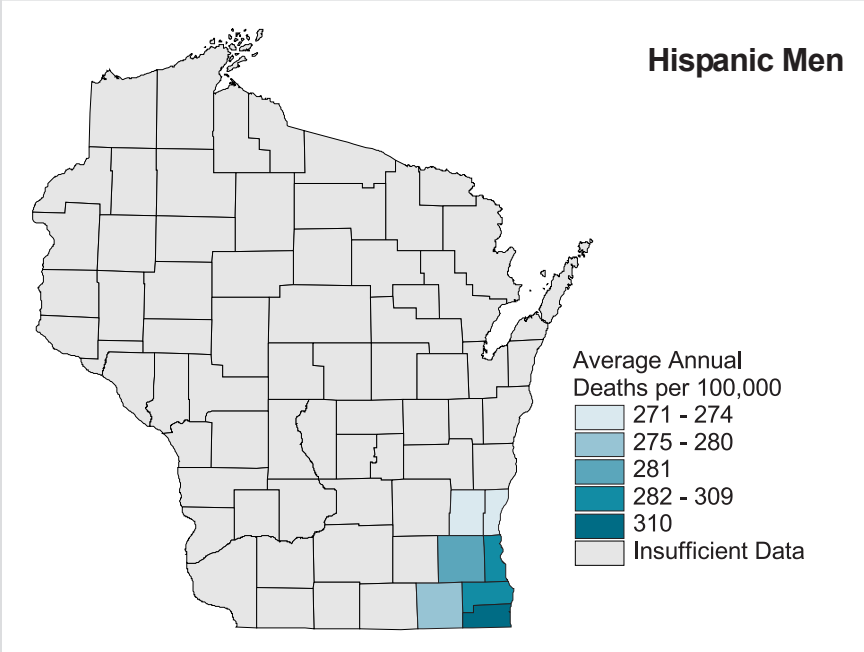
Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	1,203,540	634
American Indian and Alaska Native Men	6,886	915
Asian and Pacific Islander Men	8,898	226
Black Men	41,096	736
Hispanic Men	17,935	260
White Men	1,146,660	630

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

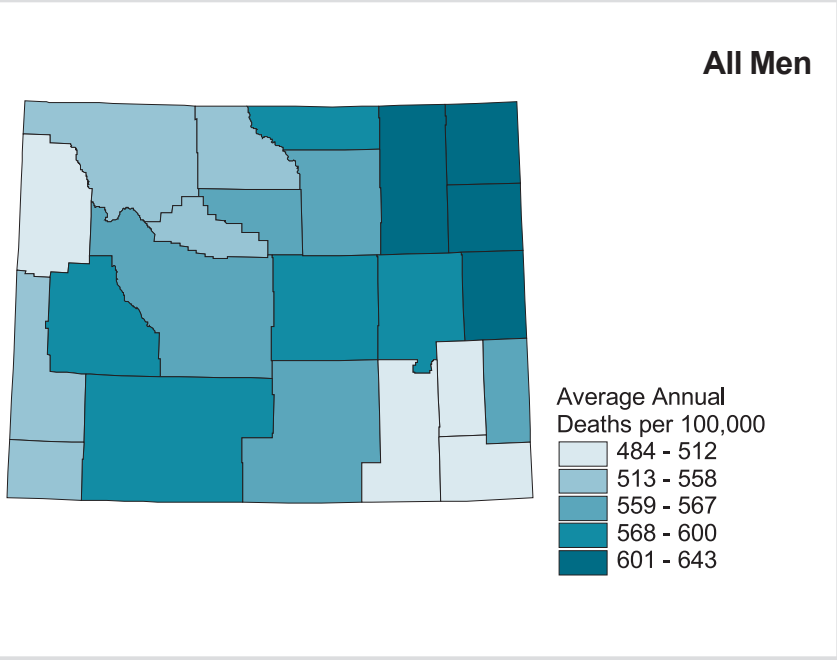


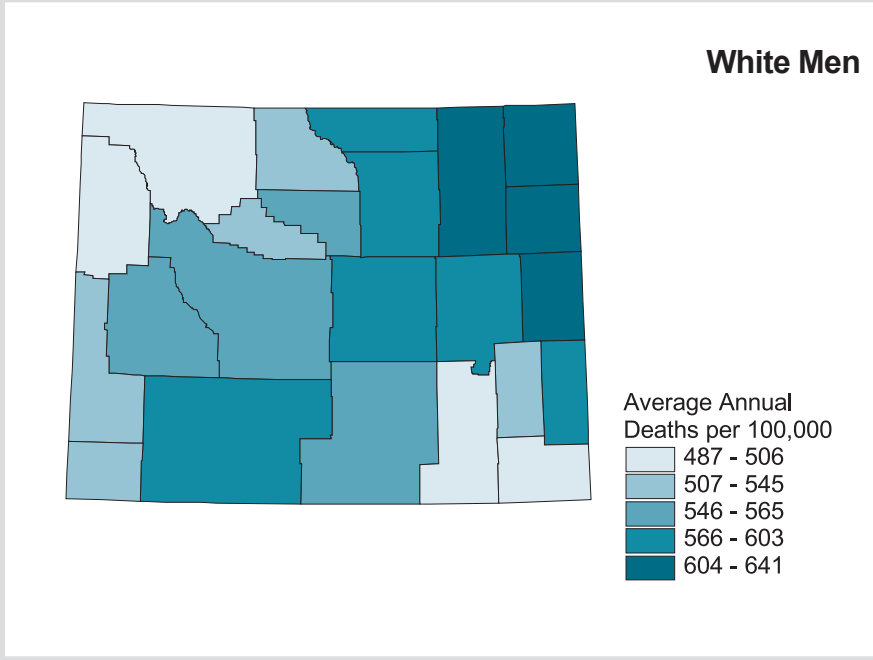
Smoothed County Heart Disease Death Rates, 1991-1995





Smoothed County Heart Disease Death Rates, 1991-1995



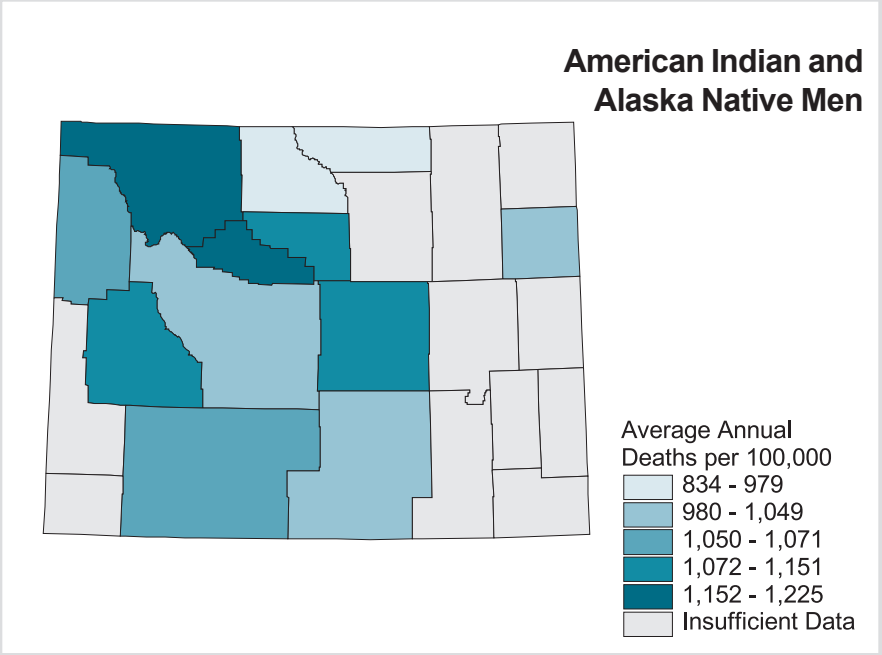


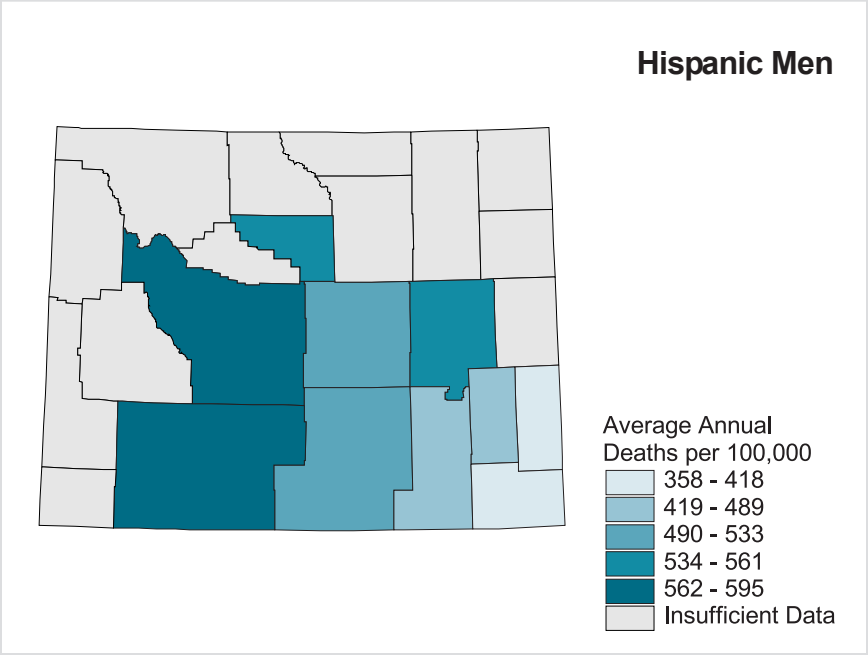
State Profile — Wyoming

Race or Ethnicity	State Population 1995	State Heart Disease Death Rate, 1991-1995*
All Men	116,604	551
American Indian and Alaska Native Men	1,656	929
Asian and Pacific Islander Men	514	Insufficient Data
Black Men	805	Insufficient Data
Hispanic Men	5,145	497
White Men	113,629	549

* Average annual age-adjusted rate (deaths per 100,000) for men ages 35 years and older. Data for Hispanics are also included within each of the four categories of race.

Smoothed County Heart Disease Death Rates, 1991-1995





A State Rankings of Heart Disease Mortality among Men

State Ranking of Heart Disease Death Rates for All Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	32,335	959,036	758	45
Alaska	1,655	139,932	559	11
Arizona	25,757	988,301	583	12
Arkansas	21,150	573,132	732	39
California	168,079	6,838,385	601	13
Colorado	15,753	889,137	507	3
Connecticut	22,958	785,861	626	17
Delaware	4,664	165,644	676	29
Dist. Of Columbia	4,231	123,473	740	42
Florida	124,478	3,546,671	615	15
Georgia	41,119	1,551,171	736	41
Hawaii	6,195	284,131	482	1
Idaho	6,304	265,228	546	6
Illinois	84,991	2,654,479	723	36
Indiana	41,322	1,330,593	715	34
Iowa	22,630	679,490	639	21
Kansas	17,978	592,608	619	16
Kentucky	30,438	888,583	783	49
Louisiana	29,874	926,174	764	46
Maine	8,799	303,666	641	22
Maryland	29,302	1,159,121	657	26
Massachusetts	39,824	1,404,656	612	14
Michigan	68,429	2,181,417	726	37
Minnesota	26,868	1,071,295	554	9
Mississippi	22,947	570,354	878	51
Missouri	43,090	1,226,909	733	40

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	5,356	218,602	544	5
Nebraska	12,397	380,219	648	24
Nevada	9,539	378,460	698	32
New Hampshire	6,827	272,465	627	18
New Jersey	57,109	1,889,779	676	29
New Mexico	8,065	376,681	522	4
New York	147,449	4,149,981	775	48
North Carolina	48,078	1,629,973	714	33
North Dakota	5,179	152,496	629	19
Ohio	84,139	2,577,023	730	38
Oklahoma	27,377	753,993	767	47
Oregon	19,311	779,094	547	7
Pennsylvania	103,926	2,915,439	722	35
Rhode Island	7,716	230,131	669	28
South Carolina	24,572	817,783	742	43
South Dakota	5,791	169,472	647	23
Tennessee	39,051	1,209,613	757	44
Texas	102,647	4,030,541	662	27
Utah	7,171	360,833	492	2
Vermont	3,762	141,157	652	25
Virginia	38,871	1,510,720	679	31
Washington	29,317	1,296,119	557	10
West Virginia	17,227	452,238	796	50
Wisconsin	35,773	1,203,540	634	20
Wyoming	2,480	116,604	551	8

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.

The state with the highest rate was ranked 51.

States that had identical rates were assigned the same rank.

New York City was not ranked separately.

State Ranking of Heart Disease Death Rates for American Indian and Alaska Native Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	23	3,268	229	4
Alaska	314	15,196	697	24
Arizona	581	35,040	500	18
Arkansas	15	2,568	***	***
California	496	56,817	277	8
Colorado	49	6,547	236	6
Connecticut	24	1,505	491	17
Delaware	16	512	***	***
Dist. Of Columbia	1	345	***	***
Florida	79	10,637	237	7
Georgia	8	3,590	***	***
Hawaii	12	1,217	***	***
Idaho	48	2,669	604	22
Illinois	39	5,326	232	5
Indiana	18	2,985	***	***
Iowa	19	1,325	***	***
Kansas	94	4,159	712	25
Kentucky	4	1,350	***	***
Louisiana	40	3,683	295	10
Maine	10	1,071	***	***
Maryland	18	3,261	***	***
Massachusetts	13	2,712	***	***
Michigan	319	10,619	1067	33
Minnesota	173	8,274	693	23
Mississippi	36	1,545	779	28
Missouri	45	4,433	292	9

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	181	7,982	766	27
Nebraska	66	1,944	1079	34
Nevada	78	5,306	482	16
New Hampshire	6	469	***	***
New Jersey	39	3,962	315	11
New Mexico	324	21,708	437	15
New York	189	13,410	435	14
North Carolina	385	16,096	750	26
North Dakota	102	3,478	894	30
Ohio	25	4,949	160	2
Oklahoma	1,023	45,180	530	19
Oregon	107	8,196	403	13
Pennsylvania	25	3,604	195	3
Rhode Island	21	731	820	29
South Carolina	25	1,692	572	21
South Dakota	263	6,612	1140	35
Tennessee	11	2,597	***	***
Texas	51	18,363	86	1
Utah	44	3,645	399	12
Vermont	5	321	***	***
Virginia	18	3,899	***	***
Washington	255	17,499	530	19
West Virginia	3	637	***	***
Wisconsin	191	6,886	915	31
Wyoming	44	1,656	929	32

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.
The state with the highest rate was ranked 35.
States that had identical rates were assigned the same rank.
New York City was not ranked separately.

*** Insufficient data to calculate a heart disease death rate

State Ranking of Heart Disease Death Rates for Asian and Pacific Islander Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	20	4,435	301	19
Alaska	35	4,674	295	15
Arizona	105	13,890	344	26
Arkansas	28	2,448	586	39
California	8,699	701,557	388	32
Colorado	97	13,890	284	12
Connecticut	64	12,858	266	10
Delaware	18	2,590	***	***
Dist. Of Columbia	25	2,636	295	15
Florida	190	42,087	196	2
Georgia	96	20,985	266	10
Hawaii	4,457	177,321	490	38
Idaho	25	1,925	395	33
Illinois	513	72,489	285	13
Indiana	44	8,522	326	23
Iowa	26	4,530	373	29
Kansas	34	6,113	315	22
Kentucky	17	3,927	***	***
Louisiana	38	8,683	181	1
Maine	3	1,188	***	***
Maryland	239	36,610	286	14
Massachusetts	197	31,995	296	17
Michigan	163	23,801	336	25
Minnesota	66	13,370	233	5
Mississippi	20	2,590	399	34
Missouri	50	8,844	303	20

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	5	621	***	***
Nebraska	11	2,467	***	***
Nevada	106	11,743	376	31
New Hampshire	8	1,914	***	***
New Jersey	425	79,574	263	9
New Mexico	19	3,394	***	***
New York	1,755	192,440	375	30
North Carolina	38	12,359	203	3
North Dakota	4	616	***	***
Ohio	105	21,131	241	6
Oklahoma	57	6,342	478	37
Oregon	134	15,689	330	24
Pennsylvania	201	32,217	298	18
Rhode Island	23	3,307	310	21
South Carolina	36	4,620	424	35
South Dakota	3	433	***	***
Tennessee	52	7,742	441	36
Texas	421	86,547	262	8
Utah	61	6,595	348	27
Vermont	3	562	***	***
Virginia	202	39,187	255	7
Washington	504	50,456	348	27
West Virginia	11	1,611	***	***
Wisconsin	43	8,898	226	4
Wyoming	1	514	***	***

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.
The state with the highest rate was ranked 39.
States that had identical rates were assigned the same rank.
New York City was not ranked separately.

*** Insufficient data to calculate a heart disease death rate

State Ranking of Heart Disease Death Rates for Black Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	7,340	188,701	882	32
Alaska	38	4,363	466	2
Arizona	579	27,801	742	14
Arkansas	2,919	64,712	923	39
California	12,528	451,143	819	22
Colorado	498	32,299	586	8
Connecticut	1,258	50,270	762	17
Delaware	612	23,544	743	15
Dist. Of Columbia	3,216	76,007	872	31
Florida	9,450	357,172	776	18
Georgia	9,901	334,399	888	34
Hawaii	30	5,595	338	1
Idaho	7	1,064	***	***
Illinois	11,282	308,311	944	42
Indiana	2,636	85,137	796	19
Iowa	247	9,219	814	21
Kansas	705	28,051	698	10
Kentucky	1,897	50,876	882	32
Louisiana	8,352	228,324	892	35
Maine	26	1,093	1069	44
Maryland	5,952	252,031	749	16
Massachusetts	1,094	61,033	580	7
Michigan	9,084	244,909	914	38
Minnesota	264	19,675	564	5
Mississippi	7,255	155,860	1028	43
Missouri	3,668	101,560	895	36

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	8	581	***	***
Nebraska	293	10,676	849	28
Nevada	404	20,990	708	11
New Hampshire	15	1,592	***	***
New Jersey	5,302	209,477	733	12
New Mexico	135	8,320	530	4
New York	15,867	569,603	812	20
North Carolina	9,563	284,549	865	30
North Dakota	1	532	***	***
Ohio	7,731	229,590	828	23
Oklahoma	1,528	43,884	904	37
Oregon	189	10,935	573	6
Pennsylvania	7,683	216,432	853	29
Rhode Island	193	7,809	847	27
South Carolina	6,253	193,361	835	25
South Dakota	5	812	***	***
Tennessee	5,450	146,444	929	40
Texas	11,933	410,875	829	24
Utah	40	2,912	468	3
Vermont	7	484	***	***
Virginia	7,670	248,265	839	26
Washington	601	36,652	637	9
West Virginia	551	11,722	940	41
Wisconsin	846	41,096	736	13
Wyoming	13	805	***	***

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.
The state with the highest rate was ranked 44.
States that had identical rates were assigned the same rank.
New York City was not ranked separately.

*** Insufficient data to calculate a heart disease death rate

State Ranking of Heart Disease Death Rates for Hispanic Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	74	5,785	483	38
Alaska	18	3,763	***	***
Arizona	1,964	142,023	494	40
Arkansas	23	4,801	209	5
California	14,232	1,410,432	403	28
Colorado	1,197	92,611	423	29
Connecticut	289	36,294	293	14
Delaware	40	3,351	492	39
Dist. Of Columbia	14	6,329	***	***
Florida	8,048	418,364	474	33
Georgia	99	26,772	187	3
Hawaii	214	15,882	397	27
Idaho	76	11,257	336	21
Illinois	1,339	174,456	328	20
Indiana	213	21,113	351	23
Iowa	81	6,670	448	32
Kansas	177	18,452	368	26
Kentucky	55	4,474	551	43
Louisiana	220	21,836	295	16
Maine	9	1,237	***	***
Maryland	89	27,776	140	1
Massachusetts	349	46,239	291	12
Michigan	504	38,415	445	31
Minnesota	66	10,704	250	8
Mississippi	27	3,214	272	10
Missouri	185	12,425	475	34

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	25	2,461	351	23
Nebraska	74	8,553	302	19
Nevada	229	33,739	292	13
New Hampshire	13	2,365	***	***
New Jersey	1,531	162,472	356	25
New Mexico	2,142	124,985	481	36
New York	6,079	430,971	481	36
North Carolina	56	16,678	172	2
North Dakota	3	655	***	***
Ohio	256	27,547	300	18
Oklahoma	8	16,087	***	***
Oregon	131	25,738	235	6
Pennsylvania	603	44,595	479	35
Rhode Island	42	8,283	190	4
South Carolina	35	6,357	240	7
South Dakota	6	912	***	***
Tennessee	77	7,764	432	30
Texas	12,597	860,454	499	42
Utah	150	16,625	348	22
Vermont	4	809	***	***
Virginia	162	33,589	273	11
Washington	265	44,638	297	17
West Virginia	24	1,930	293	14
Wisconsin	117	17,935	260	9
Wyoming	86	5,145	497	41

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.
The state with the highest rate was ranked 43.
States that had identical rates were assigned the same rank.
New York City was not ranked separately.

*** Insufficient data to calculate a heart disease death rate

State Ranking of Heart Disease Death Rates for White Men

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Alabama	24,952	762,632	736	45
Alaska	1,268	115,699	550	9
Arizona	24,492	911,570	584	13
Arkansas	18,188	503,404	715	39
California	146,356	5,628,868	608	15
Colorado	15,109	836,401	508	4
Connecticut	21,612	721,228	619	18
Delaware	4,018	138,998	667	31
Dist. Of Columbia	989	44,485	505	3
Florida	114,759	3,136,775	605	14
Georgia	31,114	1,192,197	708	37
Hawaii	1,696	99,998	476	1
Idaho	6,224	259,570	546	7
Illinois	73,157	2,268,353	702	34
Indiana	38,624	1,233,949	712	38
Iowa	22,338	664,416	638	23
Kansas	17,145	554,285	617	17
Kentucky	28,520	832,430	780	49
Louisiana	21,444	685,484	733	44
Maine	8,760	300,314	642	24
Maryland	23,093	867,219	644	26
Massachusetts	38,520	1,308,916	616	16
Michigan	58,863	1,902,088	704	35
Minnesota	26,365	1,029,976	554	11
Mississippi	15,636	410,359	835	51
Missouri	39,327	1,112,072	722	42

State	Number of Deaths 1991-1995	Population 1995	Death Rate per 100,000 1991-1995*	State Ranking**
Montana	5,162	209,418	538	6
Nebraska	12,027	365,132	642	25
Nevada	8,951	340,421	707	36
New Hampshire	6,798	268,490	629	20
New Jersey	51,343	1,596,766	676	32
New Mexico	7,587	343,259	528	5
New York	129,638	3,374,528	779	48
North Carolina	38,092	1,316,969	687	33
North Dakota	5,072	147,870	625	19
Ohio	76,278	2,321,353	723	43
Oklahoma	24,769	658,587	775	47
Oregon	18,881	744,274	550	9
Pennsylvania	96,017	2,663,186	715	39
Rhode Island	7,479	218,284	666	30
South Carolina	18,258	618,110	720	41
South Dakota	5,520	161,615	631	22
Tennessee	33,538	1,052,830	740	46
Texas	90,242	3,514,756	653	27
Utah	7,026	347,681	495	2
Vermont	3,747	139,790	653	28
Virginia	30,981	1,219,369	659	29
Washington	27,957	1,191,512	561	12
West Virginia	16,662	438,268	795	50
Wisconsin	34,693	1,146,660	630	21
Wyoming	2,422	113,629	549	8

* Age-adjusted to the 1970 United States population

** The state with the lowest rate was ranked 1.
The state with the highest rate was ranked 51.
States that had identical rates were assigned the same rank.
New York City was not ranked separately.

B Methodological and Technical Notes

A. County Definitions

1. Overview

Data from several different sources were used in this publication, and one of our chief methodological concerns was ensuring comparability of county definitions across datasets. We used the Federal Information Processing Standard (FIPS) codes to link county definitions across datasets, and to reconcile differences. For the majority of states, there was 100 percent comparability in county definitions among all the datasets used. Details about modifications to county definitions for specific states appear below.

The following cities were retained as independent cities and the FIPS codes were modified to conform to the geographic database.

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

2. Alaska

In the Area Resource File (ARF), Alaska was treated as a single geographic unit. The ARF did not provide data for the Alaska county equivalents. Therefore, for each of the maps that present data from the ARF, we were unable to map data for Alaska. These maps include the following:

Total Population per Cardiovascular Disease (CVD) Physician, 1990
Total Population per Cardiac Intensive Care Unit (CCU) Bed, 1993
Cardiac Rehabilitation Units, 1993
Local Economic Resources, 1990

Due to differences in county coding over time, and differential coding among the various data sources, several other changes were also made to county FIPS codes. The coding changes are indicated in the following tables.

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

3. Arizona

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

4. Hawaii

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

5. Virginia

Virginia is comprised of counties and independent cities that are treated as county-equivalents in many datasets. However, not all of the datasets we used contained data for the Virginia independent cities. Many of these cities are also difficult to represent on a map because of their small land area. Therefore, the spatial geometry for most of Virginia independent cities was removed from the geographic database and data for those cities was collapsed into those counties with which they are most geographically associated. We followed the conventions of the 1996 Area Resource File. The changes made to FIPS codes to combine Virginia independent cities with their surrounding or adjacent counties are shown in the table below.

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

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Independent City	Independent City FIPS Code	Incorporated into Adjacent County	Modified FIPS Code	State
Manassas Park	51685	Prince William	51153	Virginia
Martinsville	51690	Henry	51089	Virginia
Norfolk	51710	Norfolk	51129	Virginia
Norton	51720	Wise	51195	Virginia
Petersburg	51730	Dinwiddie	51053	Virginia
Portsmouth	51740	Norfolk	51129	Virginia
Radford	51750	Montgomery	51121	Virginia
Richmond	51760	Henrico	51087	Virginia
Roanoke	51770	Roanoke	51161	Virginia
Salem	51775	Roanoke	51161	Virginia
South Boston	51780	Halifax	51083	Virginia
Staunton	51790	Augusta	51015	Virginia
Waynesboro	51820	Augusta	51015	Virginia
Williamsburg	51830	James City	51095	Virginia
Winchester	51840	Frederick	51069	Virginia

5. Yellowstone National Park

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

B. Data Sources

1. Economic Resources Data

Data for the Index of Local Economic Resources were obtained from the Area Resource File (February 1996 edition) — a compilation of health-related data that have been abstracted from multiple data sources by the Bureau of Health Professions, Department of Health and Human Services. The three variables that were used to create the index were abstracted from the 1990 Census of Population and Housing, STF3A data files. The Index of Economic Resources was based on three dimensions of the local socioeconomic infrastructure: *median family income, occupational structure,* and *unemployment rate*. Occupational structure was defined as the percent of all employed persons who were engaged in white collar jobs (i.e. managerial and professional specialty occupations and technical, sales, and administrative support jobs).

The index was calculated by ranking all counties separately for each variable. For each variable, the counties were then categorized into deciles, and each decile was assigned a score ranging from 0 to 9. Counties in the decile with the poorest economic conditions (lowest median income, lowest occupational structure, highest unemployment rate) were assigned a 0 and

counties in the decile with the most advantaged economic conditions were assigned a 9. For each county, the scores from the three variables were added together to arrive at the index score. The range of the score is from 0 (counties that were in the lowest decile for all three dimensions of the Index) to 27 (counties that were in the top decile for all three dimensions of the Index). The distribution of index values across all counties was then divided into five groups with roughly equal ranges of index values.

2. Heart Disease Mortality Data

Death certificate data for the years 1991-1995 were obtained through the National Vital Statistics System maintained by the National Center for Health Statistics. Deaths from heart disease were defined as those for which the underlying cause of death listed on the death certificate was coded according to the International Classification of Diseases - 9th Revision (ICD-9) as: 390-398, 402, 404-429. These codes comprise the category 'Diseases of the Heart' as defined by the National Center for Health Statistics.[1] 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. Information on Hispanic ethnicity was not collected on death certificates in Oklahoma throughout the 1991-1995 study period, and prior to 1993 was not collected for New Hampshire. Consequently, we could not analyze decedents of Hispanic ethnicity for Oklahoma and New Hampshire.

3. Medical Care Resources Data

Data on medical care resources were obtained from the Area Resource File, (February 1996 edition) a compilation of health-related data abstracted from multiple data sources by the Bureau of Health Professions, Department of Health and Human Services. Maps were created for the following indicators of medical care resources relevant to secondary prevention of heart disease mortality: *population per cardiovascular disease specialty physician, population per coronary care unit bed,* and *number of cardiac rehabilitation units.* The primary source for the data on cardiovascular disease physicians was the American Medical Association Physician Master File. The primary source for the data on coronary care unit beds and cardiac rehabilitation units was the County Hospital File for 1993.

Rather than map the number of physicians per county, we chose to map the ratio of county population size to each cardiovascular specialty physician. This approach provides a better comparative measure of the availability of physicians when examining counties with large populations vs. counties with small populations. Similarly, we chose to map the ratio of county population size to each coronary care unit bed. Because cardiac rehabilitation units are intended to serve more than one individual at a time, we mapped the total number of cardiac rehabilitation units in each county.

4. Population Data

Population count data for all counties in the U.S. were obtained from the Bureau of the Census for the years 1991-1995. These intercensal estimates were calculated by the Bureau of the Census through extrapolation of linear trends in population growth and inter-county migration patterns between census years 1980 and 1990.

C. Map Projections

1. National Maps

To facilitate the presentation of information for all U.S. counties, several different map projections were used. For the coterminous United States an Albers-Conic Equal Area projection was used. Alaska was projected to the Miller Cylindrical projection and Hawaii is presented using geographic coordinates (latitude and longitude). Neither Alaska nor Hawaii is to proper geographic scale relative to the continental United States. The combinations of projections and scales allowed the presentation of a relatively familiar orientation of these geographic features.

The coordinate information for the contiguous United States was projected using the Albers Equal-Area projection with the following parameters:

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

The coordinate information for Alaska has been projected using the Miller Cylindrical project with the following parameters:

Spheroid: Sphere Central Meridian: 0.000

2. State Maps

All state maps were projected using the State-Plane projection systems of each state. The state maps are presented to maximize the reader's ability to interpret results for each state and are therefore not to proper geographic scale relative to one another. However, State-Plane coordinate systems are commonly used by state agencies and therefore their use here maximizes the reader's ability to compare these maps with other information.

Many states did not have significant populations of men of particular racial and ethnic groups. In many cases racial and ethnic specific rates could not be calculated for any of the counties within the state. Rather than present blank maps for these states, we elected to generate race and ethnicity-specific state maps only if there were at least two counties with heart disease mortality rates for any given racial and ethnic group.

D. Race and Ethnicity Definitions

The race and ethnicity categories used in *Men and Heart Disease* were defined according to Office of Management and Budget, Directive 15,[2] and are not based upon biological or anthropological concepts. The categories were developed in response to needs for collecting standardized data to be used by federal agencies for record keeping, collection and presentation of data (i.e., Federal surveys, the decennial census and monitoring various civil rights laws).

According to the Office of Management and Budget, the federal agency that defines standards for government publications, there are six minimum categories for race and ethnicity classification (listed below). Hispanic or Latino is considered a designation of ethnicity, not race, and people of Hispanic or Latino origin may be of any race.

- ***American Indian or Alaska Native***. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- ***Asian or Pacific Islander***. A person having origins in: a) any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam or b) a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- ***Black or African American***. A person having origins in any of the black racial groups of Africa.
- ***Hispanic or Latino***. A person of Cuban, Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.
- ***Native Hawaiian or Other Pacific Islander***. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- ***White***. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

E. Spatial Geometry

The geographic database, which includes spatial geometry and attribute information for all U.S. counties, was obtained from Environmental Systems Research Institute's (ESRI) ArcUSA database. ESRI has modified source data from the 1973 Digital Line Graph (DLG) data produced by the U.S. Geological Survey to improve the currency of the county boundary information to 1988. The geographic scale of the spatial geometry (linework) is 1:2,000,000, and is sufficient to identify major county features. Mortality, population, socioeconomic, and medical resource data were linked to county geography using the Federal Information Processing Standards (FIPS) codes.

F. Spatial Smoothing of Heart Disease Death Rates

1. Spatial Smoothing Methods

Heart disease death rates were calculated for men 35 years and older for the period 1991-1995. Separate rates were calculated for the following population groups: all men, American Indian and Alaska Native men, Asian and Pacific Islander men, black men, Hispanic men, and white men. For each population group, a smoothed death rate for heart disease, based on a spatial moving average, was calculated for each county.

For each county, heart disease deaths (numerators) and population counts (denominators) for ten-year age groups (e.g. 35-44 years old, 45-54 years old, etc.) were summed for the five-year study period 1991-1995. County numerators and denominators were then summed together with death count numerators and population count denominators of all neighboring counties, and then divided by the number of neighbors plus one to produce an average rate. "Neighbors" were defined based solely on contiguity (as opposed to distance). This process produced spatially smoothed age-specific (by10-year age

group) heart disease death rates. The spatially smoothed age-specific heart disease death rates were then directly age-adjusted to the 1970 United States population, for the age range 35 years and older.

Two constraints were applied to the calculation of county-level heart disease death rates for each race and ethnicity group. For a particular population group (e.g. Latino men aged 35 years and older), a heart disease death rate was *not* calculated for any county for which the total number of deaths in that county plus its neighbors was fewer than 20 during 1991-1995. To avoid calculating rates for counties that had no population themselves but whose neighbors had significant populations, rates were calculated only for counties that had a population count of 5 or greater for 1991-1995 (i.e. had 5 or greater person-years).

Information on Hispanic ethnicity was not collected on death certificates in Oklahoma throughout the 1991-1995 study period, and prior to 1993 was not collected for New Hampshire. Consequently, we removed all counties in Oklahoma and New Hampshire from the contiguity matrix when the rates for Latinos were spatially smoothed, and no rates for Hispanics in Oklahoma and New Hampshire were calculated.

1970 U.S. Population Standard Weights

Age group	Weight
0-1	.017151
1-4	.067265
5-14	.200508
15-24	.174406
25-34	.122569
35-44	.113614
45-54	.114265
55-64	.091480
65-74	.061195
75-84	.030112
85+	.007435

2. Standard Population Weights

Age-specific heart disease death rates were directly age-adjusted using the 1970 U.S. population as the standard. The 1970 standard weights were based on the total resident population in the United States as of April 1, 1970.

Because we generated heart disease death rates only for men ages 35 and over, and weights used in the age-adjustment of mortality rates are required to sum to 1, the weights for 10-year age groups for ages 35 and over were recalculated from the 1970 standard weights. The 1970 standard weights were summed for age groups 35-44 through ages 85+. New weights for each of these age groups were calculated by dividing the original weight by the sum of the weights for ages 35 and older (i.e. .418101). The new weights were rounded to two decimal places for subsequent calculation of age-adjusted heart disease death rates.

1970 U.S. Population Standard Weights
Age groups 35 and older

Age group	Weight
35-44	.27
45-54	.27
55-64	.22
65-74	.15
75-84	.07
85+	.02

3. Hispanic Population in New York City

During 1991-1993, information on Hispanic origin was not reported on approximately 22 percent of heart disease death certificates for men aged 35 years and older residing in New York City. During 1994-1995, the percent of death certificates for men that were missing information on Hispanic origin dropped to less than 3 percent. Based on a detailed examination of the New York City death certificate data for our five-year study period, we concluded that the majority of the deaths with "unknown" Hispanic origin occurred among non-Hispanic men. As evident in the table on the next page, the percent of heart disease deaths for Hispanic men rose only slightly between 1991-1993 and 1994-1995, while the percent of heart disease deaths for non-Hispanic men rose markedly after reporting improved in 1994. From 1991-1993 to 1994-1995, the average annual number of heart disease deaths increased 7 percent for Hispanic men and 22 percent for non-Hispanic men, while the number of deaths with unknown Hispanic origin declined 96 percent.

However, since a small proportion of the deaths with missing Hispanic origin data did occur among Hispanic men, it is almost certain that the heart disease death rates reported here for Hispanic men are modestly (but not severely) underestimated. In addition, the extent of underestimation may have varied among the five city boroughs; therefore prudence should be exercised in comparing individual county rates.

Percent Distribution of Heart Disease Deaths by Hispanic Origin for Men in New York City, 1991-1995

Hispanic Origin	1991	1992	1993	1994	1995
Non-Hispanic	71.2	68.1	68.8	86.5	87.8
Hispanic	7.9	7.8	7.9	9.4	8.8
Unknown	21.0	24.1	23.3	4.1	3.5

4. Contiguity Matrix for Alaska

A contiguity matrix for all U.S. counties was obtained from the 1996 Area Resource File (ARF). The matrix identifies a maximum of fourteen contiguous neighbors for every U.S. county. Because Alaska was treated as a single geographic unit in the ARF, we created our own contiguity matrix for Alaska (shown below). Columns n1-n9 identify contiguous neighbors to each county. Counties are identified by FIPS code.

County	n1	n2	n3	n4	n5	n6	n7	n8	n9
2010	2164	0	0	0	0	0	0	0	0
2020	2170	2261	2122	0	0	0	0	0	0
2050	2070	2270	2170	2164	2290	2122	0	0	0
2060	2164	2070	0	0	0	0	0	0	0
2070	2164	2060	2050	0	0	0	0	0	0
2090	2290	2240	0	0	0	0	0	0	0
2100	2231	2110	0	0	0	0	0	0	0
2110	2100	2280	0	0	0	0	0	0	0
2122	2020	2170	2050	2164	2150	2261	0	0	0
2130	2201	2280	0	0	0	0	0	0	0
2150	2122	2164	0	0	0	0	0	0	0
2164	2060	2070	2050	2122	2010	0	0	0	0
2170	2290	2240	2261	2020	2050	2122	0	0	0
2180	2270	2290	2188	0	0	0	0	0	0
2185	2188	2290	0	0	0	0	0	0	0
2188	2185	2290	2180	0	0	0	0	0	0
2201	2280	2130	0	0	0	0	0	0	0
2220	2231	2280	0	0	0	0	0	0	0
2231	2261	2100	2220	2110	2280	0	0	0	0
2240	2290	2090	2170	2261	0	0	0	0	0
2261	2240	2170	2020	2231	2122	0	0	0	0
2270	2290	2050	2180	0	0	0	0	0	0
2280	2220	2201	2231	2130	0	0	0	0	0
2290	2185	2188	2270	2050	2170	2240	2090	2180	0

G. References

[1] National Center for Health Statistics. *Public Use Data Tape Documentation, Mortality Detail, 1992.* Rockland, MD: National Center for Health Statistics, 1992.

[2] Wallman KK, Hodgdon J. Race and ethnic standards for federal statistics and administrative reporting. *Statistical Reporter*, July 1977 (no. 77-10):450-54.

C Resources

A. Federal Government Agencies

Office of the Associate Director for Minority Health
Centers for Disease Control and Prevention
1600 Clifton Road, Atlanta, GA 30033
Phone: 404-639-7210
Website: 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, Pacific Islander, Hispanic American, Native American and Alaska Native citizens, and, where appropriate, similar ethnic/racial subgroups both in and out of the United States.

Office of Minority Health
Division of Information and Education
Rockwall II Building, Suite 1000
5600 Fishers Lane, Rockville, MD 20857
Phone: 301-443-5224 Fax: 301-443-8280
Website: http://www.omhrc.gov

The Office of Minority Health 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 2000 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
Website: http://www.info@omhrc.gov

The Office of Minority Health Resource Center was established to assist in the exchange of information and analysis 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.

National Heart, Lung, and Blood Institute
National Institutes of Health, Building 31
31 Center Drive, Bethesda, Maryland 20892
Website: 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; and sleep disorders.

Indian Health Service
Chief, Special Initiative Branch
Division of Legislation and Regulations
Parklawn Building, Room 6-05
5600 Fishers Lane, Rockville, MD 20857
Phone: 301-443-1083 Fax: 301-443-4794
Website: http://www.ihs.gov

The Indian Health Service (IHS) is an agency within the US 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 Indian people, and its goal is to assure that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indian and Alaska Native people.

Office of Research on Minority Health
National Institutes of Health
Building 1, Room 258
1 Center Drive, MSC 0164, Bethesda, MD 20892-0164
Phone: 301-402-1366 Fax: 301-402-7040

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

Agency for Healthcare Research and Quality
Minority Health Coordinator
Center for Cost and Financing Studies
2101 East Jefferson Street, Suite 500, Rockville, MD 20852
Phone: 301-594-1406, ext. 1477 Fax: 304-594-2157
Website: http://www.ahcpr.gov

The Agency for Healthcare Research and Quality (AHRQ) was established in 1989 as the Agency for Health Care Policy and Research. Re-authorizing legislation passed in November 1999 established AHRQ as the lead Federal agency on quality research. AHRQ, part of the U.S. Department of Health and Human Services, 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.

B. State and Territorial Agencies

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C. Minority Health Organizations

Minority Health Professions Foundation
3 Executive Drive, NE, Suite 100, Atlanta, GA 30329
Phone: 404-634-1993 Fax: 404-634-1903
Website: http://www.minorityhealth.org

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

National Association for the Advancement of Colored People
4805 Mt. Hope Drive, Baltimore, MD 21215
Phone: 410-358-8900 Fax: 410-486-9255
Website: http://www.naacp.org

The National Association for the Advancement of Colored People (NAACP) is the oldest, largest, and strongest civil rights organization in the United States. The principal objective of the NAACP is to ensure the political, educational, social and economic equality of minority group citizens of the United States. The NAACP is committed to non-violence and relies upon the press, the petition, and the ballot to fulfill its mission.

D. African American Health Organizations

Association of Black Cardiologists
Peachtree Center, South Tower
225 Peachtree Street NE, Suite 1420, Atlanta, GA 30303
Phone: 404-582-8777 Fax: 404-582-8778
Website: http://www.abcardio.org

The Association of Black Cardiologists' mission is to unite health providers, particularly those who provide cardiovascular care to African-Americans, as a group to promote primary prevention, quality of life and culturally sensitive clinical management of cardiovascular diseases.

Association of Black Psychologists
P.O. Box 55999, Washington, DC 20040-5999
Phone: 202-722-0808 Fax: 202-722-5941
Website: http://www.abpsi.org

The Association of Black Psychologists is an independent not-for-profit organization of over 1400 members. The goal of the ABPSI is to have a positive impact upon the mental health of the national Black community by means of planning, programs, services, training, and advocacy.

International Society on Hypertension in Blacks
2085 Manchester St., NE, Atlanta, GA 30324
Phone: 404-875-6323 Fax: 404-875-6334
Website: http://www.ishib.org

The International Society on Hypertension in Blacks (ISHIB) is a not-for-profit professional, medical, membership society devoted to improving the health and life expectancy of ethnic populations. ISHIB was founded in 1986 to respond to the problem of high blood pressure among ethnic groups. Its organizational scope includes diabetes, stroke, lipid disorders, renal disease and other related cardiovascular diseases.

National Black Nurses Association
1511 K Street, NW, Suite 415, Washington, DC 20005
Phone: 202-393-6870 Fax: 202-347-3808
Website: http://www.nbna.org

The National Black Nurses Association was founded to develop a better health care system for black people, where black nurses and other nurses of color played a prominent role in the system. The NBNA encourages African American nurses to take the lead in order to make a difference in the quality of life in communities of color.

National Association of Black Social Workers
8436 W. McNichols Street, Detroit, MI 48221
Phone: 313-862-6700 Fax: 313-862-6998

The National Association of Black Social Workers was formed in response to issues related to providing human services in the Black community, educating social workers for effective service in the Black community, and providing opportunities for participation of Black social workers in the social welfare arena.

National Medical Association
1012 10th Street, NW, Washington, DC 20001
Phone: 202-347-1895 Fax: 202-842-3293
Website: http://www.nmanet.org/index.asp

The National Medical Association is committed to preventing the diseases, disabilities and adverse health conditions that disproportionately or differentially impact African American and underserved populations, supporting efforts that improve the quality and availability of health care to poor and underserved populations, and increasing the representation and contribution of African Americans in medicine.

E. American Indian and Alaska Native Health Organizations

National Indian Health Board
1385 S. Colorado Blvd., Suite A707, Denver, CO 80222
Phone: 303-759-3075 Fax: 303-759-3674
Website: 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 National Indian Health Board is a non-profit 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
1235 Sovereign Row, Suite C-9
Oklahoma City, Oklahoma 73108
Phone: 405-946-7072 Fax: 405-946-7651
Website: http://www.aaip@ionet.net

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
1235 Sovereign Row, C-9, Oklahoma City, OK 73108
Phone: 405-946-7072
Website: http://www.aaip.com/student/anams.html

The Association of Native American Medical Students was founded to provide support and resource network for all Native Americans currently 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
P.O. Box 9037, Grand Forks, ND 58202-9037
Phone: 701-777-3037 Fax: 701-777-3277

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.

F. Asian and Pacific Islander Health Organizations

The Asian and Pacific Islander American Health Forum
942 Market Street, Suite 200, San Francisco, CA 94102
Phone: 415-954-9959

The Asian and Pacific Islander American Health Forum is a national advocacy organization dedicated to promoting policy, program and research efforts for the improvement of health status of all Asian and Pacific Islander Americans.

The Association of Asian Pacific Islander Community Health Organizations
1440 Broadway, Suite 510, Oakland CA 94612
Website: http://www.aapcho.org

The Association of Asian Pacific Community Health Organizations is a national association representing community health organizations dedicated to improving the health status of Asians and Pacific Islanders in the United States and its territories, especially the medically under-served.

Chinese American Medical Society
281 Edgewood Avenue, Teaneck, NJ 07666
Phone: 201-833-1506 Fax: 201-833-8252
Website: http://www.camsociety.org

The Chinese American Medical Society is dedicated to promoting the scientific association of medical professionals of Chinese descent, to advancing Chinese medical knowledge and scientific research, to establishing scholarships and endowments to medical and dental students, and to providing endowments to medical schools and hospitals of good standing.

G. Hispanic Health Organizations

National Coalition of Hispanic
Health and Human Services Organizations
1501 Sixteenth Street, NW, Washington, DC 20036
Phone: 202-387-5000 Fax: 202-797-4353
E-mail: info@cossmho.org

The National Coalition of Hispanic Health and Human Services Organizations is dedicated to connecting communities and creating change to improve the health and well-being of Hispanics in the United States, through consumer education and outreach, training programs, policy analysis, development and dissemination, and advocacy.

The National Council of La Raza
1111 19th, NW Suite 1000, Washington, DC 20036
Website: http://www.nclr.org/

The National Council of La Raza, with over 200 formal affiliates who together serve 37 states, Puerto Rico, and the District of Columbia, was established to reduce poverty and discrimination, and improve life opportunities for Hispanic Americans.

National Association of Hispanic Nurses
1501 16th Street, NW, Washington, DC 20006
Phone: 202-387-2477 Fax: 202-483-7183
Website: http://www.incacorp.com/nahn

The National Association of Hispanic Nurses is the only national organization representing Hispanic registered nurses in the United States. Its goal is to increase the leadership development of Hispanic nurses and to improve the quality of health of Latino communities.

National Hispanic Medical Association
1700 17th Street, NW, Suite 405, Washington, DC 20009
Phone: 202-265-4297 Fax: 202-234-5468
Website: http://home.earthlink.net/~nhma/

The National Hispanic Medical Association was organized to address the interests and concerns of 26,000 licensed physicians and 1,800 full-time Hispanic medical faculty dedicated to strengthening health service delivery to Hispanic communities across the nation.

Interamerican College of Physicians and Surgeons
915 Broadway, Suite 1105, New York, NY 10010-7108
Phone: 212-777-3642 Fax: 202-505-7984
Website: http://www.icps.org

The Interamerican College of Physicians and Surgeons was founded to improve the health of the Hispanic community, reduce the incidence of preventable diseases, improve educational and leadership opportunities for Hispanic physicians, and encourage Hispanic youths to pursue careers in the healthcare field.

H. Heart Disease Organizations

American Heart Association, National Center
7272 Greenville Avenue, Dallas, TX 75231
Phone: 1-800-242-8721
Website: 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.

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
Website: http://www.iahf.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.

I. Patient Resources

National Heart, Lung, and Blood Institute
National Institutes of Health, Building 31
31 Center Drive, Bethesda, Maryland 20892
Website: http://www.nhlbi.nih.gov/nhlbi/nhlbi.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
Phone: 1-800-242-8721
Website: http://www.americanheart.org/

The American Heart Association offers resources for heart disease patients regarding health, fitness and dietary guidelines. Information may be obtained via internet, telephone or direct mail.

Centers for Disease Control and Prevention
1600 Clifton Road, Atlanta, GA 30033
Phone: 404-639-7000
Website: http://www.cdc.gov

The Centers for Disease Control and Prevention (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 website provides information about a variety of health topics including women's, cardiovascular, and minority health.

Elizabeth Barnett is Director of the Office for Social Environment and Health Research and Assistant Professor of Community Medicine at West Virginia University. Dr. Barnett received her PhD in epidemiology from the University of North Carolina at Chapel Hill. Her research focuses on racial disparities in health and on the impact of uneven development on geographic inequalities in health.

Michele L. Casper is an epidemiologist in the Cardiovascular Health Branch of the Centers for Disease Control and Prevention. 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.

Joel A. Halverson is Associate Director of the Office for Social Environment and Health Research and Research Instructor in the Department of Community Medicine at West Virginia University, with over 15 years research experience. His current research interests include the interrelationship of health outcomes and socioeconomic change, with an emphasis on industrial restructuring and deindustrialization.

Gregory A. Elmes is Professor of Geography at West Virginia University where he has taught and performed research for 20 years. In addition to the applications of geographic information systems (GIS) to issues related to health and resources, Dr. Elmes is interested in unraveling the complex relationships resulting from the interactions between GIS and society.

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Zainal A. Majeed received his masters degree in geography from West Virginia University. He holds an undergraduate degree in surveying and mapping from a university in Kuala Lumpur, Malaysia. He has 15 years of working experience in the surveying, mapping, GIS and remote sensing areas. He is interested in extending his knowledge and expertise in the application of GIS in the context of management and development.

Amy S. Bloom is a graduate student in Community Medicine at West Virginia University. She is also Research Assistant for the Office of Social and Environmental Health Research, a division of the Department of Community Medicine. Amy Bloom graduated from Haverford College with a degree in philosophy and after completing her Masters in Public Health in December 2000 plans to pursue a doctorate in bioethics.

Shaun Stanley was Web Developer for the Office for Social Environment and Health Research at West Virginia University at the time this work was completed. He received his BA in psychology from West Virginia University. His interests focus on Unix and Windows NT system administration as well as web design and development.