The Current Context

The information and data included in this section are intended to provide a view of the weight of the evidence that supports the experiences and concerns expressed by community and other stakeholders. The information and data are also intended to serve as a resource for individuals and organizations to aid them in shaping policies and driving action to end disparities. The evidence also provides further support for the goals and strategies presented in Section 3.

The literature on disparities is extensive, and a summation of all of the findings is not possible within the scope of this section; instead, only a synthesis of the key trends in health-disparities research is presented here.

The data in this section are reported by generally available race and ethnicity categories. Although race and ethnicity are related concepts, they represent two distinct classifications that are used in collecting population data. Ethnicity is a social grouping of a shared nationality or cultural origin (e.g., Hispanic/Latino and non-Hispanic/Latino). In this document, the term "Hispanic" designates Hispanic/Latino populations of any race, except as noted. Race is rooted in a social-political construct that takes into account social and cultural characteristics as well as some biological distinctions. The definitional distinctions are often nuanced. We also recognize that within racial and ethnic groupings there is variability with regard to culture, history, time in country, and identities. Federal standards designate racial categories as White; African American or Black; Asian; American Indian or Alaskan Native (AI/AN); and Native Hawaiian or Pacific Islander (NHOPI).[11] In this document, the terms "African American" or "Black" are used as they are used in the original data/information source. Data generally do not distinguish among Black immigrants from Sub-Saharan Africa, South America, the Caribbean, or U.S.-born African Americans. If some of these subgroups achieve at higher levels than others, this can mask disparities for the group of Blacks or African Americans as a whole (e.g., for higher education, employment, wealth). Similarly, some sources do not report data by "Asian," "Native Hawaiian," or "Pacific Islander" categories, thus this document also includes data/information for these populations under the term Asian/Pacific Islander (API) when that is all of the information that is categorically available.

For the demographic and other data presented, every attempt has been made to use the most up-to-date and reliable federal data sources. However, the availability of data for comparative purposes always poses a challenge. Often several years may pass between data collection and its availability for public use. Furthermore, due to logistical challenges, there is a persistent insufficiency in sample size, such that statistically significant data often are not available for some populations. This is especially true when

populations are grouped together for data collection purposes. For example, demographic data for Asian Americans, Native Hawaiians, and Pacific Islanders are often collected together. This type of grouping frequently masks and significantly underestimates the disparities that exist for subpopulations.

Underestimates of health status may have significantly adverse health consequences for the populations affected. Whenever awareness of health disparities is compromised due to misleading or unavailable data, there is a corresponding lost opportunity to focus on prevention, health care, research, and other efforts. As a result, the populations affected by inadequate or inaccurate data collection continue to suffer from poor health outcomes. These challenges highlight the ongoing need for widespread collection of accurate demographic data followed by rapid dissemination for evaluative purposes.

The issue of data availability for all populations, using established racial categories, was raised as a key concern by stakeholders who informed the development of this strategy. Although the HHS Data Council Working Group on Racial and Ethnic Data, as well as the Data Work Group of the HHS Initiative to Eliminate Racial and Ethnic Disparities in Health, issued a joint report for improving the collection and use of racial and ethnic data, many recommendations have not been realized.[81]

The information in this section is organized under the following topics, which were raised by the community stakeholders as areas of concern:

1. **Demographics of the United States** — Includes a discussion of the geographic and urban/rural distribution of the U.S. population, as well as information on the populations of Island Areas and on foreign-born populations.

2. **Health disparities by population and geography** — Provides an overview of health and healthcare disparities for particular populations (e.g., racial, ethnic, rural, urban, children, adolescents, people with disabilities, LGBT).

3. **Health disparities by disease or health concern** — Offers a wide-ranging overview of infant, adolescent, maternal, and adult morbidity, disability, and mortality disparities, and highlights selected diseases and conditions where significant disparities are known to exist: cardiovascular disease, cancer, HIV/AIDS, diabetes, chronic lower respiratory diseases, viral hepatitis, chronic liver disease and cirrhosis, kidney disease, arthritis, injury deaths, violence, behavioral health, and oral health.

4. **Determinants of health** — Includes a selected overview of *social determinants* of health (e.g., gender; poverty and socioeconomic status; employment; educational attainment; food

security; housing and transportation; psychological stress; racism; pain management; the health system); *behavioral determinants* of health (e.g., overweight and obesity; exercise; illicit drugs; tobacco; alcohol); *environmental determinants* of health (e.g., blood lead, asthma, workplace environment); and *biological and genetic determinants* of health.

5. **Healthcare workforce** — Provides an overview of issues related to building a diverse workforce.

DEMOGRAPHICS OF THE UNITED STATES

Understanding the demographics and geographic distribution of population groups in the United States is important in planning for varying health needs in different parts of the country. While it is not possible to include information on all groups of interest, selected population data are provided below.

Geographic Distribution

As shown in Exhibit 2-1 for 2008 data, Whites comprise about 80 percent of the population in all regions of the country.[a] African Americans are about 13 percent of the population nationally but are more highly represented in the South and less so in the West. American Indians and Alaskan Natives are 1 percent of the U.S. population and are only slightly more represented in the West. Asians comprise about 4.5 percent of the national population, with the majority residing in the Western region. Native Hawaiians and Pacific Islanders comprise less than 0.2 percent of the populace throughout the country, but are slightly more represented in the West. Multiracial individuals comprise approximately 2 percent of the population across geographic regions. Approximately 15 percent of the country is Hispanic and proportions vary considerably by geographic location with the highest percentage in the West. The Census Bureau projects that over the next 40 years, the American population will be older and more diverse.[82]

Census 2000 data also indicates that two groups — Blacks, and American Indians and Alaskan Natives — had the highest overall estimated disability rate (24.3 percent). The distribution of people with disabilities is highest in the South (38.3 percent) and lowest in the Northeast region of the country (19.0 percent).[83]

In 2005, the South had the largest number of older Americans followed by the Midwest, Northeast, and West.[84] There are more older female adults than older male adults.[85] The geographic distribution of older adults and larger number of older women pose important social, economic, health, and other considerations as the American population ages. Exhibit A-1 in Appendix A provides additional demographic information.

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[a] U.S. census Bureau's geographic regional designations: Northeast, Midwest, South, West. These designations are not equivalent to the 10 HHS health region designations.

Exhibit 2 1: Geographical Distribution of United States Population by Race/Ethnicity, 2008 Population numbers and percentage of total population					
	U.S.	Northeast[b]	Midwest[c]	South[d]	West[e]
Gender					
Male	149,924,604 (49.31%)	26,740,485 (48.69%)	32,797,335 (49.27%)	54,885,816 (49.13%)	35,500,968 (50.10%)
Female	154,135,120 (50.69%)	28,184,294 (51.31%)	33,764,113 (50.73%)	56,832,733 (50.87%)	35,353,980 (49.90%)
Total [a]	*304,059,724 (100%)*	*54,924,779 (100%)*	*66,561,448 (100%)*	*111,718,549 (100%)*	*70,854,948 (100%)*
Race					
White	242,639,242 (79.80%)	44,152,158 (80.39%)	56,638,126 (85.09%)	84,690,175 (75.81%)	57,158,783 (80.67%)
Black	39,058,834 (12.85%)	6,880,762 (12.53%)	6,913,392 (10.39%)	21,609,392 (19.34%)	3,655,288 (5.17%)
AI/AN	3,083,434 (1.01%)	222,957 (0.41%)	471,590 (0.71%)	920,694 (0.82%)	1,468,193 (2.07%)
Asian	13,549,064 (4.46%)	2,852,517 (5.19%)	1,600,194 (2.40%)	2,837,889 (2.54%)	6,258,464 (8.83%)
NHOPI	562,121 (0.19%)	45,196 (0.08%)	36,815 (0.06%)	96,447 (0.09%)	383,663 (0.54%)
Two or more races	5,167,029 (1.70%)	771,189 (1.40%)	901,331 (1.35%)	1,563,952 (1.40%)	1,930,557 (2.73%)
Total [a]	*304,059,724 (100%)*	*54,924,779 (100%)*	*66,561,448 (100%)*	*111,718,549 (100%)*	*70,854,948 (100%)*
Ethnicity					
Not Hispanic/Latino	257,116,111 (84.56%)	48,503,638 (88.31%)	62,297,470 (93.59%)	95,198,450 (85.21%)	51,116,553 (72.14%)
Hispanic/Latino	46,943,613 (15.44%)	6,421,141 (11.69%)	4,263,978 (6.41%)	16,520,099 (14.79%)	19,738,395 (27.86%)
Total [a]	*304,059,724 (100%)*	*54,924,779 (100%)*	*66,561,448 (100%)*	*111,718,549 (100%)*	*70,854,948 (100%)*

Source: U.S. Census Bureau, FactFinder, Data Sets, Annual Population Estimates, 2008 Population Estimates, Detailed Tables T3-2008, T4-2008, T-8-2008 by region. Geographical areas are U.S. Census designations. The U.S. Census Bureau includes only states data under the geographical areas shown here. District of Columbia and U.S. Island Areas are not included.

[a] Percentages may not sum to 100% due to rounding effects.

[b] The Northeast region includes: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania.

[c] The Midwest region includes: Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

[d] The South region includes: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas.

[e] The West region includes: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington.

http://factfinder.census.gov/

Urban and Rural Populations

Awareness of the urban and rural distribution of an area's residents is important for understanding health needs, access to resources, and factors that influence health. Exhibit 2-2 shows that 40 percent of American Indians and Alaskan Natives and 27 percent of Whites reside in rural areas. In contrast, Asians, Hispanics, Native Hawaiians and Pacific Islanders, and Blacks are more likely to reside in urban areas. Exhibits A-2 and A-3 in Appendix A display additional information about population density and urban/rural distribution in the U.S. Census geographic regions.

Exhibit 2 2: United States Urban/Rural Populations, 2006 2008

Race/Ethnicity	Percentage of each population	
	Urban	Rural
All	*77.1*	*22.9*
White	73.2	26.8
Black	88.2	11.8
AI/AN	59.8	40.2
Asian	92.9	7.1
NHOPI	89.9	10.1
Two or more races	82.4	17.6
Hispanic	90.8	9.2

Source: U.S. Census Bureau, Factfinder, Datasets. IN: 2006-2008 American Community Survey 3-Year Estimates, Detailed Tables B02001and B03002, United States. AI/AN=American Indian & Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander.
http://factfinder.census.gov/

Island Areas

Puerto Rico, the U.S. Virgin Islands, the Pacific Jurisdictions (American Samoa, Commonwealth of the Northern Mariana Islands, and Guam), and the Freely Associated States (Federated States of Micronesia, Republic of the Marshall Islands, and Republic of Palau) include nearly 4.6 million people of which 87 percent reside in Puerto Rico. Collectively the Pacific Jurisdictions and the Freely Associated States are home to nearly 490,000 people, have fewer total residents than Wyoming (the least populated state), and extend across an ocean area that is larger than the continental United States.[86] The U.S. Virgin Islands has a resident population that is similar in number to islands in the Pacific Jurisdictions.

Life expectancy and infant mortality differ for Puerto Rico, the U.S. Virgin Islands, Pacific Jurisdictions, and the Freely Associated States. For example, the infant mortality rate for the U.S. Virgin Islands and Puerto Rico is 1.3 times that of the U.S. rate. For the Freely Associated States, the infant mortality rate ranges from two to four times the U.S. rate. In 2008, people in the three Freely Associated States also had a shorter life expectancy than people in the U.S. (Exhibit 2-3).

Exhibit 2 3: Demographic Indicators for United States Island Areas, 2009							
Demographic Indicators	**American Samoa**	**CNMI**	**Guam**	**FSM**	**RMI**	**Republic of Palau**	**United States**
Population							
Population (in thousands)	65	51	178	107	65	21	307,212
Population growth rate (percent)	1.2	-7.1	1.4	-0.2	2.1	0.4	1
Net migration rate[a] (per 1,000 population)	-7	-90	0	-21	-5	1	4
Fertility rate[b] (births per woman)	3.3	2.2	2.5	2.9	3.6	1.8	2.1
Mortality							
Life expectancy at birth (years)	74	77	78	71	71	71	78
Infant mortality rate[c] (per 1,000 births)	10	6	6	26	25	13	6
Child mortality rate[d] (per 1,000 births)	13	8	7	32	31	16	8
Death rate (per 1,000 population)	4	3	5	4	4	8	8

Source: U.S. Census Bureau, International Data Base, data access by country, 2009. United States territories are: American Samoa; Commonwealth of the Northern Mariana Islands (CNMI); Guam; Puerto Rico; U.S. Virgin Islands. Freely Associated States are: Federated States of Micronesia (FSM); Republic of the Marshall Islands (RMI); Republic of Palau.

[a] "The difference between the number of migrants entering and those leaving a country in a year, per 1,000 midyear population. A positive figure is known as a net immigration rate and a negative figure as a net emigration rate."

[b] "The average number of children that would be born per woman if all women lived to the end of their childbearing years and bore children according to a given set of age-specific fertility rates."

[c] Under age one.

[d] Under age five.

http://www.census.gov/ipc/www/idb/informationGateway.php

Foreign-Born Populations

Understanding the characteristics of foreign-born individuals in the United States provides an opportunity to assess and plan for cultural, language, and other factors that influence health and well-being. Overall, 12.5 percent of the U.S. population is foreign born. The largest percentage of the foreign-born population is from Latin America, followed by Asia and Europe. Slightly more than half (52 percent) of the foreign-born population speaks English less than "very well."[87] HHS divides the country into 10 regions. The highest concentration of foreign-born persons is in Region IX (24.8 percent consisting of Arizona, California, Hawaii, Nevada, and the U.S. Associated Pacific Basin) while the lowest concentration is in Region X (10.4 percent) consisting of Alaska, Idaho, Oregon, and Washington (Exhibits A-4 and A-5 in Appendix A).

HEALTH AND HEALTHCARE DISPARITIES BY POPULATION AND GEOGRAPHY

Healthcare Disparities Reporting

This subsection provides a brief overview of health and healthcare disparities, organizing them with reference to particular populations. In so doing, this subsection complements the one that follows, which organizes disparities by particular diseases or health concerns. We will begin with a brief discussion of current healthcare disparity reporting for at-risk populations. The remainder of the subsection provides brief summaries that spotlight disparities for racial and ethnic populations, rural and urban populations, children and adolescents, people with disabilities, and LGBT populations.

AHRQ tracks healthcare disparities and information pertinent to improving them in its annual National Healthcare Disparities Report (NHDR)[38] and National Healthcare Quality Report (NHQR).[13] AHRQ also monitors clinical performance (how well providers deliver needed services); patient assessments (how well providers meet healthcare needs from the patient's perspective); and health outcomes (benefits or detriments of the care delivered and its quality). The following are key examples of treatment disparities as reported in the 2009 NHDR.[38]

- In 2006, Blacks, Asians, and Hispanics were more likely to report poor communication with their health provider than were Whites.
- In 2006, Hispanic adults were less likely to receive advice from a health provider to quit smoking compared with non-Hispanic White adults.
- In 2006, the percentage of obese adults who received advice from a health provider about eating fewer high-fat or high-cholesterol foods was significantly lower for Blacks than for Whites and Hispanics compared to non-Hispanic Whites.
- From 2000 to 2007, the percentage of nursing home residents who were physically restrained was higher for Hispanics than for Whites.
- In 2008, the percentage of hospice patients whose families reported that they did not receive the right amount of medication for pain was significantly higher for Hispanics, Blacks, and American Indians and Alaskan Natives than for Whites.

- In 2007, the percentage of appropriately timed antibiotics provided to surgery patients was lower for Blacks, Asians, American Indians and Alaskan Natives, and Hispanics than for Whites.

- Between 2005 and 2007, Hispanic and American Indians and Alaskan Native adult patients with heart failure were less likely than their White counterparts to receive complete written discharge instructions.

AHRQ reports for different time periods also shown that healthcare disparities experienced by Blacks, Asians, Hispanics, American Indians and Alaskan Natives, and poor Americans have stayed the same or worsened.[9]

Racial and Ethnic Populations

There are many disparities that affect racial and ethnic populations in the United States. These and other disparities will be discussed in more detail in the "Health Disparities by Disease or Health Concern" subsection.

American Indian and Alaskan Native Population

American Indians and Alaskan Natives, for instance, suffer from higher rates of mortality due to diabetes, unintentional injury, and motor vehicle crash deaths. Various sources note that mortality rates for American Indian and Alaskan Native populations have been underestimated due to the miscoding of race on death certificates.[88]. Data comparing adjusted mortality rates for American Indians and Alaskan Natives from 2002–2003 to mortality rates of all U.S. races in 2003 reveals much higher disparities than are otherwise evident (Exhibit 2-16). By this analysis, tuberculosis deaths are nearly nine-fold and alcohol-induced deaths are nearly seven-fold for American Indians and Alaskan Natives compared to the general U.S. population. Cervical cancer, homicide, and suicide deaths are about two-fold higher for American Indians and Alaskan Natives compared to the general U.S. population.

Exhibit 2 4: Indian Health Service Mortality Disparity Table
American Indian and Alaskan Natives (AI/AN) in the IHS Service Area, 2004 2006 and 1996 1998
U.S. All Races, 2005 and 1997

Cause of Death	Rate: AI/AN 2004 2006	Rate: U.S. All Races 2005	Ratio: AI/AN 2004 2006 U.S. All Races 2005	Rate: AI/AN 1996 1998	Rate: U.S. All Races 1997	Ratio: AI/AN 1996 1998 U.S. All Races 1997
All Causes	*980.0*	*798.8*	*1.2*	*1,071.7*	*877.7*	*1.2*
Alcohol Induced[1]	43.0	7.0	6.1	45.0	4.0	11.3
Breast Cancer	21.0	24.1	0.9	19.8	28.9	0.7
Cerebrovascular Disease	46.6	16.6	2.8	62.7	61.1	1.0
Cervical Cancer	3.3	2.4	1.4	5.2	3.2	1.6
Diabetes	68.1	24.6	2.8	77.1	23.7	3.3
Diseases of the Heart	206.2	211.1	1.0	271.5	277.7	1.0
HIV Infection[2]	3.0	4.2	0.7	3.3	6.0	0.6
Homicide (Assault)	11.7	6.1	1.9	12.6	7.0	1.8
Infant Deaths[3]	8.0	6.9	1.2	8.9	7.2	1.2
Malignant Neoplasm (All)	176.2	183.8	1.0	187.0	203.5	0.9
Maternal Deaths[4]	16.9	15.1	1.1	8.0	8.4	1.0
Motor Vehicle Crashes	46.7	15.2	3.1	43.2	15.9	2.7
Pneumonia & Influenza	27.1	20.3	1.3	31.3	33.3	0.9
Suicide (Intentional Self harm)	19.8	10.9	1.8	17.9	11.2	1.6
Tuberculosis	1.2	0.2	6.0	2.0	0.4	5.0
Unintentional Injuries[5]	93.8	39.1	2.4	97.1	35.8	2.7

[1] Rate of alcohol-induced deaths is for the 1979-1981 three-year period. The U.S. all-races rate is for 1980.
[2] HIV was first classified in 1987. Rate of HIV is for the 1987-1989 three-year period. The U.S. all-races rate is for 1988.
[3] Per 1,000 live births.
[4] Rate per 100,000 live births. Rate does not meet the standards of reliability due to small numbers. The break in comparability for maternal mortality has not been quantified by NCHS.
[5] Unintentional injuries include motor vehicle crashes.
Note: ICD-10 codes were introduced in 1999. Comparability ratios have been applied to the 1996-1998 age-adjusted rates.
The 1997 U.S. all-races rates have been age-adjusted to the 2000 standard population. Comparability ratios have been applied.
American Indian and Alaskan Native (AI/AN) age-adjusted rates are adjusted to compensate for misreporting of AI/AN race on state death certificates.
Source: Unpublished data: OPHS/Division of Program Statistics (1996-1998 and 2004-2006 AI/AN rates based on 2000 census with bridged-race categories).
Ratio between American Indian and Alaskan Native (AI/AN) and U.S. all-races rate.
Date: JANUARY, 2011

Exhibit 2-5 provides an overview snapshot of some of the health and healthcare disparities for racial and ethnic populations.

Exhibit 2 5: A Snapshot of Disparities in Health and Health Care, 2004 2009

Population	Year	Disparity
African Americans	2007–2009	Influenza vaccination rate for adults 65 and older was 53.4% compared to 68.3% for Whites.[1]
	2004–2006	Infant mortality rates were 2.3 times higher than for White infants.[2]
	2005–2007	Compared to Whites, mortality rates were:[3] • 2.1 times higher for diabetes mellitus • 2.2 times higher for prostate cancer • 6.0 times higher for homicide • 8.8 times higher for HIV
	2009	Compared to Whites, there were: • 2.0 times more hospital admissions for diabetes-related lower extremity amputations[4] • 1.8 times more new AIDS cases[5] • 1.4 times as many women who did not receive prenatal care in the first trimester[6]
American Indians and Alaskan Natives	2004–2006	Infant mortality rates were 1.5 times higher than for White infants.[7]
	2005–2007	Compared to Whites, mortality rates were:[8] • 1.8 times higher for diabetes mellitus • 1.8 times higher for homicide • 2.6 times higher for chronic liver disease and cirrhosis Compared to Whites, mortality rates were:[9] • 1.6 times higher for motor vehicle-related injuries
	2009	The number of women who did not receive prenatal care in the first trimester decreased; it is now 0.1% higher than for Whites.[10]
	2007	AI/AN were twice as likely to contract Hepatitis C as compared to Whites.[11]
Asians, Native Hawaiian and Pacific Islanders	2004–2006	Infant mortality rates were 1.7 times higher for Hawaiians than for White infants.[12]
	2005–2007	Major cardiovascular disease was the number one cause of death for Asian Americans and Pacific Islanders.[13]
	2007	Asian Americans were 1.6 times more likely to contract Hepatitis A as compared to Whites.[14]
	2009	Compared to Whites, Asians were: • 1.2 times more likely not to have had a doctor's office or clinic visit in the last 12 months where health providers listened carefully, explained things clearly, respected what they had to say, and spent enough time with them[15]
Hispanics/ Latinos	2007–2009	Influenza vaccination rate for older adults was 55.0% compared to 68.3% for non-Hispanic Whites.[16]
	2005–2007	Compared to Whites, mortality rates were:[17] • 1.5 times higher for chronic liver disease and cirrhosis • 1.4 times higher for diabetes mellitus • 2.0 times higher for homicide • 2.1 times higher for HIV
	2009	Compared to non-Hispanic Whites: • The number of women who did not receive prenatal care in the first trimester decreased; it is now 0.1% higher than for Whites[18] • There were 3.3 times more new AIDS cases per 100,000 of the population age 13 and over[19]

Exhibit 2-5 (cont'd)

1. Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Vaccinations for influenza and pneumonia, ages 1+: US, 1993-2009 (Source: NHIS). www.cdc.gov/nchs/hdi.htm
2. Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Infant mortality by cause: US/State 2001-2006 (Source: NVSS). www.cdc.gov/nchs/hdi.htm
3. Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality by underlying cause, ages 18+: US, 1981-2007 (Source: NVSS). www.cdc.gov/nchs/hdi.htm
4. Agency for Healthcare Research and Quality. National Healthcare Disparities Report, 2010, H-13. http://www.ahrq.gov/qual/nhdr10/nhdr10.pdf
5. Centers for Disease Control and Prevention. Topics: Statistics and Surveillance. AIDS diagnoses by race/ethnicity, 2009. http://www.cdc.gov/hiv/topics/surveillance/basic.htm#aidsrace
6. Centers for Disease Control and Prevention. Pregnancy Nutrition Surveillance System, 2009. Table 10D: Maternal behavioral indicators by race/ethnicity, age, or education. http://www.cdc.gov/PEDNSS/pnss_tables/pdf/national_table10.pdf
7. Centers for Disease Control and Prevention, *op. cit.,* note 2.
8. Centers for Disease Control and Prevention, *op. cit.,* note 3.
9. Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Injury mortality: US/State, 1999-2007 (Source: NVSS). www.cdc.gov/nchs/hdi.htm
10. Centers for Disease Control and Prevention, *op. cit.,* note 6.
11. U.S. Department of Health and Human Services. Office of Minority Health. Data and Statistics: Hepatitis. http://minorityhealth.hhs.gov/templates/content.aspx?lvl=3&lvlid=541&ID=6494
12. Centers for Disease Control and Prevention, *op. cit.,* note 2.
13. Centers for Disease Control and Prevention, *op. cit.,* note 3.
14. U.S. Department of Health and Human Services, *op. cit.,*, note 11.
15. Agency for Healthcare Research and Quality, *op. cit.,* note 4.
16. Centers for Disease Control and Prevention, *op. cit.,* note 1.
17. Centers for Disease Control and Prevention,*op. cit.,* note 3.
18. Centers for Disease Control and Prevention, *op. cit.,* note 6.
19. Agency for Healthcare Research and Quality, *op. cit.,* note 4.

Geographic Variations

Generally, rural and urban areas have significantly different health-related concerns, health risks, and healthcare resources. For example, rural residents are more likely to be elderly, poor, and in only fair or poor health. They are also more likely to have chronic health conditions compared to their urban counterparts.[89] Among other factors, urban populations have higher rates of specific health concerns (e.g., asthma, lead poisoning) that contribute to disparities between populations.

Children and Adolescents

Children and adolescents are particularly vulnerable segments of our population and experience significant health disparities. For example, AHRQ reported that:[90]

- Children from poor families and near-poor families were less likely to receive all recommended vaccines in 2007 than were children from high-income families.

- Uninsured children and children with public insurance were less likely to have a "usual source of care" than were children with private insurance.
- Black children were more likely to be admitted to the hospital for asthma than were other children.
- Less than 40 percent of children ages 12-17 who had a major depressive episode in 2007 received treatment.
- Children who are younger, uninsured, or who live in a household where English is not the primary language were less likely than their counterparts to have had a dental visit.

In addition, adolescents and young adults are particularly at risk for injury deaths compared to other ages. As discussed later in this section, unintentional injury, homicide, and suicide are more common in this demographic. Further, disparities and particular risks exist for children and adolescents in many areas including behavioral health, violence, blood-lead levels, asthma, and use of illicit drugs, tobacco, and alcohol.

A stable home environment is an important component for the health and well-being of young people. Two-parent, married families as well as engaged fathers can provide a strong basis for raising children and adolescents.[91, 92]

People with Disabilities

In recent years, new attention has been given to the health and healthcare disparities experienced by persons with disabilities. As one measure of disability, more than 20 percent of the adult population in the United States self report as having limitations in their activities due to physical or emotional problems — with even higher percentages for some racial groups and for less-educated or lower-income individuals. Among the central challenges for underserved populations are the limited availability of data (especially for children with disabilities) and the varied approaches to measuring and defining disability. AHRQ measures disability as limitations in basic activities (mobility and basic functioning) and/or complex activities (interactions with one's environment and/or community life).[38]

Examples of important health-related concerns that people with disabilities might encounter include:

- The inability to read the list of available healthcare providers on a website because the data are coded in such a fashion that it is not compatible with a screen reader used by some people with disabilities
- The inability to create a personal health record using readily available commercial, off-the-shelf software because the software is not usable by someone dependent on assistive technology

- The inability to understand what is said on a video playing in a medical or dental office waiting area because it is not captioned for people who are deaf

- The inability by someone with a hearing loss to use a telephone provided at a hospital bedside because the receiver is not hearing-aid compatible

Lesbian, Gay, Bisexual, and Transgender Populations

Healthy People 2010's companion document on Lesbian, Gay, Bisexual, and Transgender Populations (LGBT) health increased recognition of the specific issues facing LGBT populations.[93] The report identified key health concerns including access to quality care, HIV/AIDS, and barriers to conducting research. Although there is a paucity of national data, more than a decade of research indicates LGBT populations experience health and healthcare disparities. Findings include:

- LGBT sexual orientation and gender have been associated with elevated rates of alcohol consumption, tobacco use, and substance abuse.[34, 94, 95, 96, 97]

- LGBT, especially youth, experience high levels of mental disorders such as anxiety, depression, and suicidal thoughts. LGBT youth are at high risk for suicide attempts and completions.[98]

- Women in the LGBT community receive routine preventive breast cancer and Pap smear screening less frequently despite evidence showing their risk of developing breast and cervical cancer.[35, 99]

In 2010, the Institute of Medicine (IOM) began efforts to assess the state of the science on health status of LGBT populations. The upcoming report will also identify research gaps and opportunities; consider training needs for improved research; and outline an agenda to help strengthen future research.[36]

HEALTH DISPARITIES BY DISEASE OR HEALTH CONCERN

This subsection provides brief summaries of generally well-known health and healthcare disparities in the United States, some of which were shared by the community stakeholders who participated in the regional meetings that were discussed in Section 1. The amount and availability of data for different populations varies considerably. The disparities described below should be considered in light of the determinants of health, which are presented later in this section.

Infant and Maternal Mortality

Disparities in infant mortality rates are particularly egregious, putting the United States at the bottom of developed countries in this regard. African American infants are especially at risk for death in the first year of life with mortality rates that range from two times to more than three times that of White infants — resulting from diseases of the circulatory system, pneumonia, maternal complications, prematurity and low birthweight, Sudden Infant Death Syndrome (SIDS), unintentional injury, and homicide (Exhibit 2-6).

Exhibit 2 6: United States Infant Mortality Rate by Race and Ethnicity, 2004 2006
Mortality rate per 100,000 live births

Cause of Death	*All*	White	Black	AI/AN	API	Hispanic
Diseases of the circulatory system	*13.2*	10.9	24.5	15.6	13.3	10.2
Pneumonia	*5.9*	4.6	12.8	17.1	3.7	4.4
Maternal complications of pregnancy	*41.2*	31.4	96.9	23.6	27.7	28.4
Prematurity and low birthweight	*113.1*	81.0	291.6	88.6	76.5	87.4
Birth defects	*136.3*	131.6	167.9	171.7	108.4	139.9
Sudden Infant Death Syndrome (SIDS)	*54.4*	47.0	99.6	110.6	23.5	27.6
Unintentional injury	*26.2*	22.7	47.1	59.3	12.0	15.8
Homicide	*7.5*	6.3	14.1	17.8	3.6	6.6
All causes	*677.1*	*565.2*	*1,312.8*	*825.8*	*470.0*	*552.2*

Source: Centers for Disease and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expenctancy. Infant mortality by cause, US/state, 2001–2006 (source: NVSS). Data for 2004 presented here. Data are for infants ages 0-365 days.
AI/AN=American Indian & Alaskan Native; API=Asian & Pacific Islander.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011

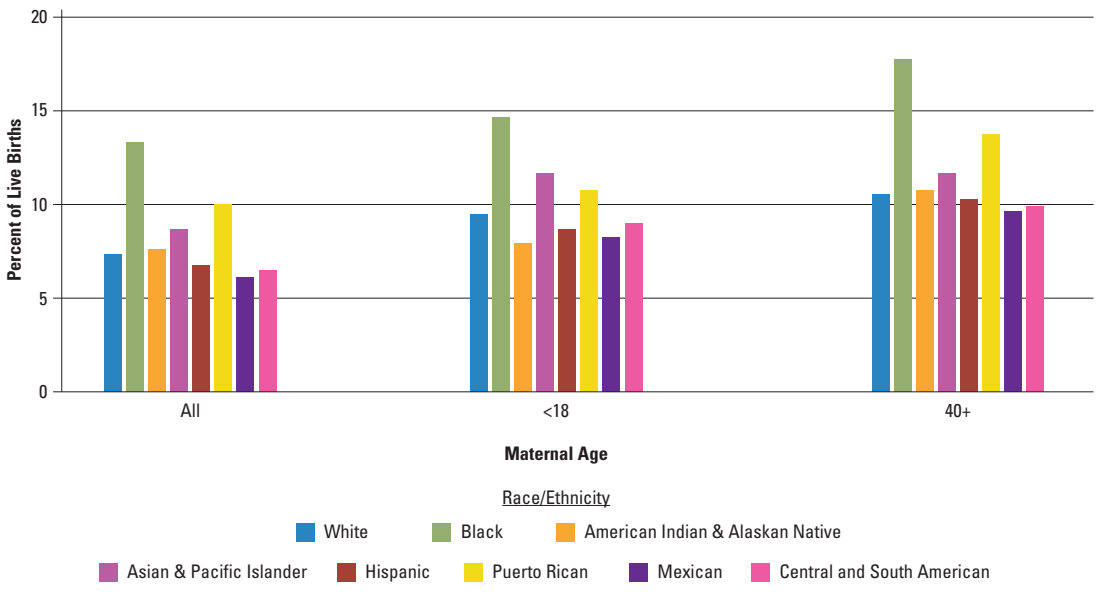
Similarly, American Indian and Alaskan Native infants die at two to three times the rate of White infants from SIDS, unintentional injury, and homicide — and more than 4.5 times that of White infants from pneumonia. Infant mortality rates for the Federated States of Micronesia, Republic of the Marshall Islands, Palau, and American Samoa are also higher than the rate for the United States (see Exhibit 2-3).

The maternal mortality rate has increased in the past few decades after dramatic declines from the early 20th century. Some of the apparent increase may reflect coding and classification of maternal deaths. However, in 2006 there were 13.3 deaths per 100,000 live births, which represents an increase from a low of 6.6 deaths per 100,000 live births in 1987. The rate for non-Hispanic Black women was more than three

times that of non-Hispanic White women. The risk of maternal death increases with age for all racial and ethnic women. In 2006, the maternal mortality rate of women aged 35 years and over was nearly six times the rate of women under 20 years of age.[100]

Prematurity and low birthweight are a primary cause of infant deaths in the United States; one in eight infants are born prematurely each year.[101] Infants who are 2,500 grams or less at birth (low birthweight) are also at increased risk for poor health outcomes and disabilities (e.g., mental retardation, learning problems, hearing and vision loss).[102] While advanced maternal age is associated with increased low birthweight for all racial and ethnic groups, it is an even higher risk for African Americans and Puerto Ricans.[103] Exhibit 2-7 shows the risk of low birthweight among women by age and race and ethnicity.

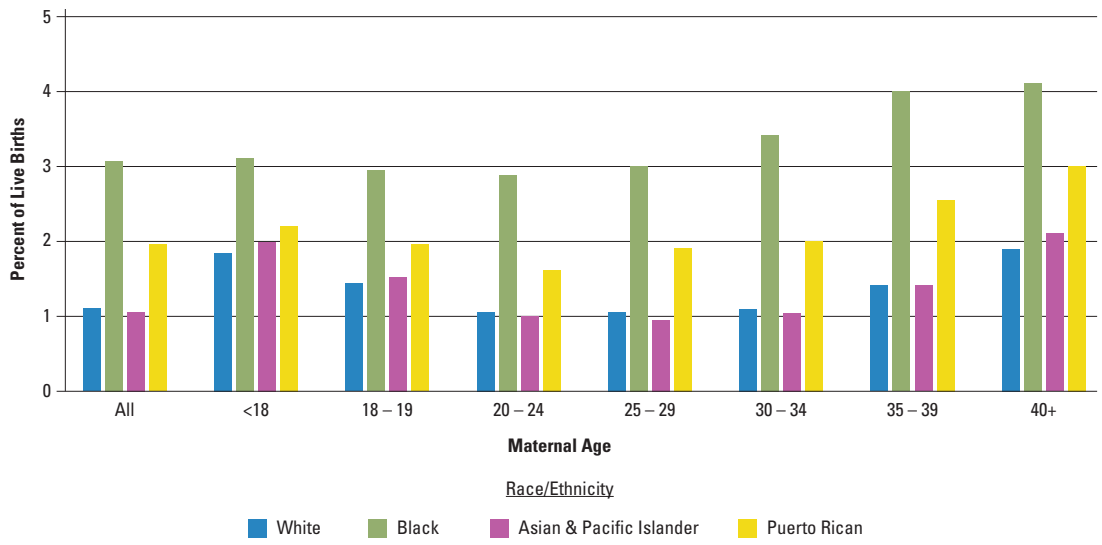
Exhibit 2-7: Low Birthweight by Maternal Age, United States, 2005 2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Pregnancy and birth. Low birthweight, US/state, 1996-2007 (source: NVSS). Data for 2005-2007 presented here. Data are for maternal ages indicated.
Low birthweight=less than 2500 grams.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Very low birthweight infants (weighing less than 1500 grams at birth) are approximately 100 times more likely to die compared to those who are born with a normal weight.[104] Low birthweight infants are more likely to be born among non-Hispanic Blacks and Puerto Rican mothers. Further, low birthweight is high for younger women, declines to its lowest levels at ages 20-24, and then continually increases to the highest levels for mothers ages 40 and older. This pattern as it relates to maternal age is similar for all racial and ethnic women (Exhibit 2-8).

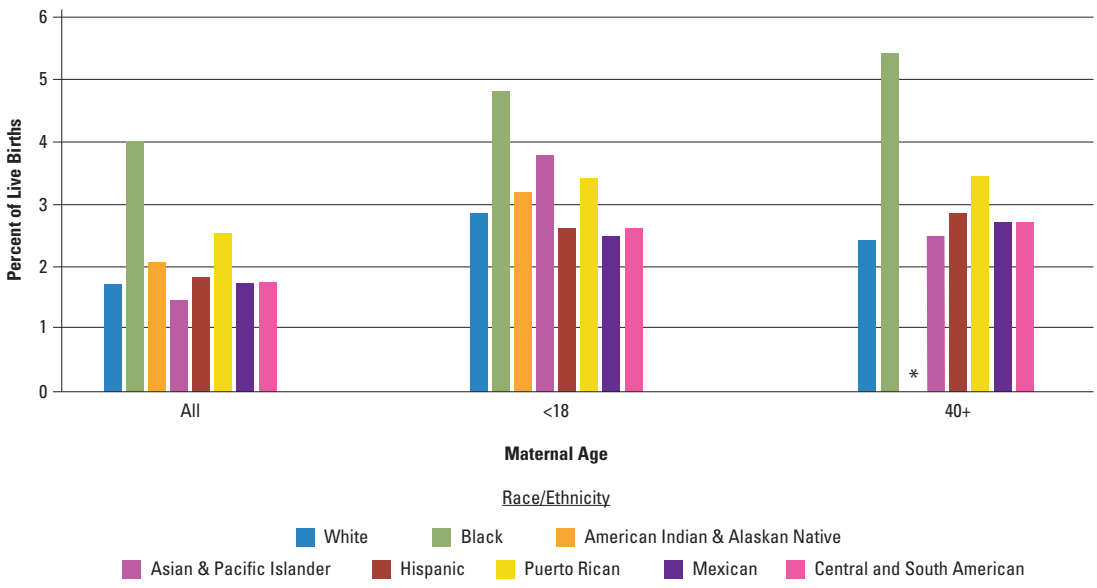
Exhibit 2 8: Very Low Birthweight by Maternal Age, United States, 2005 2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Pregnancy and birth. Low birthweight, US/state, 1996-2007 (source: NVSS). Data for 2005-2007 presented here. Data are for maternal ages indicated.
Very low birthweight=less than 1500 grams.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Preterm-related deaths account for more than one-third of all deaths during the first year of life and have a dramatic effect on the status of infant health in the United States.[105] For women less than 18 years of age, very preterm births (infants less than 32 weeks gestation) are highest for Black, Asian and Pacific Islander, and Puerto Rican women. By age 40 or older, rates of very preterm births are up to 2.4-fold higher for Black women compared to women of other races (Exhibit 2-9).

Exhibit 2-9: Very Preterm Birth by Maternal Age, United States, 2005 2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Pregnancy and birth. Preterm birth, US/state, 1996-2007 (source: NVSS). Data for 2005-2007 presented here. Data are for maternal ages indicated.
Very preterm=gestational age less than 32 weeks.
*Data not available.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Adult Disability, Morbidity, and Mortality

Some of the leading causes of death in the United States include cardiovascular disease, cancer, HIV/AIDS, diabetes, chronic lower-respiratory disease, chronic liver disease and cirrhosis, Hepatitis B and C, kidney disease, and injury deaths. A discussion of disparities follows for specific diseases and conditions. Exhibit 2-10 provides a snapshot of mortality rates for these diseases.

Exhibit 2 10: United States Adult Mortality Rates by Race and Ethnicity, 2005 2007
Mortality rate per 100,000 population

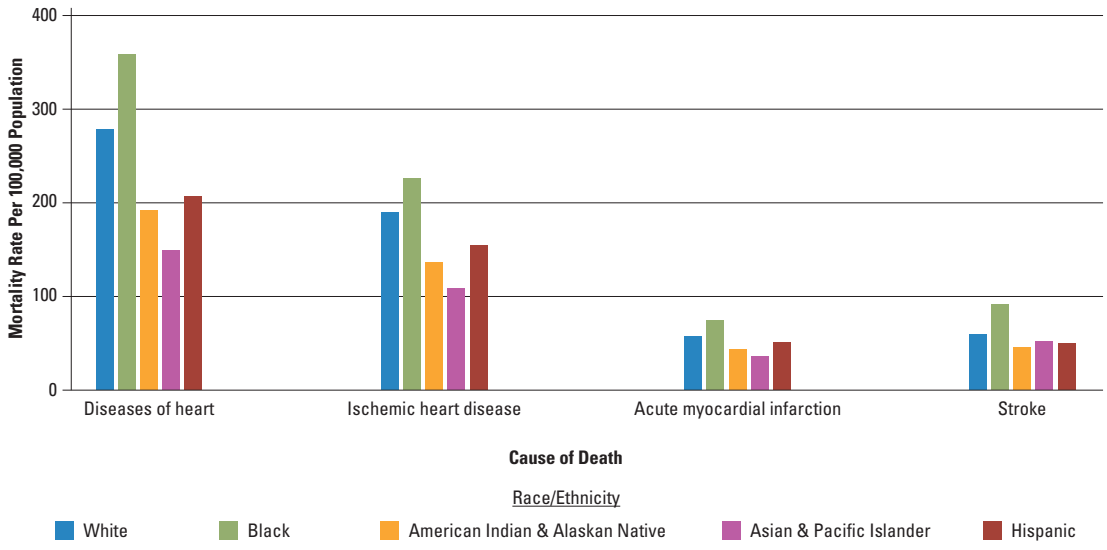
Cause of Death	*All*	White	Black	AI/AN	API	Hispanic
Diseases of heart	*269.9*	265.6	347.9	182.9	144.2	195.5
Cancer	*243.0*	241.7	293.6	161.5	144.3	159.1
Trachea, bronchus, and lung	*69.5*	70.3	76.6	44.1	34.1	28.7
Colon, rectum, and anus	*23.1*	22.5	32.6	15.6	14.7	16.7
Prostate	*12.5*	11.6	25.1	8.4	5.5	9.8
Breast	*17.7*	17.2	25.4	10.1	8.8	10.9
Chronic lower respiratory diseases	*55.8*	58.8	38.6	39.2	19.1	24.2
Influenza and pneumonia	*24.1*	24.0	26.4	21.3	19.5	19.9
Chronic liver disease and cirrhosis	*12.0*	12.5	9.9	31.2	4.6	18.4
Diabetes mellitus	*31.6*	28.8	60.5	53.2	21.8	41.3
HIV	*5.3*	2.8	24.7	3.4	0.7	5.9
Unintentional injuries	*49.6*	51.4	46.7	68.4	21.2	38.4
Suicide	*14.4*	15.9	6.6	14.3	7.3	7.2
Homicide	*7.3*	4.4	26.2	8.5	3.1	8.6
All causes	*1,027.9*	*1,014.3*	*1,293.2*	*840.5*	*561.7*	*743.5*

Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18 and over, US/state, 1999-2007 (source: NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for AI/AN, API, and Hispanic populations may be underestimated.
HIV=human immunodeficiency virus; AI/AN=American Indian & Alaskan Native; API=Asian & Pacific Islander
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Cardiovascular Disease

Heart disease is the leading cause of death for people of most racial and ethnic groups in the United States[106] and the overall adult mortality rate from this disease is high (Exhibit 2-11). Both Whites and Blacks have high levels of heart disease compared to the other populations shown, although Blacks have rates that are 31 percent higher than Whites.[107, 108] Stroke is the third leading cause of death in the United States and the cause of significant disabilities for nearly 1.1 million people in 2005.[109] Blacks and Whites have higher mortality rates for stroke than do other racial or ethnic groups.

Exhibit 2-11: United States Adult Mortality Rates for Cardiovascular Diseases, 2005–2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18+, US/state, 1999-2007 (source: NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic populations may be underestimated.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Disparities by geography and socioeconomic status (SES) are typical of both heart disease and stroke. People living in the southeastern United States having less than a high school education and earning less than $15,000 per year are more likely to die of heart disease or suffer from stroke compared to the rest of the country[109, 110] (Exhibits A-6 and A-7 in Appendix A).

Cancer

Cancer has a disproportionately adverse affect on certain racial and ethnic populations, individuals of low SES, and in specific geographic areas.[111, 112] For example, incidence of deaths from cervical cancer and lung cancer are higher in some of the southern and adjacent states. The incidence of death from ovarian cancer is higher in some of the northern mountain and northern central states. Additionally, cancer is the number one killer of Asian and Pacific Islander populations (while heart disease is the leading cause of death for all other racial and ethnic populations). A summary follows of the mortality rates for certain type of cancers and of the populations with the highest disparities (see also Exhibits 2-12 and 2-13):

- Lung cancer is the most common cause of cancer-related death in men and women. Incidence and mortality rates have dropped for men in the past decade, but not for women.[113] African Americans and Whites have the highest mortality rates from lung cancer.

- Breast cancer is the second leading cause of cancer mortality in women. Although the overall breast cancer death rate has dropped steadily, the gap between African Americans and Whites is wider than it was in the 1990s.[114] African Americans have the highest mortality rate from breast cancer.

- Prostate cancer is the second leading cause of cancer mortality in men. Although incidence and mortality have been declining for most populations since the early 1990s, the gap between African Americans and other races and ethnicities has remained large.[115] African American men have the highest mortality rates from prostate cancer.

- Cancers of the colon and rectum (colorectal cancer) are the third leading cause of cancer-related mortality in men and women. Colorectal cancer incidence and mortality has decreased for most populations over the past decade.[116] However, incidence rates for American Indians and Alaskan Natives have increased. African Americans continue to have the highest mortality from colorectal cancer.

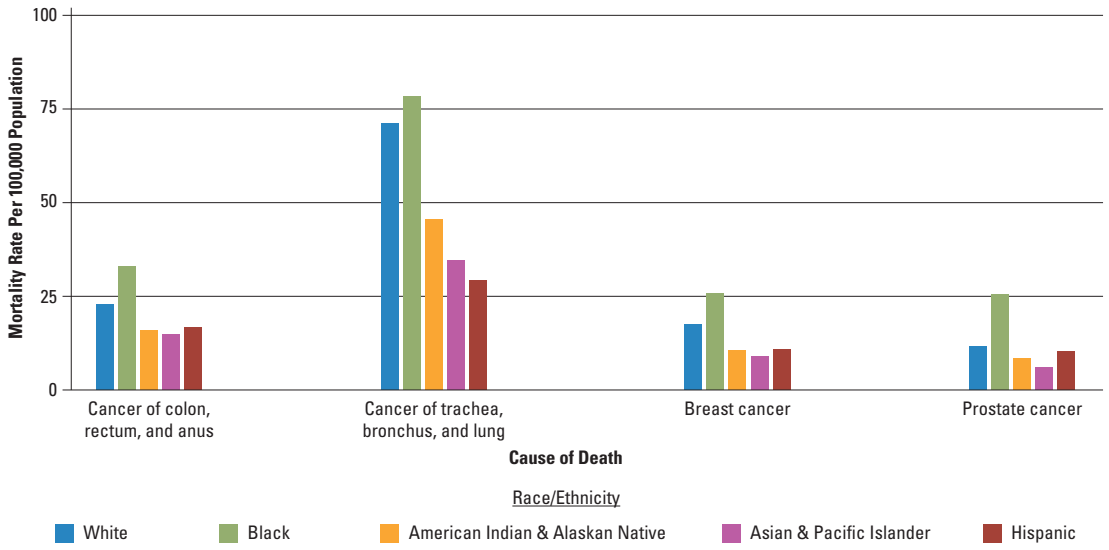
- Stomach cancer incidence and mortality have declined in the past 20 years and are lower for women than for men.[117] Blacks, Asians, Pacific Islanders, and Hispanics have stomach cancer mortality rates that are 1.5 times that of Whites.

- Cervical cancer mortality rates for Black women are more than that of White, American Indian and Alaskan Native, Asians, Pacific Islander women, and Hispanic women. As of 2005, cervical cancer screening rates had not reached the Healthy People 2010 target of increasing to 90 percent of the proportion of women aged 18 and older who have received a Pap test within the past three years.[118]

- African American and White women continue to have the highest mortality rates of uterine and ovarian cancer — 1.5 to two times that of the other races and ethnicities. Endometrial cancer is the most common type of uterine cancer and the most common cancer of the female reproductive system. The endometrial cancer mortality rate for African American women is nearly twice as high as that for White women — even though White women have a higher cancer incidence compared to Black women.[119]

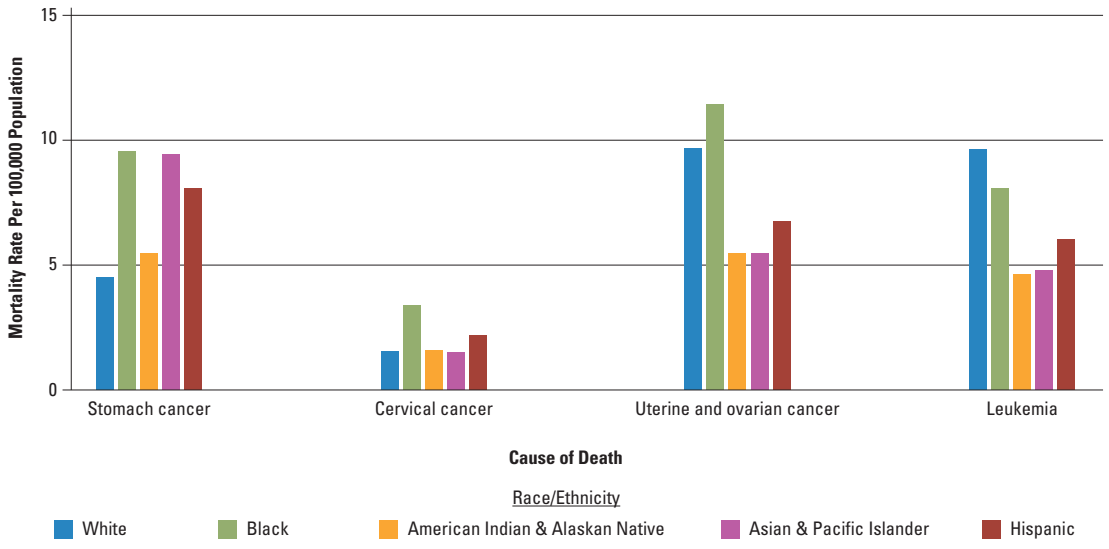
- Leukemia mortality since 1975 peaked in the early 1990s and has declined since then.[120] However, Whites and African Americans continue to have the highest mortality rates for leukemia.

Exhibit 2-12: United States Adult Mortality Rates for Common Cancers, 2005–2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18+, US/state, 1999-2007 (source: NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic populations may be underestimated.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Exhibit 2 13: United States Adult Mortality Rates for Other Cancers, 2005 2007

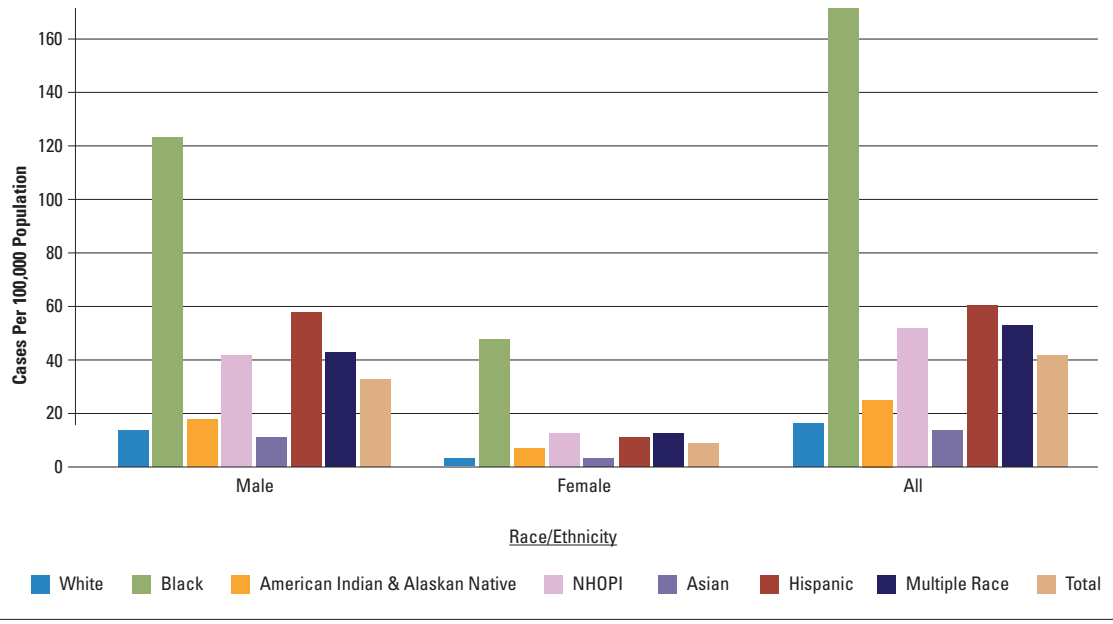


Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18+, US/state, 1999-2007 (source: NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic populations may be underestimated.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

HIV/AIDS

The death rate for HIV/AIDS has declined significantly since its peak in 1995.[121] However, an estimated 1.1 million people in the United States were living with diagnosed or undiagnosed HIV/AIDS in 2007[122] (Exhibit 2-14). Men are far more likely to have HIV/AIDS than are women for all racial and ethnic populations. Men having sex with men (MSM) accounted for 53 percent of all diagnoses in 2007 and 71 percent of diagnoses among men.[122] African American adults and adolescents have the highest incidence of HIV/AIDS — nearly four times that of the general population and nine times that of Whites. In 2007, Native Hawaiian and Pacific Islander adults and adolescents had the second highest incidence of HIV/AIDS, followed by Hispanics.

Exhibit 2 14: HIV/AIDS Diagnoses Among U.S. Adults and Adolescents 40 States, 2009



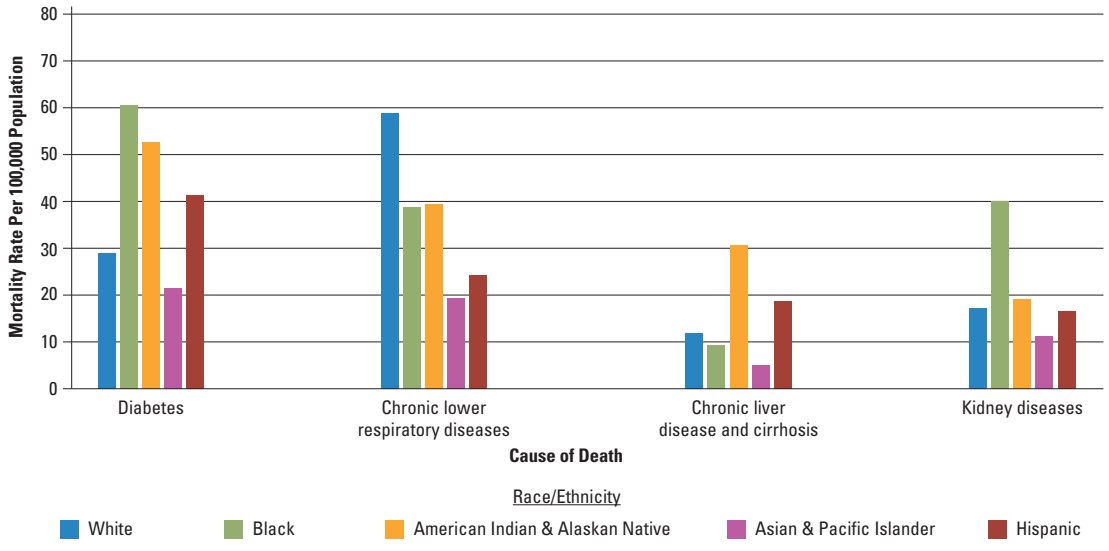
Source: Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report, Volume 19. Section 1: Cases of HIV/AIDS, HIV incidence, and cases of AIDS. Table 3a: Diagnoses of HIV infection by race and ethnicity and selected characteristics, 2009—40 states with confidential name-based HIV infection reporting.
These numbers do not represent reported case counts but are estimates, which result from adjustments of reported case counts. The reported case counts have been adjusted for reporting delays, but not for incomplete reporting. Data include persons with a diagnosis of HIV infection (not AIDS), a diagnosis of HIV infection and a later diagnosis of AIDS, or concurrent diagnoses of HIV infection and AIDS.
AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander; All=includes persons of unknown race or multiple races.
www.cdc.gov/hiv/surveillance/resources/reports/2007report/index.htm Accessed March 21, 2011.

Compared to other groups, Blacks have more deaths and shorter survival rates for this disease than do other populations, and more Black children are living with HIV/AIDS.[123] The CDC indicates that barriers such as poverty, sexually transmitted diseases, and the stigma directed at those living with the disease contribute to HIV/AIDs for African Americans.[123]

Diabetes

The number of Americans with diabetes tripled from 1980 to 2006, and it is now the sixth leading cause of death in the United States. About 10 percent of the nation's adults ages 20 and older have diabetes, and 37 percent of those with diabetes are aged 65 and older.[124, 125] Racial and ethnic minorities are at high risk for diabetes. Given that overweight and obesity are risk factors for diabetes, it is important to note that body fat compositions vary among different racial and ethnic groups, and that standard body mass index (BMI) charts do not always accurately identify risk for diabetes. For example, in Asian Americans the risk of diabetes occurs at a lower BMI than in non-Asian Americans. For Pacific Islanders the opposite is true. Exhibit 2-15 shows that diabetes mortality rates for Blacks, American Indians and Alaskan Natives, as well as Hispanics, are higher than for Whites.

Exhibit 2 15: United States Adult Mortality Rates for Common Diseases, 2005 2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18+, US/state, 1999-2007 (source: NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic populations may be underestimated.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

Diabetes is also associated with low SES. For example, individuals who have less than a high school education or earn less than $15,000 per year are more likely to report having had a diagnosis of diabetes (Exhibit A-8 in Appendix A).

Data from the 2005 Indian Health Service (IHS) user population database indicates that 16.5 percent of the total adult population served by IHS has been diagnosed with diabetes. The rates vary by region with six percent among Alaskan Native adults to 29.3 percent among American Indian adults in southern Arizona.[126]

The National Institute of Diabetes and Digestive and Kidney Diseases at NIH provides guidance for individuals with diabetes who may also have hemoglobin variants, including sickle cell trait leading to sickle cell disease. Hemoglobin variants are more prevalent in people of African, Mediterranean, and Southeast Asian descent. In the United States, sickle cell disease is the most common inherited blood disorder, and it disproportionately affects the health of African Americans and Hispanic Americans. In persons with hemoglobin variants, some A1C tests can lead to false outcomes, resulting in misguided treatment of diabetes. An accurate A1C test reading is important for racial and ethnic minorities at increased risk of developing long-term diabetes complications.[127]

Chronic Lower-Respiratory Disease

Chronic lower-respiratory disease includes many conditions such as emphysema, chronic bronchitis, and asthma. It is the fourth leading cause of death in the United States, accounting for 5.1 percent of deaths in 2006.[121, 128] Whites have the highest mortality rate from this group of respiratory diseases (Exhibit 2-15). However, asthma, one of the particular chronic respiratory diseases, is a serious problem for racial and ethnic minorities and for those who are poorly educated or have lower incomes (Exhibit A-9 in Appendix A). The significant asthma disparities that are apparent for minority children are associated with poor air quality and other adverse environmental conditions. These disparities are discussed within the Environmental Determinants of Health subsection later in this section.

Viral Hepatitis

In the United States, approximately 15,000 people die each year from Hepatitis B- and C-associated liver disease. Hepatitis B and C disproportionately affect racial and ethnic minority populations. Approximately 5.3 million Americans are chronically infected with the Hepatitis B virus, the Hepatitis C virus, or both. In the United States, chronic viral hepatitis is the most common cause of chronic liver diseases, including cirrhosis and liver cancer. Asian Americans, Native Hawaiians and Pacific Islanders account for over half of the chronic Hepatitis B cases. In addition, African Americans, Hispanics/Latinos, and American Indians and Alaskan Natives have disproportionately high rates of Hepatitis B and Hepatitis C infections.[129, 130]

Chronic Liver Disease and Cirrhosis

Chronic liver disease and cirrhosis is the 12th leading cause of death in the United States.[121] Exhibit 2-15 shows that American Indians and Alaskan Natives had the highest mortality rate for chronic liver disease and cirrhosis. Hispanics die from chronic liver disease and cirrhosis more often than do Whites.

Kidney Disease

Approximately 20 million Americans have reduced kidney function and are at increased risk for kidney failure. Chronic kidney disease (CKD) is the ninth leading cause of death in the United States.[121] The leading causes of CKD include diabetes and high blood pressure. African Americans, American Indians and Alaskan Natives, and Hispanic Americans are at increased risk for CKD.[131] Exhibit 2-14 shows that Blacks had higher rates for kidney disease than other racial and ethnic groups. Morbidity among minority populations in all the stages of kidney disease reflects disparities in the burden of CKD and the co-morbidities that accompany it (e.g., diabetes and hypertension). The risk of cardiovascular events is higher in Hispanic versus non-Hispanic White adults with CKD.[132] Minority populations with CKD have more rapid progression to end-stage renal disease (ESRD), which results in the need for chronic dialysis treatments or a kidney transplant to survive.[133]

Notably, for African Americans and American Indians and Alaskan Natives, the ESRD incidence rate caused by diabetes increased in 2000 in contrast with a declining rate over that same period among Whites. The prevalent ESRD rate for Hispanic patients in 2007 was 1.5 times greater than the rate seen among non-Hispanics.[134]

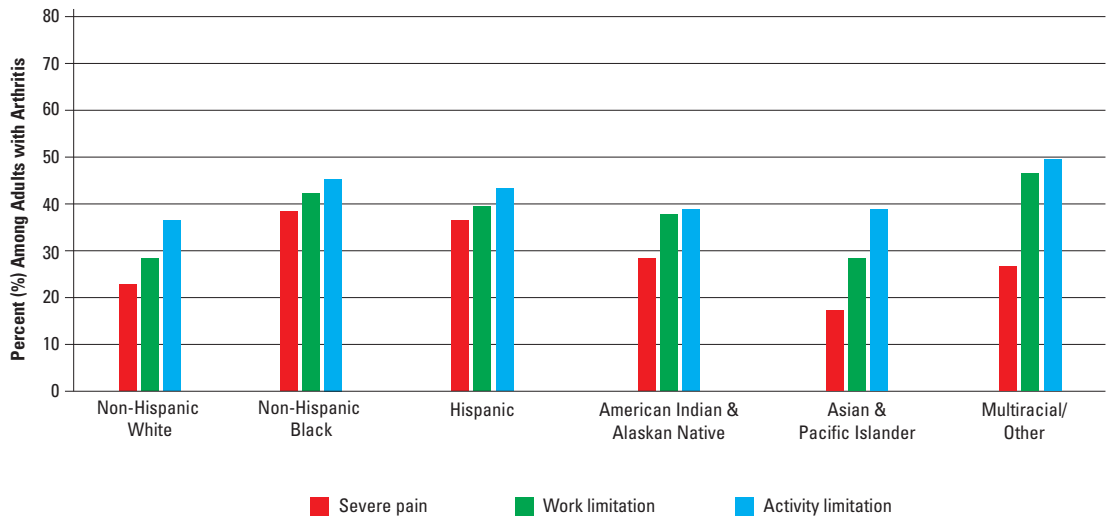
Black, American Indian and Alaskan Native patients with ESRD experience lower rates of referral to transplant centers and fewer completed transplant evaluations. Fewer Black, American Indian and Alaskan Native patients become kidney transplant candidates after medical or psychological screening than do White patients.[135] Once on the waiting list for a kidney transplant, African Americans have a median wait time of 4.7 years, compared to 2.2 years for Whites.[136]

Arthritis

Arthritis is the most common cause of disability in the United States [137, 138] and results in costs of $128 billion annually.[139] Approximately one in five adults in the United States (22.2 percent or 49.9 million) reported doctor-diagnosed arthritis; and 21.1 million adults (42.4 percent of those with arthritis) reported arthritis-attributable activity limitation.[140] With the aging of the U.S. population and the obesity epidemic, the prevalence of doctor-diagnosed arthritis and arthritis-attributable activity limitation is expected to increase significantly by 2030.[140] Age-adjusted arthritis prevalence is significantly higher among women (24.3 percent), those with less than a high school diploma (21.9 percent), persons who are obese (29.6 percent), persons who are physically inactive (23.5 percent), and current (23.7 percent) or former smokers (25.4 percent).[4] Arthritis interferes with work and daily activities and complicates the management of other chronic diseases such as heart disease and diabetes.[141, 142]

The prevalence of arthritis varies by race and ethnicity as follows: American Indians and Alaskan Natives (25.2 percent); non-Hispanic Whites (23.8 percent); multiracial/other (20.7 percent); non-Hispanic Blacks (19.4 percent), Hispanics (11.1 percent), and Asian Americans and Pacific Islanders (8.4 percent).[143, 144] Although the prevalence of arthritis is highest among American Indians and Alaskan Natives, and non-Hispanic Whites, the impact of arthritis is worse among non-Hispanic Blacks, American Indians and Alaskan Natives, multiracial individuals, and Hispanics compared to non-Hispanic Whites.[143, 144] As shown in Exhibit 2-16 arthritis-related severe pain, work limitation, and activity limitation are highest for these racial and ethnic minorities.

Exhibit 2 16: Arthritis Impact Among Racial and Ethnic Groups



Source: Bolen J, Schieb L, Hootman JM, et al. Prev Chronic Dis 2010; 7:1-5.

Arthritis and arthritis-attributable pain and limitation is a major public health problem in the United States and can be addressed in part by implementing obesity prevention strategies, and by improving the availability of effective physical activity and self-management programs.[145]

Pain Management — Disparities in pain management are not limited to arthritis pain. Growing evidence indicates that racial and ethnic minorities are disproportionately burdened by unrelieved pain through inadequate pain management. For example, White patients (31 percent) are prescribed opioid analgesics for emergency room pain management more frequently than are African American (23 percent), Hispanic (24 percent), or Asian and Pacific Islander (28 percent) patients.[146] These disparities may result from limited access to appropriate care; miscommunication between patient and providers; or providers' misperceptions about the presence, severity, or tolerance of pain among minority patients.[146, 147]

Pain assessment and management depend largely on trust and communication between the patient and healthcare professionals, and should be a matter of concern and awareness, especially for healthcare interactions with racial and ethnic minority patients.

Injury Deaths

Unintentional injuries (e.g., falls, fires, drowning, poisoning, suffocation), homicide, and suicide are significant causes of death in the United States, especially for adolescents and young adults. They were the fifth, 11th, and 15th leading causes of death, respectively, in 2006 for all ages.[121] Traffic deaths, injuries, and violence, which have a disproportionate impact on young people and minorities, are frequently preventable through a combination of public education, legislation, highly visible law enforcement, and supportive programs.

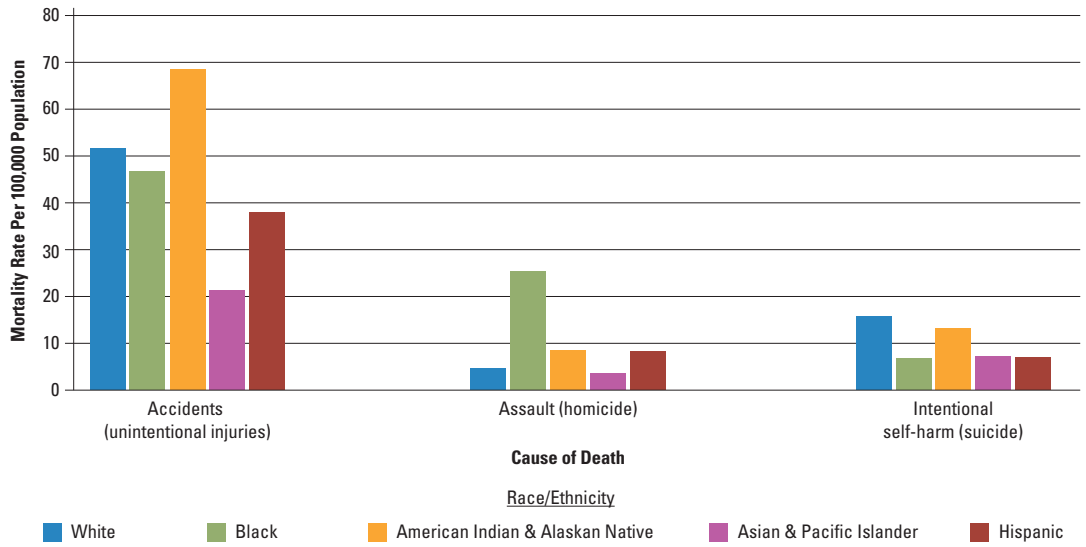
The following is a summary of the mortality rates for injury deaths:

- American Indian and Alaskan Native populations have the highest death rate from unintentional injuries of those populations shown in Exhibit 2-17. Unintentional injuries were the third leading cause of death for American Indians and Alaskan Natives of all ages in 2006. Motor vehicle deaths accounted for 49 percent of unintentional injuries for this population — nearly equal to all other causes of injury together. However, younger people of all races and Hispanics are especially at risk for unintentional injury. It is the number-one leading cause of death for individuals between one and 44 years of age.[148]

- Deaths from assaults or homicide are nearly six times higher for Blacks compared to Whites (Exhibit 2-17). For Hispanics, homicide is the second and third leading cause of death in age groups between ages five and 34. It is the second leading cause of death for American Indians and Alaskan Natives between the ages of one to 4.[148]

- Whites and American Indians and Alaskan Natives have the highest rates of suicide or intentional self-harm (Exhibit 2-17). Young people are particularly at risk for suicide in these populations. In 2006, suicide was the second leading cause of death for American Indians and Alaskan Natives in three age categories (10-14, 15-24, and 25-34 years), and the second leading cause of death for Asian and Pacific Islander youth ages 15-24. Suicide was also the second leading cause of death for Whites, ages 15-24 and 25-34. It was the third leading cause of death for Whites ages 10-14.[148]

Exhibit 2 17: United States Adult Mortality Rates for Other Causes of Death, 2005 2007



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Mortality and life expectancy. Mortality by underlying cause, ages 18+, US/state, 1999-2007 (source:NVSS). Data for 2005-2007 presented here. Data are age-adjusted for ages 18 and older. Data are based on death certificates. Death rates for American Indian and Alaskan Native, Asian and Pacific Islander, and Hispanic populations may be underestimated.
www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011

Violence

WHO defines violence as the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.[149] Violence can be interpersonal (e.g., domestic abuse, intimate partner violence [IPV], child abuse, crime), self-directed (e.g., suicide or self abuse), or collective (e.g. violence by political, militia, or terrorist groups). The nature of violence includes physical, sexual, or psychological violence, or deprivation and neglect.[149]

Violence is a risk factor for poor health and there is growing awareness of its contributions to health disparities. Estimates suggest that the cost of violence in the United States exceeds $70 billion each year, most of which is due to lost productivity (92 percent).[150] Apart from the obvious health dangers related to physical injury or trauma, chronic exposure to violence contributes to poor long-term physiological and psychological health outcomes.[151] For example, asthmatic children who experience high chronic exposure to violence also experience higher rates of asthma-related wheezing, sleep disruption, and interference with activity.[152] Psychological and behavioral problems associated with exposure to violence during childhood include poorer academic outcomes, post-traumatic stress disorder, depression, substance abuse, aggression, suicidal behavior, and risky behaviors.[153]

Available data indicates that disabled persons, women, children, the elderly, the homeless, and racial and ethnic minorities disproportionately experience exposure to violence. Youth ages 12 to 19 with a disability experienced violence at nearly twice the rate as those without a disability. Homicide is the leading cause of death for black men between the ages of 15 and 24. In 2007, the homicide death rate for this group was 18 times the rate for similarly aged white males.[b] Black females were four times more likely than White females to be murdered by a boyfriend or girlfriend. Among households with a female who experienced intimate partner violence during 2001 to 2005, 38 percent had children under age 12 living in the home. The best estimates indicate that between 1 and 2 million people, age 65 and older, have been injured, exploited, or otherwise mistreated by someone they depend on for care.

Trauma

Trauma includes physical, sexual, and institutional abuse; neglect; intergenerational trauma; and disasters that induce powerlessness, fear, recurrent hopelessness, and a constant state of alert. Trauma can result from experiences of violence. Trauma impacts one's relationships with self, others, communities, and environment, often resulting in recurring feelings of shame, guilt, rage, isolation, and disconnection.

Trauma in the form of chronic adversity is a particularly powerful force in determining life course trajectories among racial minorities and can shape pathways to substance abuse, mental illness, crime, incarceration, and neurobiological change. Social factors – such as high unemployment rates, poverty, and disproportionate incarceration among African American males (approximately five percent of the Black male population is incarcerated compared to less than one percent of Whites) – have an impact not only on the health of these males of color, but on the social fabric and economic vitality of their communities.[c]

Culturally competent trauma-informed care engages people with histories of trauma by recognizing the presence of trauma symptoms; acknowledging the role that trauma has played in individuals' lives; and promoting healing at the individual, family, and community levels. Trauma-informed organizations, programs, and services are based on an understanding of the vulnerabilities or triggers of trauma survivors that traditional service delivery approaches may exacerbate, so that these services and programs can be more supportive and avoid re-traumatization.

Behavioral Health

The cost of treating mental disorders in 2006 ($57 billion) was the fourth highest expenditure for medical conditions in the United States. The cost of mental health services also takes a significant financial toll on

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[b] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, WISQARS (Web-based Injury Statistics Query and Reporting System), www.cdc.gov/injury/wisqars (accessed February 18, 2011)

[c] Center for Nonviolence and Social Justice (2010). Report of the National Commission on the Impact of Trauma and Violence on the Health of African American Men. U.S. Department of Health and Human Services, Office of Minority Health.

individuals since 25 percent of expenditures are paid for out of pocket.[154] In 2008, the Substance Abuse and Mental Health Services Administration (SAMHSA) published a report showing that 10.9 percent of adults aged 18 or older experienced serious psychological distress in the past year. Of those adults, less than half received mental health services during the year, and young adults aged 18 to 25 were less likely than other adults to have received mental health services. In addition, African Americans were slightly less likely to receive prescription medication and outpatient services than were Whites.[155]

In 2005, more women experienced serious psychological distress than men, and more young adult women and men ages 18-25 had serious psychological distress in comparison to their counterparts ages 50 and older. Nearly twice as many American Indians and Alaskan Natives had serious psychological distress than did Whites, and more multiracial individuals experienced serious psychological distress than their single race counterparts for all age ranges (Exhibit 2-18).

Exhibit 2 18: United States Behavioral Health Indicators, 2009; Serious Psychological Distress in the Past Month

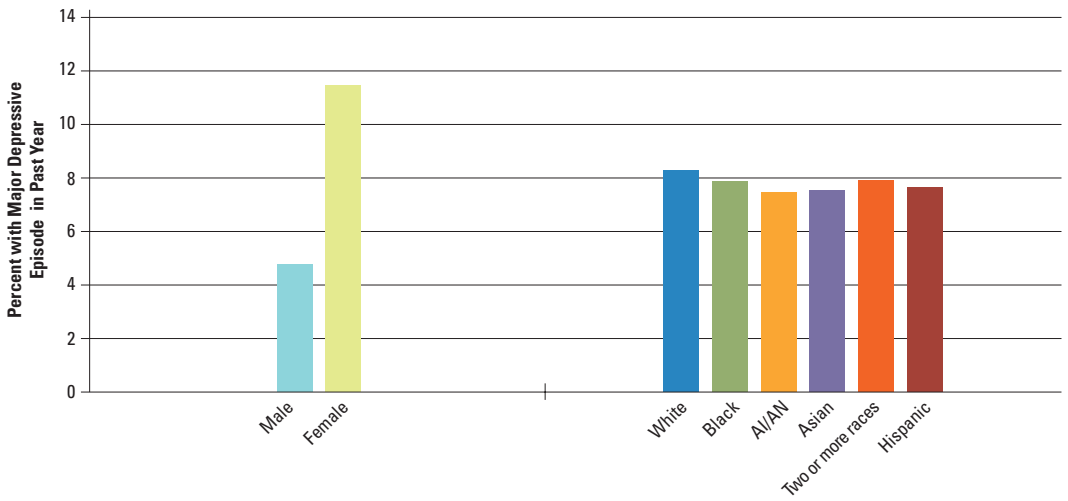
Category	Age Group Percentages			
	Total	18 25	26 49	50 and older
Gender				
Male	*3.7*	6.3	4.2	2.1
Female	*5.4*	9.0	6.2	3.5
Race/Ethnicity				
White	*4.7*	7.6	5.9	2.8
Black	*4.7*	7.9	5.1	2.6
AI/AN	*4.0*	9.4	3.8	*
NHOPI	*4.3*	*	*	*
Asian	*1.9*	6.8	1.6	*
Two or more races	*6.9*	7.2	7.2	6.3
Hispanic	*4.8*	7.3	3.8	4.9
Total	*4.6*	*7.6*	*5.2*	*2.9*

Source: Substance Abuse and Mental Health Administration. Office of Applied Studies. 2009 SAMHSA National Survey on Drug Use and Health. Adult mental health tables 1.1-1.53; Table 1.52B: Serious psychological distress in the past month among persons aged 18 or older, by age group and demographic characteristics; percentages, 2008 and 2009.
*=not available; AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander
http://oas.samhsa.gov/index.htm Accessed March 21, 2011.

Findings from the National Survey on Drug Use and Health (NSDUH) indicate that an annual average of 8.5 percent of youth aged 12 to 17 experienced at least one major depressive episode in the past year.[156] Adolescent females are more than twice as likely to have had a major depressive episode in the past year as adolescent males (Exhibit 2-17). In addition, significantly more multiple race adolescents followed by American Indian and Alaskan Native adolescents experienced a major depressive episode in the past year when compared to single-race White, Black, Asian, and Hispanic adolescents.

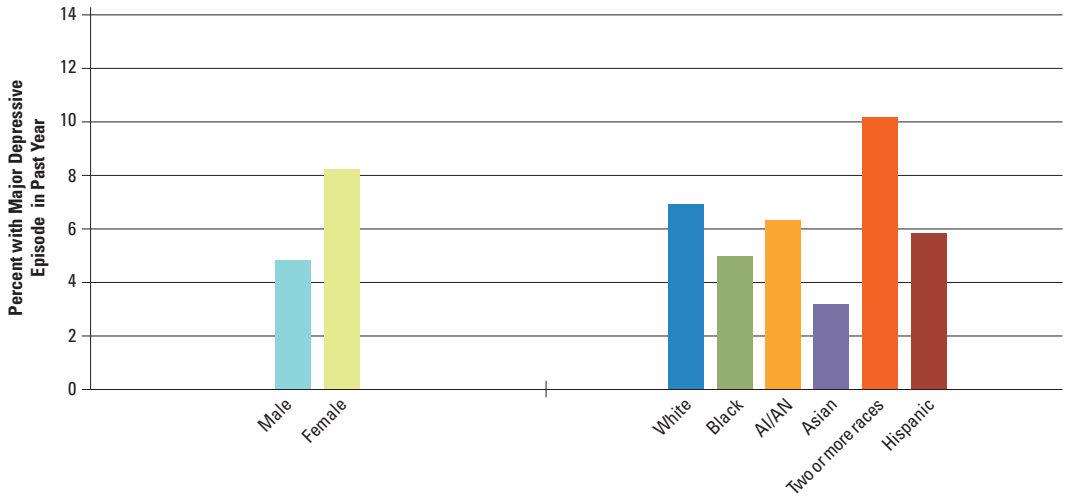
Similar to the findings for adolescents, adult females are more likely to have a depressive episode than males (Exhibit 2-19); multiple-race adults are more likely to have a depressive episode than are the other races and ethnicities shown.

Exhibit 2-19: Depression in Adolescents, Ages 12 17, United States, 2009



Source: Substance Abuse and Mental Health Services Administration; Office of Applied Studies. 2009 National Survey on Drug Use and Health, Mental Health Detailed Tables; Table 2.6B; Table 2.7B.
AI/AN=American Indian and Alaskan Native. Data available only for races and ethnicities shown.
http://www.oas.samhsa.gov/

Exhibit 2 20: Depression in Adults, 18 or older, United States, 2009



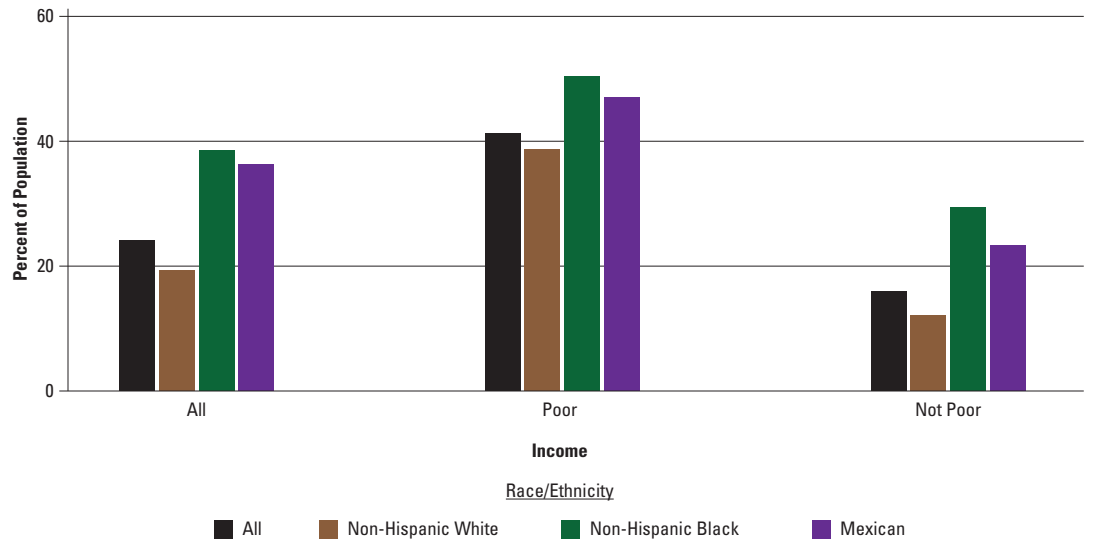
Source: Substance Abuse and Mental Health Services Administration; Office of Applied Studies. *2009* National Survey on Drug Use and Health, Mental Health Detailed Tables; Table 1.44B.
AI/AN = American Indian and Alaskan Native. Data available only for races and ethnicities shown.
http://www.oas.samhsa.gov/

Oral Health

Oral, dental, and craniofacial diseases and disorders are common problems for all populations. However, disparities in dental health among minority, low-income populations are often overlooked. Tooth decay is the most common chronic disease for children.[157] A 2010 report on the dental health challenges faced by children notes that only nine states meet the national goal of having no more than 21 percent of children with untreated tooth decay; that only 38.1 percent of low-income (i.e., Medicaid-enrolled) children received dental care in 2007 compared to 58 percent of privately insured children; and that minority and disabled children fare the worst for dental care.[158] For example, the percentage of untreated tooth decay for six-to-eight-year-old children varies greatly by race and ethnicity — with the worst decay in American Indians and Alaskan Natives (72 percent), compared to Mexican Americans (40.6 percent), Blacks (37.4 percent), and Whites (25 percent).

One measure of dental health — tooth decay — is linked to poverty as well as race. (Exhibit 2-21) The percentage of tooth decay in those individuals who are poor is two to three times that of the non-poor. Poor non-Hispanic Blacks and Mexican-Americans have slightly higher levels of tooth decay than poor non-Hispanic Whites. Non-poor Mexican Americans and Non-Hispanic Blacks and have about two times more untreated tooth decay than do non-Hispanic Whites. Similarly, dental health care (Exhibit A-10 in Appendix A) is self-reported as being less available for minorities, the less educated, and those with low incomes.

Exhibit 2 21: Untreated Tooth Decay, United States, 2005 2008



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Health conditions.
Tooth decay, untreated: U.S., 1998-2008. Data for 2005-2008 presented here. Data available only for races and ethnicities shown. Data are age-adjusted for ages 20 and older.
Poverty status according to U.S. Census Bureau's "poverty income ratio" definitions.
Poor=less than 100% of the poverty threshold; Not poor=200% of the poverty threshold or greater.
http://www.cdc.gov/nchs/hdi.htm Accessed March 21, 2011.

DETERMINANTS OF HEALTH

The health disparities described above do not exist in a vacuum or develop randomly. They are the result of a host of interrelated factors that affect individuals across their lifespan, from birth to death. These factors, commonly called "determinants of health," influence the health and well-being of individuals and communities; together they interact to impact health.[3, 159] Understanding the determinants of health is critical for devising strong public policy and action that promote health equity and the elimination of health disparities.[159] The following subsections offer a discussion of the determinants of health under four broadly accepted categories: *social determinants*; *behavioral determinants*; *environmental determinants*; and *biologic and genetic determinants*.[159]

Social Determinants of Health

There is a powerful link between social factors, health, and health care.[3] Social and economic policies have a direct impact on the health and well-being of those who live, work, learn, and play under those policies. Gender, poverty, SES, employment, education, food security, housing, transportation, psychological stress, racism, the health system, and other social and economic policies also impact health. Achieving health equity will require addressing the health of all groups and the impacts of all relevant policies on health care.

Gender

The concept of gender refers to male and female roles and relationships, which are shaped by social, economic, political, cultural, and other factors — rather than simply by biology.[160] Gender inequalities can have a direct bearing on health and well-being — particularly wherever females traditionally have been or continue to be more disadvantaged than males in terms of poverty, SES, and other social measures. Disadvantages in these measures are often associated with disparities in health outcomes as discussed later in this section. A gender-focused approach to health examines how gender differences determine access to benefits and the way in which technology, information, resources, and health care are distributed.[161]

Poverty and Socioeconomic Status

Poverty and low SES are fundamental predictors of adverse health outcomes.[8, 162] Generally, differences in health outcomes or access to health care fall along the fault line of SES. Even though medical breakthroughs over the past 50 years have significantly improved health outcomes, it is still generally true that a health and healthcare gap exists among communities of differing SES in this country. Studies suggest that the increase in

the prevalence of health disparities can be associated with the growing gap in SES — with gains in health status occurring predominantly among those in higher socioeconomic groups.[163, 164]

The last decade witnessed a marked growth in the prevalence of low-income populations in this country with increases from 31.6 million in 2000 to 39.8 million in 2008.[165] The South had the highest percentage (14.3 percent) of individuals living in poverty (Exhibit A-11 in Appendix A). Pockets of high poverty (25-56 percent) exist in counties throughout the United States such as those along the Mississippi River (Exhibit A-11).

Whites are the majority population and they also represent the majority of the 39.8 million poor in America. The detrimental health outcomes experienced by economically disadvantaged Whites are analogous to those experienced by economically disadvantaged minorities.[166] As shown in Exhibits 2-22 and 2-23, minority populations are disproportionately represented in the ranks of poverty compared to Whites. Poverty levels were also higher for females, especially if they are sole household providers, compared to males. Those without a high school education are at least five times more likely to experience poverty than are those with a bachelor's degree or higher. In addition, persons with disabilities are almost twice as likely to be poor compared to persons without disabilities.

Exhibit 2 22: United States Poverty Levels by Gender, Race, Ethnicity, 2005 2009

	Less than 50 percent of the poverty level	Less than 100 percent of the poverty level	Less than 125 percent of the poverty level
Gender			
Male	5.2%	12.1%	16.2%
Female	6.4%	14.8%	19.5%
Race/Ethnicity			
White	4.6%	10.8%	14.6%
Black	11.8%	25.1%	31.5%
AI/AN	12.0%	25.9%	33.0%
Asian	5.0%	10.9%	14.4%
NHOPI	6.8%	16.0%	21.2%
Some other race	8.8%	22.7%	30.7%
Two or more races	7.7%	17.3%	22.5%
Hispanic	8.4%	21.9%	29.7%
All	*5.8%*	*13.5%*	*17.9%*

Source: U.S. Census Bureau. American FactFinder: People; Poverty. Characteristics of people at specified levels of poverty. Table S1703 (source: 2005-2009 Amercian Community Survey).
AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander
http://www.census.gov Accessed March 22, 2011.

Exhibit 2 23: United States Poverty Levels by Other Categories, 2005 2009			
	Less than 50 percent of the poverty level	Less than 100 percent of the poverty level	Less than 125 percent of the poverty level
Living Arrangement			
In married couple family	1.8%	6.0%	9.1%
In female householder, no husband present households	15.1%	31.0%	38.3%
In other living arrangements	11.0%	22.8%	29.1%
Educational Attainment			
Less than high school graduate	8.6%	24.2%	32.9%
High school graduate (includes equivalency)	4.6%	11.6%	16.3%
Some college or associate s degree	3.4%	8.0%	11.1%
Bachelor s degree or higher	1.8%	3.7%	4.9%
Disability (2005 2007)*			
With any disability	7.7%	21.4%	28.9%
No disability	5.0%	11.2%	14.9%
All (2005 2009)	*5.8%*	*13.5%*	*17.9%*

Source: U.S. Census Bureau. American FactFinder. 2005-2007 American Community Survey and 2005-2009 Amercian Community Survey. Table S1703: United States, charateristics of people at specified levels of poverty in the past 12 months.
* The 2005-2007 percentages are the most recent available for poverty in relation to disability.
http://www.census.gov Accessed March 23, 2011.

Employment

As might be expected, poverty tracks with low employment levels. In 2006, 23.4 percent of those who lived below the poverty level were unemployed compared to 6.6 percent of the total population. There are racial and ethnic disparities in employment levels (Exhibit 2-24). Asians and Whites have the lowest levels of unemployment. Multiracial individuals, Blacks, and American Indians and Alaskan Natives have the highest levels of unemployment. Persons with disabilities also have greater levels of unemployment than the general population.

Lower educational attainment also correlates with high unemployment (Exhibit 2-23). Those without a high school degree are almost four times more likely to be unemployed than are those with a bachelor's degree or higher.

Among the employed, wage disparity still exists. African American and Hispanic households earned less than White households, even after controlling for level of education.[167] The gap is largest between White and African American men with advanced degrees where salaries for African American men are 67 percent that of Whites.[168] Closing the income gap would contribute to improvements in healthcare access for the populations affected.

Exhibit 2 24: United States Employment Status, 2005 2009		
Population Category	**Percent Employed**	**Percent Unemployed**
Race[a]		
White	60.6	6.1
Black	54.2	13.3
AI/AN	52.1	13.2
Asian	61.7	5.8
NHOPI	61.0	9.2
Some other race	63.1	8.9
Two or more races	57.8	11.1
Ethnicity[a]		
Hispanic	61.9	8.7
Non Hispanic	60.5	5.9
Poverty Status[b] **(2005 2007)***		
Below poverty level in past 12 months	38.2	23.4
Disability Status[b] **(2005 2007)***		
With any disability	37.3	13.2
Educational Attainment[c]		
Less than high school graduate	54.4	11.0
High school graduate[d]	69.2	7.2
Some college or associate s degree	75.4	5.6
Bachelor s degree or higher	82.4	3.1
All[a] ***(2005 2009)***	***59.9***	***7.2***

Source: U.S. Census Bureau. American FactFinder. 2005-2007 American Community Survey and 2005-2009 American Community Survey. Table S2301: United States, employment status.
AI/AN=American Indian & Alaskan Native; NHOPI=Native Hawaiian and Other Pacific Islander.
[a] Population 18 years and over.
[b] Population 20 to 64 years.
[c] Population 25 to 64 years.
[d] Includes equivalency.
* The 2005-2007 percentages are the most recent available for disability and poverty in relation to employment.
AI/AN=American Indian & Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander
http://www.census.gov/ Accessed March 23, 2011.

Lack of employment may also contribute to diminished access to health care since the majority of individuals in the United States receive health insurance through their employer. However, employment-based health insurance has been decreasing and in 2008 slipped to 58.5 percent, down from 59.3 percent in 2007. Low-wage jobs, in particular, act as barriers to health because, in addition to financial limitations, these jobs offer limited employee benefits such as access to health insurance, human resource centers, and paid absences. In 2005, approximately 37 percent of low-income adults had employment-based health insurance and nearly 43 percent had no coverage. Only 33 percent of low-wage jobs provide paid sick leave compared to 81 percent of high-wage jobs, discouraging healthcare seeking among socioeconomically disadvantaged populations.[169, 170]

Educational Attainment

Education strongly impacts health both directly and through its effect on other socioeconomic indicators such as income.[171, 172] Low educational status is inextricably linked with poverty. Minority populations often have lower records of educational achievement, which in turn reduces earning power.

Between 1972 and 2006, the high school dropout rate was lowest for Whites and highest for Hispanics.[173] Educational attainment is linked to gender, race, and ethnicity (Exhibit 2-25). While men and women have similar levels of academic attainment, African Americans and Hispanics have lower academic attainment compared to Whites and some Asian subpopulations. The gap for African Americans and Hispanics widens at higher levels of academic experience.

Exhibit 2 25: United States Educational Attainment, 2007

Category	Percentage			
	High school graduate or more[a]	Some college or more	Bachelors degree or more	Advanced degree
Gender				
Male	83.9	53.8	28.2	10.7
Female	85.0	54.8	26.7	9.6
Race/Ethnicity				
White	87.0	56.6	29.1	10.7
Black	80.1	45.8	17.3	5.8
Asian	85.8	68.0	49.5	19.6
Hispanic	60.6	32.4	12.5	3.9

Source: U.S. Census. People and Households. Data by subject, education, educational attainment, current population survey, CPS 2007. Table 1: Educational attainment in the United States: 2007.
Percentages represent attainment by race for persons ages 25 years and older. Race categories exclude persons of Hispanic ethnicity.
[a]Includes equivalency.
http://www.census.gov/population/www/socdemo/educ-attn.html

Asians, Native Hawaiians, and Pacific Islanders are often grouped together for data analysis, yet these populations and their component subpopulations often have distinct cultural and ethnic identities and may evidence very different health outcomes. Such differences become apparent only when data is analyzed at levels specific to each population and subpopulation. For example, for Asian Americans there exists the "model minority myth," which assumes high educational attainment among all Asian groups when in fact, educational attainment varies by Asian subgroups (Exhibit 2-26).

Exhibit 2 26: United States Educational Attainment Asian Americans, Native Hawaiians and Pacific Islanders, 2006

Population	Percent Less Than High School	Percent High School Diploma (or equivalency)	Percent Some College or Associate s Degree	Percent Bachelor s Degree	Percent Graduate or Professional Degree
White	13.5	30.3	27.6	18.0	10.5
Asian	14.1	17.8	19.7	29.2	19.2
Native Hawaiian and Pacific Islander	13.5	38.5	31.4	11.8	4.8
Selected Subpopulations					
Asian Indian	10.0	11.9	10.9	31.8	35.5
Cambodian	35.3	28.7	22.3	11.0	2.6
Chinese	18.1	16.8	15.3	25.2	24.6
Hmong	39.7	24.3	23.5	10.4	2.2
Indonesian	4.7	20.7	27.5	32.9	14.1
Korean	8.7	20.5	18.8	34.4	17.5
Laotian	37.6	30.0	21.4	9.3	1.8
Pakistani	12.8	16.1	16.5	31.0	23.6
Taiwanese	4.6	8.3	11.7	31.5	43.9
Vietnamese	27.7	23.9	22.2	18.8	7.4
Chamorro/ Guamanian	19.4	34.1	30.0	11.1	5.3
Micronesian	18.5	36.4	29.9	10.6	4.6
Native Hawaiian	10.8	39.3	32.5	12.3	5.1
Polynesian	12.0	40.0	31.9	11.5	4.7
Samoan	16.5	42.8	28.5	8.5	3.7

Source: Asian American, Native Hawaiian and Pacific Islander Population Demographics - 2006 Data Asian & Pacific Islander American Health Forum. http://www.apiahf.org

In recent years, the wages of high school dropouts have declined, and the wage differential between high school graduates and dropouts has increased.[174] Low economic status, low educational status, and poor health outcomes generally track together. Improving educational outcomes is a key strategy for reducing health disparities.

In order to accurately measure the extent of low educational attainment or the effectiveness of interventions, it is necessary to have reliable measures of educational status. There is some disagreement regarding the best way to measure the high school graduation rate, which is a key marker of educational success. The "status completion rate" used by the U.S. Census (e.g., see Exhibit 2-25) and the National Center for Education Statistics includes completion of high school equivalency exams, such as the General Equivalency Diploma (GED). National Bureau of Economic Research (NBER)-affiliated researchers suggest that status completion rates overestimate U.S. graduation rates, underestimate disparities in graduation rates, and bias interpretation of changes over time.[174] Furthermore, evidence shows that individuals earning GEDs do no better than dropouts in the labor market.[174]

There clearly is a link between health status, poverty, and education, especially in relation to race and ethnicity (Exhibit 2-27). Self-identified health status dramatically improves and directly corresponds with educational status and income levels. Blacks, Hispanics, and multiracial individuals self identify as having poor health status in markedly greater proportion than do Whites or "other" populations.

Exhibit 2 27: Health Status, United States and Territories, 2009

Self-identified "fair or poor health" status

Race/Ethnicity		Education		Income	
Category	**Percent[a]**	**Category**	**Percent[a]**	**Category**	**Percent[a]**
All	*14.6*	***All***	*14.6*	***All***	*14.6*
White	12.3	**Less than H.S.**	34.2	**Less than $15,000**	36.7
Black	19.7	**H.S. or G.E.D.**	19.1	**$15,000 $24,999**	26.5
Hispanic	20.3	**Some post H.S.**	13.8	**$25,000 $34,999**	17.7
Other	13.0	**College graduate**	6.6	**$35,000 $49,999**	12.3
Multiracial	18.6			**More than $50,000**	6.1

Source: Centers for Disease Control and Prevention, Healthy Living. Data and Statistics. Behavioral Risk Factor Surveillance System. Prevalence and Trends Database. U.S., 2009, Health status by race, education, and income.

[a]Median values. Data from 50 states, DC, Guam, Puerto Rico, and the U.S. Virgin Islands. Data from subgroups may not include all entities.

H.S.=high school. G.E.D.=General Equivalency Diploma.

http://apps.nccd.cdc.gov/brfss/ Accessed March 23, 2011.

"During challenging economic times, the pool of those in need of vital food assistance expands…we must ensure that individuals do not fall through the cracks and can access nutritional services with dignity and respect."

–Tom Vilsack, U.S. Secretary of Agriculture, 2009

Food Security

Adequate food intake is a fundamental human need for survival and a prerequisite for health and well-being.[175] Food security exists "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life," or when households have "access, at all times, to enough food for an active, healthy life for all household members."[176, 177]

In the United States, unlike other parts of the world, starvation is nearly non-existent; yet some families, especially the poor, struggle to maintain a steady diet of nutritious food. This latter scenario has been called food insecurity and is defined by the United States Department of Agriculture (USDA) as "a household-level economic and social condition of limited or uncertain access to adequate food."[178] Food insecurity is differentiated from hunger, which is defined as an "individual-level physiological condition that may result from food insecurity."[178] There are reports of low food security and very low food security.[178]

In November 2009, the USDA released its findings that food insecurity in the United States had reached its highest level since 1995, when the first national food security survey was conducted.[179] The USDA reported that in 2008, 14.6 percent of American households were food insecure and "unable to put food on the table at times during the year."[179] This represents 16.7 million children and 32.4 million adults living in 17.1 million households.[177] This level of food insecurity was up from that of the previous year's level of 11.1 percent.[177]

Health outcomes range in severity depending on the degree of food deprivation — from starvation and malnutrition to a host of less severe, yet serious consequences that result from food insecurity.[180] For example, food-insecure individuals may limit their purchases of necessary medications in order to buy food. Limitations and variability in food sources may adversely affect diabetic patients for whom dietary limitations and specifications are necessary for controlling the disease. Children who live in food-insecure homes are susceptible to the consequences of poor nutrition (e.g. stunted growth, cognitive disabilities, iodine and iron deficiencies). Paradoxically, food insecurity may foster overweight and obesity, especially in women, because fresh fruits and vegetables and low-calorie foods are too expensive to purchase. Further, variability in food supply may promote an unhealthy cycle of alternating underconsumption and overconsumption.[180]

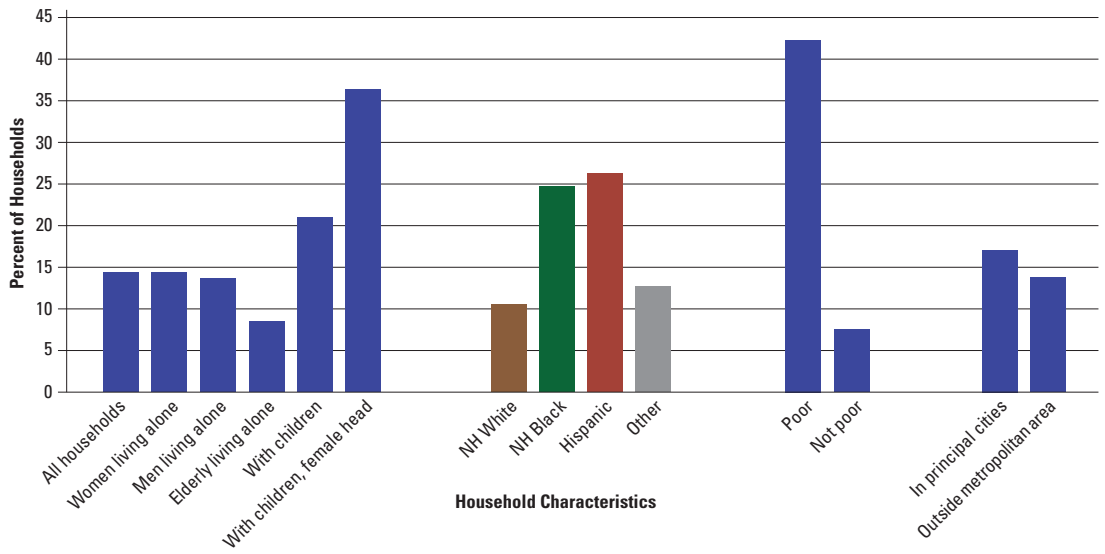
Food insecurity in the United States is highly associated with poverty and is more common in the South[177] and in cities (Exhibit 2-28). Disparities in food security exist for minorities. Households with children, especially when headed by a female without a spouse, have more than two-fold levels of food insecurity compared to all households. These same patterns of disparity exist for very low food-security households.[177]

WHO describes the following three pillars of food security:[176]

- Food availability — sufficient quantities of food available on a consistent basis
- Food access — having sufficient resources to obtain appropriate foods for a nutritious diet
- Food use — appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation

These three pillars serve as points of intervention to foster health equity through ensuring food security for all Americans.

Exhibit 2-28: Prevalence of Household Food Insecurity in the United States, 2009

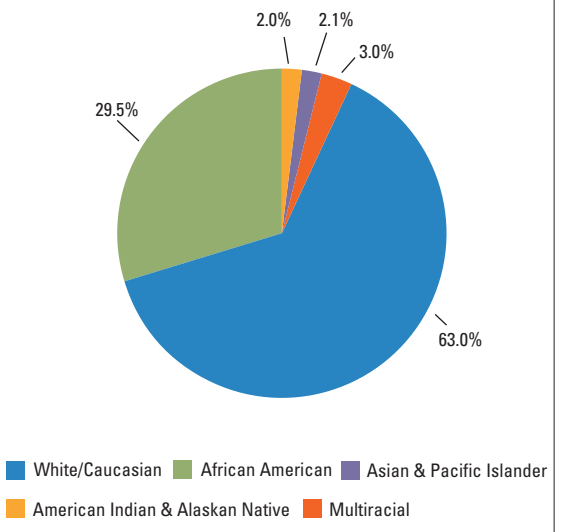


Source: U.S. Department of Agriculture. Economic Research Service. Briefing Rooms. Food Security in the U.S.: Key Statistics and Graphics. Prevalences of food insecurity by selected household characteristics, 2009.
NH = non-Hispanic; Poor = income-to-poverty level is less than 1.00; Not poor = income-to-poverty level 1.85 and over.
http://www.ers.usda.gov/Briefing/FoodSecurity/ Accessed March 23, 2011.

The USDA's Food and Nutrition Consumer Services (FNCS) is a significant part of the federal effort to reduce hunger and improve nutrition and health for all Americans. FNCS includes the Center for Nutrition Policy and Promotion (CNPP) and the Food and Nutrition Service (FNS), which represent key vehicles for promoting the health and well-being of poor, minority, and vulnerable populations. CNPP develops and promotes dietary guidance that links the best evidence-based scientific research to the nutrition needs of consumers. FNS administers 15 nutrition assistance programs for the nation in partnership with state agencies, including the Supplemental Nutrition Assistance Program (SNAP, formerly known as the Food

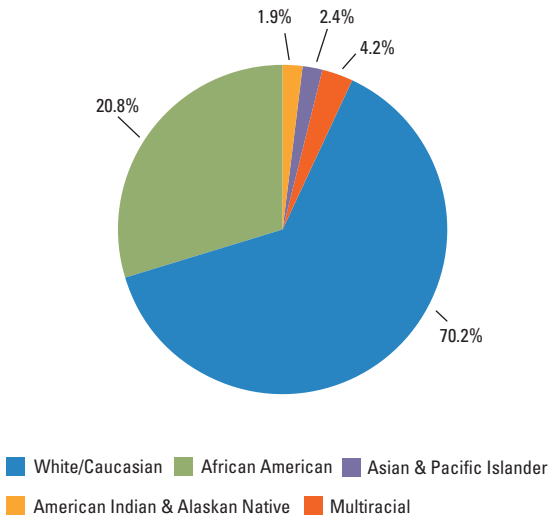
Stamp Program); the Special Supplemental Nutrition Program for Women Infants and Children (WIC); and the school meals programs including the School Breakfast and National School Lunch Program (NSLP). Additional information about those served by FNS programs is shown in Exhibits 2-29 through 2-32.

Exhibit 2 29: SNAP Participation by Race, 2008



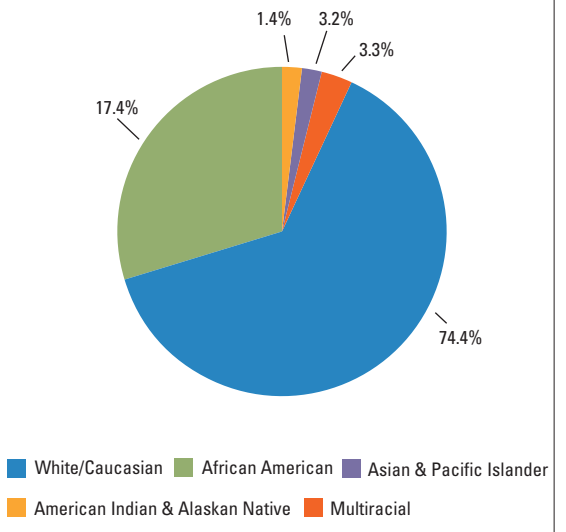
Source: U.S. Census Bureau, March 2009 Current Population Survey, Annual Social and Economic Supplement.

Exhibit 2 30: WIC Participation by Race, 2008



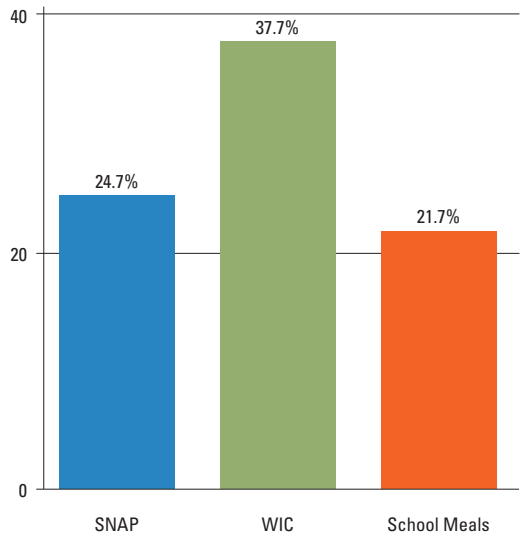
Source: U.S. Census Bureau, March 2009 Current Population Survey, Annual Social and Economic Supplement.

Exhibit 2 31: NSLP Participation by Race, 2008



Source: U.S. Census Bureau, March 2009 Current Population Survey, Annual Social and Economic Supplement.

Exhibit 2 32: Percentage of Program Participants That Are Hispanic/Latino, 2008



Source: U.S. Census Bureau, March 2009 Current Population Survey, Annual Social and Economic Supplement.

Housing and Transportation

Housing has been recognized as a prerequisite for good health.[181] Access to housing supports the basic human need for shelter and bears important implications for the health and well-being of families.[182] However, a number of housing-related factors can contribute to poor health or harm the health of individuals (e.g., housing affordability, quality, and stability).[183, 184] Low-income and underserved minority communities are often located in areas with high levels of air pollution, which is associated with triggers for asthma attacks and with health concerns such as heart disease and lung cancer.

Housing is the single largest household expense for individuals and families. Racial and ethnic minority populations spend a larger share of their household income on housing than the White population.[185] Lack of affordable housing limits choices about where families live and directly inhibits their ability to meet basic needs such as nutrition, clothing, and health care.[186] Housing costs can relegate families to live in disadvantaged neighborhoods that are characterized by substandard and unsafe housing, overcrowded neighborhoods with high poverty rates, and limited opportunities for healthy lifestyles.[187] Reports show that individuals who experience higher rates of chronic disease, are not engaged in the healthcare system, and are from racial, ethnic, and low-income communities are often the same populations that live in unsafe environments.[188]

The Robert Wood Johnson Foundation's Commission to Build a Healthier America issued a report on housing affordability and conditions within homes and surrounding neighborhoods that place individuals at greater risk for multiple health problems.[189] Examples of problems that impact health and safety include lead poisoning, which affects brain and nervous system development (e.g., lower intelligence and reading disabilities); residential overcrowding, which is linked to physical illness (e.g., tuberculosis) and psychological distress; and structural features of the home, which can lead to injuries and exposures that are detrimental to health.

High housing costs, poor housing quality, unstable neighborhoods, and overcrowding all contribute to housing instability.[190] Housing instability is a stressful life event that affects health directly and indirectly. Studies show that stable housing contributes to improved academic performance by children and to the socioeconomic stability of families. Stable environments also support care delivery to the elderly and to individuals with chronic illnesses and disabilities.

A review of the United States Department of Housing and Urban Development's (HUD) Public Housing Authority (PHA) and Office of Housing Programs (OHP) data (Exhibit 2-33) shows that the majority of assisted housing residents are White (51.7 percent and 60.4 percent, respectively). However, minorities are disproportionately represented in HUD housing. Households that have a female head or children have high participation in HUD housing (79.9 percent and 73.8 percent for female heads; 49.1 percent and 26.9 percent for homes with children), in contrast to homes with two adults (9.3 percent each for both HUD programs). Householders with disabilities also had high participation levels in HUD housing.

Improving health and safety cannot be accomplished without also addressing transportation. Much like housing, transportation affects health directly and indirectly — in addition to influencing access to affordable housing, transportation impacts access to healthy foods, health care and health-enabling services, educational opportunities, exercise facilities, and employment.[191, 192, 193]

Exhibit 2 33: U.S. Department of Housing and Urban Development (HUD): Assisted Housing, April 2007 September 2008

Demographic Indicators for Households	Assisted Households in Public Housing Authority Programs[a]	Assisted Households in Office of Housing Programs[b]
Reported Households[c]	2,779,073	1,402,146
Race/ethnicity (% of total)		
White	51.7%	60.4%
Black	44.1%	32.6%
AI/AN	0.8%	–
Asian	2.4%	–
NHOPI	0.4%	–
Multiple race	0.6%	–
Other race/ethnicity	–	5.0%
Missing data	–	2.0%
Total	*100%*	*100%*
Non Hispanic	80.5%	87.2%
Hispanic	19.5%	12.8%
Total	*100%*	*100%*
Percent of Households:		
With female head	79.9%	73.8%
With male head	20.1%	26.2%
With two adults[d]	9.3%	9.3%
With disability[e]	36.8%	23.4%
With children[f]	49.1%	26.9%

Source: Data provided to OMH by HUD, 10/16/2009 and are for the 18-month period ending September 30, 2008. Data exclude all records that show head of household to be under 15 years of age or over 105 years of age, as well as any record showing type of action to be either "end of participation" or "portability move-out."

AI/AN =American Indian & Alaskan Native; NHOPI = Native Hawaiian/Pacific Islander.

[a] Data are from the Public and Indian Housing Information System (PIC). Includes all programs (public housing; moderate rehabilitation programs; and tenant-based vouchers, which also include a small number of Section 8 certificates).

[b] Data are from the Tenant Rental Assistance Certification System (TRACS). Includes all programs (Section 8 project-based; rent supplement; Rental Assistance Program; Below Market Interest Rate; Section 236; Section 202/8; Section 202/PRAC; Sec 811/PRAC.).

[c] Reflects the number of households with tenant data reports in either the PIC or TRACS system.

[d] Indicates if there is a head and either a spouse or co-head present.

[e] Reflects whether the head or a spouse (if any) or a co-head (if any) is disabled, regardless of age.

[f] Reflects households with at least one child under the age of 18.

http://www.hud.gov/offices/pih/systems/pic/

http://www.hud.gov/offices/hsg/mfh/trx/trxsum.cfm

Psychological Stress

Short-term or mild-acute psychological stress is a normal part of daily life. Although the relationship between stress and health is complex and not well understood,[194] it is generally accepted that psychological stress reduces the body's defense systems and increases the risk of developing unhealthy conditions, illness, or disease — at a minimum by encouraging unhealthy and/or risky behaviors such as overeating, smoking, violent actions, or alcohol and drug abuse.[194] It is well established that experiencing stress over a long period of time can weaken the body's immune system, thus compromising a key bodily mechanism for protecting against infection and disease.[194-198] Many other studies point to stress as a contributing factor in the development of psychological diseases such as depression; physical diseases such as heart disease or cancer; and unhealthy conditions such as obesity.[194, 199-202]

Everyone experiences stress and any individual might experience events that severely strain his or her capacity to cope — events such as job loss, financial crisis, abuse, long-term health issues, or death of a family member or friend. Nevertheless, some populations are particularly at risk for experiencing stressful situations in the long term. Persons living in poverty or with low SES, especially racial and ethnic minorities, often work and live in more stressful environments where they face economic strain, insecure employment, and perceived low control at work.[203] Racial and ethnic minorities may, in addition, experience discrimination, racism, or perceptions of racism. As discussed below, racism contributes to stress — with all the attendant adverse health outcomes.

Addressing health disparities warrants a closer examination of how stress acts as a social determinant of health inequities. Eliminating health disparities also requires the development of evidence-based strategies that help individuals and communities prevent, minimize, and cope with stressful situations.

Racism

A growing body of research conceptualizes racism as a chronic stressor in the lives of African Americans and other minorities.[204] Perceived racial discrimination is associated with poorer physical health outcomes among minorities.[58] Research suggests that experience of racial and ethnic discrimination may be associated with increased rates of cardiovascular disease, hypertension, respiratory problems, chronic conditions, and poorer perceived physical health.[64,65] Although there are differences among various Asian subgroups, perceived discrimination among Asian Americans correlates with increased mental distress (e.g., anxiety and depression),[205] heart disease, pain, and respiratory illnesses.[206] Recent research indicates similar findings for Black and Latino immigrants.[207] A clear understanding of the exact pathway by which racism shapes health is unknown.[63]

Various lines of research suggest that stress from gender and racial discrimination, and lack of adequate social networks and coping strategies may contribute to the relatively high rates of infant mortality for African Americans compared to other populations in the United States.[208, 209]

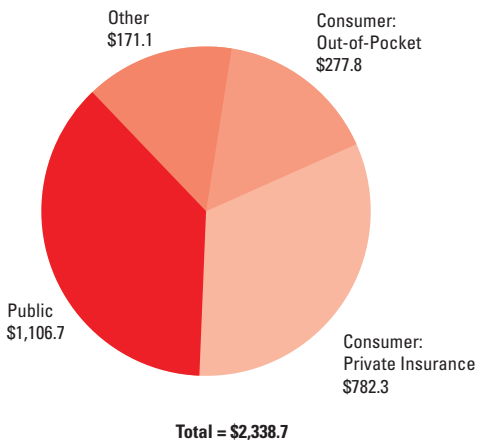
The Health System

A report developed for WHO's Commission on the Social Determinants of Health specified "the way health systems are designed, operated, and financed act as a powerful determinant of health."[210] Health systems were broadly defined to include "all actions whose primary purpose is to promote, restore, or maintain health."[211] These systems can promote prevention and have the potential to leverage, intervene, and act on the range of factors that influence health. With that said, efforts to improve health must consider determinants that exist not only outside, but also within the health system.[211]

Health care in the United States is supported through many public and private systems. Multiple components within these systems influence access, quality, cost, and use of care as well as preventive services.

One example of a health system is TRICARE, which provides healthcare coverage for the Department of Defense's service members, dependents, and retirees. A recent study examined disparities in health status, access to care, satisfaction with care, and preventive care for TRICARE beneficiaries. The study found fewer racial and ethnic health disparities among TRICARE beneficiaries as compared to racial and ethnic minorities in the civilian population. While the study found that some disparities do exist, the fewer disparities for TRICARE beneficiaries could be attributable to equitable access to high-quality health care.[212] Another study on the military oral healthcare system found that the disparities that exist between Black and White civilians for untreated dental caries and dental visits were absent among enlisted individuals.[213]

Exhibit 2 34: United States Health Expenditures, 2008
(in billions of dollars)



Source: U.S. Census Bureau, Table 132, National health expenditures by object, 1990 to 2008, and Projection, 2009. Other includes non-patient revenues, privately funded construction, and industrial inplant.
http://www.census.gov/compendia/statab/2011/tables/11s0152.pdf

Cost, Access, and Quality — The United States spends more on health care than any other industrialized nation. While Americans have benefitted from many of these investments, the United States as a whole has the worst record (out of the 19 industrialized nations) in premature deaths.[214] In two decades, healthcare costs have more than tripled from $714 billion in 1990.[215] The United States spent more than $2 trillion in 2008 for health care (Exhibit 2-34). These expenditures remained approximately the same in 2008, representing 16.2 percent of the gross domestic product.[216]

Many of the conditions for which there are large expenditures disparately affect racial and ethnic minorities (Exhibit 2-35).

Exhibit 2 35: Expenditures for Selected Medical Conditions, United States, 2008

Conditions	*Total expenses (in millions)*	Percent distribution of total expenses by source of payment				
		Out of pocket	Private insurance[a]	Medicare	Medicaid	Other[b]
Heart conditions	*95,577*	5.6	33.7	42.6	11.2	6.9
Trauma related disorders[c]	*74,291*	8.3	45.9	23.9	6.3	15.6
Cancer	*72,157*	6.6	47.8	31.4	6.8*	7.4
Mental disorders	*72,102*	17.0	30.6	19.1	25.5	7.8
COPD, asthma	*53,699*	14.8	38.4	26.2	15.5	5.1
Hypertension	*47,381*	19.6	27.6	32.5	10.9	9.4
Diabetes mellitus	*45,895*	18.9	32.5	30.8	10.8	7.0
Kidney disease	*19,859*	5.2	29.5	48.7	11.4	5.3
Infectious diseases	*16,202*	9.7	43.1	26.8	14.9	5.6
Gallbladder, pancreatic, and liver disease	*15,147*	5.7	57.6	16.9	13.9*	5.9*
Cerebrovascular disease	*18,835*	10.6	19.6	43.1	15.5	11.2

Source: Agency for Healthcare Research and Quality. Center for Financing, Access, and Cost Trends. Data and Surveys: Medical Expenditure Panel Survey. Health Care Costs/Expenditures. Data tables: Expenditures by medical condition. Table 4: Total expenses and percent distribution for selected conditions by source of payment: United States, 2008.
* Unreliable data COPD=chronic obstructive pulmonary disease
[a] Private insurance includes TRICARE (Armed Forces-related coverage).
[b] Other includes public programs such as Department of Veterans Affairs (except TRICARE); other federal sources (Indian Health Service, military treatment facilities, and other care provided by the federal government); other state and local sources; other public payments; Worker's Compensation; other unclassified sources (e.g., automobile, homeowner's, liability, and other miscellaneous or unknown sources); and other private insurance.
[c] Trauma-related disorders are clinical classification codes 225-236, 239, 240, 244. These include fractures, spinal cord injury, sprains, crushing injuries, wounds, contusions, burns.
http://www.meps.ahrq.gov/mepsweb/ Accessed March 23, 2011.

The contribution of healthcare disparities to the rising cost of health care is often unrecognized, as is the potential for reducing healthcare costs through reduction of health disparities. A recent study, *The Economic Burden of Health Inequalities in the United States*, issued by the Joint Center for Political and Economic Studies, provides insight to the costs associated with *not* eliminating health disparities (see Exhibit 2-36). Using data from the Medical Expenditure Panel Survey (MEPS), the study estimated direct and indirect costs for 2003 to 2006. Additionally the study used data from the *National Vital Statistics*

Report to estimate the number of deaths due to health disparities in each age group. The study concluded that "the combined costs of health inequalities and premature death in the United States were $1.24 trillion." Based on this study, the cost of health disparities will only continue to rise exponentially in the near future. Addressing health disparities is an obvious point of intervention that can provide both a financial and an ethical payoff.

Exhibit 2 36: Economic Burden of Health Inequities in the United States, 2003 2006	
Combined costs of health inequalities and premature death	*$1.24 trillion*
Potential reduction in the indirect costs associated with illness and premature death if minority health inequalities were eliminated	*$1 trillion*
Potential reduction in direct medical care expenditures if minority health disparities were eliminated	*$229.4 billion*
Percent of excess direct medical care expenditures for African Americans, Asians, and Hispanics that were due to health inequalities	*30.6%*
Source: T. LaViest, D. Gaskin, and P. Richard, The Economic Burden of Health Inequalities in the United States, 2009. Findings of a commissioned report from the Joint Center for Political and Economic Studies.	

Access to quality health care is an important dimension in achieving health equity.[210] Inadequate access to quality health care has adverse consequences, both on a personal and societal level, translating into years of life lost, decreased productivity, and increased burden of disease. The NHQR and the NHDR track a number of core measures of healthcare quality and access. Consistently, the results show large disparities by race, SES, and other factors.[89]

Despite the high levels of spending for health care, many Americans are disadvantaged because they are uninsured or underinsured. While access to quality health care alone will not eliminate health disparities, it is an important component for healthy living. A recent IOM report concluded that there is a compelling case for action to ensure that Americans have healthcare coverage. The report stressed that not only is insurance integral for better health but also that high rates of the uninsured have adverse effects on those who are insured.[217]

Compared to Whites, almost three times as many Hispanics and twice as many Blacks say that they have no health coverage (Exhibit 2-37). A Kaiser Family Foundation analysis of health coverage for Asian Americans, Native Hawaiians and Pacific Islanders, and subgroups revealed significant disparities compared to Whites.[218]

Exhibit 2 37: Healthcare Coverage, United States and Territories, 2009					
Adults aged 18-64 who say they have NO kind of healthcare coverage					
Race/Ethnicity		**Education**		**Income**	
Category	**Percent[a]**	**Category**	**Percent[a]**	**Category**	**Percent[a]**
All	*17.0*	***All***	*17.0*	***All***	*17.0*
White	13.6	**Less than H.S.**	37.7	**Less than $15,000**	40.0
Black	23.8	**H.S. or G.E.D.**	23.7	**$15,000 $24,999**	38.8
Hispanic	35.9	**Some post H.S.**	15.9	**$25,000 $34,999**	25.9
Other	16.4	**College graduate**	6.6	**$35,000 $49,999**	15.5
Multiracial	14.1			**More than $50,000**	4.9

Source: Centers for Disease Control and Prevention. Healthy Living. Data Statistics. Behavioral Risk Factor Surveillance System. Prevalence and Trends Database. U.S., 2008, Health care access/coverage by race, education, and income.
[a] Median values. Data from 50 states, DC, Guam, Puerto Rico, and the U.S. Virgin Islands. Data from subgroups may not include all entities.
Stool=blood stool test; S/C=sigmoidoscopy or colonoscopy.
H.S.=high school; G.E.D.=General Equivalency Diploma.
http://apps.nccd.cdc.gov/brfss/ Accessed March 23, 2011.

Additional information is provided in Appendix A on the geographic distribution of health insurance in the United States (Exhibit A-12 in Appendix) and on federal and private sources for health care and health research (Exhibits A-13 through A-19).

Insufficient attention has been paid to issues regarding the impact of health disparities on business performance.[219] The Bureau of Labor Statistics predicts that 41.5 percent of the U.S. workforce will be members of racial and ethnic minority groups within the next decade.[220] There are bottom-line costs associated with health disparities and work-related causes of health disparities (e.g., workplace injuries). The Integrated Business Benefits Institute estimates that the full cost of employee absences is more than four times that of the total medical payment. Absence-related costs are about 76 percent of net income when taking into account wage-replacement benefits and lost productivity from absences.[219] The literature also shows that the higher the number of health risks an employee has, the higher the number of excess claims for each risk, the higher the number of days absent, and the higher the percentage of worker's compensation claims filed.[221]

Often employers are not aware of health disparities and the adverse impact on their employees. Consequently, they miss the dual opportunity of improving worker health and reducing insurance and healthcare costs. The National Business Group on Health completed a member survey in 2008 to determine employer awareness of health disparities.[222] Employers were surveyed about diversity strategies, awareness of disparities as drivers of direct and indirect costs, and actions taken to improve employee health and reduce disparities. The following are the key findings of the survey:

- Little initiative has been taken to track disparities among employees.
- The majority of employers were unaware of disparities as a business issue.
- Only one-third of participants thought reducing disparities was an important or very important issue.
- Few employers have undertaken efforts to make employees aware of strategies they have implemented to reduce healthcare disparities.
- The potential for reducing disparities was not generally a criterion for selecting health plans.
- The top barrier to implementing a disparities-reduction program was lack of data identifying the problem.

Based on these findings, it is not surprising that employers are often neither equipped nor prepared to ensure that all employees receive information about their personal and family health and health care in ways that are culturally and linguistically appropriate. The time and money spent on ensuring employee health is a worthwhile investment. Healthier workers mean lower healthcare costs and healthier communities. Additionally, a healthy workforce leads to improved productivity as well as employee satisfaction and retention.[223]

End-of Life Care — A 2009 study of approximately 160,000 Medicare beneficiaries in the last six months of life found that costs were higher for minorities.[224] Costs for White patients averaged $20,166 in this period. By comparison, the average costs for Black and Hispanic patients were about 30 percent and nearly 60 percent higher, respectively. The higher costs reflect greater use of intensive, life-sustaining interventions at the end of life for these populations. African Americans are more likely than White patients to leave hospice at the end of life to pursue aggressive therapies that may prolong survival.[225] African Americans and Hispanics who live in predominantly minority neighborhoods are less likely to use hospice than are African Americans and Hispanics who live in predominantly White neighborhoods.[226] In general, racial and ethnic minorities use hospice services less often than Whites, regardless of socio-demographic and clinical characteristics.[227] The reasons for low usage of hospice by minorities are not well understood but may include social or cultural customs; lack of knowledge or misperceptions about hospice and palliative care; or limited resources or access related to hospice care.

Preventive Care — Improving prevention is central to improving America's health. Immunizations and screenings are effective prevention tools. Disparities in immunizations and colorectal cancer screenings exist for older Black, Hispanic, and multiracial adults, and for those with lower educational attainment and low SES (see Exhibits 2-38 and 2-39). In 2008, nearly 45 percent of adults aged 65 years or older who had not had a flu shot within the past year were Black and nearly 34 percent were Hispanic, compared to only 28 percent of older White adults. Similarly, 51 percent of Hispanics and 48 percent of Blacks had not had a pneumonia vaccination, compared to only 31 percent for Whites (Exhibit 2-38).

Exhibit 2 38: Immunization, Older Adults, United States and Territories, 2008

Adults aged 65+ who have NOT had a flu shot within the past year or have NEVER had a pneumonia vaccination

Race/Ethnicity			Education			Income		
Category	Percent[a]		Category	Percent[a]		Category	Percent[a]	
	Flu	Pneumonia		Flu	Pneumonia		Flu	Pneumonia
All	*29.1*	*33.1*	*All*	*29.1*	*33.1*	*All*	*29.1*	*33.1*
White	27.5	30.5	Less than H.S.	34.9	38.0	Less than $15,000	34.8	33.8
Black	44.9	47.5	H.S. or G.E.D.	30.1	32.2	$15,000 $24,999	30.8	32.4
Hispanic	33.9	50.8	Some post H.S.	26.6	29.7	$25,000 $34,999	25.7	29.3
Other	21.4	29.5	College graduate	25.2	32.7	$35,000 $49,999	26.2	31.2
Multiracial	28.1	37.7				More than $50,000	25.9	34.5

Source: Centers for Disease Control and Prevention. Healthy Living. Data Statistics. Behavioral Risk Factor Surveillance System. Prevalence and Trends Database. U.S., 2008, Immunization by race, education, and income.
[a]Median values. Data from 50 states, D.C., Guam, Puerto Rico, and the U.S. Virgin Islands (data from subgroups may not include all entities).
H.S.=high school; G.E.D.=General Equivalency Diploma.
http://apps.nccd.cdc.gov/brfss/ Accessed March 23, 2011.

Colorectal cancer is the third most common cancer and the third leading cause of cancer mortality in men and women.[116] Screening for colorectal cancer in individuals over age 50 is an important strategy for early detection of cancer. Nevertheless, disparities exist for colorectal cancer screening. In 2008, a high percentage of Hispanics age 50 or older and older adults with less than a high school education who earned less than $15,000 per year reported that they had not had a blood stool test within the previous two years (Exhibit 2-39).

Approximately 52 percent of Hispanics and 42 percent of Blacks age 50 or older said that they never had a sigmoidoscopy or colonoscopy compared to 36 percent of older White adults. Forty-eight percent of those who had not been screened had less than a high school degree and nearly 48 percent earned less than $15,000 a year (Exhibit 2-39).

Exhibit 2 39: Colorectal Cancer Screening, United States and Territories, 2008

Adults aged 50+ who have NOT had a blood stool test within the past two years or have NEVER had a sigmoidoscopy or colonoscopy

Race/Ethnicity			Education			Income		
Category	Percent[a]		Category	Percent[a]		Category	Percent[a]	
	Stool	S/C		Stool	S/C		Stool	S/C
All	*79.1*	*38.2*	*All*	*79.1*	*38.2*	*All*	*79.1*	*38.2*
White	78.7	36.0	Less than H.S.	82.6	48.0	Less than $15,000	82.2	47.9
Black	76.4	42.0	H.S. or G.E.D.	79.5	41.4	$15,000 $24,999	78.1	43.9
Hispanic	86.9	51.8	Some post H.S.	78.8	38.0	$25,000 $34,999	78.5	38.7
Other	85.0	52.5	College graduate	78.5	31.1	$35,000 $49,999	78.2	37.4
Multiracial	77.8	42.8				More than $50,000	80.0	34.3

Source: Centers for Disease Control and Prevention. Healthy Living. Data Statistics. Behavioral Risk Factor Surveillance System. Prevalence and Trends Database. U.S., 2008, Colorectal screening by race, education, and income.
[a]Median values. Data from 50 states, DC, Guam, Puerto Rico, and the U.S. Virgin Islands. Data from subgroups may not include all entities.
Stool=blood stool test; S/C=sigmoidoscopy or colonoscopy.
H.S.=high school; G.E.D.=General Equivalency Diploma.
http://apps.nccd.cdc.gov/brfss/ Accessed March 23, 2011.

Behavioral Determinants of Health

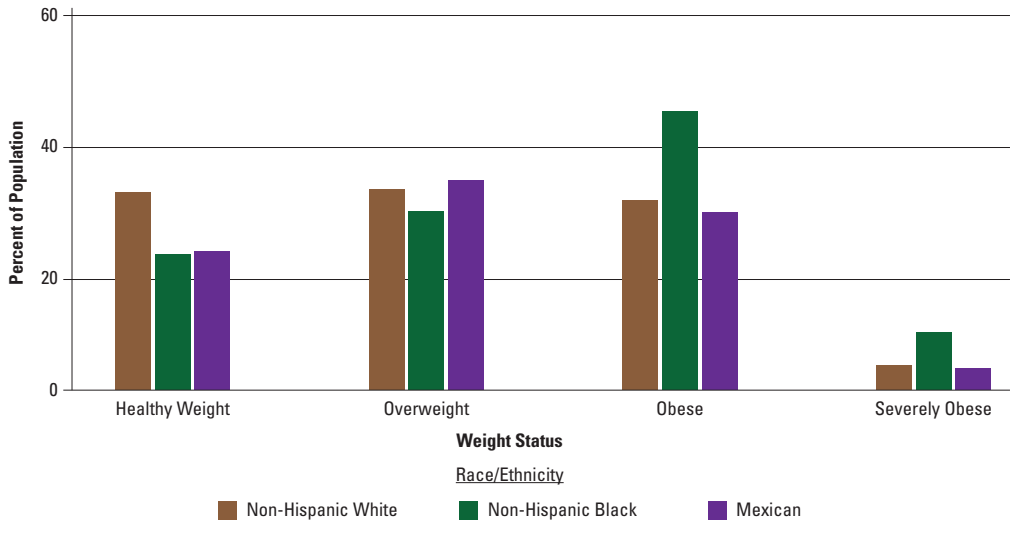
It is almost universally accepted that diseases arise as the result of a chain of events. Somewhere among the intermediate links in the causal chain lie human behaviors (also called "health behaviors") that can directly influence the risk of disease. Health behaviors often associate with or affect populations in different ways, significantly contributing to the emergence of health disparities. Since health behaviors are among the few modifiable risk factors that exist for some diseases, a thorough understanding of their epidemiological, ethnographic, and socioeconomic underpinnings is critically important for closing persistent gaps in health and healthcare status. Health behaviors seldom occur in isolation; instead, they combine into clusters that influence a person or group's overall risk of disease. For example, the sedentary lifestyle of a growing number of people comprises a more-or-less consistent set of mutually interacting behaviors, such as engaging in little exercise, eating foods of poor nutritional value, consuming high caloric drinks, and perhaps also smoking cigarettes or experimenting with other addictive substances. While these aggregated factors may not inevitably cause disease, they will elevate the risk of becoming obese and/or of suffering high blood pressure, cardiovascular disease, and addiction.

It is often difficult for individuals to make positive, long-term changes to reverse unhealthy behaviors, even though such changes can have a substantial payoff in improved health outcomes. A key component of prevention includes intervention strategies to help individuals avoid or modify unhealthy behavioral determinants. The following discussion highlights some of the most common behavioral determinants of health.

Overweight and Obesity

The CDC indicates "overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height."[228] For adults, overweight and obesity ranges are determined by using weight and height to calculate BMI. An adult who has a BMI between 25 and 29.9 is considered overweight. An adult who has a BMI of 30 or higher is considered obese. While BMI generally correlates with body fat, it does not measure body fat. Thus some individuals, such as athletes, may have a high BMI because of muscle weight, but do not have excess body fat and are not considered overweight or obese.[228] It is estimated that nearly 34 percent of individuals 20 years and older in the United States are obese, 34 percent are overweight (but not obese). Close to one in five adolescents (ages 12–19) is overweight.[229] A number of factors influence weight (e.g., behavior, genetics, environment). Being overweight or obese places people at risk for many conditions (e.g., heart disease, diabetes, arthritis, high blood pressure, certain cancers, and strokes). In addition, these conditions evidence disparities for racial and ethnic minorities and other groups. Non-Hispanic Blacks have the highest rates of obesity and severe obesity, followed by Mexican Americans. Non-Hispanic Whites have the highest rates of healthy weight (Exhibit 2-40).

Exhibit 2-40: Overweight and Obesity by Race and Ethnicity, United States, 2005 2008



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Health Data Interactive. Risk factors and disease prevention. Overweight/obesity: U.S., 1998-2008 (source: NVSS). Data for 2005-2008 presented here. Data available only for races and ethnicity shown. Data are age-adjusted for ages 20 and older. Data are for measured body mass index (BMI). Healthy weight=BMI 18.5 to less than 25.0; overweight=BMI 25.0 to less than 30.0; obese=BMI greater than or equal to 30.0; severely obese=BMI greater than or equal to 40.0.
http://www.cdc.gov/nchs/hdi.htm Accessed March 24, 2011.

Overweight and obesity are usually related to an individual's patterns of exercise and food intake — two components that are valuable points of intervention for controlling weight. It is particularly vital that children have supervised, vigorous physical activity and nutritious foods at school and home. The rate of childhood and adolescent obesity has doubled or tripled since the late 1970's. Comparing the period 1976-1980 to the period 2007-2008, the obesity rate rose from 5 percent to 10.4 percent for preschoolers ages two to five years; from 6.5 percent to 19.6 percent among six-to-11 year olds; and from 5 percent to 18.1 percent among adolescents ages 12-19.[230] Childhood obesity has been associated with a myriad of acute and chronic health conditions including psychological stress, high cholesterol, high blood pressure, asthma, heart disease, and diabetes.[230] The estimated direct cost of childhood obesity is at billions of dollars annually.[223]

Exercise

Race, ethnicity, low education levels, and low income are related to low participation in physical exercise (see Exhibit 2-41). Approximately 32 percent of Hispanics and 32 percent of Blacks self reported that they did not participate in physical activities during the past month compared to about 23 percent of Whites. Further, nearly 42 percent of individuals who earned less than a high school degree self reported that they did not participate in any physical activity during the past month compared to approximately 15 percent of college graduates. There was also a directly proportional relationship between physical activity and income. Individuals earning less than $15,000 a year reported less participation in physical activity during the past month than those earning more than $50,000

Exhibit 2 41: Exercise by Race, Ethnicity, Education, and Income, United States and Territories, 2008

Persons who did NOT participate in any physical activities during the past month

Race/Ethnicity		Education		Income	
Category	Percent[a]	Category	Percent[a]	Category	Percent[a]
All	*24.8*	*All*	*24.8*	*All*	*24.8*
White	22.6	Less than H.S.	41.9	Less than $15,000	41.7
Black	31.6	H.S. or G.E.D.	32.2	$15,000 $24,999	36.1
Hispanic	32.3	Some post H.S.	23.8	$25,000 $34,999	31.4
Other	25.8	College graduate	14.8	$35,000 $49,999	25.6
Multiracial	18.8			More than $50,000	16.8

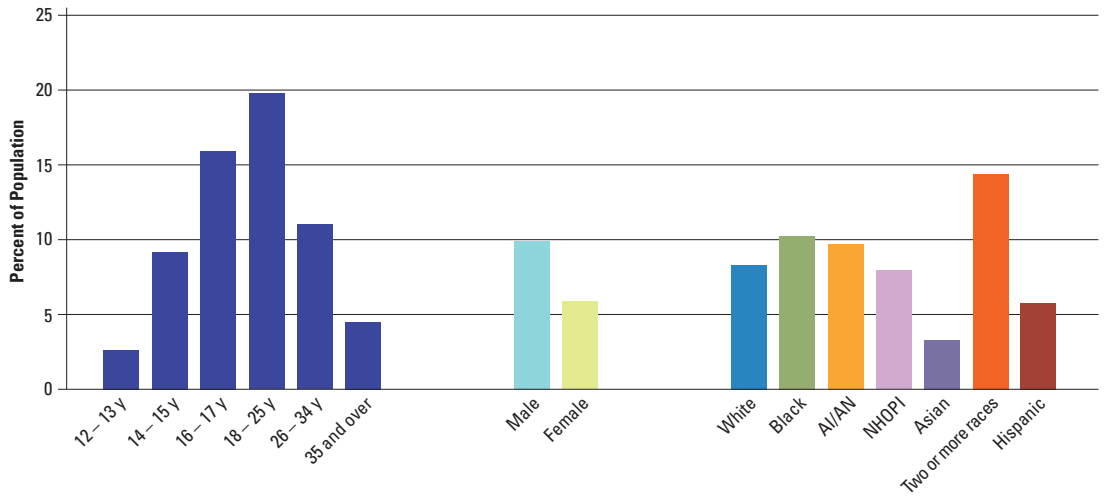
Source: Centers for Disease Control and Prevention. Healthy Living. Data and Statistics. Behavioral Risk Factor Surveillance System. Prevalence and Trends Database. United States, 2009, Exercise by race, education, and income.
[a]Median values. Data from 50 states, D.C., Guam, Puerto Rico, and the U.S. Virgin Islands (data from subgroups may not include all entities).
H.S.=high school. G.E.D.=General Equivalency Diploma.
http://apps.nccd.cdc.gov/brfss/index.htm Accessed March 24, 2011.

Illicit Drugs, Tobacco, and Alcohol

Use of illicit drugs, use of tobacco, and abuse of alcohol are linked to adverse health outcomes including disease, violence, and unintentional death. As discussed below, these substances are more likely used by younger individuals, males, and some racial and ethnic groups.

Illicit Drugs — An estimated 20.1 million Americans (8 percent), age 12 years and older used an illicit drug in the past month, as surveyed in 2008, with marijuana leading the way as the most commonly used drug.[232] Illicit drug use in the United States is most common among males, individuals 18-25 years of age, and American Indians and Alaskan Natives (Exhibit 2-42). Drug use increases steadily from age 12-13, peaks at 18-25 years of age, followed by declines in usage.

Exhibit 2 42: Illicit Drug Use by Age, Gender, Race, and Hispanic Origin, United States, 2008



Source: Centers for Disease Control and Prevention. National Center for Health and Statistics. Publications and Information Products. Health, United States, 2010. Table 61: Use of selected substances [illicit drug use] in the past month among persons 12 years of age and over, by age, sex, race, and Hispanic origin: United States, 2002-2008. Data for 2008 presented here. Data are based on household interviews of a sample of civilian non-institutionalized population 12 years of age and over.
Includes use of any illicit drug in the past month, including marijuana or hashish, cocaine (including crack), heroin, hallucinogens (including LSD and PCP), inhalants, or any prescription-type psychotherapeutic drug used non-medically.
AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander.
http://www.cdc.gov/nchs/data/hus/hus10.pdf

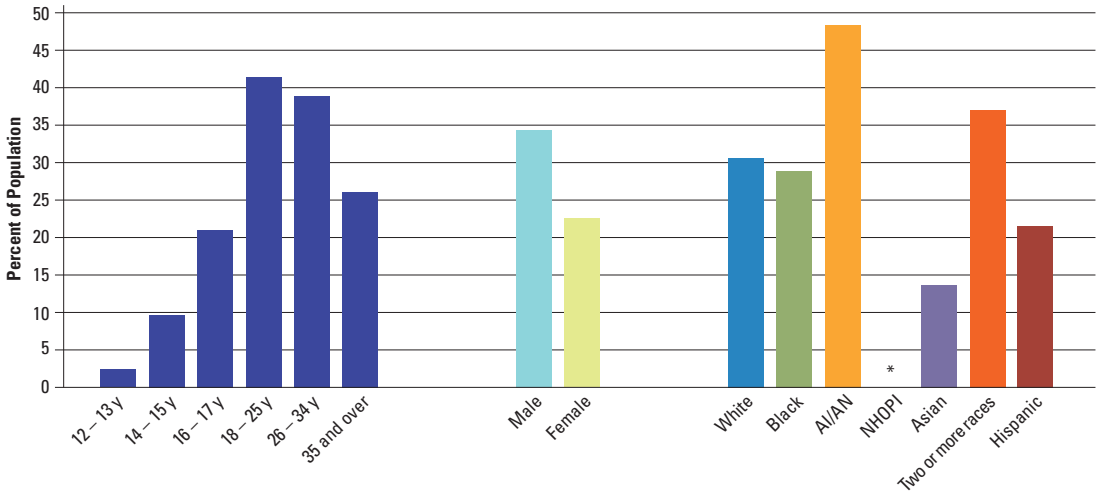
Marijuana use by adolescents has declined since the 1990s, but that decline has leveled off. Adolescent use of methamphetamine, cocaine, and hallucinogens continues to decline.[233] However, adolescent abuse of prescription drugs (e.g., pain medications like OxyContin and Vicodin) continues to increase.[233]

Tobacco — An estimated 46 million adults in the United States currently smoke cigarettes.[234] Cigarette smoking is the leading preventable cause of disease and death in this country accounting for one in five deaths annually or about 443,000 deaths per year. Deaths related to tobacco usage are more numerous than all deaths combined due to HIV, illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders.[235] Smoking has many adverse health effects including increased risks of cancer, heart disease, stroke, respiratory diseases, infertility, low birthweight, and SIDS.[235]

According to 2006 NSDUH data (Exhibit 2-43), tobacco use peaks at ages 18-25, is more common in males than females, and is highest among American Indians and Alaskan Natives, and multiracial individuals (data is not reliable for Native Hawaiians and Pacific Islanders in this data set). An earlier Surgeon General's study of tobacco use among racial and ethnic minorities highlights some of the social and cultural aspects of smoking among minority populations.[236] The report notes that "no single factor determines

patterns of tobacco use among racial and ethnic minority groups; these patterns are the result of complex interactions of multiple factors, such as SES, cultural characteristics, acculturation, stress, biological elements, targeted advertising, price of tobacco products, and varying capacities of communities to mount effective tobacco control initiatives." The report also points to the deleterious effects of the tobacco industry's targeted advertising of its products to minority communities.

Exhibit 2 43: Tobacco Use by Age, Gender, Race, and Hispanic Origin, United States, 2008



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Publications and Information Products. Health, United States, 2010. Table 61: Use of selected substances [tobacco use] in the past month among persons 12 years of age and over, by age, sex, race, and Hispanic origin: United States, 2002-2008. Data for 2008 presented here. Data are based on household interviews of a sample of civilian non-institutionalized population 12 years of age and over.
Includes use of any tobacco products in the past month, including cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.
*=unreliable data AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander.
http://www.cdc.gov/nchs/data/hus/hus10.pdf Accessed March 25, 2011.

Such advertising can significantly undermine smoking control and prevention efforts in minority communities — resulting in poor health outcomes directly related to tobacco use. On September 22, 2009, Congress authorized the new Family Smoking and Tobacco Control Act, which bans the sale of flavored cigarettes. This act aims to reduce the number of children who start and/or continue to smoke because of the marketing and availability of this type of cigarette, which might be particularly attractive to young people.[237]

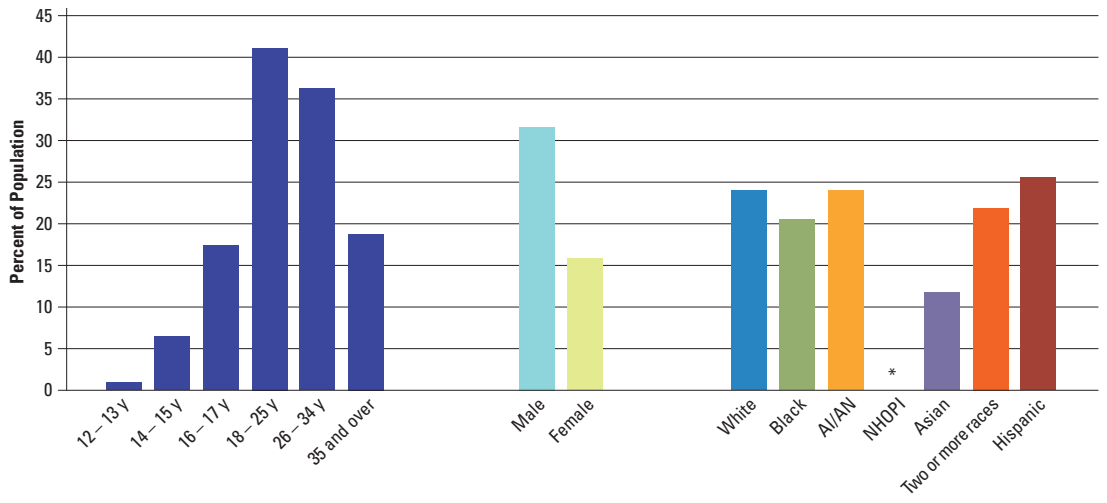
Significant geographic tobacco-related disparities exist in the South and Midwest. These regions generally have fewer smoke-free protections, lower tobacco taxes, and limited tobacco-control funding. In addition, higher rates of cigarette use are seen in nonmetropolitan areas compared to metropolitan areas.[238]

Secondhand smoke continues to be a hazard and its elimination is an ongoing goal of legislative and social action. Cigarette smoking increases the incidence of morbidity and mortality in both users and non-users of

this product. More than 126 million non-smokers are regularly exposed to secondhand smoke. Homes and workplaces are primary locations for secondhand smoke, with almost 60 percent of young children (ages three-to-11 years) exposed to this noxious environment. In addition to children, secondhand smoke exposure tends to be higher among persons of lower incomes and African Americans.[239] An estimated 49,000 of tobacco-related deaths are the result of secondhand smoke exposure.[240]

Alcohol — Excessive alcohol use (i.e., excessive drinking or binge alcohol use) increases the risk of unintentional death, violence, risky sexual behaviors, alcohol poisoning, psychiatric problems, or diseases such as liver disease.[242] Abuse of alcohol is the third leading lifestyle-related cause of death in the United States.[242] Binge alcohol use is likewise more common in younger age groups (ages 18-34 years), in males, and in American Indians and Alaskan Natives (Exhibit 2-44). Driving while under the influence of alcohol and the resultant risk of traffic fatalities continue to be a concern for specific populations. In 2008, 12.4 percent of individuals age 12 or older reported driving under the influence of alcohol at least once in the past year — although this represents a decline from a rate of 14.2 percent in 2002.[227]

Exhibit 2-44: Binge Alcohol Use, by Age, Gender, Race, and Hispanic Origin, United States, 2008



Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Publications and Information Products. Health, United States, 2010. Table 61: Use of selected substances [binge alcohol use] in the past month among persons 12 years of age and over, by age, sex, race, and Hispanic origin: United States, 2002-2008. Data for 2008 presented here. Data are based on household interviews of a sample of civilian non-institutionalized population 12 years of age and over.
Binge alcohol use is defined as drinking five or more drinks on the same occasion on at least 1 day in the past 30 days. Occasion is defined as at the same time or within a couple of hours of each other.
*=unreliable data AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander.
http://www.cdc.gov/nchs/data/hus/hus10.pdf Accessed March 25, 2011.

Environmental Determinants of Health

The physical environment plays a vital and primary role in health outcomes. To a great extent, the environment determines whether or not we are healthy — through access (or not) to clean air and water, healthy working conditions, and safe housing, roads, and communities.[243] WHO estimates that each year, 13 million deaths worldwide are due to preventable environmental causes. WHO argues that a quarter of all preventable illnesses can be avoided through proper environmental management.[244] Points of intervention include, for example, indoor and outdoor air pollution; chemical safety in the local environment; ionizing and ultraviolet radiation exposure; and water, sanitation, and hygiene facilities.[245]

Healthy People 2020 describes the physical environment as "that which can be seen, touched, heard, smelled, and tasted. However, the physical environment also contains less tangible elements, such as radiation. The physical environment can harm individual and community health, especially when individuals and communities are exposed to toxic substances; irritants; infectious agents; and physical hazards in homes, schools, and worksites. The physical environment also can promote good health, for example, by providing clean and safe places for people to work, exercise, and play."[43]

The environmental determinants of health are important contributors to health disparities. Several lines of evidence suggest that minority and low-income populations experience a higher burden for some exposures and diseases related to the physical environment as shown in the exhibits below. The United States Environmental Protection Agency (EPA) issued a key "environmental equity" report, which concluded that:[246]

- Racial minority and low-income populations experience higher than average exposures to selected air pollutants, hazardous waste facilities, contaminated fish, and agricultural pesticides in the workplace.

- There are clear differences between racial groups in terms of disease and death rates. There is also limited data to explain the environmental contribution to these differences. In fact, there is a general lack of data on environmental health effects by race and income. For diseases that are known to have environmental causes, data are not typically disaggregated by race and socioeconomic group. The notable exception is lead poisoning: a significantly higher percentage of Black children compared to White children have unacceptably high blood-lead levels.

- Great opportunities exist for EPA and other government agencies to improve communication about environmental problems with members of low-income and racial minority groups.

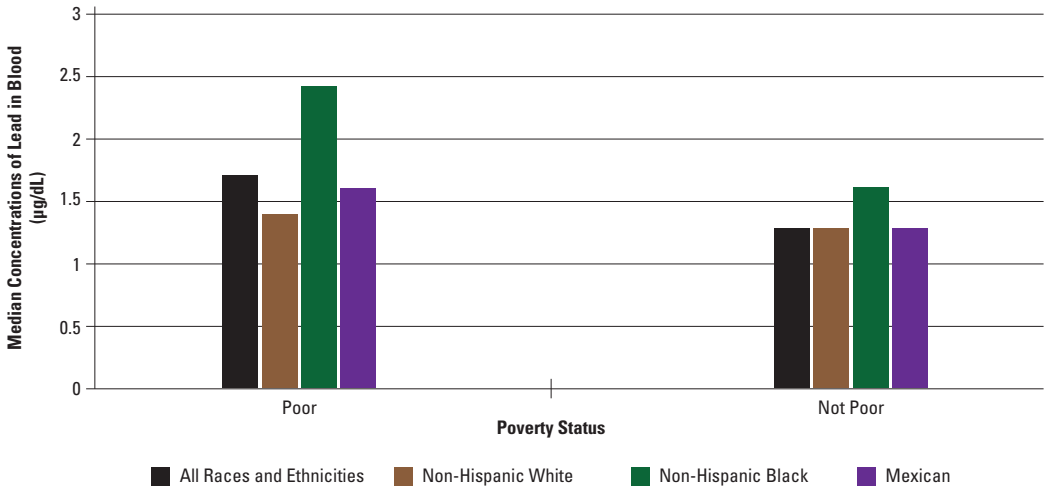
Geographic locations have varying constellations of environmental hazards. For example, some urban environments are characterized by poor air quality, crowded and unsafe housing (e.g. lead paint), limited access to fresh foods, safe places to play and exercise, and unsafe or violent neighborhoods. A high percentage of minorities reside in urban centers. Alternatively, those living in rural environments may be exposed to higher levels of hazardous waste (e.g., farm-related pesticides and petroleum products).[247, 248]

The following information provides a brief summary on blood-lead levels, asthma, and the workplace environment as they relate to environmental determinants of health.

Blood-Lead Levels

Bio-monitoring data highlights disparities in actual body burdens of environmental toxins. Lead is a neurotoxic metal and an environmental toxin that is clearly linked to disparities in exposure burden related to race, ethnicity, and income. Lead poisoning is entirely preventable.[249] Children are especially at risk to lead exposure due to unique behaviors (e.g., hand-to-mouth behavior). Further, most of the available evidence suggests that children are more biologically susceptible to the adverse effects of lead because of their developing brains and nervous systems.[250] Especially at risk are very young children for whom exposure per pound of weight is high due to their small size and because of their undeveloped blood-brain barriers.[250,251] Lead exposure in children ages one-to-five is more prevalent among African Americans — who tend to reside in urban areas where older homes may contain lead-based paint hazards[250] (Exhibit 2-45). Blood-lead levels are also high for poor children of all races and ethnicities, compared to their non-poor counterparts.

Exhibit 2-45: Blood-Lead Concentrations in Children, Ages 1 5, by Race, Ethnicity, and Family Income, 2005 2008



Source: U.S. Environmental Protection Agency. Science and Technology: Health. America's Children and the Environment. Body Burdens. Measure B2: Median concentrations of lead in blood of children ages 1-5 by race, ethnicity, and family income.
Data available only for races and ethnicity shown. Poverty status according to U.S. Census Bureau's "poverty income ratio" definitions.
Poor=less than 100% of the poverty threshold; Not poor=200% of the poverty threshold or greater.
http://www.epa.gov/economics/children/body_burdens/b2-table.html Accessed March 25, 2011.

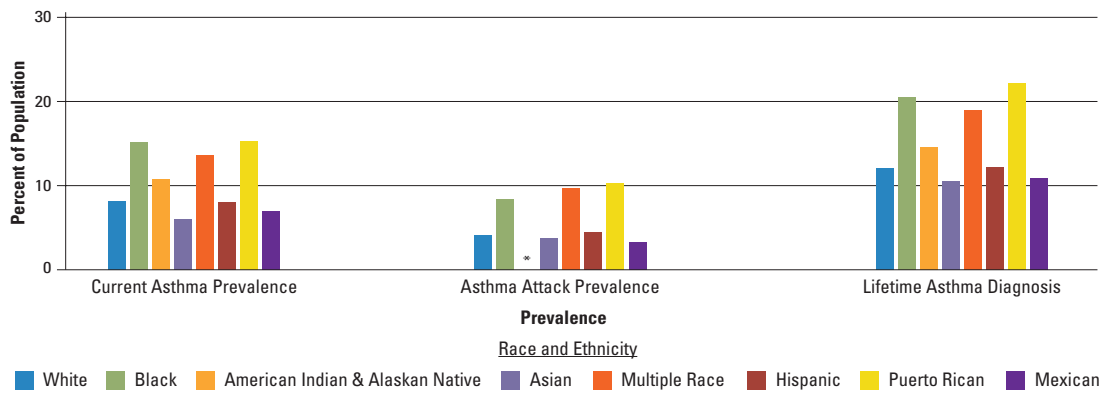
Asthma

Asthma, a chronic respiratory disease, is an environmentally associated disease that disproportionately burdens some minority groups. Asthma attacks can range in severity from mild to life threatening. The etiology of asthma is largely unknown. However, susceptibility for development of asthma can include a family history of the disease or environmental triggers such as tobacco smoke, dust mites, cockroach allergens, pets, mold, or outdoor air pollution (e.g., ozone, particulate matter).[250] In 2005 there were 3,884 deaths in the United States (1.3 deaths per 100,000 population) in which asthma was the underlying cause of death.[252] The majority of these deaths are preventable given established treatment, including avoidance of factors (such as environmental triggers) that initiate asthma attacks.[252]

There are three measures of asthma prevalence. "Asthma attack prevalence" is a measure of individuals who have had an asthma episode or attack in the past 12 months. "Current asthma prevalence" measures individuals who have been told they had asthma and were asked whether they still had asthma. "Lifetime asthma diagnosis" measures individuals who reported whether they had ever been told by a health professional that they had asthma. All three measures evidence disparities by race, ethnicity, and SES.[250]

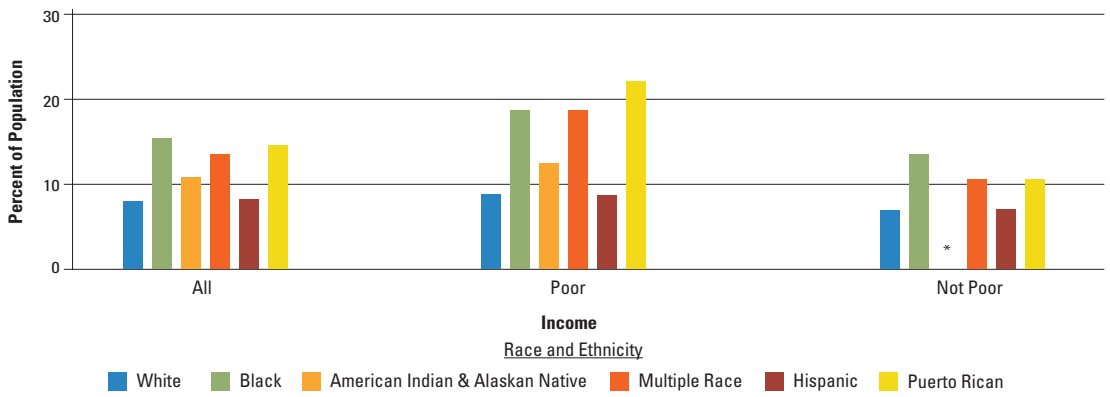
In 2006, nearly 4 million children experienced an asthma attack during the previous 12 months.[250] In all three categories of indicators (see Exhibit 2-46), Puerto Rican, African American, and multiple-race children (from birth to age 17) bore a heavier burden of asthma than did children from the other races or ethnicities shown. Poverty is also a risk factor for asthma as shown in Exhibit 2-47. In all cases, poor children have a higher prevalence of asthma than do non-poor children. Of particular note is the double burden of poverty and minority status that is evident for both asthma and blood-lead level, such that even non-poor Black and Hispanic children have a higher burden of adverse factors than do their White counterparts.

Exhibit 2-46: Asthma Prevalence in Children, Ages 0 17, by Race and Ethnicity, United States, 2007 2009



Source: Centers for Disease Control and Prevention. National Center for Health Stastics. Health Data Interactive. Health Conditions. Asthma and chronic obstructive pulmonary disease: United States, 1998-2009 (source:NHIS). Data for 2007-2009 presented here.
* = unreliable data.
http://www.cdc.gov/nchs/hdi.htm Accessed March 25, 2011.
Note: The Asian race group includes persons who identify themselves as one or more of several different Asian subgroups. Prior to 1999, respondents who identified their race group as "other Asian/Pacific Islander" are included in the "Asian" category in this table. Beginning in 1999, the "other Asian/Pacific Islander" category was replaced by two categories: "other Asian" and "other Pacific Islander."

Exhibit 2 47: Current Asthma Prevalence in Children, Ages 0 17, by Poverty Status, United States, 2007 2009



Source: Centers for Disease Control and Prevention. National Center for Health Stastics. Health Data Interactive. Health Conditions. Asthma and chronic obstructive pulmonary disease: United States, 1998-2009 (source: NHIS). Data for 2007-2009 presented here. Poverty status according to U.S. Census Bureau's "poverty income ratio" definitions. Poor=less than 100% of the poverty threshold; Not poor=200% of the poverty threshold or greater.
* = unreliable data.
http://www.cdc.gov/nchs/hdi.htm Accessed March 25, 2011.

The prevalence of asthma is lower in adults than in children. It is higher among adult females compared to males. This is in contrast with data on children that shows asthma is higher in males than females.[250] However, just as for children, lifetime asthma diagnosis for adults shows disparities by race and SES. African American and multiracial adults, those with less than a high school education, and those with low incomes have a higher lifetime diagnosis of asthma.

Workplace Exposures and Injuries

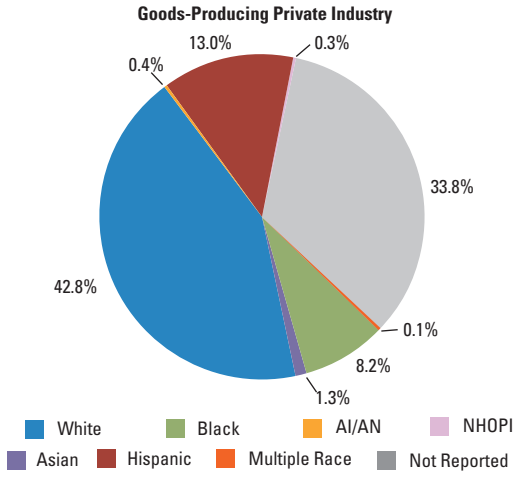
Workplace fatalities, injuries, and illnesses are a significant environmental determinant of health. Just as for other health indicators, disparities in occupational health and safety exist. A 2004 study reveals that minorities were twice as likely to remain disabled after occupational back injuries. The study attributes this to inadequate prescription of relief medication for lower back pain.[253] A recent review found minority patients are:[146]

- Less likely to receive any pain medication
- More likely to receive lower doses of pain medication
- Less likely to receive treatment that falls within WHO recommendations for pain management

As noted in Section 1, the private sector is beginning to realize that there are real bottom-line costs associated with disparities in occupational health and safety. The impact of work-related injury, illness, and death is a significant economic incentive for decreasing health disparities.

There is an indication that Hispanics are proportionally overrepresented (19 percent) for injuries in goods-producing industries compared to their numbers in the population at large (Exhibit 2-48). For example, between 1992 and 2001, Hispanic construction workers were consistently killed on the job more frequently than non-Hispanic workers.[254]

Exhibit 2-48: Nonfatal Occupational Injuries And Illnesses Involving Days Away From Work, United States, 2009



Source: U.S. Department of Labor. Subject Areas: Workplace Injuries. Nonfatal Occupational Injuries and Illnesses. Table 5. Number, percent distribution, and median days away from work for nonfatal occupational injuries and illnesses involving days away from work by related worker characteristics and private industry, state government, and local government, 2009.
Days-away-from-work cases include those that resulted in days away from work, some of which also included job transfer or restriction. Excludes farms with fewer than 11 employees. Because of rounding and data exclusion of nonclassified reponses, percentages may not eqaul to 100%.
AI/AN=American Indian and Alaskan Native;
NHOPI=Native Hawaiian and Pacific Islander.
http://www.bls.gov/news.release/osh2.nr0.htm
Accessed March 25, 2011.

Agricultural workers are at much greater risk for morbidity and mortality from pesticide poisoning than are non-agricultural workers; female workers are at higher risk than are male workers.[255] Further, agricultural workers may expose their children by unknowingly bringing pesticides home on their clothing.

Women are at increased risk for musculoskeletal disorders and acute injuries when using poorly sized personal protection or other equipment designed for men or when lifting heavy loads. Women generally have more work-related problems than do men related to respiratory and infectious diseases, anxiety and stress disorders, and sexual harassment.[256]

Occupation is a key component of SES, and those working at lower-SES jobs are at higher risk for workplace exposures and injuries.[257, 258] For example, a MacArthur Research Network study noted that lower-SES workers are more likely to be exposed to noxious chemicals and physical hazards such as noise, heat, heavy lifting, long work hours, unstable shift assignments, and risk of injury.[258] The study concludes that "although labor policy may seem distant from health policy, the fact is that each affects the other ... the investment we make in improving work conditions — including policies that reduce stress in the work world or that enable workers to cope with the pressures that cannot easily be changed — will make a difference in reducing disparities between the most and least-advantaged workers."[258]

Thus, policymakers, employers, labor unions, and other workplace stakeholders are necessary partners in developing comprehensive health intervention programs and in identifying the workplace as an important place to implement interventions that promote health equity. The National Institute for Occupational Safety

and Health's WorkLife Initiative is an example of an approach combining workplace protections with health promotion activities.[259] Another example comes from the recommendations of the American Heart Association, which provide a comprehensive approach to workplace wellness including reducing workplace stress and controlling hazardous exposures as key components of a successful program.[260]

Biological and Genetic Determinants of Health

Health is determined by a complex interaction of biological, genetic, social, environmental, and developmental factors. Advances in science and scientific methods, particularly in our understanding of genetics and epigenetics, have greatly enhanced our ability to document and explore these interactions. For example, African Americans evidence disparities in heart disease. Various gene loci have been linked to early-onset hypertension or to risk of heart failure in African Americans.[261, 262] Research that examines the potential biological or genetic determinants of health has traditionally involved the medical and bench-research sciences rather than the social sciences. However, transdisciplinary research approaches and teams are becoming the norm. A number of studies, such as the federally sponsored Jackson Heart Study, began in 2000 as an epidemiological examination of cardiovascular disease in African Americans.[263] The comprehensive Jackson Heart Study (which is similar to the Framingham Heart Study of predominantly White individuals), examines and identifies environmental, genetic, and other risk factors that influence the development of cardiovascular diseases in African American men and women.

Members of racial and ethnic minority groups have been historically underrepresented in clinical research studies and clinical trials,[264, 265] yet it is such studies that are the means by which biological and genetic determinants can be identified. Efforts continue for the identification of strategies that will attract and retain racial and ethnic minorities for medical research studies. For example, the Antihypertensive and Lipid Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)[266] and the African American Heart Failure Trial (A-HeFT)[267] are programs that include African Americans and other racial and ethnic minorities in studies of cardiovascular health.

Translating research-based evidence into preventive actions and strategies is a key to a healthier populace and the reduction of health disparities. Aggressive, wide, and prominent promotion of prevention strategies will contribute to the well-being and quality of life for all Americans.[268]

HEALTHCARE WORKFORCE

There is currently a shortage of health professionals in the United States, and it is probable that such shortages will continue into the foreseeable future — as has been widely discussed and predicted. A

report commissioned by the Health Resources and Services Administration (HRSA) notes that there are a host of complex factors that contribute to the characteristics and size of the present and future workforce. These factors include demographics, the health profession's education system, the healthcare environment, and a range of other policy and economic issues.[269] The report specifically focused on the implications of changing U.S. demographics on the healthcare workforce. Key pressures on workforce numbers include an aging population with more complex health needs, geographic location of patients relative to providers, and the increasing racial and ethnic diversity of the U.S. population. These pressures pose both current and future demands for the U.S. healthcare workforce, signaling new directions in workforce composition, distribution, expertise, and training.

The HRSA report further noted that, all things being constant, the aging of the American population would significantly increase the demand for physicians and nurses. Older adults are living longer, bear the greater burden of chronic disease, and rely on health care far more than other age groups. The number of older adults is expected to double by 2030, to comprise nearly 20 percent of the U.S. population.[270] Racial and ethnic minorities, who already face severe disparities in healthcare delivery, are projected to grow to 24 percent of the older population by 2020, up from 16 percent in 2000.[271] However, not only is the general population aging, so too are the health professionals who care for them. A recent IOM report, "Retooling for an Aging America: Building the Health Care Workforce," pointed to the complex dynamic of growing numbers of older Americans coincident with potentially fewer health professionals to meet their needs. The result portends an avertable healthcare crisis brought by a shortage of health professionals.[272]

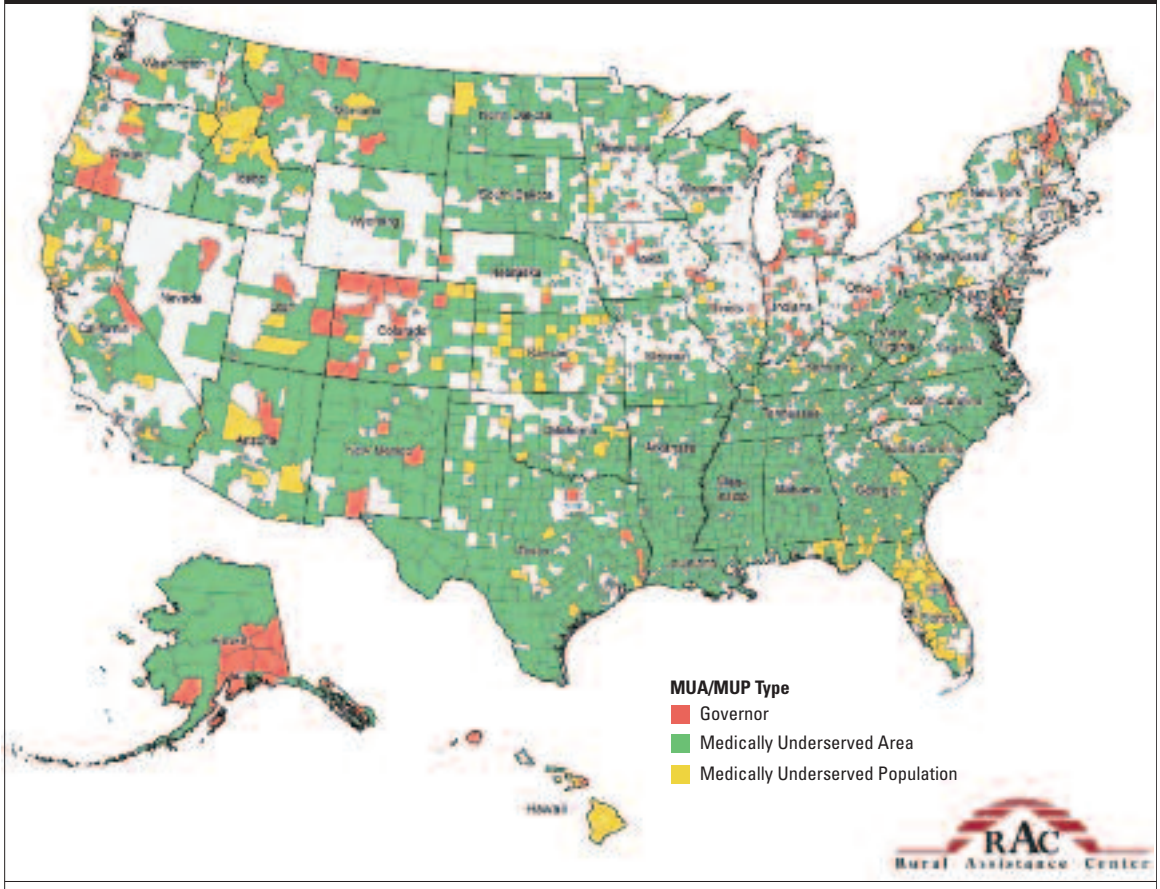
At the same time, for many geographic areas across the country — from small rural communities to major metropolitan centers — the threat of having too few health professionals is an immediate, day-to-day reality, posing a workforce challenge that must be addressed without delay.

Medically Underserved Areas and Populations

Much of the United States has designated populations or geographic areas that are recognized by state governors or HRSA as medically underserved (Exhibit 2-49).

For the past 40 years, HRSA has supported a system of community-based Health Centers. They have been a source of health care for people of all ages, races, and ethnicities. They provide comprehensive primary healthcare service to all, even those without health insurance — with fees based on ability to pay. Some Health Centers focus on certain special populations including migrant and seasonal farm workers; individuals and families experiencing homelessness; those living in public housing; and Native Hawaiians. The Health Centers are located in medically underserved areas (MUAs) or serve medically underserved populations (MUPs); are governed by a community board; and provide culturally competent care.

Exhibit 2-49: Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) Designated Type



Governor: MUP designation at the request of a state governor to document unusual local conditions and barriers to accessing personal health services. MUA: area designated for the resident civilian population. MUP: population designated for a specific population.
Source: Health Resources and Services Administration - (HRSA), Bureau of Health Professionals; October 7, 2009. Note: Alaska and Hawaii not shown to scale.

Health Professional Shortage Areas

Due to the chronic scarcity of local healthcare providers, certain geographic, demographic, or institutional areas have been designated by HRSA as Health Professional Shortage Areas (HPSAs)[272] for primary medical care, dental care, or mental health care. As of May 2010, HRSA reported that there were almost 14,000 HPSAs distributed throughout the United States and across all health regions.[272]

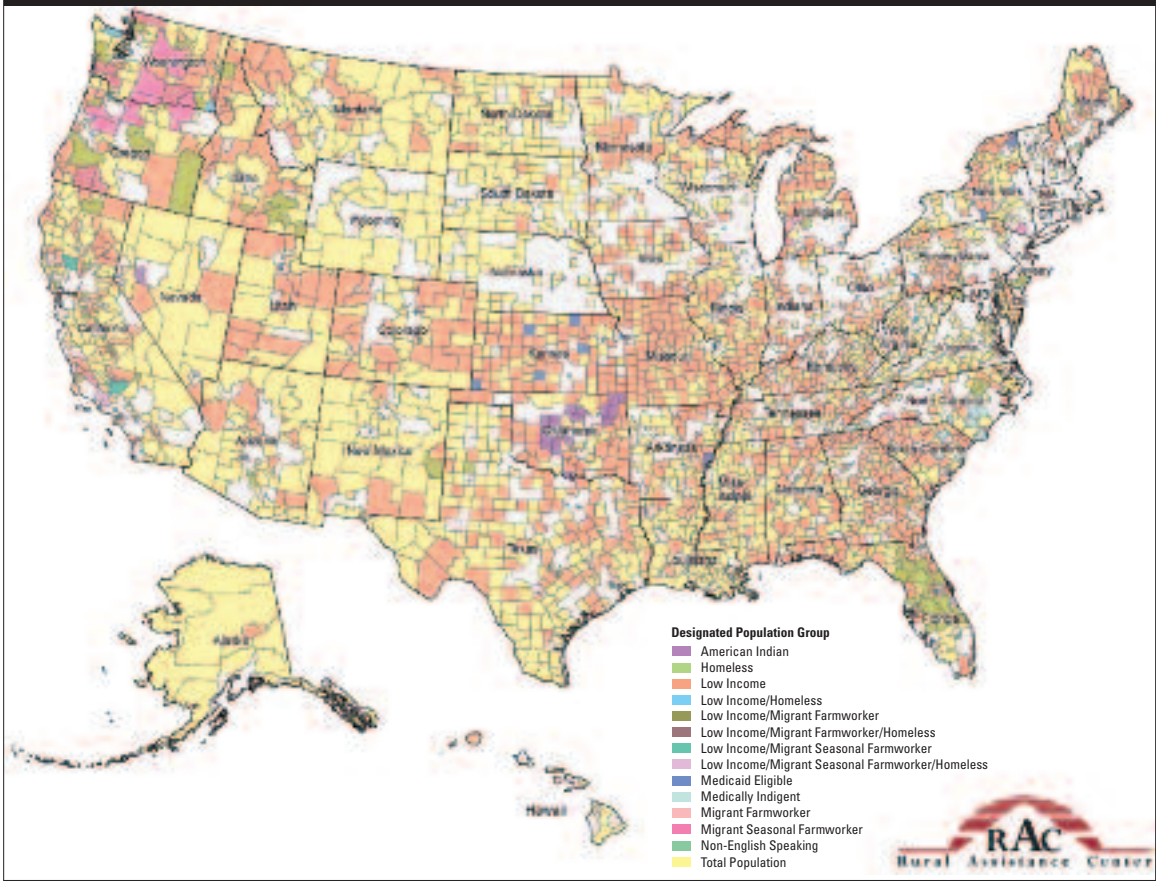
- There are 6,204 Primary Care HPSAs with 65 million people living in them. It would take 16,643 practitioners to meet their needs for primary care providers (a population to practitioner ratio of 2,000:1).

- There are 4,230 Dental HPSAs with 49 million people living in them. It would take 9,642 practitioners to meet their need for dental providers (a population to practitioner ratio of 3,000:1).

- There are 3,291 Mental Health HPSAs with 80 million people living in them. It would take 5,338 practitioners to meet their need for mental health providers (a population to practitioner ratio of 10,000:1).

The maps shown in Exhibits 2-50 through 2-52 depict HPSAs for Primary Health Designated Populations; HPSAs for Mental Health Designated Populations; and HPSAs for Dental Health Designated Populations in the United States.

Exhibit 2-50: Health Professional Shortage Areas (HPSAs) Primary Health Designated Populations

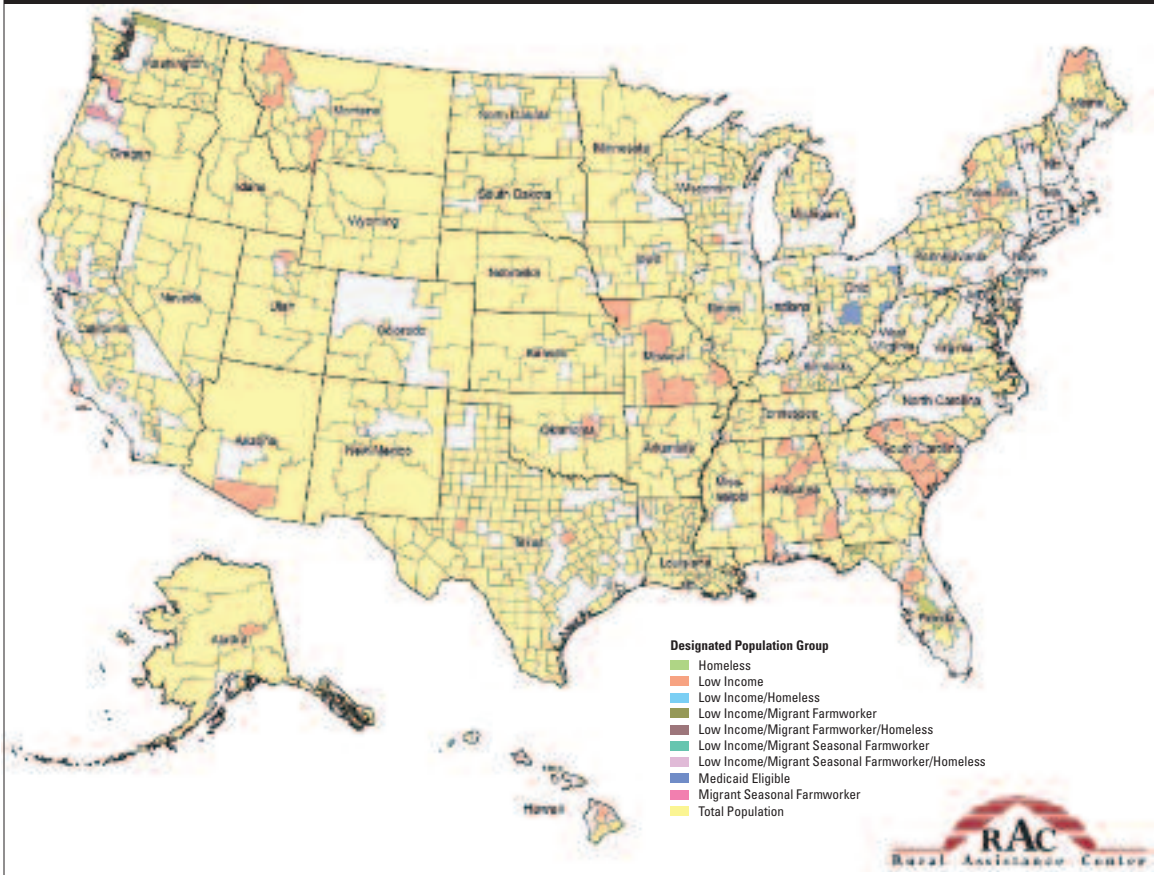


Designated Population: a population within an area that is designated as a HPSA.
Source: Health Resources and Services Administration. Bureau of Health Professionals; October 7, 2009.
Note: Alaska and Hawaii not shown to scale.

The National Health Service Corps (NHSC) assists HPSAs in every state, territory, and possession of the United States to meet their primary care, oral, and mental health services needs.[273] Over its 39-year history, the NHSC has offered recruitment incentives in the form of scholarship and loan repayment support to nearly 30,000 health professionals who are committed to service for the underserved. NHSC clinicians have expanded access to high-quality health services and improved the health of underserved people.

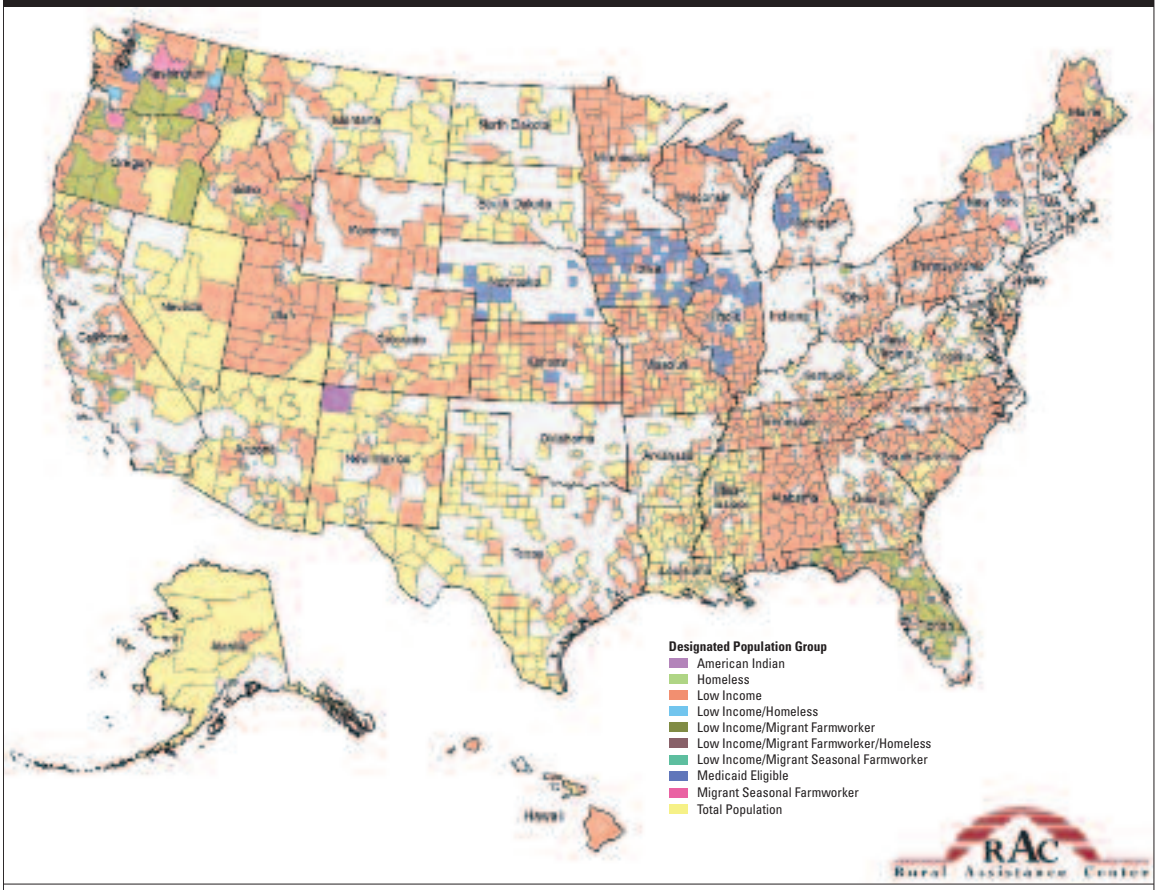
The NHSC has, since its inception in 1972, worked closely with the federally funded Health Centers to help meet their clinician needs. Currently, approximately 50 percent of the NHSC clinicians serve in Health Centers around the nation. The NHSC also places clinicians in other community-based systems of care that serve underserved populations, targeting HPSAs of greatest need.

Exhibit 2-51: Health Professional Shortage Areas (HPSAs) Mental Health Designated Populations



Designated Population: a population within an area that is designated as a HPSA.
Source: Health Resources and Services Administration. Bureau of Health Professionals; October 7, 2009.
Note: Alaska and Hawaii not shown to scale.

Exhibit 2-52: Health Professional Shortage Areas (HPSAs) Dental Health Designated Populations



Designated Population: a population within an area that is designated as a HPSA.
Source: Health Resources and Services Administration. Bureau of Health Professionals; October 7, 2009.
Note: Alaska and Hawaii not shown to scale.

The 2008-2018 workforce projections for the United States indicate that approximately 26 percent of all new jobs created in the economy will be in the healthcare and social assistance industry. The increasing demand for healthcare services is expected to drive employment growth for healthcare practitioners and technical occupations by 21 percent. The healthcare industry includes a broad spectrum of health professionals — from physicians, dentists, nurses, allied health professionals, and direct-care workers, to many others. Of the 30 fastest-growing occupations in the United States for 2008-2009, more than half were allied health professionals. More recent data shows that the majority of the top-20 occupations with the fastest growth were health related.

Diversity of the Workforce

One of the most pervasive and enduring challenges facing the healthcare workforce is the critical shortage of racial and ethnic minorities serving in health professions and the need to improve cultural competency throughout the U.S. health system. Historically, minorities have faced severe barriers in gaining admission to schools of medicine, nursing, and dentistry, and in securing careers in the health professions. For example, prior to the gains of the civil rights movement, Blacks were effectively banned from all but a few of the nation's medical schools and systematically denied access to membership in state medical societies. Today, Blacks, Hispanics, American Indians and Alaskan Natives, and certain Asian populations continue to face significant structural and other barriers to entering health professions.

The Sullivan Commission's report and others highlight the influence of insufficient numbers of minority health professionals on persistent racial and ethnic health disparities.[274] The Sullivan Commission's report noted that while Blacks, Hispanics, and American Indians and Alaskan Natives together comprised nearly 25 percent of the U.S. population, they represented less than 9 percent of nurses and 5 percent of dentists. The American Medical Association reported that of the 921,904 physicians in the United States in 2006, 3.5 percent were Black, 5.0 percent were Hispanic, and 0.02 percent were American Indian or Alaskan Native (Exhibit 2-53). Racial and ethnic minorities are represented in higher percentages among female physicians than among male physicians.

Exhibit 2 53: Physicians by Race, Ethnicity, and Gender, 2006

Race/Ethnicity	Number	Percent	Male		Female	
			Number	Percent	Number	Percent
White	514,254	55.8	383,473	57.6	130,781	51.0
Black	32,452	3.5	17,313	2.6	15,139	5.9
Hispanic	46,214	5.0	31,205	4.7	15,009	5.9
Asian	113,585	12.0	72,121	10.8	41,464	16.1
AI/AN	1,444	0.02	834	0.01	610	0.02
Other	12,572	1.4	8,831	1.3	3,741	1.5
Unknown	201,383	22.0	151,870	23.0	49,513	19.3

Source: American Medical Association. Minority Affairs Consortium. Physician Statistics (source: Physician Characteristics and Distribution in the US, 2008). Total Physicians by race/ethnicity, 2006; Number of male physicians by race/ethnicity, 2006; Number of female physicians by race/ethnicity, 2006. AI/AN=American Indian and Alaskan Native; NHOPI=Native Hawaiian and Pacific Islander.
http://www.ama-assn.org/ama/ Accessed March 25, 2011

The IOM *Unequal Treatment Report* identifies system-level, provider-level, and patient-level factors that may contribute to racial and ethnic disparities in treatment. At the provider level these disparities may arise from provider bias, stereotypes, and clinical uncertainty.[8] Consequently, the two-fold goal of increasing diversity and promoting cultural competency in the healthcare workforce represent key intervention strategies.[8 ,274, 275]

According to AHRQ, diversity in the healthcare workforce — among physicians, dentists, nurses, and other healthcare service providers — is "an important element of a patient-centered healthcare encounter."[38] Diversity is essential to primary care and to medical specialties and sub-specialties. It increases opportunities for race-concordant and language-concordant healthcare encounters.

As an example, the social work profession is one of the most racially and ethnically diverse health-related professions in the nation. Of the more than 642,000 professional social workers in the United States today, the majority (54 percent) practice in behavioral health or healthcare settings.[276] Social workers typically provide services to underserved and economically disadvantaged populations and communities — in hospitals and clinics, schools and housing units, senior centers and nursing homes, and in public and private agencies. Social workers provide clinical and care coordination services, link clients with resources, develop and test programs, and advocate for public policies focused on the health and well-being of vulnerable populations. As a health profession positioned at the nexus between patient and service systems, social workers can and must play a pivotal role in the elimination of health disparities.

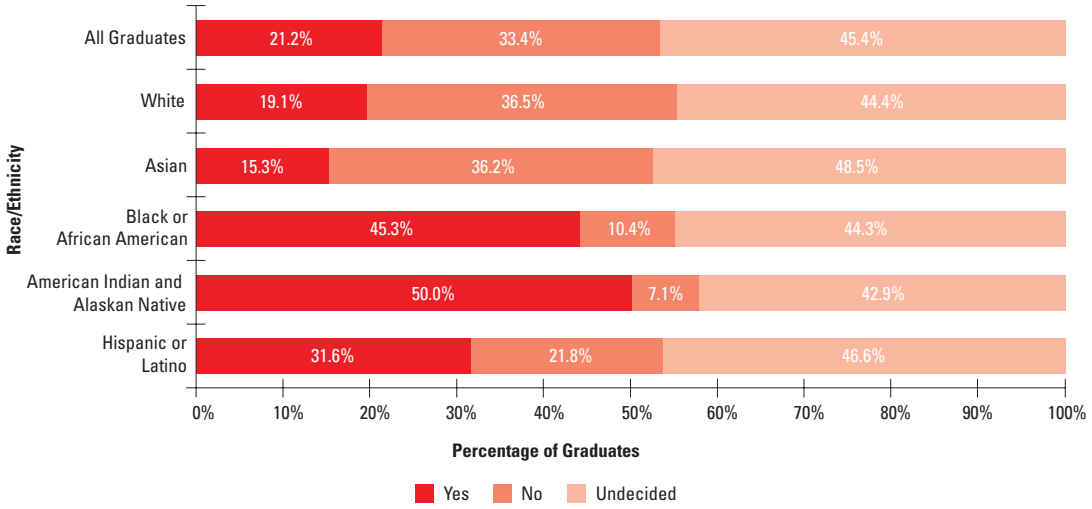
Beyond the basic issues of language competency and effective communication, there are important issues of cultural competency that may be facilitated by health professionals who share the same cultural and language backgrounds. For example, it has been well established that minorities are less likely to express attitudes of trust toward medical and public health institutions than are Whites.[68, 69, 70, 277] It is generally held that this phenomenon relates to an intergenerational awareness of past incidences of medical abuse and mistreatment of minority patients (e.g., the Tuskegee syphilis study conducted by the Public Health Service). Trusting, respectful, and communicative relationships within a healthcare setting enhance patient understanding, patient compliance, and shared decision making — all gateways to high-quality healthcare delivery and better health outcomes. Minority healthcare providers play a unique role in fostering these crucial gateways of communication and compliance.

More fundamentally, a diverse healthcare workforce can also improve basic access to health care for racial and ethnic minority groups and other underserved populations. One of the most compelling arguments for recruiting minorities into the health professions is the critical shortage of healthcare providers, especially primary care physicians, in underserved areas and among underserved populations.

Student and Faculty Development

Shortage of physicians and other health professionals in underserved areas is a widespread problem.[278, 279] Approximately 50 percent, 45.3 percent, and 31.6 percent of American Indian and Alaskan Native, African American, and Hispanic/Latino medical school graduates respectively plan to practice in an underserved area (Exhibit 2-54). Given the shortages in the pool of healthcare workers and the numbers of racial and ethnic minority health professionals that provide care in underserved areas, it makes economic and social sense to bring as many talented minority students into the health profession's pipeline as quickly as possible.

Exhibit 2 54: Percentage of Medical School Graduates Planning to Practice in an Underserved Area, 2007



Source: Diversity in Medical Education: Facts & Figures 2008. ©2008 Association of American Medical Colleges (AAMC). All rights reserved. Reproduced with permission. AI/AN= American Indian & Alaskan Native
www.aamc.org/diversity/

In addition to healthcare delivery, diversity has considerable value at other levels of the U.S. health system, including research, public health, education, health plans, policy, and others. For example, research studies benefit from investigators who are from diverse populations (e.g., gender, race, ethnicity) and who hold an understanding of the unique needs and values of local communities.[280] Institutions that approach minority individuals or communities with only their own research agendas or needs in mind are likely to be unsuccessful. However, programs and protocols that target particular community needs and that provide value to the community will have a higher likelihood of success. Thus, the presence of minority scientists on clinical research teams not only contributes to the study, it may also foster credibility for future research studies within minority communities. Minority researchers may offer better cultural and linguistic competency and understanding of minority health needs than non-minority researchers who have only classroom training in competency issues.

For reasons similar to those described above, public health, policy, and other health-system employees, as well as medical school faculty, will benefit from diversity and cultural competency. A significant but surmountable challenge to increasing diversity throughout the healthcare system is the structural task of strengthening the pipeline to health professions. An important consideration here is the current demographics of individuals pursuing careers in health care and professions that influence health (see Exhibits 2-55 through 2-57).

Exhibit 2 55: Minorities Enrolled in U.S. Health Schools, 2007 2008

Race/Ethnicity	Percent Distribution of Students in Each Profession					
	Dentistry	Medicine (Allopathic)	Medicine (Osteopathic)	Optometry	Pharmacy	Podiatry
NH White	60.6	62.4	70.5	60.3	59.5	62.2
NH Black	5.9	7.2	3.8	3.1	6.4	10.7
AI/AN	0.6	0.9[b]	0.7	0.3	0.5	0.5
API	22.7	21.5	17.4	25.1	21.6	11.8
Hispanic	6.3[a]	3.1[c]	3.6	4.6	4.0	5.4

Source: Centers for Disease Control and Prevention. National Center for Health Statistics. Publications and Information Products. Health, United States, 2010. Table 114: Total enrollment of minorities in schools for selected health occupations, by race and Hispanic origin: U.S., selected academic years 1980-1981 through 2005-2006. Data for 2007-2008 presented here. Data do not add to 100 percent because categories for other remaining students are not provided in source dataset. Dataset designates White or Black race without designation.

[a] Data include students from the University of Puerto Rico.

[b] Data include American Indian & Alaskan Native, and Native Hawaiian students.

[c] Data include Cuban students.

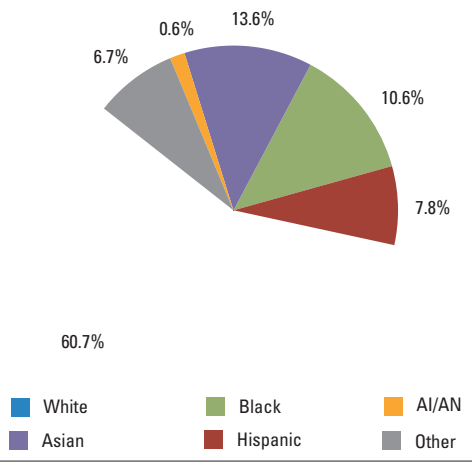
NH=Non-Hispanic; AI/AN=American Indian and Alaskan Native; API=Asian or Pacific Islander.

http://www.cdc.gov/nchs/data/hus/hus10.pdf Accessed March 25, 2011.

As the majority race category, White students are predominate in all of the health professions. However, they are represented in health profession schools at somewhat lower proportion (60-70 percent), compared to their representation in the population as a whole (Exhibit 2-55). In contrast, Asians and Pacific Islanders comprise about 5 percent of the total U.S. population, yet represent 15-20 percent of students in dental, medical, optometry and pharmacy schools. The reverse is true for Hispanics, who represent about 15 percent of the U.S. population but comprise only 4 to 7 percent of the student population of health schools. Except for podiatry and nursing, Blacks are underrepresented as students of dentistry, medicine, optometry, and pharmacy (Exhibit 2-55). In addition, racial and ethnic minorities are also underrepresented as students in physician assistant programs.[281]

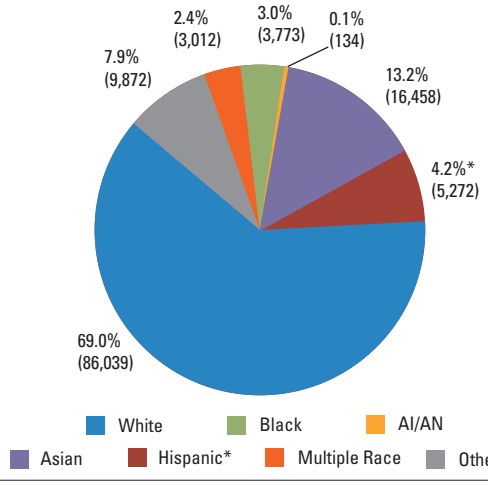
Graduates from public health schools have similar characteristics to those who are enrolled in medical, dental, optometry, and pharmacy schools (Exhibit 2-56). For example, Hispanic students are underrepresented in public health schools compared to their representation in the general population.

Exhibit 2-56: Graduates of Public Health Schools by Race and Ethnicity, United States, 2008–2009



Source: Association of Schools of Public Health. Annual Data Report, 2009. Table 4.3: U.S. graduates by school and race/ethnicity. Information from the 43 accredited U.S. schools of public health, including Puerto Rico. Data for academic year 2008-2009.
AI/AN = American Indian and Alaskan Native
http://www.asph.org/UserFiles/Data%20Report%202009.pdf
Accessed March 25, 2011.

Exhibit 2 57: Percentage and Number of Medical School Faculty, United States, 2007



Source: Diversity in Medical Education: Facts & Figures 2008.
©2008 Association of American Medical Colleges (AAMC). All rights reserved. Reproduced with permission.
AI/AN = American Indian & Alaskan Native; NHOPI = Native Hawaiian/Pacific Islander; Multiple race = more than one race and ethnicity . * Includes Mexican American, Puerto Rican, Cuban, other Hispanic/Latino, multiple Hispanic.
www.aamc.org/diversity/

The proportion of medical school faculty by race and ethnicity also follows a similar pattern. For example, in comparison to White faculty (69 percent), Black (3 percent), Hispanic (4.2 percent), and American Indian and Alaskan Native faculty (0.1 percent) are underrepresented (Exhibit 2-57).

Developing a pipeline that leads to diversity in the healthcare workforce demands a substantial investment to improve educational opportunities and experiences for minorities — from kindergarten to university to clinical training and on to leadership development. The human and economic cost of not ensuring a diverse, well-trained healthcare workforce is far greater than the cost of investment.

SUMMARY

This section provided evidence that supports the comments and concerns about health disparities that were expressed by community and other stakeholders at regional meetings and other activities facilitated by OMH. Section 3 provides strategies to aid community leaders and groups as well as public and private organizations in implementing their vision of a healthy nation by offering a set of goals and corresponding strategies.