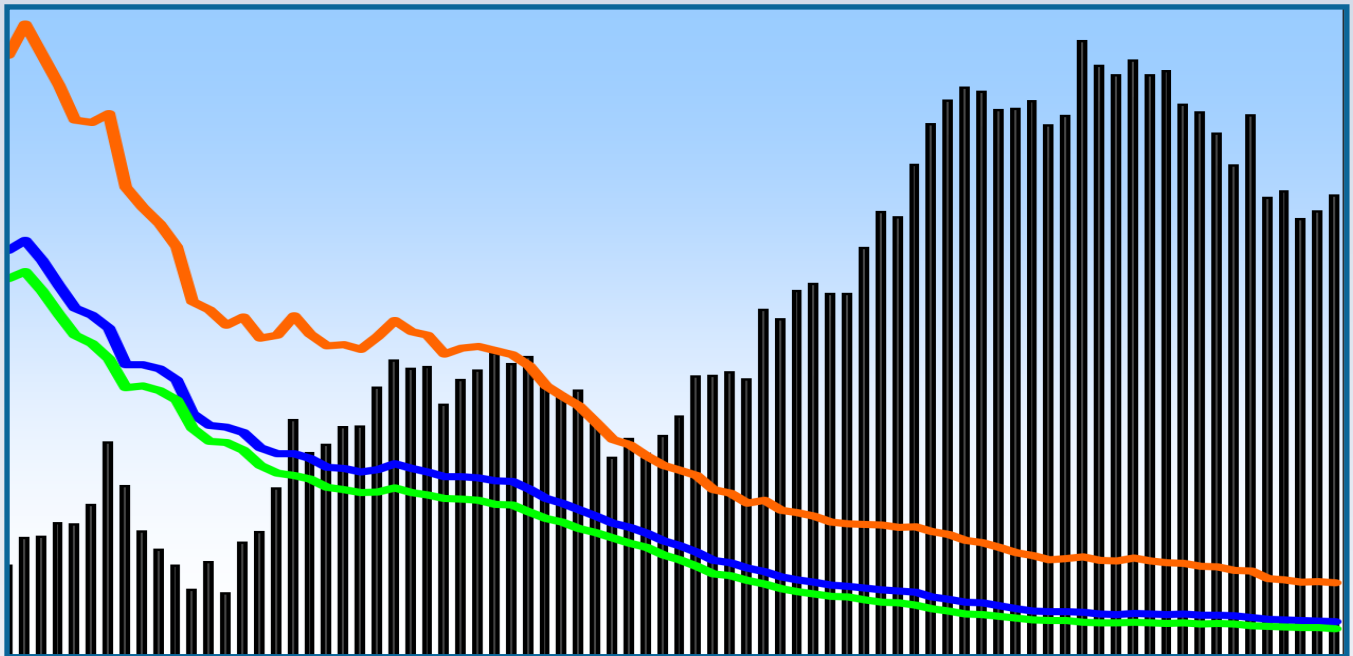


# Health Equity Report 2017

U.S. Department of Health and Human Services  
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# Acknowledgements

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# Foreword

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I am pleased to present the 2017 HRSA Health Equity Report. The Report includes a comprehensive analysis of HRSA program efforts in reducing health disparities and promoting health equity for various populations at the national, state, and local levels. It addresses HRSA's key Strategic Plan goals of improving access to quality health care and services, strengthening the health workforce, building healthy communities, and improving health equity. The Report contains an impressive array of empirical data, information, and analysis for a number of vital programs areas, including maternal and child health, primary health care access and quality, health care systems, HIV/AIDS, mental and behavioral health, chronic disease prevention and health promotion, health workforce, and rural-urban and geographic disparities.

Systematic monitoring and analysis of health inequity data are crucial to understanding the level of health improvement for the nation and HRSA program areas. They are also critical for identifying persistent and emerging patterns of health disparities. Empirical data presented here are essential for evaluating programs and for informing intervention efforts, and represent a significant contribution to the burgeoning field of health equity and social determinants of health. The Health Equity Report is the product of a dynamic and ongoing project that plans to update national and HRSA program-level data on a biennial basis.

I hope that the data and information presented in this Report will be useful for a wide variety of audiences, including HRSA leadership and program managers, other HHS and federal government agencies, state and local governments and communities, policy and decision makers, public health organizations, health practitioners, grantees, academic institutions, and researchers.

I would like to congratulate the staff from HRSA's Office of Health Equity and other participating Bureaus and Offices for completing this important work. A special note of thanks goes to all the HRSA grantees for their dedicated and tireless efforts in compiling the data and information for various HRSA programs, without which the work on this Report would not have been possible.

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# Abstract

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The Health Equity Report presents a comprehensive analysis of HRSA's program efforts in reducing health disparities and promoting health equity for various populations at the national, state, and local levels. The Report addresses HRSA's key Strategic Plan goals such as improving access to quality health care and services, strengthening the health workforce, building healthy communities, and improving health equity.

The Report presents analyses of various health equity trends affecting the nation's diverse, vulnerable, and socially disadvantaged populations. Trends in health disparities and improvements in health equity are presented for a number of program areas, including maternal and child health, primary health care access and quality, HIV/AIDS, mental and behavioral health, chronic disease prevention and health promotion, health workforce, and rural-urban and geographic disparities. Also addressed are patterns of disparities in three priority areas for the Department of Health and Human Services: mental health, opioid use, and childhood obesity. Health equity analyses are conducted using a variety of national and HRSA program databases, often stratified by important socioeconomic and demographic characteristics such as gender, race/ethnicity, family structure, education, income, employment status, rural-urban residence, and geographic area/location. On several health outcomes and

performance measures, the HRSA programs outperform the national trends by providing greater access to preventive health services, social services, and needed medical care to the underserved and disadvantaged populations and communities in the United States.

Although substantial progress has been made in improving the health and well-being of all Americans, health inequities between population groups and geographic areas have persisted and remain marked. Marked disparities are found in a number of health indicators, including infant mortality, life expectancy, cardiovascular disease, cancer, diabetes, chronic obstructive pulmonary disease (COPD), HIV/AIDS, health care access and utilization, health insurance, disability, mental health, preventive health services such as cervical, breast, and colorectal cancer screening, smoking, obesity, substance use, suicide, homicide, and unintentional injuries.

# 1. Introduction

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Achieving health equity, reducing and eventually eliminating health disparities, and ensuring optimal health for all Americans are overarching goals of the U.S. Department of Health and Human Services (HHS) and its component agencies.<sup>1</sup> The Health Resources and Services Administration (HRSA), a component of HHS, is the primary federal agency for improving access to health care by strengthening the health care workforce, building healthy communities, and achieving health equity. HRSA's programs provide health care to people who are geographically isolated and economically or medically vulnerable.

The 2017 Health Equity Report provides a comprehensive analysis of HRSA's program efforts aimed at narrowing the health gap and achieving health equity for various populations at the national, state, regional, and local levels. The new Report also provides an update of HRSA's program activities and successes in the field of health equity since the publication of the November 2000 HRSA Report "Eliminating Health Disparities in the United States."<sup>2</sup> The Report addresses all five key goals of HRSA's Strategic Plan: to improve access to quality health care and services; strengthen the health workforce; build healthy communities; improve health equity; and strengthen HRSA program management and operations.

Health equity in this Report is defined as the absence of disparities or avoidable differences among socioeconomic and demographic groups or geographic areas in health status and health outcomes such as disease, disability, or mortality. Health inequities refer to inequalities that are deemed to be unfair, unjust, avoidable, or unnecessary, that can be reduced or remedied through policy action.<sup>3,4</sup> The concepts of health inequities and health disparities (broadly defined as systematic differences in health between social groups) are generally similar in that they both involve normative judgements about the nature of social group differences.<sup>4</sup>

The Report presents a current picture of and progress made to date in addressing health equity issues affecting the nation's diverse, vulnerable, and socially disadvantaged populations. The Report includes evidence-based analysis

of HRSA's programs in reducing health disparity and improving health equity among populations at the national, state, regional, and local levels in such areas as maternal and child health, primary health care access and quality, HIV/AIDS, mental and behavioral health, chronic disease prevention and health promotion, health workforce, and rural-urban and geographic disparities. Where possible, key health indicators and performance measures based on HRSA program data are compared with those at the national level. In order to facilitate health equity analysis and reporting, both aggregate- and individual-level national

The Report presents a current picture of and progress made to date in addressing health equity issues affecting the Nation's diverse, vulnerable, and socially disadvantaged populations.

and HRSA program data are often presented by important social and demographic characteristics such as gender, race/ethnicity, family structure, education, income, employment status, rural-urban residence, and geographic area/location.

Development of this Report is important and timely because it highlights the important investments and contributions made by HRSA in promoting health equity and reducing disparities across the nation by improving access to comprehensive health care services through its various programs, including the Health Center Program, the Ryan White HIV/AIDS Program, the Health Workforce Programs, the Federal Office of Rural Health Policy (FORHP), the Title V Maternal and Child Health (MCH) Services Block Grant Program, the Federal Home Visiting Program, and the Office for the Advancement of Telehealth. The Health Center Program aims to improve the health of the nation's underserved communities and vulnerable

populations by ensuring access to comprehensive, culturally competent, quality primary health care services. More than 24 million people, i.e., 1 out of 13 U.S. residents, receive primary care services through the Health Center Program.<sup>5</sup> The Ryan White HIV/AIDS Program works with cities, states, and local community-based organizations to provide HIV care and treatment services to more than 500,000 people living with diagnosed HIV in the U.S. The Ryan White HIV/AIDS Program reaches approximately 52% of all people diagnosed with HIV in the U.S. and the majority of program clients are from low-income and racial/ethnic minority groups.<sup>6</sup> The Title V Program, one of the largest federal block grant programs, addresses the health services needs of more than 50 million mothers and children in the U.S., including more than half of all pregnant women, one-third of all infants and children, and 4 million children with special health care needs.<sup>7</sup> The Health Workforce Program improves the health of underserved and vulnerable populations by strengthening the health workforce and connecting skilled professionals to communities in need. Approximately 10,600 National Health Service Corps and Nurse Corps clinicians provide primary medical, dental, or mental health care to over 11 million people living in health professional shortage areas nationwide.<sup>8</sup> The Telehealth Program, administered by FORHP, promotes the use of telehealth technologies for health care delivery, education, and health information services in rural and other remote areas that lack sufficient health care services, including specialty care. More than 3,500 telehealth sites have been added or expanded since 2005.<sup>9</sup>

Graphics and maps of key population health indicators and social determinants at various geographic levels, such as state and county levels, are developed using national data and at the state level using relevant national and HRSA program data. These charts, maps, and tables identify and highlight health and social inequities that exist across demographic groups, geographic areas, and HRSA program sites. Demographic trends and geographic maps of specific health and social indicators over time show the magnitude of improvements in health and living conditions for HRSA program areas and for different regions of the U.S. They also show changing patterns of disease burden and social disadvantage, and the potential impact of programmatic interventions and policies in reducing disparities and achieving health equity for the nation.

The Report presents time trend and geographic data on leading health and health care indicators such as infant mortality, low birth weight, life expectancy, cardiovascular disease, cancer, diabetes, chronic obstructive pulmonary disease, HIV/AIDS, health care access and utilization, health insurance, disability, preventive health services such as cervical, breast, and colorectal cancer screening, suicide and depression rates, homicide, and unintentional injuries. Disparities in major health risk behaviors such as smoking, obesity, physical inactivity, and inadequate access to healthy diet are also presented. Key social determinants of health include racial/ethnic population composition, educational attainment, unemployment, poverty, family income, language use, transportation, and housing. Several of these indicators are mapped to describe patterns of inequities in social and economic conditions that HRSA populations experience.

A variety of federal national and HRSA program databases are used for analysis and reporting of health, health care, behavioral, and sociodemographic disparities. For health and health care disparities at the national level and for HRSA populations, the following databases are used:

- The National Vital Statistics System (<https://www.cdc.gov/nchs/nvss/>)
- The CDC Wonder online databases (<http://wonder.cdc.gov/>)
- Behavioral Risk Factor Surveillance System (<https://www.cdc.gov/brfss/>)
- National Health Interview Survey (<https://www.cdc.gov/nchs/nhis/>)
- USDA Food Environment Atlas (<http://www.ers.usda.gov/data-products/food-environment-atlas.aspx>)
- HRSA Data Warehouse (<http://datawarehouse.hrsa.gov/>)
- Area Health Resources File (<http://ahrf.hrsa.gov/>)
- Title V Information System (<https://mchb.tvvisdata.hrsa.gov/>)
- Discretionary Grant Information System (DGIS) [<https://mchdata.hrsa.gov/dgisreports/>]
- The National Survey of Children's Health (<https://mchb.hrsa.gov/data/national-surveys>)

- The National Survey of Children with Special Health Care Needs (<https://mchb.hrsa.gov/cshcn0910/more/pdf/nscshcn0910.pdf>)
- Data Resource Center for Child & Adolescent Health (<http://www.childhealthdata.org/>)
- Health Center Program data (<http://bphc.hrsa.gov/datareporting/index.html>)
- The Ryan White HIV/AIDS Program (<https://hab.hrsa.gov/about-ryan-white-hivaids-program/about-ryan-white-hivaids-program>).

For socioeconomic, demographic, health insurance, and disability data for the U.S. and at state and county levels, decennial Census and American Community Survey (ACS) databases are used (<http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>).

The contents of the Report are organized into various chapters. The introduction is followed by a description of social determinants of health, which are shown to have profound effects on health and well-being at the individual and community levels for both national and HRSA program populations. This is followed by chapters that provide descriptions of major programs, policy and research initiatives, and analysis of health equity data in maternal and child health; primary health care access and quality; organ donation and transplantation; HIV/AIDS; mental and behavioral health; chronic disease prevention and health promotion; health workforce; and rural-urban and geographic disparities. The final chapter includes a summary of major findings on health equity and population health issues, and of progress on efforts to promote health equity and health improvement; and provides recommendations and future directions for more comprehensive health equity data collection and measurement strategies, better reporting and monitoring of key social determinants and health outcomes, and opportunities for cross-sectoral efforts, partnerships, and collaborations across agencies.

The Health Equity Report is intended for a wide variety of audiences who are committed to promoting equity and reducing disparities in health and well-being among the nation's diverse and vulnerable

populations. The targeted audiences include the HRSA leadership and program managers, other HHS and federal government agencies, state and local governments and communities, policy and decision makers, public health organizations, health practitioners, grantees, academic institutions, and researchers.

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## 2. Social Determinants of Health

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Achieving health equity involves examining the existence of and reduction of inequities in health, health care access, and use of quality health services according to major social determinants of health over time. HHS and HRSA have a long history of examining social inequities in health, disease, and mortality; building related data monitoring capacity; and developing programs aimed at reducing health inequities among populations that experience increased risk of poor health based on race/ethnicity, gender, socioeconomic status, insurance status, rural/urban residence, and housing status.<sup>1-5</sup> The Children's Bureau, the predecessor of HRSA's Maternal and Child Health Bureau (MCHB), was established in 1912. It undertook the study of infant mortality as its first inquiry, looking at the impact of poverty, housing condition, sanitation, nutrition, and medical care during pregnancy.<sup>6</sup> For over 50 years, the Health Center Program has provided access to quality health care services for millions of Americans who live in underserved communities and who are among the most socially disadvantaged segments of the population.<sup>7</sup> Since the establishment of the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act in 1990, the Ryan White HIV/AIDS Program has improved the quality and availability of care and health outcomes for low-income, uninsured, and minority populations living with HIV.<sup>8</sup>

**Social Determinants of Health** are conditions in the social environment in which people are born, live, learn, work, and play that affect a wide range of health, functioning, and quality-of-life outcomes and risks.<sup>1,9</sup> These social and/or demographic characteristics of individuals, groups, communities, and societies have been shown to have powerful influences on health and well-being at the individual and population levels. Examples of individual or group-level social determinants include gender, race/ethnicity, socioeconomic status, social class, education, income, occupation, employment status, housing tenure, immigrant status, language use, disability status, and social capital. Examples of social determinants at the population level include socioeconomic deprivation, poverty rate, income inequality, educational opportunity, labor market opportunities, affordable housing, access to

healthy foods/good nutrition, provision of health services, access to essential goods and services, transportation infrastructure, physical and built environments, racial/ethnic population composition, medically underserved or health professional shortage areas, and spending on public safety, social, and welfare services. Social determinants at the population level are considered underlying, upstream, or more fundamental determinants of health and disease and are amenable to change through public policy.<sup>10,11</sup>

**Population Health Research** is concerned with investigation of differences in health status and health determinants among social and demographic groups and geographically defined populations. This approach involves examining interrelationships between the distribution of social, economic, demographic, cultural, political, and other valued societal resources and health at the community level and is aimed at improving the health of the entire population rather than individuals.<sup>11,12</sup> The causes of health inequities at the population level may differ from those at the individual level.<sup>11,12</sup>

In 1980, HHS introduced a national initiative in disease prevention and health promotion called *Healthy People*.<sup>1</sup> This health initiative presents a national strategy for increasing the span of healthy life among Americans, reducing and ultimately eliminating health disparities among Americans, and providing access to preventive health services for all Americans.<sup>1</sup> Since the launching of this national effort, states and other geographical areas, such as counties, cities, metropolitan areas, and rural communities have become increasingly interested in population health monitoring and in providing background data needed to understand a population's health equity issues.<sup>11</sup>

Population health monitoring includes documenting health-related data over time for various communities and subgroups of the population. It also involves analyses of health differentials and inequities according to important personal and societal characteristics that are amenable to change through social and public policy interventions.

In recent decades, health statistics in the United States have become increasingly available according to a wide array of relevant socioeconomic, demographic, behavioral, and health care characteristics. This has created opportunities for us to enhance our understanding of the most fundamental reasons for changes in population health or persistent health disparities among various societal groups and geographic areas and to develop and implement effective evidence-based policies.<sup>11</sup>

Remarkable achievements have been made in improving the overall health of the U.S. population during the past several decades, particularly in terms of increasing the life expectancy and reducing overall mortality among Americans.<sup>2,3,13</sup> However, substantial variations in health among various social groups and geographic areas continue to exist, and, in many instances, health disparities appear to be widening.<sup>2,3,14-23</sup> Social factors, whether expressed in terms of education, occupation, income, wealth, social class, ethnicity, family structure, or living arrangements, remain underlying and fundamental determinants of health and disease. While these social characteristics themselves may not be direct determinants of health, they can create conditions or circumstances that give rise to risk factors (e.g., smoking, alcohol and drug use, fatty diet, lack of physical activity, obesity, and hypertension) that cause disease, ill health, and death.<sup>11,20</sup> The social determinants involve such resources as “knowledge, money, power, prestige, and social connections that strongly influence people’s ability to avoid risks and to minimize the consequences of disease once it occurs.”<sup>24</sup> Inequities in health are closely linked to social inequities through several intervening mechanisms, including health behaviors, medical care, working conditions, environmental exposure, personality, and early life conditions.<sup>25,26</sup>

Emphasizing the role of social determinants in health is important for several reasons.<sup>11,27</sup> First, documenting health disparities between the least and most advantaged social groups can tell us about the extent to which a society’s health can be improved. However, health inequities are not just about addressing differences between the rich and the poor. Rather, the consistently inverse socioeconomic gradients in health found across many industrialized societies indicate that the health deficit of a population is concentrated in the middle classes because of the large numbers of people in those categories.<sup>11,12</sup> To achieve health equity and to maximize health improvement, it

therefore makes sense to focus on health differences across the entire social hierarchy or socioeconomic continuum. Second, documenting health inequities according to social factors can help identify social groups who are at greatest risk of poor health and who are therefore in need of social and medical services. Third, considering social factors along with behavioral and health care factors can help us understand the mechanisms through which social factors affect health. A better understanding of the pathways through which social determinants influence health and disease outcomes should help us develop and implement more effective social and public health interventions for population health improvement.<sup>11,12</sup>

## National Level Patterns and Trends in Health Disparities

The following charts and tables show marked racial/ethnic and socioeconomic disparities in infant mortality, life expectancy, leading causes of death such as cardiovascular disease (CVD), injuries, drug overdoses, chronic disease prevalence, health care access, and unmet medical need. Disparities by race/ethnicity, socioeconomic status, social disadvantage, and geography persist despite overall health improvements in the United States.

## Disparities in Social Determinants of Health

Several of the nation’s racial/ethnic minorities have historically been disadvantaged in terms of social and economic attainment. The 2015 data from the ACS in Figure 2.1 indicate two times higher poverty rates among American Indians/Alaska Natives (26.6%), African-Americans/blacks (25.4%), Hispanics (22.6%), and Native Hawaiians and other Pacific Islanders (18.9%), compared with non-Hispanic whites (10.4%).<sup>28</sup> Unemployment rates are more than two times higher among American Indians/Alaska Natives and blacks, compared with non-Hispanic whites. Hispanics and Native Hawaiians and other Pacific Islanders have 50% higher unemployment rates than non-Hispanic whites. There are substantial disparities in educational attainment; 52.3% of Asian-Americans in 2015 had a college degree, compared with 34.2% of non-Hispanic whites, 20.2% of blacks, 14.1% of American Indians/Alaska Natives (AIANs), 15.7% of Native Hawaiians and other Pacific Islanders, and 14.8% of Hispanics.<sup>28</sup>

Ethnic-minority groups are also more likely to live in low-income and disadvantaged neighborhoods and communities than their non-Hispanic white counterparts.<sup>21</sup> Geographic patterns in educational attainment indicate that the population in the Southeastern region of the U.S. has had the lowest percentage of adults with a college degree, although education levels in all regions have improved over time (Figure 2.2). The geographic pattern in poverty rates has remained essentially the same over time, with communities in the Southeastern and Southwestern regions experiencing higher poverty rates than those in the other regions of the U.S. (Figure 2.3). Geographic distribution of income is similar to that of poverty, with counties in the Southeastern and Southwestern regions having lower incomes (Figure 2.4). The unemployment map shows wide geographic disparities; many counties in the Southeastern, Southwestern, and Western United States had at least 9% of their workforce unemployed during 2011–2015 (Figure 2.5). The geographic map of English language proficiency shows many counties in the Western and Southwestern United States with at least 10% of the population speaking English not well or not at all (Figure 2.6).

Ethnic-minority groups are more likely to be without health insurance than non-Hispanic whites. In 2015, 6.3% of non-Hispanic whites lacked health insurance, compared with 11.0% of blacks, 20.7% of American Indians/Alaska Natives, 19.5% of Hispanics, 7.8% of Asians, and 9.9% of Native Hawaiians and other Pacific Islanders (Figure 2.1). Access to health insurance also varies by education, income, and employment status. In 2015, 22.8% of adults with less than a high school education lacked health insurance, compared with only 3.9% of adults with a college degree. Nearly 28% of unemployed individuals lacked health insurance, compared with 11% of employed individuals. In 2015, 17.2% of those with income levels below 138% of the poverty threshold were uninsured, compared with 3.3% of those with incomes at or above 400% of the poverty threshold.<sup>28</sup>

## Disparities in Life Expectancy

Life expectancy at birth has improved substantially during the past 6½ decades, increasing from 69.7 years for the total U.S. population in 1950 to 78.8 years in 2014.<sup>13</sup> However, despite the overall improvement, black-white and gender disparities in life expectancy persist (Figure 2.7). In 1950, blacks had a life expectancy of 60.8 years compared with 69.1 years for whites. In 2014, the black and white life expectancies were 75.6 and 79.0 years respectively. In 1950, the life expectancy at birth for white males, white females, black males, and black females were 66.2, 72.2, 59.1, and 62.9 years respectively. In 2014,

the corresponding figures for these race-gender groups were 76.7, 81.4, 72.5, and 78.4 years. In 2014, life expectancy at birth for Hispanic males and females were 79.2 and 84.0 years respectively, higher than that for their non-Hispanic white and black counterparts.

Life expectancy at birth varies by rural-urban residence and is substantially lower in rural areas of the U.S. (Figure 2.8). For example, during 2007–2011, life expectancy of men in rural areas and in small urban towns was 74.4 and 74.6 years respectively, compared with the life expectancy of 77.0 years for men in large metro areas.

## Disparities in Child Health

### Infant Mortality

The infant mortality rate in the U.S. has declined dramatically over the past several decades, from a rate of 55.7 per 1,000 live births in 1935 to 5.8 in 2014. The mortality rates have declined impressively over time for both white and black infants. However, the racial disparity has continued to grow in relative terms (Figure 2.9). In 2014, the mortality rate for black infants was 11.1 per 1,000 live births, 2.3 times higher than the mortality rate of 4.9 for white infants. In 1935, the infant mortality rate for black infants was 81.9 per 1,000 live births, 1.6 times higher than the mortality rate of 51.9 for white infants.

Infant mortality rates are substantially higher in rural than in urban areas (Figure 2.10). Within rural areas, black and American Indian/Alaska Native infants have higher infant mortality rates than white infants. Infant mortality rates are also higher in communities with higher poverty rates regardless of rural-urban residence or race/ethnicity. For example, the infant mortality rate is 9.4 per 1,000 live births in rural counties with a poverty rate of 20% or higher. This rate is almost twice as high as the infant mortality rate in rural counties with a poverty rate of <5%.

### Childhood Asthma

Asthma is the most common chronic condition among children in the United States. According to the 2015 National Health Interview Survey, 9.5 million or 13% of U.S. children were reported by their parents to have ever been diagnosed with asthma, with 8.4% of them still having asthma.<sup>29</sup> According to HRSA/MCHB's National Survey of Children's Health, 8.8% of children were reported by their parents to currently have asthma

in 2011–2012 (Table 2.1).<sup>30</sup> The prevalence of asthma varied by a number of sociodemographic factors, including race/ethnicity, family structure, household language use, education, income/poverty level, housing tenure, and place of residence. Non-Hispanic black children had two times higher asthma prevalence than non-Hispanic white children. Children living below the poverty line were 56% more likely to have asthma than children with family incomes at or above 400% of the poverty threshold. Children living in unsafe neighborhoods or in neighborhoods with poor housing were 32% more likely to be diagnosed with asthma than children in safe neighborhoods or neighborhoods with good housing. Asthma rates varied by state of residence, with children in the South and Northeast regions having higher prevalence than those living in the Western region of the U.S. (Figure 2.11).

## Disparities in Mortality from Leading Causes of Death

Heart disease, cancer, COPD, unintentional injuries, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease, and suicide are the 10 leading causes of death and accounted for 74.2% of all deaths in the United States in 2015.<sup>13,31</sup> There are marked gender, racial/ethnic, socioeconomic, and geographic disparities in all-cause mortality and mortality from leading causes of death. For example, although CVD (including heart disease and stroke) mortality rates declined for all major racial/ethnic groups over the past several decades, in 2015, compared with whites, blacks had 28% higher CVD mortality, and Asian/Pacific Islanders (APIs), AIANs, and Hispanics had 29–42% lower mortality (Figure 2.12).<sup>13,17</sup> Geographic differences in all-cause and CVD mortality show higher risks of CVD mortality in the Southeastern region of the U.S. even though mortality rates have declined in all regions and states (Figures 2.13, 2.14, and 2.15).<sup>18</sup>

CVD mortality rates are higher among individuals and areas with lower socioeconomic status.<sup>17</sup> For example, men and women with low education and incomes have 46–76% higher CVD mortality than their counterparts with high education and income levels. Men in clerical, service, farming, craft, repair, construction, and transport occupations, and manual laborers have 30–58% higher CVD mortality risks than those employed in executive and managerial occupations. Among women, those employed in sales and service occupations, respectively, have 17% and 29% higher CVD mortality risks, and those in transport occupations have 2.6 times higher mortality risks than those in executive and managerial occupations.<sup>17</sup>

Compared with whites, cancer mortality rates in 2014 were 15% higher for blacks but 34% lower for AIANs, 39% lower for APIs, and 32% lower for Hispanics.<sup>13</sup> Socioeconomic status is inversely related to overall cancer mortality as well as mortality from major cancer sites such as lung, colorectal, cervical, stomach, liver, and esophageal cancer.<sup>20</sup> During 2003–2011, men with less than a high school education had 68% higher cancer mortality than those with a college degree, and men below the poverty level had 80% higher cancer mortality than men with incomes  $\geq 600\%$  of the poverty level. Men with less than a high school education and those below the poverty level had 2.6 times higher lung cancer mortality than their more educated and affluent counterparts. Education and income levels were also inversely related to lung cancer mortality among women. Men and women with less than a high school education had, respectively, 42% and 120% higher colorectal cancer mortality risks than those with a college degree. During 2003–2011, women with less than a high school education and below the poverty level had 6.3 and 4.0 times higher cervical cancer mortality than women with the highest education and income levels, respectively.<sup>20</sup> In 2014, compared with white women, black women had 3.3 times higher and API, AIAN, and Hispanic women 1.3–1.5 times higher cervical cancer mortality.<sup>13</sup>

COPD mortality is highest among white Americans, who have a four-fold higher mortality risk than APIs. COPD mortality is also substantially lower in blacks, AIANs, and Hispanics compared with whites.<sup>13</sup> Compared with whites, diabetes mortality is two times higher among blacks and at least 60% higher among AIANs and Hispanics. Black Americans experience 2.5 times higher kidney disease mortality than whites. AIANs have somewhat higher unintentional injury mortality than whites, who, in turn, have higher mortality rates than blacks, Hispanics, and APIs. Whites have a 2.7 times higher suicide rate and AIANs have a 2.0 times higher suicide rate than blacks. There has been an upward trend in suicide mortality, with rates increasing consistently from 10.5 in 1999 to 13.3 per 100,000 population in 2015.<sup>13,31</sup> Geographic maps show higher suicide mortality rates in many counties of the Western United States, with suicide risks increasing over time in the Western and Appalachian regions (Figure 2.16).

Homicide is the third leading cause of death among the American youth aged 15–34. The overall homicide rate is nearly 8 times higher among blacks and 2 times higher among AIANs and Hispanics compared with whites.<sup>13</sup>

Drug overdose deaths have contributed to the recent rise in mortality among middle-aged white Americans.<sup>19</sup> Rising deaths from drug overdose have been identified as a major public health problem in the United States and a national emergency.<sup>32</sup> In 2015, non-Hispanic whites had the highest rate of drug overdose mortality, 79% higher than the rate for blacks, 7.6 times higher than the rate for APIs, and 2.8 times higher than the rate for Hispanics.<sup>32</sup> Geographic patterns in drug overdose mortality show a marked increase in drug overdose mortality between 2000 and 2015 in most areas of the United States, with higher rates of mortality observed in many counties of Appalachia and the Western United States (Figure 2.17).<sup>33</sup> Overall, nonmetropolitan counties have slightly higher drug overdose mortality than metropolitan counties, although rates tend to be the highest in the mid- and small-size metropolitan counties and the lowest in large metropolitan counties (Figure 2.18).

Although HIV/AIDS is not a leading cause of the death for the total U.S. population, it is the sixth leading cause of death among the black population aged 20–54 years.<sup>13</sup> In 2014, HIV/AIDS mortality was 9.6 times higher among the black population and 2.2 times higher among Hispanics compared with whites.<sup>13</sup> Although HIV/AIDS mortality has declined dramatically since 1987, socioeconomic disparities remain substantial. During 2010–2014, individuals in the lowest socioeconomic quintile had 3.0 times higher HIV/AIDS mortality than those in the highest socioeconomic quintile (Figure 2.19).<sup>21</sup> County maps in Figure 2.20 show huge reductions in HIV/AIDS mortality since the peak years of the epidemic in the early 1990s for most counties and geographic regions, with higher HIV/AIDS mortality being concentrated in the Southern region of the U.S. in more recent time periods.<sup>21</sup>

## Disparities in Prevalence of Major Chronic Conditions and Risk Factors

Heart disease, cancer, diabetes, and COPD are the leading chronic diseases affecting the U.S. adult population. Overall, 28.4 million or 11% of U.S. adults aged 18 and over in 2015 had ever been told by a doctor or other health professional that they had heart disease (Table 2.2).<sup>29</sup> American Indians/Alaska Natives had a 21% higher heart disease prevalence and Asians a 37% lower prevalence than whites. Unemployed adults had a 55% higher heart disease prevalence than adults with full-time employment. Those with lower education and income levels had higher heart disease prevalence than their high education or income counterparts. Residents of rural/nonmetropolitan

areas had a 40% higher heart disease prevalence than urban/metropolitan residents.

The prevalence of diabetes in the U.S. has more than doubled during the past two decades. In 2015, 21.1 million adults aged 18 and over reported having diabetes. In 2015, the prevalence of physician-diagnosed diabetes varied from 8.1% for white adults to 20.9% for American Indians/Alaska Natives (Table 2.2).<sup>29</sup> Compared with whites, all major racial/ethnic minority groups had significantly higher diabetes prevalence. Higher diabetes prevalence was observed for lower socioeconomic groups. Adults with less than a high education, below the poverty line, or unemployed had almost twice the prevalence of diabetes as their advantaged counterparts. Geographical patterns indicate higher prevalence of adult diabetes in the South than in the Midwestern or Western states (Figure 2.21).<sup>34</sup>

The prevalence and sociodemographic patterns in cancer vary according to cancer type. In 2015, 24.3 million or 8% of adults aged 18 and over had ever been told by a doctor or other health professional that they had some form of cancer (Table 2.2). Compared with white adults, all other racial/ethnic groups had lower prevalence of cancer. Adults with higher education and income levels had higher rates of cancer. However, unemployed adults were 67% more likely to be diagnosed with cancer than those working full time.

In terms of mental health problems, 8.3 million or 3.6% of U.S. adults in 2015 experienced serious psychological distress during the past one month. Asians reported the lowest prevalence of psychological distress, whereas AIANs and mixed-race adults had the highest prevalence, 14.0% and 8.3% respectively (Table 2.3). Adults without a job or with lower education and income levels were at an increased risk of psychological distress. Adults with an annual family income <\$35,000 were 5.2 times more likely to experience serious psychological distress than those with annual family incomes of \$100,000 or more.

Smoking, obesity, and hypertension are major risk factors that are associated with increased risk of mortality and morbidity from several chronic diseases such as CVD, cancer, diabetes, and COPD. Marked socioeconomic and racial/ethnic disparities exist in smoking; adults with annual family incomes <\$35,000 have a 3.6 times higher current smoking rate than those with family income ≥\$100,000 (Figure 2.22). Lower income levels are also associated with significantly

higher rates of obesity and hypertension. Compared with non-Hispanic whites, AIANs and blacks have higher rates and APIs lower rates of smoking and obesity.<sup>29</sup> In 2015, black adults (34.4%) and AIANs (28.4%) had higher prevalence of hypertension than non-Hispanic whites (24.1%), whereas Asians had lower prevalence (20.6%). Educational disparities in these risk factors are also large. For example, in 2015, 25.9% of those with less than a high school education were current smokers, compared with 5.8% of those with a college degree.<sup>29</sup>

## Disparities in Health Care Access and Quality

Racial/ethnic and socioeconomic patterns in access to health insurance are described above. One important measure of access to quality health care is affordability. As shown in Table 2.3, there are marked disparities in unmet medical need among the U.S. population according to various sociodemographic factors.<sup>29</sup> In 2015, 6.2% of Native Hawaiians/Other Pacific Islanders and 7.5% of mixed-race individuals reported not receiving medical care because they could not afford it, compared with 2.7% of Asians and 4.3% of whites. Additionally, 9.3% of Native Hawaiians/Other Pacific Islanders and 7.5% of mixed-race individuals delayed seeking medical care because of the worry about the cost, compared with 3.6% of Asians and 6.4% of whites. Affordability of health care costs is a major issue in health care decision-making among those in lower socioeconomic strata or among those living in rural areas. Individuals with an annual family income <\$35,000 were 10.6 times more likely to forgo needed medical care due to cost than those with annual family incomes of \$100,000 or more. Individuals without a job were 1.7 to 1.8 times more likely to forgo or delay needed medical care due to cost than those with a full-time job.

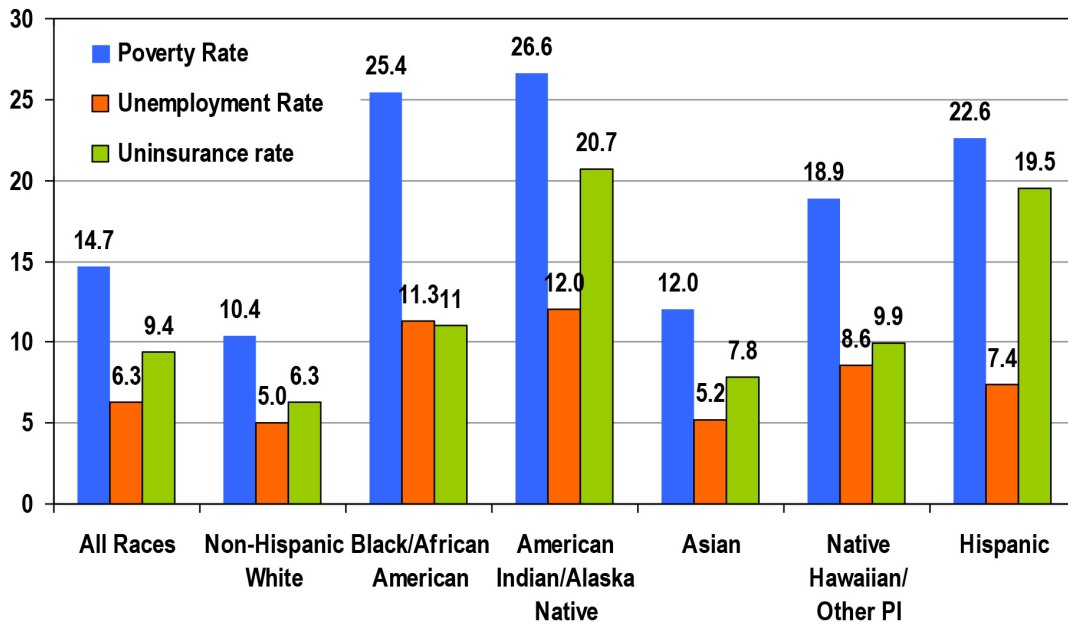
Emergency room (ER) visits are associated with substantially increased health care costs. The likelihood of an ER visit is greater among American Indian/Alaska Native children (13.9%) and black children (7.6%), compared with Asian (2.7%) and white (4.9%) children (Figure 2.23). Likelihood of an ER visit is significantly higher among children in rural areas as well as among children in single-mother households and in low-income families.<sup>29</sup>

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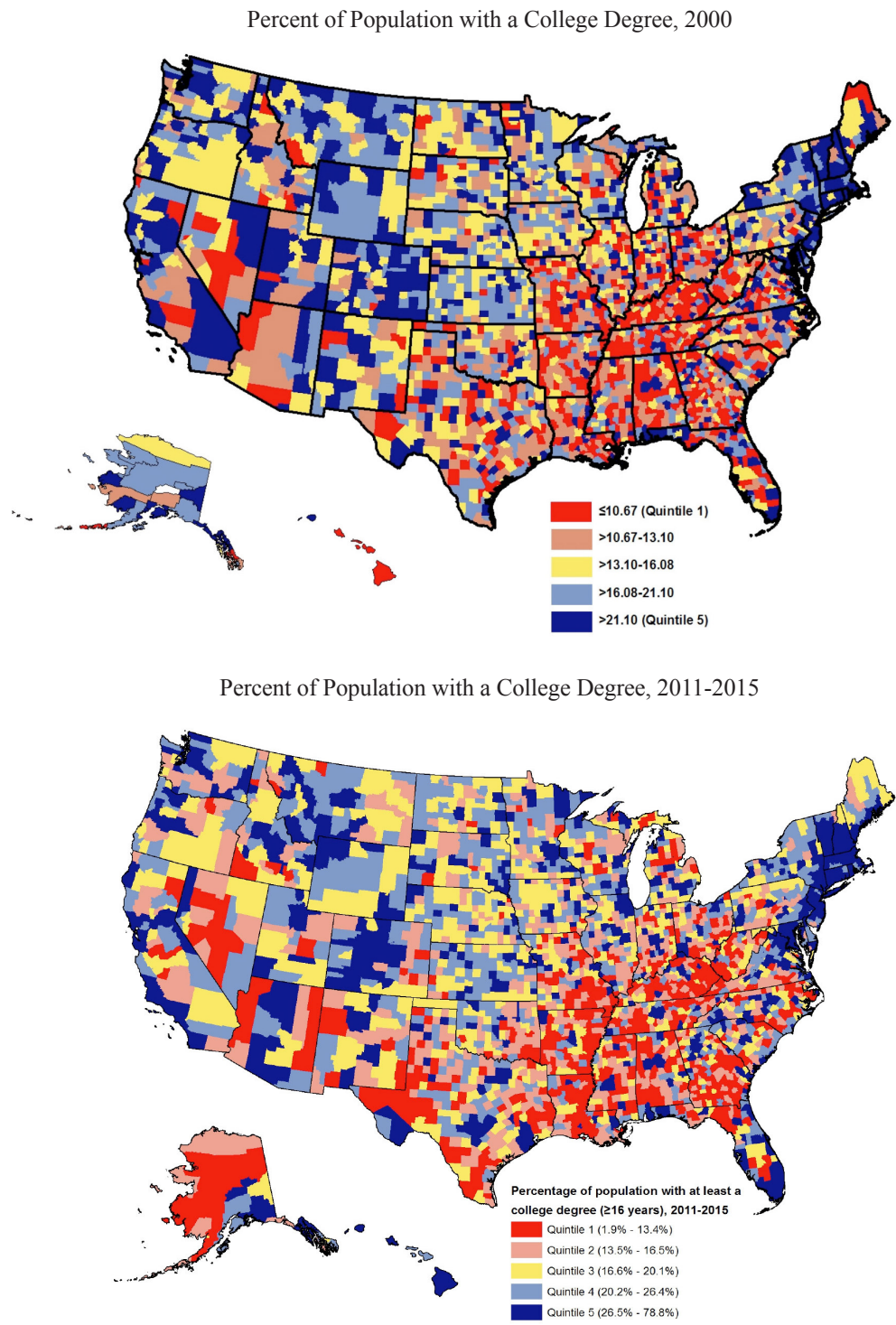
**Figure 2.1:** Poverty, Unemployment, and Health Uninsurance Rates by Race/Ethnicity, United States, 2015



Source: U.S. Census Bureau. 2015 American Community Survey.

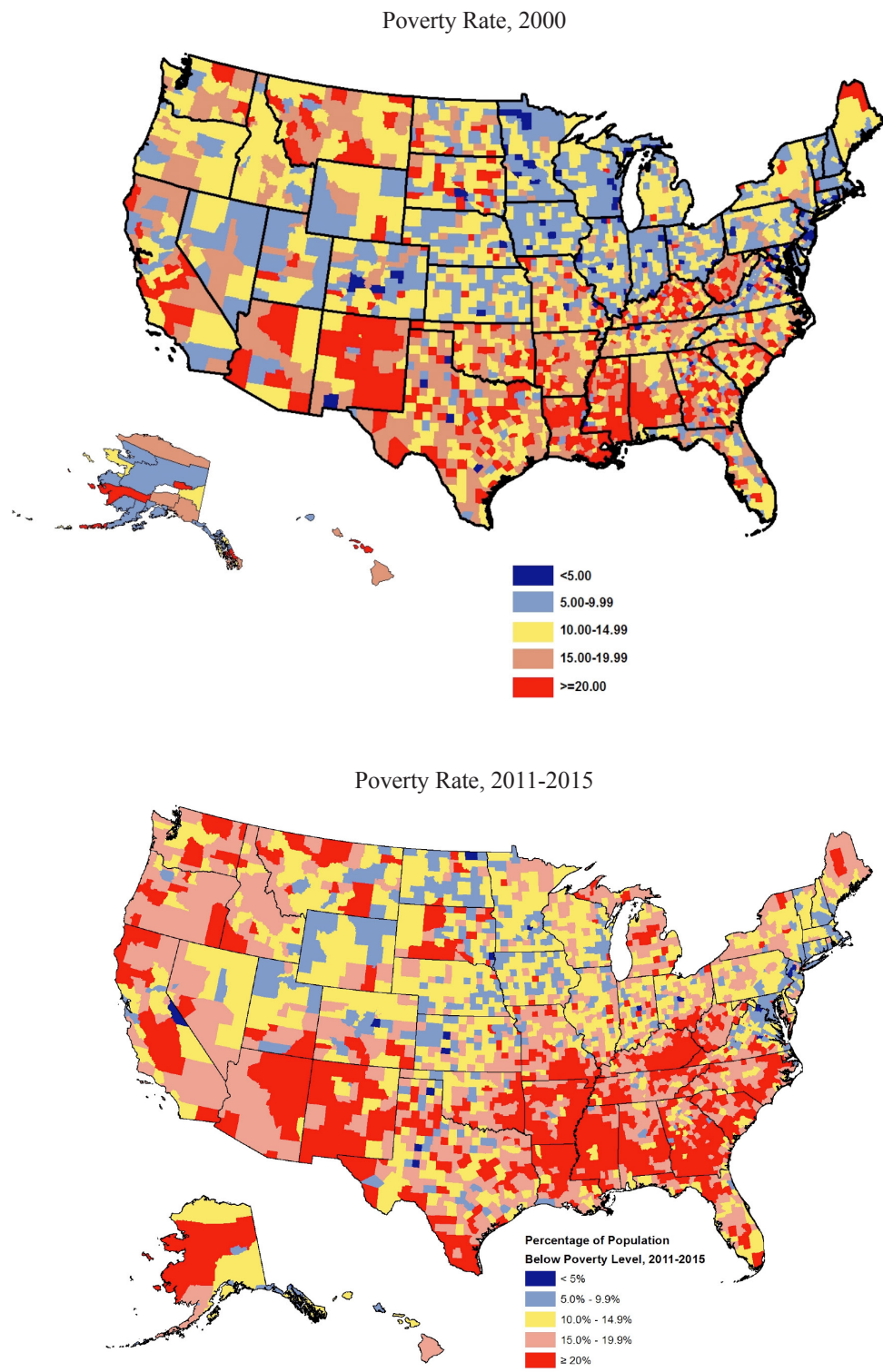


**Figure 2.2:** Percentage of Population aged  $\geq 25$  Years with a College Degree, United States, 2000 and 2011-2015 (3,143 Counties)



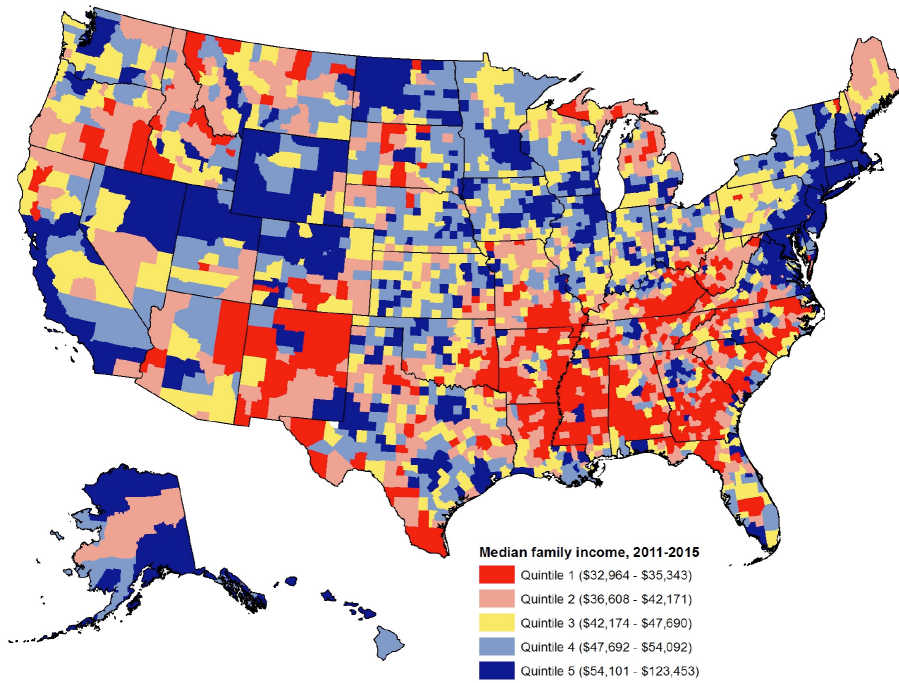
Source: Data derived from the 2000 Census and 2011-2015 American Community Survey.

**Figure 2.3:** Percentage of Population Below the Federal Poverty Level, United States, 2000 and 2011-2015 (3,143 Counties)



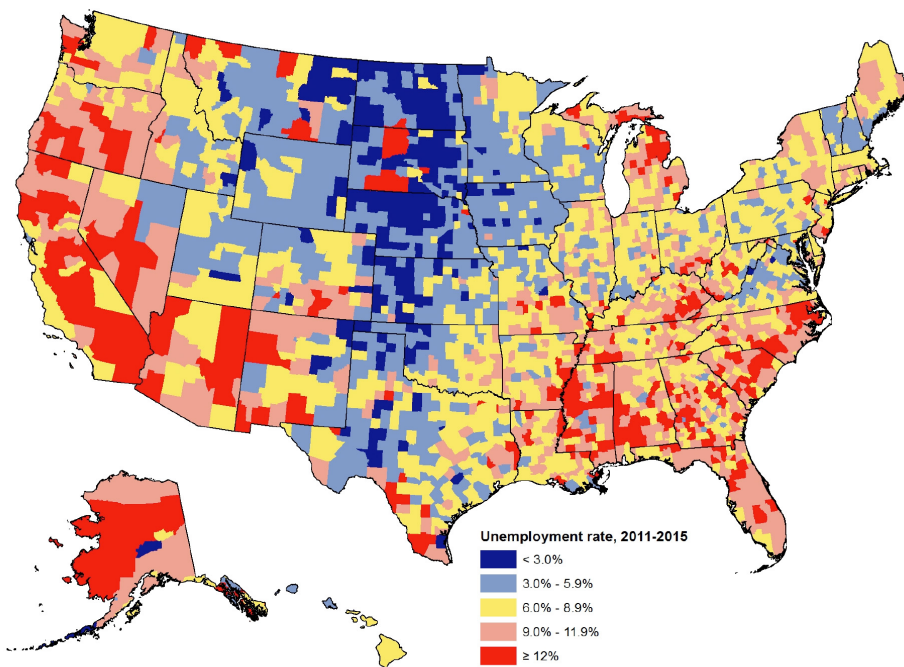
Source: Data derived from the 2000 Census and 2011-2015 American Community Survey.

**Figure 2.4:** Median Family Income (\$), United States, 2011-2015 (3,143 Counties)



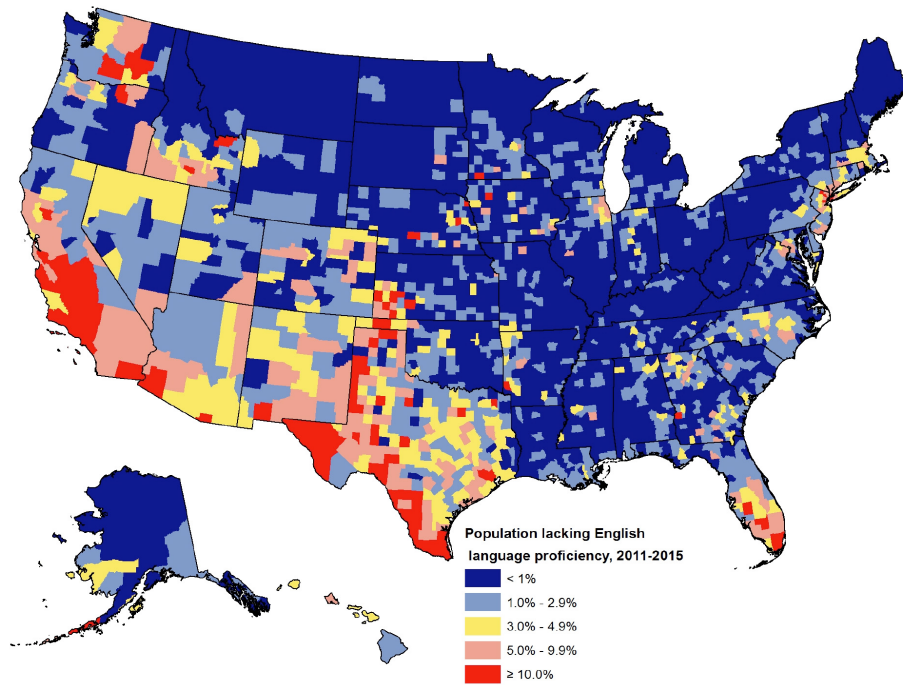
Source: Data derived from the 2011-2015 American Community Survey.

**Figure 2.5:** Unemployment Rate (Percentage of Civilian Labor Force that is Unemployed), United States, 2011-2015 (3,143 Counties)



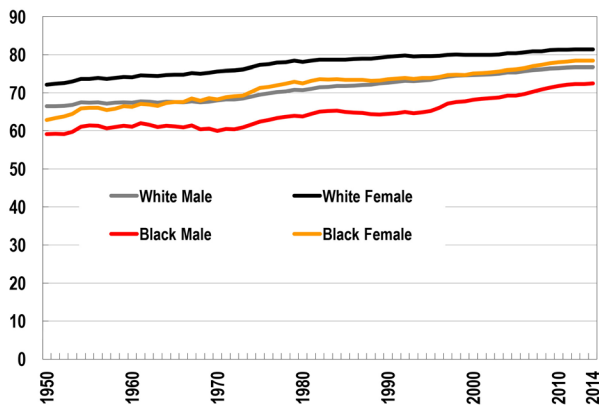
Source: Data derived from the 2011-2015 American Community Survey.

**Figure 2.6:** Population Lacking English Language Proficiency (Percentage of Population Aged 5 Years and Older Speaking English Not Well or Not At All), United States, 2011-2015 (3,143 Counties)



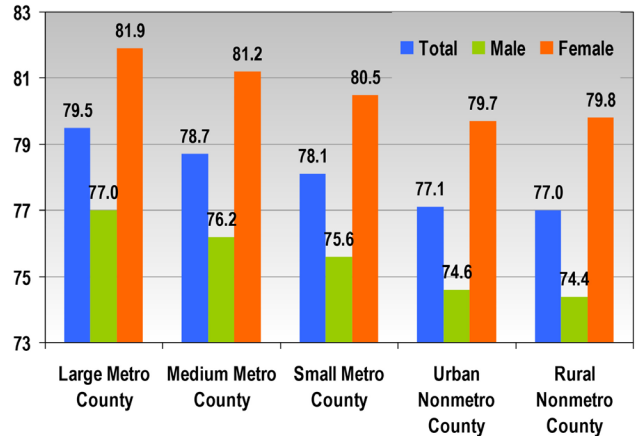
Source: Data derived from the 2011-2015 American Community Survey.

**Figure 2.7:** Life Expectancy at Birth (in Years) by Race and Sex, United States, 1950-2014



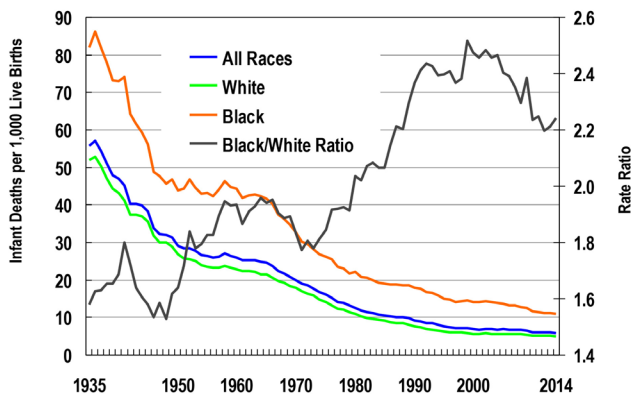
Source: CDC/NCHS. National Vital Statistics System

**Figure 2.8:** Life Expectancy at birth (years) by levels of urbanization, United States, 2007-2011



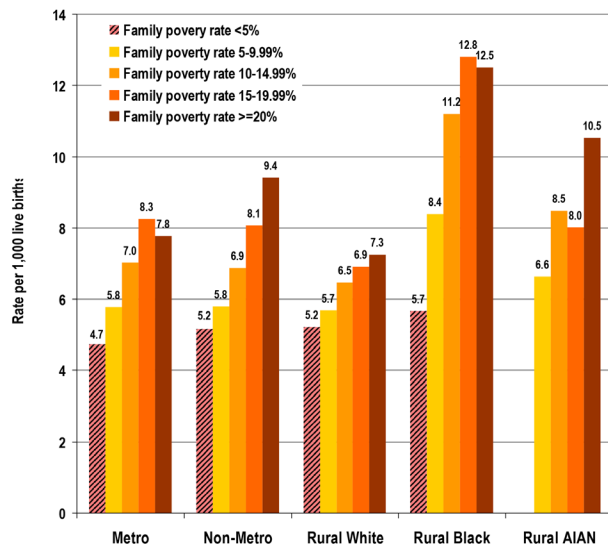
Source: Singh GK, Siahpush M. American Journal of Preventive Medicine. 2014; 46(2):e19-e29 (updated data)

**Figure 2.9: Infant Mortality Rate by Race, United States, 1935-2014**



Source: Singh GK, van Dyck PC. Infant Mortality in the United States. A 75th Anniversary Title V Publication. HRSA. 2010 (updated data) and CDC/NCHS.

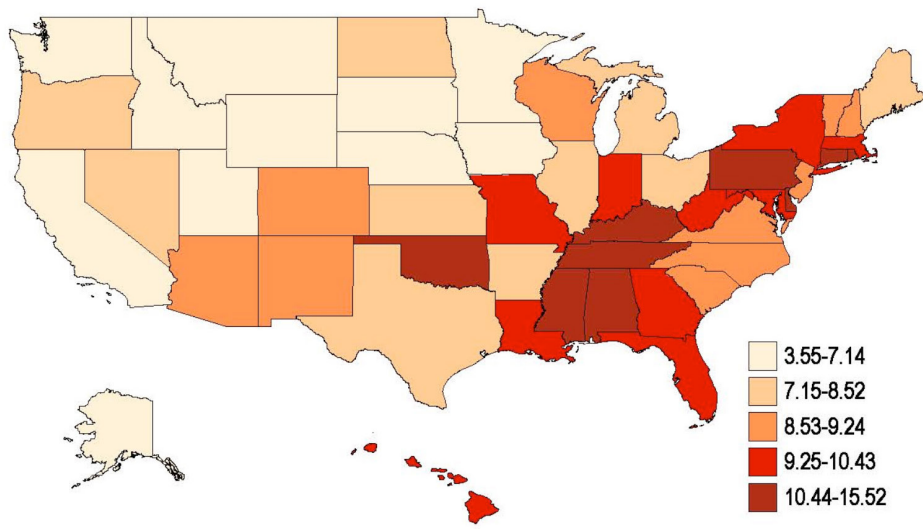
**Figure 2.10: Infant Mortality Rate by County-Level Family Poverty Rate, United States, 2007-2011**



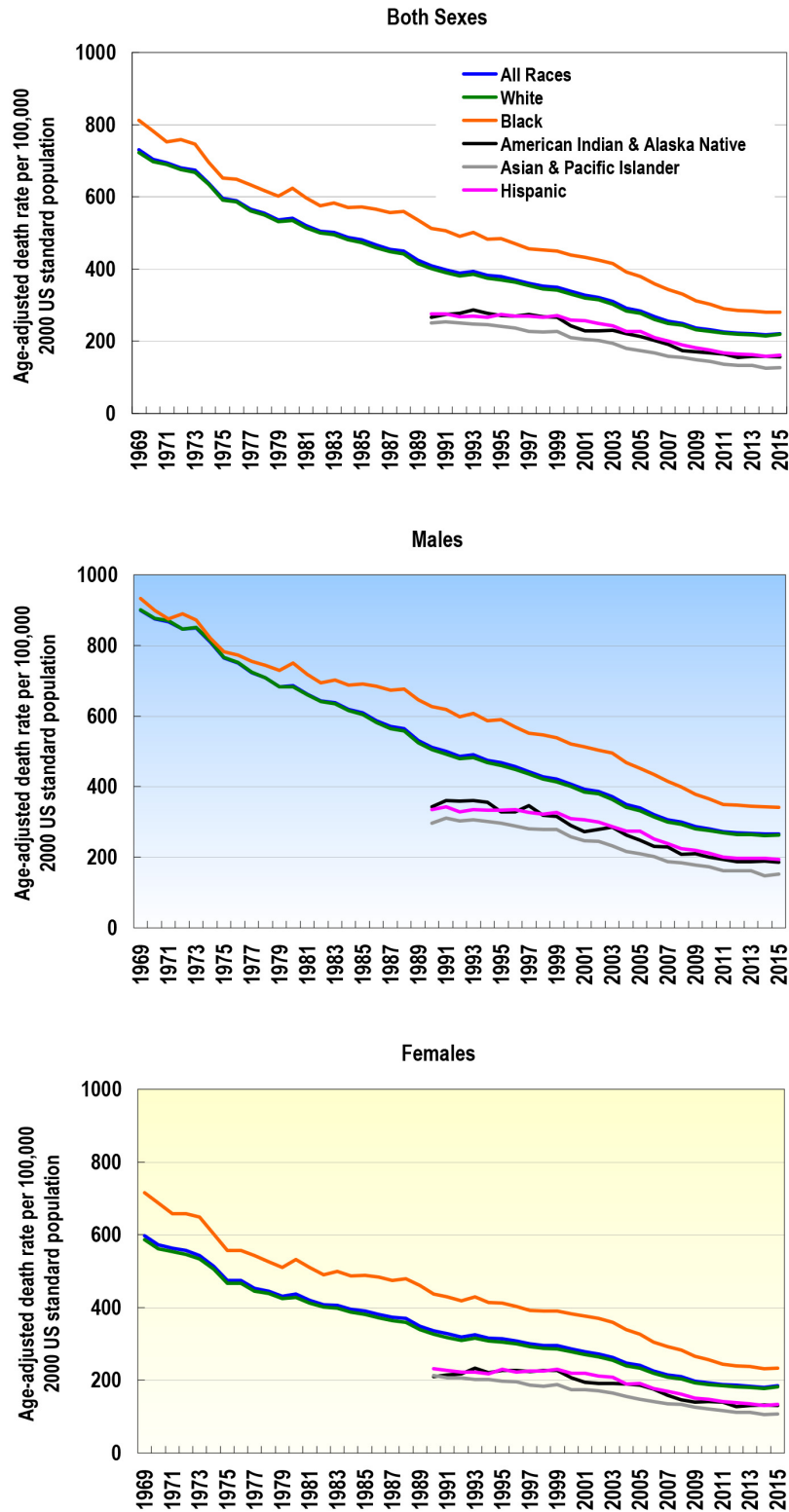
Source: CDC/NCHS. Based on Data from the U.S. National Vital Statistics System.

**Figure 2.11: State Variation in Prevalence of Current Asthma Among US Children and Adolescents Aged Under 18 Years, 2011-2012 National Survey of Children's Health**

Prevalence of Current Childhood Asthma (United States = 8.78%)  
 Alaska - Lowest Rate (3.55%); DC - Highest Rate (15.52%)

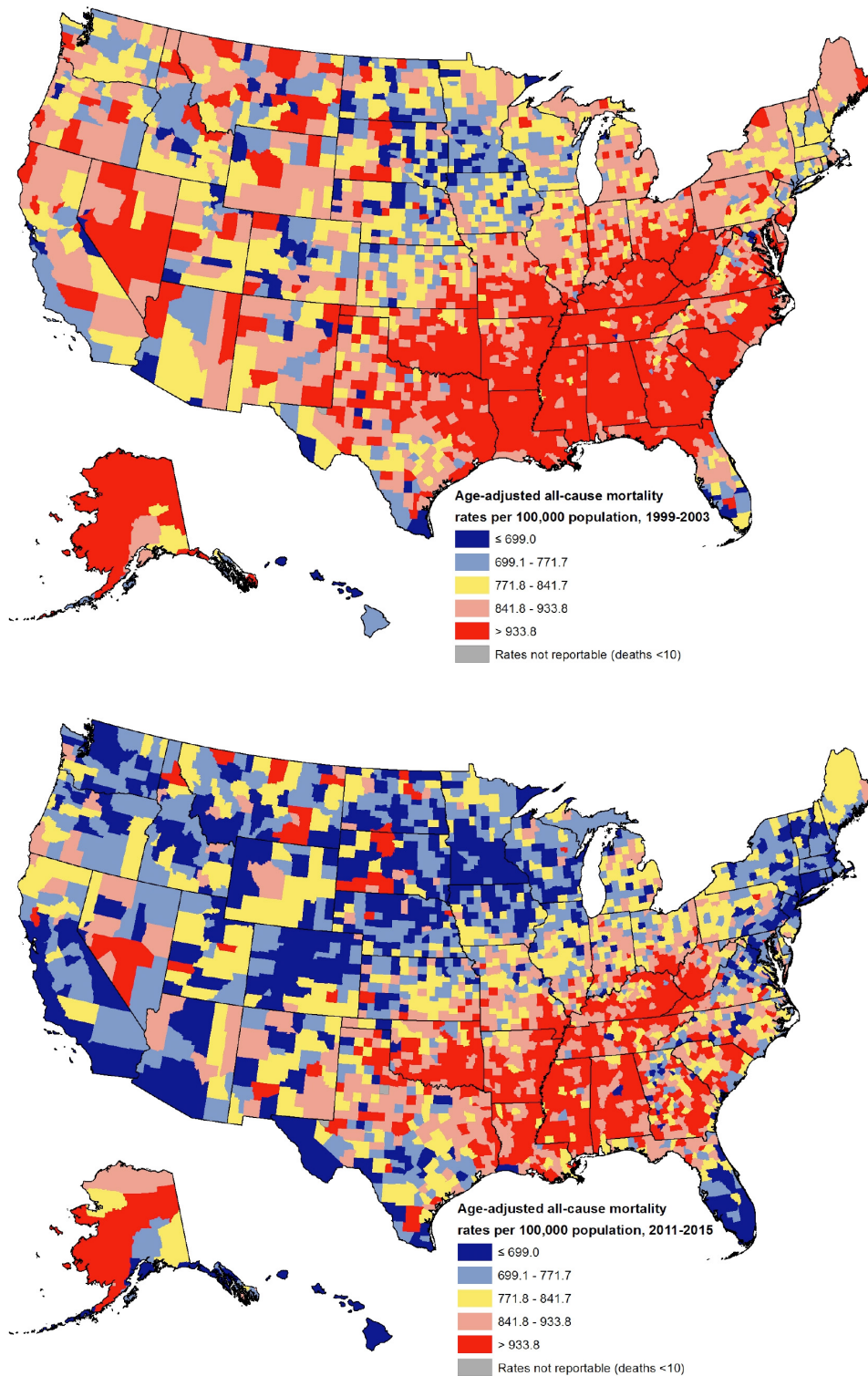


**Figure 2.12: Trends in CVD Mortality by Race/Ethnicity and Sex, United States, 1969-2015**



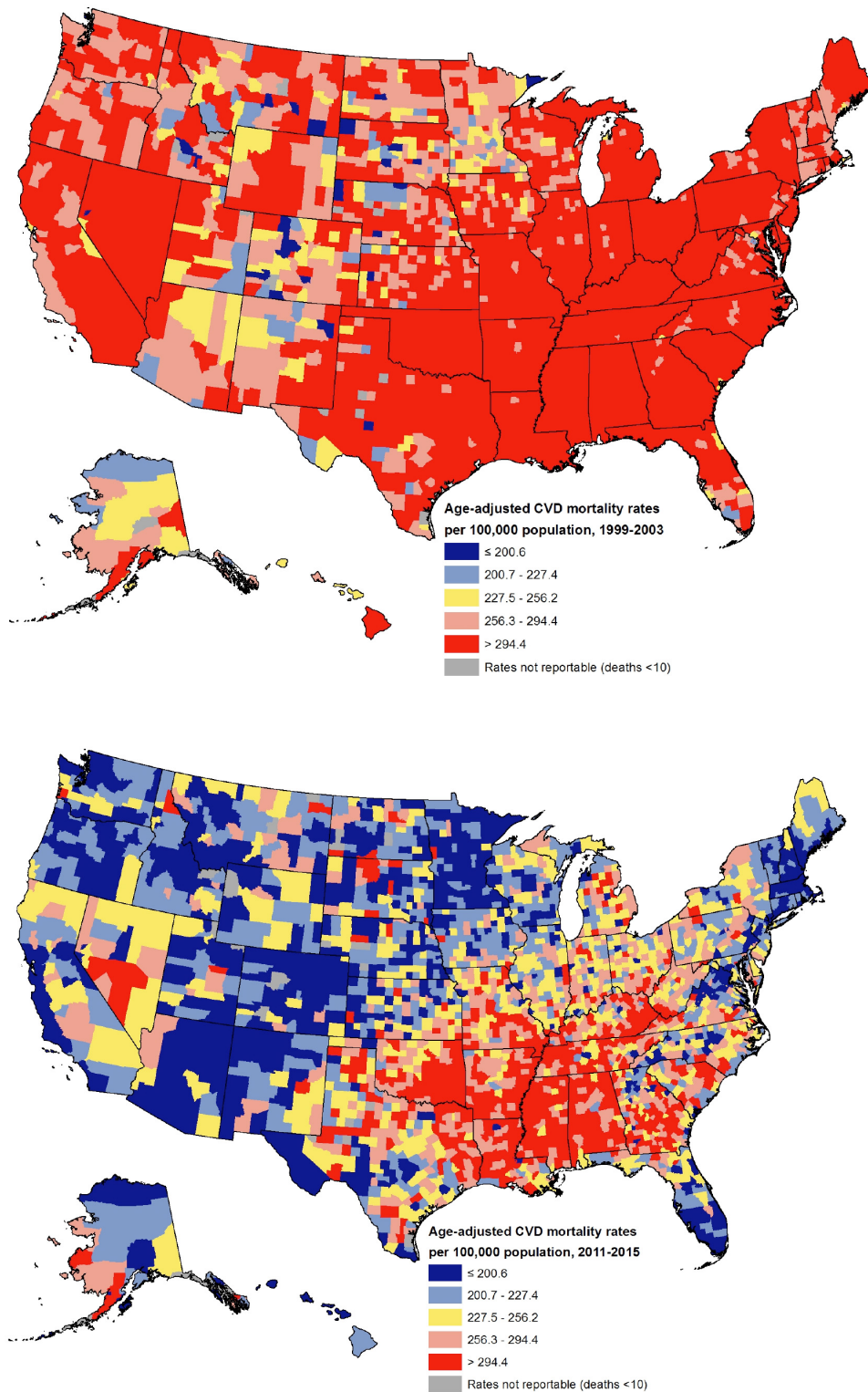
Source: Singh GK, Siahpush M, Azuine RE, Williams SD. Widening Socioeconomic and Racial Disparities in Cardiovascular Disease Mortality in the United States, 1969-2013. *International Journal of MCH and AIDS*. 2015; 3(2)106-118 (updated data).

**Figure 2.13:** Age-Adjusted All-Cause Mortality Rates per 100,000 Population for the United States (3,143 Counties), 1999-2003 and 2011-2015



Source: Derived from the 1999-2015 National Vital Statistics System.

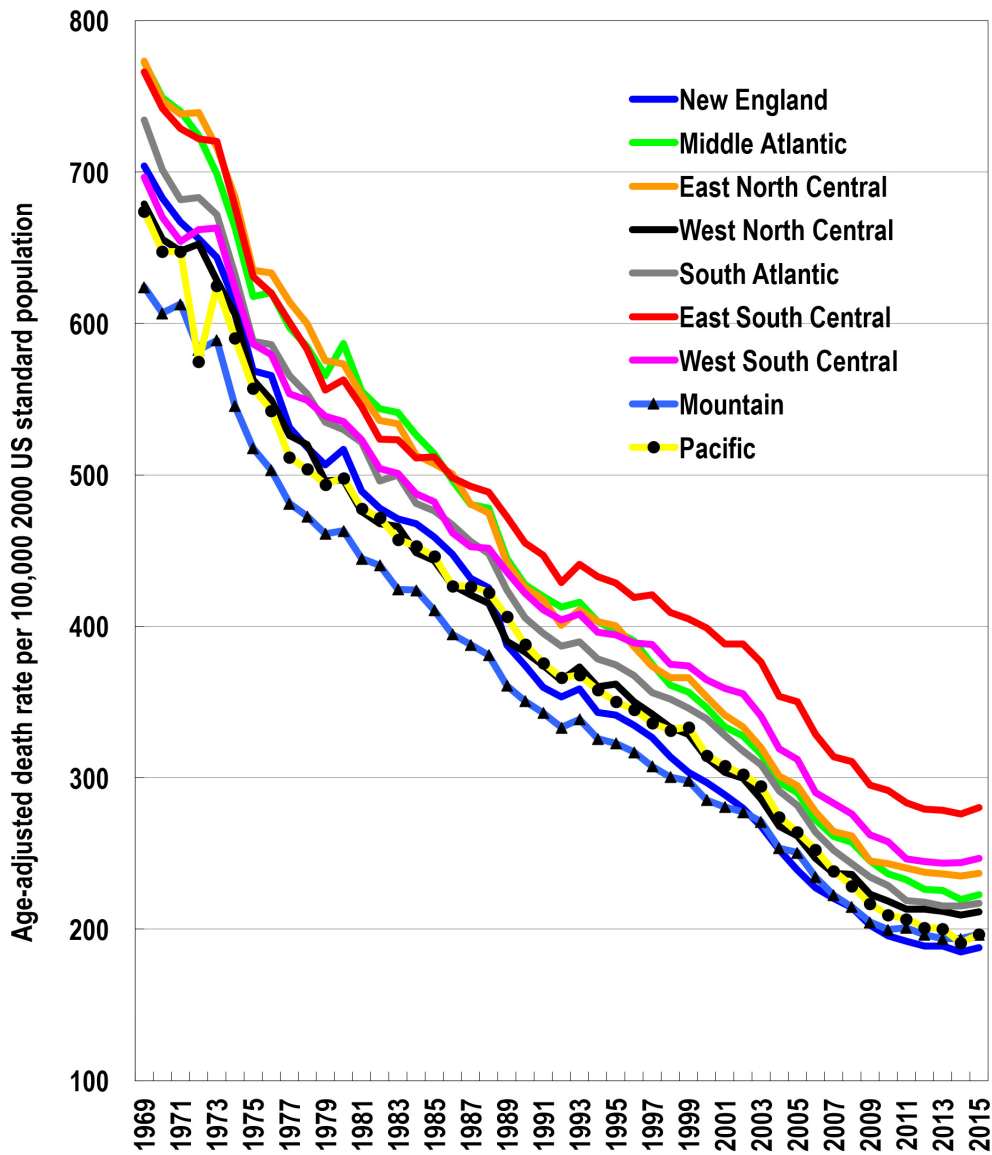
**Figure 2.14: Age-Adjusted Cardiovascular Disease (CVD) Mortality Rates per 100,000 Population for the United States (3,143 Counties), 1999-2003 and 2011-2015**



Source: Derived from the 1999-2015 National Vital Statistics System.

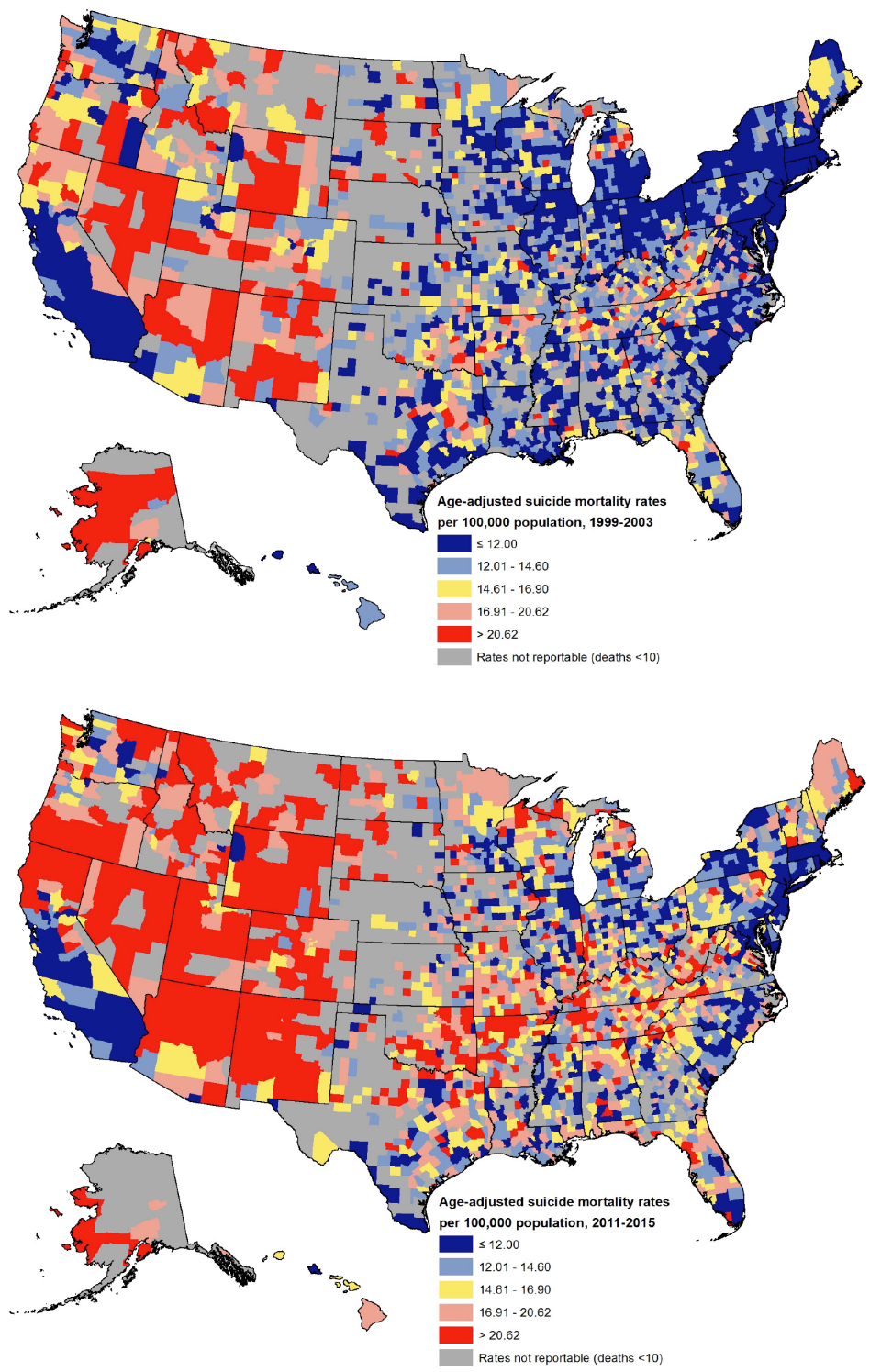


**Figure 2.15: Trends in Cardiovascular Disease (CVD) Mortality by Geographic Region, United States, 1969-2015**



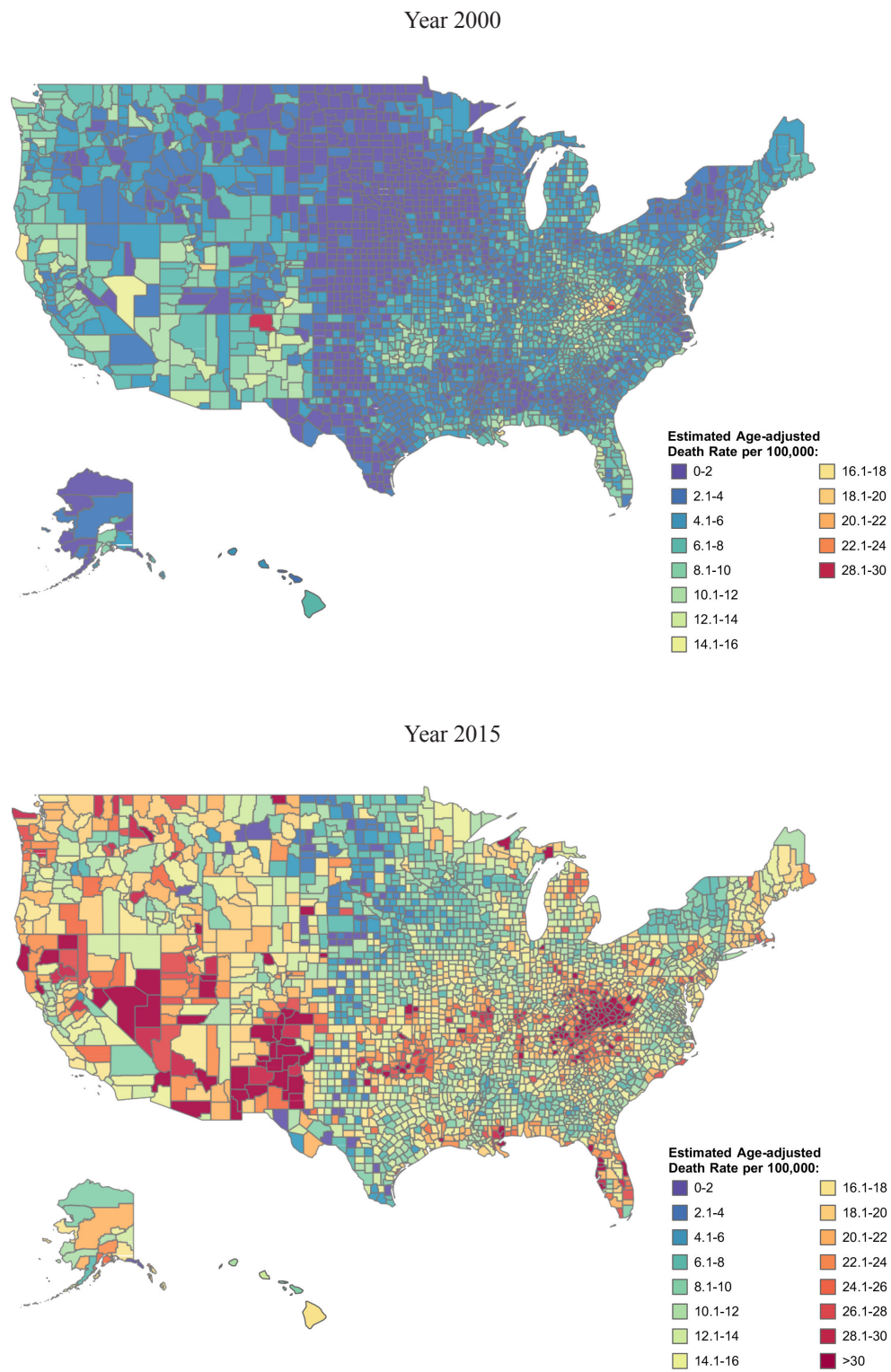
Source: Singh GK, Azuine RE, Siahpush M, Williams SD. Widening Geographical Disparities in Cardiovascular Disease Mortality in the United States, 1969-2011. *International Journal of MCH and AIDS*. 2015; 3(2)134-149 (updated data).

**Figure 2.16: Age-adjusted Suicide Mortality Rates per 100,000 Population, United States, 1999-2015 (3,143 Counties)**



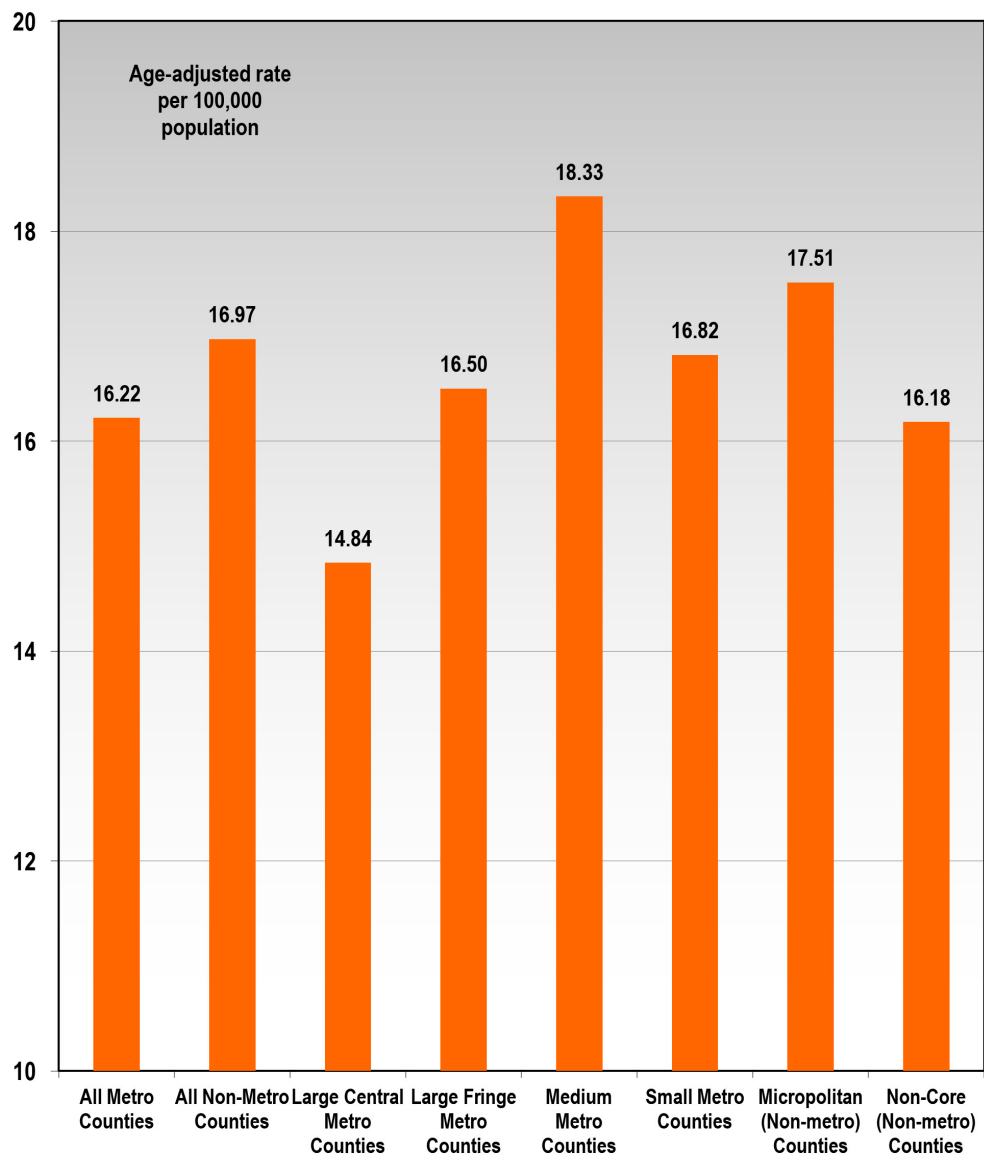
Source: Data derived from the U.S. National Vital Statistics System.

**Figure 2.17:** Estimated Age-Adjusted Drug Overdose Mortality Rates per 100,000 Population by County, United States, 2000 and 2015



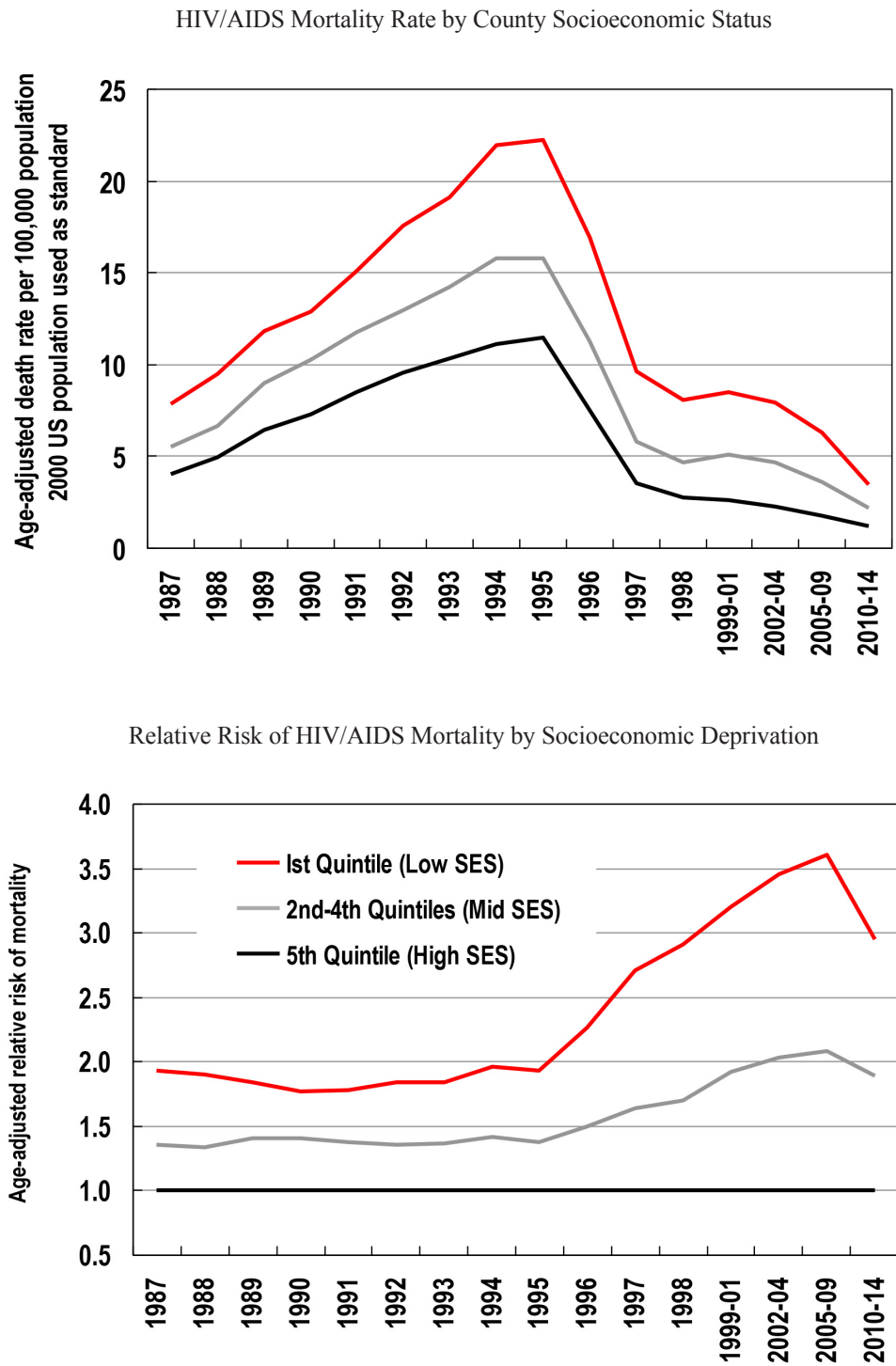
Source: CDC/NCHS, National Vital Statistics System.

**Figure 2.18: Drug Overdose Mortality Rates by Urbanization Level, United States, 2015**



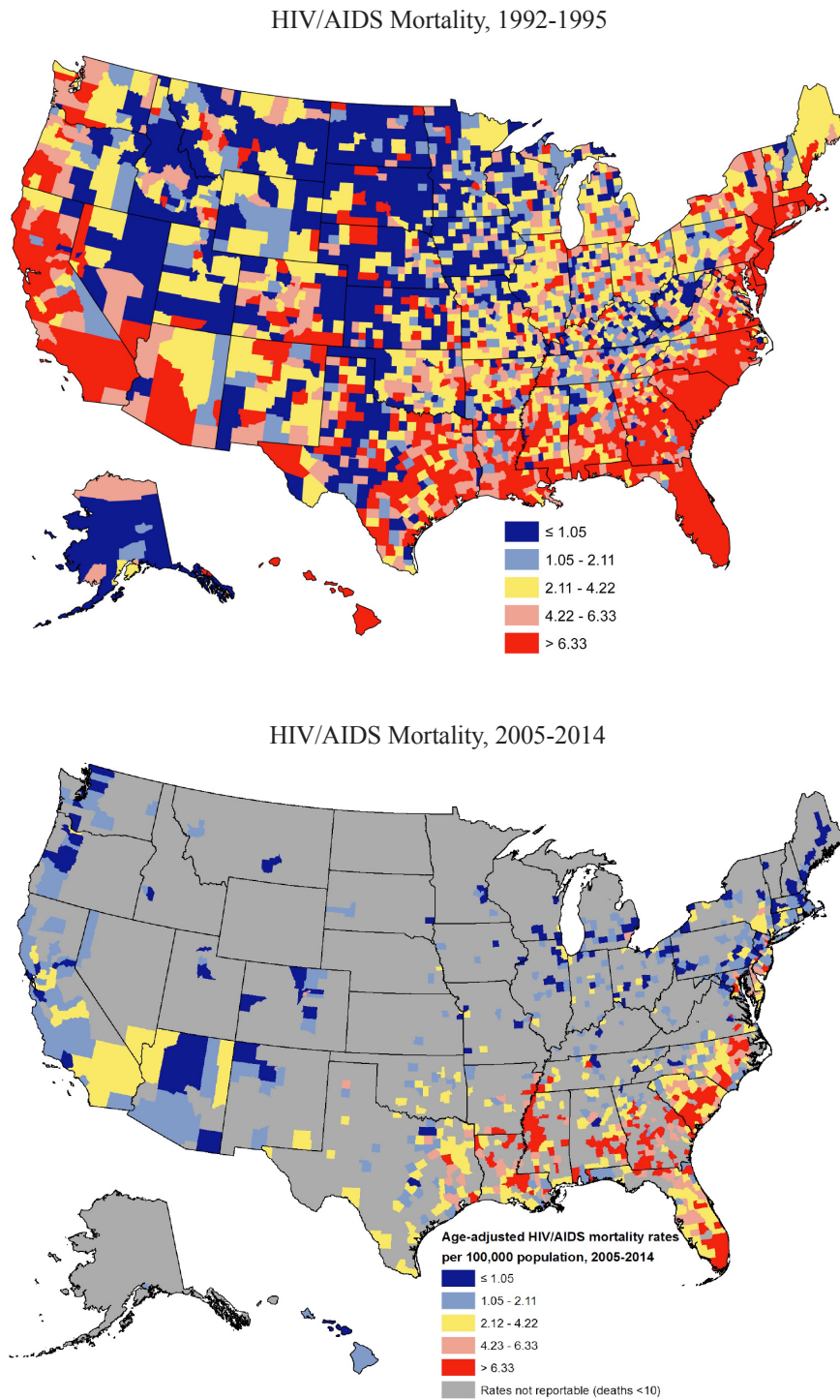
Source: CDC/NCHS. Data derived from the National Vital Statistics System.

**Figure 2.19:** Trends in HIV/AIDS Mortality by County Socioeconomic Status, Both Sexes Combined, United States, 1987-2014



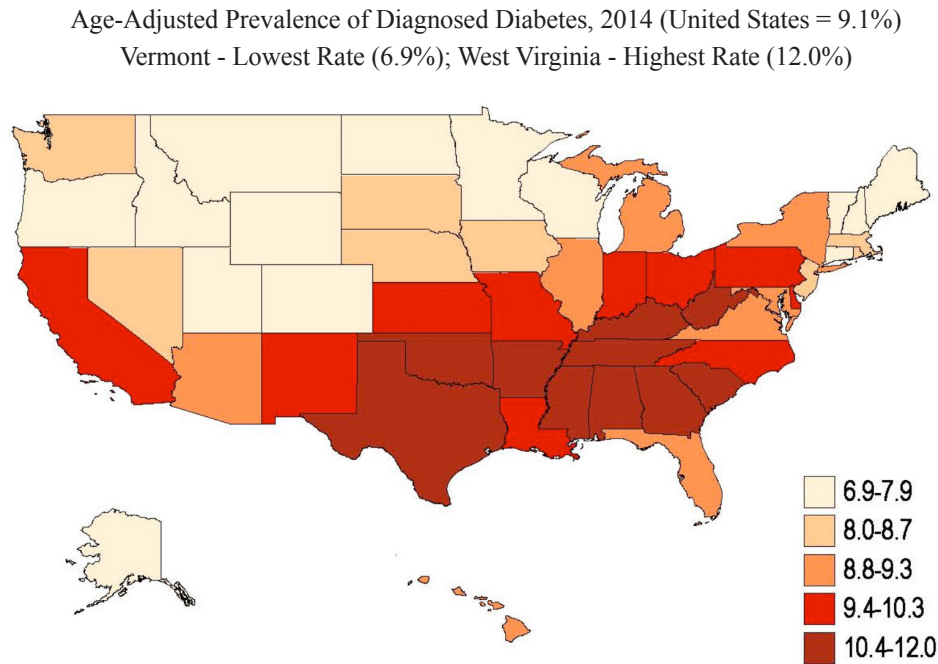
**Source:** Singh GK, Azuine RE, Siahpush M. Widening Socioeconomic, Racial, and Geographic Disparities in HIV/AIDS Mortality in the United States, 1987-2011. *Advances in Preventive Medicine*. 2013. DOI: 10.1155/2013/657961. Updated data derived from the US National Vital Statistics System.

**Figure 2.20:** Age-adjusted HIV/AIDS Mortality Rates per 100,000 Population, United States, 1992-2014 (3,143 Counties)



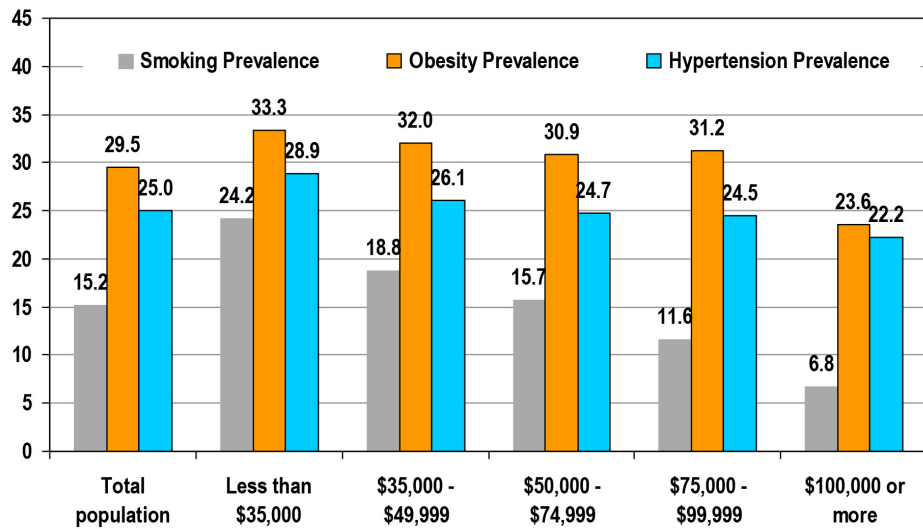
**Source:** Singh GK, Azuine RE, Siahpush M. Widening Socioeconomic, Racial, and Geographic Disparities in HIV/AIDS Mortality in the United States, 1987-2011. *Advances in Preventive Medicine*. 2013. DOI: 10.1155/2013/657961. Data derived from the U.S. National Vital Statistics System.

**Figure 2.21:** Age-adjusted Prevalence of Diagnosed Diabetes Among Adults Aged 18+, by State, United States, 2014



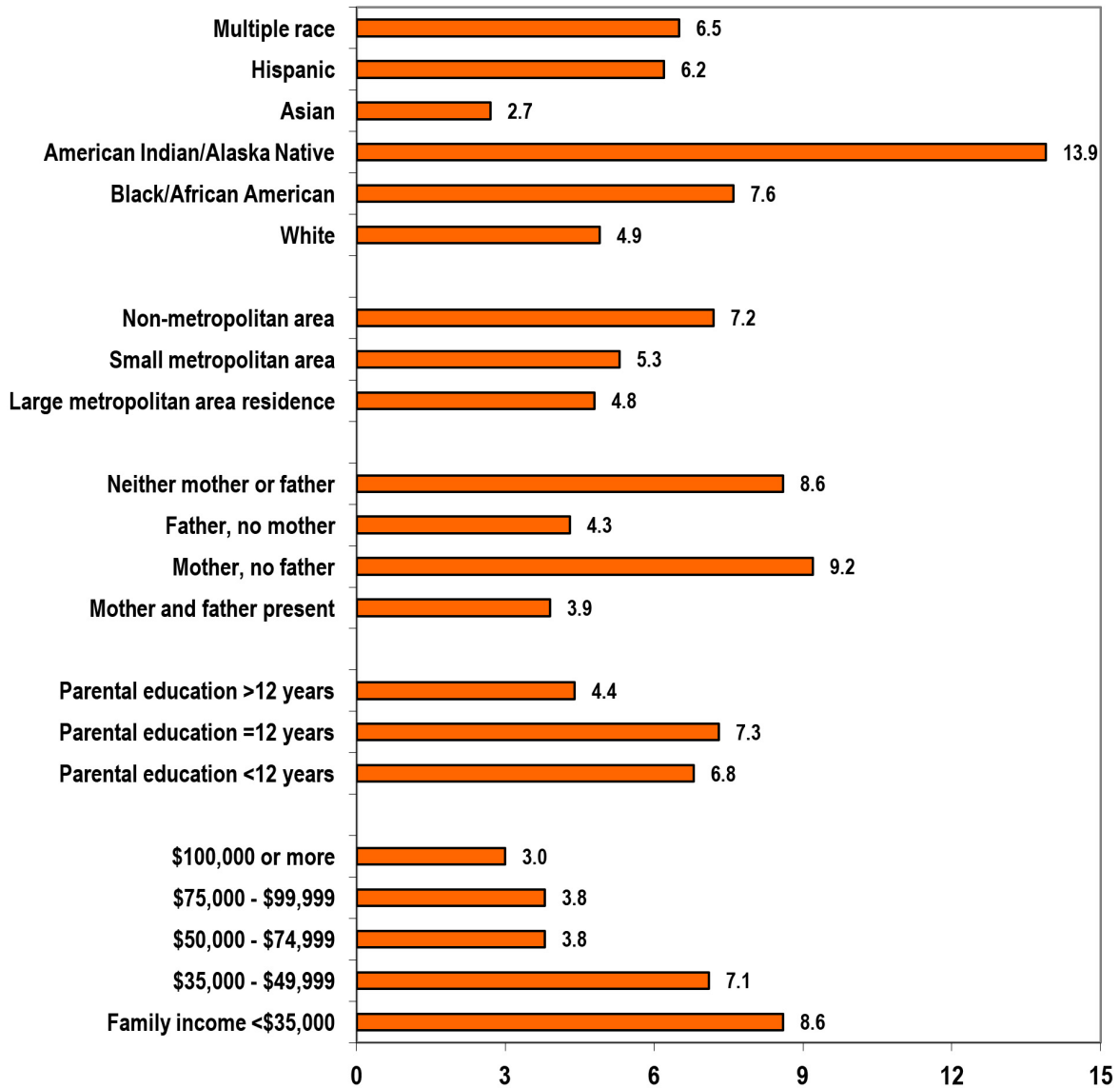
Source: CDC. 2014 National Diabetes Statistics Report.

**Figure 2.22:** Age-Adjusted Prevalence (%) of Current Smoking, Obesity, and Hypertension by Family Income, US Adults Aged 18 Years and Older, 2015



Source: CDC/NCHS. 2015 National Health Interview Survey.

**Figure 2.23:** Emergency Room (ER) Visits by Sociodemographic Factors, Children <18 Years of Age, United States, 2015 National Health Interview Survey



Source: CDC/NCHS. 2015 National Health Interview Survey.



**Table 2.1:** Weighted Prevalence (%) of Current Childhood Asthma by Selected Socioeconomic and Demographic Characteristics: The 2011-2012 National Survey of Children's Health (N = 95,441)

Characteristic	Prevalence	SE	Characteristic	Prevalence	SE
<b>United States</b>	8.78	0.20			
<b>Child's age</b>			<b>Household/parental education level</b>		
0-5 years	5.81	0.28	<12 years	9.15	0.68
6-11 years	10.02	0.36	12 years	10.72	0.54
12-17 years	10.43	0.38	>12 years	8.29	0.22
<b>Child's gender</b>			<b>Household poverty status (Ratio of family income to poverty threshold)</b>		
Male	9.58	0.28	Below 100%	11.43	0.50
Female	7.95	0.28	100-199%	8.76	0.47
<b>Race/ethnicity</b>			200-399%	8.14	0.36
Hispanic	6.81	0.46	At or above 400%	7.31	0.31
Non-Hispanic White	7.57	0.22	<b>Household employment status</b>		
Non-Hispanic Black	16.72	0.76	Employed for $\geq$ 50 weeks		
Mixed Race	13.42	1.00	during past year	8.47	0.22
Other	6.28	0.56	Not employed	10.76	0.54
<b>Household composition</b>			<b>Housing tenure/home ownership</b>		
Two-parent biological	6.91	0.21	Own home	7.94	0.23
Two-parent stepfamily	11.29	0.77	Rent/other	10.27	0.37
Single mother	12.76	0.55	<b>Neighborhood safety</b>		
Other family type	12.03	0.91	Safe	8.46	0.20
<b>Place of residence</b>			Unsafe	11.15	0.72
Metropolitan	8.70	0.22	<b>Neighborhood housing condition</b>		
Non-metropolitan	9.50	0.44	Poor/dilapidated housing	11.08	0.58
<b>Primary language spoken at home</b>			Good	8.39	0.21
English	9.63	0.22			
Any other language	4.20	0.45			

The chi-square test for the overall association between each covariate and asthma prevalence was statistically significant at  $p < 0.05$  level. SE = standard error.

**Table 2.2:** Age-adjusted chronic disease prevalence (%) among US aged  $\geq 25$  years by sociodemographic characteristics: 2015 National Health Interview Survey

Characteristic	Prevalence	SE	RR	Prevalence	SE	RR	Prevalence	SE	RR
	Heart disease			All Cancers Combined			Diabetes		
<b>Sex/gender</b>	11.0	0.23		8.0	0.17		8.9	0.20	
Male	12.2	0.33	1.22 *	7.7	0.24	0.92 *	9.4	0.29	1.12 *
Female	10.0	0.30	1.00	8.4	0.25	1.00	8.4	0.25	1.00
<b>Race/ethnicity</b>									
White	11.3	0.27	1.00	8.8	0.21	1.00	8.1	0.22	1.00
Black/African American	9.5	0.50	0.84 *	4.7	0.36	0.53 *	13.1	0.55	1.62 *
American Indian/Alaska Native	13.7	2.25	1.21 *	5.1	1.57	0.58 *	20.9	2.94	2.58 *
Asian	7.1	0.78	0.63 *	3.0	0.50	0.34 *	9.0	0.81	1.11 *
Native Hawaiian/Other Pacific Is	8.9	4.33	0.79 *	8.0	3.34	0.91 *	11.7	3.38	1.44 *
Hispanic or Latino	8.2	0.45	0.73 *	4.3	0.37	0.49 *	12.2	0.56	1.51 *
Multiple race	16.8	1.91	1.49 *	7.3	1.41	0.83 *	11.9	1.74	1.47 *
<b>Marital status</b>									
Married	10.9	0.33	1.00	8.7	0.27	1.00	8.5	0.27	1.00
Widowed	11.7	1.66	1.07 *	7.5	0.67	0.86 *	12.3	2.65	1.45 *
Divorced/separated	13.3	0.78	1.22 *	8.6	0.49	0.99 *	11.1	0.57	1.31 *
Never married	8.9	0.54	0.82 *	5.7	0.52	0.66 *	9.3	0.60	1.09 *
Living with a partner	12.7	1.24	1.17 *	9.4	1.12	1.08 *	9.5	1.15	1.12 *
<b>Place of residence</b>									
Large metropolitan area	10.0	0.29	1.00	7.4	0.25	1.00	8.6	0.27	1.00
Small metropolitan area	11.2	0.42	1.12 *	8.8	0.34	1.19 *	8.9	0.36	1.03 *
Non-metropolitan area	14.2	0.78	1.42 *	8.8	0.41	1.19 *	10.0	0.50	1.16 *
<b>Educational attainment</b>									
< High school	14.4	0.71	1.32 *	7.6	0.51	0.76 *	14.9	0.67	2.10 *
High school graduate	12.1	0.51	1.11 *	8.5	0.40	0.85 *	11.5	0.46	1.62 *
Some college/associate degree	12.9	0.47	1.18 *	10.2	0.37	1.02	10.2	0.41	1.44 *
College graduate or higher	10.9	0.42	1.00	10.0	0.38	1.00	7.1	0.34	1.00
<b>Family income</b>									
<\$35,000	14.2	0.44	1.49 *	7.9	0.31	0.82 *	12.40	0.38	2.03 *
\$35,000 - \$49,999	11.3	0.69	1.19 *	8.3	0.50	0.86 *	10.50	0.60	1.72 *
\$50,000 - \$74,999	10.3	0.54	1.08 *	7.5	0.43	0.78 *	8.40	0.51	1.38 *
\$75,000 - \$99,999	9.8	0.69	1.03	8.7	0.53	0.91 *	7.50	0.58	1.23 *
\$100,000 or more	9.5	0.53	1.00	9.6	0.47	1.00	6.10	0.43	1.00
<b>Employment status</b>									
Employed, full time	9.5	0.62	1.00	6.4	0.55	1.00	6.5	0.48	1.00
Employed, part time	9.7	0.71	1.02	7.4	0.65	1.16 *	8.4	0.69	1.29 *
Not employed, but worked previously	14.7	0.47	1.55*	10.7	0.40	1.67*	11.6	0.39	1.78*

Rates are age-adjusted to the 2000 US standard population. SE = standard error. RR = prevalence rate ratio. \* P < 0.05.

**Table 2.3:** Age-adjusted prevalence (%) of serious psychological distress and unmet medical need among US population by sociodemographic characteristics: 2015 National Health Interview Survey

Characteristic	Prevalence	SE	RR	Prevalence	SE	RR	Prevalence	SE	RR
	Serious psychological distress <sup>1</sup>			Did not receive medical care due to cost <sup>2</sup>			Delayed seeking care due to cost <sup>2</sup>		
<b>Sex/gender</b>	3.6	0.15		4.4	0.10		6.3	0.13	
Male	2.9	0.20	0.67 *	4.0	0.12	0.83 *	9.4	0.29	1.12 *
Female	4.3	0.22	1.00	4.8	0.13	1.00	8.4	0.25	1.00
<b>Race/ethnicity</b>									
White	3.5	0.15	1.00	4.3	0.11	1.00	6.4	0.14	1.00
Black/African American	3.5	0.38	1.00	5.8	0.27	1.35 *	6.6	0.29	1.03
American Indian/Alaska Native	14.0	3.54	4.00 *	5.0	0.84	1.16 *	6.8	0.91	1.06
Asian	2.1	0.46	0.60 *	2.7	0.34	0.63 *	3.6	0.38	0.56 *
Native Hawaiian/OPI				6.2	2.48	1.44 *	9.3	2.84	1.45 *
Hispanic or Latino	4.0	0.32	1.14 *	5.4	0.37	1.26 *	7.0	0.28	1.09
Multiple race	8.3	1.78	2.37 *	7.5	0.76	1.74 *	9.5	0.86	1.48 *
<b>Marital status</b>									
Married	2.3	0.17	1.00						
Widowed	2.9	0.46	1.26 *						
Divorced/separated	6.9	0.72	3.00 *						
Never married	4.6	0.45	2.00 *						
Living with a partner	4.3	0.60	1.87 *						
<b>Place of residence</b>									
Large metropolitan area	3.2	0.20	1.00	4.1	0.13	1.00	5.9	0.17	1.00
Small metropolitan area	3.7	0.29	1.16 *	4.6	0.19	1.12 *	6.7	0.24	1.14 *
Non-metropolitan area	4.9	0.44	1.53 *	5.3	0.28	1.29 *	6.8	0.32	1.15 *
<b>Educational attainment</b>									
< High school	8.3	0.70	5.93 *	8.7	0.40	2.90 *	10.4	0.45	1.96 *
High school graduate	4.2	0.37	3.00 *	6.5	0.26	2.17 *	8.3	0.30	1.57 *
Some college/associate degree	3.6	0.28	2.57 *	7.1	0.25	2.37 *	9.8	0.30	1.85 *
College graduate or higher	1.4	0.16	1.00	3.0	0.15	1.00	5.3	0.20	1.00
<b>Family income</b>									
<\$35,000	7.3	0.37	5.21 *	9.5	0.27	10.56 *	11.3	0.28	5.38 *
\$35,000 - \$49,999	3.6	0.45	2.57 *	6.3	0.36	7.00 *	9.4	0.15	4.48 *
\$50,000 - \$74,999	2.8	0.39	2.00 *	4.1	0.25	4.56 *	6.6	0.33	3.14 *
\$75,000 - \$99,999	1.8	0.31	1.29 *	2.3	0.24	2.56 *	4.2	0.33	2.00 *
\$100,000 or more	1.4	0.23	1.00	0.9	0.09	1.00	2.1	0.17	1.00
<b>Employment status</b>									
Employed, full time	1.4	0.12	1.00	6.4	0.55	1.00	6.5	0.48	1.00
Employed, part time	2.9	0.39	2.07	7.4	0.65	1.16 *	8.4	0.69	1.29 *
Not employed, but worked previously	8.1	0.45	5.79*	10.7	0.40	1.67*	11.6	0.39	1.78*

Rates are age-adjusted to the 2000 US standard population. SE = standard error. RR = prevalence rate ratio. \* P<0.05.

<sup>1</sup>Adults aged 18 years and older. <sup>2</sup>Population of all ages. OPI = Other Pacific Islander.

# 3. Maternal and Child Health

## Introduction

The Maternal and Child Health Bureau (MCHB) works to improve the health of all of America's mothers, children, and families. The Bureau envisions an America where all children and families are thriving and are able to reach their fullest potential. MCHB's work aligns with HRSA's broader goals of improving access to quality health care and services, strengthening the health workforce, building healthy communities, improving health equity, and strengthening program operations. Health equity is a common theme in MCHB programs, and the Bureau also focuses on persistent health disparities and the social causes of health.<sup>1</sup>

Each of the MCHB's divisions and offices play a unique role in improving health equity. Several programs highlighted in this section are:

- Epidemiology and Research: National Survey of Children's Health and Research Networks
- State and Community Health: Title V Block Grant Program
- Home Visiting and Early Childhood Services: Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV)
- Healthy Start and Perinatal Services: Healthy Start Program
- Child, Adolescent and Family Health: Emergency Medical Services for Children Program
- MCH Workforce Development: Pipeline and Catalyst Training Programs
- Services for Children with Special Health Care Needs: Universal Newborn Hearing Screening and Family to Family Programs

## Epidemiology and Research

### National Survey of Children's Health

The National Survey of Children's Health (NSCH) is overseen and carried out by the Office of Epidemiology

and Research's Division of Epidemiology and is primarily funded by the MCHB. The NSCH collects information on the physical and mental health and health care needs of children. The NSCH also collects data on factors that may relate to child well-being, including medical homes, family interactions, parental health, school and after-school experiences, and neighborhood characteristics. Survey weights are used so that estimates are representative of all noninstitutionalized children aged 0 to 17 years in the U.S. and in each state. Since 2003, NSCH has collected data every four years; however, the redesigned 2016 NSCH will be fielded annually to collect information that is up-to-date and accessible to states and communities working to improve the health and well-being of children. MCHB also fielded a companion survey every four years (starting in 2001)—the National Survey of Children with Special Health Care Needs (NS-CSHCN), which assessed the prevalence and impact of special health care needs in U.S. children and evaluated changes over time; much of this content has been incorporated in the redesigned NSCH.<sup>2,3</sup> In addition to being a rich source of data on child health in general, the NSCH is vital in assessing progress in states on important factors that MCHB programs work to improve that impact health equity, such as through the Title V Block Grant program.

### Maternal and Child Health (MCH) Research Networks

MCH Research Networks, funded and managed by the Office of Epidemiology and Research's Division of Research, are interdisciplinary teams of national experts that lead and promote coordinated research activities related to unique MCH topic areas of interest. Research Network members identify research gaps; conduct multisite intervention research, secondary data analyses, and pilot and feasibility and/or acceptability studies of interventions; and disseminate findings to further advance the field of MCH research. This innovative research platform enables the pooling of resources that have a greater collective impact than any one individual study. Research Networks are funded through cooperative agreements in which the grantee and MCHB work collaboratively to address

emerging policy and practice issues affecting the health of mothers, children, and families.

## Title V Maternal and Child Health (MCH) Services Block Grant Program

### Background

As one of the largest federal block grant programs, Title V MCH Services Block Grant Program (Title V) is a key source of support for promoting and improving the health of the nation's mothers and children, and is administered by the Division of State and Community Health. Title V creates federal/state partnerships that enable each state/jurisdiction to address the health services needs of its mothers, infants, and children, which includes children with special health care needs and their families.

Title V funds are distributed to grantees from 59 states and jurisdictions. The funds seek to provide:

- Access to quality care, especially for people with low incomes or limited availability of care
- Assistance in the reduction of infant mortality
- Access to comprehensive prenatal and postnatal care for women, especially low-income and at-risk pregnant women
- An increase in health assessments and follow-up diagnostic and treatment services
- Access to preventive and child care services as well as rehabilitative services for certain children
- Family-centered, community-based systems of coordinated care for children with special health care needs
- Toll-free hotlines and assistance in applying for services to pregnant women with infants and children who are eligible for Title XIX (Medicaid).

State MCH agencies submit a yearly application/annual report and a statewide comprehensive needs assessment every five years. Title V funds are then used to design and implement a wide range of activities that address state and national needs. States have discretion in the types of

activities they implement, based on the individual needs of their MCH populations.

Each year, Congress sets aside funding for the MCH Block Grant. Individual state portions are then determined by a formula, which considers the proportion of low-income children in a particular state compared with the total number of low-income children in the entire U.S. States and jurisdictions must match every four dollars of federal Title V money that they receive by at least three dollars of state and/or local money (i.e., nonfederal dollars). Most states overmatch and the resulting funds vary. In recent years, more than \$5 billion, including both federal Title V allocations and state matching funds, has been available each year for MCH programs at the state and local levels. In FY 2015, states reported reaching over 57 million pregnant women, infants, children—including those with special health care needs—and others.

To develop a common vision for improving, innovating, and transforming the State Title V MCH Block Grant Program for 2015, MCHB engaged State Title V program leadership; national, state, and local MCH stakeholders; families; and other partners. The triple aims of the transformation were to 1) reduce burden for state grantees; 2) maintain flexibility for states in developing program plans that respond to the unique needs of their individual MCH populations; and 3) increase program accountability. In 2017, MCHB worked again with its partners to refine and improve upon 2015's transformative changes.

### Major Program

Based on state-reported program data, the Title V Block Grant Program reached 57,064,187 infants, children, adolescents, mothers, and family members in fiscal year (FY) 2015. Due to matching requirements for states and other funding, the federal allocation of \$525,951,754 comprised about 8% of the total reported expenditures of \$6,286,875,668 (Figure 3.1).

### **National Performance Measures**

#### *National Performance Measurement Framework*

The national performance measurement system adopted in 2015 is a three-tiered framework, which includes the following measure categories: National Outcome Measures

(NOMs), National Performance Measures (NPMs), and state-initiated Evidence-based or -informed Strategy Measures (ESMs). The 15 NPMs address key national MCH priority areas. States select 8 of the 15 NPMs for programmatic focus, based on their identified priority needs. In addition, states establish three to five state performance measures to address their priority needs to the extent that they have not been fully addressed by the selected NPMs.

MCHB created the Federally Available Data (FAD) resource document for states. It provides detailed data notes, FAD availability, and stratifier information for each NOM and NPM. It is designed to enable states to make comparisons to U.S. and other state data, and to provide statistical code for states to examine their own indicator data on a timelier or more granular basis than available federally. It effectively helps states identify and monitor disparities allowing for more targeted programmatic efforts.<sup>4</sup>

Selected measures that will be presented are listed and defined below in the Appendix.

Below (Figure 3.2), data from the NSCH are presented by year and by demographic stratifiers that may affect health equity.

For most of the NOMs and NPMs from the NSCH, the trends from 2003 to 2012 were stable. There was a decrease in childhood smoke exposure (29% in 2003 to 24% in 2011/12) and an increase in adolescent well-visits (73% in 2003 to 84% in 2007 then down to 82% in 2011/12).

In Figure 3.3, there are a few consistent relationships, for example, as the parent's level of education increases, so too does the likelihood of having a medical home (for both non-CSHCN and CSHCN) and having an adolescent well-visit. Childhood obesity also decreases as education level increases. Adequacy of insurance appears to be relatively stable across education levels. Percent of children identified as CSHCN and the likelihood of childhood secondhand smoke exposure do not appear to have a consistent relationship with level of education.

Among those with insurance, children with Medicaid were more likely to have been adequately insured (82%) compared with children with private insurance (Figure 3.4). The likelihood of having a medical home

(CSHCN and non-CSHCN) and adolescent well-visit was lower among the uninsured, compared with children on Medicaid or with private insurance. Children on Medicaid were most likely to have been identified as CSHCN, have childhood smoke exposure, and be obese.

The likelihood of being adequately insured did not vary noticeably between non-Hispanic white (NHW), non-Hispanic black (NHB), or Hispanic children (Figure 3.5). NHW and NHB children were similarly likely to be exposed to secondhand smoke (26% and 25% respectively), while Hispanic children were less likely (18%). Some potential disparities by race/ethnicity may exist by likelihood of having a medical home (both for CSHCN and non-CSHCN) and obesity, with NHW children being more likely to have the former and less likely to be the latter, compared with NHB and Hispanic children.

The chances of childhood smoke exposure (Figure 3.6) seem to be greatest for children who live in non-MSAs (34%) compared with children who live in MSA, non-Central City (22%), and MSA, Central City (23%). The likelihood of having a medical home for CSHCN seems lowest in MSA, Central City (43%) and highest in non-MSAs (51%).

There appear to be some differences by household income wherein children at  $\geq 400\%$  FPL were most likely to be "better" for each respective metric for the following measures: childhood smoke exposure, medical home (CSHCN and non-CSHCN), adolescent well-visit, and childhood obesity (Figure 3.7).

Trend data on selected NOMs from the National Vital Statistics System (NVSS) are presented below (Figures 3.8-3.12).

#### Available Data

Title V Information System (TVIS), Title V Maternal and Child Health Services Block Grant to States Program: Guidance and Forms for the Title V Application/Annual Report and Appendix, Federally Available Data Resource Document.

## Maternal, Infant, and Early Childhood Home Visiting Program

### Background

Congress created the MIECHV program to support voluntary, evidence-based home visiting services for at-risk pregnant women and parents with young children up to kindergarten entry. MIECHV, managed by the Division of Home Visiting and Early Childhood Systems, builds upon decades of scientific research showing that home visits by a nurse, social worker, early childhood educator, or other trained professional during pregnancy and in the first years of a child's life improves the lives of children and families by preventing child abuse and neglect, supporting positive parenting, improving maternal and child health, and promoting child development and school readiness.<sup>5</sup> Research also shows that evidence-based home visiting can provide a positive return on investment to society through savings in public expenditures on ER visits, child protective services, and special education, as well as increased tax revenues from parents' earnings.<sup>6,7</sup>

### Program Description

The MIECHV Program is administered by HRSA in partnership with the Administration for Children and Families (ACF). States, territories, and tribal entities receive funding, and have the flexibility to tailor the program to serve the needs of their communities. The program was reauthorized through the Medicare Access and CHIP Reauthorization Act of 2015 for FY 2016 and FY 2017. Grantees must give priority to families living in at-risk communities as identified by the statewide needs assessment. In FY 2016, HRSA awarded \$344 million to 55 states, territories, and nonprofit organizations to support MIECHV.

### Major Programs

#### **Expanding to Serve More Families and Communities**

In FY 2015, states reported serving approximately 145,500 parents and children in 825 counties (Figure 3.13). Nearly 68,000 (47%) of those participating were new enrollees. The reported number of children and parents served has quadrupled since FY 2012, and the number of home visits provided has increased five-fold, with more than 2.3 million home visits provided over the past four years (Figure 3.14).

### **Program Participants**

The MIECHV Program serves many of the most vulnerable families who are at risk for poor family and child outcomes:

- **Race/Ethnicity:** 68% of program participants belonged to a racial/ethnic minority. This figure includes participants from American Indian/Alaska Native, Asian, African-American, Native Hawaiian or Other Pacific Islander, Multiple Races, and Hispanic backgrounds (Figure 3.15).
- **Household Income:** 77% of families had household incomes at or below 100% of the federal poverty level (FPL). 46% of the families were at or below 50% of the FPL (Figure 3.16).
- **Educational Distribution:** Nearly 66% of adult program participants had a high school education or less. 35% had a high school diploma and 31% had less than a high school education (Figure 3.17).
- **Employment Status:** Nearly two-thirds (63%) of adult program participants were unemployed (Figure 3.18).

### **Notable Achievements**

Home visiting services are making a meaningful difference in the lives of vulnerable children and families.<sup>8</sup> Some examples include:

#### **Developmental Delay**

Less than 50 percent of young children with developmental or behavioral disabilities—such as autism, attention-deficit/hyperactivity disorder, or delays in language—are identified before they start school.<sup>9</sup> In 2015, 18 MIECHV grantees reported screening rates of at least 75%, more than twice the national average of 31% in 2011–2012.<sup>10,11</sup>

#### **Intimate Partner Violence (IPV)**

More than one-third of women report having experienced rape, physical violence, and/or stalking by an intimate partner at some point in their lifetime, while nearly 6 percent report experiencing IPV in the past 12 months.<sup>12</sup> Screening for IPV in many health care settings remains low, with only 3% to 41% of physicians reporting regularly screening for IPV.<sup>13,14</sup> In FY 2015, 11 MIECHV grantees reported screening rates of at least 95%.

## Maternal Depression

When left untreated, maternal depression has been associated with adverse birth outcomes, poor mother-child bonding, and negative parenting behaviors,<sup>15-17</sup> which can impair the development, health, and safety of young children.<sup>18-20</sup> Yet, it has been estimated that less than half of primary care physicians regularly screen for maternal depression.<sup>21,22</sup> In FY 2015, 12 MIECHV grantees reported screening rates of at least 95%.

### Program Evaluation

ACF, in collaboration with HRSA, is overseeing the Mother and Infant Home Visiting Program Evaluation (MIHOPE), a large-scale, random assignment evaluation of the effectiveness of the MIECHV Program. In February 2015, HHS delivered the first in a series of MIHOPE reports to Congress. The report found that, prior to creation of the MIECHV Program, home visiting programs were an important resource throughout the country, but many communities did not use evidence-based models or had unmet home visiting needs.

### Performance Measurement

In 2016, HRSA revised the existing performance measurement system for the MIECHV Program. The purpose was to simplify, standardize, and strengthen the reported performance measures. The redesigned performance measurement system builds on the PEW Home Visiting Project and has been developed with input from MIECHV Program grantees, federal partners, representatives of home visiting model developers, content experts, and technical assistance providers through listening sessions held from January through April 2015 and a public comment period from September through October 2015. The revised measures better align with other U.S. HHS performance metrics. The first data collection period for the new measures is October 1, 2016 through September 30, 2017. Grantees will report to HRSA with the new measures in October 2017 and annually thereafter.

### Available Data

Program Brief, Report to Congress and Federal Home Visiting Program Form 2/Performance Measure Toolkit.

## Healthy Start Program

### Background

Improving pregnancy outcomes for women and children is one of the nation's top priorities. The infant mortality rate is a widely used indicator of the nation's health. In 2013, the U.S. infant mortality rate was 5.96 infant deaths per 1,000 live births. However, racial-ethnic disparities persist, and in the same year, the infant mortality rate for infants born to non-Hispanic black mothers was 11.11, more than double the non-Hispanic white infant mortality rate of 5.06.<sup>23</sup> The Healthy Start (HS) program was created to address factors that contribute to the high infant mortality rate, particularly among African-American and other minority groups. The program began in 1991 as a demonstration project with 15 grantees and has expanded over the past two decades to 100 grantees in 37 states and Washington, D.C. The HS program is administered by the Division of Healthy Start and Perinatal Services (DHSPS) within MCHB at HRSA. The program is authorized under Title III, Part D, Section 330H of the Public Health Service Act (42 USC 254 c-8) and was reauthorized in 2014.

### Program Description

The HS program was transformed in 2014 to apply lessons from emerging research and past evaluation findings, and to act on national recommendations from the Secretary's Advisory Committee on Infant Mortality (SACIM).<sup>24</sup>

With an emphasis on standardized, evidence-based approaches, the goal of the new HS program is to improve maternal health outcomes and reduce disparities in perinatal outcomes in the U.S. through evidence-based practices, community collaboration, organizational performance monitoring, and quality improvement. To achieve this goal, the HS program employs five community-based approaches to service delivery and facilitates access to comprehensive health and social services for high-risk pregnant women, infants, and children (through the first two years of life) and their families in geographically, racially, ethnically, and linguistically diverse low-income communities with exceptionally high rates of infant mortality. Approximately half of all HS participants served are pregnant women (Figures 3.19 through 3.22).



The five approaches are briefly described below.

- **Improve women’s health.** Facilitate and conduct outreach, screening and assessment, health education, insurance enrollment, and linkages to medical and other social resources for women before, during, and beyond pregnancy.
- **Promote quality services.** Promote service coordination and systems integration across the life-course; conduct staff training to support core competencies and cultural competence; and use standardized and evidence-based curricula and interventions.
- **Strengthen family resilience.** Address toxic stress and support trauma-informed care; provide linkages to mental and behavioral health; support healthy relationships and male involvement; and empower women and their families to meet child developmental needs and cope with adversity.
- **Achieve collective impact.** Convene a community action network to spur community mobilization and transformation in systems, policies, and environments; build social capital; and serve as a community hub to provide leadership in the community.
- **Increase accountability through quality improvement, performance monitoring, and evaluation.** Strengthen the monitoring and evaluation capacity and infrastructure of HS to track and measure efficiency, effectiveness, quality, performance, and other key outcomes for accountability, quality improvement, and program improvement; and translate findings into practice to support sustainability of the program within the larger context of the health care delivery and social service system.

Grantees provide individual services and community support to women, infants, and families. They engage the entire family, working with women and their families before, during, and after pregnancy, and through the baby’s second birthday. Service provision begins with direct outreach by HS community health workers to high-risk women. Each enrolled HS family receives a standardized, comprehensive assessment that considers physical and behavioral health, employment, housing, domestic violence risks, and more. Case managers link women and families to appropriate services and a medical home. Grantee activities also include collective impact efforts such as connecting to national MCH organizations, creating strategic action/work

plans, and coordinating community services and data systems. HS grants are provided at three levels with an increasing expectation of service delivery and impact. The majority of HS grantees (n=60) are Level 1, Community-based HS programs, serving a minimum of 500 program participants per year, and supporting implementation of essential activities under the five approaches. There are another 22 Level 2, Enhanced Services HS grantees, serving more participants (minimum 800) and engaging in Level 1 activities as well as additional activities to stimulate community collaboration. Lastly, there are 18 Level 3, Leadership and Mentoring HS grantees, serving the highest number of program participants (minimum 1,000) and engaging in activities under both Levels 1 and 2, as well as additional activities to expand maternal and women’s health services, develop place-based initiatives, and serve as centers to support other HS projects and organizations working toward improving perinatal outcomes

## Emergency Medical Services for Children Program

### Background

The mission of the Emergency Medical Services for Children (EMSC) Program is to reduce child and youth mortality and morbidity caused by severe illness or trauma. The Program works to enhance pediatric capabilities of the emergency medical services system, originally designed primarily for adults. EMSC broadly means a continuum of care beginning with prevention, pre-hospital care, hospital-based emergency care, rehabilitation, and reentry of the child from the emergency care environment back into the community. Health equity across the emergency health care system continues to be a focus of the EMSC Program, which is managed by the Division of Child, Adolescent and Family Health. EMSC Program investments ensure health equity by promoting the development and expansion of regionalized systems of care that include families and children in rural, native American, territorial, and insular communities. In 2012, the EMSC Program launched the State Partnership Regionalization of Care (SPROC) grant program, dedicating \$1.2 million to support the demonstration project.

The need for regionalized systems of care, in particular for pediatric specialty care, has been highlighted and supported by the Institute of Medicine (IOM) as well

as several national organizations.<sup>26-28</sup> A regionalized approach to care provides opportunities for health care providers and facilities to organize and share resources, within a given geographic area. Pediatric regionalization specifically facilitates the matching of appropriate resources to a child's health care needs,<sup>27</sup> increases access to health care specialists, and helps control health care costs and improve quality of care across a population.<sup>29</sup>

### Program Description

#### *EMSC:*

The EMSC Program is authorized by the Public Health Service Act and was established in 1984 in response to a growing recognition that children have unique needs in emergency situations—needs that often vary from those of adults due to physiological, developmental, and psychological differences.

The State Partnership program integrates pediatric emergency care within the larger Emergency Medical Services System. In FY 2016 HRSA awarded the EMSC State Partnership grants to 58 states, territories, freely associated states, and accredited schools of medicine.

The EMSC SPROC Program aims to develop systems of care to increase access to pediatric specialists for all children through: 1) development of facility recognition programs; 2) expansion of facility recognition programs to ensure the inclusion of children in tribal, territorial, rural, and insular communities; and 3) development of similar coordinated systems of care that would reduce and prevent pediatric morbidity and mortality with timely access to pediatric specialists and preestablished, coordinated networks. From 2012 to 2016, six states received EMSC SPROC funding to expand access to pediatric specialty services to include children in rural, Native American, territorial, and insular communities. These states include Alaska, Arizona, California, Montana, New Mexico, and Pennsylvania. Some examples of state programs include:

- Alaska: The Alaska EMSC SPROC Program investigated solutions to overcome the challenges of promptly delivering specialized pediatric care to children in rural, frontier, and wilderness communities of the state, and the indigenous Alaska Native and American Indians.

- Arizona: The Arizona EMSC SPROC Program's primary goal was to expand its Pediatric Prepared Emergency Care (PPEC) program into more rural and tribal communities within the state and to integrate evidence-based guidelines into clinical decision-making for all participating facilities.
- California: Collaborators worked to increase access to ongoing education and quality care to remote, rural, and underserved areas within the state.
- New Mexico: Collaborators designed, developed, and disseminated a Child Ready system of regionalized pediatric emergency care in New Mexico and the border regions of Arizona, Colorado, Texas, and Mexico. The primary populations of focus for this initiative are children and families in tribal and rural areas of New Mexico.
- Pennsylvania: Through innovative collaborations, this project developed and implemented a regionalized system of pediatric emergency care in rural western Pennsylvania. The program built off existing collaborations between rural community health providers and a major academic referral center, leading to both improved emergency care access in the region and knowledge on how to improve pediatric emergency care nationwide.

Continuing in 2016 and on through 2020, three states will continue to expand access to pediatric specialty services by promoting the development and expansion of pediatric medical recognition networks. These networks in the states of California, Montana, and New Mexico will expand further into rural and Native American communities.

#### *National Pediatric Readiness Assessment*

To assess the readiness of emergency departments (ED) to care for children in the U.S., the National Pediatric Readiness Project, a multiphase quality improvement initiative, was created to ensure that all EDs have the essential guidelines and resources in place to provide effective emergency care to children. This is a quality improvement partnership between the American Academy of Pediatrics (AAP), the American College of Emergency Physicians (ACEP), the Emergency Nurses Association (ENA), and the MCHB's EMSC Program. In 2013, more than 4,100 EDs responded to the National Pediatric Readiness Assessment.

Approximately 90% of children needing emergency care are first treated at a local community ED. As part of the effort to establish and expand coordinated systems of care that are partly organized through the development of pediatric medical recognition programs, the National Pediatric Readiness Project provides criteria and benchmarks by which local EDs can make improvements. Pediatric recognition/verification programs are associated with greater pediatric ED readiness as measured by the 2013–14 Pediatric Readiness Assessment.\* In fact, EDs that are formally recognized scored 22 points higher\*\* than EDs without a formal recognition program (Figure 3.23). Hospital EDs verified as pediatric ready have identified pediatric emergency care coordinators and established pediatric-specific quality improvement indicators and initiatives more frequently. While local pediatric readiness assessments are a key essential first step, pediatric recognition and verification processes support day-to-day readiness for emergency care of pediatric patients. The EMSC Program, through focused investments in the SPROC Program, is bridging the gap to ensure health equity for families and children in rural and Native American communities.

*\*Not all states listed above had recognized hospitals that participated in the 2013–14 Pediatric Readiness Assessment.*

*\*\*95% confidence interval (20.3, 22.9) does not contain 0, which indicates that the difference of median scores is statistically significant.*

## Services for Children with Special Health Care Needs

### Background

Children and youth with special health care needs (CYSHCN) are defined as “those children and youth who have or are at increased risk for chronic physical, developmental, behavioral or emotional conditions and who also require health and related services of a type or amount beyond that required by children generally.”<sup>30</sup>

According to the 2011–2012 National Survey of Children’s Health, nearly 20% of children under 18 years of age in the United States, approximately 14.6

million children, are estimated to have special health care needs. Overall, one in five households with children have at least one child with special health care needs. Creating an effective system of care for CYSHCN to achieve optimal outcomes is one of the most challenging and pressing roles for public health leaders at the national, state, and local level.

The Division of Services for Children with Special Health Needs (DSCSHN) provides support for programs that support states, communities, and organizations to improve systems of care for all CYSHN or, in some cases, for children with specific conditions as required by federal law. DSCSHN is guided by principles that all programs: are evidence-based/informed; ensure health equity; promote family engagement; and are innovative and collaborative.

Through award initiatives, DSCSHN works to achieve the following six critical systems outcomes:

- Family/professional partnership at all levels of decision-making
- Access to coordinated, ongoing comprehensive care within a medical home
- Access to adequate private and/or public insurance and financing to pay for needed services
- Early and continuous screening for special health needs
- Organization of community services for easy use
- Youth transition to adult health care, work, and independence

### Highlights from CSHCN Programs

#### *Universal Newborn Hearing Screening*

The goal of the Universal Newborn Hearing Screening (UNHS) program is to support the statewide programs and systems of care that ensure that deaf or hard of hearing children are identified through newborn and infant screening and receive evaluation, diagnosis, and appropriate intervention that optimize their language, literacy, and social-emotional development.

To accomplish this, the program primarily focuses on 1) increasing health professionals’ engagement within and knowledge of the Early Hearing Detection and Intervention

(EHDI) system; 2) improving access to early intervention services and language acquisition; and 3) improving family engagement, partnership, and leadership within the EHDI programs and systems. Currently, the UNHS program funds grants to 59 states and U.S. territories. Funding is also provided to a National Technical Resource Center that provides technical assistance to the UNHS grantees.

Figure 3.24 provides data on the percentage of babies who received a follow-up evaluation after a failed newborn hearing screen, and Figure 3.25 the number of babies who are diagnosed as deaf or hard of hearing who are enrolled in early intervention.

#### *Family-to-Family Health Information Centers*

The purpose of the Family-to-Family Health Information Centers (F2F HIC) grant program is to provide information, education, technical assistance, and peer support to families of CYSHCN and professionals who serve such families. With first-hand experience navigating health care services and programs for CYSHCN, F2F HICs provide services to families; collaborate with other organizations, family groups, and professionals; and reach out to underserved populations. MCHB awards grants to 51 statewide, family-staffed F2F HICs that are uniquely capable of assisting families of CSHCN.

Data collected from June 1, 2015 – May 31, 2016 show that F2F HICs provided individualized assistance and/or training to over 169,000 families and over 73,000 health professionals (Figure 3.26). On average, approximately 27% of families served by F2F HICs identify as being Hispanic and 73% as white, non-Hispanic. Figure 3.27 shows the average number of families by racial stratifiers for years 2014–2015, which is consistent with the racial makeup of families served from 2012 onward. The percentages of racially and ethnically diverse families served by F2F HICs are consistent with racial/ethnic, CSHCN population data collected by the National Survey of Children’s Health.<sup>10</sup>

Data Source: MCHB Discretionary Grant Information System.

## MCH Workforce Development

### Background

The Division of Maternal and Child Health (MCH) Workforce Development provides national leadership and direction in educating and training our nation’s future leaders in maternal and child health. Special emphasis is placed on the development and implementation of interprofessional, family-centered, community-based, and culturally competent systems of care across the entire life course, with experiences in one life stage shaping health in later stages.

In FY 2015, the Division of MCH Workforce Development awarded 152 grants, an investment of \$47 million. Grants are awarded to develop trainees for leadership roles in the areas of MCH teaching, research, clinical practice, public health administration and policymaking, and community-based programs.

### Program Description

As part of the Division, the Healthy Tomorrows Partnership for Children grant program promotes the development and advancement of healthy communities through partnerships with organizations that work to change conditions in the community and environment to improve health. These efforts may include a focus on housing, education, the labor workforce, socioeconomic conditions, neighborhood safety, transportation, food quality and availability, and physical fitness and recreational activities available for children and families. In addition, grantees in community practice often support the development of family-centered, culturally competent pediatric clinicians and public health professionals. Currently, Healthy Tomorrows funds 38 grants across 22 states.

### Major Programs

#### DMCHWD Program Participants:

In FY 2014, MCH Training Programs trained 2,390 long-term trainees (trainees receiving greater than or equal to 300 contact hours with an MCH training program).<sup>\*</sup> 29.9% (n=715) of long-term trainees were from an underrepresented racial group and 10.1% (n=242) were from an underrepresented ethnic group (Figure 3.28). Total long-term trainees: 2,229 in 2010; 2,485 in 2011; 2,318 in 2012; and 2,479 in 2013.

DMCHWD funds two programs with a special emphasis on recruiting students from under-represented backgrounds:

#### *Maternal and Child Health Pipeline Training Program*

The purpose of the MCH Pipeline Program is to promote the development of a culturally diverse and representative health care workforce by recruiting undergraduate training students from economically and educationally disadvantaged backgrounds (including racial and ethnic minorities) into MCH professions. The program educates, mentors, guides, and provides enriching experiences to increase students' interests and entry into MCH public health and related fields. The Pipeline program encourages and motivates students to seek careers in MCH by making the appropriate undergraduate didactic research, clinical, and/or field experiences available and exposing students to Title V and other MCH agencies that serve children and families. In addition, the program develops leadership skills, fosters a broader public health perspective, and explores the integration of primary care and public health to improve population health.

In FY 2014, 78.5% of 135 pipeline trainees were from an underrepresented racial group and 19.3% were from an underrepresented ethnic group (Figure 3.29). Total pipeline trainees: 107 in 2011; 109 in 2012; and 123 in 2013. The percentage of trainees from underrepresented racial and ethnic groups remained relatively stable between 2011 and 2014.

#### *Maternal and Child Health Public Health Catalyst Program*

The purpose of the MCH Catalyst Program is to:

1) provide an increased focus on fundamental MCH content and competencies within schools of public health where no concentration currently exists, and 2) provide MCH content exposure to an increased number of public health students, introducing students to careers in the MCH field. Catalyst programs seek to provide MCH exposure to graduate students, including individuals from underrepresented backgrounds (including racial and ethnic minorities) who are also underrepresented in the MCH field. FY 2014 program data not available; this program was funded for the first time in FY 2015.

#### Available Data

\*NOTE: DGIS PM 09 data above includes the following MCH Training Programs: Leadership Education in Adolescent Health (LEAH), Leadership Education in Neurodevelopmental Disabilities (LEND), Developmental Behavioral Pediatrics, Nutrition, Pipeline, Pediatric Pulmonary Center, and Schools of Public Health (Centers of Excellence).

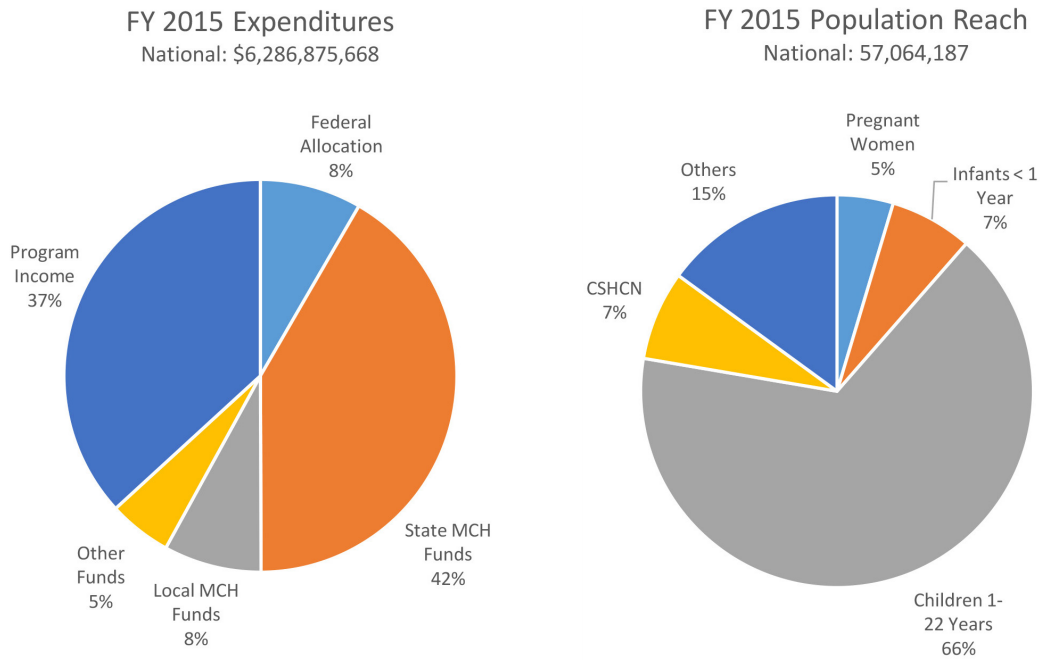
Pipeline data are also from DGIS PM 09.

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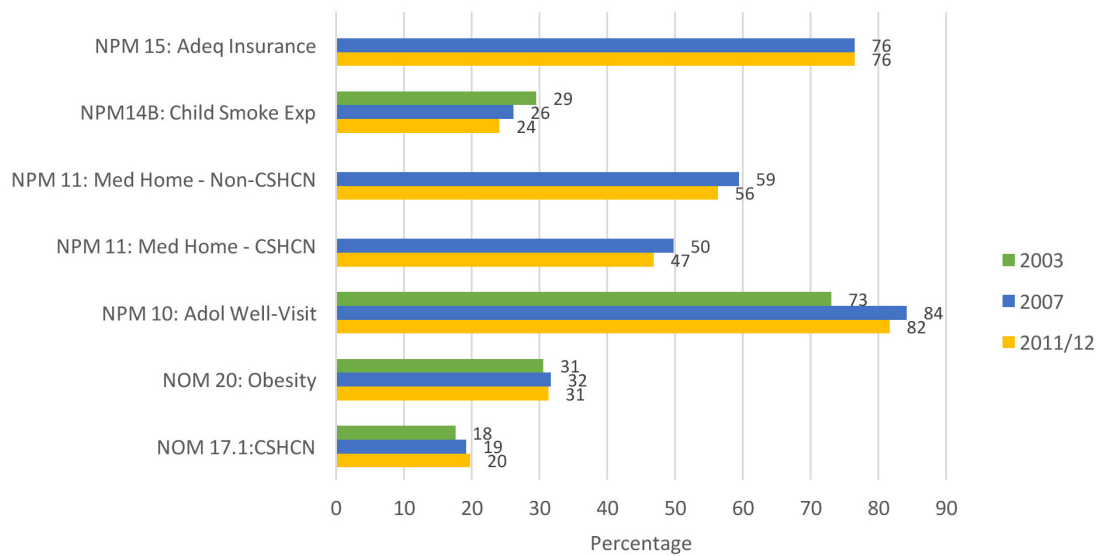
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**Figure 3.1: Title V Block Grant Program, FY 2015 Expenditures and Population Coverage**

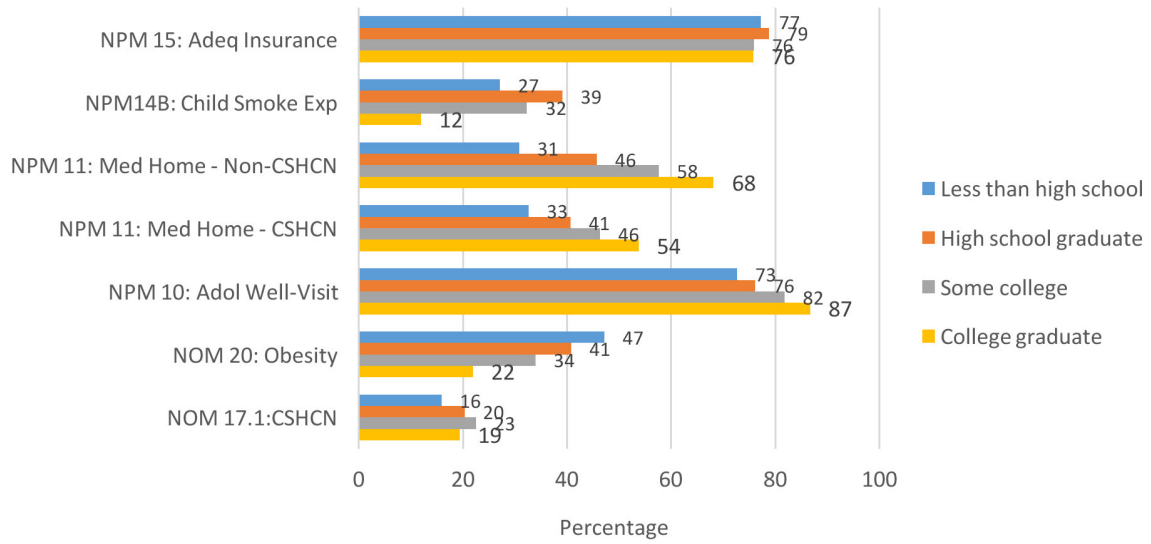


Source: HRSA. Title V Federal-State Partnership. <https://mchb.tvisdata.hrsa.gov/>

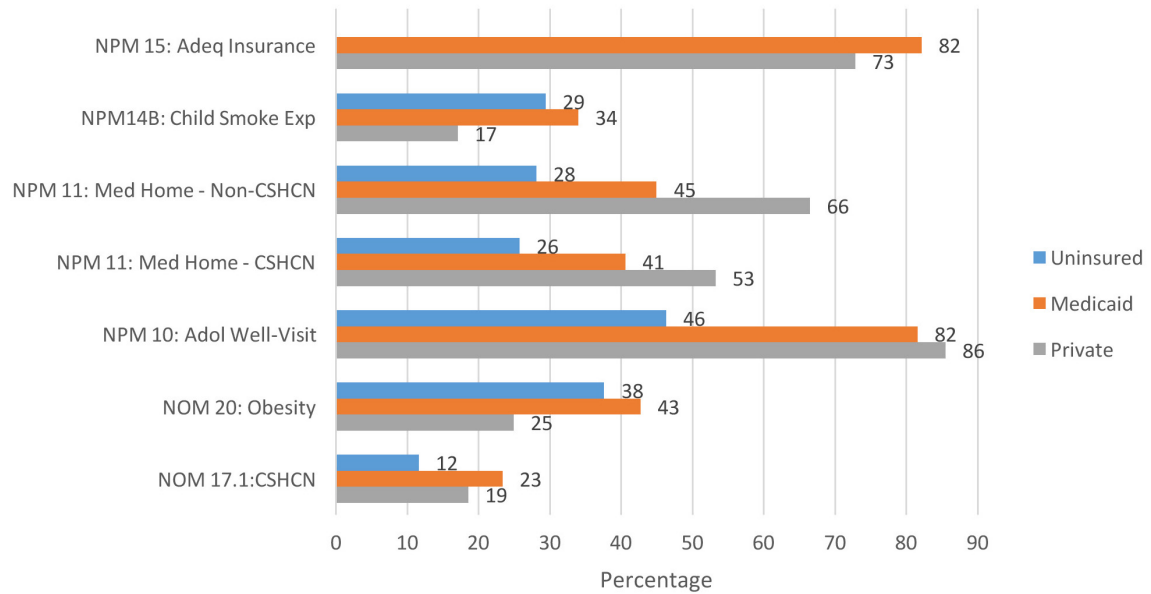
**Figure 3.2: Trends in National Performance Measures, 2003, 2007, and 2011-12 NSCH**



**Figure 3.3: National Performance Measures by Parental Education, 2011-12 NSCH**

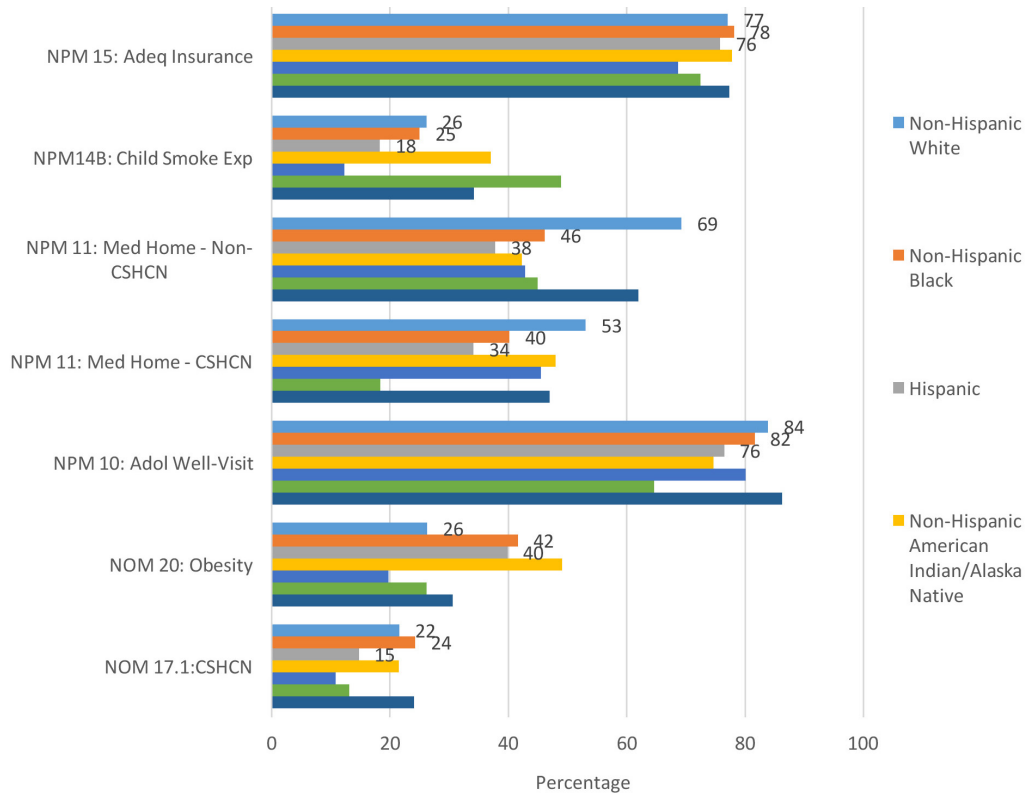


**Figure 3.4: National Performance Measures by Source of Insurance, 2011-12 NSCH**

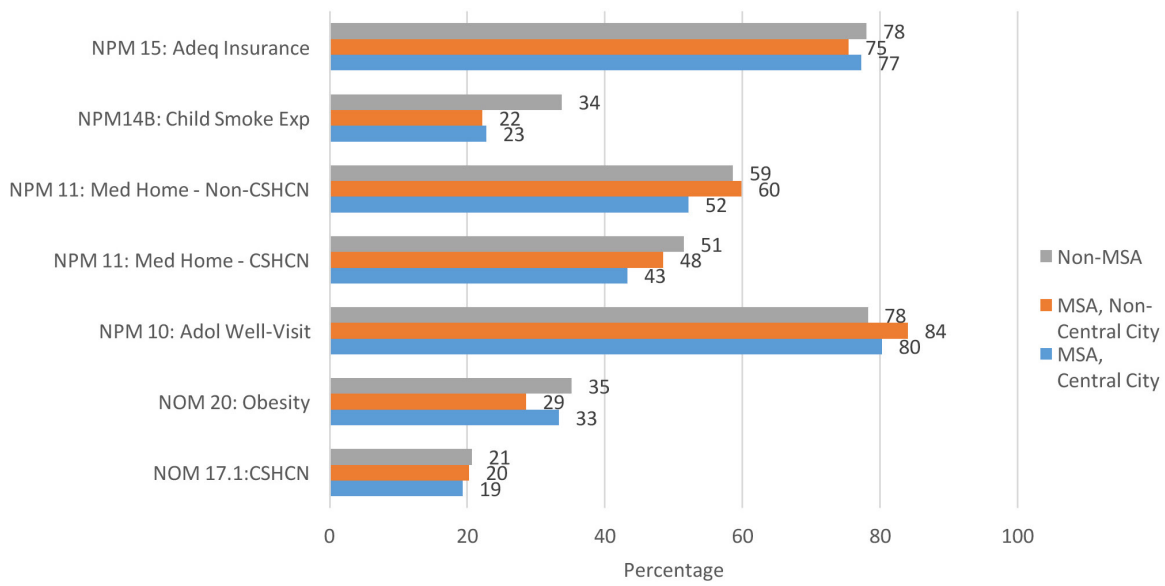




**Figure 3.5: National Performance Measures by Race/Ethnicity, 2011-12 NSCH**

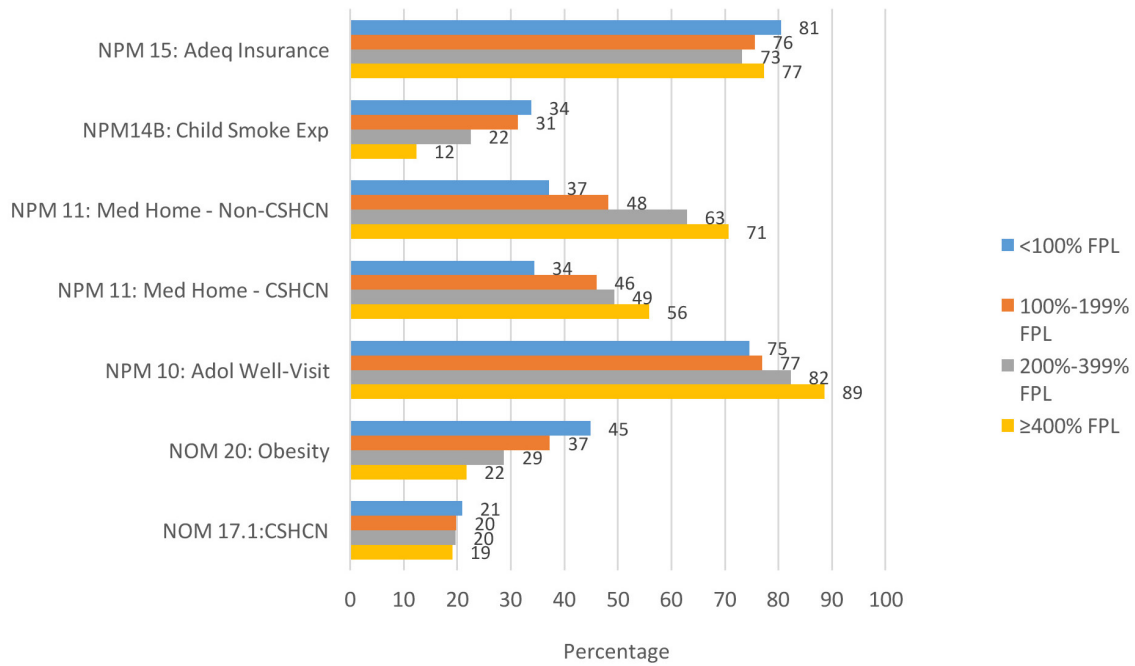


**Figure 3.6: Rural-Urban Disparities in National Performance Measures, 2011-12 NSCH**



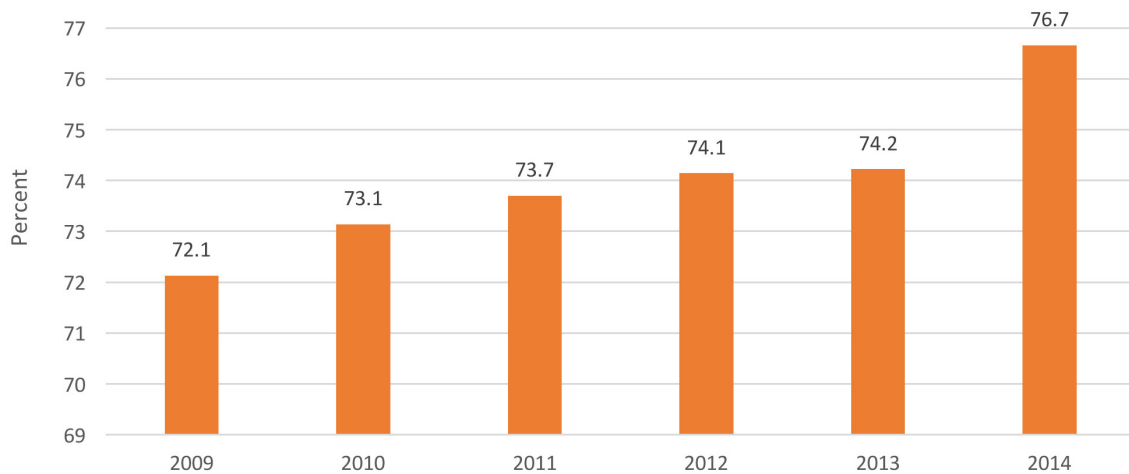
Note: MSA=Metropolitan Statistical Area

**Figure 3.7: National Performance Measures by Household Income, 2011-12 NSCH**

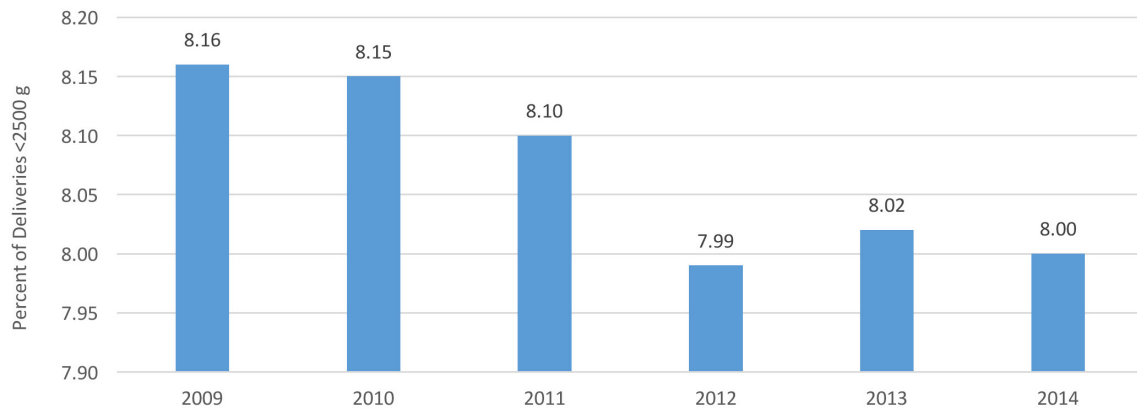


**Note:** FPL=Federal Poverty Level

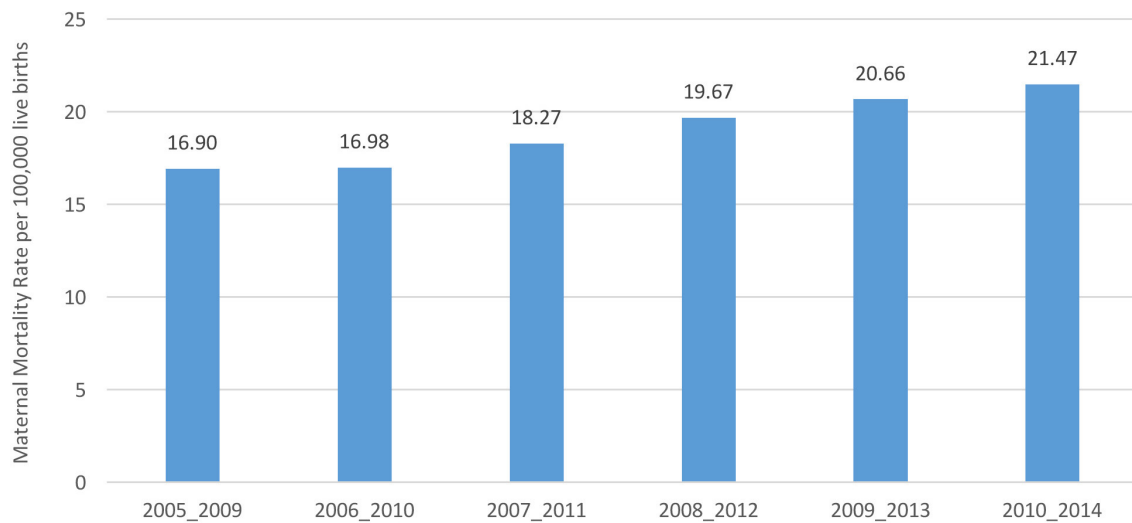
**Figure 3.8: Trend in NOM 1: Prenatal Care Use in the First Trimester**



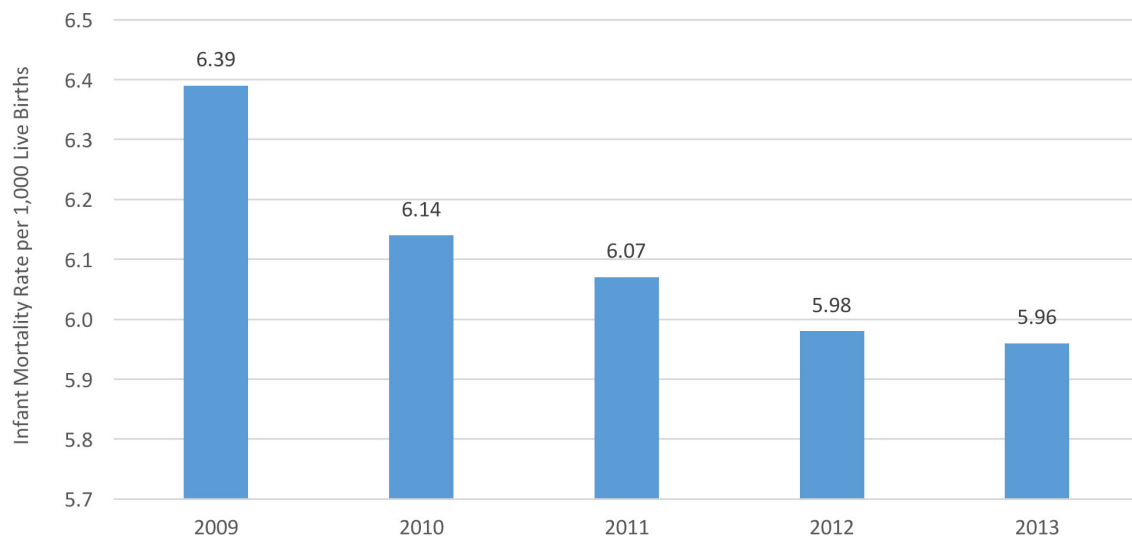
**Figure 3.9:** Trend in NOM 4.1: Low Birth Weight Births (<2500 g)



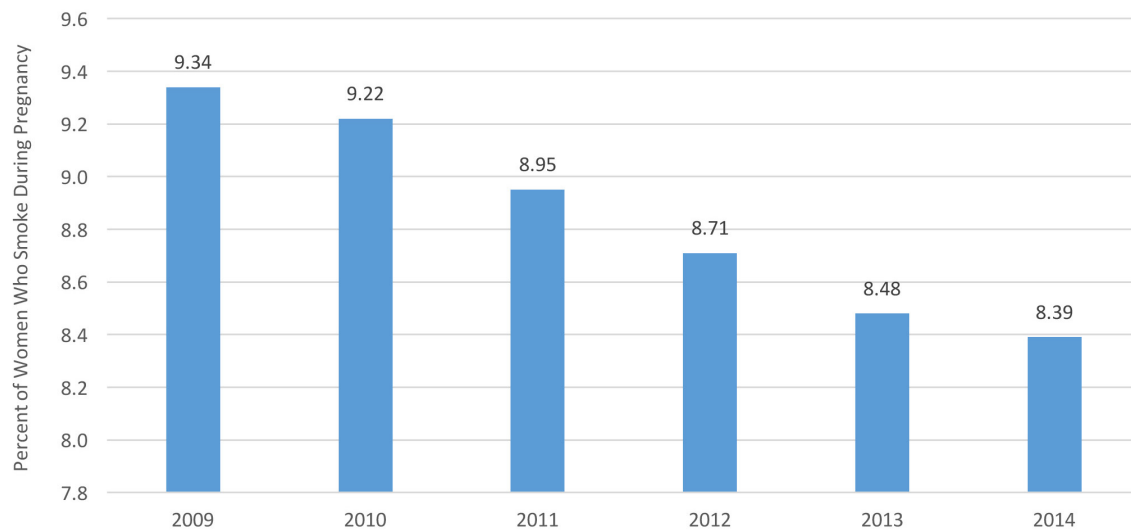
**Figure 3.10:** Trend in NOM 3: Maternal Mortality



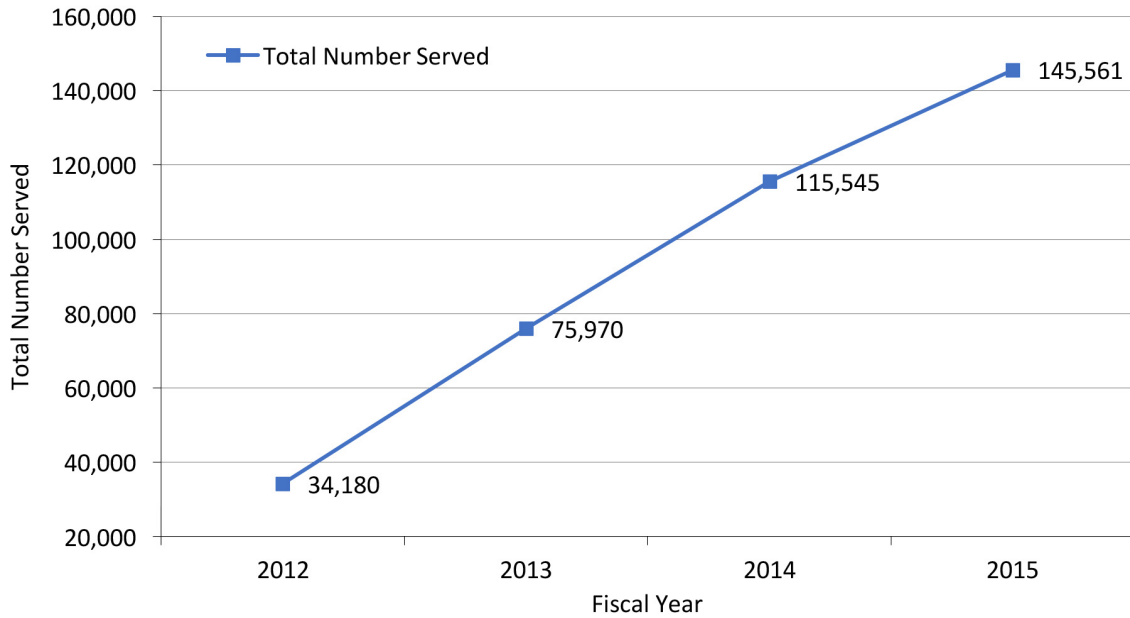
**Figure 3.11: Trend in NOM 9.1: Infant Mortality**



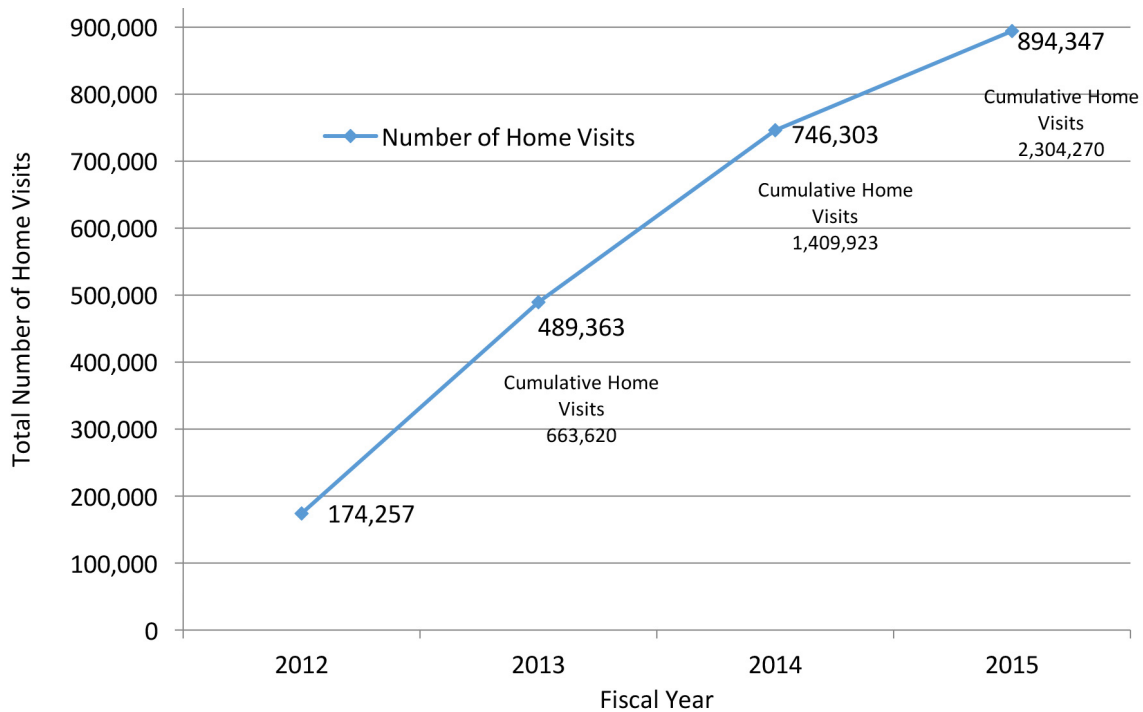
**Figure 3.12: Trend in NPM 14B: Smoking in Pregnancy**



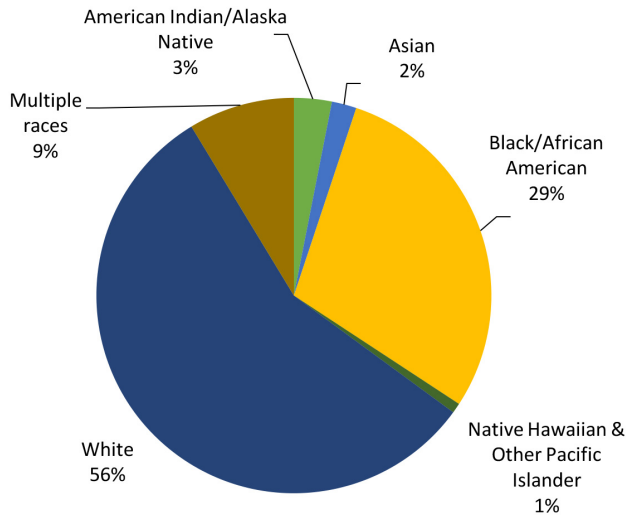
**Figure 3.13: Number of Program Participants Served by State and Territory Grantees (2012-2015)**



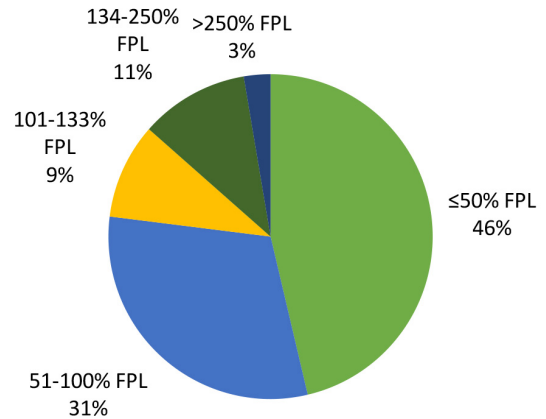
**Figure 3.14: Number of Home Visits by State and Territory Grantees (2012-2015)**



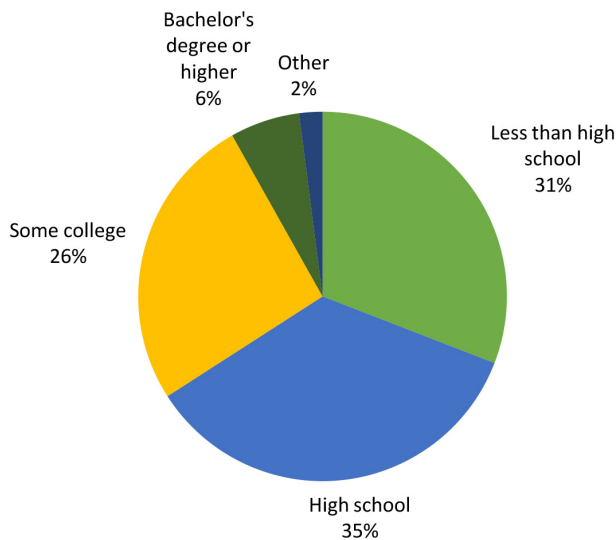
**Figure 3.15:** Racial Composition of the Home Visiting Population, 2015 (N=129,071 Program Participants (excluding unknowns); Hispanics = 30.6%)



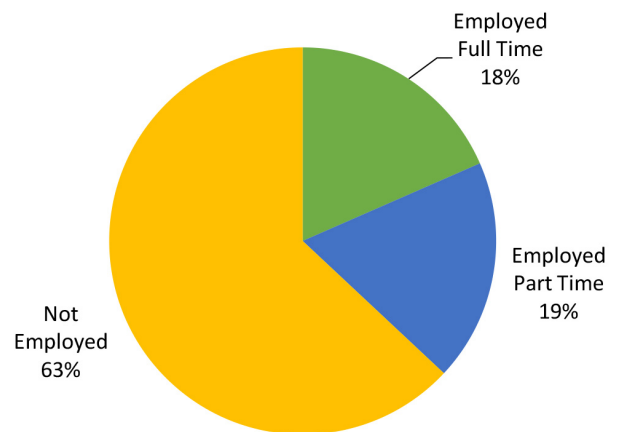
**Figure 3.16:** Household Income Distribution (by Federal Poverty Level or FPL) of the Home Visiting Population, 2015 (N=57,505 Households Excluding Unknowns)



**Figure 3.17:** Educational Distribution of the Home Visiting Population, 2015 (N=70,870 Adult Program Participants Excluding Unknowns)



**Figure 3.18:** Employment Status of the Home Visiting Population, 2015 (N=70,784 Program Participants Excluding Unknowns)

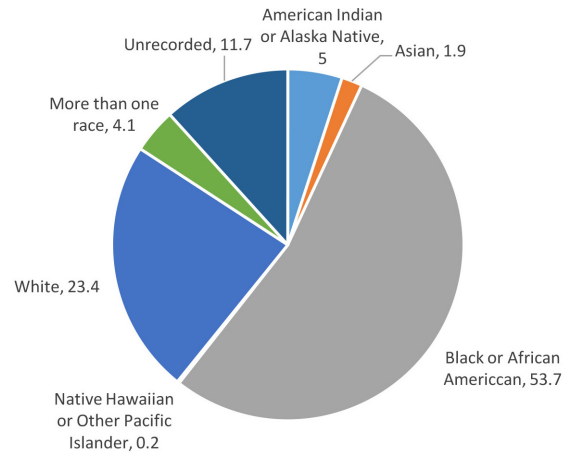


**Figure 3.19: Trend in Low Birth Weight, Healthy Start Program**



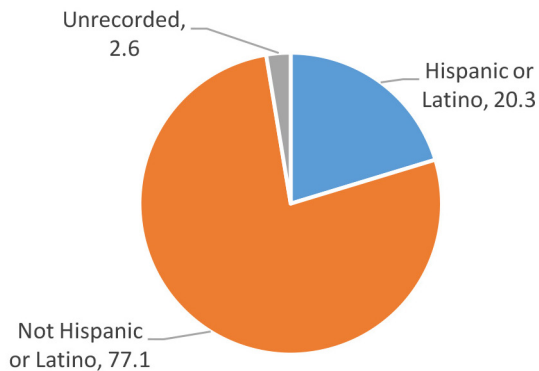
Source: DGIS, Performance Measure 51

**Figure 3.20: Racial Composition (%) of Pregnant Women, Healthy Start Program**



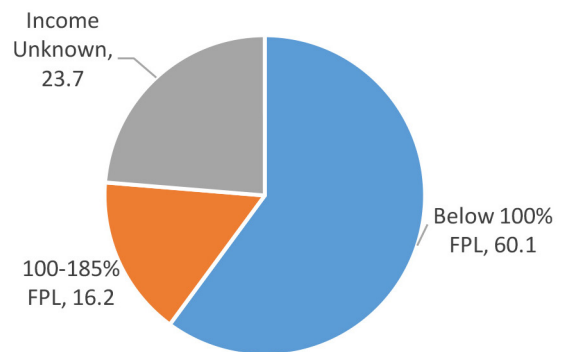
Source: DGIS, Characteristics of Program Participants, Pregnant Women; FY2014 Data

**Figure 3.21: Ethnic Composition (%) of Pregnant Women, Healthy Start Program**



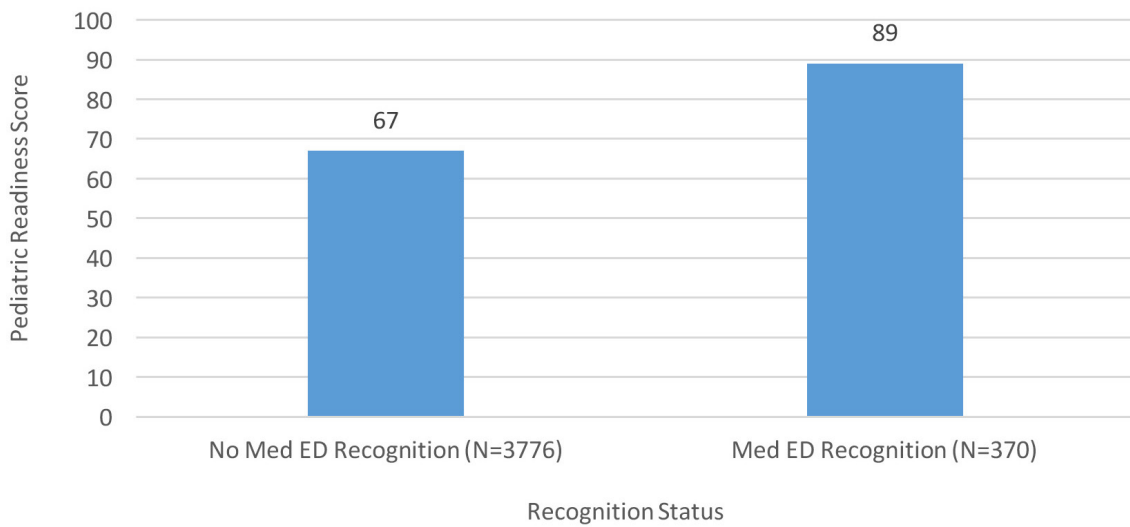
Source: DGIS, Characteristics of Program Participants, Pregnant Women; FY2014 Data

**Figure 3.22: Percentage of Pregnant Women by Income Level, Healthy Start Program**

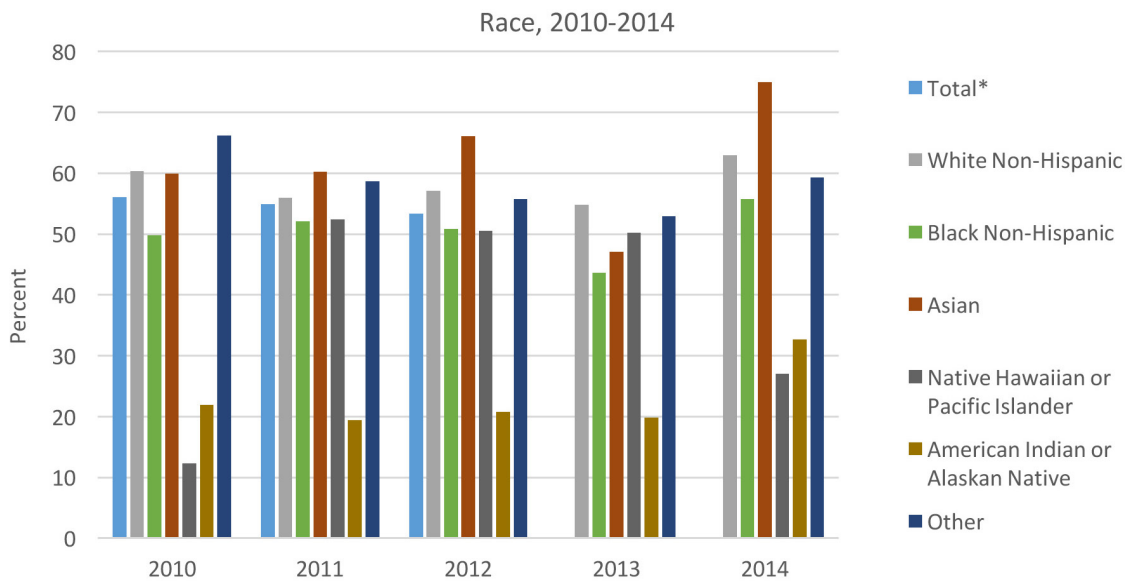


Source: DGIS, Characteristics of Program Participants, Pregnant Women by Income Level; FY2014<sup>25</sup>

**Figure 3.23: Median Pediatric Readiness Scores (2013-2014)**

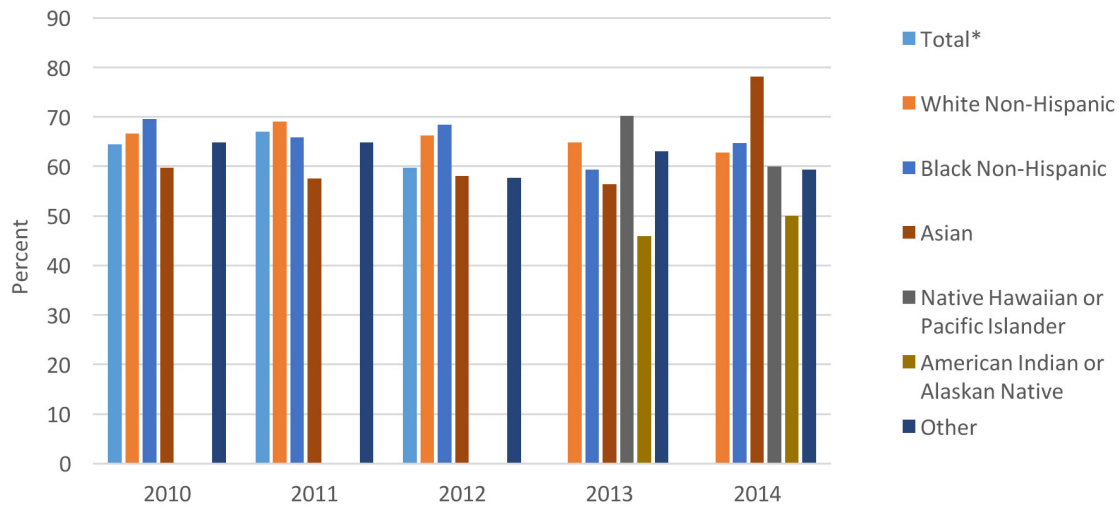


**Figure 3.24: Percentage of Babies Evaluated After Fail Screening by Maternal Race, 2010-2014**



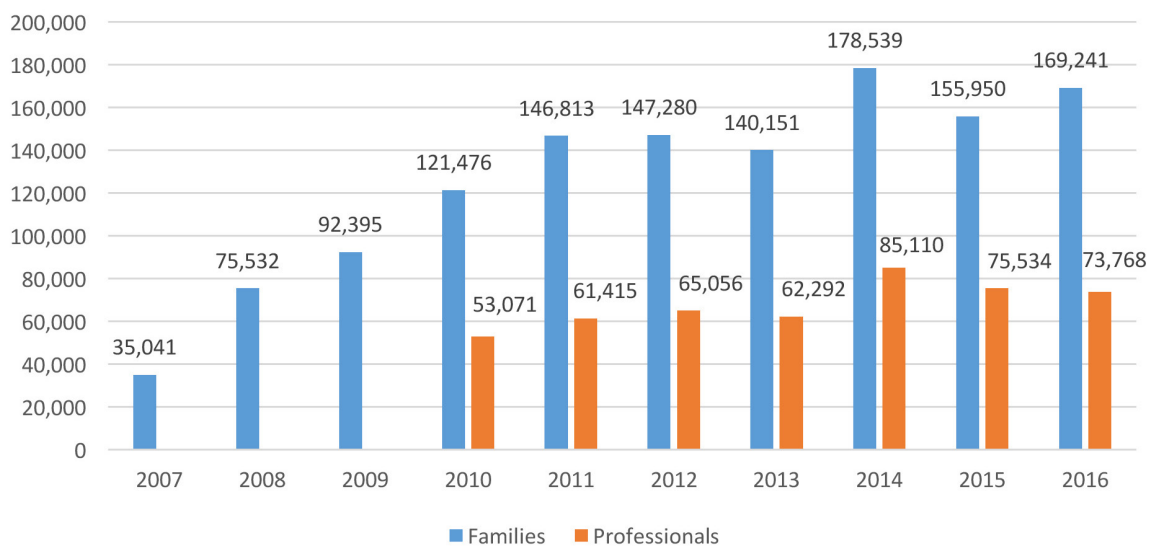


**Figure 3.25: Percentage of Babies Enrolled by Maternal Race, 2010-2014**

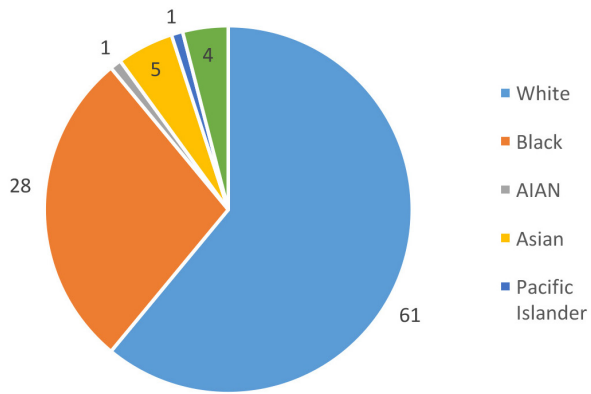


**Note:** The numbers for Native Hawaiian or Pacific Islander and American Indian or Alaska Native were too small to draw any conclusions for 2010 to 2012. For the years 2010 to 2012, Totals (marked with an asterisk in figures) for each stratifier include the “unknown” category, however for 2013 to 2014, jurisdictions reporting  $\geq 20\%$  of total screened infants in “unknown” category for each demographic variable were excluded (so there are no “Totals” for 2013 to 2014). Additionally, for each year, there were a different number of jurisdictions represented; please refer to <https://www.cdc.gov/ncbddd/hearingloss/ehdi-data.html> for specifics on which states were included for each stratifier by year.

**Figure 3.26: Families and Professionals Served, 2010-2015**

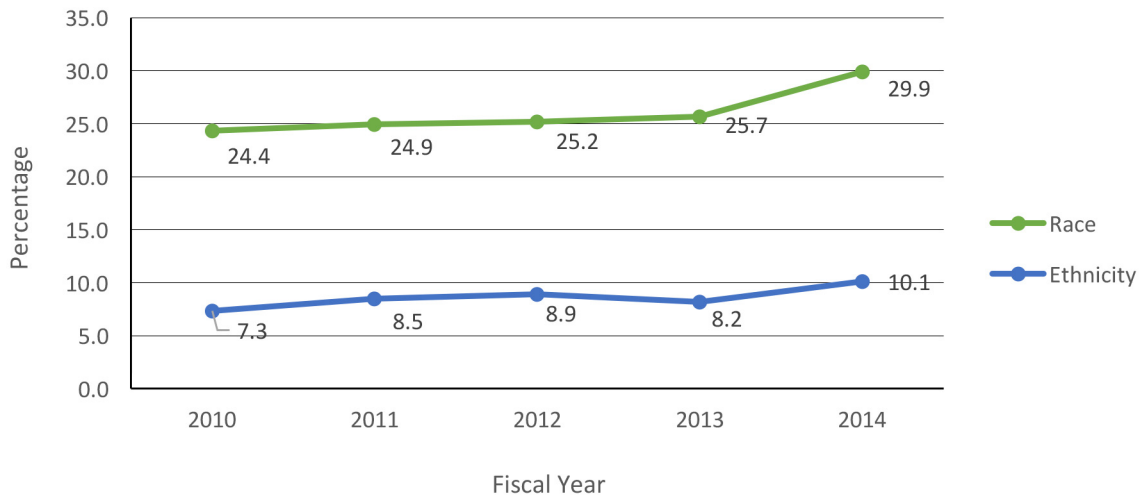


**Figure 3.27: Families Served by Race (Percent), 2014-15**

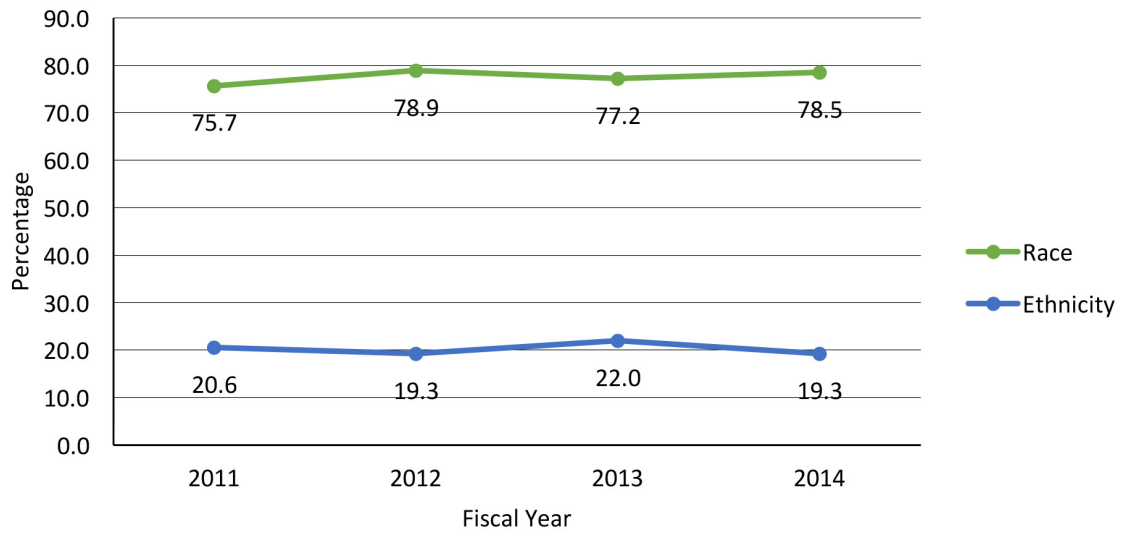


Source: <http://www.fv-ncfpp.org/f2fhic/data-reports/>

**Figure 3.28: Long-term Trainees from Underrepresented Racial and Ethnic Groups**



**Figure 3.29: MCH Pipeline Trainees from Underrepresented Racial and Ethnic Groups**



## Appendix: Measure Definitions and Data Source

### National Outcome Measures (NOMs)

- NOM 1: Prenatal Care
  - Percent of pregnant women who receive prenatal care beginning in the first trimester
  - Data Source: National Vital Statistics System (NVSS) – Birth File
- NOM 3: Maternal Mortality
  - Maternal mortality rate per 100,000 live births
    - Numerator: number of deaths related to or aggravated by pregnancy and occurring within 42 days of the end of pregnancy (Denominator: number of live births)
  - Data Source: NVSS – Mortality and Birth Files
- NOM 4.1: Low Birth Weight Births
  - Percent of low birth weight deliveries (<2,500 grams)
  - Data Source: NVSS – Birth File
- NOM 9.1: Infant Mortality
  - Infant mortality rate per 1,000 live births
  - Data Source: NVSS – Period Linked Birth/Infant Death File
- NOM 17.1: Children with Special Health Care Needs
  - Percent of children with special health care needs
  - Data Source: NSCH
- NOM 20: Obesity
  - Percent of children and adolescents who are overweight or obese (BMI at or above the 85th percentile)
  - Data Source: NSCH

### National Performance Measures (NPMs)

- NPM 10: Adolescent Well-Visit
  - Percent of adolescents, ages 12 through 17, with a preventive medical visit in the past year
  - Data Source: NSCH
- NPM 11: Medical Home CSHCN
  - Percent of children with special health care needs having a medical home
  - Data Source: NSCH
- NPM 11: Medical Home non-CSHCN
  - Percent of children without special health care needs having a medical home
  - Data Source: NSCH
- NPM 14A: Smoking in Pregnancy
  - Percent of women who smoke during pregnancy
  - Data Source: NVSS – Birth File
- NPM 14B: Childhood Secondhand Smoke
  - Percent of children who live in households where someone smokes
  - Data Source: NSCH
- NPM 15: Adequate Insurance
  - Percent of children ages 0 through 17 who are adequately insured
    - Numerator: Number of children, ages 0 through 17, who were reported to be adequately insured, based on three criteria: whether their children’s insurance covers needed services and providers, and reasonably covers costs. If a parent answered “always” or “usually” to all three dimensions of adequacy, then the child was considered to have adequate insurance coverage. (No out-of-pocket costs were considered to be “always” reasonable.) (Denominator: Number of children, ages 0 through 17)
  - Data Source: NSCH

# 4. Primary Health Care Access and Quality

## Bureau of Primary Health Care

### Overview

The Bureau of Primary Health Care’s (BPHC) mission is to improve the health of the nation’s underserved communities and vulnerable populations by ensuring access to comprehensive, culturally competent, quality primary health care services.

BPHC oversees the Health Center Program, a national network of community health centers that exist in areas where economic, geographic, or other barriers limit access to primary health care for a substantial portion of the population

For more than 50 years, health centers have delivered affordable, accessible, quality, and cost-effective primary health care to patients regardless of their ability to pay. During that time, health centers have become an essential primary care provider for America’s most vulnerable populations. Health centers advance a model of coordinated, comprehensive, and patient-centered care, coordinating a wide range of medical, dental, behavioral, and patient services. Today, nearly 1,400 health centers operate more than 10,400 service delivery sites that provide care in every U.S. state, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and the Pacific Basin.

### Increasing Access to Care

Health centers deliver care to the nation’s most vulnerable populations, and now, more than ever, the nation’s veterans.

More than 24 million people—1 in 13 nationwide—rely on a HRSA-funded health center for affordable, accessible primary health care, including:

- One in three people living in poverty nationwide.
- One in 10 children nationwide and nearly four in 10 children living in poverty nationwide.<sup>1</sup>

- More than 8.4 million patients in rural health centers, across approximately 4,000 sites nationwide.
- More than 305,000 veterans—a 5.6% increase from 2014—which is expected to increase as more health centers participate in the Veterans Access, Choice, and Accountability Act (“Veterans Choice Act”).

### Improving Health Outcomes

Health centers focus on integrating care for their patients across the full range of services—not just medical but oral health, vision, behavioral health, and pharmacy. Health centers also deliver enabling services such as case management, transportation, and health education, which is crucial for vulnerable populations to access care.

Health centers improve health outcomes by emphasizing the care management of patients with multiple health care needs and the use of key quality improvement practices, including health information technology. In fact, approximately 70% of health center patients have their diabetes under control, exceeding the national average of 54%, and 64% of health center patients have their blood pressure under control, exceeding the national average of 52%.

### Reducing Health Care Costs

Health centers reduce costs to health systems; the health center model of care has been shown to reduce the use of costlier providers of care, such as emergency departments (EDs) and hospitals.<sup>2</sup> A 2016 multistate study found that health center patients had 24% lower spending compared with non-health center patients across all services (e.g., 33% lower spending on specialty care, 25% fewer inpatient admissions, 27% lower spending on inpatient care), indicating that the Health Center Program provides a cost-efficient setting for delivering quality primary care to Medicaid enrollees.<sup>3,4</sup>

### Health Center Program Fundamentals

- Located in or serve a high-need community.
- Governed by a community board composed of a majority (51% or more) of health center patients who represent the population served.
- Provide comprehensive primary health care services, as well as supportive services (education, translation, transportation, etc.) that promote access to health care.
- Provide services available to all patients with fees adjusted based on ability to pay.
- Meet other performance and accountability requirements regarding administrative, clinical, and financial operations.

## Bureau of Primary Health Care Data

There are two primary data collection strategies for the BPHC: (1) the Uniform Data System and (2) the Health Center Patient Survey.

### Overview of the Uniform Data System

The Uniform Data System (UDS) is a standardized annual data set that provides consistent information about recipients of Health Center Program operational grants. The data are collected and reviewed annually to ensure compliance with legislative and regulatory requirements, improve health center performance and operations, and report overall program accomplishments.

The UDS is a core set of information, including patient demographics, services provided, clinical processes and outcomes, patient's use of services, costs, and revenues appropriate for documenting the operation and performance of health centers. The system also collects data on a number of clinical quality measures (CQMs) and health outcomes that align with national quality efforts. BPHC annually assesses and, as appropriate, revises the types of information collected within the UDS to align with the evolving health care system and new federal policies. A secure portal transmits UDS data electronically to BPHC.

All entities receiving operational grants authorized under Section 330 of the Public Health Service Act are required to report UDS data. These recipients include grantees of

the Community Health Center, Migrant Health Center, Health Care for the Homeless, and Public Housing Primary Care programs. Health centers designated as “look-alike” entities (that meet all program requirements applicable to HRSA-funded health centers but do not receive federal operating grants) also submit a UDS report. In calendar year 2015, 1,375 Health Center Program grantees and 54 look-alike entities reported data to the UDS.

Required by law, Section 330 health centers must have the following characteristics:

- Be located in, or targeted to serve, populations and communities that are medically underserved or are experiencing a shortage of primary health care professionals.
- Deliver a comprehensive set of primary health care services, including preventive, treatment, management, and patient-support services.
- Adhere to federal quality standards.
- Fully participate in government insurance programs.
- Establish sliding-fee scales based on patients' ability to pay for care.
- Be governed by a community board with health center patients as the majority of members.

The federal government uses UDS data to ensure compliance with legislative and regulatory requirements, improve health center performance and operations, and report on program performance. Health centers use UDS data to monitor programmatic operations and track service use. Additionally, health centers use UDS data to secure funding and document characteristics of their patient populations and services delivered, identify opportunities for efficiencies, and allocate resources, such as staff and service offerings across service delivery sites. Public health agencies and policymakers also use health center data to monitor trends in health service utilization patterns and potential needs of medically vulnerable populations, as well as to better understand the sociodemographic and health characteristics of these individuals. Finally, though not exhaustively, the UDS also proves to be a rich source of data for health services researchers studying the impact of health center programs on key policy issues.

Since UDS data is aggregated to the health center level and reported to BPHC, the data are complemented with patient-level data through the Health Center Patient Survey

### Overview of the Health Center Patient Survey

The Health Center Patient Survey (HCPS) collects comprehensive patient-level data among Health Center Program grant recipients.<sup>5</sup> The HCPS provides data essential to examining access to primary and preventive health care, as well as patient experience of those services. The survey explores:

- How well health centers meet the health care needs of the medically underserved; and
- How health center patients perceive the quality of their care.

The HCPS is cross-sectional by design, and offers a robust snapshot of health center patients, including:

- Sociodemographic characteristics
- Health insurance status
- Employment status
- Living arrangements (homelessness)
- Health conditions
- Health behaviors
- Access to and utilization of health care services, including medical, oral, mental health, and substance abuse services
- Cancer screening and early detection
- Satisfaction with health care services

Conducted about every five years since the mid-1990s, the 2014 HCPS survey results come from in-person, one-on-one interviews with 7,002 patients, and are nationally representative of the Health Center Program patient population. While other studies examine the process and outcomes of care under the umbrella of the Health Center Program, the HCPS has its specific focus on comprehensive patient-level data.

### Clinical Quality Measures and Selected Results from the Uniform Data System

In 2015, the UDS included 16 CQMs. These are standardized measures used to track the quality of health

care services provided by eligible professionals, eligible hospitals, and critical access hospitals within the health care system. These measures use data associated with providers' ability to deliver high-quality care or relate to long-term goals for quality health care.<sup>6</sup> The UDS CQMs include:

- **Access to Prenatal Care.** Percentage of women whose “first visit” occurred when they were estimated to be pregnant up through the end of the 13th week after conception, among all patients who received prenatal care, either directly or through a referral, including, but not limited to, the delivery of a child during the reporting period.
- **Low Birth Weight.** Proportion of patients born to health center patients whose birth weight was below normal (less than 2,500 grams).
- **Cervical Cancer Screening.** Percentage of women 21–64 years of age who received one or more Pap tests to screen for cervical cancer during the measurement year or during the two calendar years prior to the measurement year.
- **Weight Assessment and Counseling for Nutrition and Physical Activity of Children and Adolescents.** Percentage of patients aged 3–17 years who had evidence of body mass index (BMI) percentile documentation and who had documentation of counseling for nutrition and who had documentation of counseling for physical activity during the measurement year.
- **Adult Weight Screening and Follow-Up.** Percentage of patients aged 18 and older with a documented BMI during the most recent visit or within the six months prior to that visit and documentation of a follow-up plan when the BMI is outside of normal parameters.
- **Adults Screened for Tobacco Use and Receiving Cessation Intervention.** Percentage of patients aged 18 and older who were screened for tobacco use at least once during the measurement year or prior year and who received cessation counseling intervention and/or pharmacotherapy if identified as a tobacco user.
- **Colorectal Cancer (CRC) Screening.** Percentage of patients aged 50 to 75 who had appropriate screening for CRC. Appropriate CRC screening includes:
  - Documented colonoscopy conducted during the measurement year or the previous nine years; or

- Flexible sigmoidoscopy conducted during the measurement year or the previous four years meet the measurement standard criteria; or
  - Fecal occult blood test (FOBT), including the fecal immunochemical test (FIT), during the measurement year.
- **Childhood Immunization.** Percentage of children with their third birthday during the measurement year who are fully immunized before their third birthday. A child is considered fully immunized if s/he has been vaccinated or there is documented evidence of contraindication for the vaccine or a history of illness for all of the following:
    - 4 DTP/DTaP,
    - 3 IPV,
    - 1 MMR,
    - 3 Hib,
    - 3 HepB,
    - 1VZV (Varicella), and
    - 4 Pneumococcal conjugate.
  - **Depression Screening.** Percentage of patients ages 12 years and older screened for clinical depression using an age-appropriate standardized tool and follow-up plan documented.
  - **Dental Sealants.** Percentage of children, age 6 through 9 years, at moderate to high risk for dental caries who received a sealant on a first permanent molar during the reporting period.
  - **Asthma Treatment (Appropriate Treatment Plan).** Percentage of patients ages 5 through 40 years with a diagnosis of mild, moderate, or severe persistent asthma who received or were prescribed accepted pharmacologic therapy.
  - **Cholesterol Treatment (Lipid Therapy for Coronary Artery Disease (CAD) Patients).** Percentage of patients aged 18 years and older with a diagnosis of CAD who were prescribed a lipid-lowering therapy.
  - **Heart Attack/Stroke Treatment (Aspirin Therapy for Ischemic Vascular Disease Patients).** Percentage of patients ages 18 years and older who were discharged alive for acute myocardial infarction (AMI) or

coronary artery bypass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA) in the prior year or who had a diagnosis of ischemic vascular disease during the measurement year who had documentation of use of aspirin or another antithrombotic.

- **Blood Pressure Control.** Proportion of patients, ages 18 to 85 years, with diagnosed hypertension whose blood pressure was less than 140/90 (considered adequate control) at the time of the last reading.
- **Uncontrolled Diabetes.** Proportion of adult patients, ages 18 to 75 years, diagnosed with Type 1 or Type 2 diabetes, whose most recent hemoglobin A1c (HbA1c) during the measurement year was greater than 9% or was missing a result or an HbA1c test was not done during the measurement year.
- **HIV Linkage to Care.** Percentage of newly diagnosed HIV patients who had a medical visit for HIV care within 90 days of first-ever HIV diagnosis.

A summary of the national performance for the Health Center Program on the UDS's CQMs from 2013 to 2015 is displayed in Table 4.1 below. In general, the performance on the CQMs has improved over time. These improvements are, in part, an outcome of BPHC's investments in further supporting health centers' adoption of:

- Office of the National Coordinator for Health Information Technology (ONC) certified electronic health record (EHR) systems;
- the Patient-Centered Medical Home (PCMH) model of care;<sup>7,8</sup>
- enhanced accountability of care delivery through data transparency efforts; and
- quality improvement activities through the Health Center Program Quality Improvement Awards (QIAs).

BPHC has observed advances in health center performance on several CQMs, as seen with the depression screening measures. Between 2014 and 2015, depression screening and follow-up increased by nearly 12%. This improvement appears to align with BPHC's investments to promote increased behavioral health integration into primary care delivery, as well as technical assistance



mechanisms, like the SAMSHA-HRSA Center for Integrated Health Solutions (CIHS). Other CQMs on which performance improved from 2014 to 2015 include childhood immunizations, weight screening and assessment, CRC screening, appropriate asthma therapy, tobacco screening and cessation, appropriate ischemic vascular disease therapy, lipid therapy for coronary artery disease, hypertension control, low birth weight, and early entry into prenatal care. The observed performance of these CQMs is additionally promising due to the fact that they were achieved while the proportion of health centers that leveraged their EHRs to report on the universe of their patients for their CQMs, vis-à-vis patient chart sampling, also grew. This is noteworthy because chart sampling can introduce bias to the reported CQM measures. Reporting on the universe of patients will provide a better indication of health center performance and progress.

The progress in CQMs has largely been with process measures. Progress on the health outcome CQMs has been less pronounced. From 2013 to 2015, there has been about a 2% decrease in the proportion of patients with uncontrolled diabetes. Additionally, the proportion of patients with hypertension with their blood pressure under control has remained relatively static over the same three-year period. Health center patients seem to be outperforming the national average on diabetes and hypertension control, making additional advances in these areas difficult.

### Exploring Rural and Urban Differences

The next tables explore differences by rural and urban geography. As a technical note, the rural and urban classification of health centers is determined by health centers (i.e., self-identified) during their grant application process. Many health centers have delivery sites that are nested both in rural and urban geographies.

Table 4.2 compares performance on the 2015 UDS CQMs between rural and urban health centers. Of the 1,375 Health Center Program grantees in 2015, 754 were identified as rural. Clinical quality was comparable between rural and urban health centers. There was almost an even split on the number of CQMs on which rural health centers performed better than their urban counterparts (7 out of 16). These measures included early access to prenatal care, low birth weight, tobacco use screening and cessation,

CRC screening, dental sealants, aspirin therapy for patients with ischemic vascular disease, and blood pressure control for patients with hypertension. In contrast, there were nine CQMs on which rural health centers did not do as well as urban health centers. Rural health centers' poorest performance was on the clinical measure for weight assessment and counseling for children and adolescents.

Tables 4.3 and 4.4 show racial/ethnic differences for three UDS 2015 CQMs: low birth weight, hypertension, and diabetes. Non-Hispanic African-Americans have the highest rate of low birth weight (11.1%), followed by Asians (7.4%), non-Hispanic whites (7.2%), and Hispanics/Latinos (6.3%). Although numerically small, the rates for Native Hawaiians and other Pacific Islanders appear to be high (10.1% and 8.5% respectively).

As seen in Table 4.3 (Section B), most racial/ethnic groups have about 60% to 68% of patients with controlled blood pressure; non-Hispanic African-Americans have the lowest rate of controlled blood pressure (57.0%) and Asians exhibit the highest rate (67.9%).

Table 4.4 outlines racial/ethnic differences in diabetes outcomes and highlights how diabetes management seems to be a challenge for many racial/ethnic groups. Among all racial/ethnic groups, 56.8% of diabetic patients have controlled diabetes. Native Hawaiian and other Pacific Islanders have the lowest rates of managed diabetes, 46.0% and 43.5%, respectively. In contrast, Asian-Americans have high rates of managed diabetes, 66.32%, followed by non-Hispanic whites (58.9%), non-Hispanic blacks (56.5%), and American Indians/Alaska Natives (50.8%).

In Table 4.5, racial and ethnic differences in access to care are shown based on medical, dental, and mental health care using the 2014 Health Center Patient Survey. Of the 6,966 patient responses, 92.9% cited a BPHC health center as their usual source of care. The majority of survey respondents were Hispanic/Latino, and, within this group, 95.7% of individuals cited the health center as their usual source of care. About 93.2% of Native Hawaiian/other Pacific Islanders cited the health center as their usual source of care. About 93.8% of Asians cited the health center as their usual source of care, followed by 92.8% of Native American/Alaska Natives, 90.8% of non-Hispanic blacks, and 89.8% of non-Hispanic whites.

Health centers provide medical services in an effective and timely fashion as portrayed by data related to patients reporting accessing necessary medical care and delays in receipt of care. Specifically, 85.1% of patients stated that they were able to access necessary medical care, tests, or treatments. Similarly, 82.7% of patients stated that they did not face delays in receiving necessary medical care, tests, or treatments. As for racial/ethnic differences, Asian patients were most likely to state that they received necessary medical care (94.2%) and did not encounter any delays in receiving medical care, tests, or treatments (89.7%). On the other hand, Native American/Alaskan Native patients rated the lowest with only 79.4% reporting receiving necessary medical care, tests, or treatments and only 76.4% reporting that they did not face delays in receiving medical care, tests, or treatments.

With regard to dental services, 65.5% of all health center patients stated that they received necessary dental care, tests, or treatments, and 66.6% stated that they did not face delays in receiving dental care, tests, or treatments. Across racial/ethnic categories, Asians were most likely to state that they received necessary dental care (78.7%) and did not experience delays in receiving dental care, tests, or treatments (76.7%). On the other hand, only 62.5% of non-Hispanic blacks stated that they received necessary dental care, tests, or treatments, and only 62.4% of Native American/Alaska Natives stated that they did not face delays in receiving necessary dental care, tests, or treatments.

Regarding mental health services, 83.6% of health center patients stated they received necessary mental health care in the past year, and 79.9% stated that they did not encounter delays in receiving mental health care in the past year. Native Hawaiian/other Pacific Islanders were most likely to report receiving necessary mental health care; 95% stated that they received necessary care in the past year. In contrast, only 81% of Native American/Alaska Natives stated that they received necessary mental health care in the past year. Similarly, 95% of Native Hawaiian/other Pacific Islanders stated that they did not face delays in receiving mental health care, while only 76.3% of non-Hispanic whites stated that they received timely mental health care.

Table 4.6 shows racial/ethnic differences in the quality of care for the health center patient population. Overall,

the quality of care delivered to health center patients was reported as high, with (a) 84.4% of patients reporting that they were able to get an appointment for check-up or routine care when needed, (b) 90.5% reporting that their doctor or other health professional listened carefully to them, (c) 92.8% reporting that their doctor showed respect, (d) 96.2% reporting satisfaction with the way medications were explained, and (e) 95.1% reporting satisfaction with the way their questions were answered. However, 70.6% of patients stated that they did not receive reminders between visits, indicative of a greater need for post-visit follow-up. Within this category, there were racial/ethnic disparities, with only 17.4% of Asians stating that they received reminders between visits, while 34.5% of Native American/Alaska Natives received reminders.

Furthermore, racial/ethnic disparities appear to exist in receiving answers to medical questions when a patient calls the health center after hours. Approximately 70.2% of non-Hispanic whites stated that they usually received a response, while only 40.9% of Asians were able to receive answers to medical questions when calling the health center after hours. Similarly, there are disparities in the category of seeing a doctor or other health professional within 15 minutes of the appointment, with 69.3% of Native Hawaiian/other Pacific Islanders stating that they are able to do so, while only 43% of Asians were able to see a doctor within 15 minutes of the appointment. Overall, few racial/ethnic disparities are evident in care quality, indicating health centers providing high-quality equitable health care that is meeting patients' needs.

In Table 4.7, 32.1% of health center patients reported their health to be "fair or poor." The characteristics associated with fair/poor health status included: homelessness (49.5%), being over 45 years of age, not in the labor force, having Medicare (48.8%), Medicare and Medicaid (48.1%), insurance from the health insurance exchange (48.8%), and being uninsured (40.7%). Many of the aforementioned factors are interrelated, such as those who are not in the labor work force may be retired, and therefore being on Medicare, Medicare and Medicaid, and over the age of 45. There is some variation by race/ethnicity as well. A higher percentage of non-Hispanic whites (36.2%) reported "fair or poor health," while a lower percentage of Hispanic/Latino (27.5%) and Asian participants (23.9%) reported "fair or poor health."

Participants who reported serious mental illness, cardiovascular disease, smoking, and selected infectious diseases corresponded with a higher tendency to be of “fair or poor health.” Several BPHC initiatives target these three clinical conditions. For example, the CDC’s Million Hearts Initiative encourages health centers to initiate aspirin therapy, control blood pressure, manage cholesterol, and eliminate or reduce smoking and encourages tobacco cessation. Million Hearts aims to prevent one million heart attacks or strokes by 2017.

In Table 4.8, the Kessler Psychological Distress Scale (K6) was used as a validated screening scale for nonspecific psychological distress.<sup>9</sup> Populations with higher percentages of psychological distress are homeless (28.0%), had an income less than or equal to the FPL (17%), unemployed (20.8%), and current smokers (23.8%). Non-Hispanic white respondents reported the highest percentage of psychological distress, followed by non-Hispanic blacks and Hispanics/Latinos. Roughly, one-third of homeless persons have an untreated mental illness, compared with 6% of the general patient population, and those with severe mental illness are more likely to be psychologically distressed. BPHC’s community health centers prioritize comprehensive and equitable health care to include mental/behavioral health. To help health centers better respond to the mental health needs of their communities, BPHC has offered supplemental mental health/behavioral health grants and quality improvement awards for successful integration of behavioral health services with primary care delivery.

In Figure 4.1, the total group represents all patients regardless of race, i.e., black, Hispanic, white, and other race (not displayed above). Each of the comparison U.S. subpopulations drawn from the 2013 National Health Interview Survey (NHIS) is composed of individuals who had a medical visit in the previous year and indicated that they did not use a health center as a usual source of care.

As illustrated in Figure 4.1, Pap smear rates were similar for the health center population, for low-income persons nationally, and in the U.S. population. Rates for health center Hispanic/Latino (87%) and white (87%) women were approaching the Healthy People 2020 (HP 2020) benchmark, and appear to be above rates for their counterparts in the U.S. low-income subpopulation and U.S. population. Rates among Hispanic/Latino (87%) and

white (87%) women were higher than for blacks (71%) in the health centers, whose rates were below those of their U.S. low-income and U.S. population counterparts.

Figure 4.2 is based on data for adult women, aged 50–74, from the 2014 HCPS and the 2013 NHIS. Overall, mammography rates fell short of the HP 2020 goal among health center patients (61%), the U.S. low-income population (73%), and the U.S. population (71%). Rates for black women (53%) were lower than Hispanic/Latino or white subgroups of the health center population, as well as rates of their U.S. low-income (72%) and U.S. population (69%) counterparts. Among white women, the rates for health center population (73%) were about the same as that in the U.S. low-income population (73%) and U.S. population (72%). In contrast, among Hispanic/Latino women, rates for health center populations (74%) were below that of national low-income counterparts (80%), near the HP 2020 goal, but above the rates of U.S. population (66%).

Figure 4.3 shows the rate of CRC screening among adults aged between 50 and 74 years old by race and ethnicity using data from the 2014 HCPS and the 2013 NHIS. The health center population, the low-income population, and the overall U.S. population did not meet the HP 2020 benchmark of 71% CRC screening rate. However, the overall screening rates for health center (58%) and low-income (56%) populations were two times higher than the rate for the general population in the U.S. (26%). The relatively low rates may arise due to the high out-of-pocket cost of colonoscopy that may not be covered by third-party insurance. However, the fecal occult blood test, another screening measure, may be more readily accessible.

CRC screening rates did not vary significantly across race/ethnicity. The screening rates remained higher for the health center and low-income populations when compared with the national population among blacks and whites. For Hispanic/Latinos, screening rates are highest for the health center population (59%), followed by the U.S. low-income population (43%) and the general U.S. population (17%).

Figure 4.4 continues to illustrate how varying race/ethnicities may have different experiences in accessing care. Barriers were stratified by the inability or delay in receiving care. Survey questions collected responses on medical care,

prescription medications, mental health care, and dental care. Non-Hispanic white and American Indian/Alaska Native patients may have the greatest inability or delay in getting medical care and prescriptions. Asians and non-Hispanic Pacific Islanders consistently reported lower rates in their inability or delay to receiving care. This chart underscores the recurring theme that a larger percentage of health center patients are delayed or unable to receive dental care.

Figure 4.5 shows the racial/ethnic breakdown of diagnoses in selected chronic conditions and other characteristics of daily living. The findings provide insights into patient perceptions of their own diagnoses and not actual provider-reported diagnoses across different race/ethnicities. Overall, the health center patient population shows a high prevalence of chronic disease, underscoring the need for high-quality primary care. However, there are important variations to consider across various race/ethnic groups.

For example, non-Hispanic whites and American Indians/Alaska Natives reported higher rates of mental illness (55.2% and 38.3% respectively) relative to all other race/ethnic groups. Hypertension diagnoses were reported most frequently by non-Hispanic whites (42.2%), non-Hispanic blacks (33.6%), and American Indians/Alaska Natives (32.1%). Asthma diagnoses were reported most frequently by Native Hawaiian/other Pacific Islanders (29.9%), non-Hispanic blacks (22.6%), and American Indians and Alaskan Natives (22.4%), all higher than the rates for non-Hispanic whites (18.2%) or Hispanics (11.7%).

Combining the information collected on diagnoses and patient characteristics, the data show Asians reporting the lowest percentage of obesity (20.8%), hypertension (12.6%), diabetes (7.9%), and asthma (10.9%). Asians are also least likely to report smoking (7.7%) and assistance with daily living activities (9.0%). However, obesity is almost equally high for all other racial and ethnic groups. While non-Hispanic white patients report the highest rate of smoking (36.5%), they reported a relatively lower rate of asthma (18.2%), especially when compared with Pacific Islanders' rates of asthma (29.9%) and smoking (21.0%). Finally, American Indians/Alaska Natives reported the highest percentage need for assistance with instrumental activities of daily living (35.6%) and activities of daily living (28.7%). Non-Hispanic white

patients reported the second highest need for assistance with daily living activities (26.6%), and Asians (14.5%) and Hispanic/Latinos (19.1%) reported the lowest.

In summary, variations in access to health care services, health care quality, patient experience, and health outcomes across geographic settings and race/ethnicities illustrate the importance of disaggregating these data. When analyses tease apart these groupings of patients, meaningful differences surface. Understanding these nuances further supports BPHC's mission of ensuring access to comprehensive, culturally competent, quality, primary health care services.

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Geographic Location of Health Centers, 2015

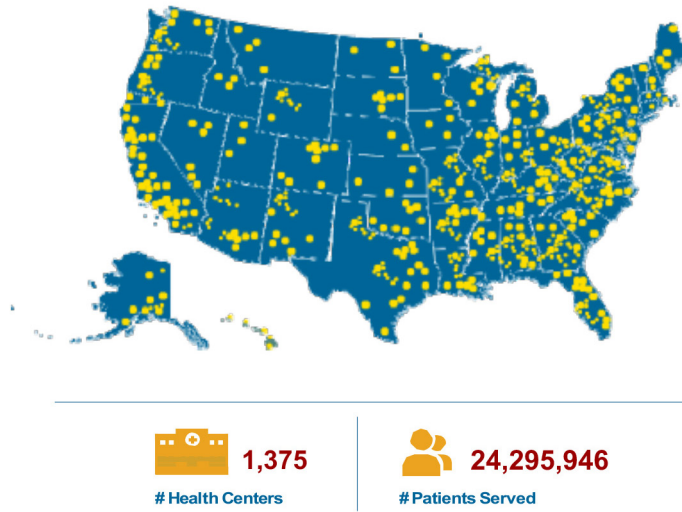
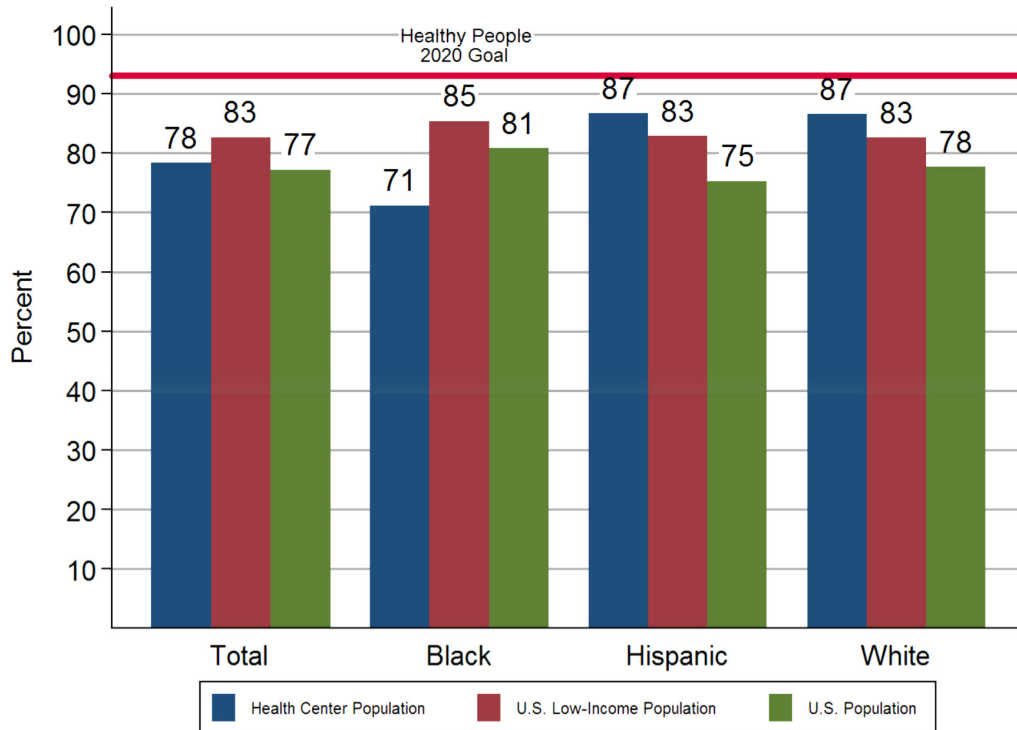
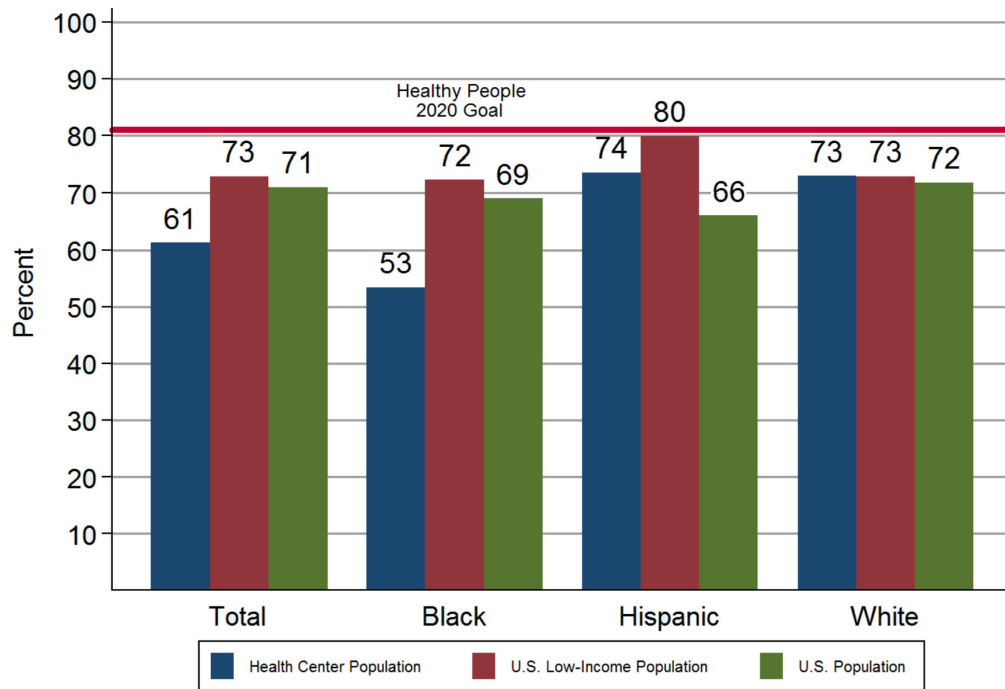


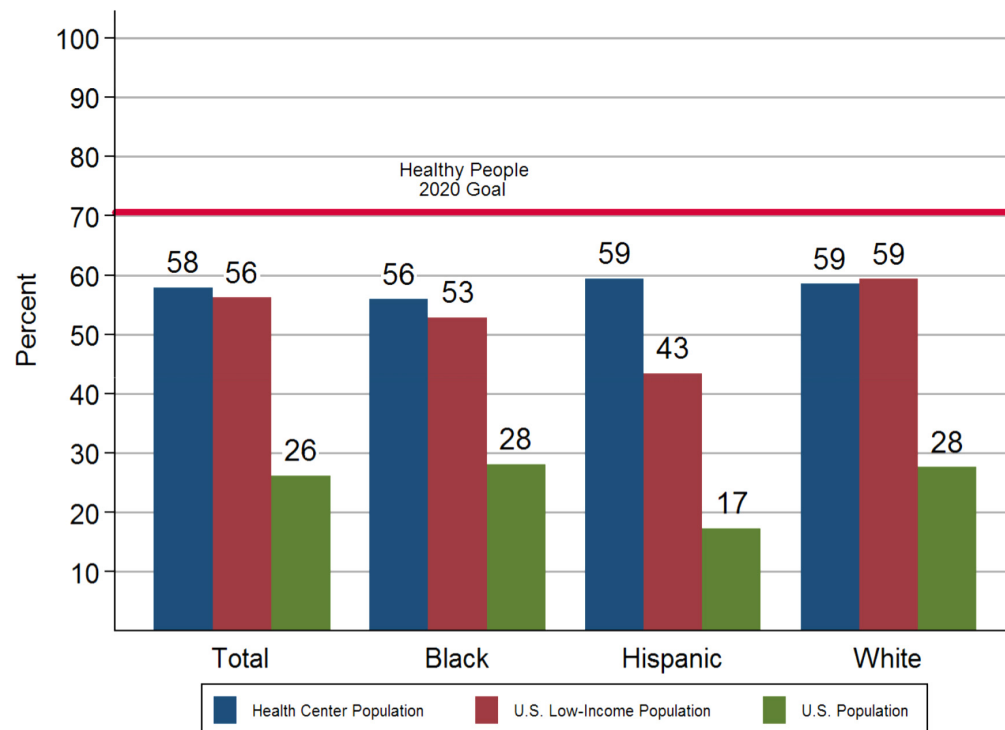
Figure 4.1: Rates of Pap Smear Screening in Last 3 Years by Race/Ethnicity, 2014 Health Center Patient Survey



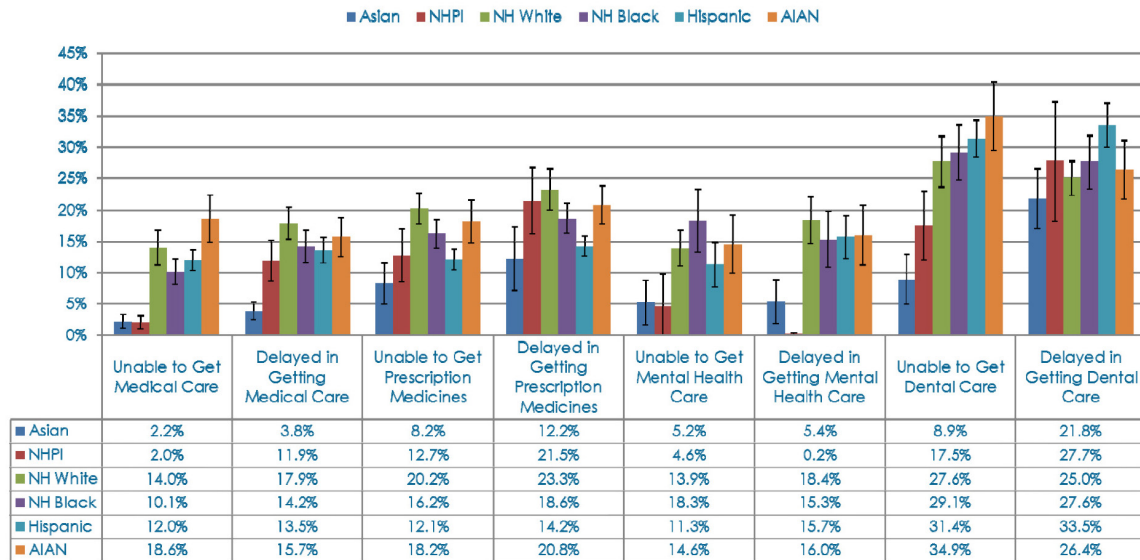
**Figure 4.2:** Rates of Breast Cancer Screening (Mammography) in Past 2 Years by Race/Ethnicity, 2014 Health Center Patient Survey



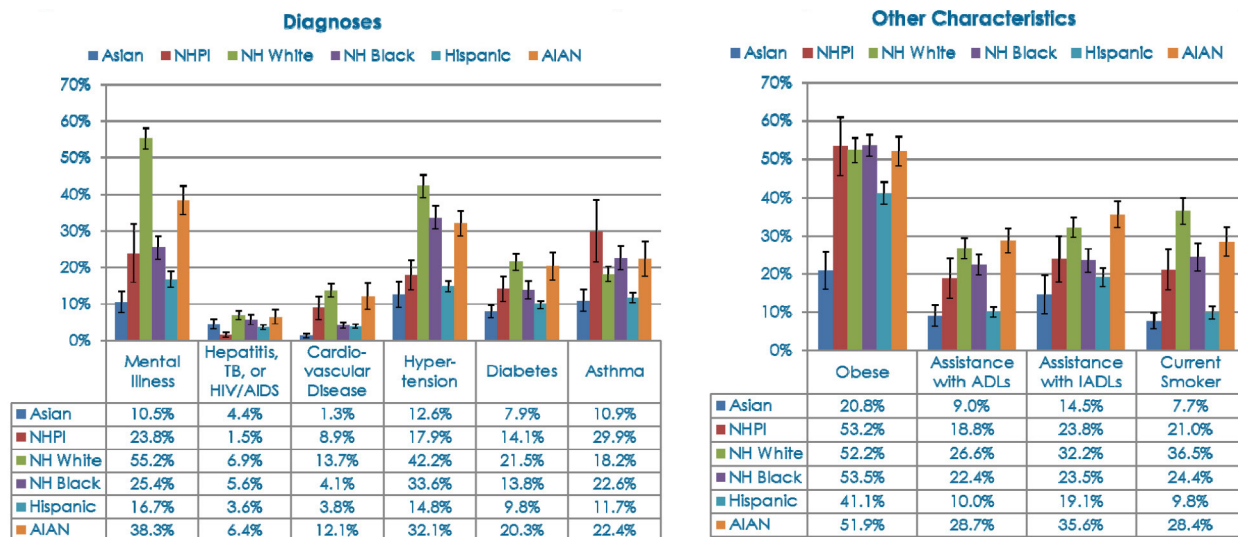
**Figure 4.3:** Rates of Colorectal Cancer Screening in Past 2 Years by Race/Ethnicity, 2014 Health Center Patient Survey



**Figure 4.4: Differences in Access to Care by Race/Ethnicity, 2014 Health Center Patient Survey**



**Figure 4.5: Differences in Patient Health Status by Race/Ethnicity, 2014 Health Center Patient Survey**



**Table 4.1:** Health Center Clinical Quality Performance, UDS, 2013–2015

	% in 2013 (n=1,202)	% in 2014 (n=1,278)	% in 2015 (n= 1,375)
<b>Quality of Care Measures</b>			
Perinatal Health			
Access to Prenatal Care (First Prenatal Visit in 1st Trimester)	71.60	72.20	73.00
Low Birth Weight	7.30	7.30	7.60
<b>Preventive Health Screening &amp; Services</b>			
Cervical Cancer Screening	57.80	56.30	56.00
Weight Assessment and Counseling for Nutrition and Physical Activity of Children and Adolescents	51.80	56.60	57.90
Adult Weight Screening and Follow-Up	53.30	56.10	59.40
Adults Screened for Tobacco Use and Receiving Cessation Intervention	-	81.00	82.80
Colorectal Cancer Screening	32.60	34.50	38.30
Childhood Immunization	76.40	77.20	77.50
Depression Screening	-	38.80	50.60
Dental Sealants	-	-	42.40
<b>Chronic Disease Management</b>			
Asthma Treatment (Appropriate Treatment Plan)	77.70	80.80	84.10
Cholesterol Treatment (Lipid Therapy for Coronary Artery Disease Patients)	75.10	78.40	77.90
Heart Attack/Stroke Treatment (Aspirin Therapy for Ischemic Vascular Disease Patients)	74.80	76.80	78.00
Blood Pressure Control (Hypertensive Patients with Blood Pressure < 140/90)	63.60	63.70	63.80
Uncontrolled Diabetes (Diabetic Patients with HbA1c > 9% or No Test During Year)	31.10	31.20	29.80
HIV Linkage to Care	-	77.30	74.70

“-” Indicates that data are not available for that year



**Table 4.2:** Clinical Quality Performance Comparison of Rural and Urban Health Centers: 2015 UDS

	Rural (%) (n=754)	Urban (%) (n=621)
<b>Perinatal Health</b>		
Access to Prenatal Care (first prenatal visit in 1st trimester)	75.13	71.13
Low Birth Weight	7.64	7.52
<b>Preventive Health Screenings and Services</b>		
Weight Assessment and Counseling for Children and Adolescents	54.61	61.58
Adult Weight Screening and Follow-Up	59.20	59.66
Tobacco Use Screening and Cessation Intervention	83.00	82.63
Colorectal Cancer Screening	38.85	37.71
Depression Screening and Follow-Up	49.82	51.52
Cervical Cancer Screening	54.62	57.53
Childhood Immunizations	77.00	78.11
Dental Sealants	44.06	40.37
<b>Chronic Disease Management</b>		
Asthma Pharmacologic Therapy (appropriate treatment plan)	83.70	84.57
Cholesterol Treatment (lipid therapy for patients with coronary artery disease)	77.70	78.16
Heart Attack/Stroke Treatment (aspirin therapy for patients with ischemic vascular disease)	78.79	76.77
HIV Linkage to Care	73.95	75.14
Blood Pressure Control (hypertensive patients with blood pressure < 140/90)	64.00	63.45
Uncontrolled Diabetes (diabetic patients with HbA1c > 9% or No Test During Year)	29.52	30.11

**Table 4.3: Racial/Ethnic Differences in Low Birth Weight and Hypertension, 2015 UDS**

<b>Section A: Deliveries and Birth Weight</b>						
Race and Ethnicity	Prenatal Care Patients Who Delivered During the Year		Live Births < 1500 grams	Live Births 1500-2499 grams	Live Births $\geq$ 2500 grams	% Low and Very Low Birth Weight
<b>By Race</b>						
Asian	11,264	3.85%	108	711	10,252	7.40%
Native Hawaiian	751	0.26%	14	61	668	10.09%
Other Pacific Islander	3,950	1.35%	50	278	3,536	8.49%
Black/African-American	55,532	19.00%	1,149	4,748	48,001	10.94%
Hispanic/Latino	2,857	0.98%	35	194	2,605	8.08%
Non-Hispanic/Latino	52,675	18.02%	1,114	4,554	45,396	11.10%
American Indian/Alaska Native	3,035	1.04%	35	167	2,691	6.98%
White	161,844	55.37%	1,793	8,774	149,653	6.60%
Hispanic/Latino	98,207	33.60%	1,052	4,954	91,127	6.18%
Non-Hispanic/Latino	63,637	21.77%	741	3,820	58,526	7.23%
More than one race	10,377	3.55%	182	639	9,593	7.88%
<b>By Ethnicity</b>						
Hispanic/Latino	143,042	48.94%	1,579	7,378	132,247	6.34
Non-Hispanic/Latino	141,678	48.47%	2,169	10,149	128,051	8.78%
<b>Total</b>	<b>292,286</b>	<b>100.00%</b>	<b>3,908</b>	<b>18,093</b>	<b>268,259</b>	<b>7.58</b>
<b>Section B: Hypertension</b>						
Patients 18 to 85 Diagnosed with Hypertension Whose Last Blood Pressure Reading was < 140/90 mm Hg						
Race and Ethnicity	Total Hypertensive		Estimated % Patients with Controlled Blood Pressure			
<b>By Race</b>						
Asian	118,691		67.87%			
Native Hawaiian	6,271		59.61%			
Other Pacific Islander	18,417		61.87%			
Black/African-American	824,688		57.09%			
Hispanic/Latino	23,940		61.00%			
Non-Hispanic/Latino	800,748		56.95%			
American Indian/Alaska Native	32,350		61.10%			
White	1,863,526		66.08%			
Hispanic/Latino	556,494		66.57%			
Non-Hispanic/Latino	1,307,032		65.84%			
More than one race	60,953		69.10%			
<b>By Ethnicity</b>						
Hispanic/Latino	828,252		66.92%			
Non-Hispanic/Latino	2,332,763		62.75%			
<b>Total</b>	<b>3,226,170</b>		<b>63.76%</b>			

**Table 4.4:** Racial/Ethnic Differences in Diabetes Control, 2015 UDS

Patients 18 to 75 Years Diagnosed with Type I or Type II Diabetes: Most Recent Test Results			
Race and Ethnicity	Total Patients with Diabetes	Estimated % Patients with HbA1c >9%	Estimated % Patients with HbA1c < 8%
<b>By Race</b>			
Asian	63,208	20.41%	66.32%
Native Hawaiian	4,025	37.87%	45.98%
Other Pacific Islander	14,527	35.60%	43.53%
Black/African-American	386,754	31.06%	56.46%
Hispanic/Latino	12,878	28.73%	56.34%
Non-Hispanic/Latino	373,876	31.08%	56.49%
American Indian/Alaska Native	19,544	35.39%	50.77%
White	993,582	29.53%	57.09%
Hispanic/Latino	412,905	31.81%	54.64%
Non-Hispanic/Latino	580,677	27.89%	58.88%
More than one race	40,858	28.56%	57.49%
<b>By Ethnicity</b>			
Hispanic/Latino	616,082	31.41%	54.84%
Non-Hispanic/Latino	1,085,987	28.83%	58.07%
<b>Total</b>	<b>1,737,060</b>	<b>29.80%</b>	<b>56.82%</b>

**Table 4.5: Racial/Ethnic Differences in Access to Care among Health Center Patients, 2014 Health Center Patient Survey**

	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic/Latino	Native American/Alaskan Native	Asian	Native Hawaiian/Pacific Islander
Sample Size	6,996	1,489	1,535	2,754	670	386	132
<b>Access to Care (%)</b>							
<b>Usual Source of Care (N=6,958)</b>							
Health Center	92.9	89.8	90.8	95.7	92.8	93.8	93.2
Other	5.1	7.1	7.7	2.8	4.5	4.9	6.1
None	1.9	3.1	1.5	1.5	2.7	1.3	0.8
<b>Unable to Get Necessary Medical Care, Tests, or Treatments Last Year (N=4,641)</b>							
No	85.1	82.8	86.8	85.2	79.4	94.2	93.9
Yes	14.9	17.2	13.2	14.8	20.6	5.8	6.1
<b>Delay in Getting Necessary Medical Care, Tests, or Treatments Last Year (N=4,641)</b>							
No	82.7	79.6	83.1	85.1	76.4	89.7	85.9
Yes	17.3	20.4	16.9	14.9	23.6	10.3	14.1
<b>Unable to Get Necessary Dental Care, Tests, or Treatments Last Year (N=3,122)</b>							
No	65.5	62.6	62.5	67.1	63.1	78.7	71.4
Yes	34.5	37.4	37.5	32.9	36.9	21.3	28.6
<b>Delay in Getting Necessary Dental Care, Tests, or Treatments Last Year (N=3,122)</b>							
No	66.6	66.3	65.8	66.3	62.4	76.7	69.6
Yes	33.4	33.7	34.2	33.7	37.6	23.3	30.4
<b>Unable to Get Necessary Mental Care Last Year (N=1,578)</b>							
No	83.6	82.8	83.7	84.5	81.0	88.6	95.0
Yes	16.4	17.2	16.3	15.5	19.0	11.4	5.0
<b>Delay in Getting Necessary Mental Care Last Year (N=1,578)</b>							
No	79.9	76.3	82.4	81.2	79.2	86.4	95.0
Yes	20.1	23.7	17.6	18.8	20.8	13.6	5.0

**Table 4.6: Racial/Ethnic Differences in Access to Care among Health Center Patients, 2014 Health Center Patient Survey**

	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic/Latino	Native American/Alaskan Native	Asian	Native Hawaiian/Pacific Islander
Sample Size	6,996	1,489	1,535	2,754	670	386	132
<b>Quality of Care (%)</b>							
<b>Get an Appointment for Care When Needed Right Away (N=2,476)</b>							
Usually/ Always	76.3	76.8	76.0	76.4	72.7	78.2	84.3
<b>Get an Appointment for a Check-up or Routine Care When Needed Right Away (N=4,044)</b>							
Usually/ Always	84.4	86.1	82.6	84.5	83.2	85.4	87.2
<b>Get an Answer of a Medical Question the Same Day That a Patient Phones the Health Center During the Office Hours (N=2,346)</b>							
Usually/ Always	76.8	77.6	73.4	80.0	73.1	75.9	81.3
<b>Get an Answer of a Medical Question When a Patient Phones the Health Center After the Office Hours (N=486)</b>							
Usually/ Always	64.8	70.2	59.7	69.2	61.5	40.9	76.9
<b>Get Reminders Between Visits (N=5,773)</b>							
Yes	29.4	33.3	30.6	26.6	34.5	17.4	26.7
<b>See a Doctor or Other Health Professional Within 15 m (N=5,773)</b>							
Usually/ Always	56.4	63.5	51.6	55.0	60.9	43.0	69.3
<b>The Doctor or Other Health Professional Listen Carefully to You (N=5,773)</b>							
Usually/ Always	90.5	91.2	88.8	91.6	89.9	88.3	94.1
<b>The Doctor or Other Health Professional Give You Easy to Understand Information (N=4,680)</b>							
Usually/ Always	91.0	92.2	90.1	90.7	92.1	88.3	95.0
<b>The Doctor or Other Health Professional Seem to Know the Important Information About Patient's Medical History (N=5,773)</b>							
Usually/ Always	83.9	86.4	83.0	83.7	81.2	81.8	87.1
<b>The Doctor or Other Health Professional Show Respect for What You Had to Say (N=5,773)</b>							
Usually/ Always	92.8	93.5	91.7	94.0	89.7	91.7	95.0
<b>The Doctor or Other Health Professional Spend Enough Time with You (N=5,773)</b>							
Usually/ Always	88.1	91.0	86.4	89.2	84.4	81.5	95.0
<b>Follow-up To Be Given Test Results (N=4,516)</b>							
Usually/ Always	81.3	79.5	80.0	84.3	80.0	80.3	78.7
<b>Clerks and Receptionists Were Helpful (N=5,773)</b>							
Usually/ Always	87.7	89.1	86.7	88.6	84.2	84.9	93.1
<b>Clerks and Receptionists Treat You With Courtesy and Respect (N=5,773)</b>							
Usually/ Always	92.6	94.7	90.9	92.8	89.7	92.3	95.0
<b>Satisfaction With the Way the Medication Was Explained to You (N=1,560)</b>							
Yes	96.2	94.8	96.4	97.2	96.3	91.5	100.0
<b>Satisfaction With the Way Your Questions About Medication Were Answered (N=1,560)</b>							
Yes	95.1	95.4	95.8	95.4	95.7	86.6	96.6
<b>Would Recommend this Provider to Family and Friends (N=5,773)</b>							
Yes-Definitely	81.5	82.1	82.5	82.3	76.2	76.9	88.1

Table 4.7: Self-Reported Health Status of Health Center Users, 2014 Health Center Patient Survey

Variable	Unweighted Sample Size	Excellent/Very Good/Good Percent	Fair or Poor Percent	Fair or Poor SE
<b>All Persons</b>	6,997	67.9	32.1	1.4
<b>Patient Type</b>				
Community Health Center	3,963	68.4	31.6	1.4
Migrant Health Center	1,218	64.8	35.2	3.3
Health Care for the Homeless	1,226	50.5	49.5	2.5
Public Housing Primary Care	590	67.9	32.1	3.7
<b>Age</b>				
0–17 Years	1,410	89.4	10.6	1.8
18–44 Years	2,297	63.0	37.0	2.2
45–64 Years	2,738	50.9	49.1	3.0
65–74 Years	419	58.7	41.3	3.8
<b>Race/Ethnicity</b>				
Asian	386	76.1	23.9	3.8
Native Hawaiian/Pacific Islander	132	*	*	*
White Non-Hispanic	1,487	63.8	36.2	2.4
Black Non-Hispanic	1,534	66.3	33.7	3.0
Hispanic	2,754	72.5	27.5	1.9
American Indian/Alaskan Native	669	65.1	34.9	3.4
<b>Education</b>				
Less Than High School	3,233	65.7	34.3	1.8
High School	1,516	60.6	39.4	3.3
More Than High School	1,615	65.5	34.5	2.3
<b>Poverty Status</b>				
≤100% FPL	4,425	62.8	37.2	1.9
101% to 138% FPL	1,079	68.7	31.3	3.2
139% to 199% FPL	656	69.8	30.2	4.0
200% to 299% FPL	360	73.5	26.5	5.7
<b>Employment</b>				
Employed	1,803	69.3	30.7	2.6
Unemployed	1,066	61.0	39.0	3.5
Not in Labor Force	2,804	50.8	49.2	2.4
<b>Location</b>				
Urban	4,745	68.8	31.2	1.8
Rural	2,252	66.9	33.1	2.0
<b>Language Preferred</b>				
English Only	3,696	65.7	34.3	1.8
Other Non-English Language Only	2,086	69.9	30.1	2.5
English and Non-English Language	1,215	73.9	26.1	3.3
<b>Health Insurance</b>				
Medicaid Only	2,644	73.1	26.9	2.4
Medicare Only	291	51.2	48.8	7.0
Medicaid and Medicare	670	51.9	48.1	4.4
Employer / Union Insurance	713	77.9	22.1	2.8
Health Insurance Exchange Coverage	609	51.2	48.8	5.7
Other	286	63.7	36.3	6.9
Uninsured	1,419	59.3	40.7	3.8
<b>Smoking Status</b>				
Current Smoker	1,741	52.4	47.6	3.3
Non-Smoker	4,048	63.6	36.4	2.0
<b>Cardiovascular Disease Indicator</b>				
Yes	632	37.9	62.1	6.4
No	6,365	70.5	29.5	1.3
<b>Serious Mental Illness Indicator</b>				
Yes	778	42.8	57.2	4.6
No	6,219	70.3	29.7	1.4
<b>Selected Infectious Disease Indicator</b>				
Yes	605	53.3	46.7	6.2
No	6,392	68.7	31.3	1.4
<b>Gender</b>				
Male	2,782	70.6	29.4	2.2
Female	4,215	65.9	34.1	1.7

**Table 4.8:** Serious Psychological Distress (K6>13) by Socioeconomic and Demographic Characteristics, 2014 Health Center Patient Survey

Variable	Unweighted Sample Size	K6 Score≥13 (Percent)	K6 Score≥13 (SE)
<b>All Persons</b>	5,592	14.4	1.2
<b>Patient Type</b>			
Community Health Center	3,172	14.0	1.3
Migrant Health Center	803	10.6	1.3
Health Care for the Homeless	1,165	28.0	4.2
Public Housing Primary Care	452	*	*
<b>Race/Ethnicity</b>			
Asian		346	*
Native Hawaiian/Pacific Islander	97	*	*
White Non-Hispanic	1,374	16.2	1.9
Black Non-Hispanic	1,303	15.4	2.7
Hispanic	1,903	9.6	1.4
American Indian/Alaskan Native	540	*	*
<b>Education</b>			
Less Than High School	2,444	14.8	2.0
High School	1,518	15.6	2.3
More Than High School	1,613	13.1	1.8
<b>Poverty Status</b>			
≤100% FPL	3,625	17.0	1.7
<b>Employment</b>			
Employed	1,785	9.4	2.1
Unemployed	1,041	20.8	3.3
Not in Labor Force	2,766	16.1	1.8
<b>Location</b>			
Urban	3,929	15.3	1.8
Rural	1,663	13.5	1.6
<b>Language Preferred</b>			
English Only	3,167	16.1	1.6
Other Non-English Language Only	1,518	11.5	2.5
English and Non-English Language	907	8.8	1.9
<b>Smoking Status</b>			
Current Smoker	1,735	23.8	2.4
Non-Smoker	3,848	10.7	1.3
<b>Cardiovascular Disease Indicator</b>			
Yes	614	17.9	3.2
No	4,978	13.9	1.3

\* Estimate and Standard Error (SE) are suppressed due to small sample size and/or high variability.

## 5. Organ and Blood Stem Cell Donation and Transplantation

Underrepresented racial or ethnic populations and other disadvantaged persons are disproportionately affected by many acute and chronic diseases that lead to end-stage organ disease or other conditions requiring organ transplantation<sup>1-4</sup> and have disparate access to both organ and blood stem cell transplantation.<sup>3-8</sup> HRSA's Division of Transplantation (DoT) within the Healthcare Systems Bureau is the primary federal entity responsible for overseeing the organ transplant system and blood stem cell transplant programs in the U.S. DoT also promotes public education and research to increase the supply of donated organs and tissues and recruits underrepresented racial or ethnic populations as volunteer adult blood stem cell and cord blood donors.

### Organ Donation and Transplantation

- Figure 5.1 describes the number of patients on the waiting list for all organs, number of living and deceased donors from which organs were recovered, and number of transplants performed.
- In 2016, a record number of transplants (33,611) were performed.
- Despite advances in medicine and technology, and increased awareness of organ donation and transplantation, there continues to be a gap between supply and demand. More progress is needed to ensure that all candidates have a chance to receive a transplant.

Figure 5.2 shows percentage of people on the waiting list by race/ethnicity. Figure 5.3 shows the percentage of people waiting for organ transplant by types of organ.

More than half of all people on the transplant waiting list are from a racial or ethnic minority group. There are multiple reasons for this; one of which is because some diseases that cause end-stage organ failure are more common in these populations than in the general population.

Donor organs are matched for transplant according to several factors, including blood and tissue type, which can vary by ethnicity. While people of every race frequently match each other, those on the waiting list are more likely to receive transplants if more people from all backgrounds donate. Many more donors from minorities are needed.

Figure 5.4 depicts the percentage of people on the waiting list who are waiting for specific organs by race/ethnicity. Variability is seen with kidney and liver in particular, with more ethnic minorities waiting for kidneys than whites.

Figure 5.5 depicts the percentage of people on the kidney waiting list by race/ethnicity, percentage of deceased kidney donors by race/ethnicity, and percentage of living kidney donors by race/ethnicity. Over 80% of the patients are on the waiting list for a kidney. The percentage of ethnic minorities who are waiting for kidney transplants is greater than the percentage of ethnic minorities who become organ donors.

Figure 5.6 shows variation in the percentage of patients on kidney waiting list who underwent deceased donor transplant within five years of listing by donation service area (DSA).

There is great geographic variation in the percentage of patients on kidney waiting list who underwent deceased donor transplant within five years of listing; the percentage varied from 7.8% to 82.7% across DSAs. DSA is the geographic area designated by Center for Medicare & Medicaid Services (CMS) that is served by one organ procurement organization (OPO), one or more transplant centers, and one or more donor hospitals.

Figure 5.7 shows variation in the percentage of patients on liver waiting list who underwent deceased donor transplant within five years of listing by DSA.

There is great geographic variation in the percentage of patients on the liver waiting list who underwent



deceased donor transplant within five years of listing; the percentage varied from 28.2% to 84.4% across DSAs.

The graph (Figure 5.8) shows the percentage of people on the waiting list in 2014 and 2016, and percentage of deceased donor kidney transplants before the kidney allocation system (KAS) implementation (pre-KAS) and after the KAS implementation (post-KAS), by race/ethnicity.

The Organ Procurement and Transplantation Network (OPTN) KAS changed in December 2014. One of the key goals of the KAS is to increase fairness by awarding waiting time points based on dialysis start date. Analyses of data one to two years after implementation of the KAS show that blacks and Hispanics are receiving higher proportions of kidney transplants. Transplant percentages by race and ethnicity reflect waiting list percentages.

## Blood Stem Cell Transplantation

### Diversity of Bone Marrow Donors on the Registry

Figure 5.9 shows the percentage of patients who find a matched donor and those who did not by race/ethnicity. Approximately 97% of white non-Hispanic are able to find a matched adult bone marrow donor; the likelihood is lower in other ethnic groups. Four out of five (80%) Hispanics can find a matched adult bone marrow donor, followed by 77% in American Indians, 72% in Asians, and 66% in African-Americans.

- The best marrow transplant outcomes happen when a patient's human leukocyte antigen (HLA) and the HLA of a registry member or cord blood unit closely match.
- When it comes to matching HLA types, a patient's ethnic background is important in predicting the likelihood of finding a match. This is because HLA markers used in matching are inherited. Some ethnic groups have more complex HLA tissue types than others. So a person's best chance of finding a donor may be with someone of the same ethnic background.
- Even with nearly 29 million potential marrow donors and 712,000 cord blood units available worldwide, it is harder for patients of racially and ethnically diverse backgrounds to find a match.
- Because patients are more likely to match someone of the same race and ethnicity, donors of these racial and ethnic heritages are especially needed: American Indian or Alaska Native, Asian, black or African-American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, Multiple race.

Figure 5.10 shows the percentage of adult volunteer marrow donors on the registry by race/ethnicity. Nearly 3.6 million of the registrants (approximately 22%) self-identified as belonging to an underrepresented racial or ethnic population.

- The C.W. Bill Young Cell Transplantation Program (CWBYCTP) helps recruit and facilitate successful match of a nonfamily (unrelated) donor with the patient in need of a stem cell transplantation (bone marrow and/or cord blood).
- By the end of FY 2016, the CWBYCTP included approximately 16 million volunteer adult marrow registrants who are willing to donate to any matched patient in need.

### Unrelated blood stem cell transplants facilitated by the C.W. Bill Young Cell Transplantation Program

Figure 5.11 shows the number of unrelated blood stem cell transplants for underrepresented racial and ethnic populations performed in 2006 and 2016.

- The number of transplants performed for underrepresented racial and ethnic populations increased by over 200% from 2006 to 2016.
- Transplants for members of underrepresented racial and ethnic populations represent 16.2% of the overall 6,166 transplants that the CWBYCTP facilitated in FY 2016.
- The total number of unrelated transplants for females was 41.8% (2,579) in 2016.

Data Source: National Marrow Donor Program

### Unrelated transplant 1-year survival rate

- The 1-year survival rate of unrelated blood stem cell transplant patients increased from 62% in FY 2003 to 71% in FY 2013.

- Sickle cell anemia predominantly affects African-Americans and is one of the diseases that can be treated by blood stem cell transplantation. Using data from 2008 through 2012 among 79 patients, the 1-year survival rate of unrelated blood stem cell transplants for patients with sickle cell anemia was 81.0%.
- Using the data from 2008 through 2012, the 1-year survival rate for unrelated blood stem cell transplants for female patients with sickle cell anemia was 81.0% and for male patients was 82.2%.

Data Source: Center for International Blood and Marrow Transplant Research

### Diversity of Cord Blood Units on the Registry and Transplants

Figure 5.12 shows the percentage of cord blood units added to the National Cord Blood Inventory (NCBI) by race/ethnicity from 2007–2016. Close to two out of three (63%) of those units were from donors who identified as coming from racially and ethnically underrepresented populations.

- The NCBI Program contracts cord blood banks to meet the statutory goal to build a public inventory of at least 150,000 new, high-quality, genetically diverse cord blood units (CBUs), which are to be made available to patients through the CWBYCTP.
- CBUs serve an important role for patients from ethnically and racially underrepresented populations in need of stem cell transplant, as these populations are less likely to find a suitable match from the adult bone marrow donor registry.
- Between FYs 2007 and 2016, over 99,000 new units of cord blood were added to the NCBI.
- These CBUs are made available to individuals through the CWBYCTP.
- Cord blood is an important stem cell source, in particular for ethnically and racially underrepresented populations in need of a stem cell transplant from an unrelated donor.
- These figures show the percentage of patients who received cord blood transplants or non-cord blood transplants (bone marrow or peripheral blood stem cell [PBSC]) by race/ethnicity. Approximately one in three (34%) transplants in African-Americans were

cord blood transplants, followed by 26% in Asian and 22% in Native Hawaiian or Other Pacific Islanders.

- Close to half (44%; n=4898) of cord blood transplants performed since 2007 used the CBUs from the NCBI inventory.
- In 2016, cord blood was the source of stem cell for 29% of patients in need of a transplant from an unrelated donor.
- Although cord blood can help patients who cannot find a well-matched marrow donor, matching is still important. Cord blood is especially needed from communities such as:
  - Black/African-American
  - American Indian and Alaska Native
  - Asian
  - Hispanic and Latino
  - Native Hawaiian and Other Pacific Islander
  - Multiple-race
- Umbilical cord blood may help more people from many diverse racial and ethnic communities have a second chance at life.

## How DoT Contributes to Health Equity

### Organ Transplantation

- The demand for organ transplantation greatly exceeds the available supply of organs.
- There are approximately 119,000 individuals on the transplant waiting list; in 2015, 22 individuals died each day while waiting for an organ.
- The Organ Transplantation Program within HRSA DoT oversees:
  - The OPTN, the national system that allocates and distributes donor organs to individuals waiting for an organ transplant, and
  - The SRTR, which provides statistical and other analytic support to the OPTN
- The OPTN is a nongovernment body, established by law, composed of volunteer professionals and other stakeholders involved in donation and transplantation

- OPTN operates according to National Organ Transplant Act (NOTA) and regulations.
- OPTN Board of Directors establishes and maintains transplant policies and bylaws that govern the OPTN.
- OPTN Minority Affairs Committee identifies and considers aspects of organ procurement, allocation, and transplantation that have the potential to impact minority populations.

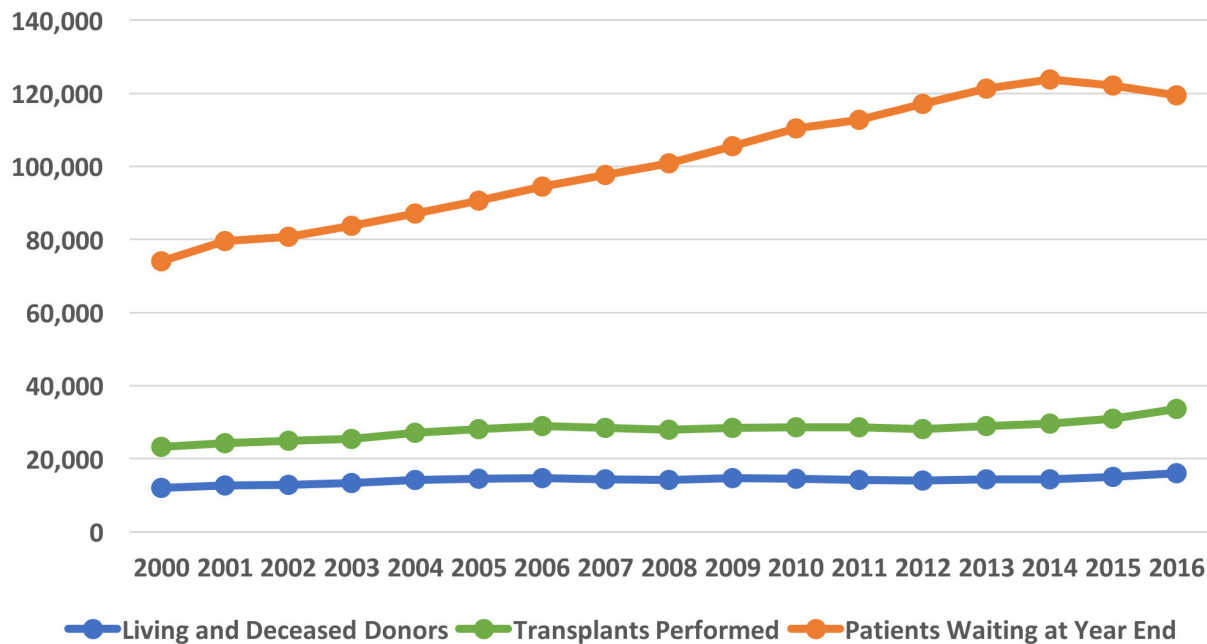
### Blood Stem Cell Transplantation

- The CWBYCTP and NCBI programs' goals are to increase the number of blood stem cell sources of umbilical cord blood and volunteer adult marrow registrants, particularly those from underrepresented racially and ethnically diverse populations, and address the statutory aim of ensuring that members of such populations, to the extent practical, have the same probability of finding a suitable unrelated donor as an individual who is not a member of an underrepresented population.
- Both the CWBYCTP and NCBI address the gaps in improving availability and access to transplant for ethnic minorities through system capacity improvement.
- Both CWBYCTP and NCBI activities support increasing patient access to transplantation as a potential treatment.
- Both programs have demonstrated improvement in blood stem cell transplant availability in ethnic minorities over the years.

### References/Notes

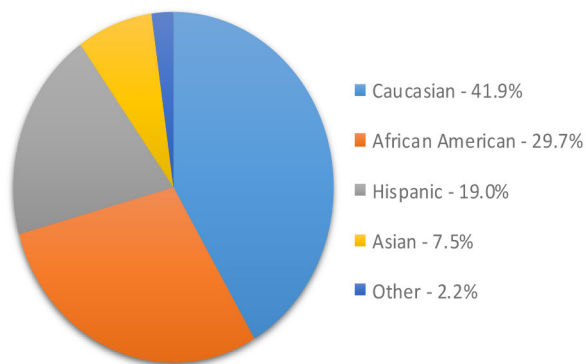
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**Figure 5.1: Number of Patients on the Waiting List, Donors, and Transplants Performed, 2000-2016**

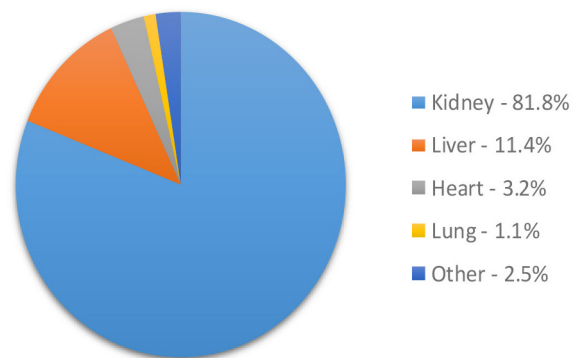


Data Source: OPTN Data as of August 2017<sup>9</sup>

**Figure 5.2: Percentage of People on the Waiting List by Race/Ethnicity**



**Figure 5.3: Percentage of People Waiting for Organ Transplant by Types of Organ**

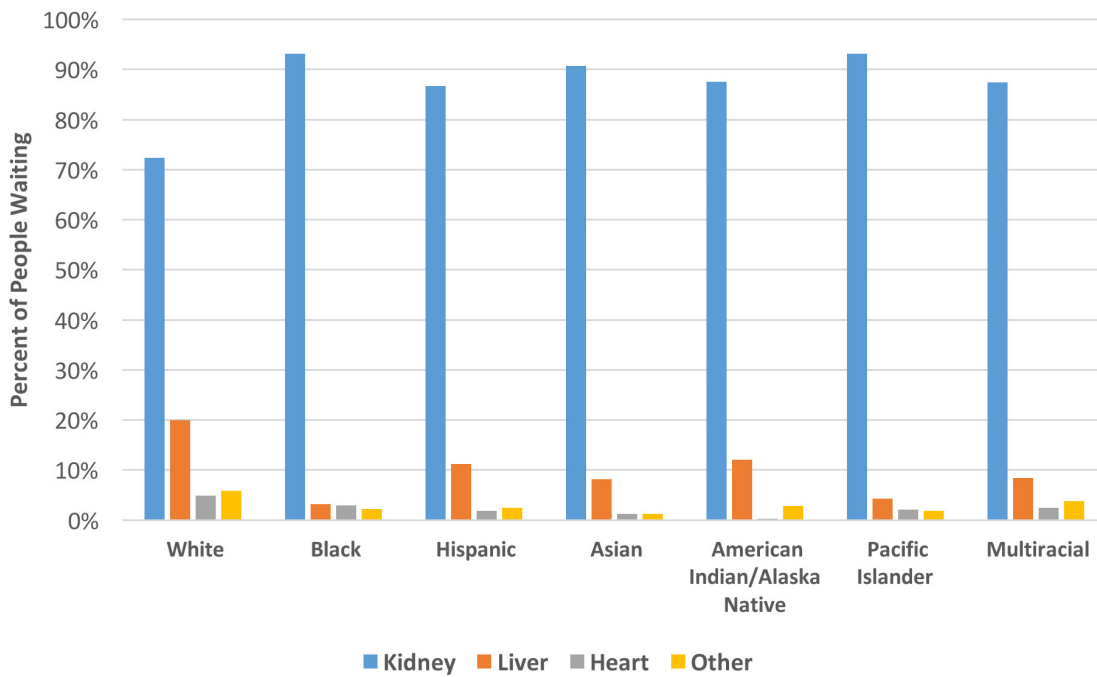


Data Source: OPTN Data as of July 2017<sup>9</sup>

Other includes American Indian/Alaska Native, Pacific Islander, and Multiracial.

The percentage for Figure 5.3 might not add to 100% since individuals can be on the waiting list for multiple organs.

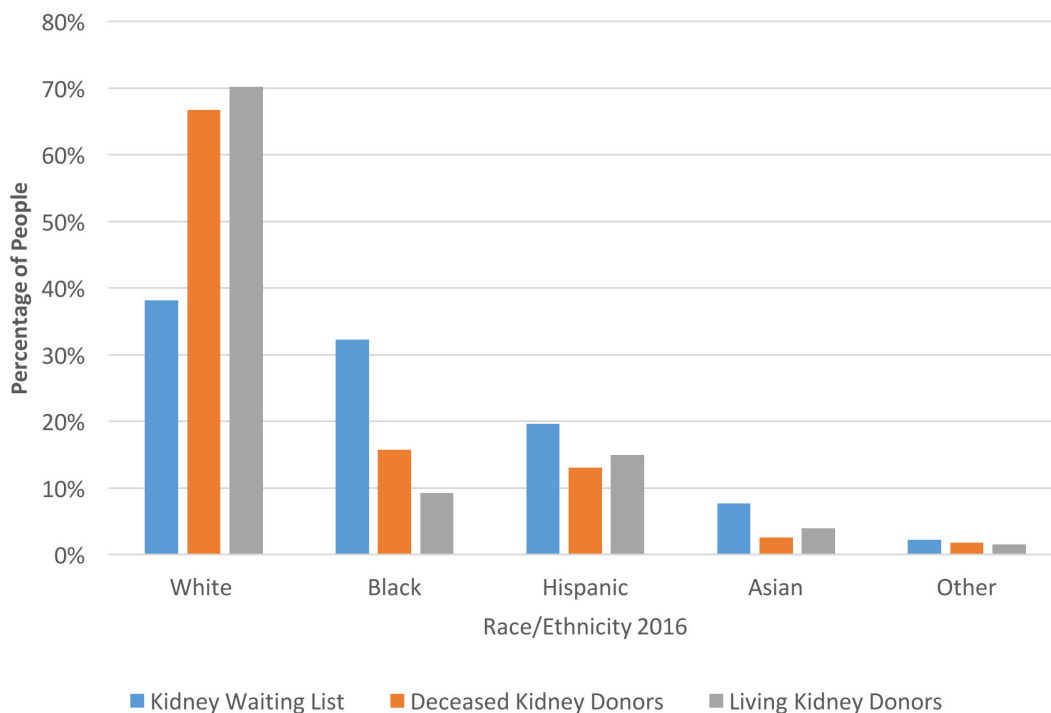
**Figure 5.4: Organs People Are Waiting For by Race/Ethnicity**



Data source: OPTN data as of May 2017<sup>9</sup>

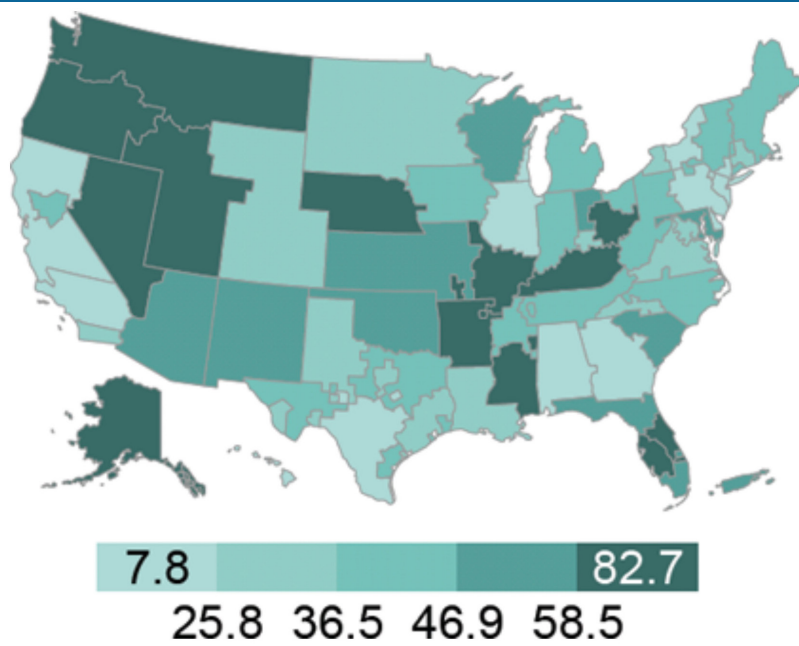
The percentage may not add to 100% since individuals can be on the waiting list for multiple organs.

**Figure 5.5: Percentage of Kidney Waiting List, Deceased Kidney Donors and Living Kidney Donors by Race and Ethnicity, 2016**



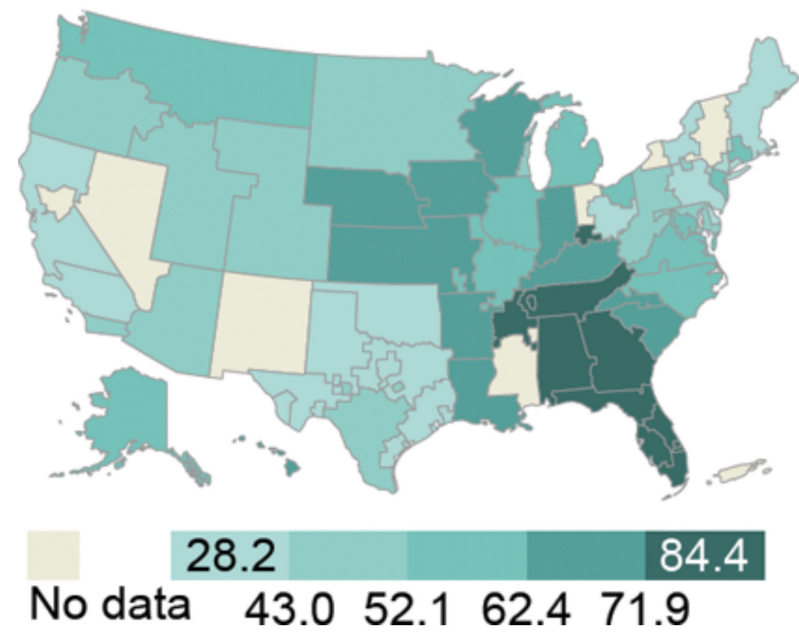
Data source: OPTN data as of April 2017<sup>9</sup>

**Figure 5.6:** Geographic Variation in the Percentages of Patients on Kidney Waiting List Who Underwent Deceased Donor Transplant within 5 Years of Listing<sup>a</sup>



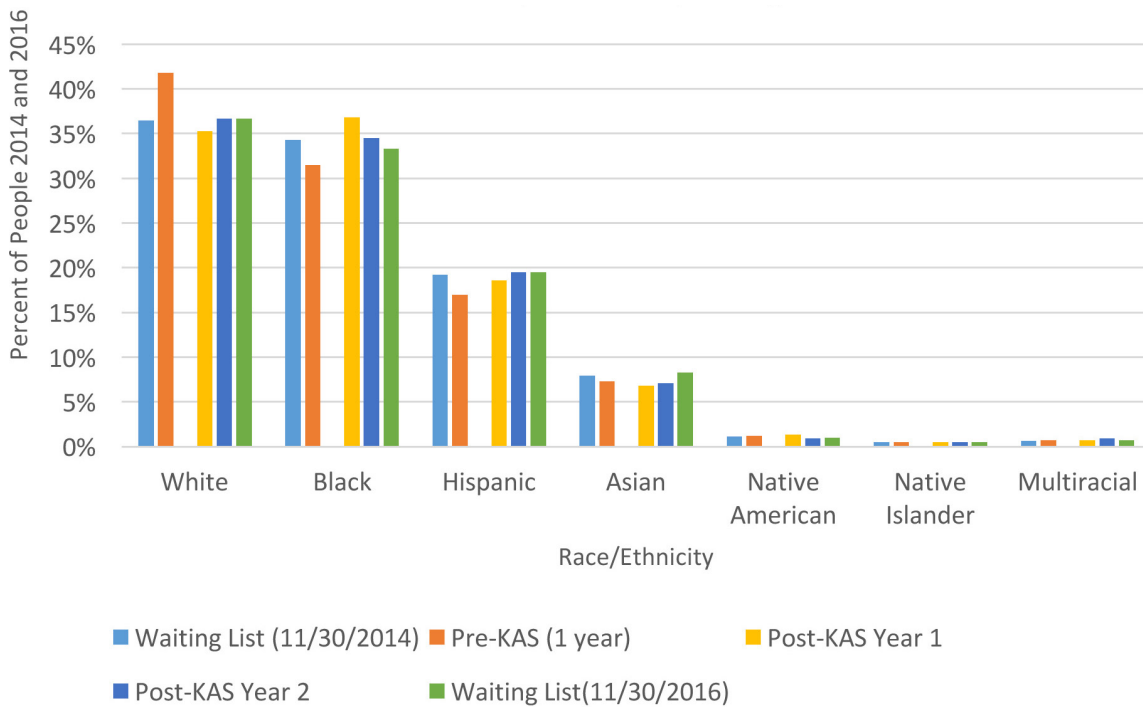
**Source:** American Journal of Transplantation, January 2017, Special Issue: OPTN/ Scientific Registry of Transplant Recipients (SRTR) Annual Data Report 2015 (Kidney Chapter)<sup>10</sup>  
<http://onlinelibrary.wiley.com/doi/10.1111/ajt.2017.17.issue-S1/issuetoc>  
<http://onlinelibrary.wiley.com/doi/10.1111/ajt.14124/full#ajt14124-fig-0017>  
<sup>a</sup>Based on the 2010 Listing

**Figure 5.7:** Geographic Variations in the Percentages of Patients on Liver Waiting List Who Underwent Deceased Donor Transplant within 5 Years of Listing<sup>b</sup>



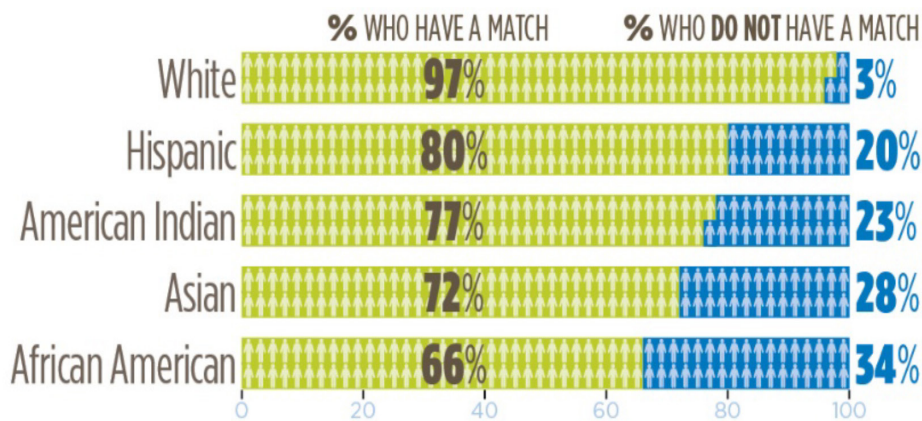
**Source:** American Journal of Transplantation, January 2017, Special Issue: OPTN/SRTR Annual Data Report 2015 (Liver Chapter)<sup>11</sup>  
<http://onlinelibrary.wiley.com/doi/10.1111/ajt.2017.17.issue-S1/issuetoc>  
<sup>b</sup>Based on the 2010 Listing

**Figure 5.8:** Improvement in the Percentages of Deceased Donor Kidney Transplants in Ethnic Minorities after the 2014 Kidney Allocation System Policy Change



**Data source:** Unpublished analyses based on OPTN data, prepared for the OPTN/United Network for Organ Sharing (UNOS) Kidney Transplantation Committee meetings on April 2016 and April 2017<sup>12</sup>

**Figure 5.9:** Likelihood of Finding a Matched Donor by Patient Ethnic Background

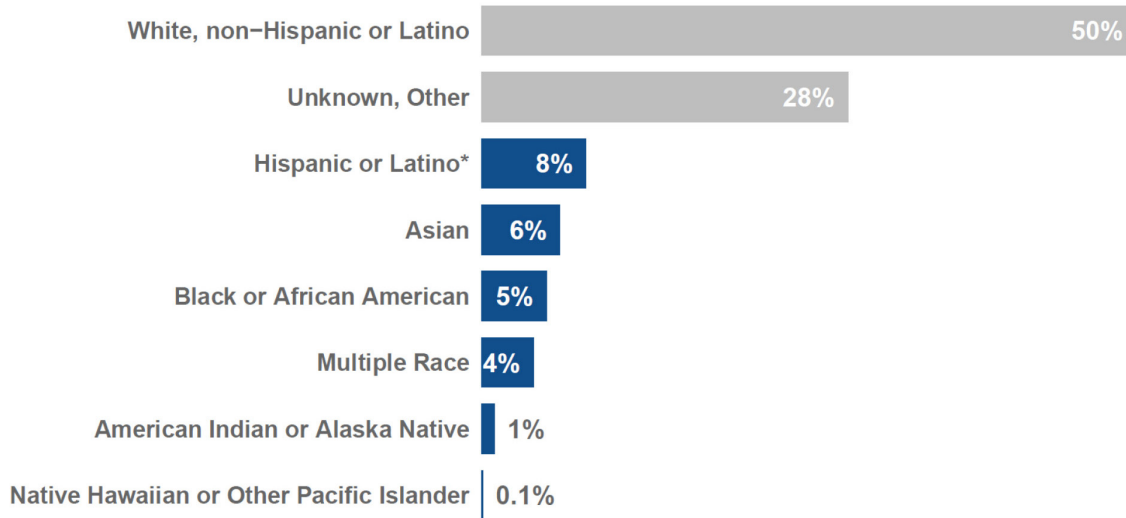


\*Percentages based on ≥7/8 HLA matched adult donor only. Cord blood can increase matches.

**Data Source:** National Marrow Donor Program<sup>13</sup>

Figure from: <https://bethematch.org/transplant-basics/matching-patients-with-donors/how-does-a-patients-ethnic-background-affect-matching>

**Figure 5.10: Adult Volunteer Marrow Donors on the Registry by Race/Ethnicity**

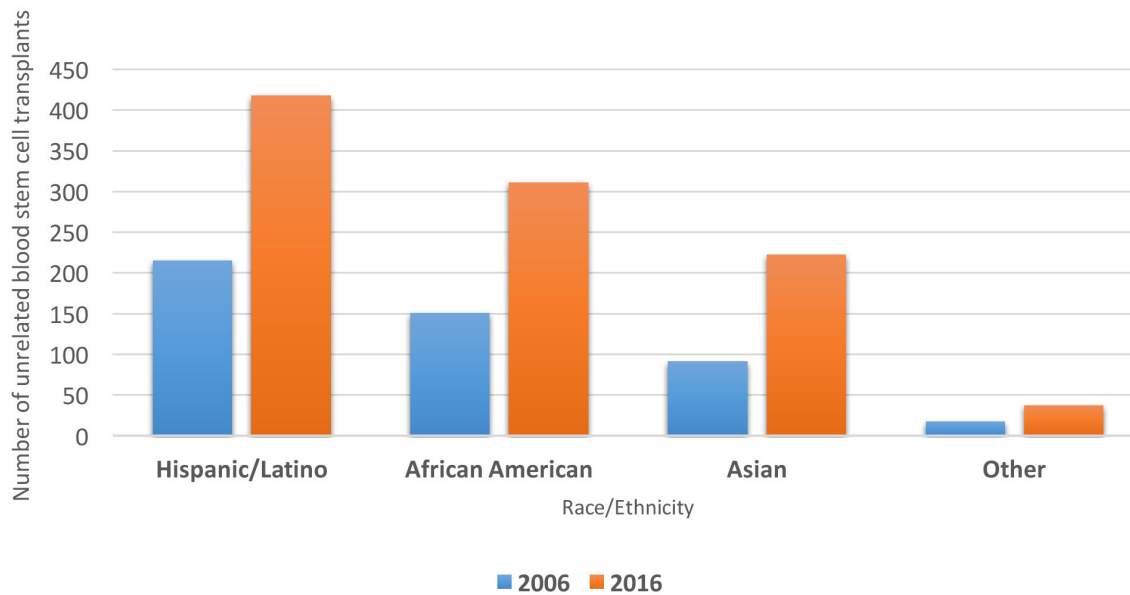


\*Total number indicating Hispanic or Latino ethnicity or race; not a mutually exclusive category.

**Data Source:** National Marrow Donor Program as of September 2016<sup>14</sup>

Data Table at: [https://bloodcell.transplant.hrsa.gov/research/registry\\_donor\\_data/index.html](https://bloodcell.transplant.hrsa.gov/research/registry_donor_data/index.html)

**Figure 5.11: Number of Unrelated Transplants for Patients from Underrepresented Racial and Ethnic Populations Performed in 2006 and 2016<sup>1</sup>**



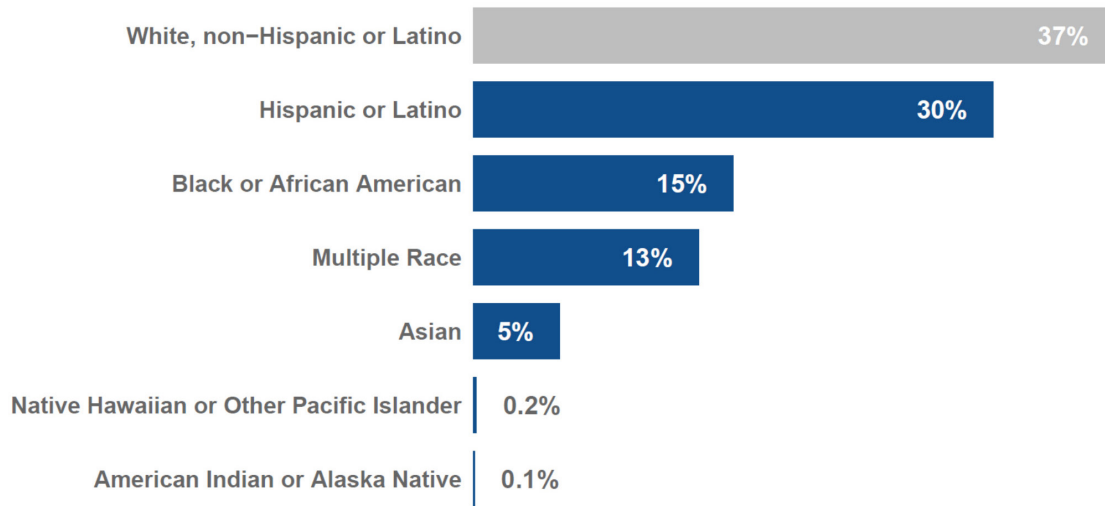
<sup>1</sup>Other includes American Indian, Alaskan Native, Native Hawaiian or Other Pacific Islander.

**Data Source:** National Marrow Donor Program<sup>15</sup>

Data from: [https://bloodcell.transplant.hrsa.gov/research/transplant\\_data/registry\\_tx\\_data/longdesc/index.html](https://bloodcell.transplant.hrsa.gov/research/transplant_data/registry_tx_data/longdesc/index.html)

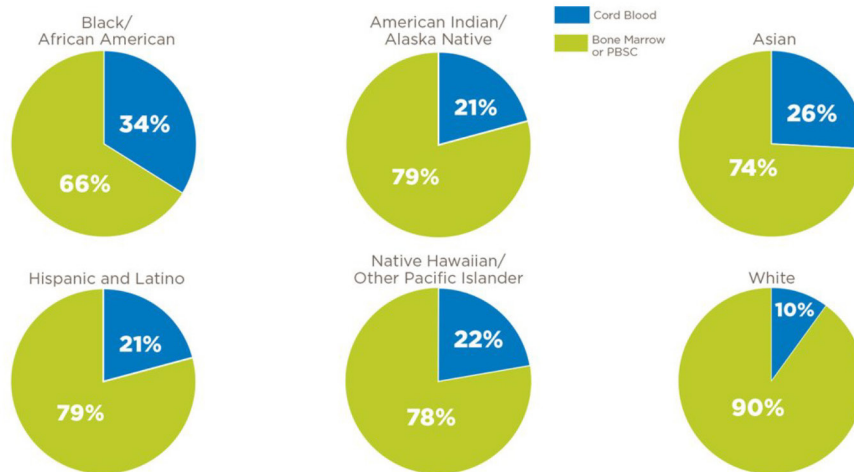


**Figure 5.12: Cord Blood Units Added to the National Cord Blood Inventory by Race/Ethnicity, 2007 - 2016**



Data Source: Internal to HRSA

**Figure 5.13: Percentages of Patients Who Received Cord Blood Transplants by Race and Ethnicity**



Data Source: National Marrow Donor Program<sup>15</sup>

## 6. Ryan White HIV/AIDS Program

### Background

For more than 25 years, HRSA has funded grants to states, cities/counties, and clinics/community-based organizations to provide HIV direct patient services, including medical care, medications, and essential support services to low-income people living with HIV (PLWH) through the Ryan White HIV/AIDS Program (RWHAP). In 2015, the RWHAP served over a half million clients, representing over half of all diagnosed PLWH in the United States.<sup>1</sup> The RWHAP has a history of developing a comprehensive system of safety net providers who deliver high-quality direct health care and support services. This is the foundation for reaching the public health goal of ending the HIV epidemic in the United States.

The program serves some of the most vulnerable; nearly two-thirds live at or below 100% of the FPL. Approximately three-quarters of RWHAP clients are racial and ethnic minorities. HIV viral suppression outcome measures demonstrate the success of the RWHAP; 83.4% of patients receiving medical care were virally suppressed<sup>2</sup> in 2015, which is a major public health benefit by reducing new infections.

The RWHAP is critical to ensuring that individuals with HIV are linked to and retained in care, are able to adhere to medication regimens, and ultimately, remain virally suppressed. This is not only crucial to improving the health outcomes of PLWH, but to preventing further transmission of the virus and, ultimately, ending the HIV epidemic.<sup>3</sup> Research studies demonstrate that PLWH adherent to antiretroviral medications who achieve viral suppression are 96% less likely to sexually transmit HIV to others.<sup>4</sup>

### HIV in the United States

In 2015, 39,513 people received an HIV diagnosis in the United States and six dependent areas.<sup>5</sup> Gay and bisexual men accounted for 66% of all newly diagnosed infections in the United States and six dependent areas and 82% of HIV diagnoses among men. Rates of HIV diagnoses

decreased for blacks/African-Americans between 2010 and 2015. However, blacks/African-Americans continue to have the highest rates of HIV diagnoses at 44.3 per 100,000 population. Most racial and ethnic groups (i.e., among Hispanics, Native Hawaiians/Pacific Islanders, and people of multiple races) experienced declines in rates of HIV diagnoses since 2010. Rates of HIV diagnoses increased for American Indians/Alaska Natives and Asians in the period from 2010 to 2014.<sup>5</sup>

In 2015, areas in the southern part of the United States continued to have a higher rate of HIV diagnoses (16.8 per 100,000 population) despite experiencing a decrease in rates between 2010 and 2014. The Northeast has the second highest rate of HIV diagnoses (11.6), followed by the West (9.8) and the Midwest (7.6).<sup>5</sup>

### Ryan White HIV/AIDS Program

The RWHAP provides a comprehensive system of care that includes HIV primary medical care, medication, and essential support services for low-income PLWH who are uninsured and underserved. The Program funds grants to states, cities/counties, and clinics/community-based organizations to provide HIV care and treatment services to more than a half million people each year. The Program reaches approximately half of all people diagnosed with HIV in the United States.

The RWHAP consists of five Parts as described in statute:

- Part A provides grant funding for medical and support services to Eligible Metropolitan Areas (EMAs) and Transitional Grant Areas (TGAs). EMAs and TGAs are population centers that are the most severely affected by the HIV epidemic.
- Part B provides grant funding to states and territories to improve the quality, availability, and organization of HIV health care and support services. Grant recipients include all 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and the 5 U.S. Pacific Territories. In addition, Part B also includes grants for the

AIDS Drug Assistance Program (ADAP), which provides access to HIV-related medications through the purchase of medication and the purchase of health insurance coverage.

- Part C provides grant funding to local community-based organizations to support outpatient HIV early intervention services and ambulatory care. Part C also funds capacity development grants, which help organizations more effectively deliver HIV care and services.
- Part D provides grant funding to support family-centered, comprehensive care to women, infants, children, and youth living with HIV.
- Part F provides grant funding that supports several demonstration models, technical assistance, and access-to-care programs. These programs include:
  - The Special Projects of National Significance Program, supporting the demonstration and evaluation of innovative models of care delivery for hard-to-reach populations;
  - The AIDS Education and Training Center Program, supporting the education and training of health care providers treating PLWH through a network of eight regional centers and two national centers;
  - The Dental Programs, providing additional funding for oral health care for people with HIV through the Dental Reimbursement Program and the Community-Based Dental Partnership Program.

Together, the Parts of the RWHAP provide a comprehensive system of direct patient services, medications, and essential support services (e.g., nonmedical case management, housing, transportation, nutritional services) that results in linkage to care, retention in care, medically appropriate treatment, and viral suppression.

The RWHAP requires all grant recipients to conduct needs assessments and to allocate resources and services based on their local process and local decision-making. This allows the RWHAP recipients to determine the HIV care and treatment service delivery system to meet patient needs based on their demographics, their health status and/or co-morbidities, the other services available through public or private health coverage, and geography, e.g., distance to an HIV care provider. Additionally, due to the “payor of last resort” provision in the RWHAP statute, recipients are

required to use the RWHAP funding only if other funds are not available for that purpose. HRSA works closely with recipients to help create a service mix that leverages existing resources to meet the needs of local communities.

## Clients Served by the Ryan White HIV/AIDS Program

Nearly three-quarters of RWHAP clients are from racial and ethnic minority populations. In 2015, 47.1% of clients identified as black/African-American, 22.7% Hispanic/Latino, and less than 2% each American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, and persons of multiple races. Whites accounted for 26.9% of clients.

The RWHAP provides life-saving care and treatment to many low-income PLWH in the United States. Nearly two-thirds of RWHAP clients are living at or below 100% of the FPL. In 2015, 65.4% of clients were living at or below 100% FPL. A higher percentage of females (74.7%) and transgender (79.8%) clients were living at or below 100% FPL, compared with male clients (61.6%).

The RWHAP client population is aging. PLWH are living longer. An aging RWHAP population is a signal that RWHAP services are beneficial—they are helping clients achieve viral suppression and live near normal life expectancies compared with people who are not living with HIV. In 2015, people aged 50 years and older accounted for 42.5% of all RWHAP clients, an increase from 33.2% of clients in 2010. In total, this amounts to an increase of over 58,423 clients aged 50 years and older during this time.

## RWHAP Health Outcomes

According to a *Clinical Infectious Diseases* study, clients receiving care and support at RWHAP-funded facilities are associated with improved outcomes (such as viral suppression), compared with other facilities.<sup>7</sup> RWHAP client-level data help HRSA, recipients, and subrecipients in better understanding the populations served and identify opportunities for innovation to improve health outcomes. RWHAP client-level data are reported to HRSA by recipients and subrecipients providing HIV care and treatment and support services. These data demonstrate the impact of the RWHAP investments in core medical services and support services across RWHAP Parts A, B, C, and D

recipients. Data reported annually in the Ryan White HIV/AIDS Program Services Report (RSR) detail the services provided, as well as client characteristics and their HIV-related health outcomes. In addition to demonstrating health outcomes, client-level data are essential for program development and innovation. HRSA uses client-level data to identify geographic areas and populations (e.g., racial and ethnic minorities) with health disparities and to measure the impact of programmatic innovation to improve health outcomes for PLWH.

Viral suppression is a widely accepted outcome measure in HIV care and treatment. Viral suppression is usually the result of ongoing, effective HIV treatment. Virally suppressed PLWH have significantly reduced morbidity and mortality related to HIV, are likely to live near-normal lifespans, and are unlikely to transmit HIV to others. Of the 340,085 RWHAP clients who had a HIV viral load test (measuring the number of copies of HIV in a person's blood) in 2015, 83.4% were virally suppressed; this is compared with the estimated 54% all of people living with diagnosed HIV in the United States.<sup>7</sup> From 2010 through 2015, the overall percentage of RWHAP clients with viral suppression increased by 13.9 percentage points, from 69.5% to 83.4% (Figure 6.1).

Viral suppression varies by state, and in particular, lower rates of viral suppression are generally noted in the South. Overall, great progress was made toward improving viral suppression among RWHAP clients across all states (Figure 6.2).

Figure 6.3 displays the change over time in percentages of RWHAP clients who are virally suppressed by race and ethnicity. All racial and ethnic groups have seen improved percentages of viral suppression between 2010 and 2015. Improved percentages of viral suppression throughout the RWHAP suggest how effective the program is ensuring positive health outcomes for clients. While the percentage of PLWH who are virally suppressed in the RWHAP have increased and racial disparities have decreased, disparities persist. The percentage of black/African-American clients in the RWHAP who achieve viral suppression is lower than the overall percentage of virally suppressed RWHAP clients. These results demonstrate

the importance of interventions to improve engagement of black/African-American clients in RWHAP care.

While the RWHAP population is aging, age-based disparities exist, although the disparities are decreasing. Younger people in the program have poorer health outcomes than other groups. Only 68.6% of youth aged 13–24 in the RWHAP achieve viral suppression. Conversely, 89.6% of RWHAP clients age 55–64 achieve viral suppression and 92.7% of RWHAP clients over the age of 65 achieve viral suppression.

Stable housing improves health outcomes for all people, especially PLWH. Approximately 10% of RWHAP clients live in temporary housing, and 5% are in unstable housing situations. Clients with unstable housing have lower percentage rates of viral suppression than clients with stable or temporary housing. In 2015, 69.3% of clients with unstable housing achieved viral suppression, compared with 78.4% of clients with temporary housing and 84.6% of clients with stable housing (Figure 6.4). Unlike many other disparities within the program, the disparities in outcomes among the unstably housed have not decreased.

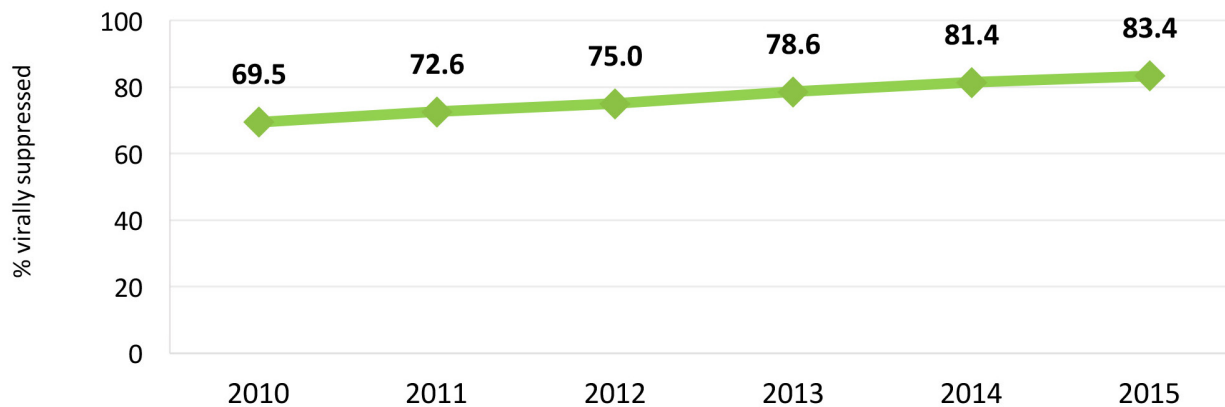
## Conclusion

Over the past 26 years, it is clear that for PLWH, in addition to the monumental advancements in medication and routine medical visits, many clients need an array of other medical and support services to remain virally suppressed. From 2010 to 2015, the overall documented rate of viral suppression in the RWHAP has improved from 69.5% to 83.4%, an increase of 13.9 percentage points. This improvement can be seen geographically as well as across race and ethnicity groups. As the disparities across many populations lessen, there remain populations among which significant disparities continue (e.g., youth and unstably housed) and will require enhanced effort and investments. The HIV/AIDS Bureau (HAB) continues to assess the disparities and identify successful interventions to improve health outcomes among all low-income PLWH served by the RWHAP.

## References/Notes

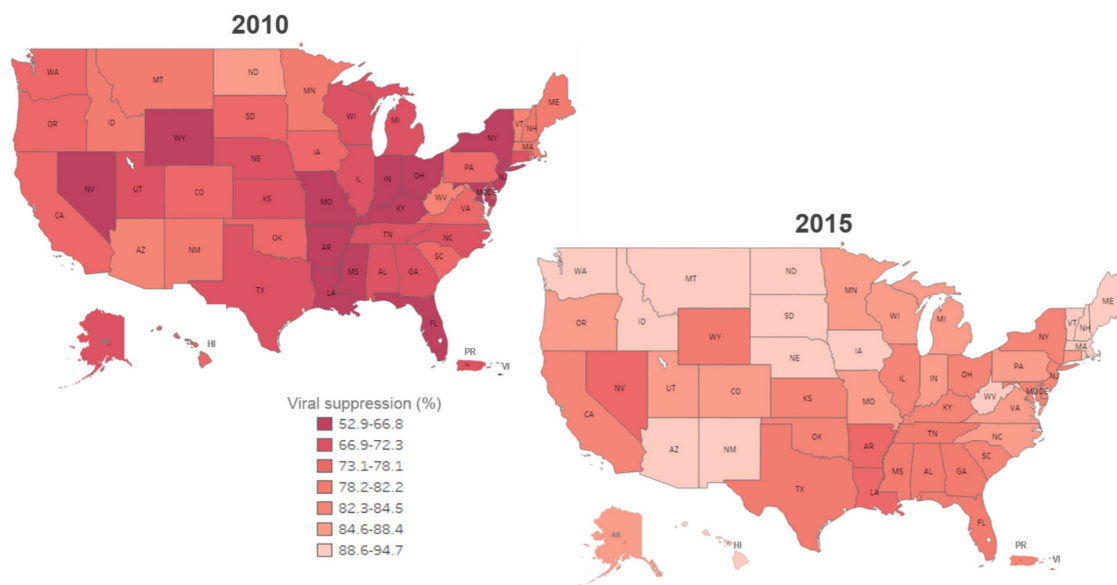
1. Health Resources and Services Administration. *Ryan White HIV/AIDS Program Annual Client-Level Data Report 2015*; December 2016. <http://hab.hrsa.gov/data/data-reports>.
2. HIV viral suppression was based on data for RWHAP clients who had at least 1 outpatient ambulatory medical care visit during the measurement year and whose most recent viral load test result was <200 copies/mL.
3. The goal of HIV treatment is to decrease viral load in PLWH, ideally to an undetectable level, known as viral suppression. When viral suppression is achieved and maintained, the risk of transmitting HIV is reduced.
4. National Institute of Allergy and Infectious Disease (NIAID). *Preventing Sexual Transmission of HIV with Anti-HIV Drugs*. In: ClinicalTrials.gov [Internet]. Bethesda (MD): National Library of Medicine (US). 2000- [cited 2016 Mar 29]. <http://clinicaltrials.gov/show/NCT00074581> NLM Identifier: NCT00074581.
5. Centers for Disease Control and Prevention. *HIV Surveillance Report*, 2015; vol. 27; November 2016. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>.
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7. Health Resources and Services Administration. *Ryan White HIV/AIDS Program Annual Client-Level Data Report 2015*; December 2016. <http://hab.hrsa.gov/data/data-reports>.

**Figure 6.1:** Viral Suppression among Clients Served by the Ryan White HIV/AIDS Program (non-ADAP), 2010–2015—United States and 3 Territories (Guam, Puerto Rico, and U.S. Virgin Islands)



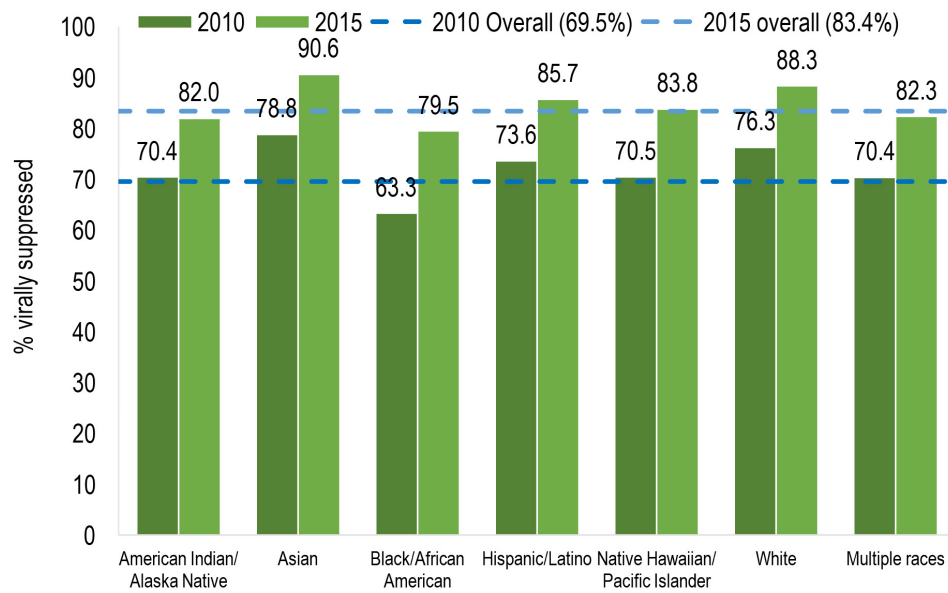
*Viral suppression:*  $\geq 1$  OAMC visit during the calendar year and  $\geq 1$  viral load reported, with the last viral load result  $< 200$  copies/mL.

**Figure 6.2:** Viral Suppression among Clients Served by the Ryan White HIV/AIDS Program (non-ADAP) by State, 2010–2015—United States and 2 Territories (Puerto Rico and U.S. Virgin Islands)



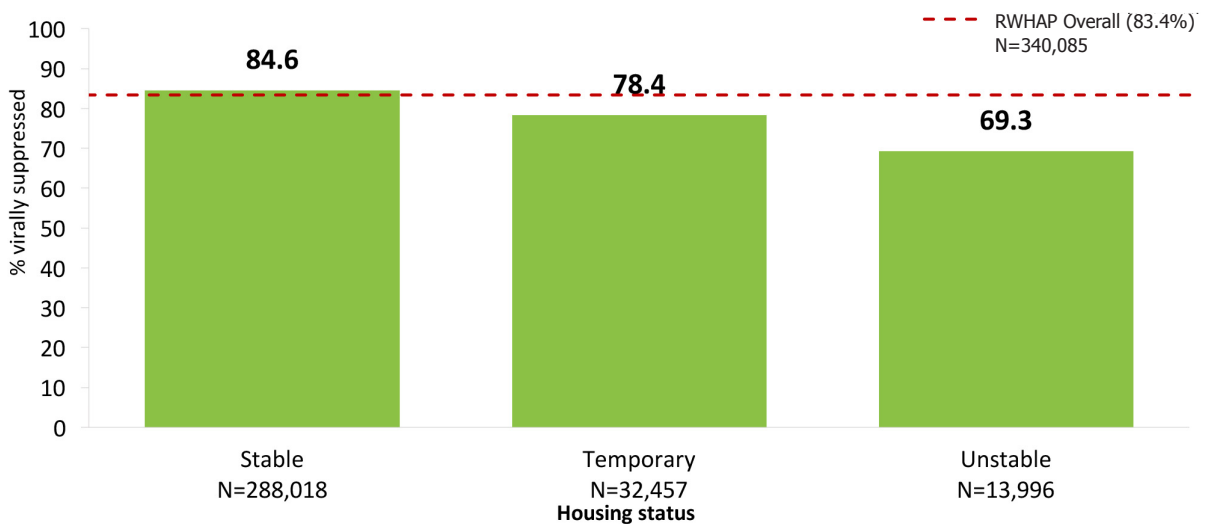
*Viral suppression:*  $\geq 1$  OAMC visit during the calendar year and  $\geq 1$  viral load reported, with the last viral load result  $< 200$  copies/mL. Due to small numbers, data for Guam are not presented.

**Figure 6.3:** Viral Suppression among Clients Served by the Ryan White HIV/AIDS Program (non-ADAP), by Race/Ethnicity, 2010–2015—United States and 3 Territories (Guam, Puerto Rico, and U.S. Virgin Islands)



Hispanics/Latinos can be of any race. *Viral suppression*:  $\geq 1$  OAMC visit during the calendar year and  $\geq 1$  viral load reported, with the last viral load result  $< 200$  copies/mL.

**Figure 6.4:** Viral Suppression among Clients Served by the Ryan White HIV/AIDS Program (non-ADAP), by Housing Status, 2015—United States and 3 Territories (Guam, Puerto Rico, and U.S. Virgin Islands)



*Viral suppression*:  $\geq 1$  OAMC visit during the calendar year and  $\geq 1$  viral load reported, with the last viral load result  $< 200$  copies/mL.

# 7. Health Workforce

## Background

The Bureau of Health Workforce (BHW) advances the mission of HRSA to improve health and achieve health equity through access to quality services, a skilled health workforce, and innovative programs.

With an annual appropriation of more than \$1.10 billion, BHW successfully administered 45 programs in FY 2016 to achieve its mission: *To improve the health of underserved and vulnerable populations by strengthening the health workforce and connecting skilled professionals to communities in need.*

The BHW's efforts are driven by three priorities:

- *Preparing a culturally competent workforce* – ensuring primary care providers across various disciplines are prepared to practice in underserved and rural communities.
- *Improving workforce distribution* – throughout the nation, particularly in underserved, rural, and tribal areas.
- *Transforming health care delivery* – fostering team-based; value-based; and patient-, family-, and population-based care, all with a focus on the integration of services and disciplines.

In FY 2016, BHW awarded more than \$1.10 billion to more than 8,600 organizations and individuals. Funding levels were nearly equal among BHW's scholarships, loans, loan repayment programs, health professions training programs, and programs supporting graduate medical education (see Figure 7.1). Nearly three-quarters of funding supported programs aimed at the preparation and development of health professionals through direct training and infrastructure support. More than a quarter of funding supported programs aimed at improving the distribution of health professionals to better meet the needs of underserved populations (see Figure 7.2). In FY 2016, funding also supported the collection and analysis of health workforce data, which inform policies regarding health workforce supply and demand.

## Health Careers Pipeline and Diversity Programs

Evidence indicates that diversity among health professionals is associated with (1) improved access to care for racial and ethnic minority patients, (2) greater patient choice and satisfaction, and (3) better patient-clinician communication.<sup>1</sup> The health workforce, however, is not representative of the racial and ethnic diversity of the population as a whole.<sup>2</sup>

A recent<sup>3</sup> review of 72 peer-reviewed research studies determined that the factors most strongly associated with primary care physicians working in underserved areas (both urban and rural) include: (1) being a racial/ethnic underrepresented minority (URM) and (2) growing up in inner city or rural area. Although URMs comprise more than 25% of the U.S. population and are projected by the Census Bureau to increase to 39% by 2050,<sup>4</sup> URMs account for approximately 13% of the physician workforce, 18% of the nursing workforce, 11% of the dental workforce, and 13% of the psychologist workforce.<sup>5</sup>

Based on the latest Census data, African-Americans represent approximately 13% of the U.S. population,<sup>6</sup> but make up only 4% of U.S. physicians.<sup>7</sup> Similarly, Hispanics/Latinos make up 16% of the U.S. population, yet only comprise 4.9% of physicians.<sup>8</sup> The number of African-American, Hispanic, and Native American students in dental schools remains disproportionately low compared with their numbers in the U.S. population. Title VII and VIII of the Public Health Services Act (PHSA) authorize several programs that are intended to increase the number of diverse, culturally competent primary care providers representing various disciplines.

Overall, the diversity programs authorized under Title VII and VIII of PHSA play a key role in supporting the pipeline of health care professionals throughout the U.S. and its Territories, and expanding the numbers of minority health care professionals. The following programs highlight how these investments are enabling individuals



from diverse backgrounds to receive training and provide services in underserved areas across the country.

### 1. Centers of Excellence (COE)

The COE Program is authorized under Title VII of PHSa to increase the supply and competencies of URM in the health professions workforce. The COE Program provides grants to health professions schools and other public and nonprofit health or educational entities to serve as innovative resource and education centers for the recruitment, training, and retention of URM students and faculty.

- In Academic Year 2015–2016, the most recent reporting period, programs and activities supported through the COE Program reached 8,482 trainees across the country. Of those, 62% were disadvantaged students and 59.8% were URM students.
  - For the URM students, approximately 30% of trainees self-identified as Hispanic, 23% self-identified as Non-Hispanic black or African-American, 3% self-identified as Non-Hispanic American Indian or Alaska Native, and approximately 3% self-identified as Non-Hispanic Native Hawaiian or Other Pacific Islander.
  - A total of 169 courses and training activities were developed or enhanced and offered to approximately 13,046 students and advanced trainees. Approximately 56.7% of these training sites were situated in primary care settings and approximately 59% were located in medically underserved communities.

### 2. Area Health Education Centers (AHEC)

The AHEC Program is authorized under Title VII of the PHSa to develop and enhance education and training networks within communities, academic institutions, and community-based organizations with the broader goal of improving health care delivery to rural and underserved areas and populations.

- In Academic Year 2015–2016, the most recent reporting period, programs and activities supported through the AHEC Program reached 408,018 trainees across the country.
  - Of those, 37% were disadvantaged students and 29.7% were URM students. AHEC grantees partnered

with more than 8,000 sites to provide clinical training experiences to student trainees (e.g., ambulatory practice sites, hospitals, and physician offices).

- Approximately 67% of these training sites were situated in primary care settings and approximately 64% were located in medically underserved communities.

### 3. Health Careers Opportunity Program (HCOP)

The goal of HCOP, authorized under Title VII of the PHSa, is to provide individuals from disadvantaged backgrounds who desire to pursue a health professions career an opportunity to develop the skills needed to successfully compete for, enter, and graduate from schools of health professions or allied health professions.

- In Academic Year 2015–2016, the most recent reporting period, programs and activities supported through HCOP reached 10,745 trainees across the country. Of those, 51.7% were disadvantaged students and 43.6% were URM students.
  - For the URM students, approximately 14% of trainees identified as Hispanic, 20% identified as Non-Hispanic black or African-American, and approximately 9% identified as Non-Hispanic American Indian or Alaska Native.
  - HCOP-supported students accrued 144,628 contact hours while training in medically underserved communities. Approximately 17% of the training sites were situated in primary care settings and approximately 67% were located in medically underserved communities.

### 4. Nursing Workforce Diversity (NWD)

The NWD Program, authorized under Title VIII of the PHSa, increases nursing education opportunities for individuals from disadvantaged backgrounds, including racial and ethnic minorities underrepresented among registered nurses.

- In Academic Year 2015–2016, the most recent reporting period, programs and activities supported through the NWD Program reached 7,337 trainees across the country. Of those, 80.3% were disadvantaged students and 42.4%

were URM students. NWD grantees partnered with over 590 different training sites during the academic year to provide more than 9,200 clinical training experiences to NWD trainees across all training programs.

- Approximately 34% of these training sites were situated in primary care settings and approximately 35% were located in medically underserved communities.

## 5. Scholarships for Disadvantaged Students (SDS)

The SDS Program, authorized under Title VII of the PHSA, provides grants to schools who use the funding for scholarships to students from disadvantaged backgrounds, enrolled in health professions programs.

- In Academic Year 2015–2016, the most recent reporting period, the SDS Program provided 4,615 scholarships—all to students from disadvantaged backgrounds—exceeding the program performance target by 46%.
  - Of the total scholarship awards, 2,993 scholarship awards went to URM students, including approximately 37% of students who self-identified as Hispanic/Latino and 26% who self-identified as Non-Hispanic black/African-American.
  - In addition, 2,151 students who received SDS-funded scholarships successfully graduated from their degree programs by the end of Academic Year 2015–2016.
  - Approximately 51.1% of the clinical training sites were situated in primary care settings and approximately 63.4% were located in medically underserved communities.

## 6. Behavioral Health Workforce Education and Training (BHWET)

The BHWET Program, authorized under Title VII of the PHSA, develops and expands the number and distribution of the behavioral health workforce to ensure an adequate supply of professional and paraprofessionals across the country (with a particular emphasis on medically underserved and rural communities).

- In Academic Year 2015–2016, 41% of these trainees reported coming from disadvantaged

backgrounds and 41% were URMs. Upon program completion, 52% of students intended to pursue training and/or employment to serve at-risk children, adolescents, and transitional-aged youth.

- BHWET grantees developed or enhanced and implemented over 470 behavioral health-related courses and training activities, reaching over 15,000 students, fellows, residents, and practicing professionals.

## Key BHW Loan and Scholarship Program Accomplishments

BHW's loan and scholarship programs improve the health of the nation's underserved by recruiting health care providers to Health Professional Shortage Areas (HPSAs). In addition, these programs also tend to attract disproportionately higher percentages of clinicians who are URM and from rural and disadvantaged backgrounds.

### 1. The National Health Service Corps (NHSC) Scholarship and Loan Repayment Programs

Over the last 45 years, more than 50,000 providers have participated in the program. The NHSC provides care to approximately 11 million medically underserved people at 5,200 NHSC-approved sites across the country. Over 23% of clinicians are serving in rural areas, which is slightly more than the 21% of the U.S. population considered rural.

The NHSC, through the scholarship and loan repayment programs listed below, helps improve the health of the nation's underserved by recruiting clinicians to provide primary health services in HPSAs of greatest need.

- *NHSC Scholarship Program (NHSC SP)*: The NHSC SP provides scholarships to pay for tuition and education-related expenses and also provides a monthly stipend for living expenses to students enrolled in accredited medical, dental, nurse practitioner (NP), certified nurse midwife, and physician assistant (PA) training. Upon graduation, scholarship recipients must commit to providing primary health care for two to four years at an approved NHSC site in a HPSA of greatest need.
- *NHSC Loan Repayment Program (NHSC LRP)*: The NHSC LRP offers fully trained primary care physicians

(MD or DO), NPs, certified nurse midwives, PAs, dentists, dental hygienists, and certain mental health clinicians up to \$50,000 to repay student loans in exchange for a commitment to provide primary health care full time for two years at an approved NHSC site in a HPSA.

The NHSC is an important recruiting and retention tool for many communities. The NHSC estimates that as of 2016, 87% of its clinicians remain in service to the underserved up to two years post-obligation (short-term retention);<sup>9</sup> and 55% remain in service to the underserved up to 10 years post-obligation (long-term retention).<sup>10</sup> In addition, a recent study<sup>11</sup> indicates that NHSC participants have better retention in HPSAs than nonparticipants.

Currently, minorities represent approximately 35.4% of the FY 2016 NHSC field strength (clinicians presently completing their service obligation) while they represented half (50.1%) of the FY 2016 NHSC pipeline (students presently in health professions programs).

#### *NHSC Field Strength Diversity Snapshot:*

- In FY 2016, African-American physicians represented 17.2% of the Corps physicians, exceeding their 4.1% share in the national physician workforce. NHSC Hispanic physicians represented 18.1% of the Corps physicians, exceeding their 4.4% share in the national physician workforce. This high level of representation among African-American and Hispanic physicians in the NHSC when compared with the national workforce has remained consistent for the past five years.
- African-Americans, Asian, and Hispanic NHSC LRP and SP participants surpassed national health care workforce averages of dentists as well as NPs.

#### *NHSC Pipeline Diversity Snapshot:*

- African-American and Hispanic NHSC SP & S2S participants exceed student enrollment averages for students participating in dentistry, medicine, and as PAs.

## **2. NHSC State Loan Repayment Program (SLRP)**

The NHSC SLRP, authorized under Title III of the PHSA, is a grant program to states and territories that provides cost-sharing grants to assist them in operating their own

state educational loan repayment programs for primary care providers working in HPSAs within their state.

- The program serves as a complement to the NHSC and provides flexibility to states to help meet their unique primary care workforce needs. State grantees have the discretion to focus on one, some, or all of the eligible primary care disciplines eligible with the NHSC.
- Eligible disciplines under SLRP may include physicians, NPs, PAs, dental professionals, and mental health professionals. The SLRP program was recently expanded to include pharmacists and registered nurses (RNs) as well.
- In FY 2016, the total field strength for SLRP was 1,378.

## **3. NHSC Students to Service Loan Repayment Program (NHSC S2S)**

The NHSC S2S program provides loan repayment to students in their last year of an accredited U.S. medical and dental school, in exchange for a commitment to provide primary health care for at least three years at an approved NHSC site in a HPSA of greatest need.

- In FY 2016, the NHSC made 92 new S2S LRP awards.

## **4. NURSE Corps**

NURSE Corps, authorized under Title VIII of the PHSA, awards scholarships and loan repayment to nurses, nursing students, and nurse faculty in exchange for a minimum commitment of two years of service at a facility experiencing a critical shortage of nurses. Both NURSE Corps scholarship and loan repayment programs award individuals based on those with the greatest financial need.

- *NURSE Corps Scholarship Program (SP):* The NURSE Corps SP makes awards to individuals from disadvantaged backgrounds with documented financial need. The Program alleviates the financial barrier that may otherwise preclude qualified applicants from pursuing a nursing career by providing scholarships to pay for tuition and education-related expenses and a monthly stipend for living expenses to nursing students. Upon graduation, scholarship recipients serve between two and four years in an eligible health care facility with a critical shortage of nurses.

- *NURSE Corps Loan Repayment Program (LRP)*: The NURSE Corps LRP assists in the recruitment and retention of professional RNs dedicated to working in health care in facilities with a critical shortage of nurses or working as nurse faculty at an eligible school of nursing. The goal is to decrease the financial barriers associated with pursuing such careers. The program offers these RNs financial assistance to repay 60% of their qualifying educational loans in exchange for two years of full-time service either at a health care facility with a critical shortage of nurses, or at an eligible school of nursing in the case of nurse faculty.

With a total FY 2016 NURSE Corps field strength of 2,016, NURSE Corps participants are employed in health care facilities in 47 states. Over 70% of NURSE Corps participants remain at the current site after fulfilling their service obligation, and approximately 53% plan to continue to work at their critical shortage facility for an additional five years. Approximately 62% of participants completing their initial two-year service commitment extended their service for one additional year.

Currently, as self-reported, minorities represent approximately 30% of the FY 2016 NURSE Corps field strength (clinicians presently completing their service obligation) while they represented nearly half (48.1%) of the FY 2016 NURSE Corps pipeline (students presently in nursing school programs).

#### *NURSE Corps Field Strength Diversity Snapshot:*

- In FY 2016, African-Americans represented 16% of nurses within the NURSE Corps, exceeding their 12.2% share in the nursing workforce. This high level of representation among African-American nurses in the NURSE Corps when compared with the national workforce has remained consistent for the past five years.
- African-American, Asian, and Hispanic advanced practices nurses in the NURSE Corps exceeded their national health care workforce averages.

#### *NURSE Corps Diversity Pipeline Snapshot:*

- All minority groups (African-American, Hispanic, Asian, Native Hawaiian/Pacific Islander, American Indian and Alaska Native) represented in the NURSE Corps pipeline exceeded NP student enrollment averages.

- African-American NURSE Corps participants exceed national student enrollment averages for nurses (25.8% NURSE Corps representation compared with 11.5% student enrollment).

## Health Professional Shortage Areas (HPSAs)

Throughout the U.S., there are geographic areas, populations, and facilities that are experiencing a shortage of health professionals. HPSAs are shortage designations that indicate health care provider shortages in Primary Care, Dental, and Behavioral Health. These shortages may be:

- *Geographic Areas* – a shortage of providers for the entire population within a defined geographic area
- *Population Groups* – a shortage of providers for a specific population group within a defined geographic area (e.g., low-income, migrant farmworkers)
- *Facilities* – Auto-HPSAs (Federally Qualified Health Centers (FQHCs), FQHC Look-A-Likes, Indian Health Facilities, and Rural Health Clinics); Correctional Facilities (federal, state, and youth detention); and State Mental Hospitals

Once designated, HRSA scores HPSAs on a scale of 0–25 for primary care and mental health, and 0–26 for dental health, with higher scores indicating greater need. Under a cooperative agreement with BHW, State Primary Care Offices (PCOs) conduct needs assessments, provide technical assistance to organizations and communities in their states seeking designations, and submit designation applications to BHW. After submission by a State PCO, BHW reviews all new or updated HPSA designation applications and makes the final determination on designation. Shortage designations help the agency prioritize and focus limited resources on the areas of highest need.

As of September 30, 2016, there were 6,463 designated primary care HPSAs, 5,390 designated dental HPSAs, and 4,472 designated mental health HPSAs (Table 7.1). Geographic mal-distribution also contributes to the shortage of primary care providers in many communities. Rural areas have less than half the number of physicians

to population compared with urban areas.<sup>12</sup> The maps in Figures 7.3, 7.4, and 7.5 display county-specific HPSA scores for primary care, dental, and mental health across the country as of December 2, 2016.

## National Center for Health Workforce Analysis (NCHWA)

BHW's National Center for Health Workforce Analysis (NCHWA) is a national resource for health workforce research, information, and data. NCHWA provides policymakers with information and data to help them make decisions regarding health workforce education, training, and delivery of care. To achieve this, NCHWA analyzes the supply, demand, distribution, education, and training of the nation's health workforce, and coordinates and manages data collection, analysis, and evaluation efforts for BHW programs.

For many years, HRSA has supported the collection and analysis of health workforce data. This data informs national, regional, and state-level health care policy. One of these data products is the Area Health Resource File (AHRF), which provides comprehensive information on a broad range of health care resources and socioeconomic indicators. The AHRF data are designed to be used by planners, policymakers, researchers, and others interested in the nation's health care delivery system and factors that may impact health status and health care in the United States. The AHRF data includes county, state, and national-level files in eight broad areas: Health Care Professions, Health Facilities, Population Characteristics, Economics, Health Professions Training, Hospital Utilization, Hospital Expenditures, and Environment. The HRSA Data Warehouse (HDW) is a website that allows users to interact with AHRF data in charts, tables/reports, maps, and tools. For more information go to <https://datawarehouse.hrsa.gov/topics/ahrf.aspx>.

### Health Workforce Projections

NCHWA's workforce projection reports and factsheets serve as critical planning resources for educators, professional organizations, funding agencies, and policy/decision makers at the local, state, and federal levels. These reports and factsheets provide information on the supply numbers for a given occupation and/or demand for that same type of health care provider, based on the utilization of health care

services. They also provide an estimate on the extent to which the supply of a particular health care profession will meet the demand nationally, regionally, and by state.

Three NCHWA projection reports that articulate the supply and demand of primary care, oral health, and behavioral health provider and the workforce required to meet population needs, are listed below. These reports also find the distribution of the workforce is variable, with some states having a higher unmet demand for multiple health professions.

### 1. National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013–2025<sup>13</sup>

This projection report suggest the U.S. supply of primary care physicians will grow slower than demand for primary care physician services, and the supply of NPs and PAs will outpace demand.

- Supply of primary care physicians is expected to grow by 22,880 FTEs—from 216,580 FTEs in 2013 to 239,460 FTEs in 2025; an 11% increase.
- The national demand for primary care physicians is projected to increase by 38,320 FTEs, from 224,780 FTEs in 2013 to 263,100 FTEs in 2025; a 17% increase.
- Estimate a shortfall of 9% of full-time physicians (23,640 out of a demand for 263,100).
- Primary care NPs and PAs supplies are projected to outpace demand at 19% for NP services and 17% for PA services.

### 2. National Projections of Supply and Demand for Selected Behavioral Health Practitioners: 2013–2025<sup>14</sup>

The report presents national projections on the supply of, and demand for, nine behavioral health practitioner disciplines for the United States in 2025: psychiatrists; behavioral health NPs; behavioral health PAs; clinical, counseling, and school psychologists; substance abuse and behavioral disorder counselors; mental health and substance abuse social workers; mental health counselors; school counselors; and marriage and family therapists.

- SAMHSA's 2013 National Survey on Drug Use and Health<sup>15</sup> reported that approximately 20% of the 2013

U.S. population had a behavioral health condition but did not receive treatment for mental illness, substance use, and/or substance dependence in 2013.

- Projections indicate 2025 shortages of 16,940 mental health and substance abuse social workers; 13,740 school counselors; 8,220 clinical, counseling, and school psychologists; 6,080 psychiatrists; and 2,440 marriage and family therapists not accounting for the 20% unmet need.
- Even greater shortages are projected under an assumption of 20% unmet with seven of the nine professions having 2025 shortages of more than 10,000 FTEs.

### 3. National and State-Level Projections of Dentists and Dental Hygienists in the U.S., 2012–2025<sup>16</sup>

Demand for dental care services is projected to grow on a national level and supply of the oral health workforce is expected to grow.

- 8,600 additional dentists (for a total of 15,600 dentists) may be required for the national supply of dentists to be adequate in 2025.
- The growth in the supply of dentists in 2025 will be smaller than that of demand, leading to an unmet demand nationally.
- This unmet demand will likely exacerbate access problems for underserved populations who forgo basic oral health care because of lack of proximity to a provider, inability to pay for care, and limited oral health literacy.
- Dental hygienist supply is projected to be more than adequate to meet the requirements in 2025, at a 10% increase. However, even with this increase, there are still projected shortages in some states.

### 4. National and State-Level Projections of Nurses in the U.S., 2014–2030<sup>17</sup>

This report presents projections of supply of and demand for RNs and licensed practical/vocational nurses (LPNs) in 2030, with 2014 serving as the base year. These projections highlight the inequitable distribution of the nursing workforce across the United States.

- The report shows that each state's 2030 RNs supply minus its 2030 demand reveals both shortages

and surpluses in RN workforce in 2030 across the United States. Projected differences between each state's 2030 supply and demand range from a shortage of 44,500 full-time employees (FTEs) in California to a surplus of 53,700 FTEs in Florida.

- States projected to experience the largest excess supply compared with demand in 2030 include Florida (53,700 FTEs), followed by Ohio (49,100 FTEs), Virginia (22,700 FTEs), and New York (18,200 FTEs).
- Thirty-three states are projected to experience a shortage—a smaller growth in the supply of LPNs relative to their state-specific demand for LPNs. States projected to experience the largest shortfalls of LPNs in 2030 include Texas, with the largest projected deficit of 33,500 FTEs, followed by Pennsylvania, with a shortage of 18,700 FTEs.

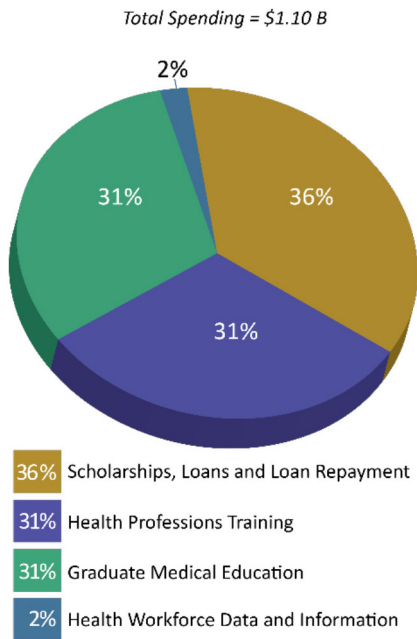
This comprehensive information on supply and demand from NCHWA helps to guide funding decisions and policy making by allowing stakeholders to predict the needs for health care professionals regionally as well as at an individual state level. Policies guided by this information can help to address the issue of the adequacy of the supply of health care professionals including in underserved communities.

## References/Notes

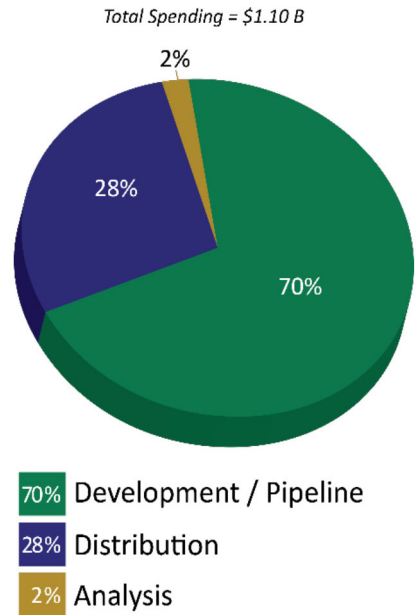
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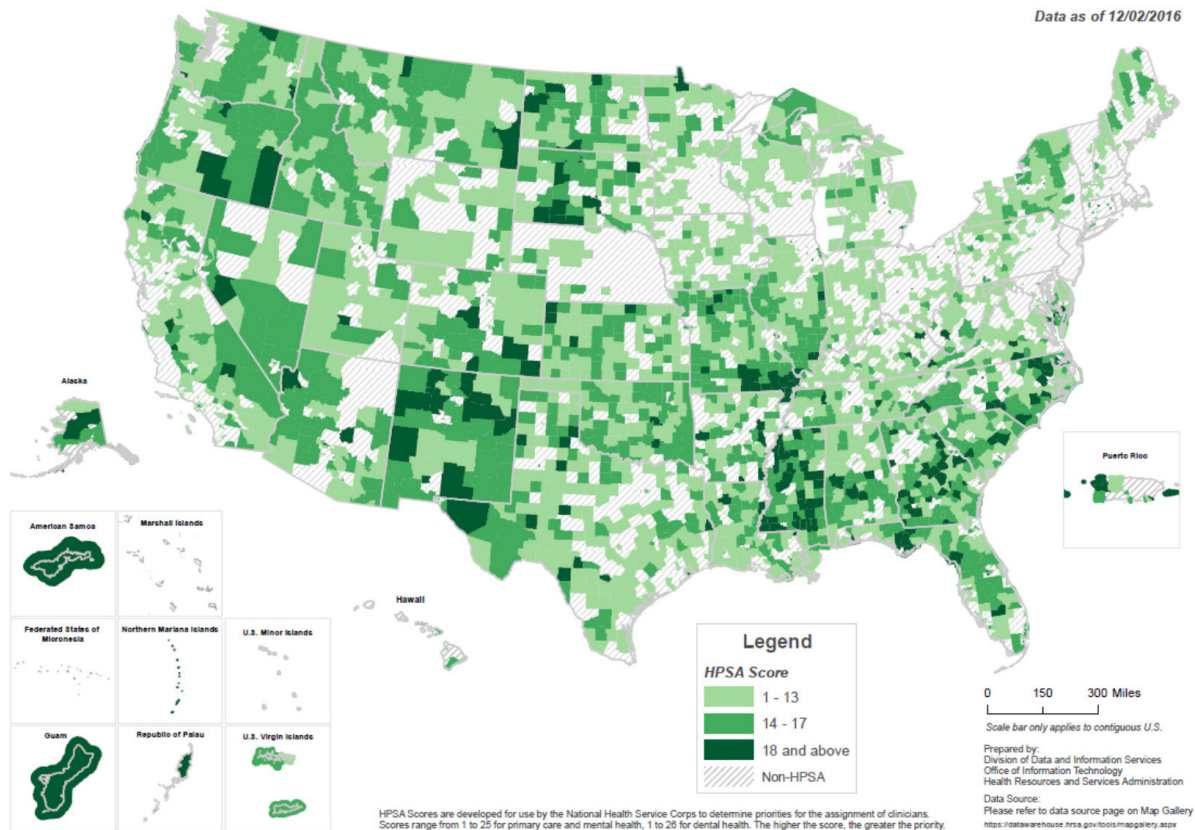
**Figure 7.1: BHW FY 2016 Program Spending by Program Type**



**Figure 7.2: BHW FY 2016 Program Spending by Program Priority**

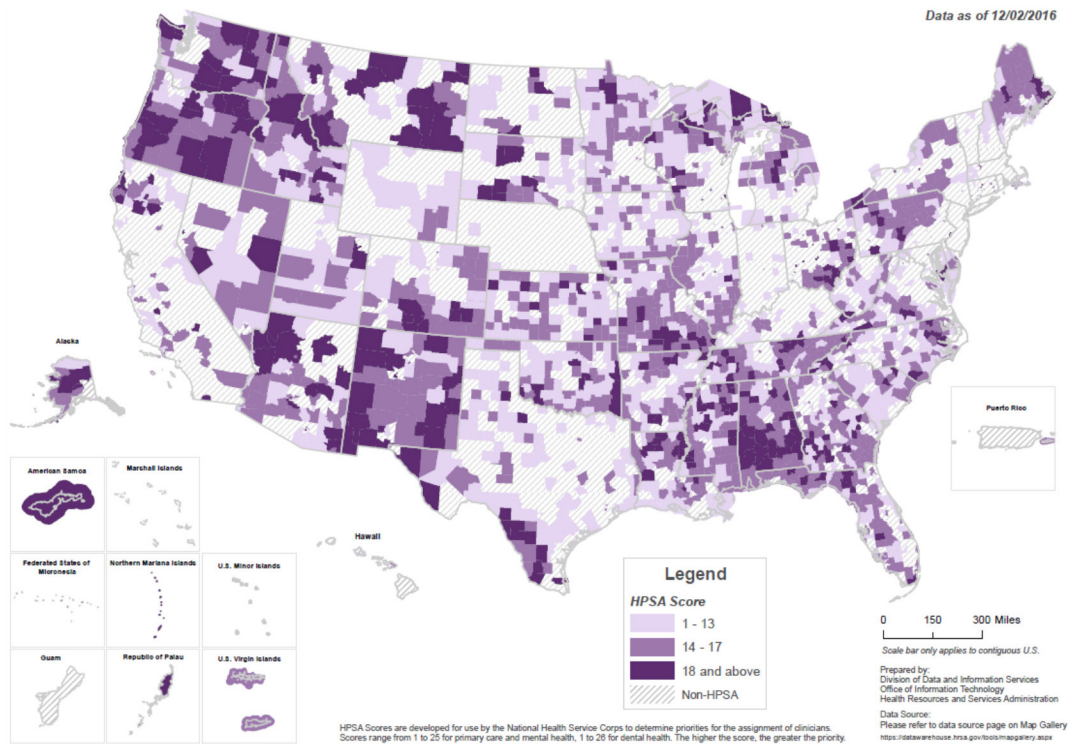


**Figure 7.3: Health Professional Shortage Areas (HPSA) – Primary Care**

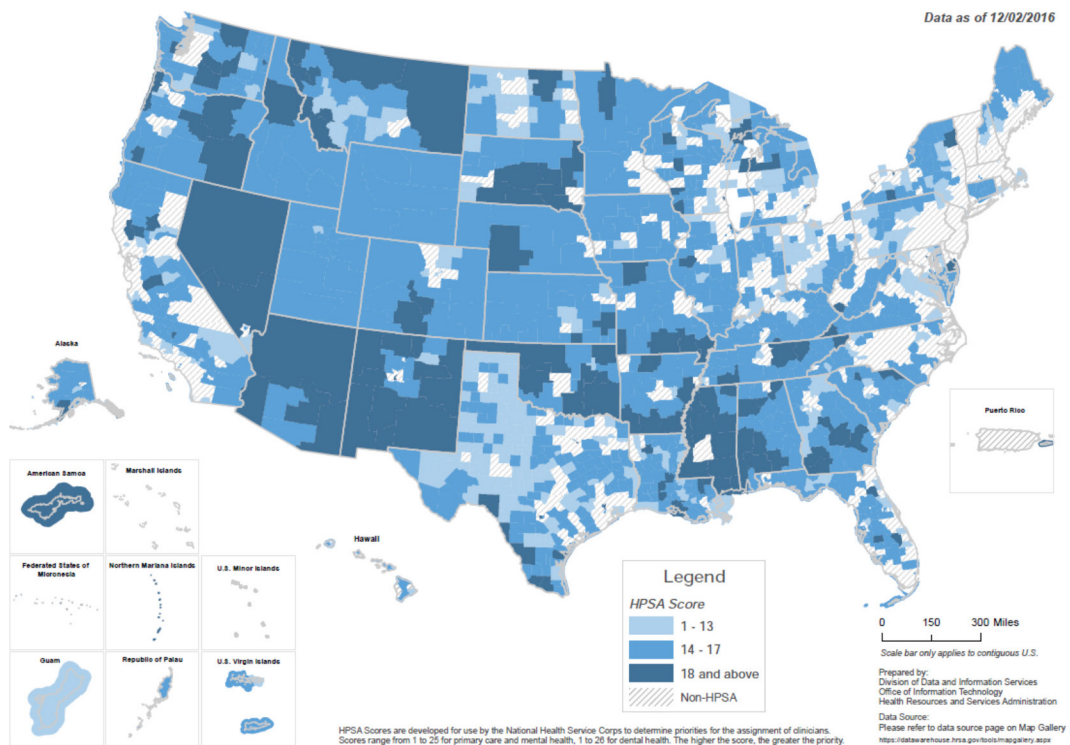




**Figure 7.4: Health Professional Shortage Areas (HPSA) – Dental Health**



**Figure 7.5: Health Professional Shortage Areas (HPSA) – Mental Health**



**Table 7.1:** Health Professional Shortage Areas: Number, Population, and Additional Practitioners Needed for Geographic Areas, Population Groups, and Facilities, as of *September 30, 2016*

	<b>Number of Designations</b>	<b>Population of Designated HPSAs</b>	<b>Percent of Need Met</b>	<b>Practitioners Needed to Remove Designation</b>
<b>Primary Medical HPSAs</b>	<b>6,463</b>	<b>62,667,316</b>	<b>57.82%</b>	<b>8,683</b>
Geographic Area	1,376	31,128,521	66.73%	3,142
Population Group	1,423	30,353,311	52.33%	4,779
Facility	3,664	1,185,484	32.32%	762
<b>Dental HPSAs</b>	<b>5,390</b>	<b>50,747,895</b>	<b>38.81%</b>	<b>7,929</b>
Geographic Area	693	14,816,362	58.32%	1,414
Population Group	1,566	34,342,787	32.46%	5,744
Facility	3,131	1,588,746	26.74%	771
<b>Mental Health HPSAs</b>	<b>4,472</b>	<b>102,541,442</b>	<b>48.11%</b>	<b>2,798</b>
Geographic Area	1,011	84,802,057	58.16%	1,434
Population Group	213	15,650,893	51.42%	300
Facility	3,24	2,088,492	20.08%	1,064

# 8. Rural-Urban Health Disparities

## Overview

The Federal Office of Rural Health Policy (FORHP) was established in 1987 under Section 711 of the Social Security Act to serve as the focal point for rural health activities in HHS (<https://www.hrsa.gov/ruralhealth/index.html>). Today, more than 56 million people live in rural America. Historically, rural communities have struggled with issues related to access to care, recruitment and retention of health care providers, and maintaining the economic viability of small rural hospitals.

FORHP plays two distinct but complementary roles within HHS. The first is to advise the Secretary on rural policy issues across the Department, including interactions with the Medicare and Medicaid programs and supporting policy-relevant research on rural health issues. The second is to administer grant programs focused on supporting and enhancing health care delivery in rural communities. By locating both functions in the same office, FORHP is able to use its policy role to inform the development of grant programs and its grant role to provide community-level perspective when assessing the impact of HHS policy on rural areas.

## Summary of FORHP Programs

### Rural Health Policy Analysis and Development

Section 711 of the Social Security Act not only established the FORHP but also provided legislative authority around rural research, policy, and dissemination work funded by the Office. FORHP funds research through its Rural Health Research Center Program; funded Research Centers produce policy-relevant research on health care and population health in rural areas, and disseminate products via the FORHP-funded Gateway ([www.ruralhealthresearch.org](http://www.ruralhealthresearch.org)). FORHP also maintains a clearinghouse for rural health policy and program information through the Rural Health Information Hub (<https://www.ruralhealthinfo.org/>).

Research on rural populations indicates that people living in rural areas have worse life expectancy and poorer

health outcomes, and face unique challenges in accessing care compared with their urban counterparts. In examining health equity within the rural population, five areas are addressed with FORHP-funded research studies produced between 2012–2017: mortality and life expectancy, health-related behaviors and risk factors, chronic disease, mental health, and health care access and use. At one point, rural and urban mortality death rates were equal, but over time the gap has been increasingly widened, particularly for poor rural communities. The reason behind this inequity is complex and extends beyond health care access, but includes an amalgam of factors including poor health habits, lack of health care infrastructure, socioeconomic disparities, and societal and cultural factors.

### Background

The all-cause death rate for the U.S. population declined over the last century.<sup>1</sup> Yet recent research has called attention to the growing rural-urban disparities in both mortality and life expectancy.<sup>2,3</sup> In the last several decades, rural and urban life expectancy and mortality have diverged and rural communities are not keeping pace with urban communities on these indicators.

There are likely several aspects to the rural-urban gap in mortality and life expectancy rates. In general, rural America is older, poorer, and sicker than urban America, all of which contribute to the rural-urban mortality gap. Because rural Americans are on average older than their urban counterparts, they are disproportionately represented in the Medicare population.<sup>4</sup> In rural areas, 18% of the population is living below the poverty threshold compared with less than 16% of the urban population.<sup>5</sup> In addition, many chronic diseases affect rural residents at higher rates than their urban counterparts. For example, the death rates for ischemic heart disease and COPD are both higher in rural areas than in urban areas.<sup>6</sup> Quality of life is lower in some rural areas. More of the rural population reports limited activity due to chronic health conditions than the urban population (17.8% rural versus 13.2% urban).<sup>6</sup>

While life expectancy and mortality are key health indicators, there are many factors that contribute to both outcomes, and health care is only one of them. Others include human social services components, socioeconomic status, and the fragmentation between health services, human services, and mental health services.<sup>6</sup>

The difference in urban and rural life expectancy begins at birth, with the highest infant mortality rate occurring in nonmetro counties without a town of 10,000 or more people.<sup>7</sup> A differential in mortality occurs across the lifespan, with nonmetro counties bearing a higher burden than metro areas.

Research shows that social circumstances and behavior have an impact on mortality and are believed to contribute to over half the determining causes of premature deaths.<sup>8</sup> Additionally, creating positive behaviors and helping individuals and families improve their social circumstances can be an effective means of preventing and addressing chronic health conditions outside of the health care system. Surpassing motor vehicle accidents for the first time in 2008, poisoning was one of the two leading causes of death by accidental injury in the United States.<sup>9</sup> Nearly 90% of poisonings are caused by drugs, including opioids. As use increases, so do potentially deadly overdoses. In rural areas, the opioid overdose rate is 45% higher than in urban areas.<sup>10,11</sup> However, likelihood of naloxone administration was only 23% higher in rural areas.<sup>10</sup>

The opioid use epidemic in rural areas has directed more attention to the shortfall of substance abuse treatment providers and facilities in the rural U.S. SAMHSA's Mental Health Report 2010 reports that states with proportionally large rural populations compared with urban populations have greater shortages of mental health providers and fewer facilities to provide treatment services.<sup>12</sup> Although family doctors, psychologists, social workers, and pastors may be available in rural areas for delivering basic substance abuse services or social support, facilities available in rural areas that provide comprehensive substance abuse treatment services may be limited.

According to the 2014 Substance Use & Misuse article, *Barriers to Substance Abuse Treatment in Rural and Urban Communities: Counselor Perspectives*, rural areas lack basic substance abuse treatment services as

well as the supplemental services necessary for positive outcomes. Detoxification (detox) services, for example, provide the initial treatment for patients to minimize any medical or physical harm caused by substance abuse. However, the vast majority (82%) of rural residents live in counties that do not have detox services.<sup>13</sup>

Both CVD and unintentional injuries can be the result of lifestyle choices made by individuals. Yet, access to preventive services and mental health care can affect behavior and reduce the chance of mortality, which emphasizes the need for access to primary and behavioral health care in rural areas.

For the United States, infant mortality rates are lowest in fringe counties of large metro areas. In 2015, nonmetro counties had a 15% higher infant mortality rate than metro counties. The most rural counties (i.e., noncore, nonmetro counties) had the highest infant mortality rate, about 32% higher than the rate for fringe counties of large metro areas (Figure 8.1).

Death rates for working-age adults (ages 25–64 years) were lowest in fringe counties of large metro areas and highest in the most rural nonmetro counties (Figure 8.2). In 2015, nonmetro counties, overall, had 34% higher working-age mortality than metro counties. Compared with fringe counties of large metro areas, working-age mortality was 57% greater in the most rural nonmetro counties.

The higher mortality and lower life expectancy in rural areas are driven by multiple factors. In rural communities, where the infrastructure for health and social services is limited, there is a need to provide incentives to better integrate health and human services programs. Access to health care continues to be a challenge in rural America, but even in areas where access is no longer as much of a barrier, health outcomes are still poor. Addressing these long-standing disparities will require more than the traditional solutions of finding clinicians, building more facilities, and expanding clinical services. Many of these communities are dealing with the impact of multigeneration poverty exacerbated by limited economic opportunities and education challenges. The situation is made yet more challenging due to a growing problem with drug abuse.

HHS has focused on increasing access to health care in rural America by increasing the number of providers there, such as community health centers, expansion of the National Health Service Corps, and increasing reimbursement for rural providers. However, access to care alone is not enough to deal with problems including mortality and life expectancy of populations. New approaches must strengthen the delivery system while integrating primary, specialty, substance abuse, and mental health services with human services, including economic development, employment, housing, transportation, and education.<sup>14</sup>

### Health-Related Behaviors and Risk Factors

Rural counties face unique challenges in improving health behaviors that lead to risk reduction of disease burden and disability.

#### Smoking

From 1965 to 2011, the percentage of adults smoking declined from 42% to 19%.<sup>15</sup> Similar trends followed in the adolescent community with 28% in 1991 to 18% in 2011.<sup>16</sup> These trends are promising, particularly because smoking is the most preventable cause of disease and death in the U.S.<sup>17</sup> While general use of cigarettes has been declining, rural areas see a higher burden of this behavior. Higher rates of smoking in rural populations may be contributing to the widening rural-urban differences in smoking-related causes of death including COPD, lung cancer, heart disease, and stroke.<sup>2</sup> Nationally, from 2010–2011, adolescents (12–17 years of age) living in the most rural counties have the highest rates of current cigarette use, defined as smoking one or more days in the past month. In central counties of large metro areas, only 5% of adolescents smoke, compared with 11% in noncore, nonmetro counties.<sup>6</sup>

Adults living in nonmetro counties saw the highest rates of smoking, with a national average of 25% for women and 29% for men, compared with 13% for women and 19% for men in central counties of large metro areas.<sup>6</sup>

In addition to adolescents, another population whose smoking habits have far-reaching effects are mothers. Rural mothers are significantly more likely than their urban counterparts to be smokers, to smoke frequently, and to smoke heavily, even after adjusting

for factors known to increase smoking risk. Single mothers living in rural areas have much higher rates (almost 50%) than urban, married mothers (14.4%).<sup>18</sup>

#### Alcohol Use

With excessive alcohol consumption, there are both immediate and long-term health risks. Immediate risks of excessive alcohol use, consuming five or more alcoholic drinks in one day, include unintentional injuries like traffic accidents, domestic violence, risky sexual behaviors, and alcohol poisoning. Long-term health risks include neurological problems, cardiovascular problems, psychiatric problems, social problems, increased cancer risk, and liver diseases.<sup>19</sup> Nationally, compared with women, men were twice as likely to have consumed more than five alcoholic drinks in one day in the last year, and the proportion of adults ages 18 to 49 years consuming this amount varied little by urbanization.<sup>6</sup> However, there were trends that men and women living in central counties of large metro areas were least likely to report this level of alcohol consumption compared with those living in counties at other urbanization levels, in all regions except the South. The West is the one region where men and women living in nonmetro counties were most likely to report having consumed five or more drinks in one day in the last year compared with other urbanization levels.<sup>6</sup>

#### Obesity

Obesity is a growing public health concern both due to the link to diabetes, heart disease, cancer, and arthritis, and due to its increased prevalence in the U.S. From 1960 to 2010, the proportion of adults who are overweight or obese increased from 45% to 69%.<sup>20</sup> Self-reported obesity between 2010–2011 showed increases with levels of rurality, with the highest rates observed in the most rural counties, showing a prevalence of 40% of women and 35% of men self-reporting obesity.<sup>6</sup>

#### Physical Inactivity

As a protective behavior health factor, physical activity can offer benefits such as reduced risk for CVD, diabetes, obesity, some cancers, and musculoskeletal conditions.<sup>21</sup> National averages depict that inactivity during leisure time is most common for men and women in the most rural counties.<sup>6</sup> However, there are different regional patterns.

In the Northeast, leisure time inactivity was highest in central counties of large metro areas. Additionally, within each region the trends for men and women tended to be similar across urbanization levels, with the exception of the West, where inactivity rates among men were highest in nonmetro counties (28%) compared with the highest in central counties of large metro areas among women (29%).<sup>6</sup>

### Opioid Abuse

As opioid use disorders gain national attention, there is particular need to understand the rural-specific effects and challenges. Challenges that are unique to rural health care, for instance, access to care, fewer providers, and fewer insured, create barriers for rural populations trying to combat opioid use disorders. In 2014, more people died from drug overdoses than in any other year on record, with six out of 10 of overdose deaths involving an opioid.<sup>22</sup> Concurrently, the rates of fatal opioid overdoses in rural areas have seen an unprecedented rate increase from 2012 to 2014 and now are as high or higher than rates in metro areas,<sup>23</sup> and multiple studies document a higher prevalence rate among specific vulnerable rural populations (for instance, youth, women who are pregnant or experiencing partner violence, and persons with co-occurring disorders).<sup>24</sup> Additionally, men in rural areas are using more opioids than women in rural areas, but more women are dying from opioid overdose. Another factor of concern is that “many rural opioid users were more likely to have socioeconomic vulnerabilities that might put them at risk of adverse outcomes. Limited educational attainment, poor health status, being uninsured and low-income are all socioeconomic factors related to substance use disorder. These sociodemographic identifiers of rural opiate users have potential implications for family outcomes ranging from adverse experiences, decreased family earning potential, limited professional employment, encounters with law enforcement and the involvement of child welfare services.”<sup>24</sup> Coupled with greater shortages of mental health providers and fewer facilities to provide comprehensive treatment services, this creates unique challenges to achieving positive outcomes in rural communities.<sup>24</sup>

### **Chronic Disease**

#### Heart Disease

Heart disease ranks as the number one cause of death in the United States, with ischemic heart disease accounting

for more than 60% of heart disease deaths.<sup>25</sup> Ischemic heart disease death rates for both men and women aged  $\geq 20$  years were the greatest in the most rural counties.<sup>6</sup>

#### Chronic Obstructive Pulmonary Diseases

Chronic obstructive pulmonary diseases and allied conditions (COPD), the third leading cause of death in the U.S., are diseases that obstruct airflow, such as chronic bronchitis, emphysema, and asthma.<sup>6</sup> The disease claimed over 138,000 lives in 2010.<sup>25</sup> Cigarette smoking is the most important risk factor for COPD. Occupational exposure to airborne pollutants, such as solvents and dusts, also contributes to COPD.<sup>26</sup> Nationwide, the age-adjusted COPD death rate for men 20 years and older from 2008–2010 increased as urbanization decreased (from 64 deaths per 100,000 population in central counties of large metro areas to 101 deaths per 100,000 in the most rural counties). A similar pattern held true for women (from 51 deaths per 100,000 population in central counties of large metro areas to 70 deaths per 100,000 in nonmetro counties).<sup>6</sup>

#### Diabetes

Rural populations generally have poorer health,<sup>27</sup> and higher rates of diabetes,<sup>28</sup> while at the same time confronting multiple access barriers such as poverty, inadequate insurance coverage, provider supply shortages, and limited area resources.<sup>29</sup> As a result of these barriers, people with diabetes access recommended preventive care at lower rates in rural than in urban settings.

### **Mental Health**

In 2011, there were approximately 45.6 million adults aged 18 or older (nearly 20% of the adult population) in the United States with a mental illness, considered any mental, behavioral, or emotional disorder that has been diagnosed in the past year.<sup>30</sup>

Differences existed between gender and among urbanization levels between 2010–2011. Among women in central counties of large metro areas, 20% reported having any mental illness in the past year compared with 24% in nonmetro counties, different than for men, where the gap between metro and nonmetro areas was not as pronounced (14% of men in central counties of large metro areas vs. 15% in nonmetro areas).<sup>6</sup>

The percentage of adult men and women who reported having a serious mental illness in the past year increased with increasing rurality, similar to the percentage of adults with serious psychological distress in the past 30 days, where it was lowest in fringe counties of large metro areas and highest in nonmetro counties.<sup>6</sup>

### Health Care Access and Use

Ensuring access to health care in rural areas has been a long-standing challenge. In many rural areas of the country, the lack of health care providers is exacerbated by rural residents' lack of comprehensive health insurance coverage.

In 2010–2011, lack of health insurance among nonelderly Americans was most common in the most rural counties. Nonelderly persons with incomes below 200% of the FPL were more than twice as likely to be uninsured compared with higher income persons across all urbanization levels.<sup>6</sup>

One study found that the share of adults in rural areas with coverage increased from 78.4% in June/September 2013 to 85.6% in December 2014/March 2015.<sup>31</sup> By the middle of 2016, individuals in rural areas had seen improvements in access to care. The share who reported being unable to afford needed care declined by nearly 6 percentage points from before the first ACA open enrollment period through early 2015.<sup>32</sup>

Even with the increase in the rural population that has some form of health insurance coverage, the problem of lack of rural providers remains.

Over 60% of designated Primary Care, Dental Health and Mental Health Health Professional Shortage Areas (HPSAs) in the United States are rural.<sup>33</sup> The lack of providers in rural areas forces residents to travel farther to obtain needed services. Specialists are in particularly short supply in rural areas.<sup>6</sup>

A general rule of thumb has been that while rural Americans represent around 19–20% of the population, only 10% of physicians practice in rural areas.<sup>34</sup> The picture is somewhat better for primary care physicians. The average is 6.8 primary care physicians per 10,000 in rural areas and 8.4 per 10,000 in urban areas.<sup>35</sup>

The distribution of dental health and mental health providers is considerably worse, with rural areas having far fewer providers than urban areas. Data from 2007 shows that the supply of dentists generally decreased as urbanization decreased. The supply of dentists ranged from 83 dentists per 100,000 population in central counties of large metro areas to 30 in the most rural counties.<sup>6</sup>

The situation for provision of mental health services is more severe, with 80% of noncore counties in the U.S. having no psychiatrists and 35% of micropolitan counties having none.

Until there are sufficient providers in rural areas, even the expansion of health insurance coverage will still leave rural residents with limited options to receive care.

## FORHP Programs

### Community-Based Division

The Community-Based Division works to provide funding to increase access to care in rural communities and to address their unique health care challenges. Currently, the programs include the Rural Health Care Services Outreach, Rural Network, Delta States Network Grant Program, Quality Improvement, Black Lung Clinics, and Radiation Exposure Screening and Education Grant Programs.

These grant programs improve access to care, coordination of care, integration of services, and quality improvement. These noncategorical grants give flexibility to grantees to determine the best way to meet local need. Grantees are required to use a promising practice or evidence-based model and develop a sustainability plan that will allow the services to continue in the community after funding has ended.

FORHP emphasized three elements within Outreach, Network, and Quality Improvement grant programs over the past eight years: (1) building the rural evidence base, (2) sustainability, and (3) assessing economic impact. In FY 15, more than 800,000 individuals received direct services through the program and 100% of the grantees reported having sustained all or some of their programs, exceeding the target of 65%.

### **Rural Health Care Services Outreach Grant Programs**

Rural Health Care Services Outreach grant programs focus on improving access to and coordination of care in rural communities through the work of community coalitions and partnerships. Outreach grants can focus on a broad range of issues as determined by the community, such as disease prevention and health promotion, and support expansion of services such as primary care, mental and behavioral health, and oral health care services.

### **Rural Network Development Grant Programs**

Rural Network Development grants support building regional or local partnerships among local hospitals, physician groups, long-term care facilities, and public health agencies to improve management of scarce health care resources.

A component of this program, Network Planning Grants bring together key parts of a rural health care delivery system (hospitals, clinics, public health, etc.) so they can work together to address local health care challenges.

### **Small Health Care Provider Quality Improvement Program**

The Small Health Care Provider Quality Improvement program helps to improve patient care and chronic disease outcomes by assisting rural primary care providers with the implementation of quality improvement activities. Program objectives include developing more coordinated delivery of care, enhanced chronic disease management, and improved health outcomes for patients. An additional goal of the program is to prepare rural health care providers for quality reporting and pay-for-performance programs.

### **Delta States Network Grant Program**

The Delta States Network Grant Program provides network development grants to the eight states in the Mississippi Delta for network and rural health infrastructure development. The program supports chronic disease management, oral health services, and recruitment and retention efforts. This program is geographically targeted, given the health care disparities across the eight-state Delta region. The program requires all grantees to support diabetes, CVD, and obesity, and

to develop a program based on a promising practice or evidence-based model.

### **Black Lung Clinics Program**

The Black Lung Clinics Program provides grant funds to eligible public and private entities, including community-based organizations, for the purpose of establishing and operating clinics that provide for the outreach, education, diagnosis, treatment, and rehabilitation of active, inactive, disabled, and retired coal miners. To assist in the longer-term need faced by those miners with severe disability because of black lung disease, grantees can also assist coal miners and their families in preparing the detailed information needed to apply for the Federal Black Lung benefits from the Department of Labor.

### **Radiation Exposure Screening and Education Program**

The Radiation Exposure Screening and Education Program provides grants to states, local governments, and appropriate health care organizations to support programs for cancer screening for individuals adversely affected by the mining, transport, and processing of uranium and the testing of nuclear weapons. Grantees help clients with appropriate medical referrals, engage in public information development and dissemination, and facilitate claims documentation to aid individuals who may wish to apply for support under the Radiation Exposure Compensation Act.

### **Hospital State Division**

The Hospital State Division works to enhance access to quality care by supporting states with resources to strengthen the rural health infrastructure. This includes ensuring a focal point in all 50 states through the State Office of Rural Health grant program. It also includes state programs focused on supporting rural hospitals through the Medicare Rural Hospital Flexibility Grant (Flex) Program and the Small Rural Hospital Improvement Grant (SHIP) Program.

### **State Offices of Rural Health**

The State Office of Rural Health (SORH) Grant Program creates a focal point for rural health issues within each state, linking communities with state, federal, and nonprofit resources and helping to find long-term solutions. Depending on the needs in each state, SORHs may help



keep providers aware of new health care initiatives, collect and disseminate data and resources, offer technical assistance for funding and quality improvement, and support workforce recruitment and retention.

### Rural Hospital Flexibility Grants

Three Rural Hospital Flexibility Grant programs fund a range of activities to assist Critical Access Hospitals (CAHs) and eligible small rural hospitals.

- **The Medicare Rural Hospital Flexibility Program.** Provides support and technical assistance to more than 1,300 CAHs in 45 states on quality reporting and improvement initiatives, helping eligible rural hospitals convert to CAH status and enhancing emergency medical services.
- **Small Rural Hospital Improvement Program.** This grant program provides funding for rural hospitals with 49 beds or fewer for investments in hardware, software, and related training efforts to act as a catalyst to assist in the adaptation to changing payment systems and movement toward value, including: Valued Based Purchasing, Shared Savings, Payment Bundling, and Implementation of Prospective Payment Systems. These facilities often lack the administrative capacity or the cash reserves to consistently meet new and emerging requirements.
- **Flex Rural Veterans Health Access Program.** Administered in collaboration with the Department of Veterans Affairs Office of Rural Health, provides competitive grants to Alaska, Missouri, and South Carolina, which are states with a high percentage of veterans compared with the total population. These grants focus on increasing the delivery of health services, particularly mental health, to veterans living in rural areas through the use of health information technology.

The Flex Program played a key role in ensuring that CAHs are aligned with key quality initiatives across the Medicare program. CAHs are exempt from the Centers for Medicare & Medicaid Services (CMS) quality data reporting requirements, but through the Flex Program, FORHP created a pathway for CAHs to submit quality data and use that information to demonstrate areas of high quality and identify areas for improvement. This pathway, the Medicare Beneficiary Quality Improvement Project, is a recognized National

Quality Strategy program that began as a voluntary initiative in FY 2010 and became a required activity in FY 2015. In CY 2016, 96% of CAHs reported at least one Medicare Beneficiary Quality Improvement measure.

### Office for the Advancement of Telehealth

Telehealth is critical in rural and other remote areas that lack access to health care services. FORHP's Office for the Advancement of Telehealth (OAT) promotes the use of telehealth technologies for health care delivery, education, and health information services. Expanding the use of telehealth technologies in rural areas helps to link rural health care providers with specialists in urban areas, thereby increasing access and improving the quality of health care provided to rural communities. OAT funds multiple grant programs that support telehealth networks to expand sites and services, provide technical assistance around the effective use of telehealth, and conduct research. These programs include:

Telehealth Network Grant Program (TNGP): The primary objective of the TNGP is to help communities build the human, technical, and financial capacity to develop sustainable telehealth programs and networks and to assess the value of telehealth through evaluation of how services delivered via telehealth compare to face-to-face provision of health care services.

Telehealth Resource Centers (TRCs): The TRCs assist health care organizations, networks, and health care providers with implementing cost-effective telehealth programs to serve rural and medically underserved areas and populations. There are two national TRCs, one focusing on policy and the other on technology, and 12 Regional TRCs.

Evidence-Based Tele-Emergency Network Grant Program (EB-TNGP): EB-TNGP supports the implementation and evaluation of broad telehealth networks to deliver 24-hour emergency department consultation services via telehealth to rural providers that lack emergency care specialists.

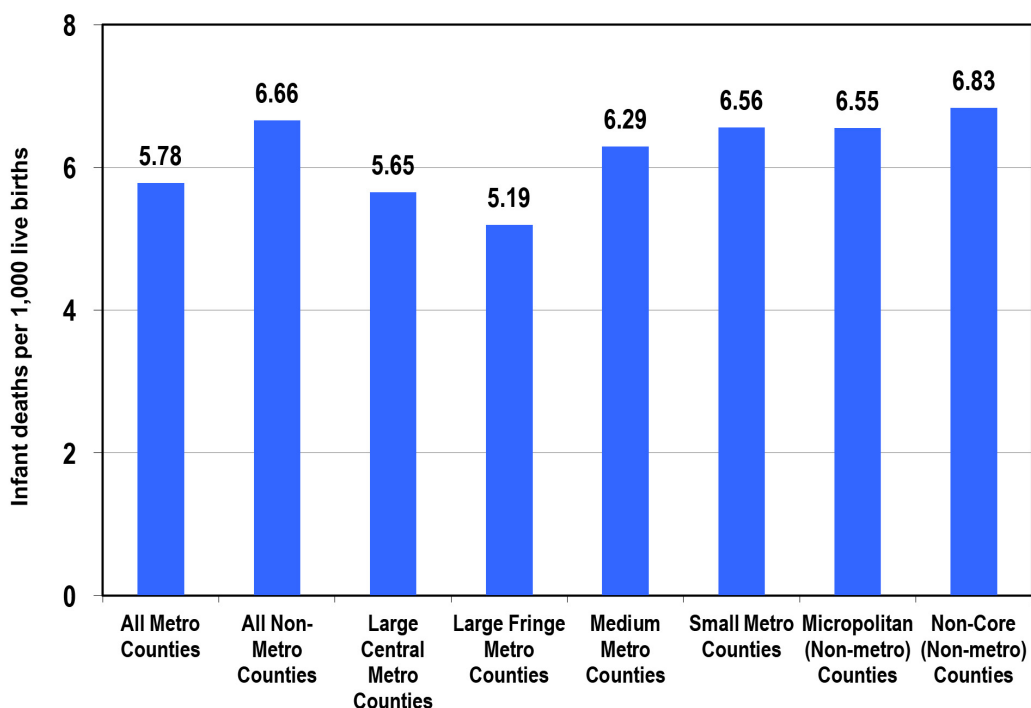
Licensure Portability Grant Program (LPGP): The LPGP awards grants to national professional licensing boards to develop and implement state policies that will reduce statutory and regulatory barriers for clinicians using telehealth who are practicing in multiple states.

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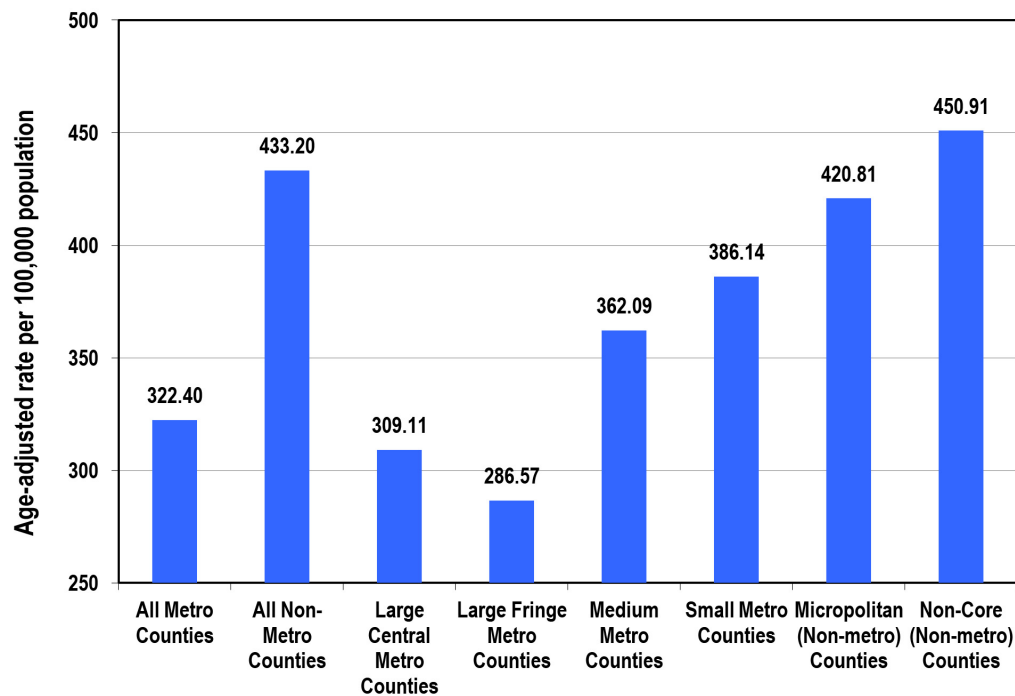
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**Figure 8.1: Infant Mortality Rates by Urbanization Level, United States, 2015**



Source: CDC/NCHS. National Vital Statistics System.

**Figure 8.2: Age-Adjusted Mortality Rates for Population Aged 25–64 Years by Urbanization Level, United States, 2015**



Source: CDC/NCHS. National Vital Statistics System.

## 9. Summary, Conclusions, and Future Directions

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The Health Equity Report presents a comprehensive analysis of HRSA's program efforts in reducing health disparities and promoting health equity for various populations at the national, state, and local levels. The Report addresses HRSA's key Strategic Plan goals such as improving access to quality health care and services, strengthening the health workforce, building healthy communities, and improving health equity.

The Report presents analyses of various health equity trends affecting the nation's diverse, vulnerable, and socially disadvantaged populations. Trends in health disparities and improvements in health equity are presented for a number of program areas, including maternal and child health, primary health care access and quality, HIV/AIDS, mental and behavioral health, chronic disease prevention and health promotion, health workforce, and rural-urban and geographic disparities. Also addressed are patterns of disparities in three priority areas for the Department of Health and Human Services: mental health, opioid use, and childhood obesity. Health equity analyses are conducted using a variety of national and HRSA program databases, often stratified by important socioeconomic and demographic characteristics such as gender, race/ethnicity, family structure, education, income, employment status, rural-urban residence, and geographic area/location. On several health outcomes and performance measures, the HRSA programs outperform the national trends by providing greater access to preventive health services, social services, and needed medical care to the underserved and disadvantaged populations and communities in the United States.

Although substantial progress has been made in improving the health and well-being of all Americans, health inequities between population groups and geographic areas have persisted and remain marked. Disparities are found in a number of health indicators, including infant mortality, life expectancy, cardiovascular disease, cancer, diabetes, chronic obstructive pulmonary disease, HIV/AIDS,

health care access and utilization, health insurance, disability, mental health, preventive health services such as cervical, breast, and colorectal cancer screening, smoking, obesity, substance use, suicide, homicide, and unintentional injuries. Causes of these disparities are multifactorial in nature. Research indicates that differences in social and built environments, socioeconomic and living conditions, health-risk behaviors such as tobacco use, obesity, lack of access to healthy foods, and access to and use of quality health care services are important social determinants contributing to persistent health disparities between population groups and geographic areas.<sup>1,2</sup>

Although reduced smoking, greater physical activity, lower obesity, healthy diet, higher seatbelt use, avoiding substance use, and improved access to and use of health care services can lead to improvements in population health and health equity, these factors are themselves primarily influenced by broader, more upstream social determinants such as education, income, social and welfare services, affordable housing, job creation, labor market opportunities, and transportation. Addressing inequities in these social determinants should be an important area of focus from both research and policy standpoints. Since policy action on many of the social determinants goes beyond the health sector and since health inequities are multifaceted, a multisectoral approach involving health, education, nutrition, housing, urban planning, transportation, and economic sectors is needed to effectively tackle health inequalities.<sup>2,3</sup> Such an approach calls for increased collaboration between public and private sectors and various stakeholders including state and local agencies, and emphasizes the need for community-based approaches to reducing health disparities in the United States.<sup>2,4</sup> Healthy Start, Home Visiting, and Title V MCH Block Grant Programs are excellent examples of HRSA's community-based programs that emphasize investments in early child development, leading to positive health outcomes not only during childhood but throughout the life course. HRSA's other health care programs, particularly the Health

Center Program, work to mitigate adverse health effects of social disadvantage, poverty, and unfavorable living conditions by providing increased access to health and social services to vulnerable populations who otherwise would lack or be unable to afford such services.

Systematic monitoring and analysis of health inequalities data are crucial to understanding the level of health improvement for the nation and HRSA program areas and for identifying persistent and emerging patterns of health disparities. Empirical data are essential for evaluating programs and for informing intervention efforts.<sup>4</sup> To facilitate such monitoring and analysis, it is imperative that the HRSA programs strive toward collecting and reporting health equity data by important socioeconomic, demographic, and community characteristics on a consistent basis. At the minimum, the program data should be collected for the broad racial/ethnic groups (non-Hispanic whites, African-Americans/blacks, American Indians/Alaska Natives, Asians and Pacific Islanders, and Hispanics) by gender, socioeconomic status (education, income/poverty status, occupation, and employment status), rural-urban residence, geographic region, state or county, and disability status. Program data should be more broadly available so that the effectiveness of programs in promoting health equity and improved outcomes can be better assessed at the local and community level. To the extent possible, program data should be collected at the individual or patient level. This would allow policy analysts and program managers greater flexibility in analyzing and reporting data that are more suited for program planning and evidence-based decision-making. When program data are only available at the aggregate level (e.g., state or county level), efforts should be made to analyze and report such data in conjunction with census-based socioeconomic and demographic data at the area level. Use of standard measures of health equity/disparity across HRSA programs is vital for better reporting of population health and equity data over time. Examples of such measures may include reporting the number and proportion of individuals from specific racial/ethnic, socioeconomic, or demographic groups; the absolute and relative (percentage) increases in the number of program participants served over time or between time periods; and rate ratio or prevalence ratio defined as the rate or prevalence of a specific health, health care, or social outcome/indicator, or process measure for a specific demographic group to that for another group.

The Health Equity Report is a dynamic and ongoing project, with plans to update national- and HRSA program-level health and sociodemographic data and related narratives on a biennial basis. While routine updates of the data and topics reported here will be considered, future editions of the Report might explore in-depth a specific health equity theme or an emerging public health issue.

It is hoped that health equity data and information presented in this Report would be useful for a wide variety of audiences, including the HRSA leadership and program managers, other HHS and federal government agencies, state and local governments and communities, policy and decision makers, public health organizations, health practitioners, grantees, academic institutions, and researchers.

The major highlights from the Report are listed below:

### Health Disparities at the National Level

- Life expectancy of Americans increased from 69.7 years in 1950 to 78.8 years in 2014. However, disparities have persisted. In 2014, life expectancy was 75.6 years for blacks compared with 79.0 years for whites.
- Life expectancy is lower in rural areas. It varies from 77.0 years in the most rural counties to 79.5 years in the most urban counties.
- During the past several decades, infant mortality rates have decreased greatly for all groups. However, racial disparities have continued to increase in relative terms. In 2014, the mortality rate for black infants was 11.1 per 1,000 live births, 2.3 times higher than the rate of 4.9 for white infants.
- Infant mortality is almost two times greater in the poorest communities compared with the most affluent communities. In 2015, rural/nonmetro counties had a 15% higher infant mortality rate than urban/metro counties.
- Asthma is the most common chronic condition among U.S. children. In 2015, 9.5 million or 13.0% of U.S. children had ever been diagnosed with asthma, with 8.4% of them still having asthma.
- Non-Hispanic black children have a two times higher asthma prevalence than non-Hispanic white children. Poor children are 56% more likely to have asthma than children from affluent families.

- Children living in unsafe neighborhoods or in neighborhoods with poor housing are 32% more likely to be diagnosed with asthma than children in safe neighborhoods or neighborhoods with good housing.
- The likelihood of an ER visit is greater among American Indian/Alaska Native children (13.9%) and black children (7.6%), compared with Asian (2.7%) and white (4.9%) children. Likelihood of an ER visit is higher among children in rural areas as well as among children in single-mother households and in low-income families.
- In 2015, 8.3 million or 3.6% of U.S. adults experienced serious psychological distress during the past one month. American Indian/Alaska Native and mixed-race adults reported the highest level of serious psychological distress, 14.0% and 8.3% respectively.
- Adults with low education and low income and without a job were 5–6 times more likely to experience serious psychological distress than those with high education and income levels and with employment.
- In 2015, 11.0% of blacks, 20.7% of American Indians/Alaska Natives, 19.5% of Hispanics, 7.8% of Asians, and 9.9% of Native Hawaiians and other Pacific Islanders lacked health insurance, compared with 6.3% of non-Hispanic whites.
- Approximately 23% of adults with less than a high school education lacked health insurance, compared with 3.9% of adults with a college degree.
- In 2015, 6.2% of Native Hawaiians/Other Pacific Islanders and 7.5% of mixed-race individuals reported not receiving medical care because they could not afford it, compared with 2.7% of Asians and 4.3% of whites.
- Individuals with an annual family income <\$35,000 were 10.6 times more likely to forgo needed medical care due to cost than those with annual family incomes of \$100,000 or more.
- American Indians/Alaska Natives and whites have, respectively, 2.0 and 2.7 times higher suicide rates than blacks. Suicide rates have risen consistently in recent years, increasing from 10.5 per 100,000 population in 1999 to 13.3 in 2015.
- Higher suicide mortality rates are observed in many counties of the Western United States, with suicide risks increasing over time in the Western and Appalachian regions.

### Health Disparities in HRSA Program Areas and Populations

- The Title V Program addresses the health services needs of 57 million mothers and children in the U.S., including more than half of all pregnant women, one-third of all infants and children, and 4 million children with special health care needs.
- Childhood obesity varies consistently by household income. Children with household incomes below the federal poverty level are twice as likely to be obese as those with household incomes at  $\geq 400\%$  of the poverty level (45% vs 22%).
- Children from low-education and low-income families were three times more likely to be exposed to secondhand smoke than children from high education and income families.
- Children in low SES families were two times less likely to have access to a medical home than children from high SES families.
- In FY 2015, the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV) served 145,500 parents and children in 825 counties. The number of program participants quadrupled between 2012 and 2015, and the number of home visits increased five-fold, with 2.3 million visits provided over the four-year period.
- In 2015, 18 MIECHV grantees (states and territories) reported child developmental screening rates of at least 75%, more than twice the national average of 31% in 2011–2012.
- In 2015, rates of screening for intimate partner violence (IPV) exceeded 95% in 11 MIECHV grantees (states and territories).
- In 2015, rates of screening for maternal depression exceeded 95% in 12 MIECHV grantees (states and territories).
- More than 24 million people, i.e., one out of 13 U.S. residents, receive primary care services through the Health Center Program. Indeed, one in three people living in poverty and four out of 10 poor children in the United States rely on HRSA-funded health centers for primary health care.

- In 2014, at least 84% of the health center patients reported having received necessary medical care and mental health services in the past year. However, American Indians and Alaska Natives, in particular, face significant barriers in accessing medical care, prescription medications, mental health care, and dental care.
- In 2014, health center patients who were homeless, unemployed, smokers, uninsured, had low incomes and education, or spoke a non-English language had a significantly increased risk of being in poor health.
- At least one-fifth of the socially disadvantaged health center patients with homelessness, unemployment, and smoking report high levels of psychological distress.
- Among the health center patients, 55% of non-Hispanic whites and 38% of American Indians/Alaska Natives reported mental illness, compared with 11% of Asians and 17% of Hispanics.
- According to the UDS data, 57% of diabetic patients in health centers had controlled diabetes in 2015. However, the rate of managed diabetes was lowest among Native Hawaiians and other Pacific Islanders (44% to 46%) and American Indians/Alaska Natives (51%) and highest among Asian-Americans (66%).
- In 2015, 64% of the health center patients had controlled hypertension, with the rate ranging from 57% for blacks and 60% for Native Hawaiians to 68% for Asians.
- Among the health center patients, the obesity rate was lowest among Asians (21%). The obesity rate ranged between 52–54% for blacks, American Indians/Alaska Natives, Pacific Islanders, and non-Hispanic whites.
- Among the health center patients, smoking rates were lowest among Asians (8%) and Hispanics (10%) and highest among non-Hispanic whites (37%) and American Indians/Alaska Natives (28%).
- Cervical cancer screening (Pap smear) rates of 87% among Hispanic and white women were higher for the health center population, compared with the low-income population nationally (83%) and the general U.S. population (77%). However, breast cancer screening (mammography) rates were lower for the health center population (61%) than for the national population (71%).
- In 2016, 33,611 organ transplants were performed, with majority of them being kidney and liver transplants.
- More than half of all people on the organ transplant waiting list are from racial/ethnic minority groups such as African-Americans, Hispanics, and Asians.
- There were 6,166 unrelated blood stem cell transplants facilitated in 2016, with racial/ethnic minority groups representing 16% of all transplants.
- During 2008–2012, the 1-year survival rate for unrelated blood stem cell transplants for male patients with sick cell anemia was 82% and for female patients 81%.
- The Ryan White HIV/AIDS Program provides HIV care and treatment services to more than 500,000 people living with diagnosed HIV in the U.S. The Program reaches approximately 52% of all people diagnosed with HIV in the U.S., the majority of whom are from low-income and racial/ethnic minority groups.
- In 2015, 83% of the Ryan White HIV/AIDS Program clients were virally suppressed, up from 70% in 2010, and exceeding the national average of 54%.
- HIV viral suppression rates are lower in the South, although all states showed improvements in viral suppression between 2010 and 2015.
- Viral suppression rates are significantly lower among blacks, American Indians/Alaska Natives, and Native Hawaiians/Pacific Islanders compared with non-Hispanic whites, although all racial/ethnic groups experienced improvement in viral suppression between 2010 and 2015.
- Over 11 million people living in health professional shortage areas receive primary medical, dental, or mental health care from a National Health Service Corps clinician.
- As of September 2016, there were 6,463 designated professional shortage areas (HPSAs) for primary care, 5,390 designated dental HPSAs, and 4,472 designated mental health HPSAs, indicating a large proportion of geographic areas and population groups in the United States with unmet health care need.



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