

## Summary

In recent decades, the nation has made substantial progress in improving U.S. residents' health and reducing health disparities, yet health disparities by race and ethnicity, income and education, disability status, and other social characteristics still exist. As the nation's premier health promotion, prevention, and preparedness agency, the Centers for Disease Control and Prevention (CDC) is dedicated to reducing health disparities and preventing their recurrence among future generations. The January 2011 release of the first periodic *CDC Health Disparities and Inequalities Report — 2011* underscores CDC's commitment to health equity. Analysis and reporting of the recent trends and ongoing variations in health disparities and inequalities in selected social and health indicators are important steps in encouraging actions and facilitating accountability to reduce modifiable disparities by using interventions that are effective and scalable.

Released as an *MMWR Supplement*, the report addresses disparities in health-care access, exposure to environmental hazards, mortality, morbidity, behavioral risk factors, disability status, and social determinants of selected health problems at the national level. The 22 topics included in the report were chosen because they met one or more of the following criteria: leading cause of premature death among certain segments of the U.S. population; social, demographic, and other disparities in health outcomes exist; effective and feasible interventions exist to address health outcomes; and high-quality data were readily available from national health monitoring systems.

The report's articles were authored separately by subject matter experts selected from CDC as well as other U.S. Department of Health and Human Services (DHHS) agencies. The findings in these topic-specific analytic essays will be used as baseline estimates for monitoring and reporting changes in health disparities and inequalities in periodic reports in upcoming years. The key findings in each of the 22 analytic essays are outlined in the following section, grouped into six broad categories:

1. Social Determinants of Health
2. Environmental Hazards
3. Health-Care Access and Preventive Health Services
4. Health Outcomes – Mortality
5. Health Outcomes – Morbidity
6. Health Outcomes – Behavioral Risk Factors

The information provided in the *CDC Health Disparities and Inequalities Report — 2011* is of vital importance in achieving the goals of the National Partnership for Action (NPA) to End Health Disparities, which will be released by DHHS in 2011. The report advances the objectives of the NPA by providing additional scientific support for efforts to implement policies, programs, professional best practices, and individual actions that might reduce disparities in the shortest timeframe. CDC's report complements (but does not duplicate) the contents of the annual *National Healthcare Disparities Report* and periodic reports on health disparity-related objectives being monitored through the *Healthy People 2020* planning and evaluation process.



The data presented throughout the report provide a compelling argument for action. Some articles identify promising programs and interventions that have been demonstrated to be effective in reducing the burden of disease or risk factors for that specific health problem. The report recommends addressing health disparities with dual intervention strategies related to health and social programs, and more broadly, access to economic, educational, employment, and housing opportunities. A dual strategy includes national and locally determined interventions universally available to everyone as well as targeted interventions available to populations with specific needs. CDC and its partners can use the findings in this periodic report to raise awareness and understanding of which groups are most vulnerable. The findings also can help motivate increased efforts to intervene at the state, tribal, and local levels to best address health disparities and inequalities.

*Note:* The authors of the report used the most recent national data available to describe disparity measures by sex, race/ethnicity, family income (percentage of federal poverty level), educational attainment, disability status, geography (census region or state of residence) and sexual orientation. Because of limits on data quality and availability and efforts to limit the length of the report, the number of disparity domains addressed varied across topics at the discretion of the authors. For similar reasons, certain topics of potential interest to users of the report (e.g., oral health, mental health, residential segregation) have been excluded from this year's report. Efforts are under way to include additional disparity domains and topics in future reports, subject to the availability of high-quality national data.

## Select Findings

Key findings from the *CDC Health Disparities and Inequalities Report — 2011* are summarized in the following:

### I. Social Determinants of Health

- *Education and Income*

People who live and work in low socioeconomic circumstances are at increased risk for mortality, morbidity, unhealthy behaviors, reduced access to health care, and inadequate quality of care. Striking disparities in noncompletion of high school and poverty exist within the U.S. adult population and no improvement has been realized during 2005–2009. The racial/ethnic disparity in both income and education, compared with non-Hispanic whites, was greatest for Hispanics and non-Hispanic American Indians/Alaska Natives, lowest for non-Hispanic mixed races and Asian/Pacific Islanders, and intermediate for non-Hispanic blacks. Income disparity in noncompletion of high school was greatest for the group with family income below the federal poverty level (PIR <100%). The percentage of adults with disabilities who did not complete high school was approximately double that of adults without disabilities in both 2005 and 2009 and the proportion of people with disabilities living below the poverty level was more than twice that of people without disabilities. These findings indicate that a substantial proportion of the adult population with insufficient resources is vulnerable to health problems. The U.S. Department of Education, Institute of Education Sciences, has identified effective interventions that are aimed at reducing the school dropout rate. The Task Force on Community Preventive Services recommends interventions aimed to promote healthy social environments for low-income children and families and to reduce risk-taking behaviors among adolescents.

## II. Environmental Hazards

- *Inadequate and Unhealthy Housing*

Homes' lack of structural and safety features can increase risk for injuries, elevate blood lead levels, and exacerbate other conditions, while poor indoor air quality contributes to cancers, cardiovascular disease, and asthma. The analysis of data collected from the American Housing Survey found that the proportion of unhealthy housing units decreased from 2007 to 2009. Among housing units classified as unhealthy, the magnitude of disparities decreased across racial/ethnic, income, and education-level categories. The disparity by race/ethnicity, socioeconomic status, disability status, and education level, however, is still substantial. Non-Hispanic blacks had the highest percentage of householders living in inadequate, unhealthy housing, followed by Hispanics and American Indians/Alaska Natives. According to the *Surgeon General's Call to Action to Promote Healthy Homes*, effective interventions to prevent home hazards include improving ventilation, avoiding the use of wastewater systems to dispose of toxic chemicals, using integrated pest management, installing grab bars in showers, adding handrails to stairs, installing working smoke and carbon monoxide detectors, and installing four-sided fences around pools.

- *Unhealthy Air Quality — United States, 2009*

Particulate matter and ozone have been well-documented as air pollutants that can adversely affect health. Under the Clean Air Act, the U.S. Environmental Protection Agency sets National Ambient Air Quality Standards (NAAQS) for both pollutants to protect public health and the environment. During 2006–2008, a total of 53 counties did not meet the standard for fine particulate matter and during 2007–2009, a total of 201 counties did not meet the standard for ozone. For both pollutants, approximately half of these counties are in metropolitan statistical areas of  $\geq 1$  million population. Minority groups, including Asians and Hispanics, were more likely to reside in these counties in comparison with non-Hispanic whites. Pollution sources (e.g., heavy traffic) and other environmental hazards often affect these areas. Public health efforts, including promoting use of mass transit and reducing emissions from industrial facilities, can help reduce population exposures to these pollutants.

## III. Health-Care Access and Preventive Health Services

- *Health Insurance Coverage — United States, 2004 and 2008*

Insurance coverage is strongly related to better health outcomes. Substantial disparities in uninsured rates were observed among all the demographic and socioeconomic groups. Disparities by sex existed during both 2004 and 2008, with a higher percentage of males being uninsured. The uninsured rate for young adults aged 18–34 years was approximately double the uninsured rate for adults aged 45–64 years. Hispanics and non-Hispanic blacks had substantially higher uninsured rates, compared with Asian/Pacific Islanders and non-Hispanic whites. Increased access to health care with or without insurance will reduce the importance of disparities in uninsured rates.

- *Influenza Vaccination Coverage — United States, 2000–2010*

During the 2009–10 influenza season, lower influenza vaccination coverage was observed for non-Hispanic blacks and Hispanics, compared with non-Hispanic whites among all persons aged  $\geq 6$  months. Although racial/ethnic disparities in childhood vaccination coverage have improved throughout the past decade, substantial disparities among adults aged  $\geq 65$  years have persisted. Evidence-based interventions targeted at reaching minority populations — including use of reminder/recall systems, standing orders for vaccination, regular assessments of vaccination

coverage levels among provider practices, immunization registries, and improving public and provider awareness of the importance of immunizations for adults — are needed to eliminate these disparities.

- *Colorectal Cancer Screening — United States, 2002, 2004, 2006 and 2008*

The findings of this report indicate that, although overall use of colorectal cancer tests increased from 2002 to 2008, disparities exist in the prevalence of colorectal cancer testing among certain groups. Persons aged  $\geq 50$  years who reported having had tests within recommended intervals was greater among persons aged  $\geq 65$  years, than among those aged 50–64 years. The proportion was greater for non-Hispanic whites compared with all other races; men compared with women; persons with a disability compared with those with no disability; and persons with health insurance, compared with those without any type of health insurance coverage. Coordinated efforts should continue to address barriers and disparities in screening so that the incidence of and comorbidities associated with colorectal cancer can be reduced among all populations.

#### **IV. Health Outcomes — Mortality**

- *Infant Deaths — United States, 2000–2007*

In 2006, the overall U.S. infant mortality rate was 6.68 infant deaths per 1,000 live births, with considerable disparities by race and Hispanic origin. The highest infant mortality rate was for non-Hispanic black women with a rate 2.4 times that for non-Hispanic white women. Analysis on trends and variations in infant mortality reveals not only considerable differences in infant mortality rates among racial/ethnic groups but the persistence of disparities over time. Prevention of preterm birth is critical to both lowering the overall infant mortality rate and reducing racial and ethnic disparities.

- *Motor Vehicle-Related Deaths — United States, 2003–2007*

In 2007, the overall motor vehicle-related age-adjusted death rate for the United States was 14.5 deaths per 100,000 population. American Indian/Alaska Natives had the highest death rate at 29.1 deaths per 100,000 population. For all racial/ethnic groups, males had death rates that were 2–3 times higher than that of females. Effective interventions to prevent motor vehicle-related injury and death are available from *The Guide to Community Preventive Services* and include primary seatbelt laws, child safety seat distribution and education programs, minimum drinking age laws, and sobriety checkpoints.

- *Suicides — United States, 2003–2007*

In 2007, a total of 34,598 suicides occurred in the United States — 83.5% of the suicides were among non-Hispanic whites, 7.1% among Hispanics, 5.5% among non-Hispanic blacks, 2.5% among Asian/Pacific Islanders, and 1.1% among American Indians/Alaska Natives. Suicide rates by race/ethnicity and age group demonstrated different patterns. Though the greatest percentage of suicides occurred among non-Hispanic whites, the highest race/ethnicity and age-specific rates were among American Indian/Alaska Native adolescents and young adults. In each of the racial/ethnic groups, suicide rates were higher for males than for females. Comprehensive strategies that include a component on developing life skills have been demonstrated to be effective in reducing suicidal behavior among American Indians and other youth and might be useful in reducing suicides among other groups if applied more widely. Community- and societal-level strategies that address such social conditions as poverty, inadequate social

support, and lack of access to jobs also might have significant population-level impacts but need further testing and application in specific cultural settings.

- *Drug-Induced Deaths — United States, 2003–2007*

In 2007, a total of 38,371 drug-induced deaths occurred in the United States. Prescription drugs caused more deaths than illicit drugs. Other than Hispanics, all racial/ethnic groups have had increases in drug-induced death rates in recent years. The highest rates overall were among non-Hispanic whites for each year examined. Reducing such deaths will require better adherence to guidelines for cautious use of prescription drugs by prescribers, better enforcement of regulations against abuse of such drugs, and greater use of substance abuse treatment for persons abusing drugs. Cohort studies have demonstrated the effectiveness of long-term methadone maintenance therapy, but the impact of other interventions is still under study.

- *Coronary Heart Disease and Stroke — United States, 2006*

A comparison of rates by race reveals that black women and men have much higher coronary heart disease (CHD) death rates in the 45–74 age group than women and men of the three other races. A higher percentage of black women (37.9%) than white women (19.4%) died before age 75 as a result of CHD, as did black men (61.5%) compared with white men (41.5%). The same black-white difference was seen among women and men who died of stroke: a higher percentage of black women (39%) died of stroke before age 75 compared with white women (17.3%) as did black men (60.7%) compared to white men (31.1%). Premature deaths attributable to CHD and stroke among black adults indicate the need for evidence-based interventions to reduce the prevalence of risk factors for cardiovascular disease among black children and adolescents. *The Guide to Community Preventive Services* includes recommended interventions to address the primary risk factors for CHD, stroke, hypertension, and cholesterol, including diabetes, nutrition, physical activity, tobacco, and obesity. Promoting interventions in each of these topic areas will have a ripple effect in improving cardiovascular health and reducing deaths caused by heart disease and stroke.

- *Homicides — United States, 1999–2007*

In 2007, disparities in homicide deaths by age, race/ethnicity, and sex were evident, and the homicide rate was particularly high among young black males. Homicide rates were highest among persons aged 15–34 years, and the overall rate for males was approximately 4 times that of females. During the 9-year study period (1999–2007), homicide rates were consistently highest among non-Hispanic blacks, but their rates were half of those reported for this demographic group in the early 1990s. Homicide is an extreme outcome of the broader public health problem of interpersonal violence, and effective evidence-based strategies are available to reduce youth violence. The Task Force on Community Preventive Services reported that universal school-based interventions aimed at reducing youth violence have demonstrated promise. Additional work is needed to build organizational and community capacity, particularly in public health, to implement these strategies within the communities and populations in greatest need.

## V. Health Outcomes — Morbidity

- *Obesity — United States, 1988–2008*

The analysis found that racial/ethnic differences have not changed substantially during 1988–1994 and 2007–2008. Among the majority of sex-age groups, the prevalence of obesity is lower among whites than among blacks and Mexican-Americans. Among females, the prevalence of obesity is highest among blacks, whereas the prevalence among males aged  $\leq 20$  years is highest among Mexican-Americans. Differences are limited regarding obesity prevalence across racial/ethnic groups among men aged  $\geq 40$  years. An inverse association exists between family income and obesity prevalence among white females (all ages) and white males (aged 2–19 years), but the association is weak or positive (black men aged  $\geq 20$  years) among other groups. Racial/ethnic differences in obesity prevalence persist after controlling for differences in family income. Randomized control trials have revealed that dietary modification and increased physical activity are effective, at least in the short-term, in reducing the prevalence of obesity, the incidence of type 2 diabetes, and the levels of risk factors for cardiovascular disease. In addition to educational efforts to promote healthy eating and active living, an increased emphasis on policy and environmental strategies can help to reduce disparities in obesity prevalence.

- *Preterm Births — United States, 2007*

Approximately one of every five infants born to non-Hispanic black mothers in 2007 was born preterm, compared with one of every eight to nine infants born to non-Hispanic white and Hispanic women. The 2007 preterm birth rate for non-Hispanic black infants was 59% higher than the rate for non-Hispanic white infants and 49% higher than the rate for Hispanic infants. Understanding of the causes for these wide disparities in preterm risk is limited. Reported causes include differences in socioeconomic status, prenatal care, maternal risk behaviors, infection, nutrition, stress, and genetics. Multidisciplinary research into the factors influencing preterm birth is needed for developing effective intervention strategies.

- *Potentially Preventable Hospitalizations — United States, 2004–2007*

During 2004–2007, the rate of preventable hospitalizations was higher among non-Hispanic blacks and Hispanics, compared with non-Hispanic whites. In addition, the rate was lower among Asian/Pacific Islanders, compared with non-Hispanic whites. During the same period, the rate of preventable hospitalizations was higher among residents of the two lower income neighborhood quartiles compared with residents of the highest income neighborhood quartile. Data from the Agency for Healthcare Research and Quality (AHRQ) indicates that eliminating income-related disparities would prevent nearly 1 million hospitalizations and save \$6.7 billion in health care costs each year. Communities can use information about preventable hospitalizations to guide redesign of primary care delivery and chronic disease management. Improving care coordination overall and reducing barriers to care for specific groups have been demonstrated to reduce rates of preventable hospitalization and costs of health care.

- *Current Asthma Prevalence — United States, 2006–2008*

During 2006–2008, an estimated 7.8% of the U.S. population had current asthma. Asthma prevalence in the United States varied among demographic and economic groups. Current asthma prevalence was higher among the multiracial, Puerto Rican Hispanics, and non-Hispanic blacks than among non-Hispanic whites. Current asthma prevalence also was higher among children than adults; among females than males; and among the poor than the near-poor and nonpoor. For children, the use of multitrigger, multicomponent environmental interventions to

improve symptom control and reduce missed days of school is recommended by *The Guide to Community Preventive Services*.

- *HIV Infection — United States, 2005 and 2008*

The data analysis indicates a total of 35,526 persons aged  $\geq 13$  years received a diagnosis of HIV infection in 2005 in the 37 states included in the analysis, compared with a total of 34,038 in 2008. Racial/ethnic minorities, except Asians, continue to experience a disproportionate burden of HIV diagnoses, as do men who have sex with men (MSM). In addition, disparities continue to widen among black/African-American and American Indian/Alaska Native males, compared with white males, as well as among MSM compared to other males. Reducing the number of HIV infections will require full implementation of CDC HIV testing recommendations and expanded behavior intervention for persons at risk for transmitting or acquiring HIV. Information regarding proven behavior interventions for populations at high risk has been published.

- *Diabetes — United States, 2004 and 2008*

Marked disparities in age-standardized prevalence of diagnosed diabetes among U.S. adults were found in this study. Statistically significant socioeconomic, age, and disability disparities in the age-standardized incidence of diagnosed diabetes also were identified. No evidence indicated that racial/ethnic disparities in prevalence and incidence of diagnosed diabetes decreased from 2004 to 2008; however, socioeconomic disparities worsened during the same interval. The Task Force on Community Preventive Services and the U.S. Preventive Services Task Force recommend complementary, effective evidence-based interventions for diabetes prevention and control, for obesity prevention and control, and for promotion of physical activity. These interventions targeted specifically at the vulnerable groups identified in this study might increase the effectiveness of efforts to reduce disparities in diabetes risk.

- *Hypertension and Hypertension Control — United States, 2005–2008*

This report examines disparities in hypertension prevalence and control using data from NHANES, 2005–2008. The age-adjusted prevalence of hypertension among all U.S. adults 18 years and older was 29.9%. Among adults with high blood pressure, the overall percentage of adults who had controlled blood pressure was 43.7%. Older adults, non-Hispanic blacks, U.S.-born adults, and adults with lower family income, lower education, public health insurance, diabetes, obesity, or a disability had a higher prevalence of hypertension than their counterparts. Men, adults aged 18–44 years, Mexican Americans, foreign-born adults, non-obese adults, and adults without health insurance, diabetes, or a disability had a lower prevalence of hypertension control than their counterparts. A population-based policy and systems change approach to prevent and control hypertension is considered more effective than interventions designed for individuals. Policy and system changes could help individuals with hypertension by ensuring that they receive care consistent with current guidelines and receive effective antihypertensive medication if needed. Home blood pressure monitoring as a part of routine management of hypertensive patients could include the recommendation that patients be reimbursed for a monitor and that their health care provider be reimbursed for services related to patients using home blood pressure monitoring.

## VI. Health Outcomes — Behavioral Risk Factors

- *Binge Drinking — United States, 2009*

Binge drinking is common among U.S. adults, especially among males, persons aged 18–34 years, whites, and those with annual household incomes  $\geq$ \$50,000. After adjustment for sex and age, the highest average number of binge drinking episodes during the preceding 30 days (4.9) was reported by binge drinkers whose household income was  $<$ \$15,000, and the average largest number of drinks consumed by binge drinkers (8.4) was reported by American Indians/Alaska Natives. Implementing effective population-based strategies to prevent binge drinking (e.g., those recommended by *The Guide to Community Preventive Services* — increasing alcohol excise taxes, regulating alcohol outlet density, and enforcing age 21 years as the minimum legal drinking age) are needed. Screening and counseling for alcohol misuse among adults, including binge drinking, also should be implemented, as recommended by the U.S. Preventive Services Task Force. The frequency and intensity of binge drinking also should be monitored routinely to guide development and evaluation of culturally appropriate binge drinking prevention and intervention strategies for groups at greater risk.

- *Adolescent Pregnancy and Childbirth — United States, 1991–1998*

U.S. birth rates for adolescents vary considerably by race and Hispanic origin. In 2008, the birth rate for Hispanic adolescents was approximately 5 times the rate for Asian/Pacific Islander adolescents, 3 times the rate for non-Hispanic white adolescents, and somewhat higher than the rates for non-Hispanic black and American Indian/Alaska Native adolescents. Previous studies have reported that variations in adolescent birth rates reflect differences in interrelated socioeconomic characteristics, including education and income, community characteristics, and attitudes among adolescents toward pregnancy and childbearing, which in turn affect sexual activity and contraceptive use. Evaluation studies have concluded that community service coordinated with positive youth development behavioral intervention is an effective approach for reducing sexual risk behaviors among adolescents.

- *Cigarette Smoking — United States, 1965–2008*

Data for 1965–2008 indicate declines in smoking among both male and female non-Hispanic white and non-Hispanic black adult smokers aged  $\geq$ 18 years. Despite these declines, data for 2006–2008 indicate a much higher smoking prevalence among American Indian/Alaska Native men and women. Persons whose household incomes were below or near the federal poverty level had substantially higher prevalence of smoking, compared with persons whose household incomes were above the federal poverty level. Smoking significantly decreased with increasing levels of educational attainment. Persons who were unemployed also had a high prevalence of smoking. The Institute of Medicine's 2007 report, *Ending the Tobacco Problem: A Blueprint for the Nation*, has demonstrated that comprehensive tobacco control strategies that include population-based policies are effective in decreasing smoking behavior. Implementation of these policy strategies should be adapted to address tobacco-related disparities among specific populations.