2022

National Healthcare Quality and Disparities Report

AHRQ
Agency for Healthcare
Research and Quality

2022 NATIONAL HEALTHCARE QUALITY AND DISPARITIES REPORT

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Agency for Healthcare Research and Quality
5600 Fishers Lane
Rockville, MD 20857
www.ahrq.gov

ACKNOWLEDGMENTS

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EXECUTIVE SUMMARY

AHRQ's *National Healthcare Quality and Disparities* Report (NHQDR) has provided an annual summary of the status of health and healthcare delivery in the United States since 2003. The NHQDR team prioritizes reporting data and measures that are broadly representative of the performance of the nation's healthcare system over time.

The NHQDR provides policymakers, health system leaders, and the public with a statistical portrait of how effectively the healthcare delivery system provides safe, high-quality, and equitable care to all Americans. It addresses the question, *how successfully does the nation ensure that people actually benefit from the scientific advancements and effective treatments available today?*

Multiple partners, including agencies throughout the Department of Health and Human Services (HHS) and all states, contribute data for the report, which is submitted each year to Congress by the Secretary of HHS. The 2022 NHQDR reports on more than 440 measures of quality and examines data in three sections:

- **Portrait of American Healthcare** provides a healthcare system overview, including descriptions of leading health concerns and the healthcare delivery system's capacity to address them.
- **Special Emphasis Topics** examine quality of care and disparities in four priority areas: maternal health, child and adolescent mental health, substance use disorders, and oral health.
- **Quality and Disparities Tables**, grouped into one of seven topic-related chapters, systematically summarize the nation's healthcare outcomes for each measure collected for this report.

Portrait of American Healthcare: Key Findings

Demographics

- The median age of Americans increased from 36.9 years to 38.2 years between 2010 and 2020. Fewer babies being born and the oldest adults living longer account for much of this increase.
- Racial and ethnic diversity has increased. An increase in the percentage of people who identify as two or more races accounts for most of the increase in diversity, rising from 2.9% to 10.2% between 2010 and 2020.
- According to the 2020 U.S. Census, 86.1% of Americans lived in metropolitan counties compared with 85.0% recorded in the 2010 Census.

Health Measures

- Life expectancy in the United States decreased for the first time in 2020 due to COVID-19.

- The decline in life expectancy was also greater for Hispanic and non-Hispanic Black groups than for non-Hispanic White groups, thus widening a health disparity among these groups.

- The decline in life expectancy was greater in the United States than in comparable industrialized countries, thus widening a gap in life expectancy that had been growing since the 1980s.

- The leading causes of death in the United States in 2020 were heart disease and cancer, followed by COVID-19 and unintentional injuries. The most common cause of unintentional injuries was drug overdose (which accounted for over 40% of unintentional injury deaths), followed by accidental falls and motor vehicle accidents (each of which accounted for approximately 20% of unintentional injuries).

- Suicide, which had been a top 10 cause of death from 2016 through 2019, fell to the 12th in 2020, displaced by COVID-19.

- The leading cause of years of potential life lost (YPLL), an important cause of death that disproportionately affects younger populations, was unintentional injury.

- Among the top 10 causes of YPLL, rates of unintentional injury, heart disease, liver disease, and diabetes were rising rapidly.

Social Determinants of Health

- Social determinants of health—social, economic, environmental, and community conditions—may have a stronger influence on the population's health and well-being than services delivered by practitioners and healthcare delivery organizations.

- The percentage of people with health insurance coverage has increased greatly in the past decade. However, those gains vary by race and ethnicity. Non-Hispanic American Indian or Alaska Native groups and Hispanic groups are significantly less likely to be insured.

Healthcare Delivery Systems

- After a sharp decline in the number of workers in ambulatory healthcare settings at the beginning of the COVID-19 public health emergency, employment in this setting has recovered.

- By contrast, the number of "employed and at work" healthcare workers[i] in hospitals and in nursing and residential care settings has decreased since January 2020, by 2% and 12.1%, respectively. A loss of healthcare workers in professions that require less educational attainment accounts for much of shrinking workforce size.

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[i] The Current Population Survey, which provides the data for these analyses, classifies people as "employed" if they had a job or business during the survey's reference week. It classifies people as "at work" if they did at least 1 hour of work as a paid employee, worked in their own business or profession or on their own farm, or worked 15 hours or more as unpaid workers owned by a member of their family; it excludes people who were not working but had jobs or businesses from which they were temporarily absent. Thus "employed and at work" refers to people who had a job and were not temporarily absent for reasons such as vacation, illness, or industrial dispute.

- Almost 63% of counties in the United States have been designated as "whole county" primary care health professional shortage areas, indicating areas where lack of primary care professionals threatens access to services when needed. Disproportionately more rural counties have received this designation than metropolitan ones.
- Before COVID-19, 135 rural hospitals had closed between 2010 and 2020, threatening rural residents' access to services provided by those hospitals.

Personal Healthcare Expenditures

- Approximately 38% of clinical care spending is allocated to hospital care, followed by 24% for physician and clinical services.
- Approximately 39% of healthcare spending comes from public insurance (Medicare and Medicaid), followed by 30% from private insurance, and 14% from other third parties. Importantly, out-of-pocket spending accounts for 12% of personal healthcare expenditures.

Geographic Variations in Care

- Five states in the Northeast region (Maine, Massachusetts, New Hampshire, Pennsylvania, and Rhode Island), four in the Midwest region (Iowa, Minnesota, North Dakota, and Wisconsin), and two in the West region (Colorado and Utah) had the highest overall quality scores based on NHQDR data for all states and the District of Columbia.
- Seven states in the West region (Alaska, Arizona, California, Montana, Nevada, New Mexico, and Wyoming), five states in the South region (District of Columbia,[ii] Georgia, Mississippi, Oklahoma, and Texas), and New York had the lowest overall quality scores when ranked nationally.

Special Emphasis Topics

The 2022 NHQDR highlights data in four Special Emphasis Topics that are priority issues for the Biden-Harris Administration and HHS: Maternal Health, Child and Adolescent Mental Health, Substance Use Disorders, and Oral Health. Highlights are below.

Maternal Health refers to the health of people during pregnancy, childbirth, and the period immediately after delivery. Data collected for the NHQDR highlight the importance of improving care delivery in this area.

- The United States has worse maternal health and healthcare than other industrialized nations, pointing to suboptimal maternal health outcomes for multiple measures, as well as considerable racial disparities for those measures.
- The overall maternal mortality rate in 2020 was 23.8 deaths per 100,000 live births, an increase from 2019 (20.1 deaths per 100,000 live births) and 2018 (17.4 deaths per 100,00 live births).

[ii] For the purposes of the NHQDR, the District of Columbia is treated as a state.

- The severe maternal morbidity rate, an overall measure of unexpected serious health outcomes during labor and delivery, increased by 11.1% (from 7.2 to 8.0 events per 1,000 deliveries) between 2016 and 2019.
- The eclampsia/preeclampsia rate, which measures a complication of pregnancy characterized by high blood pressure that can progress to kidney and liver dysfunction, blood cell destruction, seizures, and death, increased by 30.3% (from 53.2 to 69.3 cases per 1,000 deliveries) between 2016 and 2019.
- Data show worse outcomes for hospitals with characteristics typically associated with larger metropolitan communities.
- Patterns of disparities by race and ethnicity varied for different outcomes. For example, rates of cesarean deliveries in first-time, low-risk pregnancies, severe maternal morbidity, and preeclampsia/eclampsia were higher among non-Hispanic Black people than non-Hispanic White people. But severe postpartum hemorrhage occurred at higher rates among non-Hispanic Asian or Pacific Islander people.

Child and Adolescent Mental Health has become an urgent concern. An increase in the number of adolescents reporting persistent feelings of sadness or hopelessness prompted the Surgeon General to release a 2021 advisory on Protecting Youth Mental Health. NHQDR data support the findings of the advisory and highlight the need for improving access to treatment.

- Rates of emergency department visits with principal diagnosis related to mental health diagnoses per 100,000 population increased by 24.6% for children ages 0-17 years between 2016 and 2018, while rates for older age groups showed no statistically significant changes.
- The rate of death from suicide among adolescents ages 12-17 increased by 70.3% between 2008 and 2020, rising from 3.7 to 6.3 deaths per 100,000 population. This increase was greater than the suicide rate increase for the overall population, which grew by 16.4%, rising from 14.0 to 16.3 deaths per 100,000.
- Disparities data show that in 2020, among adolescents ages 12-17 years, non-Hispanic White adolescents (7.4 deaths per 100,000 population) were more likely to die from suicide than Hispanic (5.0 deaths per 100,000 population) or non-Hispanic Black (4.6 deaths per 100,000 population) adolescents.
- In 2020, only 41.6% of adolescents ages 12-17 with a major depressive episode in the last 12 months reported receiving treatment. Data from 2008 to 2019 suggest the rate of treatment has not substantially changed despite rising incidence of mental illness and suicide.
- In 2020, Hispanic adolescents (37.0%) had lower levels of access to depression treatment than non-Hispanic White adolescents (49.1%).

Substance Use Disorders occur when the recurrent, problematic use of alcohol or other drugs causes health problems, disability, or failure to meet major responsibilities at work, school, or home. Published studies signal a rise in health concerns related to both alcohol and illicit drug use in recent years. However, data collected for the NHQDR are better suited for monitoring trends in concerns related to opioid use disorders. They highlight inadequate access to treatment and recovery programs.

- Overall rates of overdose deaths involving any opioid increased by 36.8% between 2019 and 2020, rising from 15.2 to 20.8 deaths per 100,000 population in a single year.
- Deaths related to synthetic opioids increased by 55.0% between 2019 and 2020, rising from 11.1 to 17.2 deaths per 100,000 population, while deaths related to natural and semisynthetic opioids increased by 13.9%, rising from 3.6 to 4.1 deaths per 100,000 population.[iii] The data signal decreased effectiveness of strategies intended to restrict the prescribing of pharmaceutical opioids and a sharp rise in deaths resulting from a new, more potent type of opioid than used in prior waves of the opioid epidemic.
- Deaths related to opioids increased in all racial and ethnic groups and in all rural-urban locations although disparities among groups exist. Deaths from any opioid in 2020 were highest in non-Hispanic American Indian or Alaska Native (28.1), non-Hispanic Black (26.6), and non-Hispanic White (25.5) communities, followed by Hispanic (13.1) and Asian (2.6) communities.
- Despite the rising incidence of opioid-related deaths, the percentage of people age 12 and over who needed treatment for illicit drug use and who received such treatment at a specialty facility was only 9.9% in 2020, indicating a need for better access to treatment and recovery programs.

Oral Health is linked to overall health because untreated oral health problems cause pain, interfere with eating, lead to poor nutrition, and exacerbate chronic health conditions. Many Americans cannot afford dental care due to health insurance plans that "carve out" separate coverage for dental, vision, hearing, and mental health services. A notable exception is public health insurance provided through Medicaid for children and the Children's Health Insurance Program, which mandate comprehensive dental coverage.

Over the past two decades, the percentage of people with private dental insurance has not changed, but the percentage of people with health insurance coverage, including public health insurance, has increased. During this time, access to dental services and oral health outcomes have mostly improved for populations for whom public insurance covers dental care services.

- Approximately one in seven (14.3%) people were unable to get or delayed in getting needed dental care due to cost in 2019, but the percentage of children ages 0-17 who experience cost-related barriers to dental care is approximately one-third that of adults.
- The percentage of people who had a dental visit in the calendar year increased by 16.3% (from 49.1% to 57.1% of the population) between 2002 and 2019 for children ages 2-17 but there was no statistically significant change for adults.
- The percentage of people with untreated cavities decreased by nearly 50% (from 24.3% to 13.2% of the population) between the 1988-1994 and 2015-2018 periods for children ages 5-19 but did not change for adults.

[iii] "Natural opioids" refer to substances extracted from the seed pods of certain varieties of poppy plants, including morphine and codeine. "Semisynthetic opioids" refer to substances synthesized from a naturally occurring opioid, such as oxycodone, hydrocodone, hydromorphone, and oxymorphone. "Synthetic opioids" refer to substances synthesized in a laboratory that act on the same targets in the brain as naturally occurring opioids, such as fentanyl, tramadol, and methadone.

- When these measures are stratified by race, ethnicity, and income, they show that outcomes for children in the lowest income households and for Black and Hispanic children improved faster than outcomes for children in the highest income households or for White children, thus narrowing an important health disparity.

Quality and Disparities Tables

Readers will find the full collection of the more than 440 NHQDR measures online at https://datatools.ahrq.gov/nhqdr and in the Healthcare Quality and Disparity tables in Appendix B. Each measure is summarized in a table, and each table shows (1) key details about the measure; (2) the nation's performance (*quality*) on the measure; and (3) differences in outcomes for priority populations or subgroups (*disparities*).

Figure ES-1. Format of the NHQDR's quality and disparities tables

Measure Description
(Measure title, data source, and other details)

Quality table	Disparities table
Displays time-related trends in outcomes for the overall population and subgroups	Compares outcomes of subgroups with a reference group

Eight overarching findings in the tables are:

1. The percentage of people under age 65 with health insurance coverage is at the highest level recorded in the NHQDR, but people in low-income households, minority communities, and "inner city" and "rural" communities are significantly less likely to have health insurance coverage.[iv]
2. Personal spending for healthcare services has increased for the most well-off Americans. For example, one in five people under age 65 with private, employer-sponsored health insurance reported that their family's health insurance premium and out-of-pocket spending accounted for more than 10% of their family's income in 2019, a 66.7% increase since 2002.
3. The burden of out-of-pocket healthcare costs is far higher for lower income households. Nearly one in four people under age 65 with household incomes between 100% and 199% of the poverty line reported their family's health insurance premium and out-of-pocket spending accounted for more than 10% of their family's income in 2019.
4. The nation's investments in science and healthcare delivery have yielded improved care for people with certain conditions, including breast cancer, colon cancer, heart failure, and HIV/AIDS. Breast cancer deaths decreased by 28.7% between 2000 and 2020; colorectal cancer deaths decreased by 37.5% between 2000 and 2020; in-hospital deaths from heart failure decreased by 14.5% between 2016 and 2019 (despite an overall

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[iv] The NHQDR reports many measures stratified by the National Center for Health Statistics 2013 Urban-Rural classification scheme, which groups counties and equivalent areas in terms of population size and density. The six classifications are Large Central Metro, Large Fringe Metro, Medium Metro, Small Metro, Micropolitan, and Noncore. For this Executive Summary, "inner city" refers to Large Central Metro counties; "rural" refers to Noncore counties.

increase in hospital admissions for this condition); and deaths from HIV/AIDS decreased by 57.7% between 2000 and 2020.

5. Other health conditions warrant the nation's attention because measures of healthcare delivery and health outcomes for these conditions have worsened. These include worsening maternal healthcare delivery outcomes, which receive focused attention as a Special Emphasis Topic, and rising hospital admissions for often preventable acute complications of diabetes,[v] which increased by 66.2% between 2016 and 2019.

6. Although healthcare delivery for some conditions, such as breast cancer and HIV/AIDS, has improved for all populations, disparities by race, ethnicity, household income, and location of residence persist because the gains experienced by disadvantaged populations have been insufficient to close the gap between advantaged and disadvantaged populations. In some cases, a disparity has widened.

7. Overall, racial and ethnic minority communities have similar outcomes as White communities for just under half of quality-of-care measures. However, when disparities exist, racial and ethnic minority communities exhibit worse outcomes than White communities on a larger number of measures than better outcomes. For example, American Indian and Alaska Native communities have worse quality of care than White communities on 43% of measures and better outcomes on only 12% of measures. An exception is the experience of Asian communities, which have worse outcomes than White communities on 28% of measures and better outcomes on 28% of measures.

8. While some healthcare disparities, such as for HIV care, are present across many disadvantaged groups, other disparities appear to disproportionately affect certain groups, which may reflect circumstances and issues specific to that group. For example, Hispanic people and non-Hispanic Black people consistently experience worse care on most measures of breast cancer care. An implication of this observation is that certain groups may benefit from targeted policies and approaches specific to their community's needs.

Resources To Improve Healthcare

HHS and the administration have produced and distributed a wide range of resources to support the healthcare delivery system and aid Americans in addressing the issues outlined in this report. For resources relevant to each Special Emphasis Topic, the NHQDR includes links to HHS websites relevant to the topic. The NHQDR team invites readers to use the data and resources in this report to improve quality of care and advance health equity, and it invites readers' suggestions for monitoring the nation's health in the future.

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[v] The measure "hospital admissions for short-term complications of diabetes among adults age 18 years and over" tracks hospital admission for diabetic ketoacidosis, hyperosmolarity, and diabetic coma. These are potentially life-threatening complications of diabetes that often can be prevented with care by primary care providers and access to medications such as insulin.

INTRODUCTION

This **Introduction** provides background on the annual *National Healthcare Quality and Disparities Report* (NHQDR) and modifications that have occurred over time.

Background on the National Healthcare Quality and Disparities Report

For the 20th year in a row, the Agency for Healthcare Research and Quality (AHRQ) has reported on progress and opportunities for improving healthcare quality and reducing healthcare disparities. As mandated by the U.S. Congress, the report focuses on "national trends in the quality of health care provided to the American people" (42 U.S.C. 299b-2(b)(2)) and "prevailing disparities in health care delivery as it relates to racial factors and socioeconomic factors in priority populations" (42 U.S.C. 29-a-1(a)(6)).

The NHQDR is produced with the support of a Department of Health and Human Services (HHS) Interagency Work Group (IWG)[i] and guided by input from AHRQ's National Advisory Council and the Institute of Medicine (IOM), now known as the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine.

The 2022 NHQDR tracks about 550 measures and Appendix B presents 442 of them (see the section on changes to the 2022 NHQDR below for more details on Appendix B). The measures cover a wide variety of conditions and settings. Data years vary across measures.

All measures are available in the Data Query Tool.

Changes to the National Healthcare Quality and Disparities Report

The NHQDR was significantly shaped by several IOM reports. Two of these reports, *Crossing the Quality Chasm*[1] and *To Err Is Human*[2] raised awareness about gaps in the quality of healthcare and patient safety. The extensive literature review included in a third report, *Unequal Treatment*,[3] drew attention to disparities in the care rendered to racial and ethnic populations, low-income populations, and other vulnerable groups.

Since the report's inception as the *National Healthcare Quality Report* (NHQR) and *National Healthcare Disparities Report* (NHDR) in 2003, AHRQ has worked continuously to enhance and refine the NHQDR. These enhancements include:

- Introducing core measures and composite measures and refining the methods of analysis.
- Expanding the patient safety section to include sections on healthcare-associated infections and patient safety culture and adding sections on lifestyle modification and care coordination.

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[i] Federal participants on IWG: AHRQ, Administration for Community Living, Assistant Secretary for Planning and Evaluation, Centers for Disease Control and Prevention, Centers for Medicare & Medicaid Services, Food and Drug Administration, Health Resources and Services Administration, Indian Health Service, National Institutes of Health, Office of the Assistant Secretary for Health, Office of the Assistant Secretary for Planning and Evaluation, Substance Abuse and Mental Health Services Administration, and Veterans Health Administration.

- Producing a single Highlights chapter that integrated findings from the NHQR and NHDR.
- Adding measure-specific benchmarks that reflect the high level achieved by the best performing states.
- Categorizing the measures into six priority areas (e.g., Patient Safety, Healthy Living) that could help achieve the Triple Aim.[ii]
- Combining the NHQR and NHDR into the NHQDR to provide a more complete and integrated assessment of access to and quality of healthcare, as well as disparities. Also included measures related to other key populations, including women, children, older adults, people with disabilities and at the end of life, and residents of rural areas and inner cities.

Changes to the 2022 NHQDR

New Features

The 2022 NHQDR has a new structure to present a comprehensive overview of the healthcare landscape, feature key policy topics, and provide more comprehensive data for all core and noncore measures.

The updated overview section of the report provides readers with a portrait of the healthcare landscape, including needs and utilization. The section provides an expanded description of the current U.S. population as it relates to mortality, health conditions, and social determinants of health. Insights about healthcare delivery organizations and the healthcare workforce are presented, including changes in the workforce during and after the COVID-19 pandemic. The section also provides new information about healthcare expenditures and variations in healthcare quality.

Following the overview section are a series of sections that delve into timely policy topics. For the 2022 NHQDR, the topics are maternal health, child mental health, substance use disorder, and oral health. The topics were chosen based on administration and agency priorities, relevance to quality and disparities, and availability of relevant data.

Each topic section includes discussion of morbidity and mortality of the condition, healthcare costs related to the condition, and barriers to effective and timely care for the condition. In each section, exhibits and corresponding bullets highlight key aspects of quality and disparities for the most recent data year and over time. The sections end with a conclusion and resources aimed at improving healthcare access and quality for the condition.

The 2022 NHQDR also introduces a new appendix (Appendix B) composed of chapters for access and each of the six quality domains. The chapters are organized by chapter sections (e.g., the Affordable Care chapter has sections for Financial Burden of Healthcare and Usual Source of Care). Each appendix chapter provides a brief introduction about the chapter topic and key findings from the NHQDR analyses.

[ii] More information on the Triple Aim is available from the Institute for Healthcare Improvement at http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx.

After the introduction, information for all core and noncore measures related to the chapter domain is presented, including measure name, data source, benchmark, disparity year, national trends over time, trends for subpopulations, and disparities between subpopulations for the most recent data year.

Updates in Data Source Availability

- Healthcare Cost and Utilization Project (HCUP) trend data are available for the 2022 report due to the availability of 4 years of data after the change from ICD-9-CM[iii] diagnosis codes to ICD-10-CM codes and changes to the AHRQ Quality Indicators (2016-2019 data).
- The Child Preventive Health (CS) Section and Sample Adult Questionnaire (SAQ) of the Medical Expenditure Panel Survey are fielded in odd years only (e.g., 2019). Two CS measures and 12 SAQ measures that did not have 2018 data are included with 2019 data in the 2022 NHQDR.
- The NHQDR dataset now includes data from AHRQ's Quality and Safety Review System to replace the Medicare Patient Safety Monitoring System data.
- The Hospital Inpatient Quality Reporting Program and Hospital Outpatient Quality Reporting Program are included in the trend analysis because 4 years' data became available.

Organization of the 2022 National Healthcare Quality and Disparities Report

The 2022 report is organized around the concept of access to care, quality of care, disparities in care, and six priority areas, including patient safety, person-centered care, care coordination, effective treatment, healthy living, and affordable care. Appendix B provides details for individual measures.

The report presents information on trends, disparities, and changes in disparities over time, as well as federal initiatives to improve quality and reduce disparities. It includes the following:

- **Portrait of American Healthcare** describes the U.S. population, including mortality, morbidity, and social determinants of health; healthcare system, including workforce and delivery organizations; healthcare costs; and variations in quality of care.
- **Priority Topic** sections provide background information, current quality and disparities information, and resources for four key topic areas.

[iii] ICD-9-CM is the International Classification of Diseases, Clinical Modification, 9th Revision. ICD-10-CM is the 10th revision.

Additional information on each measure can be found in the Data Query section of the NHQDR website (https://datatools.ahrq.gov/nhqdr). Below each generated table are links to:

- **Data Sources,** which provides information about each database analyzed for the report, including data type, sample design, and primary content. The list of data sources is available in Appendix A, Methods.
- **Measure Specifications,** which provide information about how measures are generated and analyzed for the report. Measures highlighted in the report are described, as well as other measures that were examined but not included in the text of the report. The measure specifications can be found online.

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PORTRAIT OF AMERICAN HEALTHCARE

Healthcare quality assessments evaluate health systems' effectiveness to provide patient care that is timely, affordable, and based on reliable evidence. This section of the report provides a broad portrait of U.S. healthcare in consideration of those fundamental measures as well as additional factors that influence disparities in care. This information is provided to support contextual understanding of the structural factors, including societal inequities, that affect how today's healthcare is organized, financed, and delivered.

This section includes:

- **Demographics:** trends in median age, race and ethnicity, and population density.
- **Health Measures:** trends in life expectancy, mortality, and premature death.
- **Social Determinants of Health:** prevalence of social, economic, environmental, and community conditions affecting health outcomes.
- **Healthcare Delivery Systems:** capacities of the healthcare workforce and organizations.
- **Personal Healthcare Expenditures:** estimates on spending for medical goods and services.
- **Geographic Variations in Care:** state-level data on quality and disparities.

Demographics

Healthcare systems and providers in the United States serve a large and growing population. Over the 10 years between the 2010 Census and the 2020 Census,[i] the U.S. population increased 7.4% to 331,449,281 people, split nearly evenly between females (50.5%) and males (49.5%).[1]

The following demographic data describe emerging trends related to the aging population, increased racial and ethnic diversity, and more Americans living in metropolitan areas.

The U.S. population is aging. Five-year estimates from the American Community Survey (ACS) show the median age increased from 36.9 years to 38.2 years between 2010 and 2020. Fewer babies being born and the oldest adults living longer account for much of this increase.

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[i] In this report, "Census" refers to the decennial census.

Figure 1. Distribution of people in the United States by 10-year age groups in 2010 and 2020
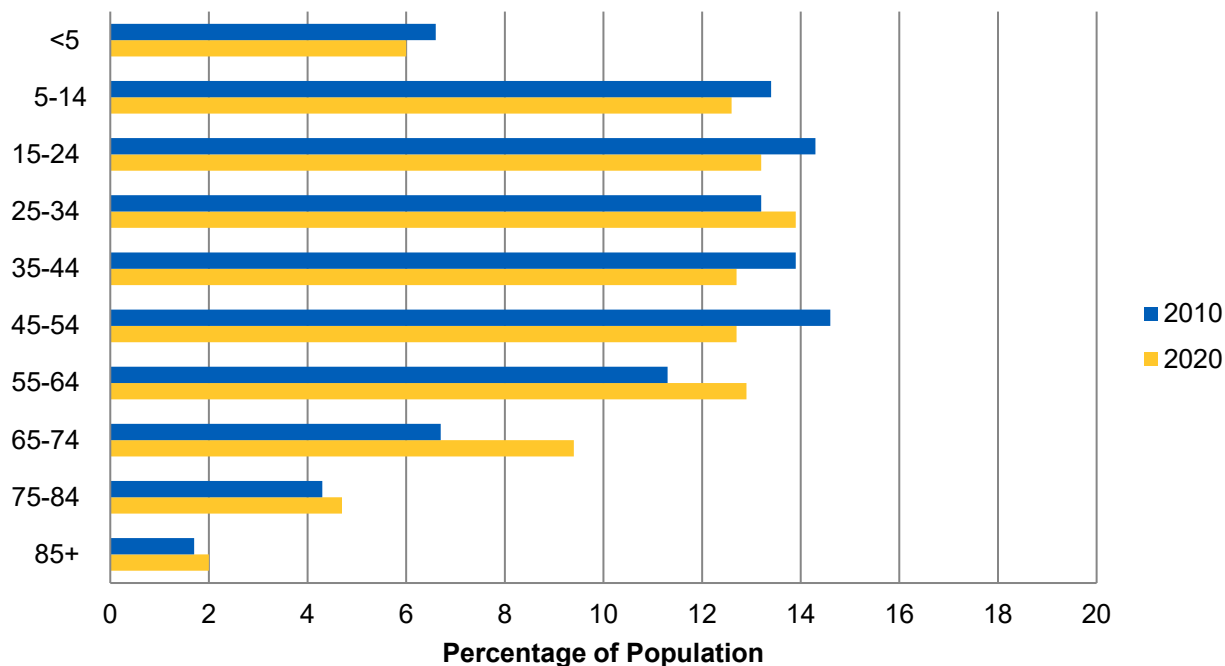
Source: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2010 and 2020, Table S0101.

- In 2020, 6.0% of the population was under 5 years old, 12.6% was 5-14 years old, 13.2% was 15-24 years old, 13.9% was 25-34 years old, 12.7% was 35-44 years old, 12.7% was 45-54 years old, 12.9% was 55-64 years old, 9.4% was 65-74 years old, 4.7% was 75-84 years old, and 2.0% was 85 years and over in 2020 (Figure 1).

- By comparison, in 2010, 6.6% was under 5 years old, 13.4% was 5-14 years old, 14.3% was 15-24 years old, 13.2% was 25-34 years old, 13.9% was 35-44 years old, 14.6% was 45-54 years old, 11.3% was 55-64 years old, 6.7% was 65-74 years old, 4.3% was 75-84 years old, and 1.7% was 85 years and over.

The United States has grown more racially and ethnically diverse. The NHQDR defines racial and ethnic groups according to the Standards for the Classification of Federal Data on Race and Ethnicity, issued by the Office of Management and Budget. Racial and ethnic categories for federal statistics and program administrative reporting are defined as follows:

- **American Indian or Alaska Native (AI/AN).** A person who has origins in any of the original peoples of North and South America (including Central America) and maintains tribal affiliation or community attachment.

- **Asian.** A person having origins in any of the original peoples of the Far East, Southeast Asia, or Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

- **Black or African American.** A person having origins in any of the Black racial groups of Africa. Terms such as "Haitian" can be used in addition to "Black or African American."

- **Hispanic or Latino.** A person of Cuban, Mexican, Puerto Rican, Central or South American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can be used in addition to "Hispanic or Latino."
- **Native Hawaiian/Pacific Islander (NHPI).** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- **White.** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Much of the recent growth in racial and ethnic diversity can be attributed to a rise in the number of people who self-identify as two or more races, which increased 7.3 percentage points between 2010 and 2020. The percentage of people who identify as Asian alone also increased by 1.2 percentage points over the past decade, while the percentage of people who identify as Black, AI/AN, or NHPI remained at similar levels.

Figure 2. Distribution of people in the United States, by race, 2010 to 2020
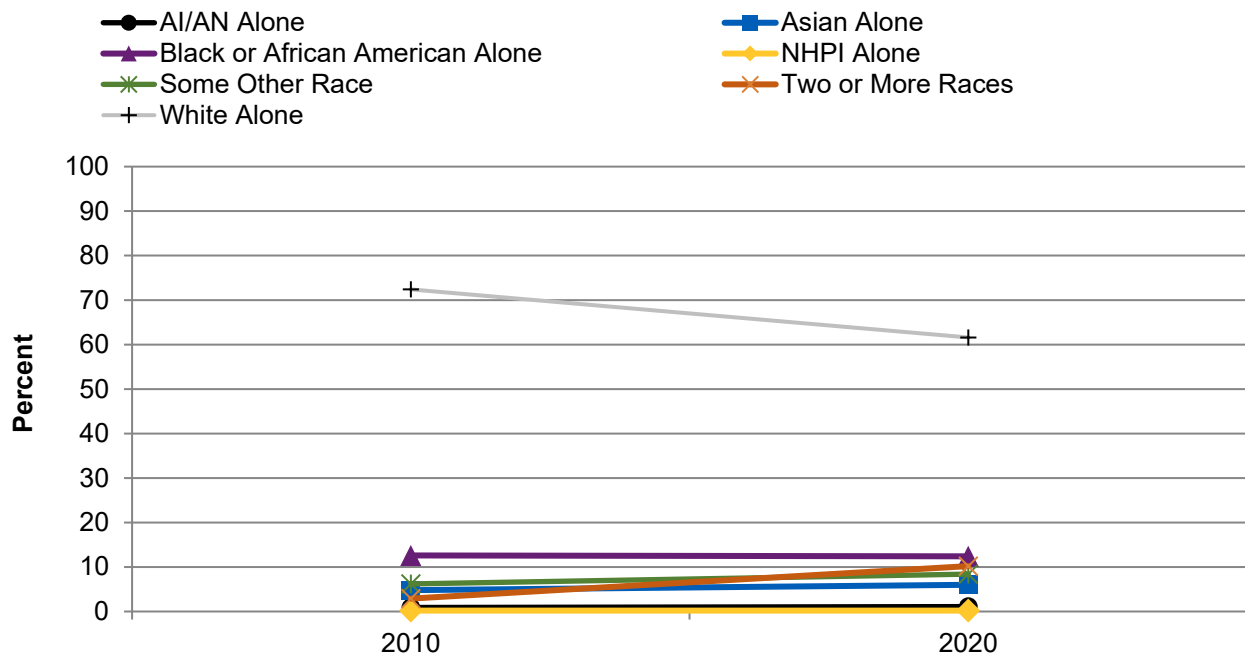
Source: U.S. Census Bureau, Decennial Census, 2010 and 2020, Table P1.

- In the 2020 Census, 1.1% of people identified as AI/AN, 6.0% as Asian alone, 12.4% as Black or African American alone, 0.2% as NHPI alone, 61.6% as White alone, 10.2% as Two or More Races, and 8.4% as Some Other Race (Figure 2).
- The 2010 Census reported percentages of racial and ethnic groups as 0.9% AI/AN alone, 4.8% Asian alone, 12.6% Black or African American alone, 0.2% NHPI alone, 72.4% White alone, 2.9% Two or More Races, and 6.2% Some Other Race.

Figure 3. Distribution of people in the United States, by ethnicity, 2010 to 2020
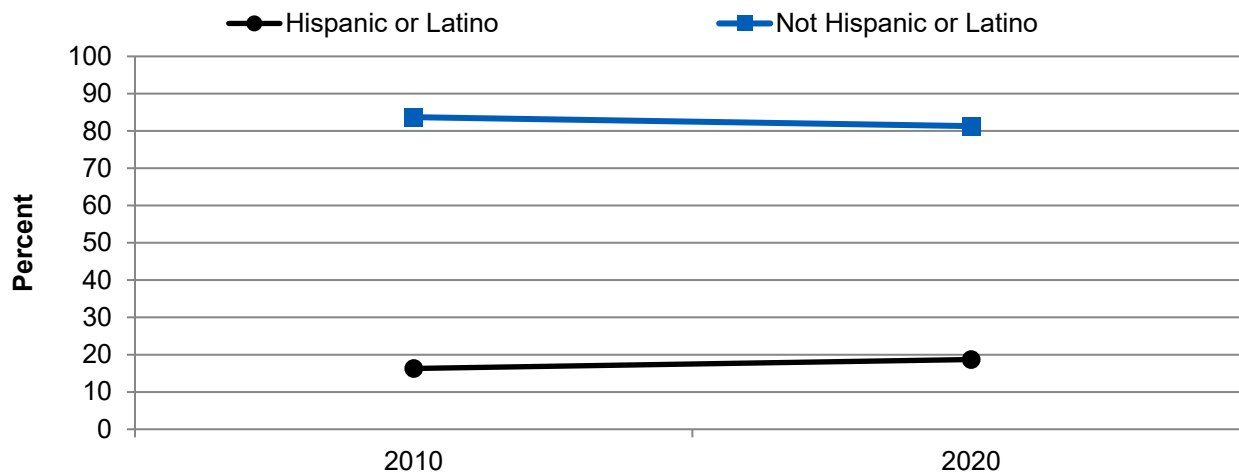
Source: U.S. Census Bureau, 2010 and 2020 Decennial Census, Table P1 and Table P2.

- The 2020 Census estimates that 18.7% of the population identify as Hispanic, while 81.3% identify as non-Hispanic (Figure 3).
- In the 2010 Census, 16.3% identified as Hispanic and 83.7% identified as non-Hispanic.

A growing percentage of people resides in metropolitan communities. The Census Bureau reports that between 2010 and 2020, the percentage of people who live in metropolitan areas increased by 1.1 percentage points, while the percentage of people in nonmetropolitan counties decreased by the same amount.

Figure 4. Distribution of people in the United States, by location of residence, 2010 to 2020
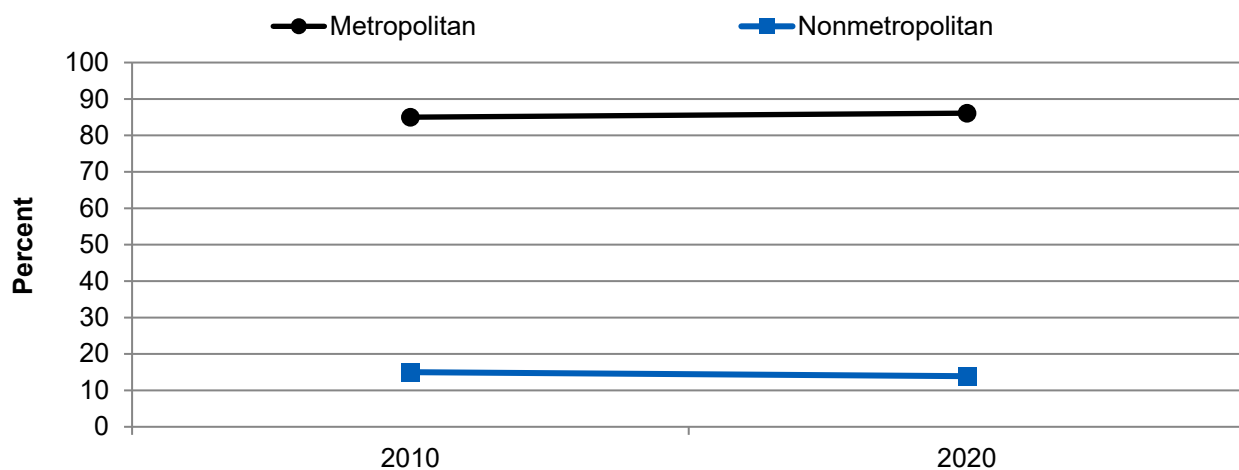
Source: U.S. Department of Agriculture, Economic Research Service, using 2015 County Typology Codes and data from the U.S. Department of Commerce, Bureau of the Census, PL-94 decennial census files, 2010 and 2020.[ii]

[ii] For more information, refer to Dobis EA, Krumel Jr TP, Cromartie J, Conley KL, Sanders A, Ortiz R. Rural America at a Glance: 2021 Edition. Washington, DC: U.S. Department of Agriculture, Economic Research Service. EIB-230. https://www.ers.usda.gov/webdocs/publications/102576/eib-230.pdf?v=4409. Accessed October 13, 2022.

- In the 2020 Census, 13.9% of people lived in nonmetropolitan counties and 86.1% lived in metropolitan counties (Figure 4).
- In the 2010 Census, 15.0% of people lived in nonmetropolitan counties and 85.0% lived in metropolitan counties.

The NHQDR examines differences in health outcomes by rural-urban location of residence using the 2013 National Center for Health Statistics (NCHS) classification. Data on state-based rural-urban metrics are also available through the QDR State Snapshots.

The 2013 National Center for Health Statistics (NCHS) classification approach includes six urbanization categories.[2] Four are *metropolitan* county designations derived from Metropolitan Statistical Areas (MSAs) defined by the Office of Management and Budget (OMB). MSAs are areas containing a large population center and adjacent communities that have a high degree of economic and social integration with that core. MSAs have at least 50,000 residents and include an urban core with population density of at least 1,000 people per square mile and adjacent areas with at least 500 people per square mile. The four metropolitan county descriptions are:

- **Large Central Metropolitan:** Counties in an MSA of 1 million or more residents:

  1. That contain the entire population of the largest principal city of the MSA, or
  2. Whose entire population is contained within the largest principal city of the MSA, or
  3. That contain at least 250,000 residents of any principal city in the MSA.

  Examples of large central metro areas are Denver County, Colorado; Washington, DC; and Cook County, Illinois.

- **Large Fringe Metropolitan:** Counties in MSAs of 1 million or more population that do not qualify as large central areas.[iii] Large fringe metropolitan areas are also described as suburban areas. Examples of large fringe metro areas are San Bernardino County, California; Broward County, Florida; and Bergen County, New Jersey.
- **Medium Metropolitan:** Counties in MSAs of 250,000 to 999,999 population. Examples of medium metro areas are Scott County, Kentucky; York County, Maine; and Douglas County, Nebraska.
- **Small Metropolitan:** Counties in MSAs of less than 250,000 population. Examples of small metro areas are Baldwin County, Alabama; Wayne County, North Carolina; and Allen County, Ohio.

[iii] For comparisons across residence locations, large fringe MSAs (large city suburbs) are used as the reference group since these counties have the lowest levels of poverty and typically have the best quality and access to healthcare.

The remaining two categories are *nonmetropolitan* county designations, which are defined as not meeting the criteria for being an MSA (i.e., population less than 50,000 inhabitants and/or population density less than 500 people per square mile). These nonmetropolitan designations are:

- **Micropolitan:** Nonmetropolitan counties in a "micropolitan statistical area," which OMB defines as counties that are less densely populated than MSAs and centered around smaller urban clusters with 2,500-49,999 inhabitants. Examples of micropolitan areas are Woodward County, Oklahoma; Cherokee County, South Carolina; and Harrison County, West Virginia.
- **Noncore:** Nonmetropolitan counties that are outside of a micropolitan statistical area. Noncore counties are also described as rural. Examples of noncore areas are Wallowa County, Oregon; Bedford County, Pennsylvania; and Crane County, Texas.

Figure 5 shows a map of U.S. county classifications according to the 2013 NCHS Urban-Rural Classification Scheme.[iv]

Figure 5. Map showing 2013 NCHS Urban-Rural County Classifications in the United States
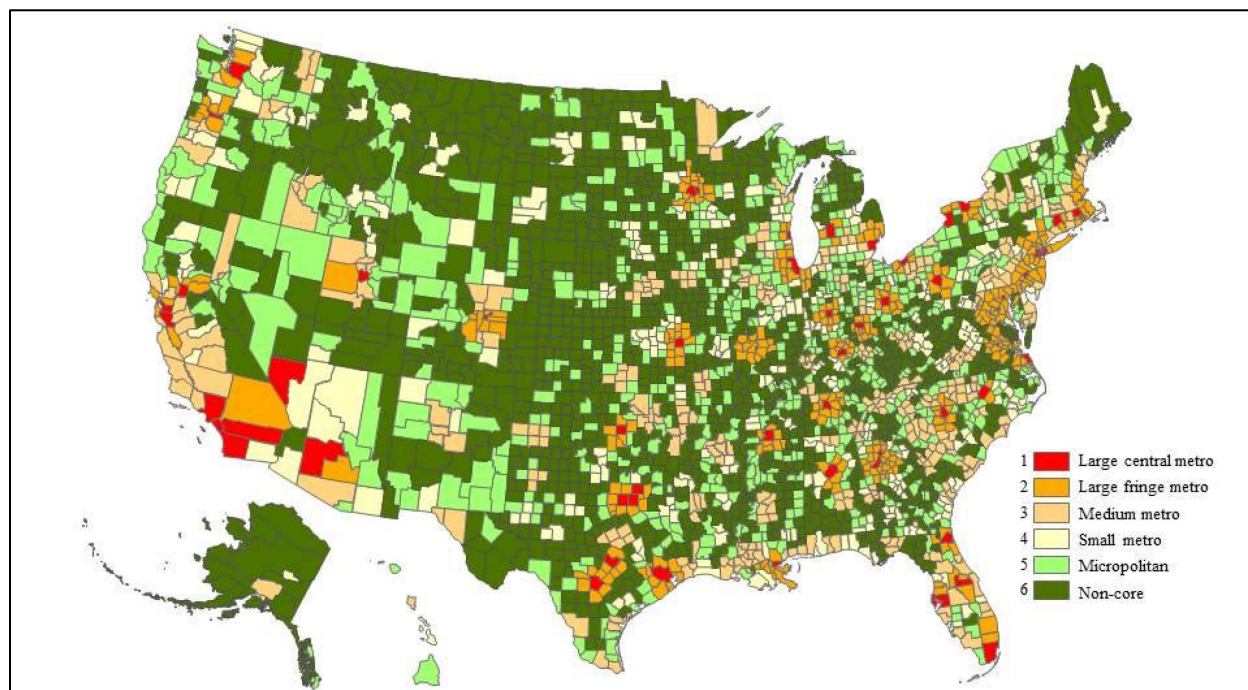
Source: Ingram DD, Franco SJ. 2013 NCHS Urban-Rural Classification Scheme for Counties. Vital Health Stat 2014 Apr;2(166). https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf.

[iv] Readers examining long-term trends should note that the 2013 NCHS Urban-Rural Classification scheme is similar to the 2006 version that preceded it. Although minor differences between the two classification schemes may result in counties being classified in different categories, a 2014 analysis comparing the two classification schemes found that only 286 of 3,143 counties (9.1%) had different category assignments. (See Ingram DD, Franco SJ. 2013 NCHS Urban-Rural Classification Scheme for Counties. Vital Health Stat 2. 2014 Apr;166:1-73. https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf.)

Health Measures

Measures of life expectancy and premature death have worsened in recent decades, suggesting that the United States has fallen farther away from its potential to promote and protect health. The following data quantify those trends.

Life expectancy has not kept pace with other nations. Life expectancy for the overall U.S. population decreased by 1.5 years, from 78.8 years in 2019 to 77.3 years in 2020. Much of this decline was attributable to the global COVID-19 public health emergency. The decline in life expectancy was greater in Hispanic (decrease by 3.0 years) and non-Hispanic Black (decrease by 2.9 years) groups than in non-Hispanic White groups (decrease by 1.2 years), widening an existing health disparity.[v]

U.S. life expectancy at birth lags behind the average life expectancy of 11 comparable Organisation for Economic Co-operation and Development (OECD) countries.[vi] The gap had grown steadily since 1980 and widened markedly in 2020, when life expectancy decreased more steeply in the U.S. than it had in comparable industrialized countries. The United States similarly lags behind peer OECD countries in mortality rates and premature death rates.[3]

Figure 6. Life expectancy in United States vs. comparable OECD countries, 1980-2020
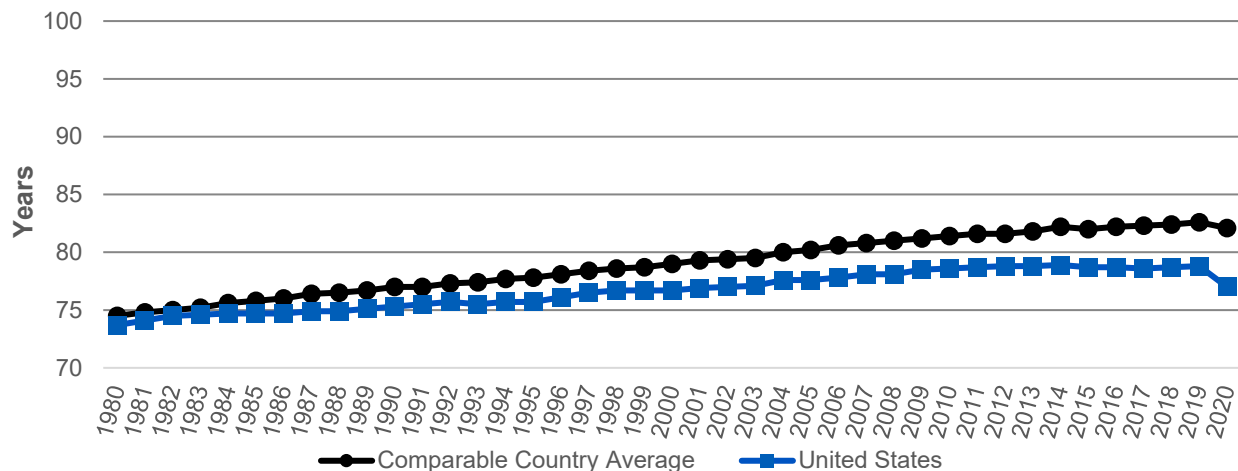
Source: Peterson-Kaiser Family Foundation Health System Tracker. https://www.healthsystemtracker.org/chart-collection/quality-u-s-healthcare-system-compare-countries/.
Note: Data are from the Centers for Disease Control and Prevention (CDC), Australian Bureau of Statistics, and Organization of Economic Co-operation and Development data. The 2019 and 2020 data for the United States are from CDC. The 2020 life expectancy value for Australia is the unweighted average of male and female life expectancy from the Australian Bureau of Statistics.

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[v] In August 2022, the National Center for Health Statistics released Provisional Life Expectancy Estimates for 2021. Although the final data were not released in time to include in the 2022 NHQDR, the provisional estimates indicate that overall life expectancy in the United States declined for a second consecutive year, from 77.0 years in 2020 to 76.1 years in 2021. Excess deaths due to COVID-19 accounted for most of the decrease in life expectancy, followed by excess deaths due to unintentional injuries, heart disease, liver disease, and suicide.
[vi] Compared with averaged data for Australia, Austria, Belgium, Canada, France, Germany, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom.

- In 2019, before the COVID-19 global pandemic, average life expectancy in the United States was 78.8 years vs. 82.6 years in comparable OECD countries (Figure 6).
- In 2020, average life expectancy in the United States was 77.0 years vs. 82.1 years in comparable OECD countries.

Exploring the reasons for this trend can provide insights for where the United States can improve healthcare delivery and associated outcomes, particularly trends in premature death and disease-related death, which are explored below.

Figure 7. Ten leading causes of death, based on age-adjusted mortality, United States, 2016-2020
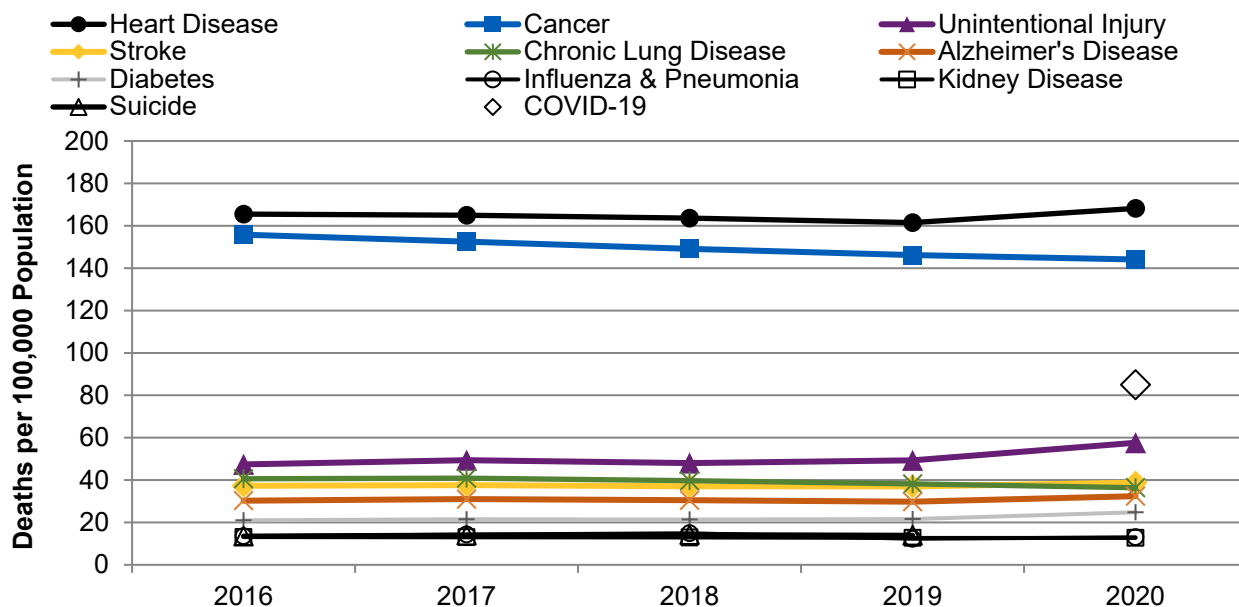
Source: Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS), 2016-2020.
Note: Suicide was one of the 10 leading causes of death from 2016 to 2019 but was replaced by COVID-19 in 2020.

- Heart disease and cancer remained the leading causes of death in 2020, accounting for 168.2 deaths and 144.1 deaths per 100,000 population, respectively) (Figure 7).
- In 2020, COVID-19 became the third leading cause of death, accounting for 85.0 deaths per 100,000 population.
- Drug overdose and other unintentional poisonings accounted for 41.0% of the 57.6 deaths per 100,000 population that were due to unintentional injury. Other prevalent conditions contributing to unintentional injury deaths include accidental falls followed by motor vehicle accidents, unintentional suffocation, and drowning.[vii]
- Death rates from heart disease, which had been in decline, rose between 2019 and 2020. Death rates from unintentional injury, Alzheimer's disease, and diabetes also increased.

[vii] The Centers for Disease Control and Prevention National Center for Health Statistics distinguishes unintentional causes of death from deaths due to self-injury (Suicide) and deaths due to intentional violence (Homicide). In 2020, suicide was the 12th leading cause of death and homicide was the 16th leading cause of death.

Opioid use and violence have been powerful contributors to premature deaths. Years of potential life lost (YPLL) is a measure of premature death. It adjusts mortality statistics for age at death, estimating the average time that a person would have lived had she or he not died prematurely. Thus, YPLL highlights conditions that affect younger populations and accounts for the social and economic costs of premature death.

Figure 8. Ten leading causes of years of potential life lost, 2016-2020
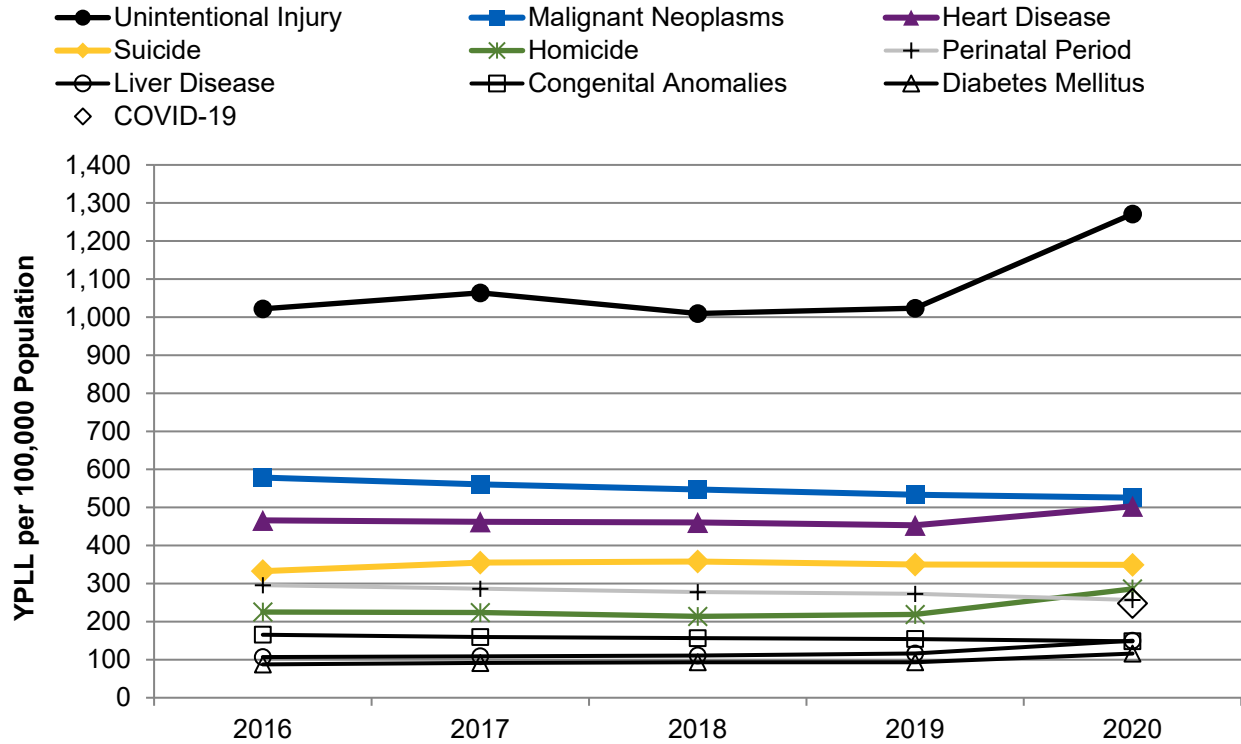
Source: Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS), 2016-2020.

- Unintentional injury (a plurality is due to opioid overdose) is by far the leading contributor to YPLL, due to its prevalence and effects on people across the age spectrum (Figure 8).
- After reaching the United States in 2020, COVID-19 became the seventh leading contributor to YPLL (248.0 years per 100,000 population in 2020).
- The effects of increased violence and lethality of violent means on younger populations are reflected in rising rates of YPLL due to unintentional injury (1,021.8 to 1,271.2 years per 100,000 population between 2016 and 2020) and homicide (225.3 to 286.0 years per 100,000 population between 2016 and 2020).
- YPLL rates have also increased for deaths caused by heart disease, liver disease, and diabetes.

Contributors to mortality rate and years of potential life lost varied according to their importance in age groups. Heart disease, cancer, unintentional injuries, COVID-19, and diabetes were among the 10 leading causes of both the mortality rate and YPLL. Apart from those conditions, the five leading contributors to YPLL but not to the overall mortality rate highlight issues of disproportionate importance for younger populations:

- Maternal/infant health (deaths due to perinatal events and congenital anomalies).
- Mental illness and substance use disorders.
- Deaths due to unintentional poisonings.
- Homicide.
- Liver disease (often resulting from alcohol use or hepatitis infections caused by injection drug use).

In contrast, the five diseases that were leading contributors to the mortality rate but not YPLL reflect causes from which older populations are more likely to die. Often death from these conditions is the culmination of long-term progression of chronic disease:

- Stroke.
- Chronic lung disease.
- Alzheimer's disease.
- Influenza and pneumonia.
- Kidney disease.

Chronic diseases contribute to many of the leading causes of death and years of potential life lost. Chronic diseases are conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both.[viii] Six in 10 adults in the United States have a chronic disease, and 4 in 10 have two or more chronic conditions.[4] Chronic conditions contribute to 7 of the 10 leading causes of death and 6 of the 10 leading causes of premature death.[5]

Communities, healthcare delivery organizations, and providers can reduce the burden of chronic diseases by facilitating lifestyles and behaviors that reduce risk factors associated with chronic diseases These include:

- Avoiding or reducing tobacco use and exposure to secondhand smoke.
- Eating a healthy diet.
- Engaging in regular physical activity.
- Avoiding or reducing use of alcohol, illicit opioids, and other substances.

[viii] Examples of chronic diseases include: *diseases of the brain*, such as stroke and traumatic brain injury; *affective disorders*, such as depression, anxiety, bipolar disorder, and schizophrenia; *vascular diseases*, such as high blood pressure, high cholesterol, heart disease, and stroke; *metabolic disorders*, such as diabetes and thyroid disease; *digestive diseases*, such as Crohn's disease; *liver diseases*, such as cirrhosis; *kidney diseases*, such as chronic kidney disease; *diseases of the joints*, such as arthritis; and *diseases of the blood*, such as thalassemia and sickle cell disease.

- Getting adequate sleep.
- Getting screened for preventable diseases.

Communities, healthcare delivery organizations, and providers can also build capacity to serve the specific needs of people with chronic diseases. People with a chronic disease typically require ongoing support to monitor and, if needed, adjust treatment during their lifetime. When people have multiple chronic diseases, each may interact with others in complex ways.

For example, hypertension and chronic kidney disease both increase risk for developing heart disease. However, hypertension also increases the risk for developing chronic kidney disease and complicates its management if it develops. Likewise, chronic kidney disease exacerbates high blood pressure and complicates the management of hypertension. Thus, people with multiple chronic diseases often benefit from interdisciplinary, coordinated healthcare services that can address their clinical needs as well as their health priorities, social needs, and health-related behaviors.[6]

Experts have noted that acute, episodic healthcare services, such as those typically delivered in hospitals, are often inadequate to prevent and mitigate the impact of chronic disease on the nation's health.[7,8] They instead point to primary care and community-based strategies as having the greater potential to meet the challenges posed by these conditions.[9,10]

Social Determinants of Health

Considerable evidence indicates that social determinants of health (SDOH)—social, economic, environmental, and community conditions—may have a stronger influence on people's health outcomes than clinical services provided by healthcare delivery systems.[11] Healthcare delivery systems and healthcare workers must account for SDOH when addressing patients' health concerns.

This section describes the extent to which SDOH factors are present among people in the United States, thus providing estimates for issues healthcare delivery systems must address to produce optimal health outcomes.

The importance of understanding SDOH is underscored in Healthy People 2030, which sets national objectives for improving health and well-being. Healthy People 2030 describes five SDOH domains that can influence health outcomes (Figure 9). One of the domains—**Health Care Access and Quality**—accounts for a population's ability to receive healthcare services when needed. That includes having healthcare services nearby and having insurance to cover the cost of receiving services. The NHQDR summarizes multiple measures related to the Healthcare Access and Quality domain later in this report.

Figure 9. Social Determinants of Health

Source: Healthy People 2030. https://health.gov/healthypeople/priority-areas/social-determinants-health.

Health insurance coverage in the United States has expanded in recent years. Health insurance increases access to healthcare, including preventive care and services for chronic diseases and major health conditions. Evidence from observational studies and randomized controlled trials such as the Oregon Health Insurance Experiment links having health insurance coverage with positive outcomes, including:

- Increased financial security,
- Access to primary care,
- Adherence to prescription medications,
- Screening for treatable health conditions (such as diabetes, cholesterol, HIV, and breast, prostate, and colon cancer),
- Improved perceptions of health,
- Reduced depression symptoms, and
- Earlier detection of cancer.[12,13]

The NHQDR mostly reports on disparities related to insurance status among people ages 0-64 years. It focuses on people less than age 65 years because more than 98% of Americans 65 years and over have Medicare.[14] Thus, almost no older adults lack insurance coverage since almost all are covered, at minimum, by public insurance (Medicare).

Insurance status for people ages 0-64 years consists of three categories:

- Private Insurance: Person has access to insurance from a private insurer.
- Public Insurance: Person receives insurance from one or more government-sponsored sources, including Medicaid, State Children's Health Insurance Program (S-CHIP), state

sponsored or other government-sponsored health plans, Medicare, and military and veteran health plans.

- Uninsured: Person does not have any health insurance.

Figure 10. People under 65 years of age with public, private, or no health insurance, 2020
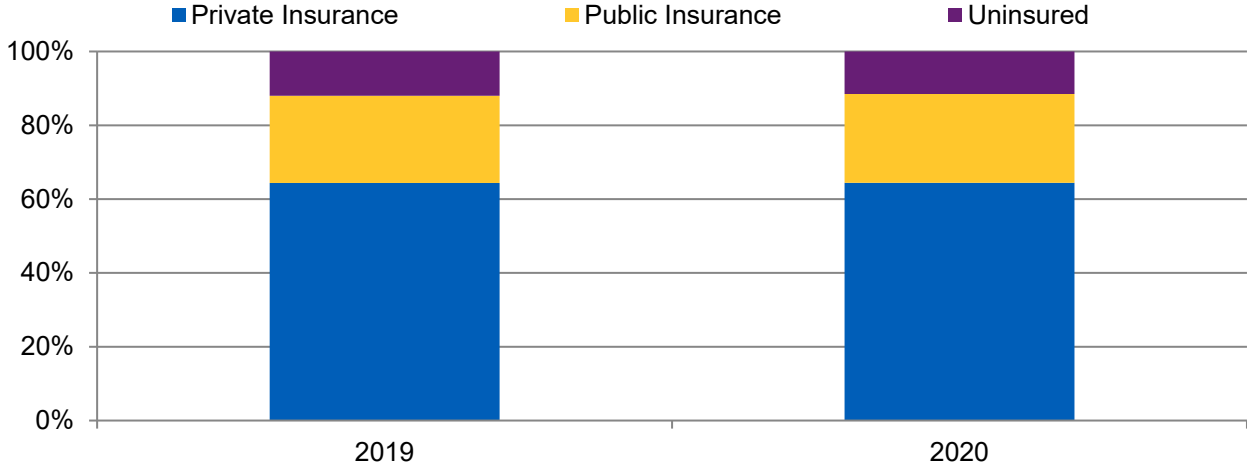
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2020.

- In 2020, an estimated 88.5% of people under age 65 had some form of health insurance (Figure 10).
- Of those who had health insurance, approximately 27% had public insurance (Medicaid or a combination of Medicare and Medicaid), while just under three-fourths had private insurance, often from an employer.

The distribution of people who have health insurance varies by demographic factors, including race, location, and other characteristics.

Figure 11. People with any health insurance, by race, ethnicity, and location of residence, 2020
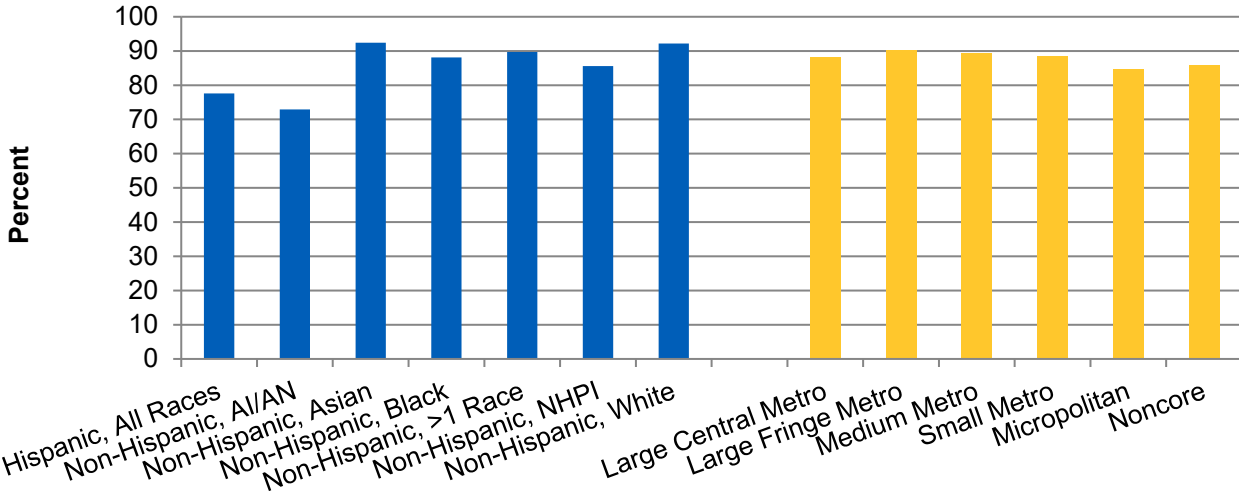
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2020.

- Among racial and ethnic groups, non-Hispanic Asian groups (92.4%) were the most likely to have any health insurance, followed by non-Hispanic White (92.2%), non-Hispanic Multiracial (89.7%), non-Hispanic Black (88.1%), non-Hispanic NHPI (85.6%), Hispanic (77.6%), and non-Hispanic AI/AN (72.9%) groups (Figure 11).
- Among location of residence, people in large fringe metro counties (i.e., "suburbs," 90.1%) were most likely to have any health insurance, followed by people in medium metro areas (89.3%), small metro areas (88.5%), large central metro areas (i.e., "cities," 88.0%), noncore counties (i.e., "rural," 85.9%) and micropolitan areas (i.e., "small towns," 84.5%).

Economic stability is associated with better health. The **Economic Stability** domain accounts for a population's ability to maintain steady employment and afford items needed to remain healthy, such as housing, utilities, food, and medications. It also considers how health issues, such as arthritis or health-related disabilities, can limit a person's ability to work, earn income, and accumulate wealth. Employment, income (the amount a person earns each year), and wealth (their net worth and assets) all enhance health.

The relationship between income and healthcare outcomes has been studied for many years, and researchers have shown the positive relationship between more income and better health outcomes.[15,16,17,18] Income is not the same as wealth, which can include assets other than income. Wealth is disproportionately dispersed among higher income categories, and research also shows a positive association between greater wealth and better health outcomes.

Federal guidelines defining the poverty level are issued annually in the *Federal Register* by the Department of Health and Human Services, Assistant Secretary for Planning and Evaluation.[ix] The poverty guideline (PG) (or poverty threshold) varies by family size and there are different family income criteria for the contiguous 48 states, Alaska, and Hawaii. The poverty guidelines are not defined for Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, the Republic of the Marshall Islands, the Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, or Palau.[19]

For most measures, the NHQDR tracks disparities data based on the ratio of household income to the PG for the household's size. For measures drawn from AHRQ's Healthcare Cost and Utilization Project (HCUP), income is defined using the median income of the patient's residential ZIP Code.[x]

[ix] Federal guidelines for determining poverty thresholds based on income, size of household, and other considerations are available online at https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references/2020-poverty-guidelines.

[x] Measures using data from the Healthcare Cost and Utilization Project analyze health outcomes by community-level household income. In 2020, the median households in the lowest earning quartile of ZIP Codes earned $49,999 or less each year, while the median household in the highest earning quartiles of ZIP Codes earned $86,000 or more. More detail can be found at https://www.hcup-us.ahrq.gov/db/vars/zipinc_qrtl/nisnote.jsp.

Figure 12. U.S. household Income distribution by percent population, 2020
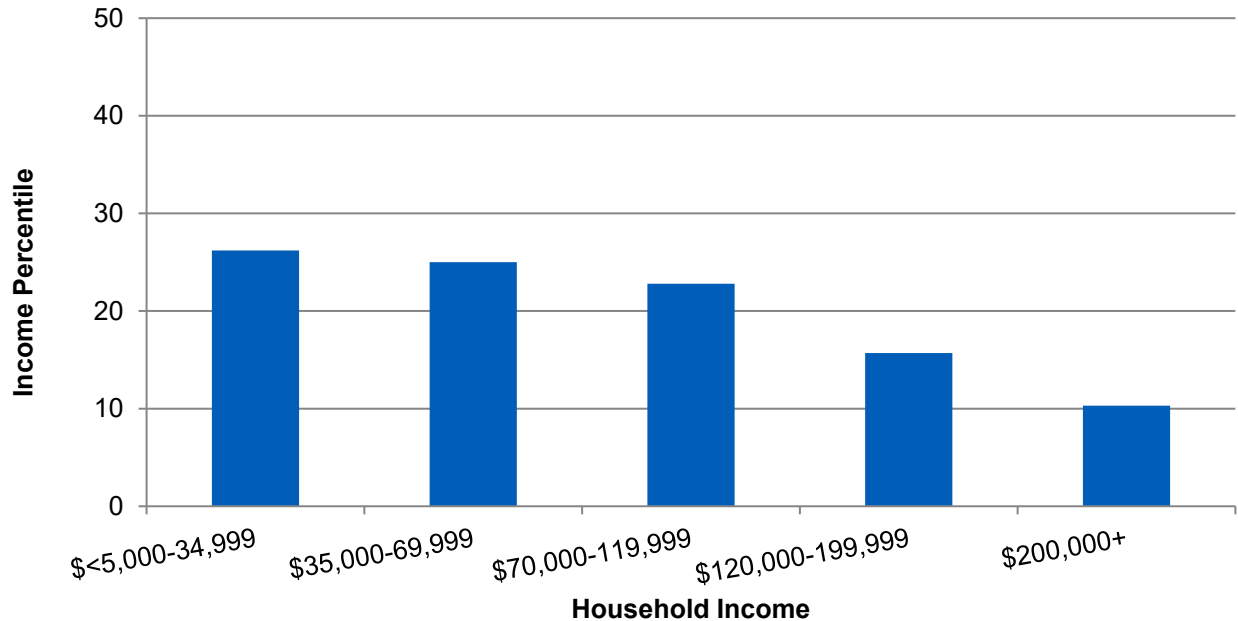
Source: U.S. Census Bureau. American Community Survey, 2020, Table HINC-06.
Note: Percentiles add to 100. Ranges represent quartiles but each quartile may represent less than or more than 25% of the population. The last quartile is divided into two groups, showing 15.7% and 10.3% of the population, respectively.

- In 2020, the median household income was $64,994 (data not shown). The lowest quartile of individual households earned less than $35,000 annually, while the highest quartile of households earned $120,000 or more each year (Figure 12).
- More than one-quarter of households (26.2%) earned less than $35,000 per year; the top 10% of households earned $200,000 or more per year.

The Census estimates that 12.8% of the population lives in poverty. Poverty is a state in which a person or household lacks sufficient financial resources to afford basic needs, such as food, shelter, or clothing. Poverty also hinders people from participating in community life, engaging in healthy activities, or accessing healthcare services when needed. Thus, people who live in poverty are particularly at risk for poor quality of care and undesirable health outcomes.

In 2020, the PG, which is used to determine income-to-PG ratios, was $12,760 for a one-person household, $17,240 for a two-person household, $21,720 for a three-person household, and $26,200 for a four-person household.

Figure 13. Cumulative percentage of U.S. households with different ratios of income to poverty, 2020
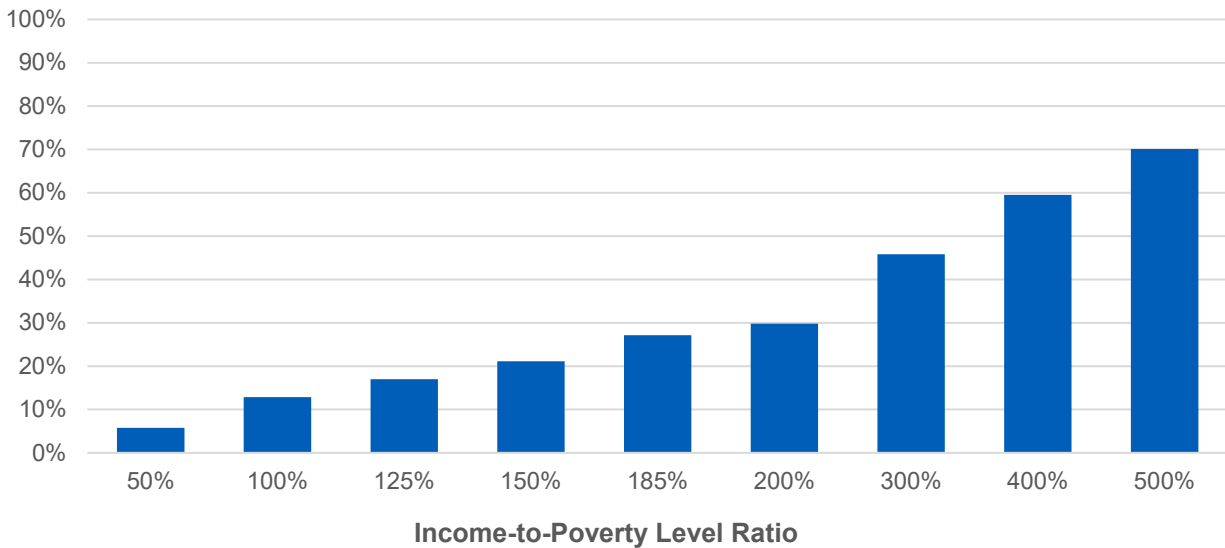
Source: American Community Survey, 5-year estimates, 2020, Table S1701.

- In 2020, 12.8% of the population had annual household incomes equal to or lower than the poverty threshold (Figure 13).
- Approximately 17% had household incomes between 100% and 199% of the poverty threshold.
- Almost 30% (29.7%) had household incomes between 200% and 399% of the poverty threshold.
- Almost 60% (59.5%) of the population had household incomes at or lower than 400% of the poverty threshold (meaning that more than 40% percent had household incomes at or higher than 400% of the poverty threshold).

Social connectedness is associated with better health. The **Social and Community Context** domain accounts for the influence that positive and negative relationships with family, friends, coworkers, and the broader community can have on health. This domain includes the ability to communicate with healthcare providers and navigate social norms in healthcare delivery processes. Interpersonal relationships and rapport with clinicians are difficult to measure in a population. However, a few statistics provide a window on this domain.

Five-year estimates from the American Community Survey report that 86.5% of the population were born in the United States, and 93.0% of the population are U.S. citizens. Of the 13.5% who were born outside the United States, 6.9% are naturalized U.S. citizens and 6.6% are not naturalized U.S. citizens.[20]

Nearly four-fifths (78.5%) of the population 5 years and over speak English as their primary language at home. Spanish is the second most spoken language in the United States (13.2%). Asian and Pacific Island languages account for 3.5%, other Indo-European languages for 3.7%, and other languages for 1.1%.[21]

Most communities appear to have relatively stable populations, with the vast majority (86.2%) staying in the same place the previous year. Fewer than 1 in 7 people (13.8%) reported moving in the previous year[21]:

- 7.7% moved within the same county.
- 3.2% moved to a different county but remained in the same state.
- 2.3% moved to a different state.
- 0.6% moved abroad.

Access to high quality education is associated with better health. The **Education Access and Quality** domain accounts for the association between having a higher level of education and living a longer, healthier life. Access to high-quality formal education can improve economic stability, enhance the likelihood of engaging in healthy behaviors, and improve a person's ability to understand and adhere to medical treatment.

Figure 14. Percentage of people in the United States enrolled in school, by age, 2020
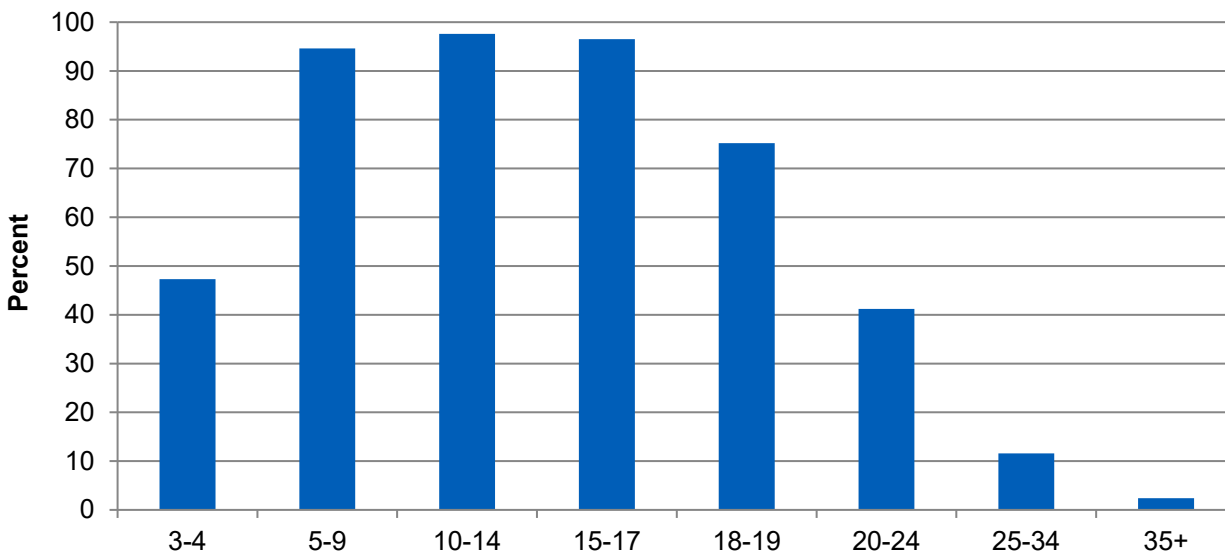
Source: American Community Survey, 5-year estimates, 2020, Table S1401.

- Just under half (47.3%) of children between 3 and 4 years old are enrolled in school. Nearly all children (94.6%) between 5 and 17 years are enrolled in school. School enrollment declines steadily after age 18 years (Figure 14).
- Among the population age 3 years and over and enrolled in kindergarten to 12th grade:

  - 7.5% are enrolled in kindergarten,
  - 29.8% are enrolled in grade 1 to grade 4,
  - 31.1% are enrolled in grade 5 to grade 8, and
  - 31.6% are enrolled in grade 9 to grade 12 (data not shown).

- Most adults age 25 years and over in the United States (88.5%) have a high school diploma. Approximately one-third have a bachelor's degree, and about 13% have a graduate or professional degree. About 20% of adults attended college but did not get a degree, and about 9% have an associate's degree. About 5% of the adult population did not attend school beyond eighth grade (data not shown).[22]

Health quality is influenced by community characteristics. The **Neighborhood and Built Environment** domain accounts for the influence that physical infrastructure (e.g., access to transportation, access to healthy food options, spaces for engaging in physical activity, and access to high-speed internet) and the environment (e.g., air quality, water quality) have on a population's health.

Broadband internet access is an example of the built environment as a social determinant of health. With healthcare delivery organizations expanding telehealth-based services, patients' access to healthcare services may come to depend on access to high-speed internet. Currently, about 85.0% of people in the United States have a broadband internet subscription. However, access varies by a person's household income. Nearly 15% have no internet, and less than 1% have dial-up only.[23] AHRQ has a data visualization on poverty and broadband access.

Healthcare Delivery Systems

The United States must have an adequate healthcare delivery infrastructure to meet population needs. Americans receive healthcare from a complex ecosystem of people, institutions, organizations, and resources. The healthcare workforce includes more than 60 occupations that provide direct care to patients, as well as many other administrative, technological, and support occupations.

Healthcare infrastructure includes diverse organizations, such as hospitals; long-term care facilities; home care services; ambulatory surgery centers; clinics; public health departments; health insurance plans; and various industries that produce medications, medical devices, and healthcare technological applications.

Staffing shortages may compromise the capacity to care for patients. Delivering high-quality care often requires that the right number and combination of healthcare workers are available and can work together effectively. For example, routine surgical procedures can be delayed if only a surgeon is present. Safe, high-quality procedures may require anesthesiologists, nurses, pharmacy staff, laboratory technicians, staff who clean operating rooms, staff to sterilize and safely store instruments, and other professions.

Reports of hospital and nursing home staff shortages due to increased healthcare worker turnover, burnout, prioritization of family obligations, illness, and death during the COVID-19 public health emergency have raised concerns about whether the United States has the capacity to deliver safe, high-quality care. Data from the Bureau of Labor Statistics (BLS) offers support for these concerns but also highlight important nuances.

The BLS classifies healthcare delivery "establishments" into major types of settings: ambulatory healthcare, hospitals, and nursing and residential care facilities. Its Standard Occupational Classifications lists more than 60 different healthcare occupations that provide direct care services in those settings. Other, non-direct-care occupations, such as office managers, security personnel, and catering, also work in healthcare settings.

This section uses data from the BLS Current Employment Survey and BLS Current Population Survey to describe overall workforce trends and trends for several types of healthcare occupations: physicians, registered nurses, advanced practice registered nurses (APRNs), and three sets of other groups of healthcare occupations, classified by level of education needed to enter their profession.[xi, 24]

Healthcare workers are diverse in terms of race and ethnicity. However, diversity varies among different types of occupations (Figure 15).

[xi] Our analysis grouped healthcare occupations into three categories according to the level of education typically required to enter a profession. Examples of occupations requiring an associate's degree or less education are dental hygienist, medical assistant, phlebotomist, emergency medical technician (EMT), licensed practical nurse (LPN), and licensed vocational nurse (LVN). Examples of occupations requiring a bachelor's or master's degree are occupational therapist, dietitian, and laboratory technician. Examples of occupations requiring a doctorate or equivalent training are pharmacist and podiatrist.

Figure 15. Percent distribution of race and ethnicity in different healthcare occupations
Occupations that typically require associate's degree or less education to enter

Healthcare Aides

18.1
1.5
40.4
5.9
30.7
3.4

EMTs and Paramedics

13.8
1.3
3.5
5.5
71.9
3.9

LPNs or LVNs

12.6
1.3
4.8
51.6
26.0
3.7
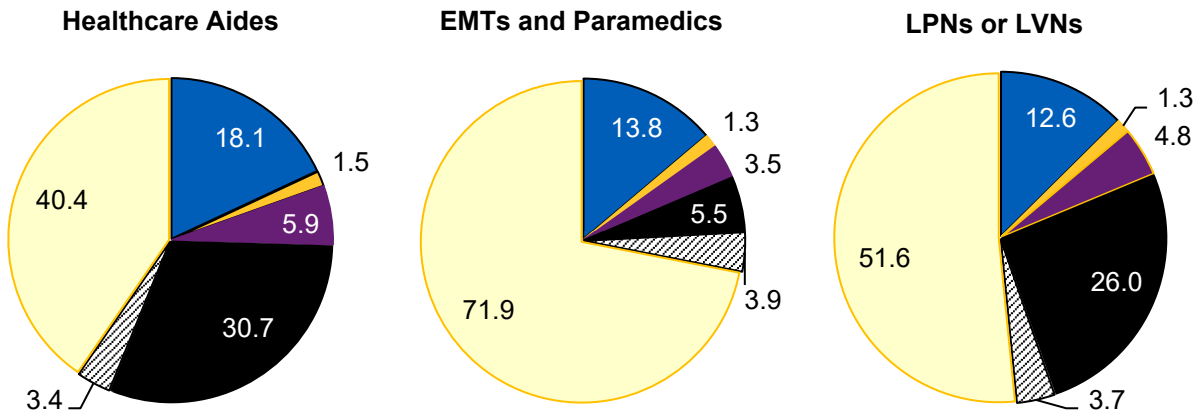
Occupations that typically require bachelor's or master's degree to enter

Substance Use Counselors

14.6
1.6
4.3
58.1
18.1
3.3

Physician Assistants

9.7
0.4
9.4
6.2
70.4
3.9

Registered Nurses

9.0
0.8
8.9
10.6
67.5
3.2
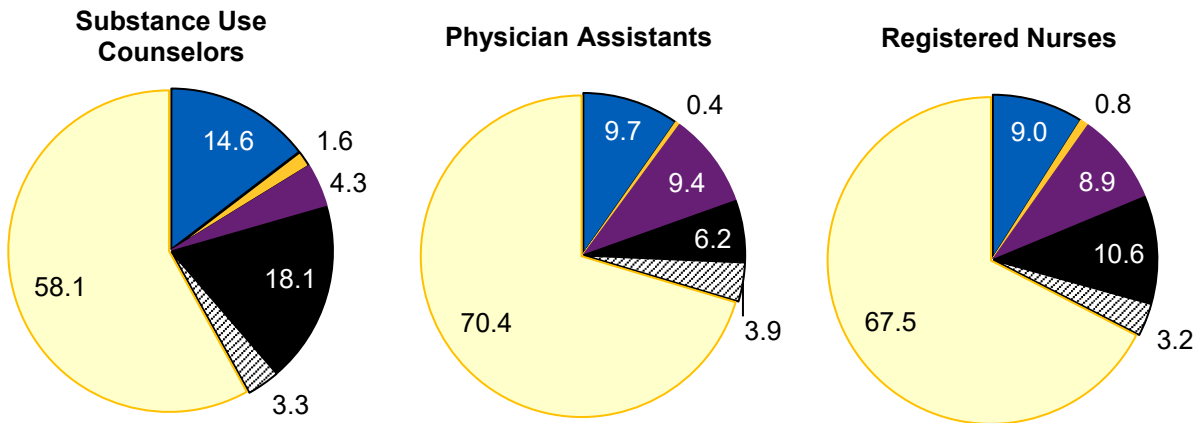
Occupations that typically require doctorate degree or equivalent to enter

Psychologists

10.6
0.4
3.1
7.6
3.4
75.0

Physicians

7.9
0.8
21.1
5.2
61.7
3.3

Advanced Practice Registered Nurses

7.0
0.6
5.8
6.9
2.4
77.4
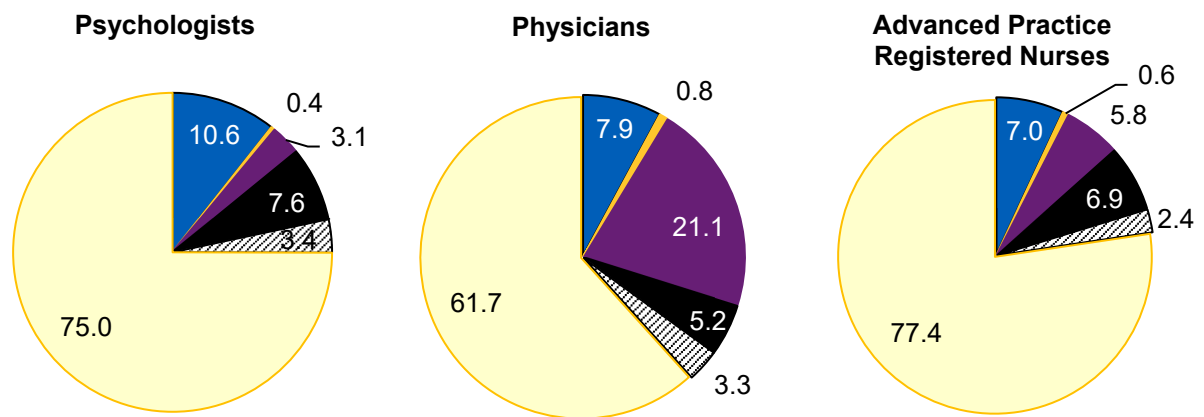
■ Hispanic, All Races
■ Non-Hispanic, AI/AN, NHPI, Other
■ Non-Hispanic, Asian
■ Non-Hispanic, Black
▨ Non-Hispanic, >1 Race
□ Non-Hispanic, White

Source: U.S. Census, American Community Survey.

The healthcare workforce included approximately 16.1 million workers as of January 2022, which was approximately 2% lower than it had been in January 2020 (immediately before the COVID-19 public health emergency). BLS data indicate worker experiences varied widely by which sector of healthcare delivery they worked in.

Figure 16. Number of workers employed and at work in ambulatory healthcare, hospitals, and nursing and residential care facilities, January 2020-January 2022
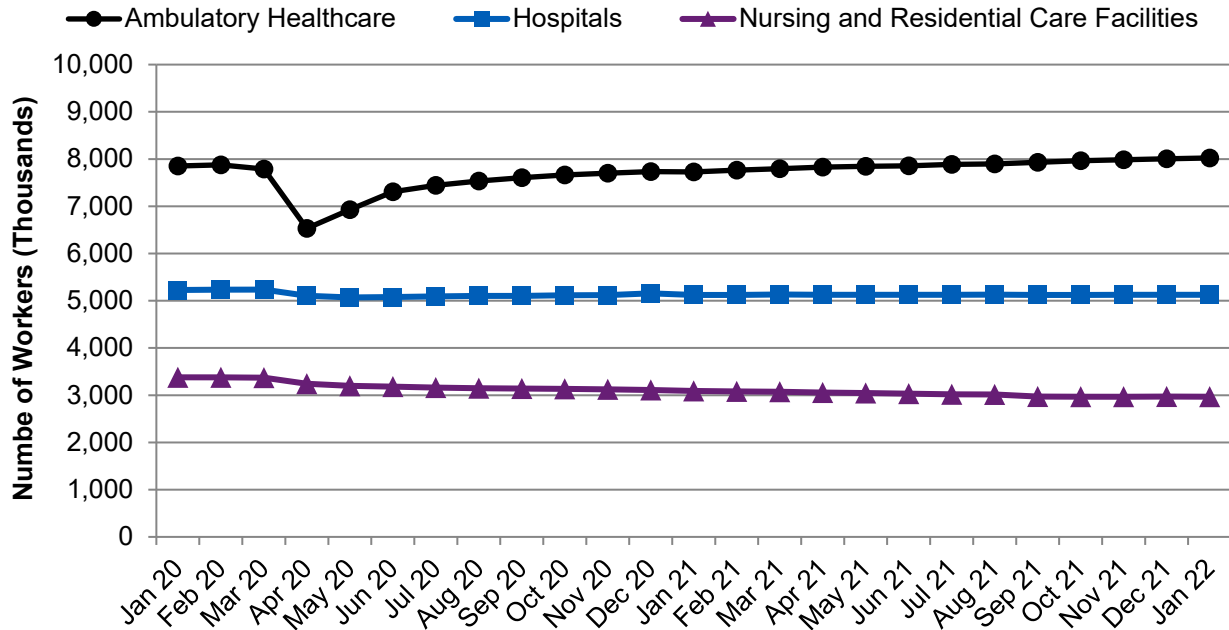
Source: Bureau of Labor Statistics, Current Employment Statistics (National), January 2020-January 2022. Accessed at https://www.bls.gov/ces/data/ on June 30, 2022.

- The number of employed and at work ambulatory healthcare workers decreased by 16.2% in April 2020, near the beginning of the COVID-19 public health emergency (Figure 16). However, employment in this setting quickly recovered and returned to higher levels than reported in January 2020. In January 2022, there were 8,023,100 workers in this setting.
- The number of workers employed and at work in hospitals decreased by 3.2% between March 2020 and May 2020. Employment in this setting has since increased but remained 2% below levels reported in January 2020, a statistically significant difference. In January 2022, there were 5,126,100 workers in this setting.
- The number of workers employed in the nursing and residential care facilities setting decreased steadily from 2020 to 2022. In January 2022, it was 12.1% lower than it had been in January 2020, a statistically significant decrease. In January 2022, there were 2,968,500 workers in this setting.

Data from the BLS Current Population Survey provide less statistically stable estimates due to smaller sample sizes. However, they allow examination of employment trends by occupation and worker demographic characteristics. The findings suggest that loss of workers in less highly educated professions explains most of the decrease in healthcare workforce size.

Figure 17. Number of nurses, advanced practice registered nurses, and physicians employed and at work in any healthcare setting, January 2020-January 2022
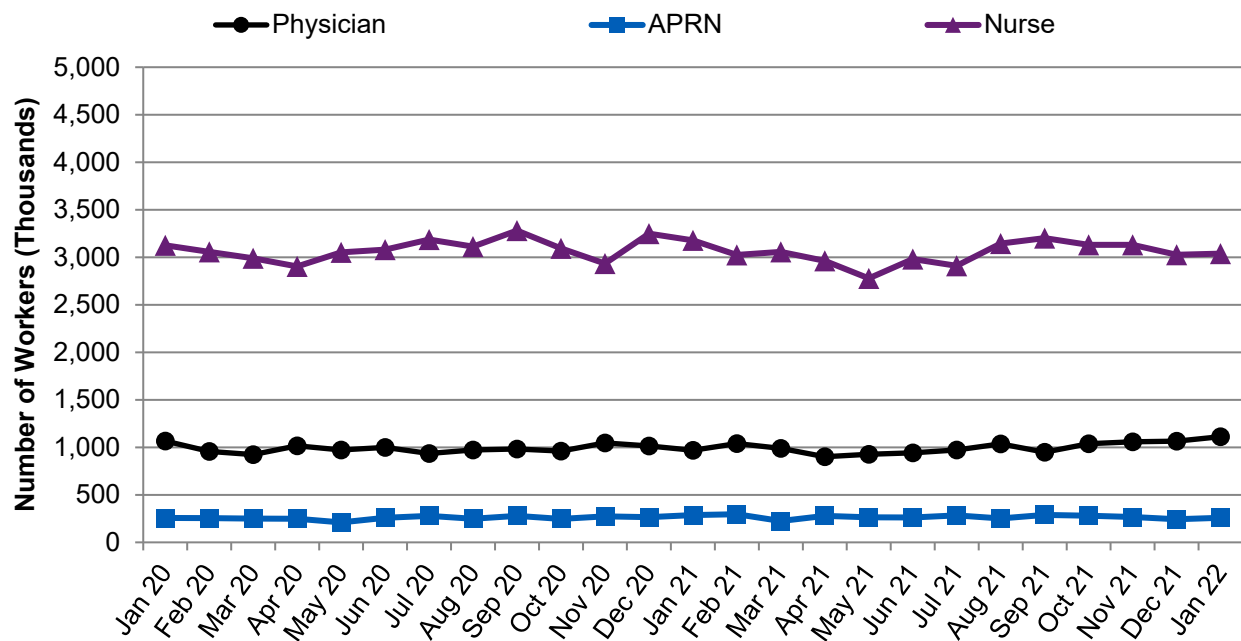
Source: U.S. Bureau of Labor Statistics, Current Population Survey, monthly data, January 2020-January 2022.

- The number of nurses employed and at work exhibited time-limited swings of up to 15.3% between September 2020 and May 2021, but the overall workforce size has not changed significantly since January 2020 (Figure 17).
- There were no statistically significant changes in the overall number of APRNs and physicians employed and at work from January 2020 through January 2022.

Figure 18. Number of workers in other healthcare occupations employed and at work in any healthcare setting, by education needed to enter the occupation, January 2020-January 2022
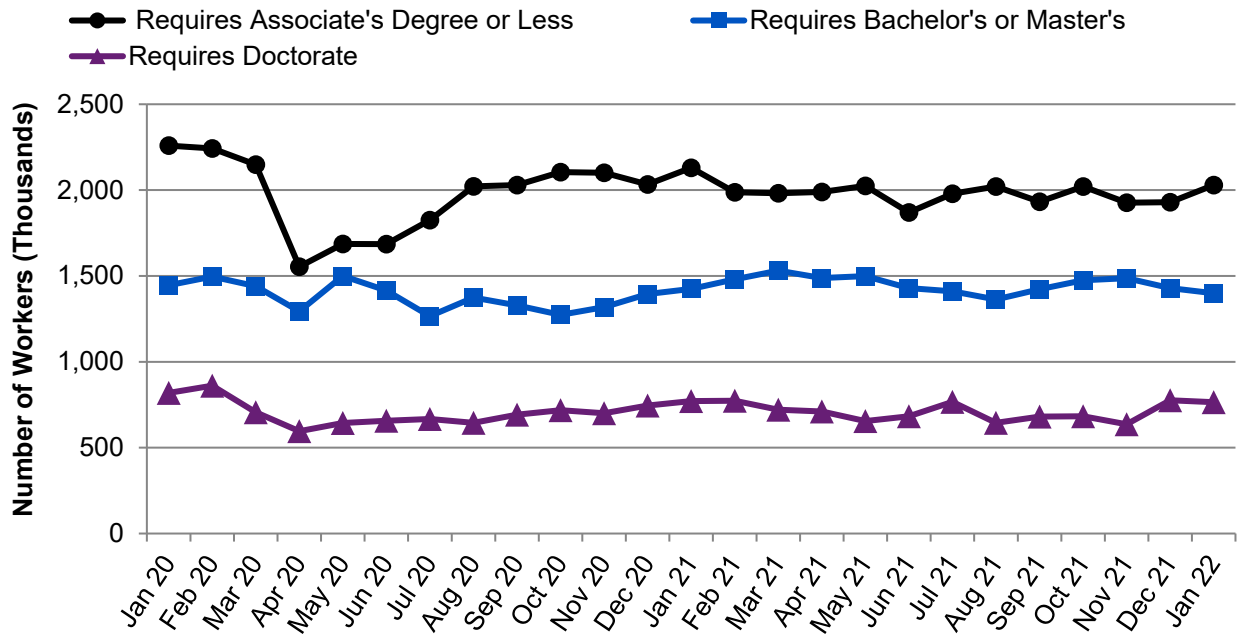
Source: U.S. Bureau of Labor Statistics, Current Population Survey, monthly data, January 2020-January 2022.

- The number of healthcare workers in professions that require an associate's degree, high school diploma, or less than high school education who were employed and at work decreased by 27.7% between March 2020 and April 2020 (Figure 18).

  - Since then, employment for workers in this group only partially recovered. At the end of January 2022, the number remained 10.2% lower than it had been in January 2020, a statistically significant decrease.
  - At the end of January 2022, there were 2,029,000 healthcare workers in this category employed and at work.

- By comparison, between January 2020 and the end of January 2022, there were no statistically significant changes in employment levels for healthcare workers in professions requiring a bachelor's degree or higher level of education. At the end of January 2022, there were 1,399,000 healthcare workers in occupations requiring bachelor's or master's degrees and 765,000 workers in occupations requiring doctorate degrees.

In a complex U.S. healthcare system, medical offices remain by far the setting most commonly visited for care. In any given year, most people in the United States interact with healthcare delivery systems through routine office-based physician visits. A smaller percentage of people seek emergency care services, and even fewer require hospitalization. In 2020, 83.4% of adults and 94.0% of children had an office visit with a doctor or other healthcare professional in the past year.[25] For comparison, 19.0% of adults had an emergency department visit that year.[25] In 2018, only 7.4% of people in the United States required an overnight hospital stay.[26]

Ambulatory Medical and Surgical Offices

In 2018, there were 860.4 million medical physician office visits, or 267.1 visits per 100 people. Just over half (136.6 visits per 100 person) were with a primary care provider. Approximately one-quarter of encounters (67.1 visits per 100 people) were with medical specialists, and just under one-quarter (63.3 visits per 100 people) were with surgical specialists.[27]

Figure 19. Major reasons for office-based physician visits, by patient age, 2018
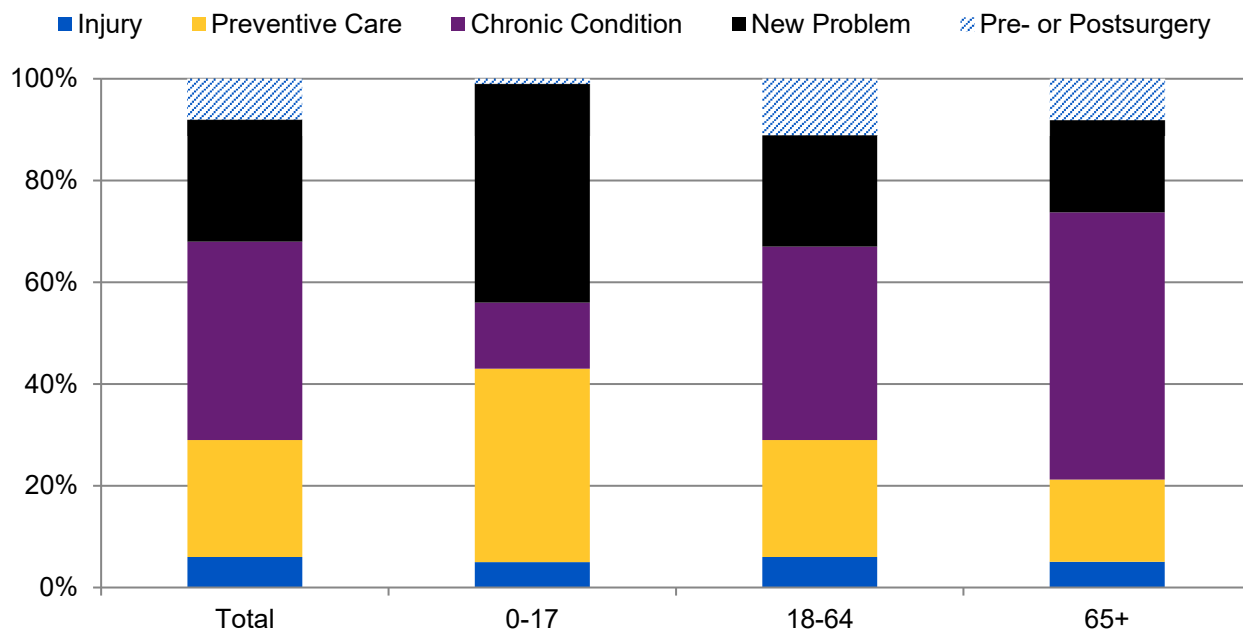
Source: Ashman JJ, Santo L, Okeyode T. Characteristics of Office-Based Physician Visits, 2018. NCHS Data Brief. 2021 May;(408):1-8. https://www.cdc.gov/nchs/products/databriefs/db408.htm.

- Overall, most office visits (39.0%) were for managing one or more chronic conditions, followed by evaluating a new problem (24.0%), providing preventive care services (23.0%), and performing pre- or postoperative evaluation (8%) (Figure 19).
- Only 6.0% of ambulatory healthcare visits were for evaluation or management of an injury.
- Among children less than 18 years old, this overall pattern of visits differs, giving greater emphasis to visits for new problems and preventive services.

The 10 leading principal reasons for visits account for less than half (41.6%) of all reasons for all office visits. The list illustrates the wide scope of healthcare services delivered in ambulatory settings. It also highlights primary care offices' counseling, medication maintenance, and followup activities, which are central to successfully managing chronic diseases.**Error! Bookmark not defined.**

The top reasons are:

- Progress visit, not otherwise specified (17.6%).[xii]
- General medical examination (6.3%).
- Postoperative visit (3.1%).
- Other and unspecified test results (2.3%).
- Prenatal examination, routine (2.3%).
- Knee symptoms (2.2%).
- Cough (2.1%)
- Medication (prescribing or refill), other and unspecified kinds (2.0%).
- Hypertension (1.9%).
- Counseling, not otherwise specified (1.8%).

Living in proximity to primary care services could improve a person's likelihood of receiving high-quality care for chronic disease. However, many communities in the United States report limited or no access to primary care, especially nonmetropolitan communities. The Health Resources and Services Administration (HRSA) has designated 7,955 locations, population groups, and healthcare facilities as Primary Care Health Professional Shortage Areas (HPSAs). More equitable distribution of primary care providers may reduce the number of primary care HPSAs. HRSA reports that there were 256,220 full-time-equivalent primary care providers in 2018[28] and estimates that 16,461 additional practitioners would fulfill the needs of existing HPSAs.[29]

[xii] Terms in this list are based on the National Ambulatory Medical Care Survey's Reason for Visit Classification for Ambulatory Care, defined in the 2018 Public Use File Documentation. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NAMCS/doc2018-508.pdf.

Figure 20. Counties where all, part, or none of the county is a Primary Care HPSA
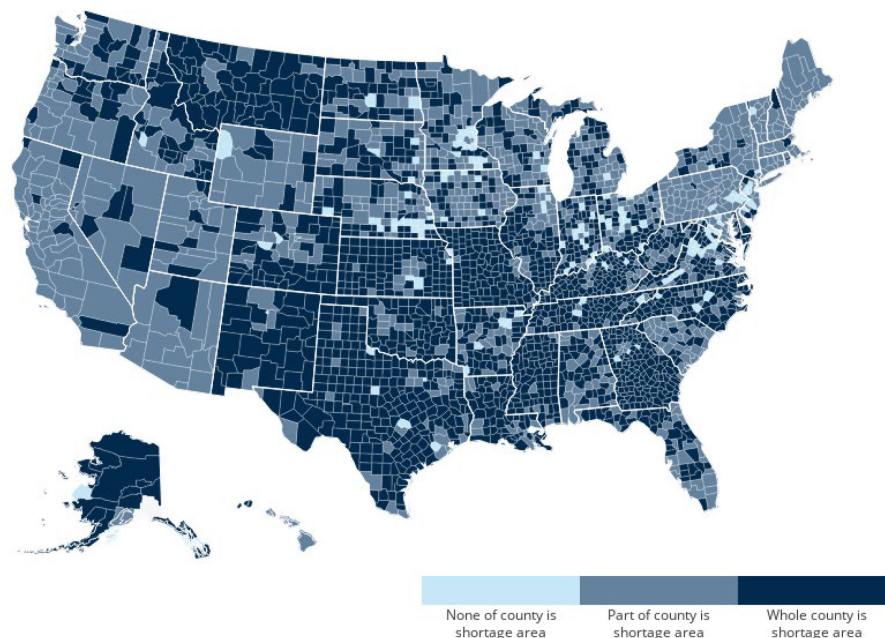
Source: Rural Health Information Hub. Population in Primary Care HPSAs (Health Professional Shortage Area) for Metro and Nonmetro Counties, 2022. https://www.ruralhealthinfo.org/charts/6.

- Overall, 1,963 (62.5%) of 3,141 counties and county equivalents are classified as "whole county shortage areas." Of these, 562 (28.6%) are metropolitan counties and 1,401 (71.4%) are nonmetropolitan counties (Figure 20).

- In contrast, only 169 (5.4%) counties and county equivalents are classified as having "no primary care shortage area." Approximately two-thirds (112 or 66.3%) are metropolitan counties while only 57 (33.7%) are nonmetropolitan counties.

- More rural counties have primary care HPSAs than metropolitan counties. However, most people who live in areas designated as primary care HPSAs live in metropolitan counties because those counties are more densely populated.

  - Of the approximately 79 million people who live in counties where the entire county has been designated a primary care HPSA, 51 million (64.6%) are in metropolitan counties and 28 million (35.4%) are in nonmetropolitan counties.[30]
  - Of the approximately 226 million people who live in counties where part of the county has been designed a primary care HPSA, 210 million (92.9%) are in metropolitan counties, and 16 million (7.0%) live in nonmetropolitan counties.[29]
  - Approximately 22.6 million people live in counties where none of the county has been designated a primary care HPSA. Nearly all (21 million or 92.9%) live in metropolitan counties.[29]

Emergency Departments

Emergency departments (EDs) play a critical role in healthcare delivery systems as a provider of acute care and an important gateway for hospitalization.[31] Their central role in healthcare delivery is supported in part by the Emergency Medical Treatment and Labor Act, which requires hospitals to provide acute medical care to all patients, regardless of their demographic characteristics or ability to pay.[32] In 2019, there were approximately 151 million ED visits, or 46.6 visits per 100 people.[33]

Figure 21. Triage status of emergency department visits, 2019
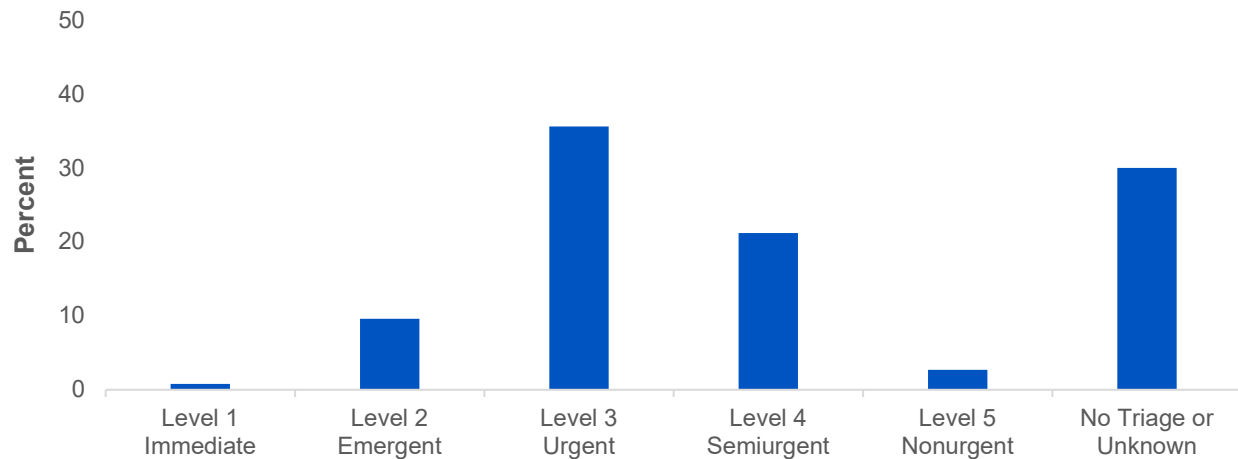
- Among visits with triage data available, nearly two-thirds (65.7%) of visits were classified as "urgent" or higher acuity, 30.3% were classified as "semiurgent," and only a few (3.9%) were deemed "nonurgent" (Figure 21).

The five most common ED diagnoses recorded in 2019 account for approximately two-thirds of all diagnoses made in this setting.[33] They reflect EDs' importance as a source of care for conditions that lack a definitive diagnosis or may require urgent treatment. These diagnoses are:

- Symptoms, signs, and abnormal clinical laboratory findings, not classified elsewhere (25.9%).
- Injury, poisoning, and certain other consequences of external causes (17.4%).
- Diseases of the respiratory system (10.5%).
- Diseases of the musculoskeletal system and connective tissue (7.4%).
- Diseases of the digestive system (6.0%).

Although the number of freestanding EDs (defined as EDs that are not physically attached to a hospital) has increased in recent years, most EDs are located within hospitals.[34]

Hospitals

Hospitals are organizations that bring together different types of healthcare professionals, diagnostic and therapeutic equipment, and services, typically to provide medical and surgical care for short-term (acute) illnesses.[35] In 2022, the American Hospital Association (AHA) counted 6,093 hospitals with a total of 920,531 staffed beds in the United States.[36] Most are community hospitals.

More specifically:

- Nearly half (48.6%) are not-for-profit, nongovernment community hospitals,
- About one-fifth (20.2%) are for-profit, nongovernment community hospitals,
- Close to one-sixth (15.6%) are state and local government community hospitals,
- About one-tenth (10.4%) are nonfederal psychiatric hospitals,
- A small portion (3.4%) are federal government hospitals, and the remaining 1.8% are other types.[36]

Most hospitals (3,483 or 57.2%) are affiliated with a health system, which the AHA defines as "a central organization linking either two or more hospitals, or a hospital and three or more non-acute care entities, such as a multispecialty outpatient office or a skilled nursing facility."[xiii] Health systems have the potential to extend the efficiencies hospitals offer by linking them to a broader network of resources and services than any individual hospital can provide onsite.

Hospitals Serving Communities That Experience Higher Risk for Poor Health Outcomes

The NHQDR focuses additional attention to care delivered by three types of hospitals that play an important role in rural areas and other at-risk communities. The Healthcare Cost and Utilization Project (HCUP), which supplies data for many NHQDR measures, defines minority-serving hospitals (MSHs) as hospitals with the 25% highest number of discharges for people who are not identified as non-Hispanic White race/ethnicity. HCUP similarly defines safety net hospitals (SNHs) as hospitals that have the highest 25% of hospital discharges paid for by Medicaid or uninsured. (It should be noted, however, that academic literature offers varying definitions for SNHs.)

MSHs and SNHs are often large, located in metropolitan centers, and classified as teaching hospitals. Although the MSH and SNH designations do not confer additional resources on hospitals, they provide a useful window for understanding differences in hospital performance.

[xiii] The AHRQ Comparative Health System Performance Initiative similarly defines a health system as "an organization that includes at least one hospital and at least one group of physicians that provides comprehensive care (including primary and specialty care) who are connected with each other and with the hospital through common ownership or joint management." More information and additional resources for examining health systems may be found in the AHRQ Compendium of Health Systems: https://www.ahrq.gov/chsp/data-resources/compendium.html.

Critical Access Hospitals (CAHs) are facilities that meet certain statutory and regulatory criteria. Such criteria include having fewer than 25 acute care inpatient beds, providing 24/7 emergency care services, being located more than 35 miles from another hospital or CAH (with exceptions), and maintaining an annual average length of stay of 96 hours or less.[37] CAHs are thus smaller than most hospitals, and most are located in rural communities (Figure 22). The Centers for Medicare & Medicaid Services (CMS) certifies a facility as a CAH if it (1) is located in a state that has established a Medicare rural hospital flexibility program; (2) is designated as a CAH by the State in which it is located; and (3) meets other criteria CMS may require.

Figure 22. Distribution of critical access hospitals in the United States, 2022
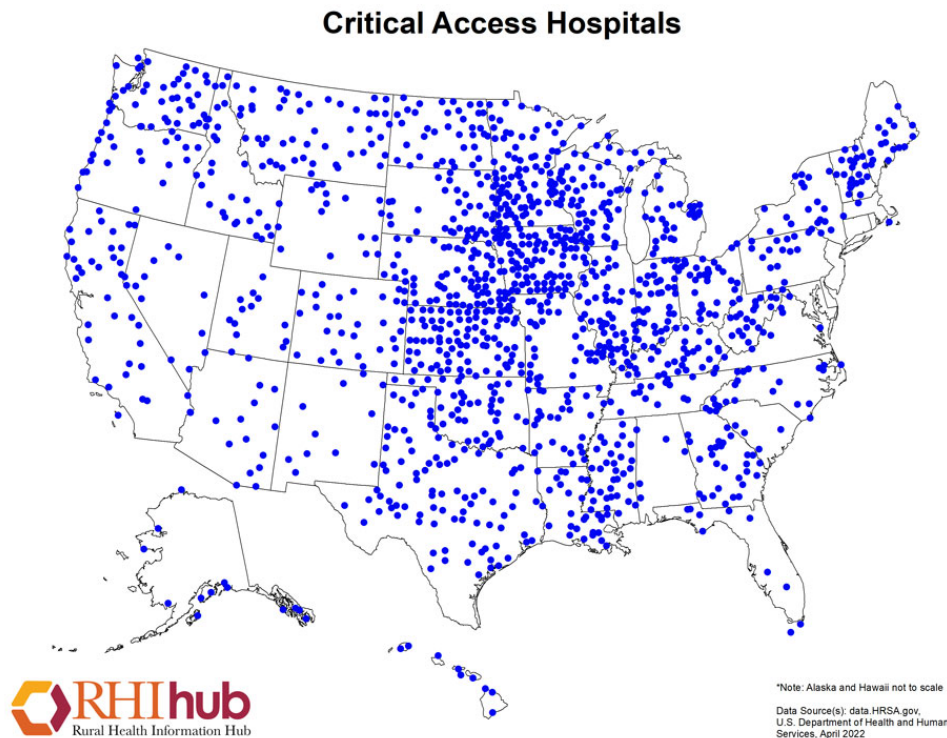
Source: Rural Health Information Hub, using data.HRSA.gov, April 2022.

Hospital availability in nonmetropolitan (rural) communities is of particular interest to the nation's health. In sparsely populated communities, hospitals may be the only source for routine and specialized services that would otherwise be unavailable. They also are often the only source of emergency and after-hours care. Thus, when rural hospitals are unavailable or stop providing services, access to healthcare services may be hindered.

For example, 135 rural hospitals closed between 2010 and 2020. The Government Accountability Office (GAO) recently examined the effects of rural hospital closures on healthcare services and found people who lived in a closed hospital's service area had to travel considerably farther to access dental, mental health, substance use, and obstetric services, as well as services typically associated with hospital care (Figure 23).[38]

Figure 23. Median distance people in the service area of a rural hospital that offered a selected healthcare service in 2012 traveled to receive the service after the hospital closed, 2018
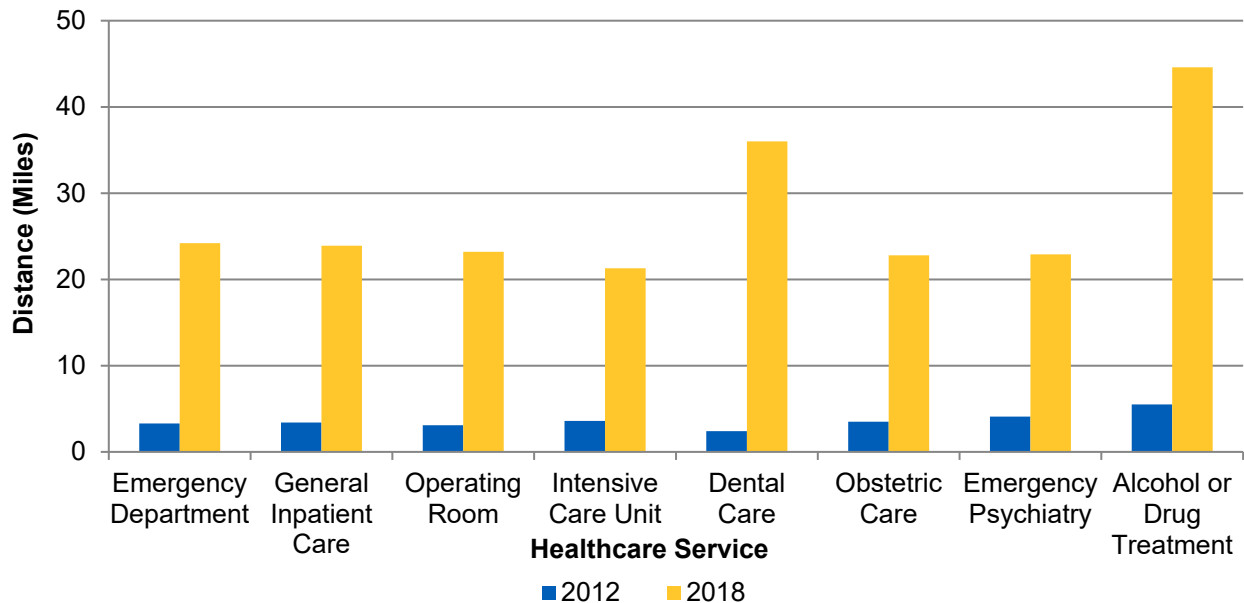
Source: Report to the Ranking Member, Committee on Homeland Security and Governmental Affairs, United States Senate. Rural Hospital Closures: Affected Residents Had Reduced Access to Healthcare Services. GAO-21-93. Washington, DC: Government Accountability Office; December 2020. https://www.gao.gov/products/gao-21-93.

Data from the North Carolina Rural Health Research Program suggests that rural hospitals have closed at an accelerating pace. Although concern was heightened during the early phases of the COVID-19 public health emergency, data point to a trend that preceded the emergency (Figure 24). The NHQDR team continues to monitor this trend.

Figure 24. Number of rural hospital closures by year, 2005-2020
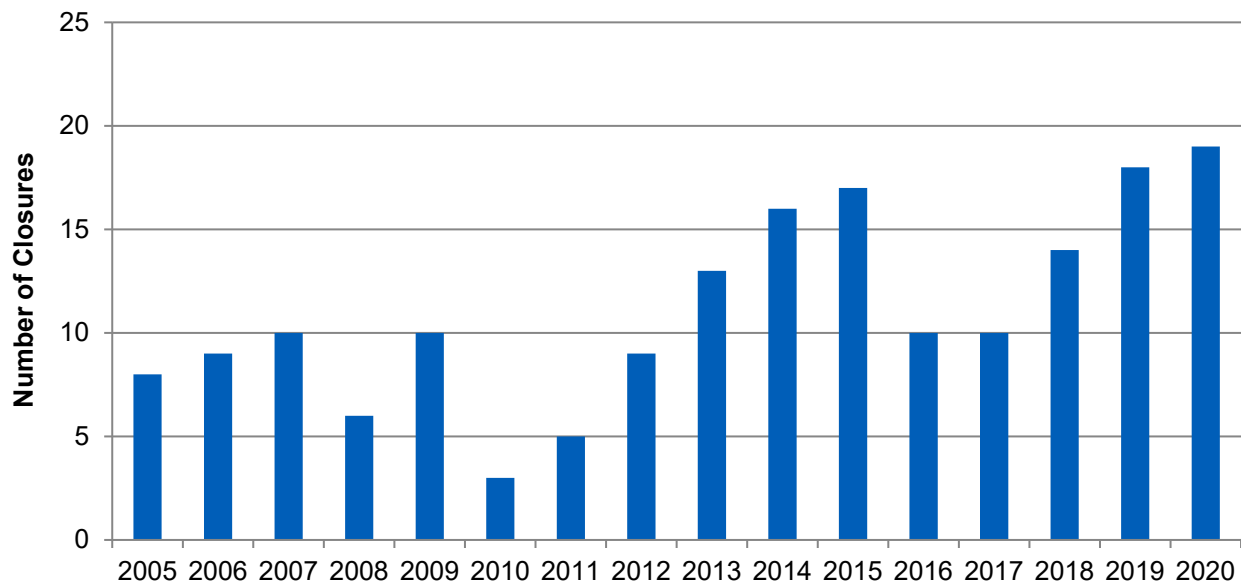
Source: North Carolina Rural Health Research Program. Rural Hospital Closures, 2005-2020. https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/.

Hospital Bed Capacity

Although hospitals provide a wide range of services, not every hospital provides every service, and not every staffed bed may be appropriate for every need. The AHA notes that 789,354 (85.7%) staffed beds are in community hospitals,[36] and 696,233 (76%) beds are in hospitals affiliated with health systems.[39] However, only some support general healthcare activities, while many staffed beds are intended for specialized purposes, such as intensive care, care for children, or labor and delivery.

For example, the AHA estimates that 112,359 (12.2%) staffed hospital beds are designated for providing intensive care services.[36] However, the specific types of critical care services they provide vary (Figure 25). While a hospital where the need for medical-surgical intensive care beds has exceeded capacity may realistically reallocate a cardiac intensive care bed to treat an adult with pneumonia-induced respiratory failure, it would be much more challenging to reallocate neonatal intensive care beds for the same purpose.

Figure 25. Types of staffed intensive care beds in community hospitals, 2019

- ■ Medical-Surgical Care
- ■ Cardiac Care
- ■ Neonatal Care
- ■ Pediatric Care
- ◨ Burn Care
- ☐ Other Intensive Care

Source: American Hospital Association. Fast Facts on U.S. Hospitals, 2022. https://www.aha.org/system/files/media/file/2022/01/fast-facts-on-US-hospitals-2022.pdf.
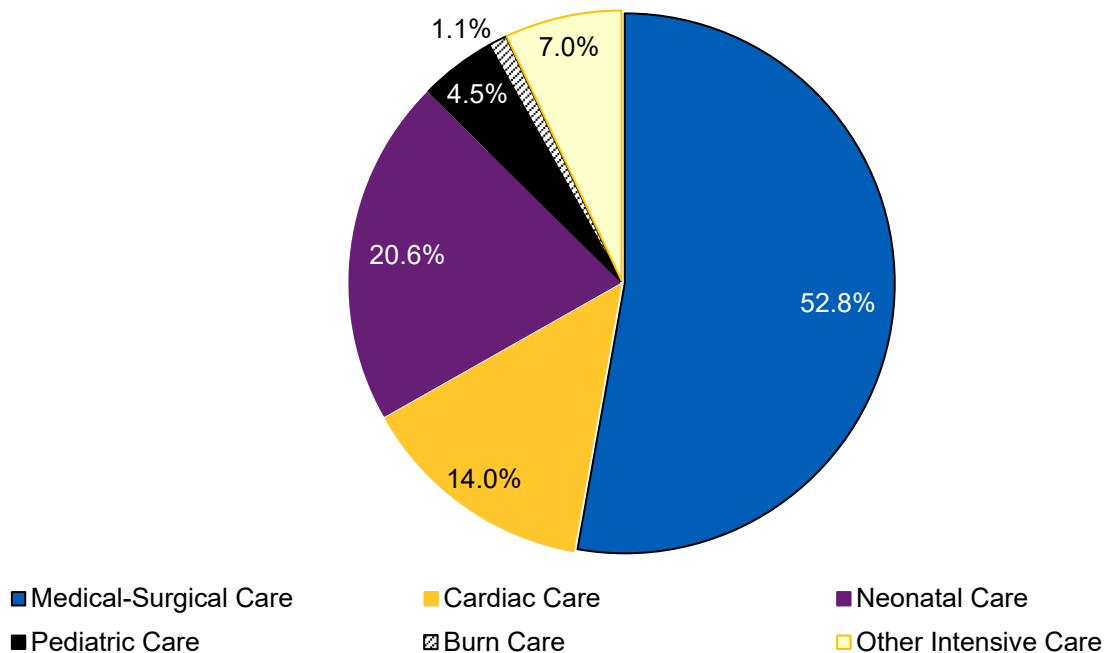
The number and type of hospital beds available in a community, especially in relation to specific needs, may provide a more meaningful way to assess the United States' capacity to anticipate and meet demand for hospital services. During the COVID-19 public health emergency, the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network established a system for estimating general medical and intensive care bed capacity at national and state levels. The system allowed estimates to be updated biweekly to provide federal decision makers with timely guidance. Although no longer updated after July 2020, the hospital capacity dashboard (https://www.cdc.gov/nhsn/covid19/report-overview.html) still provides valuable information about the distribution of acute care services in the United States.

Personal Healthcare Expenditures

"Personal healthcare expenditures" measures the total amount spent to treat individuals with specific medical conditions. It includes all the medical goods and services used to treat or prevent a specific disease or condition in a specific person. These include hospital care; professional services; other health, residential, and personal care; home healthcare; nursing care facilities and continuing care retirement communities; and retail outlet sales of medical products.[40]

Hospital care accounted for nearly 40 percent of healthcare spending (Figure 26). Although relatively few people in the United States require hospitalization, the people who do often need care that is complex, labor intensive, and expensive. Thus, acute and post-acute care services account for almost half of the nation's personal healthcare expenditures.

Figure 26. Distribution of personal healthcare expenditures by type of expenditure, 2020
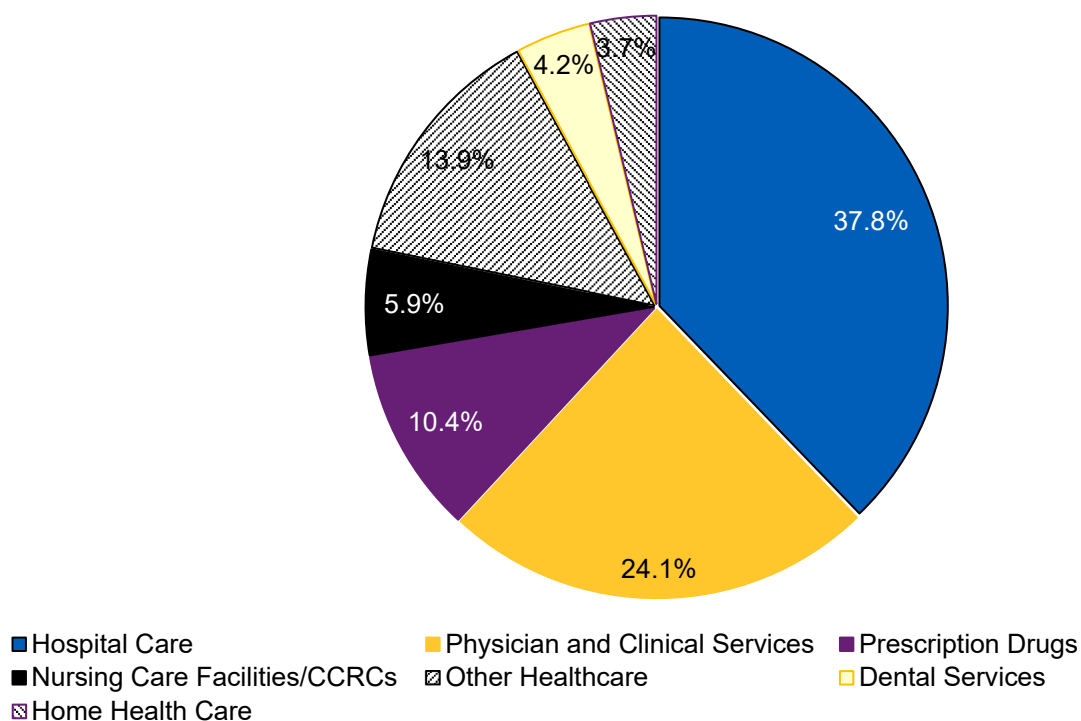
Key: CCRCs = continuing care retirement communities.
Source: Centers for Medicare & Medicaid Services, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html.
Note: Personal healthcare expenditures are outlays for goods and services related directly to patient care. These expenditures are total national health expenditures minus expenditures for investment, health insurance program administration and the net cost of insurance, and public health activities. Other Healthcare refers to other professional services, other health, residential, and personal care expenses, durable medical equipment, and non-durable medical products.

Private insurance paid for more healthcare than any other source (Figure 27).

Figure 27. Personal healthcare expenditures, by source of funds, 2020
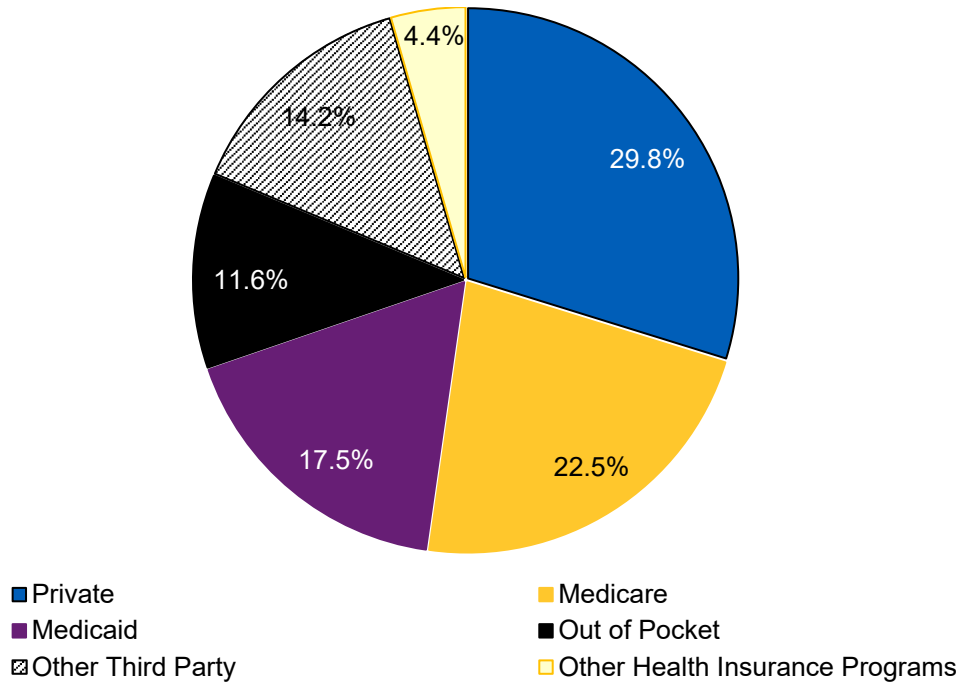
Legend:
- Private
- Medicare
- Medicaid
- Out of Pocket
- Other Third Party
- Other Health Insurance Programs

Source: Centers for Medicare & Medicaid Services, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2020; and NHE Tables 6, 7, 8, 12, 14, and 15.
Note: Data are available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html. Personal healthcare expenditures are outlays for goods and services related directly to patient care. These expenditures are total national health expenditures minus expenditures for investment, health insurance program administration and the net cost of insurance, and public health activities.
Other health insurance programs include Children's Health Insurance Program (Titles XIX and XXI) and programs available through the Department of Defense and the Department of Veterans Affairs. Other third-party payers may include worksite healthcare, other private venues, Indian Health Service, workers' compensation, general assistance, maternal and child health programs, vocational rehabilitation programs, other federal programs, Substance Abuse and Mental Health Services Administration, other state and local programs, and school health programs.

- Private insurance accounted for 32% of hospital, 37% of physician, 13% of home health, 9% of nursing home, 42% of dental, and 40% of prescription drug expenditures (data not shown).

- Medicare accounted for 25% of hospital, 24% of physician, 34% of home health, 20% of nursing home, 2.0% of dental, and 32% of prescription drug expenditures (data not shown).

- Medicaid accounted for 17% of hospital, 11% of physician, 33% of home health, 27% of nursing home, 9% of dental, and 10% of prescription drug expenditures (data not shown).

- Out-of-pocket payments accounted for 3% of hospital, 7% of physician, 10% of home health, 23% of nursing home, 37% of dental, and 13% of prescription drug expenditures (data not shown).

- Hospital care accounted for the most expenditures in all insurance categories.

Private health insurers covered more prescription drug expenditures than other payers.

Figure 28. Prescription drug expenditures, by source of funds, 2020
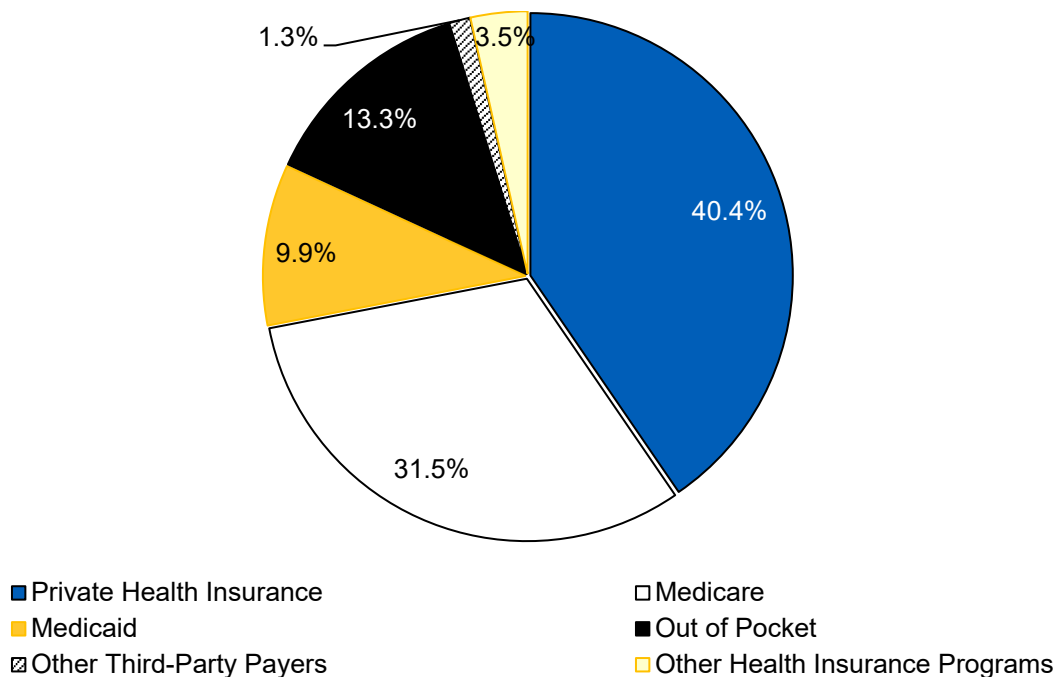
Source: Centers for Medicare & Medicaid Services, NHE Table 16, Retail Prescription Drugs Expenditures; Levels, Percent Change, and Percent Distribution, by Source of Funds: Selected Calendar Years 1970-2020.
Note: Data are available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html. Personal healthcare expenditures are outlays for goods and services related directly to patient care. These expenditures are total national health expenditures minus expenditures for investment, health insurance program administration and the net cost of insurance, and public health activities.
Other health insurance programs include Children's Health Insurance Program (Titles XIX and XXI) and programs available through the Department of Defense and the Department of Veterans Affairs. Other third-party payers may include worksite healthcare, other private venues, Indian Health Service, workers' compensation, general assistance, maternal and child health programs, vocational rehabilitation programs, other federal programs, Substance Abuse and Mental Health Services Administration, other state and local programs, and school health programs.

- In 2020, retail prescription drug expenditures were $348.4 billion. Patients paid 13% of these expenses out of pocket (Figure 28), totaling $46.5 billion (rounded). All other health insurance entities, including private health insurance, Medicare, Medicaid, other health insurance programs, and third-party payers, accounted for 87% of the total costs ($302 billion, rounded).

  - Private health insurance companies accounted for 40.4% of retail drug expenses ($140.9 billion in 2020).
  - Medicare accounted for 31.5% of retail drug expenses ($109.9 billion).
  - Medicaid accounted for 9.9% of retail drug expenses ($34.5 billion).
  - Other health insurance programs accounted for 3.5% of retail drug expenses ($12.3 billion).
  - Other third-party payers had the smallest percentage of costs (1.3%), which represented $4.4 billion in retail drug costs.

Geographic Variations in Care

States have been described as "laboratories of democracy"[41]; variations in quality of care and health disparity measures provide indicators to guide efforts to improve state-specific healthcare delivery.

State-level data show that healthcare quality and disparities vary widely depending on state and region. Although a state may perform well in overall quality, the same state may face significant disparities in healthcare access or disparities within specific areas of quality.

State-level analysis included 179 measures for which state data were available. Of these measures, 137 are core measures and 42 are supplemental measures from the National CAHPS[xiv] Benchmarking Database, which provides state data for core measures with Medical Expenditure Panel Survey national data only. The state healthcare quality analysis included all 179 measures, and the state disparities analysis included 110 measures for which state-by-race or state-by-ethnicity data were available.

State-level data are also available for 110 supplemental measures. These data are available from the Data Query tool on the NHQDR website but are not included in data analysis.

[xiv] CAHPS is the Consumer Assessment of Healthcare Providers and Systems.

Quality varied between States, but in some regions nearby States had similar quality scores.

Figure 29. Overall quality of care, by state, 2016-2021

Legend:
- 1st Quartile (Best Quality)
- 2nd Quartile
- 3rd Quartile
- 4th Quartile (Worst Quality)
- Missing
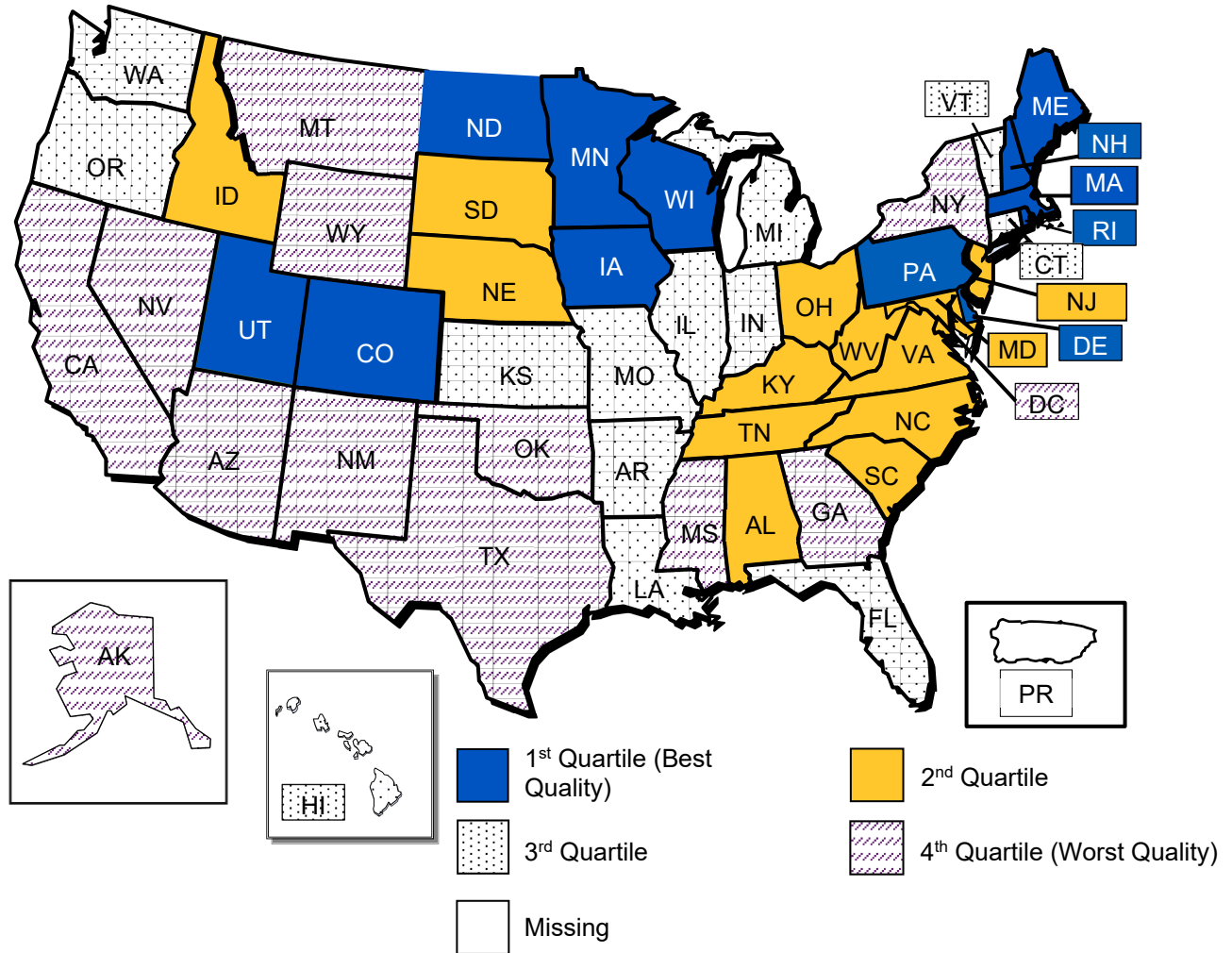
Note: All state-level measures with data were used to compute an overall quality score for each state based on the number of quality measures above, at, or below the average across all states. States were ranked and quartiles are shown on the map. The states with the worst quality score are in the fourth quartile, and states with the best quality score are in the first quartile. Historically, the NHQDR has included state-specific estimates for selected AHRQ Quality Indicators based on Healthcare Cost and Utilization Project data.

- Overall quality of care varied across the United States (Figure 29):

  - Five states in the Northeast region (Maine, Massachusetts, New Hampshire, Pennsylvania, and Rhode Island), four in the Midwest region (Iowa, Minnesota, North Dakota, and Wisconsin), and two states in the West region (Colorado and Utah) had the highest overall quality scores.
  - Seven states in the West region (Alaska, Arizona, California, Montana, Nevada, New Mexico, and Wyoming), five states in the South region (District of Columbia,[xv] Georgia, Mississippi, Oklahoma, and Texas), and New York had the lowest overall quality scores.
  - More information about healthcare quality in each state can be found on the NHQDR Data Tools website, https://datatools.ahrq.gov/nhqdr.

The disparities map (Figure 30) shows average differences in quality of care for AI/AN, Asian, Black, Hispanic, NHPI, and multiracial people compared with the reference group, non-Hispanic White or White people. States with fewer than 50 data points are excluded. Racial and ethnic disparities varied across the United States.

Many factors may account for the variation in disparities between states. Factors may include differences in prevalence of chronic conditions, policies that limit care for behavioral risk factors, and lack of availability of infrastructure that allows easy access to quality healthcare.

[xv] For purposes of this report, the District of Columbia is treated as a state.

Figure 30. Average differences in quality of care for American Indian or Alaska Native, Asian, Black, Hispanic, Native Hawaiian/Pacific Islander, and multiracial people compared with non-Hispanic White or White people, by state, 2018-2021

Note: All measures in this report that had state-level data to assess racial and ethnic disparities were used. Separate quality scores were computed for AI/AN, Asian, Black, Hispanic, multiracial, NHPI, and White people. For each state, the average of the AI/AN, Asian, Black, Hispanic, multiracial, and NHPI scores was divided by the White score. States were ranked on this ratio, and quartiles are shown on the map. The states with the worst disparity score are in the fourth quartile, and states with the best disparity score are in the first quartile.

Disparity scores were not risk adjusted for population characteristics in each state, so these findings do not take into account population differences between states. Historically, the NHQDR has included state-specific estimates for selected AHRQ Quality Indicators based on Healthcare Cost and Utilization Project data. States with fewer than 50 data points were excluded. More information is available in Appendix A, Methods.

- Five states in the West region (Arizona, Hawaii, Idaho, Oregon, and Washington), four states in the South region (Arkansas, Kentucky, Virginia, and West Virginia), Kansas, and New Jersey had the fewest racial and ethnic disparities overall (Figure 30).
- Four states in the North region (Connecticut, Massachusetts, New York, and Pennsylvania), three states in the Midwest region (Illinois, Minnesota, and Ohio), and three states in the South region (District of Columbia, North Carolina, and Texas) had the most racial and ethnic disparities overall.

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MATERNAL HEALTH

The United States has the highest maternal mortality rate of industrialized countries and this rate is increasing. Pregnant people from historically marginalized racial and ethnic groups have higher rates of maternal mortality and morbidity.

Many cases of maternal mortality and morbidity are preventable. However, barriers to timely and effective maternal healthcare exist at multiple levels: community, health facility, patient/family, provider, and system.

Findings showed that, despite efforts to improve the quality of maternal care, maternal morbidity increased across nearly all population groups in the years assessed for this report (2016-2019). For example:

- Rates of cesarean deliveries in first time, low-risk pregnancies were higher for non-Hispanic Black people than for non-Hispanic White people and the disparity widened with the age of the mother.
- Rates for severe maternal morbidity, eclampsia/preeclampsia, severe postpartum hemorrhage, and venous thromboembolism or pulmonary embolism were increasing over time across all deliveries. In addition, disparities related to racial/ethnic categories were common.
- Rates of severe maternal morbidity, eclampsia/preeclampsia, and venous thromboembolism or pulmonary embolism were significantly worse for non-Hispanic Black individuals compared with non-Hispanic White individuals.
- Rates of severe postpartum hemorrhage were significantly worse for non-Hispanic Asian or Pacific Islander (API) individuals compared with non-Hispanic White individuals, and the disparity was growing larger over time.
- In addition to assessing disparities across various characteristics, maternal health was trended over time. Results showed that, despite efforts to improve the quality of maternal care, most morbidities increased across nearly all population groups in the years assessed for this report.

HHS has developed tools, resources, and programs to improve maternal health, which is a priority of the Biden-Harris Administration. These include the White House Blueprint for Addressing the Maternal Health Crisis, the Healthy Start Initiative, and the Perinatal Improvement Collaborative.

Importance

Prevalence

In 2020, 3,613,647 births occurred in the United States[1] and the total fertility rate was 1.6.[i, 2] Maternal health encompasses the physical, emotional, and mental health of individuals giving birth during the pregnancy, childbirth, and postnatal period.

Morbidity and Mortality

Across the United States in 2020, 861 maternal deaths occurred during delivery or within 42 days of delivery. The maternal mortality rate in 2020 was 23.8 deaths per 100,000 live births, an increase from 2019 (20.1 deaths per 100,000 live births) and 2018 (17.4 deaths per 100,000 live births).[3,4] In addition, in 2020, the United States had the highest maternal mortality rate among 11 developed countries.[5]

The Centers for Disease Control and Prevention (CDC) states that "severe maternal morbidity includes unexpected outcomes of labor and delivery that result in significant short- or long-term consequences to a woman's health."[6] More than 25,000 deliveries each year involve severe maternal morbidity, including conditions such as intravascular coagulation, hysterectomy, renal failure, sepsis, and adult respiratory distress syndrome.

When deliveries with receipt of blood transfusions are included, the number of deliveries with severe maternal morbidity more than doubles.[7,8,9] Additional types of maternal morbidity include preeclampsia and obstetric trauma.[10,11] Similar to the increasing rate of maternal mortality, many types of maternal morbidity are also on the rise.[5]

Maternal mental health issues are common; 10% to 25% of postpartum women develop a depressive disorder.[12] The risk of suicide increases among depressed people during the perinatal period and up to 20% of postpartum deaths are due to suicide.[13] However, the percentage of providers who ask about depression during postpartum visits varies widely, from 51% to 96%.[13]

Violence against pregnant people and those who recently gave birth is also of concern. Homicide is the leading cause of death during pregnancy and within 42 days postpartum in the United States.[14]

About half of all births are to people from racial and ethnic minority groups. Research indicates that pregnant people from these groups often experience the highest rates of adverse health outcomes.[15] Even when accounting for risk factors such as maternal age, income, and receipt of prenatal care, racial and ethnic minority individuals continue to have significantly worse outcomes.[16]

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[i] The total fertility rate of a population is the average number of children a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality. It is expressed as children per woman. More information is available from the World Health Organization at https://www.who.int/data/gho/indicator-metadata-registry/imr-details/123#:~:text=Total%20fertility%20rate%20is%20directly,in%20five%2Dyear%20age%20groups.

Black[ii] individuals, in particular, are disproportionately affected by pregnancy-related morbidity and mortality.[14,17,18,19,20] Studies of military service members show that, despite members' equal access to healthcare and similar socioeconomic levels, non-Hispanic Black women were disproportionately affected by adverse health outcomes.[21,22]

Rates of adverse maternal outcomes vary across hospitals,[23] and Black individuals are more likely to give birth in lower performing hospitals due to location and access issues. In addition, within similar hospitals, Black individuals continue to have higher rates of adverse outcomes.[24] For example, Black individuals who gave birth at hospitals serving a high percentage of Black people (high Black-serving hospitals) had higher rates of severe maternal morbidity than both White individuals who gave birth at high Black-serving hospitals and Black individuals who gave birth at low Black-serving hospitals. White individuals who gave birth in low Black-serving hospitals had the lowest rates of severe maternal morbidity.[25]

Like Black individuals, some subgroups of Asian, Hispanic, and American Indian or Alaska Native (AI/AN) individuals experience higher rates of pregnancy-related complications and are at higher risk of delivering an infant with adverse health outcomes.[20,26,27] Studies suggest that the physiological effects caused by the stress of racism lead to negative effects on the birthing person and infant, and structural racism, discrimination, and resulting mistrust of the healthcare system contribute to systemic disparities in maternal health outcomes.[19,28,29,30]

Maternal morbidity and mortality also vary substantially by age. Studies have shown that older women are more likely to have severe maternal morbidity.[31] In addition, individuals under 18 years old are at risk for certain complications. Research shows that teenagers and women in their 40s and 50s are more likely to have eclampsia/preeclampsia[32] or severe postpartum hemorrhage.[33,34]

Studies have also cited variation in maternal health by geographic location. Individuals in rural communities have higher rates of some types of maternal mortality and morbidity.[20,35,36] Severe maternal morbidity varies by region, with states in the Northeast often having the highest rates and states in the Northwest often having the lowest rates.[37] Evidence also shows that some immigrant populations in high-income countries, including immigrants to the United States, have worse maternal outcomes than individuals born in the high-income country.[38,39]

Additional disparities noted in the literature suggest that food insecurity,[40] COVID-19,[41,42] substance use disorders,[43] and pollution[44,45] negatively affect maternal and infant health outcomes.

Cost

It was estimated that total maternal morbidity costs in the United States from conception through the child's fifth birthday were $32.3 billion in 2019, nearly $9,000 for each parent-child pair.[46]

[ii] Some studies assessed rates for Black women while others assessed rates for non-Hispanic Black women.

Barriers to Care

Many cases of maternal mortality and morbidity are preventable.[47] CDC estimated that between 2008 and 2017, about two-thirds of pregnancy-related deaths during delivery and in the first year postpartum were preventable and preventability did not vary by race or ethnicity.[48] Many of the strategies for preventing maternal mortality also reduce maternal morbidity, and timely and appropriate prenatal, delivery, and postpartum care is associated with better maternal health outcomes.

Petersen, et al.,[11] identified contributing factors to care for five levels:

- Community (e.g., inadequate access to clinical care),
- Health facility (e.g., limited experience with obstetric emergencies),
- Patient/family (e.g., lack of knowledge of warning signs or need to seek care),
- Provider (e.g., missed or delayed diagnosis), and
- System (e.g., inadequate receipt of care).

Additional studies have supported the need to address such factors, including:

- Existing healthcare needs,
- Lack of insurance/inability to afford care,
- Closures and service reductions at rural hospitals,
- Maternal healthcare workforce shortages,
- Long travel times due to lack of transportation or nearby provider, and
- Long wait times for an appointment and limited appointment times.[49,50,51,52]

Figure 1 shows the locations of maternity care deserts, defined as counties with no hospital offering obstetric care and no obstetric providers. It also presents limited access to maternity care (LAMC) counties, defined as counties with fewer than two hospitals offering obstetric care and fewer than 60 obstetric/gynecologic (OB-GYN) providers per 10,000 births.

The counties are separated into LAMC level 1, where 10% or more of women ages 18-64 lack health insurance, and LAMC level 2, where less than 10% of women ages 18-64 lack health insurance.[53] Only 6% of OB-GYNs are located in rural areas and the ratio of OB-GYNs per 10,000 women is lower in nonmetropolitan areas than in metropolitan areas.[54]

Figure 1. Access to maternity care in U.S. counties, 2016
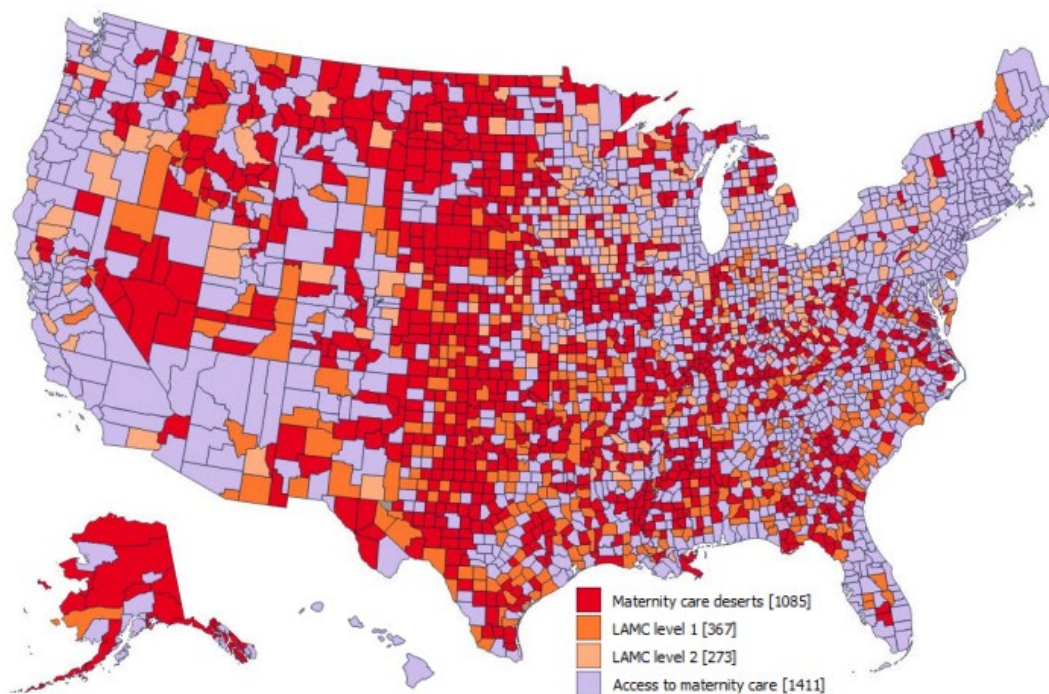
Source: U.S. Health Resources and Services Administration, Area Health Resources Files, 2019.

Findings

The figures in the maternal health section of the NHQDR illustrate significant trends over time and the most significant disparities in the most recent data year. For a deeper look at the disparities by geographic location, statistics about rural/urban location are also included where data are available. In addition, bivariate analyses are shown when such analyses are possible.

Large Racial and Ethnic Disparities in Prenatal Care

Figure 2. Individuals with a live birth in the last 12 months who received early and at least adequate prenatal care, by race/ethnicity and geographic location, 2020
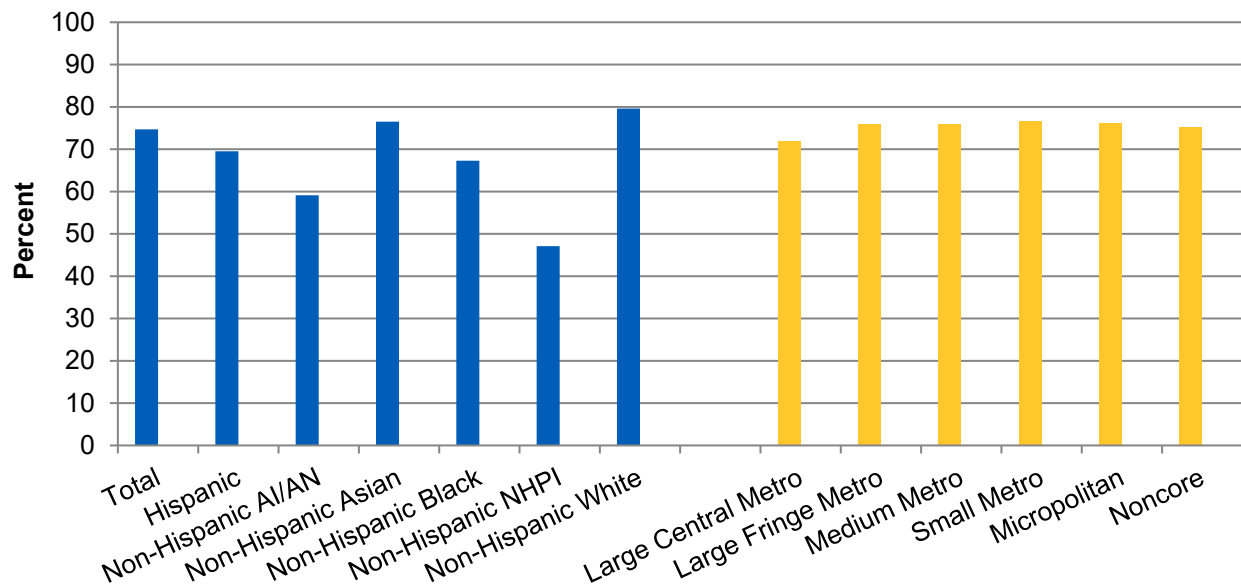
Key: AI/AN = American Indian or Alaska Native; NHPI = Native Hawaiian/Pacific Islander.
Source: Centers for Disease Control and Prevention, National Vital Statistics System - Natality, 2020.

- In 2020, there were large racial/ethnic differences in the percentage of individuals with a live birth in the last 12 months who received early and adequate prenatal care (Figure 2). There was also a significant difference by geographic location. However, the disparities by race/ethnicity (41% relative difference between the groups with the highest and lowest percentages) were much larger than by geographic location (6% relative difference between the groups with the highest and lowest percentages).

- In 2020, the percentage of individuals with a live birth in the last 12 months who received early and adequate prenatal care was lower for Hispanic (69.5%), non-Hispanic AI/AN (59.1%), non-Hispanic Asian (76.5%), non-Hispanic Black (67.3%), and non-Hispanic Native Hawaiian/Pacific Islander (47.1%) individuals than for non-Hispanic White individuals (79.6%).

- In 2020, the percentage of individuals with a live birth in the last 12 months who received early and adequate prenatal care was lower for individuals in large central metro areas (71.9%) compared with individuals in large fringe metro areas (75.9%) (Figure 2).

Higher Rates of Low-Risk Cesarean Deliveries for Black Women and Older Women

Figure 3. Cesarean deliveries of low-risk births among individuals giving birth for the first time, by age and race/ethnicity, 2020 (lower rates are better)
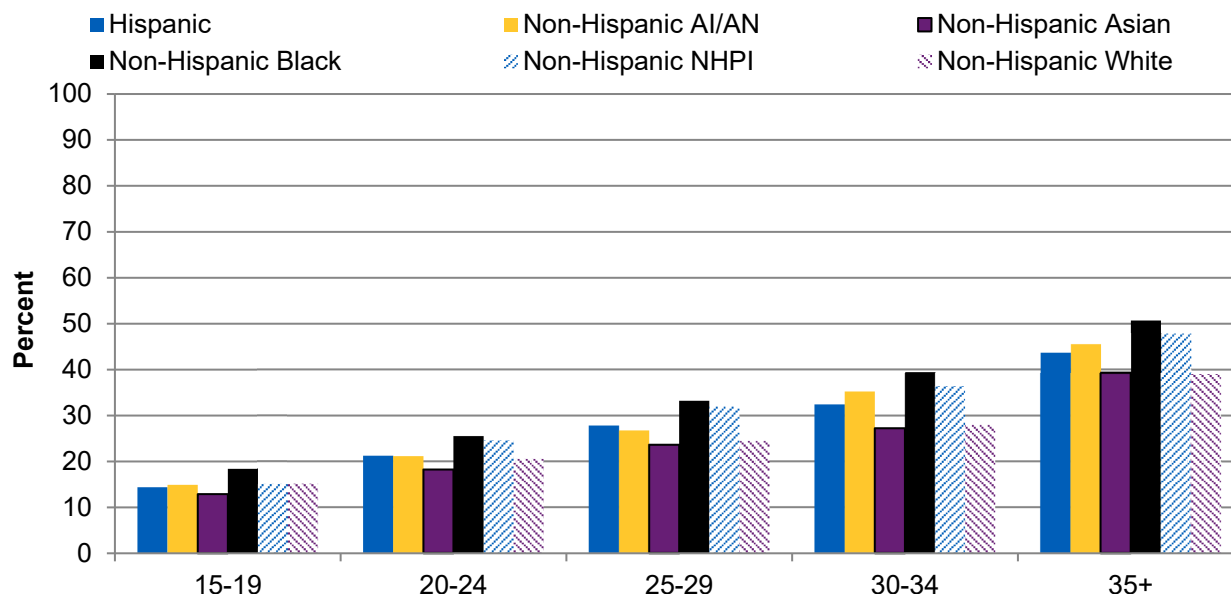

Key: AI/AN = American Indian or Alaska Native, NHPI = Native Hawaiian/Pacific Islander.
Source: Centers for Disease Control and Prevention, National Vital Statistics System - Natality, 2020.
Note: Low-risk cesarean rate is defined as the number of singleton, term (37 or more weeks of gestation based on obstetric estimate), cephalic, cesarean deliveries to women having a first birth per 100 women delivering singleton, term, cephalic, first births.
Race and Hispanic origin data are reported separately on birth certificates. Mother's race is defined by a single race reported on the birth certificate. People of Hispanic origin may be any race. Mother's ethnicity classifies non-Hispanic women by single race. Race categories are consistent with 1997 Office of Management and Budget standards. These data are not comparable with bridged-race data published in previous reports.

- In 2020, within all age groups, the percentage of cesarean deliveries of low-risk births among people giving birth for the first time was higher for non-Hispanic Black individuals than for non-Hispanic White individuals (Figure 3). In addition, the disparity between non-Hispanic Black and non-Hispanic White individuals was greater for higher age groups. The relative difference was 22% for individuals ages 15-19 years, 41% for individuals ages 30-34 years, and 30% for individuals age 35 years and over.

- In 2020, within all racial and ethnic groups, the percentage of cesarean deliveries of low-risk births among individuals giving birth for the first time was lower for individuals ages 15-19 years than for individuals ages 20-24 years.

- In 2020, within all racial and ethnic groups, the percentage of cesarean deliveries of low-risk births among individuals giving birth for the first time was higher for individuals ages 25-29 years, 30-34 years, and 35 years and over than for individuals ages 20-24 years.

- In 2020, the percentage of cesarean deliveries of low-risk births among women giving birth for the first time was lower in large central metro areas (26.2%), medium metro areas (25.6%), small metro areas (24.5%), micropolitan areas (25.0%), and noncore areas (25.5%) compared with individuals in large fringe metro areas (26.6%) (data not shown).

Figure 4. Cesarean deliveries of low-risk births among individuals giving birth for the first time, by age, 2007-2020 (lower rates are better)
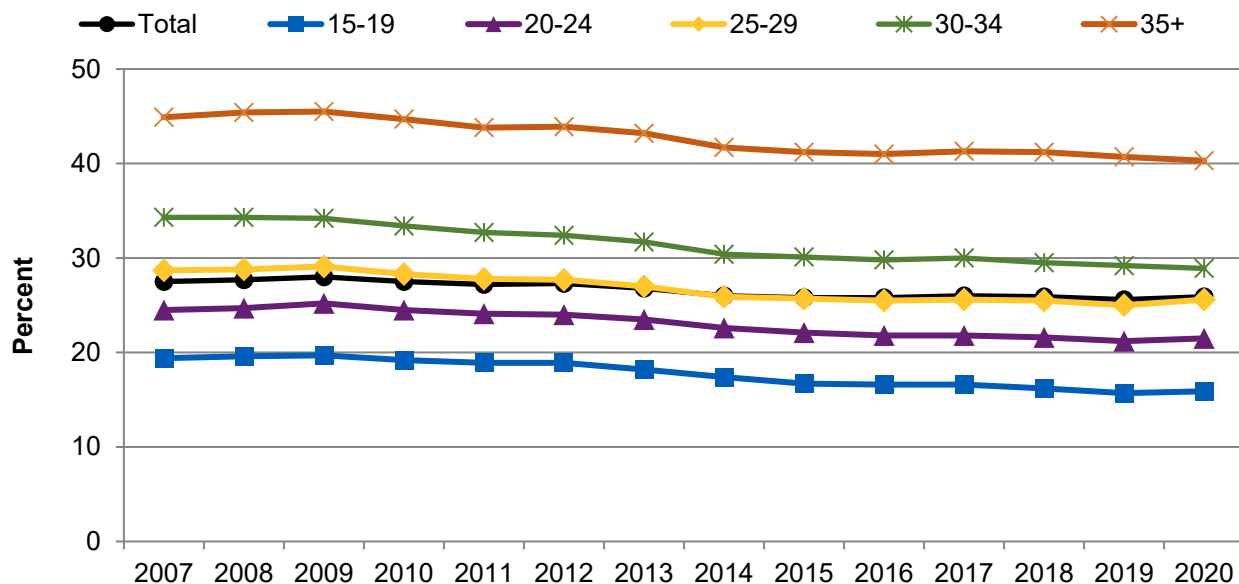

Source: Centers for Disease Control and Prevention, National Vital Statistics System - Natality, 2020.
Note: Low-risk cesarean rate is defined as the number of singleton, term (37 or more weeks of gestation based on obstetric estimate), cephalic, cesarean deliveries to women having a first birth per 100 women delivering singleton, term, cephalic, first births.
Race and Hispanic origin data are reported separately on birth certificates. Mother's race is defined by a single race reported on the birth certificate. People of Hispanic origin may be any race. Mother's ethnicity classifies non-Hispanic women by single race. Race categories are consistent with 1997 Office of Management and Budget standards. These data are not comparable with bridged-race data published in previous reports.

- From 2007 to 2020, within all age groups, the percentage of cesarean deliveries decreased (Figure 4). However, the percentage of all cesarean deliveries did not decline significantly (from 27.5% to 25.9%) since the ages of individuals giving birth increased and older birthing individuals have higher rates of cesarean deliveries.

Worsening Rates and Large Racial and Ethnic Disparities in Maternal Morbidity

Figure 5. Severe maternal morbidity per 1,000 deliveries, by race/ethnicity (left) and hospital delivery volume (right), 2016-2019 (lower rates are better)
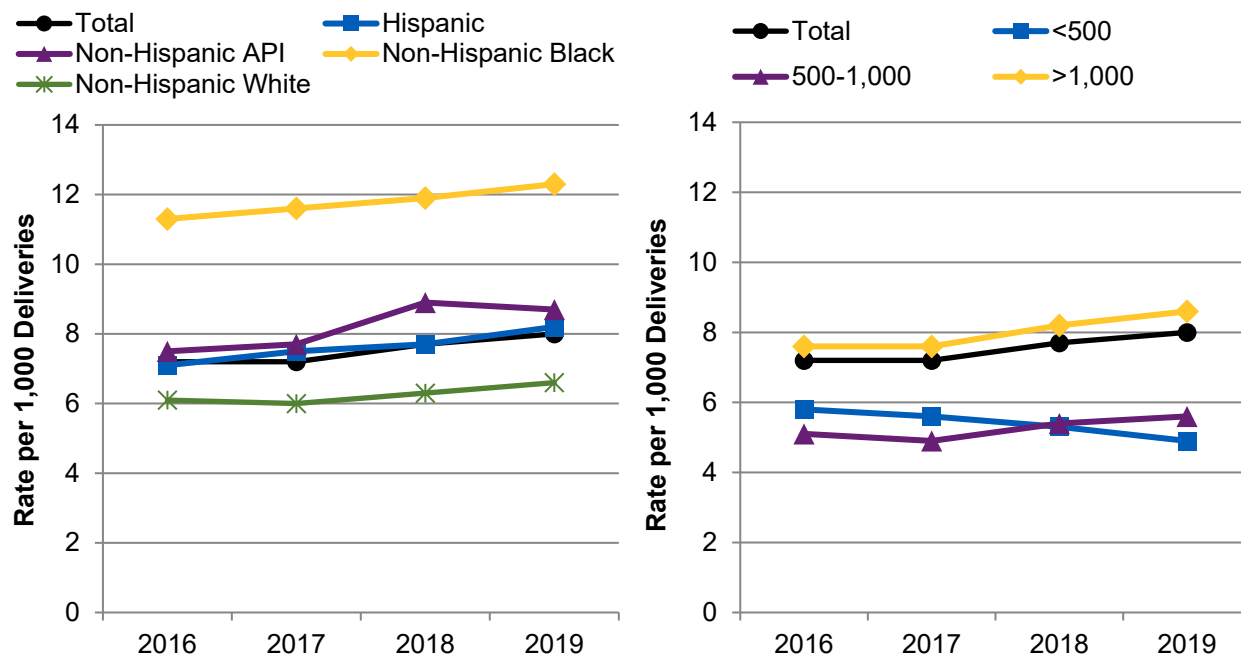
Key: API = Asian or Pacific Islander.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases weighted to provide national estimates, 2016-2019.
**Note:** Severe maternal morbidity is an overall measure of unexpected health outcomes for multiple conditions as defined by the Centers for Disease Control and Prevention: https://www.cdc.gov/reproductivehealth/ maternalinfanthealth/severematernalmorbidity.html. This figure uses data from HCUP Fast Stats for hospital delivery volume: http://datatools.ahrq.gov//hcup-fast-stats?type=subtab&tab=hcupfsse&count=3.

- In 2019, the rate of deliveries with severe maternal morbidity was 87% higher for non-Hispanic Black individuals than for non-Hispanic White individuals (Figure 5, left).
- In 2019, the rate of deliveries with severe maternal morbidity was higher for Hispanic (8.2 per 1,000 deliveries), non-Hispanic API (8.7 per 1,000 deliveries), and non-Hispanic Black (12.3 per 1,000 deliveries) individuals than for non-Hispanic White individuals (6.6 per 1,000 deliveries).
- From 2016 to 2019, the rate of deliveries with severe maternal morbidity increased for Hispanic individuals (from 7.1 per 1,000 deliveries to 8.2 per 1,000 deliveries) and non-Hispanic Black individuals (from 11.3 per 1,000 deliveries to 12.3 per 1,000 deliveries).
- In 2019, the rate of deliveries with severe maternal morbidity was lower in hospitals with fewer than 500 deliveries (4.9 per 1,000 deliveries) and 500 to 1,000 deliveries (5.6 per 1,000 deliveries) than in hospitals with more than 1,000 deliveries (8.6 per 1,000 deliveries) (Figure 5, right).
- From 2016 to 2019, the rate of deliveries with severe maternal morbidity increased for hospitals with more than 1,000 deliveries (from 7.6 per 1,000 deliveries to 8.6 per 1,000 deliveries).

- In 2019, the rate of deliveries with severe maternal morbidity was higher for deliveries to individuals from large central metro areas (9.8 per 1,000 deliveries) compared with large fringe metro areas (7.2 per 1,000 deliveries). The rate of deliveries with severe maternal morbidity was lower for deliveries to individuals from small metro areas (6.0 per 1,000 deliveries), micropolitan areas (5.2 per 1,000 deliveries), and noncore areas (5.1 per 1,000 deliveries) compared with large fringe metro areas (7.2 per 1,000 deliveries) (data not shown).

Figure 6. Eclampsia/preeclampsia per 1,000 deliveries, by race/ethnicity (left) and by hospital characteristics (right), 2016-2019 (lower rates are better)
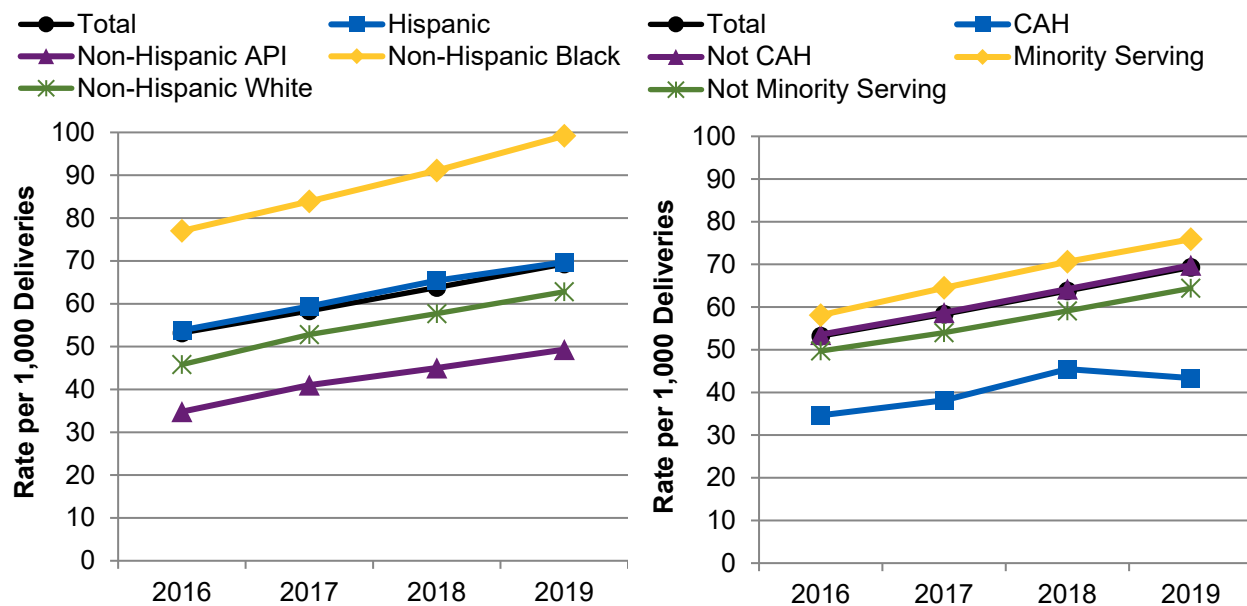
Key: API = Asian or Pacific Islander, CAH = critical access hospital.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, 2016-2019.
Note: Eclampsia/preeclampsia is a complication of pregnancy characterized by high blood pressure that can progress to kidney and liver dysfunction, blood cell destruction, seizures, and death.

- Between 2016 and 2019, the rate of deliveries with eclampsia/preeclampsia increased 30% across all deliveries. The increase was significant for all racial/ethnic groups (Figure 6, left) and most of the hospital characteristics examined (Figure 6, right).

- There were also significant racial/ethnic disparities. In 2019, deliveries to non-Hispanic Black individuals had a 58% higher rate of eclampsia/preeclampsia (99.2 per 1,000 deliveries) compared with deliveries to non-Hispanic White individuals (62.8 per 1,000 deliveries).

- In 2019, deliveries to non-Hispanic API individuals (49.3 per 1,000 deliveries) had a lower rate of eclampsia/preeclampsia than deliveries to non-Hispanic White individuals (62.8 per 1,000 deliveries).

- In 2019, deliveries to Hispanic individuals (69.7 per 1,000 deliveries) had a higher rate of eclampsia/preeclampsia than deliveries to non-Hispanic White individuals (62.8 per 1,000 deliveries).

- From 2016 to 2019, the rate of deliveries with eclampsia/preeclampsia increased for Hispanic individuals (from 53.8 per 1,000 deliveries to 69.7 per 1,000 deliveries), non-Hispanic API individuals (from 34.8 per 1,000 deliveries to 49.3 per 1,000 deliveries), non-Hispanic Black individuals (from 77.0 per 1,000 deliveries to 99.2 per 1,000 deliveries), and non-Hispanic White individuals (from 45.8 per 1,000 deliveries to 62.8 per 1,000 deliveries).

- Differences were also seen by hospital characteristics. For example, in 2019, the rate of deliveries with eclampsia/preeclampsia was nearly 40% lower at critical access hospitals (CAHs) compared with deliveries at non-CAHs (43.4 per 1,000 deliveries vs. 69.8 per 1,000 deliveries).

- In 2019, minority-serving hospitals had an 18% higher rate of deliveries with eclampsia/ preeclampsia than non-minority-serving hospitals (75.9 per 1,000 deliveries vs. 64.4 per 1,000 deliveries).

- From 2016 to 2019, the rate of deliveries with eclampsia/preeclampsia increased for non-CAHs (from 53.6 per 1,000 deliveries to 69.8 per 1,000 deliveries), minority-serving hospitals (from 58.1 per 1,000 deliveries to 75.9 per 1,000 deliveries), and non-minority-serving hospitals (from 49.7 per 1,000 deliveries to 64.4 per 1,000 deliveries).

- In 2019, the rate of deliveries with eclampsia/preeclampsia was higher for individuals from large central metro areas (73.9 per 1,000 deliveries) compared with large fringe metro areas (66.2 per 1,000 deliveries) (data not shown).

Figure 7. Severe postpartum hemorrhage per 1,000 deliveries, by race/ethnicity (left) and hospital ownership (right), 2016-2019 (lower rates are better)
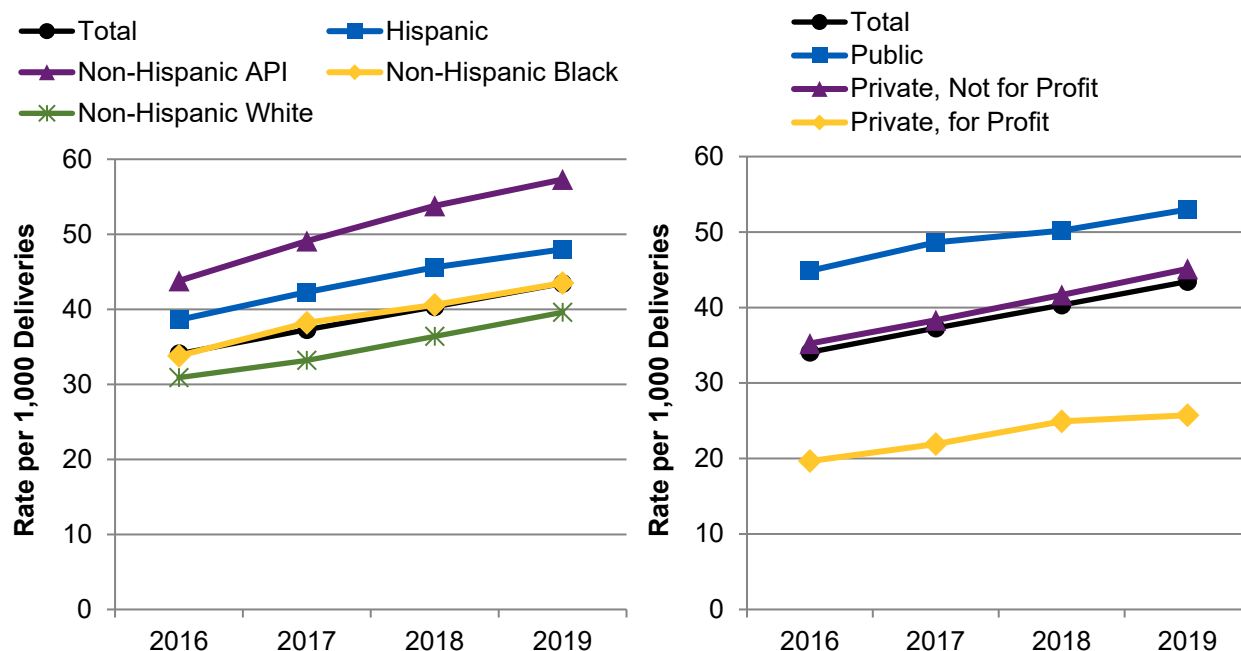

Key: API = Asian or Pacific Islander.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, 2016-2019.
Note: Severe postpartum hemorrhage is dangerous amounts of bleeding that can occur after delivery: placenta accreta, placenta increta, placenta percreta, third-stage hemorrhage, other immediate postpartum hemorrhage, delayed and secondary postpartum hemorrhage, and postpartum coagulation defects.

- Between 2016 and 2019, the rate of deliveries with severe postpartum hemorrhage increased 27% across all deliveries (Figure 7). The increase was significant for all racial/ethnic groups and most hospital ownership categories examined.

- Significant disparities were observed (Figure 7, left). In 2019, deliveries to non-Hispanic API individuals had a 45% higher rate of severe postpartum hemorrhage compared with deliveries to non-Hispanic White individuals, and the disparity had worsened over time. In addition, the rate of severe postpartum hemorrhage for public hospitals was more than double that of private, for-profit hospitals in 2019.

- In 2019, Hispanic individuals (48.0 per 1,000 deliveries) and non-Hispanic API individuals (57.3 per 1,000 deliveries) were more likely than non-Hispanic White individuals (39.6 per 1,000 deliveries) to have a severe postpartum hemorrhage.

- From 2016 to 2019, the disparity in severe postpartum hemorrhage rates worsened for deliveries to API individuals compared with deliveries to non-Hispanic White individuals.

- From 2016 to 2019, the rate of deliveries with severe postpartum hemorrhage increased for Hispanic individuals (from 38.6 per 1,000 deliveries to 48.0 per 1,000 deliveries), non-Hispanic API individuals (from 43.8 per 1,000 deliveries to 57.3 per 1,000 deliveries), non-Hispanic Black individuals (from 33.8 per 1,000 deliveries to 43.5 per 1,000 deliveries), and non-Hispanic White individuals (from 30.9 per 1,000 deliveries to 39.6 per 1,000 deliveries).

- In 2019, the rate of deliveries with severe postpartum hemorrhage at public hospitals (53.0 per 1,000 deliveries) and private, not-for-profit hospitals (45.1 per 1,000 deliveries) was higher compared with private, for-profit hospitals (25.7 per 1,000 deliveries) (Figure 7, right).

- From 2016 to 2019, the rate of deliveries with severe postpartum hemorrhage increased for public hospitals (from 44.9 per 1,000 deliveries to 53.0 per 1,000 deliveries), private, not-for-profit hospitals (from 35.2 per 1,000 deliveries to 45.1 per 1,000 deliveries), and private, for-profit hospitals (from 19.7 per 1,000 deliveries to 25.7 per 1,000 deliveries).

- In 2019, the rate of deliveries with severe postpartum hemorrhage was higher for individuals from large central metro areas (49.0 per 1,000 deliveries) compared with large fringe metro areas (42.8 per 1,000 deliveries). The rate of deliveries with severe postpartum hemorrhage was lower for individuals from small metro areas (37.6 per 1,000 deliveries) and micropolitan areas (37.0 per 1,000 deliveries) compared with large fringe metro areas (42.8 per 1,000 deliveries) (data not shown).

Figure 8. Venous thromboembolism or pulmonary embolism per 1,000 delivery discharges, by race/ethnicity (left) and bed size (right), 2016-2019 (lower rates are better)
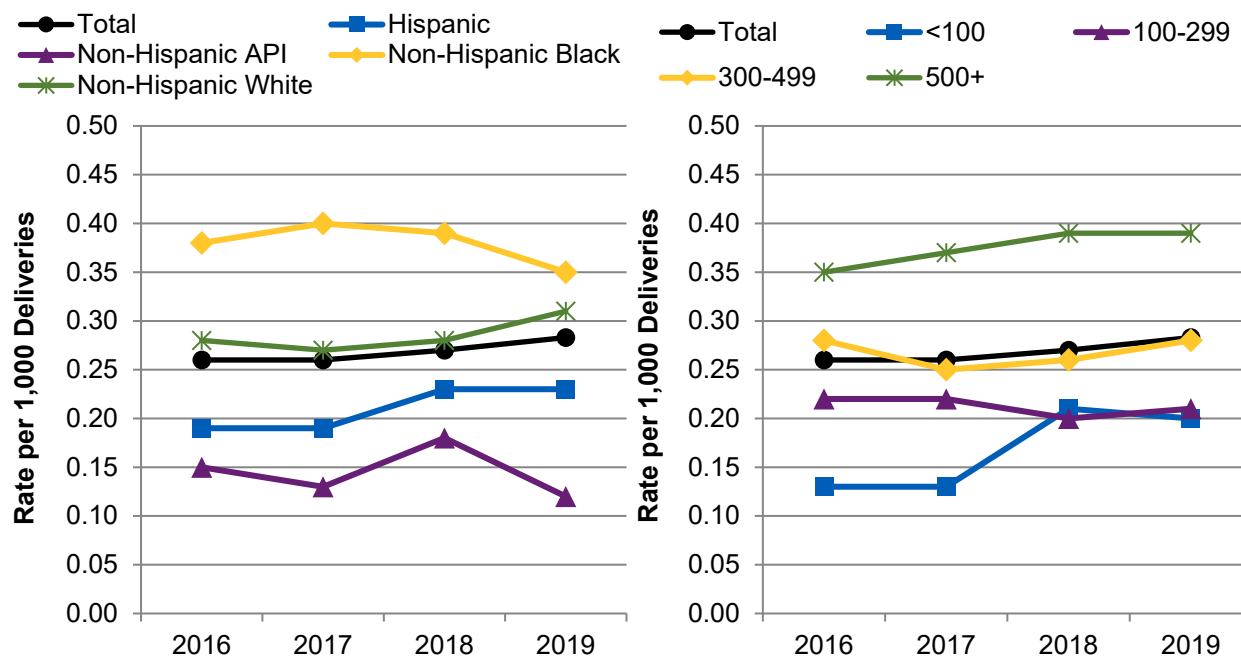

Key: API = Asian or Pacific Islander.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases weighted to provide national estimates, 2016-2019.
Note: Venous thromboembolism/pulmonary embolism refers to development of blood clots, a potentially fatal risk that can increase during pregnancy.

- From 2016 to 2019, the rate of deliveries with venous thromboembolism or pulmonary embolism increased nearly 10% across all deliveries (Figure 8). The percentage increase was highest in hospitals with fewer than 100 beds (54% increase) (Figure 8, right).

- In 2019, Hispanic individuals (0.23 per 1,000 deliveries) and non-Hispanic API individuals (0.12 per 1,000 deliveries) giving birth were less likely than non-Hispanic White individuals (0.31 per 1,000 deliveries) giving birth to have a venous thromboembolism or pulmonary embolism (Figure 8, left).

- In 2019, non-Hispanic Black individuals (0.35 per 1,000 deliveries) giving birth were more likely than non-Hispanic White individuals (0.31 per 1,000 deliveries) giving birth to have a venous thromboembolism or pulmonary embolism.

- In 2019, hospitals with fewer than 100 beds (0.20 per 1,000 deliveries), 100-299 beds (0.21 per 1,000 deliveries), and 300-499 (0.28 per 1,000 deliveries) had lower rates of venous thromboembolism or pulmonary embolism than hospitals with 500 or more beds (0.39 per 1,000 deliveries).

- In 2019, the rate of deliveries with venous thromboembolism or pulmonary embolism did not vary by geographic location of the birthing person (data not shown).

Conclusion

The findings from data collected and analyzed for the NHQDR mirror some conclusions reported by the literature and provide additional insights. For most maternal health measures included in the NHQDR, disparities are significant for comparisons by race/ethnicity, age, and hospital characteristics.

For prenatal care, the findings are consistent with those from the research community in that Hispanic, AI/AN, Black, and Native Hawaiian/Pacific Islander individuals are less likely than White and non-Hispanic White individuals to receive prenatal care. However, there was no evidence of large differences in prenatal care by urban/rural location.

The NHQDR findings also showed that the rate of cesarean deliveries for first time, low-risk pregnancies was higher for non-Hispanic Black individuals than for non-Hispanic White individuals and the disparity widened with maternal age. In addition, the rate of cesarean deliveries within each age group decreased, but because maternal age is increasing, the overall rate of cesarean deliveries did not change significantly.

The results also indicated that rates of the four pregnancy-related complications examined (severe maternal morbidity, eclampsia/preeclampsia, severe postpartum hemorrhage, venous thromboembolism or pulmonary embolism) were increasing over time across all deliveries. In addition, disparities related to racial/ethnic categories were common.

Rates of severe maternal morbidity, eclampsia/preeclampsia, and venous thromboembolism or pulmonary embolism were significantly worse for non-Hispanic Black individuals compared with non-Hispanic White individuals. Rates of severe postpartum hemorrhage were significantly worse for non-Hispanic API individuals compared with non-Hispanic White individuals, and the disparity was growing larger over time.

Differences were also seen by hospital characteristics. Hospitals with fewer beds (for severe maternal morbidity, venous thromboembolism or pulmonary embolism), private, for-profit hospitals (for severe postpartum hemorrhage), minority-serving hospitals[iii] (for eclampsia/preeclampsia), and CAHs (for eclampsia/preeclampsia) had fewer complications. Although rural/urban location is associated with these hospital characteristics, none are a proxy for rural/urban location. For example, more than 80% of rural hospitals have fewer than 100 beds, but just over half of the hospitals with fewer than 100 beds are located in rural areas.[55,56]

In addition to assessing disparities across various characteristics, maternal health was trended over time. Results showed that, despite efforts to improve the quality of maternal care, most morbidities increased across nearly all population groups in the years assessed for this report.

[iii] Hospitals providing Heathcare Cost and Utilization Project data were ranked in descending order according to the percentage of total hospital discharges with a minority race/ethnicity (Black, Hispanic, Asian or Pacific Islander, American Indian or Alaska Native, other). The top 25% of hospitals (i.e., with the highest percentage of minority patients) were designated as minority serving.

Resources

The Department of Health and Human Services (HHS) has identified maternal health as a national priority to address factors that contribute to maternal mortality and are disproportionately higher for Black and AI/AN women regardless of income or education. HHS is also working to address factors contributing to women living in rural areas experiencing higher pregnancy-related mortality than women in nonrural areas, such as social determinants of health, mental health, and substance use as they relate to maternal healthcare.

The White House Blueprint for Addressing the Maternal Health Crisis addresses five maternal health-related priorities:

- Increasing access to and coverage of comprehensive high-quality maternal health services, including behavioral health services.
- Ensuring that individuals giving birth are heard and are decision makers in accountable systems of care.
- Advancing data collection, standardization, harmonization, transparency, and research.
- Expanding and diversifying the perinatal workforce.
- Strengthening economic and social supports for people before, during, and after pregnancy.

The administration intends to address the priorities through:

- Extended postpartum coverage,
- Investments in rural maternal care,
- A maternal mental health hotline,
- Substance use services,
- Elimination of surprise bills,
- Improved maternal health data,
- A more diverse maternal care workforce,
- Better access to doulas and midwives,
- Expanded social services, and
- Stronger workplace protections for mothers.

In September 2021, HHS announced $350 million in awards to support maternal health. The programs included the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program and the Healthy Start Initiative. The latter focuses on Community-Based Doulas, Infant Health Equity, and the State Systems Developmental Initiative. In April 2022, HHS announced additional funds for MIECHV and the State Maternal Health Innovation and Implementation Program. HHS funding is also aimed at maternal health initiatives in rural communities, implicit bias training for healthcare providers, pregnancy medical home demonstration projects, perinatal health disparities, data collection and evaluation, and behavioral health disorders.

In addition, HHS's Office on Women's Health is funding the Maternal Morbidity and Mortality Data and Analysis Initiative. The initiative improves maternal health data by creating a network of more than 200 hospitals to deploy clinical, evidence-based best practices in maternity care. As part of the contract, Maternal Mortality and Morbidity Advocates' (MoMMA's) Voices, a coalition of many organizations, will focus on the patient experience to ensure patients' voices are heard. The Perinatal Improvement Collaborative is part of the initiative. Each of the more than 200 participating hospitals will capture more than 150 clinical and nonclinical measures that affect health outcomes (e.g., clinical data pertaining to hypertension, infection, and COVID-19).

The following links provide information on additional initiatives aimed at improving maternal health:

- Surgeon General's Call to Action to Improve Maternal Health
- HHS Rural Action Plan
- HHS Hypertension Innovator Award Competition
- Public-Private Partnership to Improve Maternal Outcomes for Black Mothers
- Initiative to Improve Maternal Health Data and Drive Quality Improvement
- State Data for Conducting Patient Centered Outcomes Research to Improve Maternal Health: Stakeholder Discussions Summary Report

The literature presents and, in some cases, assesses strategies to address factors related to maternal health. At the provider level, those with fewer deliveries appear to have higher rates of adverse outcomes. Therefore, the recommendation was made to refer to higher volume providers or improve training for low-volume providers.[57] Another study assessed the state-level earned income tax credit (EITC) and found that EITC overall was associated with better birth outcomes, with increasing effects the more generous an EITC was.[58] Additional strategies include allowing presumptive eligibility for Medicaid[59] and requiring implicit bias training for providers.[16]

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CHILD AND ADOLESCENT MENTAL HEALTH

Nearly 20% of children and young people ages 3-17 in the United States have a mental, emotional, developmental, or behavioral disorder, and suicidal behaviors among high school students increased more than 40% in the decade before 2019. Mental health challenges were the leading cause of death and disability in this age group. These trends were exacerbated during the COVID-19 pandemic.

Data in this report show:

- From 2016 to 2019, the rates of emergency department (ED) visits with a principal diagnosis related to mental health only increased for ages 0-17 years, from 784.1 per 100,000 population to 869.3 per 100,000 population. The rate for this age group dropped slightly in 2019, but in 2018, the rate was 976.8 per 100,000 population, a 25% increase from 2016.
- From 2008 to 2020, the rates of death from suicide among people age 12 and over increased 16% overall, from 14.0 per 100,000 population to 16.3 per 100,000 population. Specifically, the rate for youths ages 12-17 increased from 3.7 per 100,000 population to 6.3 per 100,000 population.
- The rate of suicide death increased by 2% for Hispanic youths from 4.9 per 100,000 population to 5.0 per 100,000 population between 2018 and 2020. The rate for non-Hispanic White youths decreased by 13% from 8.5 per 100,000 population to 7.4 per 100,000 population.

To address the youth mental health crisis, the Biden-Harris Administration announced on July 29, 2022, two new actions to strengthen school-based mental health services, with a nearly $300 million pledge.

Importance

Childhood and adolescence are critical times for physical and mental development. Development of good mental health is important for overall good health and well-being throughout the lifespan.

The Surgeon General's Advisory on Protecting Youth Mental Health outlines a series of recommendations to improve youth mental health across 11 sectors, including young people and their families, educators and schools, and media and technology companies. Topline recommendations include[1]:

- Recognize that mental health is an essential part of overall health.
- Empower youth and their families to recognize, manage, and learn from difficult emotions.
- Ensure that every child has access to high-quality, affordable, and culturally competent mental health care.
- Support the mental health of children and youth in educational, community, and childcare settings, and expand and support the early childhood and education workforce.

- Address the economic and social barriers that contribute to poor mental health for young people, families, and caregivers.
- Increase timely data collection and research to identify and respond to youth mental health needs more rapidly, including more research on the relationship between technology and youth mental health. In addition, technology companies should be more transparent with data and algorithmic processes to enable this research.

Prevalence

Globally, nearly 15% of young people ages 10-19 experience a mental health disorder, accounting for 13% of the global burden of disease in this age group.[2] In 2016, almost 20% of children in the United States ages 2-8 years (17.4%) had a diagnosed mental, behavioral, or developmental disorder.[3] In 2018-2019, about 15% of adolescents ages 12-17 years had a major depressive episode, 37% had persistent feelings of sadness or hopelessness, and nearly 20% reported that they seriously considered suicide.[4]

A study conducted by the Health Resources and Services Administration (HRSA) showed that, between 2016 and 2020, the number of children ages 3-17 years diagnosed with depression grew by 27%.[5]

Among adolescents ages 12 to 17, the percentage who received mental health services in a specialty mental health setting (inpatient or outpatient care) in the past year increased from 11.8% in 2002 to 16.7% in 2019. Over that same period, the percentage who received mental health services in a general medical setting in the past year increased from 2.7% to 3.7%. The percentage who received mental health services in an education setting in the past year increased from 12.1% in 2009 to 15.4% in 2019.[6]

Boys ages 2-8 years were more likely than girls to have a mental, behavioral, or developmental disorder. But for adolescent girls ages 12-17, there has been a sharp and sustained increase in depression cases since 2009. In addition, more than one-fifth (22%) of children living below 100% of the poverty threshold had a mental, behavioral, or developmental disorder.[3] Age and poverty level affected the likelihood of children receiving treatment for anxiety, depression, or behavior problems.[7]

Morbidity and Mortality

Mental health challenges were the leading cause of disability and poor life outcomes in young people even before the COVID-19 public health emergency, with up to 20% of children ages 3 to 17 in the United States having a mental, emotional, developmental, or behavioral disorder. The 2013-2019 data showed that nearly 10% of children ages 3-17 years were diagnosed with attention deficit disorder or anxiety.[4]

In addition, from 2009 to 2019, the share of high school students who reported persistent feelings of sadness or hopelessness increased from 26% to 37%. Suicidal behaviors among high school students also increased 44% during the decade preceding the COVID-19 public health emergency, with about 16% having made a suicide plan in the prior year. Between 2007 and 2018, suicide rates among people ages 10-24 in the United States increased 57%, and early estimates show more than 6,600 suicide deaths among this age group in 2020.[1]

Cost

Childhood mental health disorders impose a significant economic burden on children, families, and society. For example, the mean total cost per episode for publicly funded outpatient services for youth mental health issues was $2,673, and the average number of service encounters per episode was 14.34. Average cost of various service types per episode was $1,079 for psychotherapy, $683 for assessment, $227 for collateral services, $161 for case management, and $186 for medication support.[8]

Barriers to Care

Child behaviors and emotions can change frequently and rapidly, making it difficult for teachers and parents to detect mental, behavioral, or emotional disorders early. About 9% of youth are estimated to require help with emotional problems.[9] Studies find that an estimated 70% to 80% of children with mental health disorders go without care.[10]

Findings

The figures in the child and adolescent mental health section of the NHQDR illustrate significant trends over time and the most significant disparities in the most recent data year. For a deeper look at the disparities by geographic location, statistics about rural/urban location are also included where data are available.

Increases in Emergency Department Visits Related to Mental Health Higher for Adolescents

Among U.S. children ages 5-11 years, the percentage of mental health-related ED visits increased 24%, and the percentage of these ED visits for adolescents ages 12-17 increased 31% from 2019 to March-October 2020.[11]

Figure 1. Emergency department visits with a principal diagnosis related to mental health only per 100,000 population, by age, 2016-2019
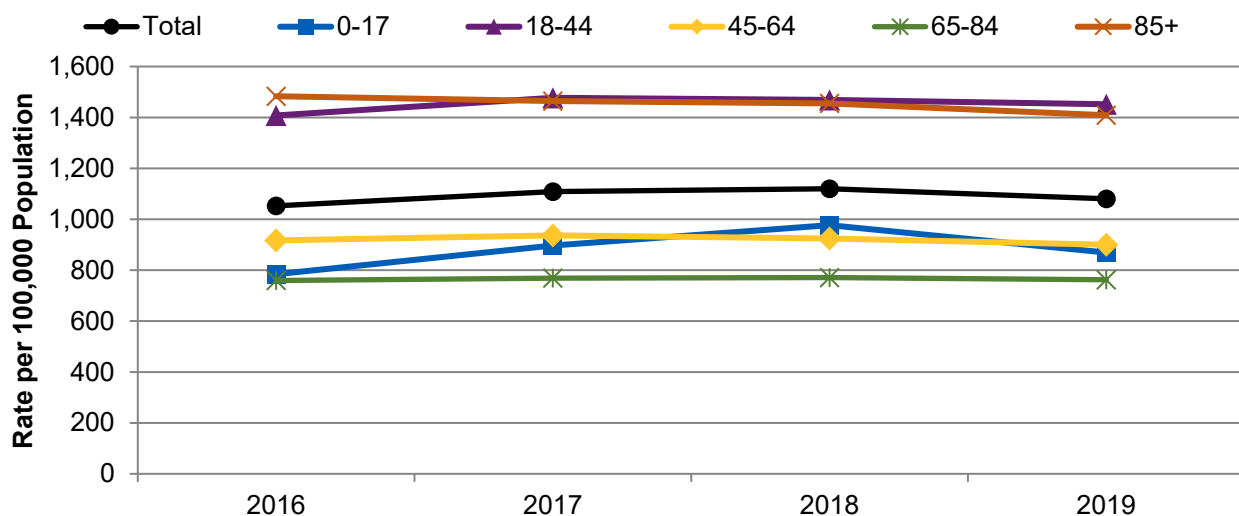
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2016-2019.

- From 2016 to 2019, overall, there were no statistically significant changes in the rate of ED visits with a principal diagnosis related to mental health (from 1,052.6 per 100,000 population to 1,080.4 per 100,000 population (Figure 1).
- From 2016 to 2019, the rates of ED visits with a principal diagnosis related to mental health only increased for ages 0-17 years, from 784.1 per 100,000 population to 869.3 per 100,000 population. The rate for this age group dropped slightly in 2019, but in 2018, the rate was 976.8 per 100,000 population, a 25% increase from 2016.
- Due to the slight drop in 2019, there was no statistically significant change for ages 0-17, but its trend was worsening from 2016 to 2018.
- From 2016 to 2019, the rate of ED visits with a principal diagnosis related to mental health for adults age 85 and over was improving. There were no statistically significant changes for all other age groups.

Increase in Suicide Deaths Among Most Age Groups

In 2020, suicide was the 12th leading cause of death in the United States overall; the second leading cause of death for youths ages 10-14 years; and the third leading cause of death for people ages 15-24 years.[12] Depression is strongly related to both suicidal ideation and it is one of the characteristics that increase the risk of suicide among people with depression.[13]

For children or teens who identify as lesbian, gay, bisexual, transgender, questioning, or queer (LGBTQ), the risk of suicidal thoughts and behaviors is higher.

Figure 2. Suicide deaths among people age 12 and over per 100,000 population, by age, 2008-2020
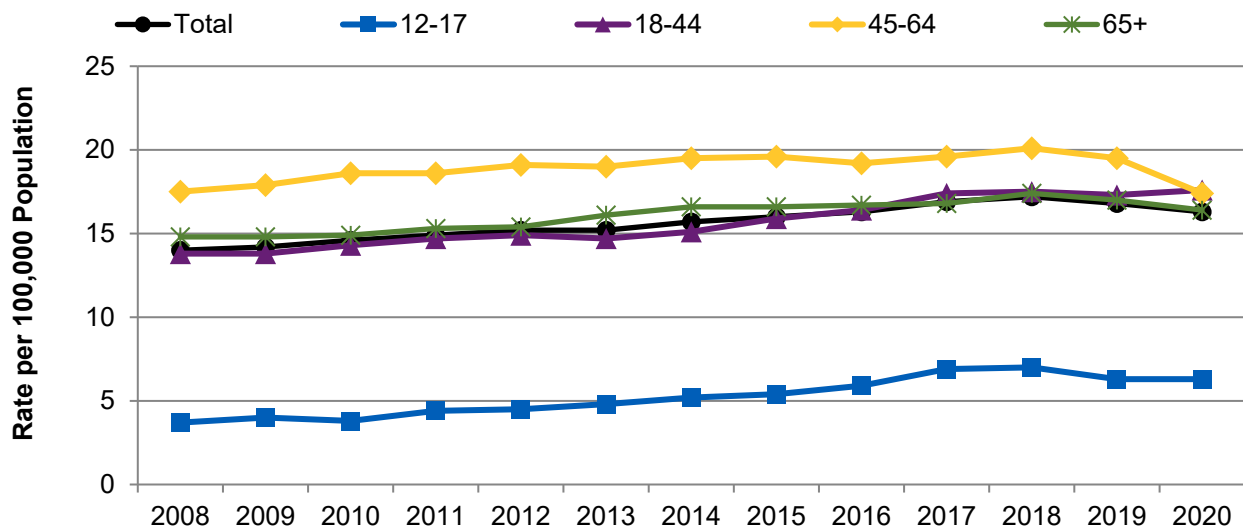
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2008-2020.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Age data are unadjusted. Respondents for which age is not reported are not included in the age adjustment calculations and are excluded from numerators.

- From 2008 to 2020, the rates of suicide death among people age 12 and over per 100,000 population increased 16% overall from 14.0 per 100,000 population to 16.3 per 100,000 population (Figure 2).

- From 2008 to 2020, the rate of suicide death among youths ages 12-17 increased from 3.7 per 100,000 population to 6.3 per 100,000 population.
- Adults under age 65 have the highest rates and youths ages 12-17 have the lowest rates of suicide death per 100,000 population, but the 70% increase in the rate for youths ages 12-17 is the biggest increase among all age groups.
- For adults ages 45-64, the suicide rate dropped between 2019 and 2020 after having the highest rate in 2018, while the rates for youths ages 12-17 and adults ages 18-44 had no statistically significant changes.

High Rate of Increase in Suicide Deaths Among Adolescents

In recent years, suicide death rates for Black children and adolescents significantly increased. From 2007 to 2017, the suicide death rate increased for Black youths from 2.6 per 100,000 population in 2017 to 4.8 per 100,000 population in 2018. Black males ages 5-11 years are more likely to die from suicide compared with their White peers.[14]

Figure 3. Suicide deaths among youths ages 12-17 per 100,000 population, by ethnicity, 2018-2020
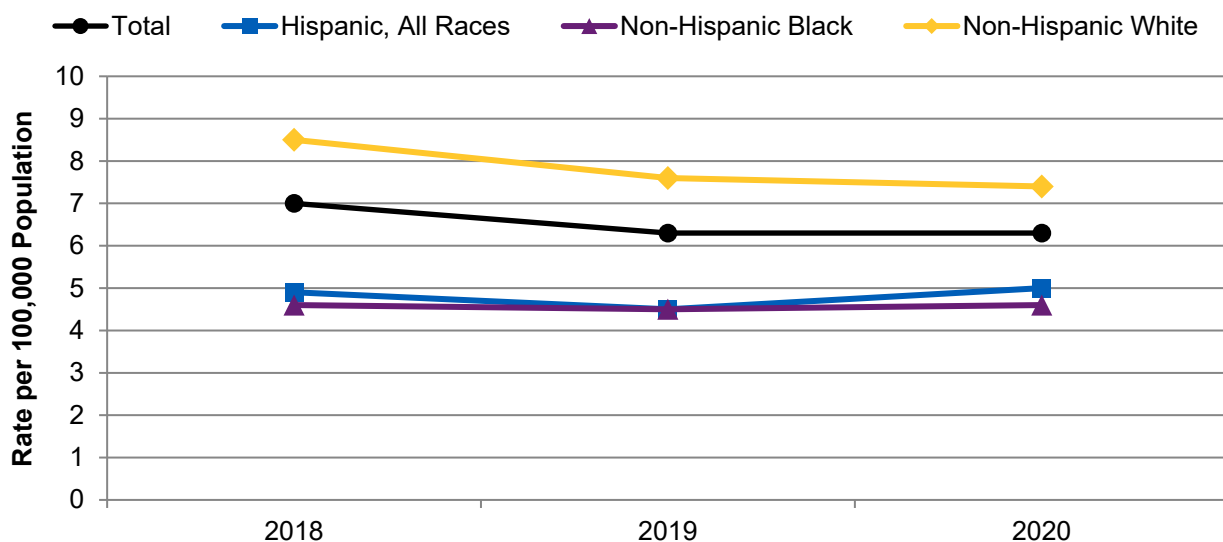
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2018-2020.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Age data are unadjusted. Respondents for which age is not reported are not included in the age adjustment calculations and are excluded from numerators.

- From 2018 to 2020, the rate of suicide death decreased 10% overall for youths ages 12-17, from 7.0 per 100,000 population to 6.3 per 100,000 population (Figure 3).
- From 2018 to 2020, the rate of suicide death among adolescents ages 12-17 increased 2% for Hispanic adolescents, from 4.9 per 100,000 population to 5.0 per 100,000 population. The rate for non-Hispanic White adolescents decreased from 8.5 per 100,000 population to 7.4 per 100,000 population, a 13% decrease.

Preliminary 2020 National Vital Statistics System data also show that suicide was the leading cause of death for Asian and Pacific Islander (API) and American Indian or Alaska Native (AI/AN) youths ages 10-14 years. Suicide among minority youths such as API and AI/AN groups is increasing and concerning.

Increase in Major Depressive Episodes for Adolescents Among All Ethnic Groups and Residence Locations

The most diagnosed mental health disorders among children ages 3-17 years in 2016-2019 were attention deficit disorder (9.8%, approximately 6 million), anxiety (9.4%, approximately 5.8 million), behavior problems (8.9%, approximately 5.5 million), and depression (4.4%, approximately 2.7 million). For adolescents, depression is concerning because 15.1% of adolescents ages 12-17 years had a major depressive episode in 2018-2019.[4]

Figure 4. Children ages 12-17 with a major depressive episode in the last 12 months who received treatment, by ethnicity, 2008-2019 (top) and 2020 (bottom)
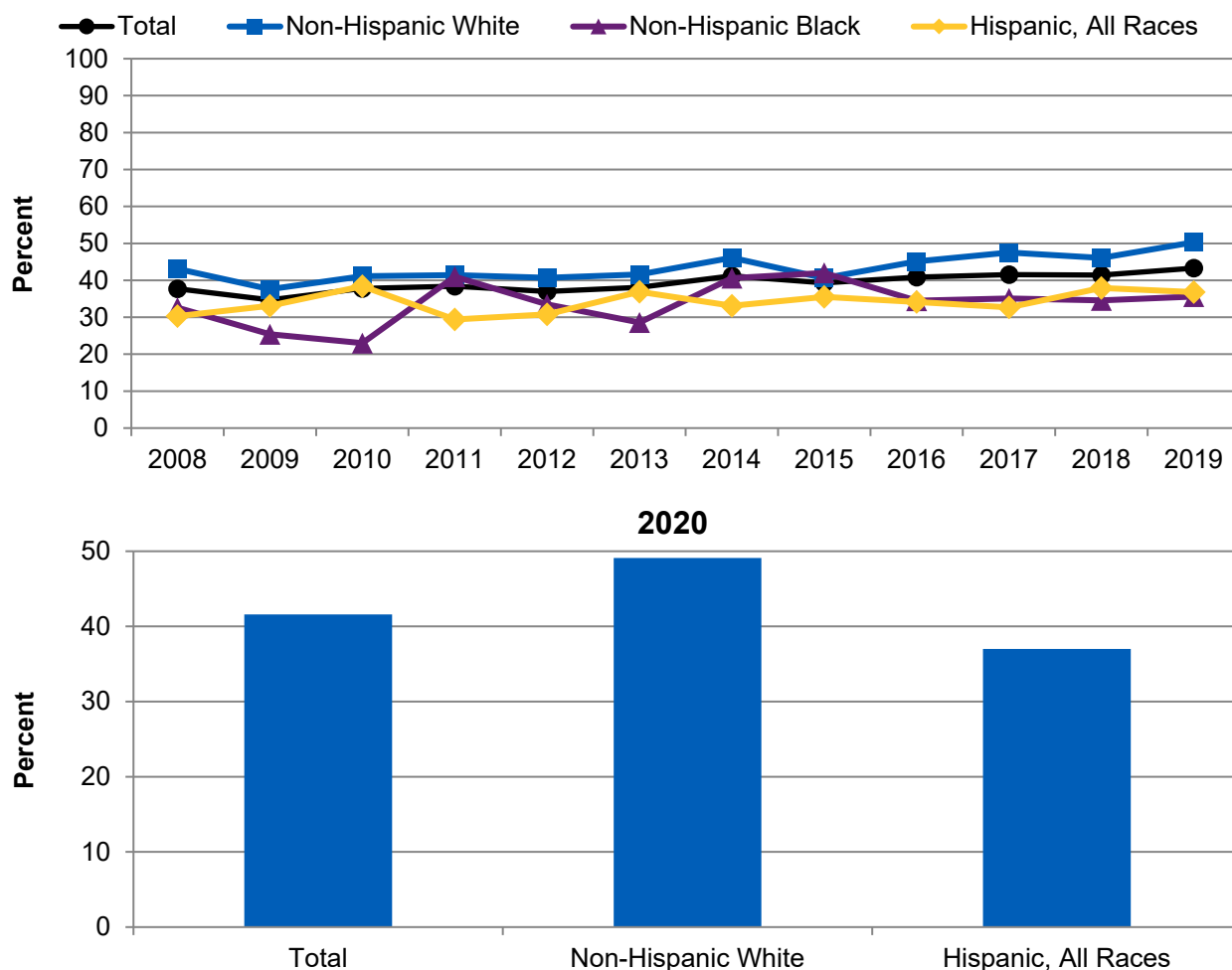
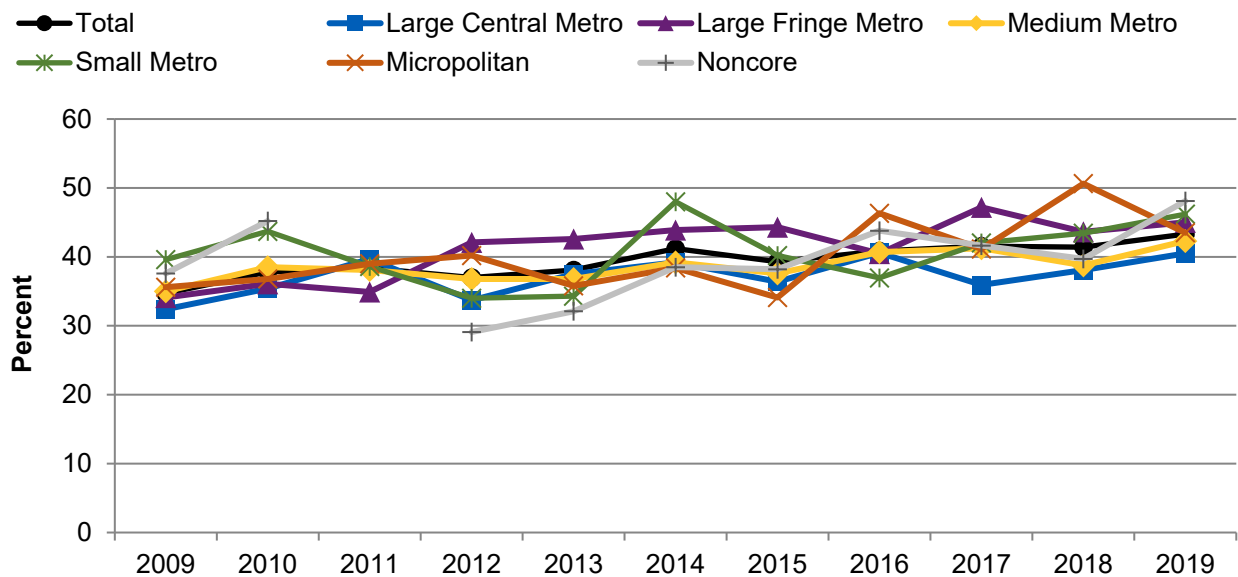**Source:** Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2008-2019 and 2020, quarters 1 and 4.
Note: The 2020 data included quarters 1 and 4 only due to the COVID-19 public health emergency. Non-Hispanic Black has no data point for 2020 because data do not meet the criteria for statistical reliability, data quality, or confidentiality.

- From 2008 to 2019, the percentage of adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment increased overall, from 37.7% to 43.3% (Figure 4, top). For 2020, the overall rate was 41.6% (Figure 4, bottom).

- From 2008 to 2019, the percentage of adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment increased for non-Hispanic White children from 43.1% to 50.3%. For 2020, the rate for non-Hispanic White adolescents was 49.1%.

- From 2008 to 2019, there was no statistically significant change in the percentage of Hispanic adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment. For 2020, the rate for Hispanic adolescents was 37.0%.

- Although the percentage of adolescents ages 12-17 with a major depressive episode who received treatment was lower for Hispanic adolescents than for non-Hispanic White adolescents, the 21% increase for Hispanic adolescents was higher than the 17% increase for non-Hispanic White adolescents between 2008 and 2019.

- From 2008 to 2019, there was no statistically significant change in the percentage of non-Hispanic Black adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment, but the percentage varied greatly over time.

Figure 5. Children ages 12-17 with a major depressive episode in the last 12 months who received treatment, by location of residence, 2009-2019

Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2009-2019.
Note: The 2020 data are excluded from this figure because 2020 data included quarters 1 and 4 only due to the COVID-19 public health emergency and because some data points for location of residence do not meet the criteria for statistical reliability, data quality, or confidentiality. The 2008 data are excluded because they have not been analyzed. Noncore data for 2011 do not meet the criteria for statistical reliability, data quality, or confidentiality.

- From 2009 to 2019, in large fringe metro areas, the percentage of adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment increased from 34.1% to 45.0%, a 32% increase (Figure 5).

- From 2009 to 2019, in noncore areas, the percentage of adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment increased from 37.6% to 48.1%, a 28% increase.
- From 2009 to 2019, in large central metro areas, the percentage of adolescents ages 12-17 with a major depressive episode in the last 12 months who received treatment increased from 32.4% to 40.5%, a 25% increase.

Conclusion

These findings indicate that the need for mental health treatment, especially among children and youths, is not being met. Depression is associated with suicide and has increased for adolescents ages 12-17 while utilization of mental health services has not changed significantly.

Families often face significant challenges in navigating mental health treatment and services through a complex network of schools, primary care, community mental health centers, public and private insurance systems, and more. Individuals do not experience mental health issues in a vacuum. The social and economic context are important factors that contribute to one's physical and mental health.

The NHQDR will continue to support work to improve quality measures for mental health care in order to provide important information on areas of improvement and areas that require more attention. Efforts are underway to improve measures for assessing and implementing improvements in the quality of care for mental health treatment for children. These include increasing the percentage of children and adolescents who receive evidence-based preventive mental health interventions in school. In addition, a mental health measure related to early childhood care and education programs is under development through Healthy People 2030.[15]

Research is also being conducted on the impact of climate change awareness on children's mental well-being and negative emotions among a greater diversity of people and places. The research on the impact of awareness of climate change on children's mental well-being and negative emotions is in its early phases, but existing studies provide a basis from which to develop future research.[16]

Resources

The Department of Health and Human Services (HHS) and other government agencies are committed to improving child and adolescent mental health. The following are examples of available resources:

- The National Suicide Hotline Designation Act of 2019 requires the Federal Communications Commission to designate 988 as the universal telephone number for a national suicide prevention and mental health crisis hotline.[17] 988 has been designated as the new three-digit dialing code that will route callers to the National Suicide Prevention Lifeline.

   While some areas could connect to the Lifeline by dialing 988, this dialing code became available to everyone across the United States on July 16, 2022.[18] The current Lifeline

phone number (1-800-273-8255) will always remain available to people in emotional distress or suicidal crisis.

- HHS leaders urge states to maximize efforts to support children's mental health by highlighting opportunities to strengthen the healthcare system's capacity to meet mental health needs, connect more people to care, and create a continuum of support to address mental health comprehensively and equitably by coordinating across federal programs, including:

  - HRSA's Title V Maternal and Child Health Services Block Grant that supports the health and well-being of all mothers, children, and families;
  - The Substance Abuse and Mental Health Services Administration's Community Mental Health Services Block Grant that provides funding for substance abuse and mental health services;
  - Mental health and behavioral health care covered by Medicaid and the Children's Health Insurance Program;
  - The Administration for Children and Families' Title IV-E Prevention Program for children and families involved with the child welfare system and early childhood mental health supports;
  - The Centers for Disease Control and Prevention's evidence-based primary prevention programs and mental health resources; and
  - The Administration for Community Living's programs for people with disabilities, including children with mental health needs.

- The National Institute of Child Health and Human Development has a long track record of research to identify and rapidly respond to youth mental health needs.
- MentalHealth.gov's Parents and Caregivers page provides help in starting a conversation with children or teens about mental health.
- The Substance Abuse and Mental Health Services Administration supports efforts to promote mental health and substance use prevention in schools and on campuses and to provide safe learning environments.
- The National Institute of Mental Health has a Help for Mental Illnesses web page to help users find a healthcare provider or treatment and learn how to get immediate help.
- Digital Shareables on Child and Adolescent Mental Health provide resources on the "Get Involved" section of National Institute of Mental Health (NIMH) websites to help raise awareness about the importance of children's mental health and early diagnosis and treatment by sharing information and materials based on the latest research. These resources include videos, webinars, brochures, fact sheets, and coloring books for children.

  Also available from NIMH are Research Highlights About Children and Adolescents, Science News About Children and Adolescents, and NIMH Director's Message.

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SUBSTANCE USE DISORDERS

Substance use disorders (SUDs) occur when the recurrent, problematic use of alcohol or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home. Alcohol misuse, illicit drug use, misuse of medications, and other SUDs are estimated to cost the United States more than $400 billion in lost workplace productivity (in part, due to premature mortality), healthcare expenses, law enforcement and other criminal justice costs (e.g., drug-related crimes), and losses from motor vehicle crashes.

Data show that receipt of needed treatment for SUDs and alcohol misuse remained low while adverse outcomes such as emergency department visits, hospitalizations, and mortality increased for nearly all population groups from 2015 to 2019. For example:

- In 2020, the percentage of people age 12 and over who needed treatment for alcohol misuse and who received such treatment at a specialty facility was less than 10% for people at all income levels.
- In 2020, the percentage of people age 12 and over who needed treatment for illicit drug use and who received such treatment at a specialty facility was less than 20% for people living in all geographic locations.
- The hospitalization rate for illnesses related to opioid use doubled overall and across all income groups.
- Emergency department visits involving opioid-related diagnoses more than doubled overall and across all income groups.
- Overall, the rate of drug overdose deaths involving natural and semisynthetic opioids increased fourfold, from 0.98 per 100,000 population in 1999 to 4.1 per 100,000 population in 2020. People ages 45-64 experienced a nearly fivefold increase.
- Among residents of large central metropolitan areas,[i] the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 9.7 per 100,000 population in 2018 to 19.1 per 100,000 population in 2020. Among residents of noncore areas,[ii] the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 5.0 per 100,000 population in 2018 to 10.6 per 100,000 population in 2020.

The Department of Health and Human Services and the White House have developed tools and provided funding for programs to reduce adverse outcomes related to alcohol misuse and SUDs. Examples includes the Overdose Prevention Strategy and the White House 2022 National Drug Control Strategy.

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[i] Large central metro counties in metropolitan statistical area (MSA) of 1 million or more population that: (1) contain the entire population of the largest principal city of the MSA, or (2) are completely contained within the largest principal city of the MSA, or (3) contain at least 250,000 residents of any principal city in the MSA.

[ii] Noncore areas are nonmetropolitan counties that are not in a micropolitan statistical area.

Importance

SUDs meet criteria in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5), for one or more illicit drugs or alcohol. SUDs can involve illicit drugs, prescription drugs, and alcohol or combinations of these substances.

Illicit drugs include marijuana, cocaine, heroin, hallucinogens, inhalants, and methamphetamine, as well as misuse of prescription psychotherapeutic drugs (e.g., pain relievers, tranquilizers, stimulants, sedatives).[1] Opioid use disorders (OUDs) have become especially problematic in recent years. SUDs are linked to many health problems, and overdoses can lead to emergency department visits and deaths.[2]

Prevalence

In 2020, among the 138.5 million people who were current alcohol users, 61.6 million were classified as binge drinkers and 17.7 million (28.8% of current binge drinkers and 12.8% of current alcohol users) were classified as heavy drinkers. Nearly 60 million people age 12 and over used illicit drugs in the past year, including close to 50 million who used marijuana.[3]

An estimated 26 million past-year users of alcohol and 11 million past-year users of drugs other than alcohol reported they were using these substances "a little more or much more" than they did before the COVID-19 public health emergency began.[4]

Morbidity and Mortality

In 2020, 50% of people age 12 and over (or 138.5 million people) used alcohol in the past month.[4] Vital statistics show that there has been a surge in alcohol-induced deaths, an increase from slightly over 39,000 deaths in 2019 to just over 49,000 deaths in 2020, or more than 25%. Provisional data from 2021 show the number of alcohol-induced deaths continued to increase, to more than 52,000, up 34% from prepandemic levels.[5]

The misuse of and addiction to opioids—including prescription pain relievers, heroin, and synthetic opioids such as fentanyl—have become common chronic illnesses in the United States. Although effective treatments exist for OUD, only about one in four people with this disorder receives any type of specialty treatment.[6]

Among people age 12 and over in 2020, 59.3 million people used illicit drugs in the past year. The most commonly used illicit drug in the past year was marijuana, which was used by 49.6 million people. The second most common type of illicit drug use in the past year was the misuse of prescription pain relievers, which were misused by 9.3 million people.[7]

Polysubstance use occurs when more than one drug is used, with or without the person's knowledge. Rates of polysubstance use and polysubstance use disorders, particularly involving the co-use of stimulants and opioids, have increased in recent years. This growing issue also means that an opioid-involved overdose often occurs in combination with exposure to other opioids or other nonopioid substances. Some examples of polysubstance exposures found in combination in overdose deaths include illicitly manufactured fentanyl (IMF) and heroin; IMF and cocaine; IMF and methamphetamine; and prescription or illicit opioids and benzodiazepines.[8]

From May 2020 to April 2021, the estimated number of drug overdose deaths in the United States exceeded 100,000 over a 12-month period for the first time, with 64.0% of deaths involving synthetic opioids other than methadone, mainly IMFs, which include both fentanyl and illicit fentanyl analogs.[9]

Cocaine and heroin were the most commonly co-involved stimulant and opioid other than IMFs, respectively, among IMF-involved deaths in all regions of the United States except the West, where methamphetamine and prescription opioids were most common.[9]

People who experience nonfatal overdose (NFOD) are at high risk of subsequent overdose.[10] NFODs are a significant cause of opioid-related morbidity in the United States and can result in o*pioid-induced respiratory depression and brain injury.*[11]

Cost

According to the Centers for Disease Control and Prevention, excessive alcohol use results in $249 billion in losses to the U.S. economy. Cost due to excessive drinking includes healthcare cost ($28 billion), loss of workplace productivity ($179 billion), collisions ($13 billion), and criminal justice ($25 billion).[12]

In 2017, alcohol-related emergency department visits cost $1.22 billion. Medicaid was the primary expected payer of 35% of the cost; private insurance and self-pay, 23% each; Medicare, 15%; and other primary expected payer, 4%.[13]

The monetary costs and collateral impact to society due to SUDs are very high. In 2017, the annual associated medical cost of SUDs in U.S. hospitals was $13.2 billion.[14] Alcohol misuse, illicit drug use, misuse of medications, and SUDs are estimated to cost the United States more than $400 billion in lost workplace productivity (in part, due to premature mortality), healthcare expenses, law enforcement and other criminal justice costs (e.g., drug-related crimes), and losses from motor vehicle crashes.[15,16]

According to the Centers for Medicare & Medicaid Services, nearly 12% of Medicaid beneficiaries over age 18 have an SUD.[17]

Barriers to Care

Many of the same kinds of barriers that existed to SUD treatment before the Affordable Care Act and parity laws remain, such as limits on the type of SUD treatment provided and the length of treatment.[18]

Medications for OUD, including buprenorphine, methadone, and naltrexone are safe and effective treatments.[19] In the United States, in response to the COVID-19 public health emergency and its related safety restrictions, providers turned to telehealth to provide necessary healthcare to patients at a distance. State and federal policy changes implemented in response to the COVID-19 public health emergency aimed to increase access to medication for opioid use disorder (MOUD) through telehealth flexibilities, waiving restrictions on Medicaid/Medicare reimbursement for telehealth services, loosening restrictions on take-home doses of methadone, and lifting the in-person evaluation requirement for patients with OUD to begin buprenorphine treatment.[20]

Still, many barriers persist to widespread access to MOUD. Among the 2.5 million people age 12 and over with past year OUD, 11.2% received MOUD in the past year for opioid misuse.[7]

Barriers to preventing and treating SUDs include:

- A complex system of care that providers and patients alike may find difficult to navigate,
- A lack of interagency coordination and communication due to a shortage of facilities and providers and long distances between patients and providers,
- Limited resources and personnel,
- Lack of mental health services,
- Insufficient capacity,
- Lack of transportation,
- Homelessness and substandard housing,
- Stigma at the individual, practitioner, community, and policymaker level,
- Confidentiality concerns,
- Inadequate funding,
- Inadequate remuneration,
- Workforce shortages,
- Inadequate education at medical and professional schools, and
- Lack of pharmacy availability of buprenorphine.[21,22,23,24,25,26,27]

These challenges suggest that solutions will require cross-sector collaboration at all levels to begin to address access to and quality of care for SUDs.
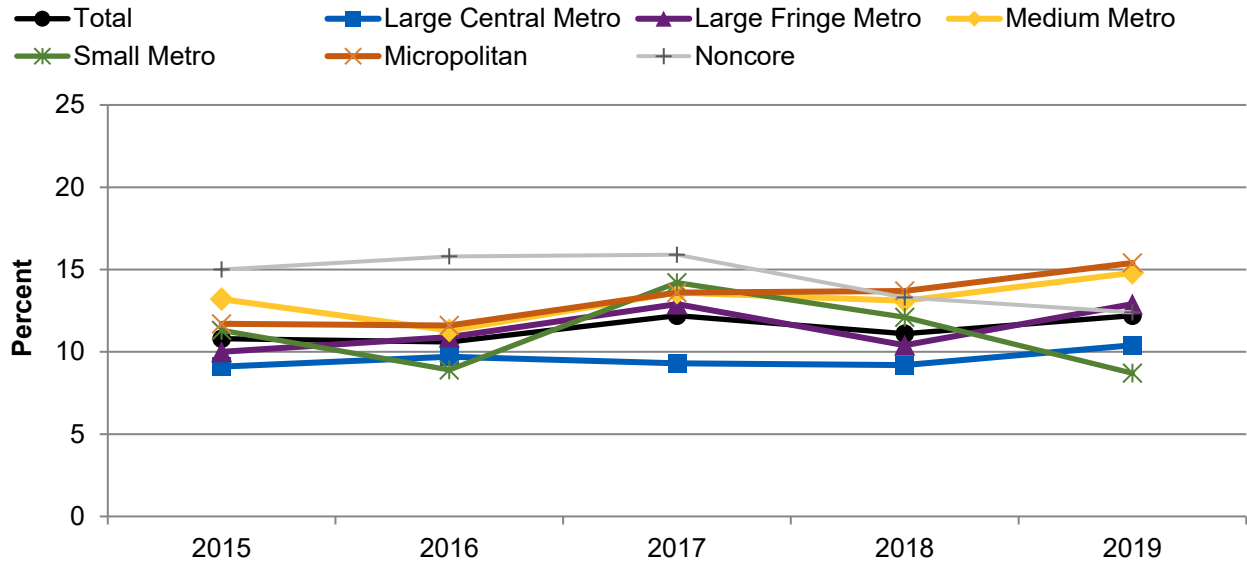
In addition, a large percentage of people who need treatment for SUD do not seek treatment and fewer receive the help they need, especially among African American, Asian, and Hispanic groups. Barriers to care include lack of insurance, cost, stigmatization of substance use and mental illness, multicultural factors, and provider unwillingness to prescribe MOUD.[28,29,30,31]
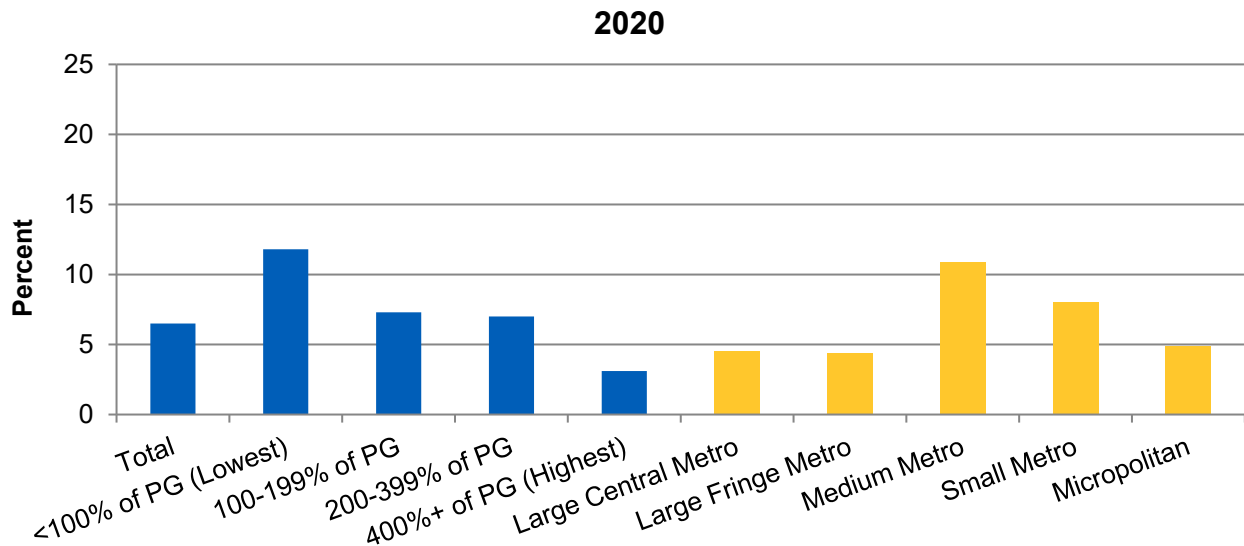
Findings

The figures in the substance use disorder section of the NHQDR illustrate significant trends over time and the most significant disparities in the most recent data year. For a deeper look at the disparities by geographic location, statistics about rural/urban location are also included where data are available. In addition, bivariate analyses are shown when such analyses are possible.

Low Rates of Treatment for Substance Use Among All Residence Locations, Income Groups, and Gender Groups

Figure 1. People age 12 and over who needed treatment for illicit drug use or an alcohol problem and who received such treatment at a specialty facility in the last 12 months, by location, 2015-2019 (top) and by income and location, 2020 (bottom)

Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2015-2019.
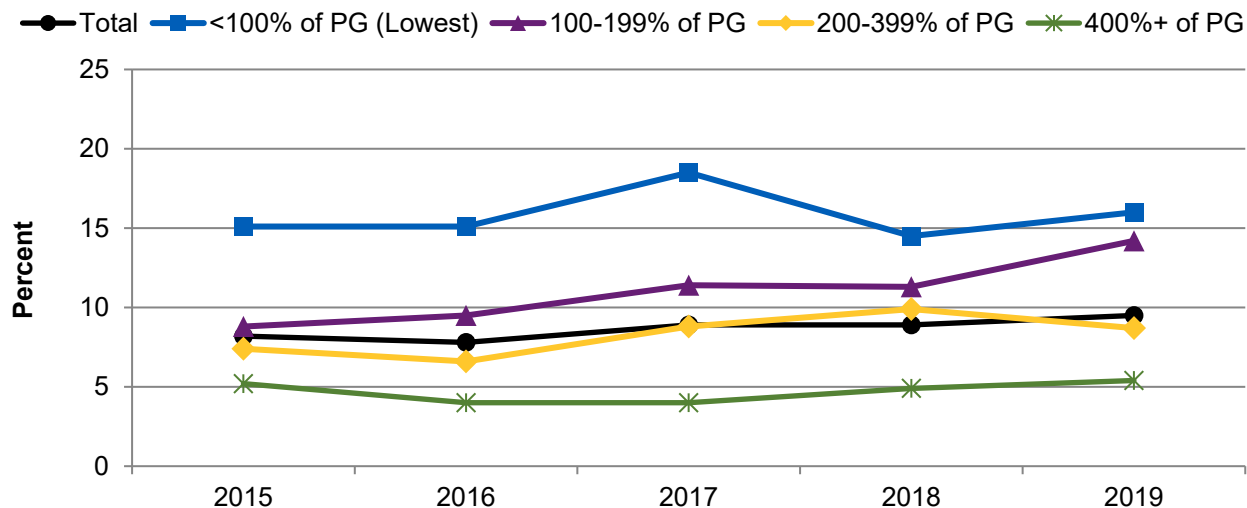

Key: PG = poverty guideline.
Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2020, quarters 1 and 4.
Note: The 2020 data included quarters 1 and 4 only due to COVID. The criteria used to categorize substance use disorder (SUD) among National Survey on Drug Use and Health respondents changed from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) to the fifth edition (DSM-5), resulting in some differences in who is classified as having an SUD. Therefore, the DSM-5 SUD estimates from 2020 are not comparable with the DSM-IV SUD estimates from prior years. In 2020, data for noncore did not meet the criteria for statistical reliability, data quality, or confidentiality.
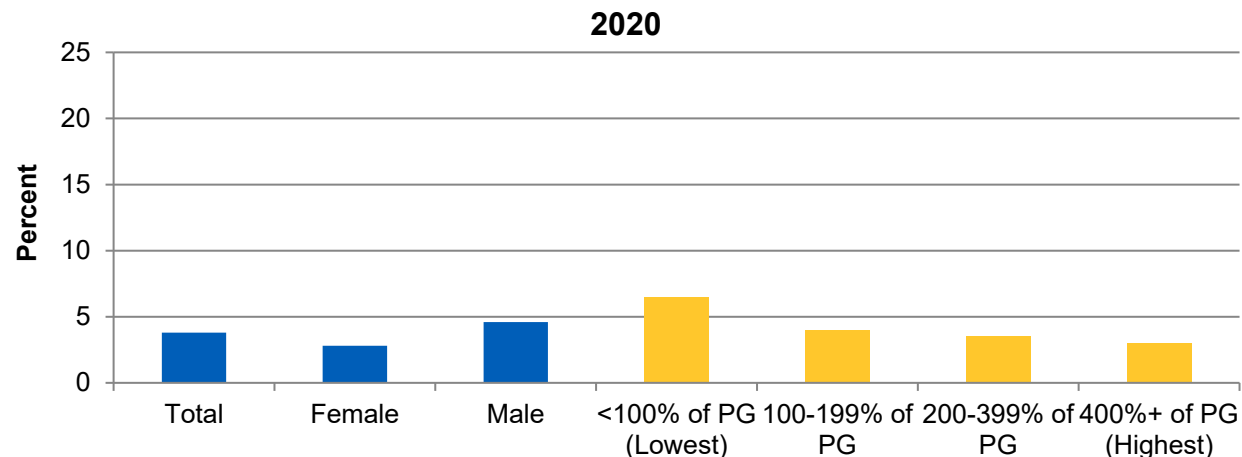
- From 2015 to 2019, residents of micropolitan areas were the only group that showed an increase in the percentage of people who needed and received treatment for illicit drug use or an alcohol problem at a specialty facility in the last 12 months (Figure 1, top).
- In 2020, the percentage of people who needed and received treatment for illicit drug use or an alcohol problem at a specialty facility in the last 12 months was below 15% for all income groups and geographic locations (Figure 1, bottom).

Figure 2. People age 12 and over who needed treatment for an alcohol problem and who received such treatment at a specialty facility in the last 12 months, by income, 2015-2019 (top) and by sex and income, 2020 (bottom)

Key: PG = poverty guideline.
Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2015-2019.
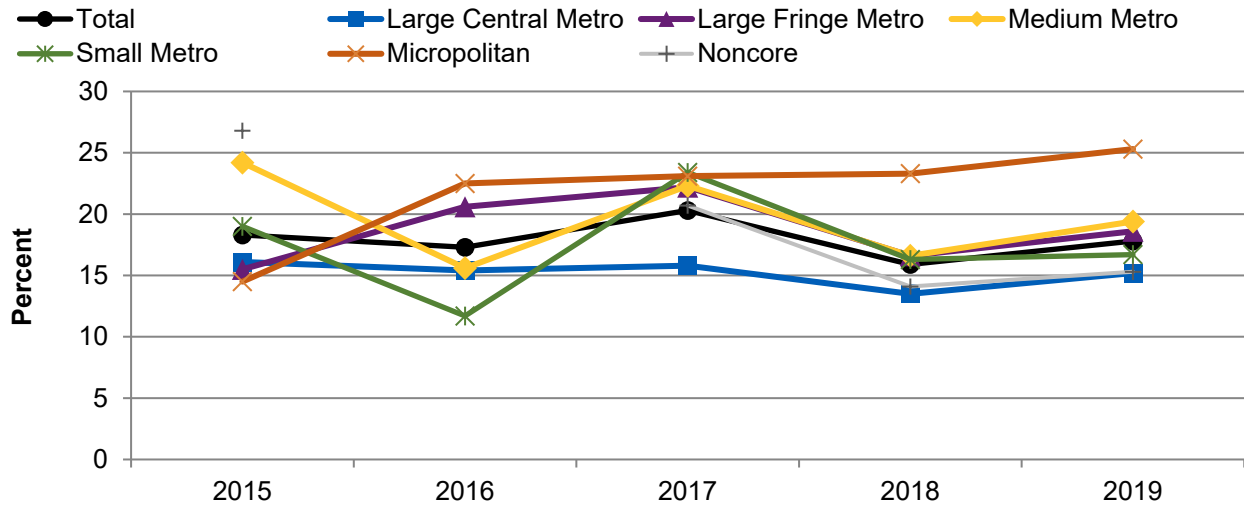

Key: PG = poverty guideline.
Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2020, quarters 1 and 4.
Note: The 2020 data included quarters 1 and 4 only due to COVID. The criteria used to categorize substance use disorder (SUD) among National Survey on Drug Use and Health respondents changed from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) to the fifth edition (DSM-5), resulting in some differences in who is classified as having an SUD. Therefore, the DSM-5 SUD estimates from 2020 are not comparable with the DSM-IV SUD estimates from prior years.

- From 2015 to 2019, among households with 100-199% of the PG, the percentage of people who needed and received treatment for an alcohol problem at a specialty facility in the last 12 months increased from 8.8% to 14.2% (Figure 2, top).
- In 2020, there were no statistically significant differences between income groups (Figure 2, bottom).

Figure 3. People age 12 and over who needed treatment for illicit drug use and who received such treatment at a specialty facility in the last 12 months, by geographic location, 2015-2019 (top) and by ethnicity and location, 2020 (bottom)

Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2015-2019.
Note: Noncore data do not meet the criteria for statistical reliability, data quality, or confidentiality for 2016.
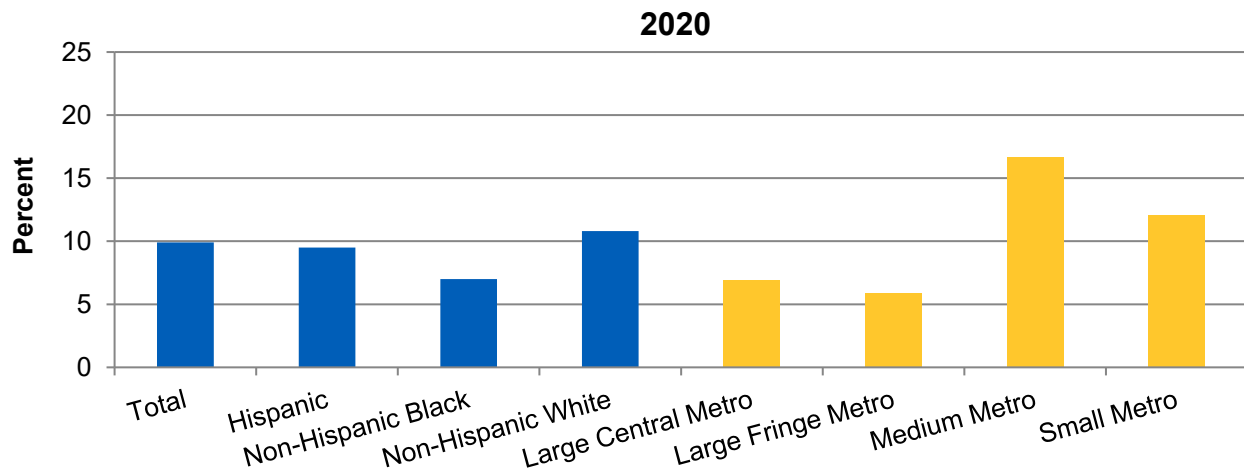
Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2020, quarters 1 and 4.
**Note:** The 2020 data included quarters 1 and 4 only due to COVID. The criteria used to categorize substance use disorder (SUD) among National Survey on Drug Use and Health respondents changed from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) to the fifth edition (DSM-5), resulting in some differences in who is classified as having an SUD. Therefore, the DSM-5 SUD estimates from 2020 are not comparable with the DSM-IV SUD estimates from prior years. Micropolitan and noncore data for 2020 do not meet the criteria for statistical reliability, data quality, or confidentiality.

The geographic locations are based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme (https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf):

- **Large central metropolitan** refers to counties in a metropolitan statistical area (MSA) of 1 million or more population that contain the entire population of the largest principal city of the MSA, whose entire population is contained within the largest principal city of the MSA, or that contain at least 250,000 residents of any principal city in the MSA.
- **Large fringe metropolitan** refers to counties in MSAs of 1 million or more population that do not qualify as large central, described as suburban areas.
- **Medium metropolitan** refers to counties in MSAs of 250,000 to 999,999 population.
- **Small metropolitan** refers to counties in MSAs of less than 250,000 population.
- The two nonmetropolitan county designations are micropolitan, which are counties in a **micropolitan statistical area**, and **noncore**, which are nonmetropolitan counties that are not in a micropolitan statistical area.

- From 2015 to 2019, residents of the two nonmetropolitan areas, micropolitan and noncore, experienced different trends in the percentage of people who needed and received treatment for illicit drug use at a specialty facility (Figure 3, top). Residents of micropolitan areas showed an increase while residents of noncore areas showed a decrease.
- From 2015 to 2019, among residents of micropolitan areas, the percentage of people who needed and received treatment for illicit drug use at a specialty facility in the last 12 months increased from 14.5% to 25.3%.
- From 2015 to 2019, among residents of noncore areas, the percentage of people who needed and received treatment for illicit drug use at a specialty facility in the last 12 months decreased from 26.8% to 15.3%.
- In 2020, among people who needed and received treatment for illicit drug use at a specialty facility in the last 12 months, residents of medium metropolitan areas (16.7%) were more likely than residents of large fringe metropolitan areas (5.9%) to receive needed treatment (Figure 3, bottom).

Low Rates of Treatment Completion for Substance Use Disorder Among All Racial and Ethnic Groups

Figure 4. People age 12 and over treated for substance use disorder who completed treatment course, by race and ethnicity (left) and Hispanic subgroups (right), 2019
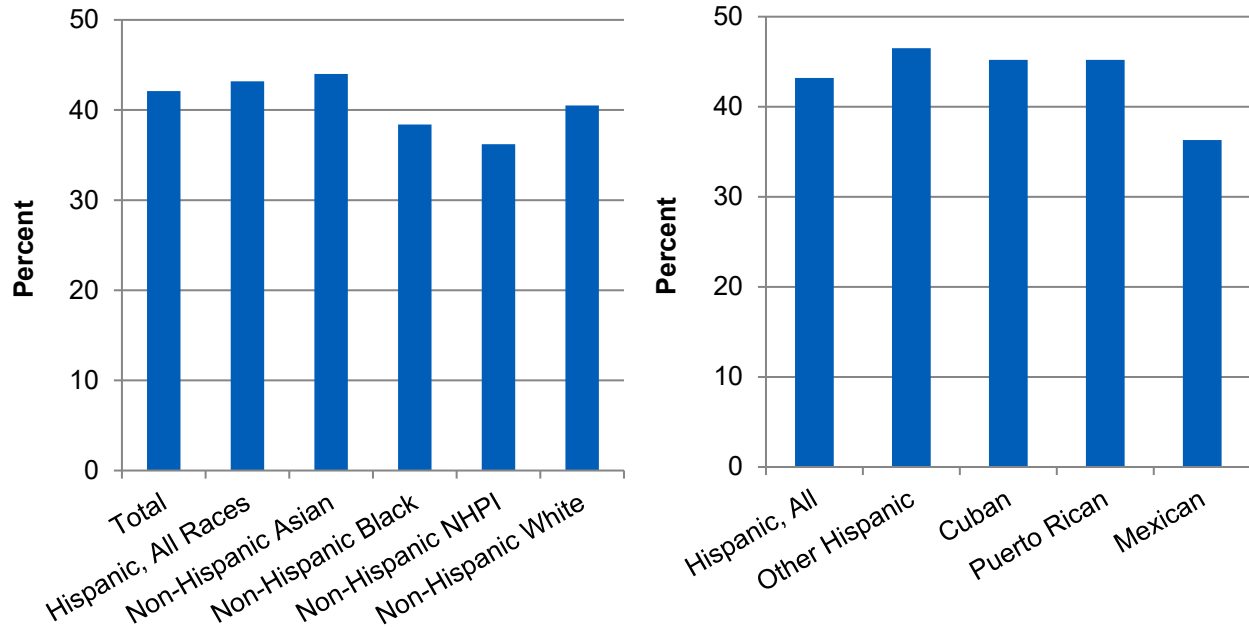

Key: NHPI = Native Hawaiian/Pacific Islander.
Source: Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set, 2019.

- The percentage of people treated for SUD who completed their treatment was below 50% for all racial/ethnic groups in 2019 (Figure 4).
- Non-Hispanic NHPI people had the lowest percentage who completed treatment (36.2%) (Figure 4, left).
- In 2019, 43.2% of Hispanic people of all races age 12 and over treated for substance use disorder completed the treatment course but the percentage varied by subgroup:

  - ■ Mexican people, 36.3%,
  - ■ Puerto Rican people and Cuban people, 45.2%, and
  - ■ Other Hispanic groups, 46.5% (Figure 4, right).

## *Increase in Opioid-Related Hospital Stays and Emergency Department Visits Among All Income Groups*

Figure 5. Hospital inpatient stays involving opioid-related diagnoses per 100,000 population, by income, 2005-2019
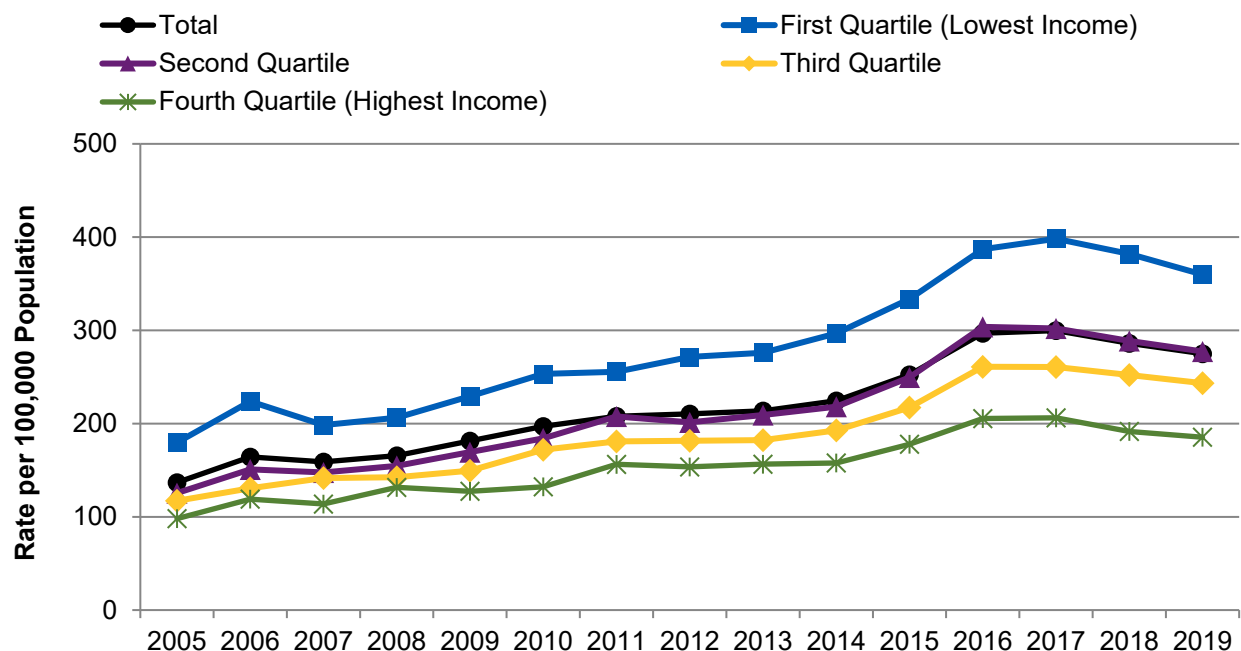
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases, 2005-2019.

- From 2005 to 2019, the hospitalization rate related to opioid use doubled overall and for all income groups (Figure 5). The overall rate of hospital inpatient stays involving opioid-related diagnoses increased from 136.8 per 100,000 population to 275.0 per 100,000 population.

- From 2005 to 2019, among people in the lowest income group, the rate of hospital inpatient stays involving opioid-related diagnoses increased from 179.6 per 100,000 population to 359.9 per 100,000 population.

- From 2005 to 2019, among people in the second income group, the rate of hospital inpatient stays involving opioid-related diagnoses increased from 125.5 per 100,000 population to 277.4 per 100,000 population.

- From 2005 to 2019, among people in the third income group, the rate of hospital inpatient stays involving opioid-related diagnoses increased from 117.2 per 100,000 population to 243.4 per 100,000 population.

- From 2005 to 2019, among people in the highest income group, the rate of hospital inpatient stays involving opioid-related diagnoses increased from 98.1 per 100,000 population to 185.4 per 100,000 population.

Figure 6. Emergency department visits involving opioid-related diagnoses per 100,000 population, by income, 2005-2019
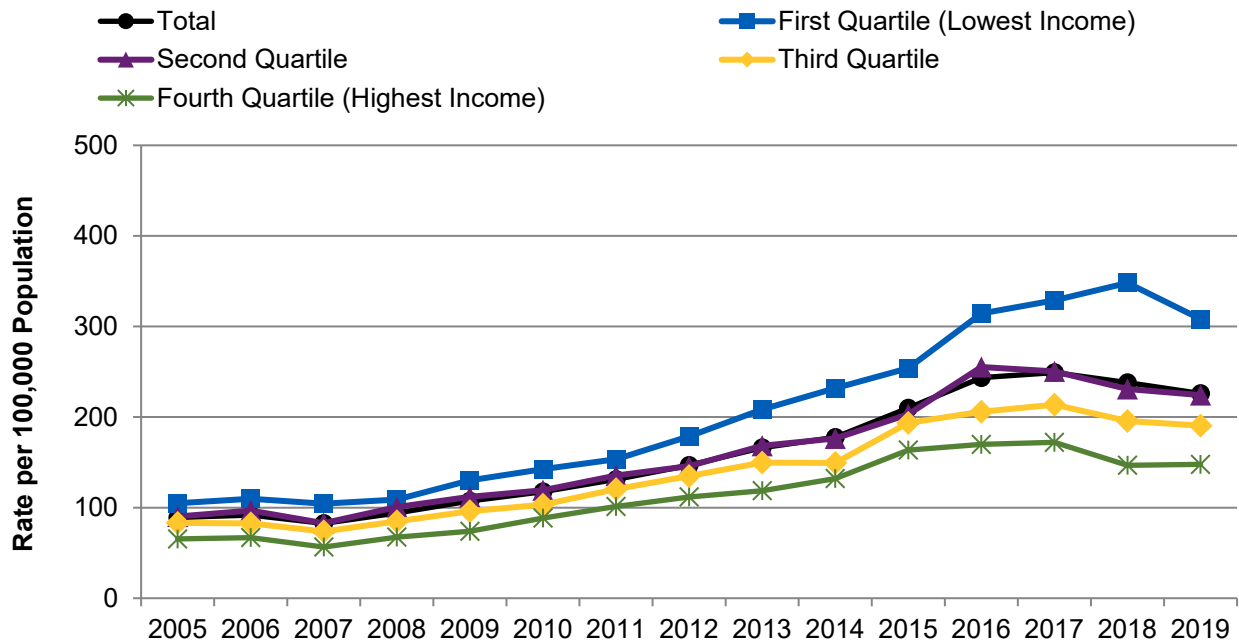

Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2005-2019.

- From 2005 to 2019, emergency department visits involving opioid-related diagnoses more than doubled overall and for all income groups (Figure 6).
- From 2005 to 2019, overall, the rate of emergency department visits related to opioid use increased from 89.1 per 100,000 population to 226.0 per 100,000 population.
- From 2005 to 2019, among people in the lowest income group, the rate of emergency department visits involving opioid-related diagnoses increased from 104.9 per 100,000 population to 308.1 per 100,000 population.
- From 2005 to 2019, among people in the second income group, the rate of emergency department visits involving opioid-related diagnoses increased from 90.2 per 100,000 population to 224.3 per 100,000 population.
- From 2005 to 2019, among people in the third income group, the rate of emergency department visits involving opioid-related diagnoses increased from 83.2 per 100,000 population to 190.6 per 100,000 population.
- From 2005 to 2019, among people in the highest income group, the rate of emergency department visits involving opioid-related diagnoses increased from 65.5 per 100,000 population to 147.7 per 100,000 population.

Increases in Drug Overdose Deaths Involving Opioids Among All Racial/Ethnic and Income Groups

Figure 7. Drug overdose deaths involving any opioids per 100,000 population, by race/ethnicity, 2018-2020
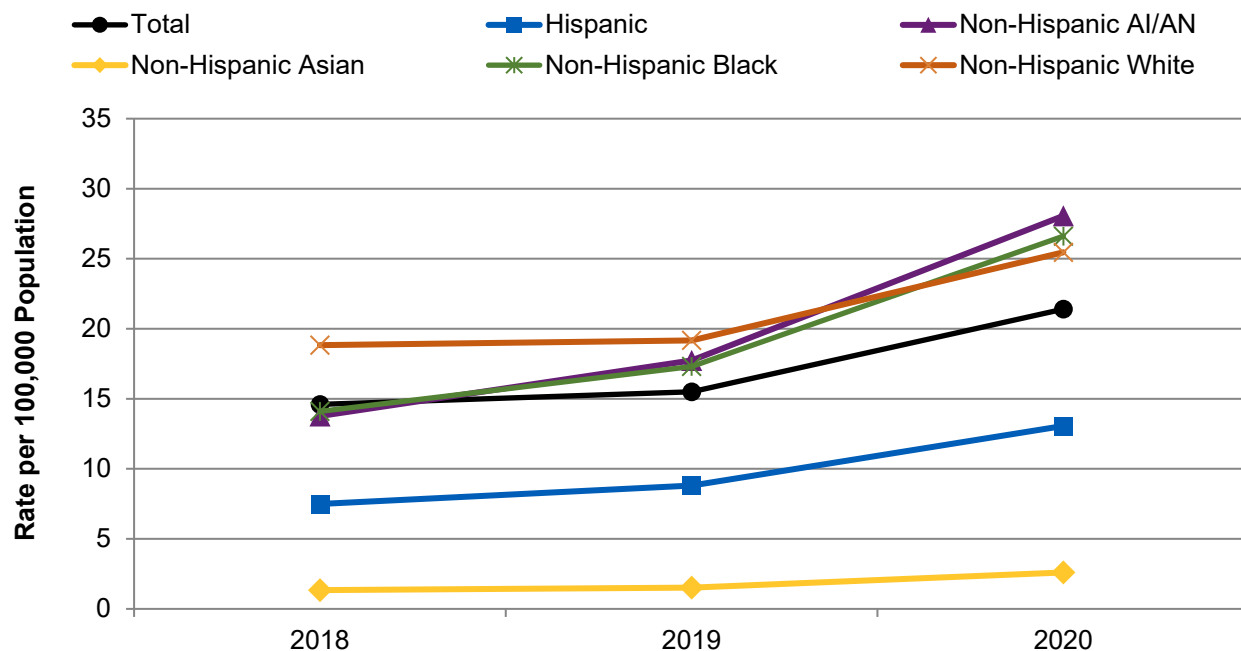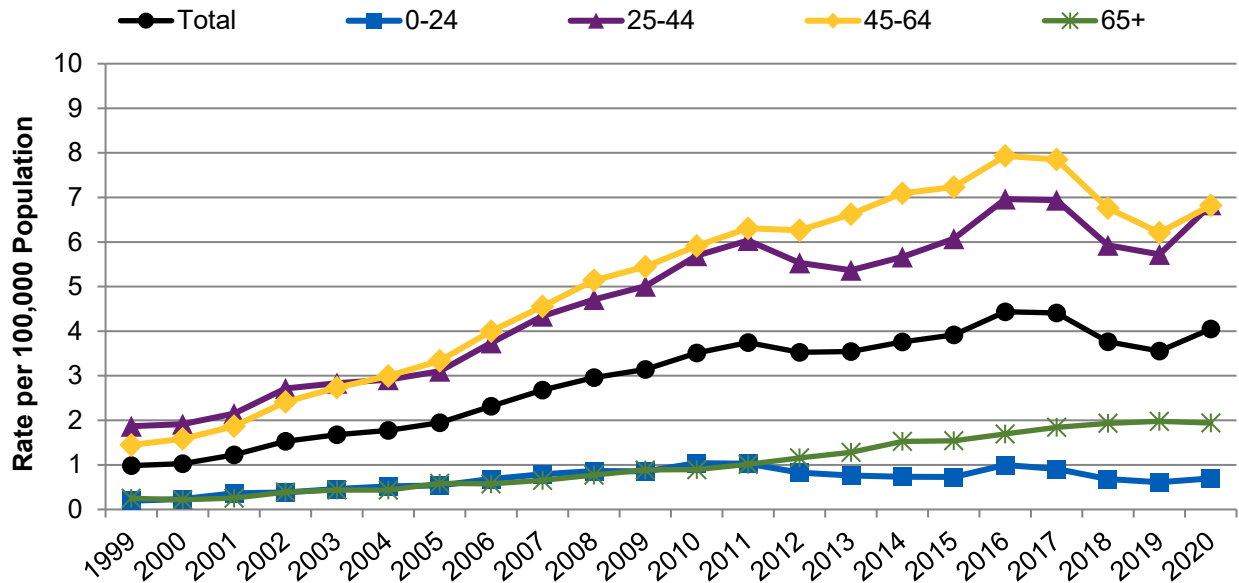

Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2018-2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
Note: Race and Hispanic origin misclassification on death certificates results in substantial underestimation of mortality for non Hispanic AI/ANs (refer to https://www.cdc.gov/nchs/data/nvsr/nvsr70/NVSR70-12.pdf). Drug overdose deaths are identified using underlying cause-of-death codes from the 10th revision of the International Classification of Diseases (ICD-10-CM). Deaths involving any opioids use codes T40.0-T40.4 and T40.6. Rates are age adjusted.

- From 2018 to 2020, overall, the rate of drug overdose deaths involving any opioids increased from 14.6 per 100,000 population to 21.4 per 100,000 population (Figure 7).
- From 2018 to 2020, among Hispanic people, the rate of drug overdose deaths involving any opioids increased from 7.5 per 100,000 population to 13.1 per 100,000 population.
- From 2018 to 2020, among non-Hispanic AI/AN people, the rate of drug overdose deaths involving any opioids increased from 13.8 per 100,000 population to 28.1 per 100,000 population.
- From 2018 to 2020, among non-Hispanic Black people, the rate of drug overdose deaths involving any opioids increased from 14.1 per 100,000 population to 26.6 per 100,000 population.
- From 2018 to 2020, among non-Hispanic White people, the rate of drug overdose deaths involving any opioids increased from 18.8 per 100,000 population to 25.5 per 100,000 population.

Figure 8. Drug overdose deaths involving natural and semisynthetic opioids per 100,000 population, by age, 1999-2020
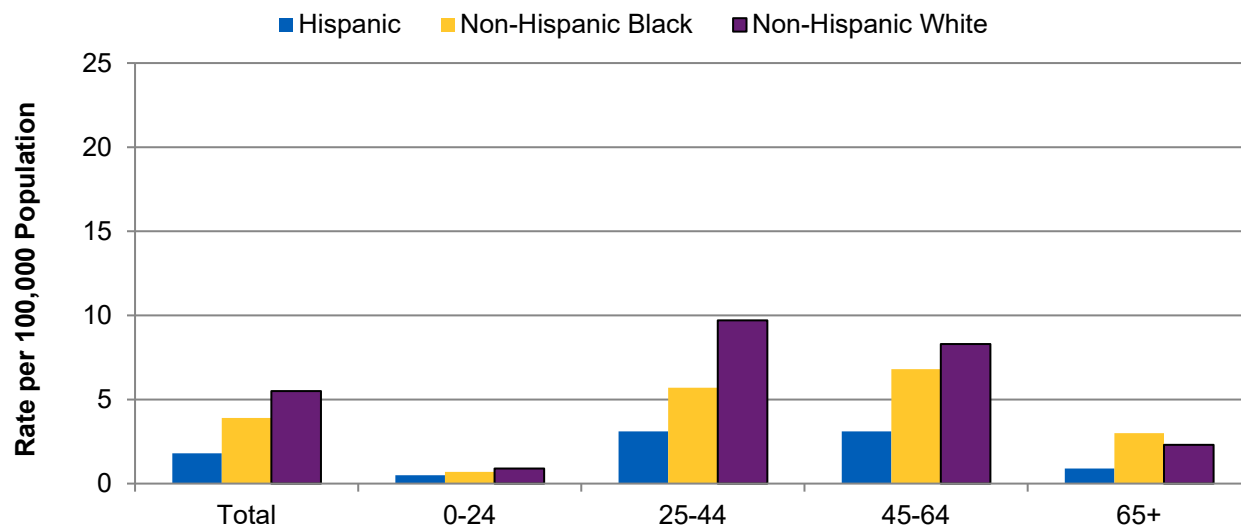

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 1999-2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
Note: Natural opioid includes morphine and codeine; semisynthetic opioid includes drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone. Drug overdose deaths are identified using underlying cause-of-death codes from the 10th revision of the International Classification of Diseases (ICD-10-CM). Deaths involving natural and semisynthetic opioids use code T40.2. Rates are crude rates. Rates were calculated based on the numbers of deaths and population of the downloaded 10-year age groups. Standard errors were calculated based on the rates and populations for the combined groups (square root of (p*(1-p)/N)). Deaths of missing age were excluded.

- From 1999 to 2020, overall, the rate of drug overdose deaths involving natural and semisynthetic opioids increased fourfold, from 0.98 per 100,000 population to 4.1 per 100,000 population (Figure 8).

- From 1999 to 2020, among people ages 0-24, the rate of drug overdose deaths involving natural and semisynthetic opioids increased from 0.2 per 100,000 population to 0.7 per 100,000 population.

- From 1999 to 2020, among people ages 25-44, the rate of drug overdose deaths involving natural and semisynthetic opioids increased from 1.9 per 100,000 population to 6.8 per 100,000 population.

- From 1999 to 2020, among people ages 45-64, the rate of drug overdose deaths involving natural and semisynthetic opioids increased from 1.4 per 100,000 population to 6.8 per 100,000 population.

- From 1999 to 2020, among people age 65 and over, the rate of drug overdose deaths involving natural and semisynthetic opioids increased from 0.25 per 100,000 population to 1.9 per 100,000 population.

Differences in Drug Overdose Deaths Involving Some Opioids in Certain Age and Ethnic Groups and Geographic Locations

Figure 9. Drug overdose deaths involving natural and semisynthetic opioids per 100,000 population, by age and ethnicity, 2020
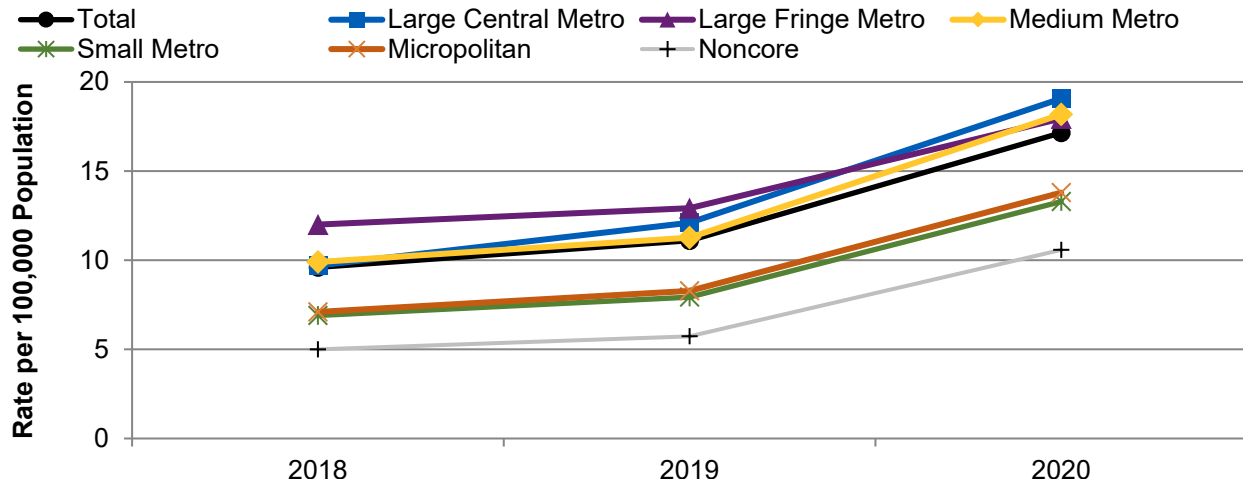

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
Note: Natural opioid includes morphine and codeine; semisynthetic opioid includes drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone. Rates are crude rates and are not age adjusted. Drug overdose deaths are identified using underlying cause-of-death codes from the 10th revision of the International Classification of Diseases (ICD-10-CM). Deaths involving natural and semisynthetic opioids use codes T40.2.

- In 2020, overall, Hispanic and non-Hispanic Black people were less likely than non-Hispanic White people to die from a drug overdose involving natural and semisynthetic opioids (Figure 9).
- In 2020, among people age 25 and over, Hispanic people were less likely than non-Hispanic White people to die from a drug overdose involving natural and semisynthetic opioids.
- In 2020, among people ages 25-64, non-Hispanic Black people were less likely than non-Hispanic White people to die from a drug overdose involving natural and semisynthetic opioids.
- In 2020, among people age 65 and over, non-Hispanic Black people were more likely than non-Hispanic White people to die from a drug overdose involving natural and semisynthetic opioids.

Figure 10. Drug overdose deaths involving synthetic opioids other than methadone per 100,000 population, by geographic location, 2018-2020

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2018-2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
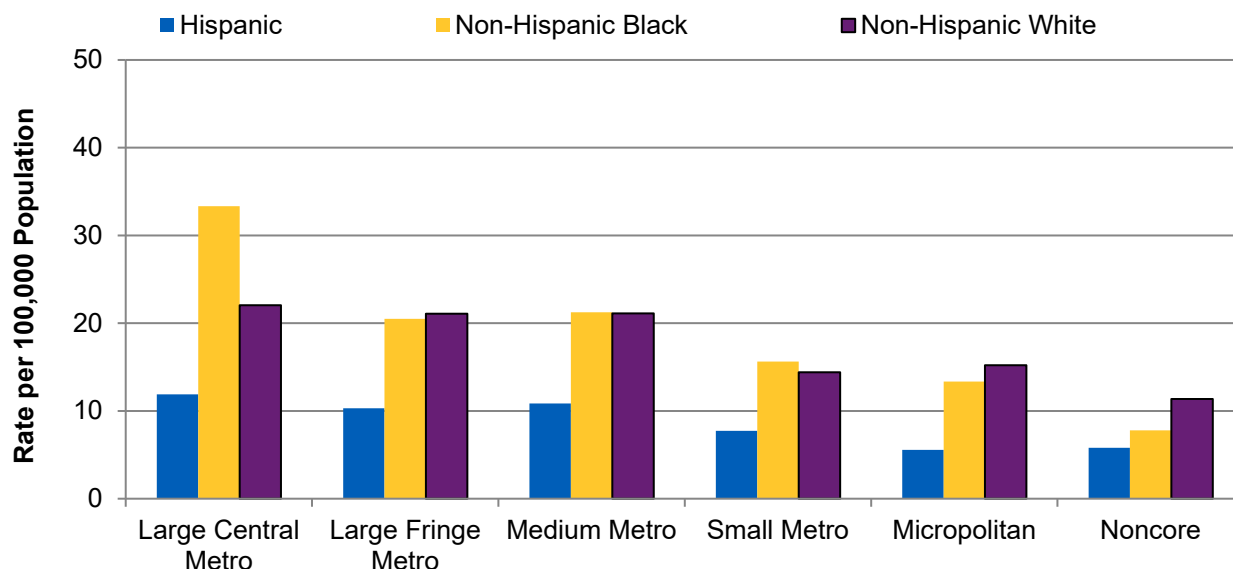
Note: Rates are crude rates and are not age adjusted. Methadone is a synthetic opioid that can be prescribed for pain reduction or for use in medication-assisted treatment (MAT) for opioid use disorder (OUD). For MAT, methadone is used under direct supervision of a healthcare provider; synthetic opioid other than methadone includes drugs such as tramadol and fentanyl.

Drug overdose deaths are identified using underlying cause-of-death codes from the 10th revision of the International Classification of Diseases (ICD-10-CM). Deaths involving synthetic opioids other than methadone use code T40.4. The geographic locations are based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme (https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf):

- **Large central metropolitan** refers to counties in a metropolitan statistical area (MSA) of 1 million or more population that contain the entire population of the largest principal city of the MSA, whose entire population is contained within the largest principal city of the MSA, or that contain at least 250,000 residents of any principal city in the MSA.
- **Large fringe metropolitan** refers to counties in MSAs of 1 million or more population that do not qualify as large central, described as suburban areas.
- **Medium metropolitan** refers to counties in MSAs of 250,000 to 999,999 population.
- **Small metropolitan** refers to counties in MSAs of less than 250,000 population.
- The two nonmetropolitan county designations are micropolitan, which are counties in a **micropolitan statistical area**, and **noncore**, which are nonmetropolitan counties that are not in a micropolitan statistical area.

- From 2018 to 2020, overall, the percentage of drug overdose deaths involving synthetic opioids increased from 9.6 per 100,000 population to 17.2 per 100,000 population (Figure 10).
- From 2018 to 2020, among residents of large central metropolitan areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 9.7 per 100,000 population to 19.1 per 100,000 population.
- From 2018 to 2020, among residents of large fringe metropolitan areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 12.0 per 100,000 population to 18.0 per 100,000 population.
- From 2018 to 2020, among residents of medium metropolitan areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 9.9 per 100,000 population to 18.2 per 100,000 population.

- From 2018 to 2020, among residents of small metropolitan areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 6.9 per 100,000 population to 13.3 per 100,000 population.
- From 2018 to 2020, among residents of micropolitan areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 7.1 per 100,000 population to 13.8 per 100,000 population.
- From 2018 to 2020, among residents of noncore areas, the rate of drug overdose deaths involving synthetic opioids other than methadone increased from 5.0 per 100,000 population to 10.6 per 100,000 population.

Figure 11. Drug overdose deaths involving synthetic opioids other than methadone per 100,000 population, by geographic location and ethnicity, 2020

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2020.
Note: Rates are crude rates and are not age adjusted. Methadone is a synthetic opioid that can be prescribed for pain reduction or for use in medication-assisted treatment (MAT) for opioid use disorder (OUD). For MAT, methadone is used under direct supervision of a healthcare provider; synthetic opioid other than methadone includes drugs such as tramadol and fentanyl.
Drug overdose deaths are identified using underlying cause-of-death codes from the 10 revision of the International Classification of Diseases (ICD-10-CM). Deaths involving synthetic opioids other than methadone use code T40.4. The geographic locations are based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme (https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf):

- **Large central metropolitan** refers to counties in a metropolitan statistical area (MSA) of 1 million or more population that contain the entire population of the largest principal city of the MSA, whose entire population is contained within the largest principal city of the MSA, or that contain at least 250,000 residents of any principal city in the MSA.
- **Large fringe metropolitan** refers to counties in MSAs of 1 million or more population that do not qualify as large central, described as suburban areas.
- **Medium metropolitan** refers to counties in MSAs of 250,000 to 999,999 population.
- **Small metropolitan** refers to counties in MSAs of less than 250,000 population.
- The two nonmetropolitan county designations are micropolitan, which are counties in a **micropolitan statistical area**, and **noncore**, which are nonmetropolitan counties that are not in a micropolitan statistical area.

- In 2020, among residents of all geographic locations, Hispanic people were less likely to die from a drug overdose involving synthetic opioids compared with non-Hispanic White people.
- In 2020, among residents of large central metropolitan areas, non-Hispanic Black people were more likely to die from a drug overdose involving synthetic opioids compared with non-Hispanic White people.

Conclusion

From 2015 to 2019, there was little overall change in the percentage of people who needed and received treatment for illicit drugs or an alcohol problem and in 2020, rates remained below 20%. People with low income represented one of the few population groups who showed improvement in the receipt of needed treatment.

The need for specialty treatment is urgent. According to the National Institute on Drug Abuse (NIDA), drug overdoses have accelerated during the COVID-19 public health emergency. The Centers for Disease Control and Prevention (CDC) National Center for Health Statistics estimated that 107,622 drug overdose deaths occurred in the United States in 2021. Overdose deaths rose 30% from 2019 to 2020 and continue to rise.

During this public health emergency, people in treatment for SUDs face unique challenges. Physical distancing, quarantine, and other public health measures have disrupted access to medication and other support services for many people. For example, people with OUD who rely on methadone dispensed at a clinic may be unable to access this daily medication while physically distancing.[32]

In the 2 years since the Substance Abuse and Mental Health Services Administration (SAMHSA) issued an exemption to opioid treatment programs (OTPs) allowing take-home doses of patient's medication for OUD, increases have been seen in treatment engagement and patient satisfaction with care. In addition, few incidents of misuse or medication diversion have been observed. The evidence indicates the exemption has enhanced and encouraged use of OTP services.[33,34]

Data show that from 2017 to 2019, death rates involving opioids leveled off but were followed in 2020 by a sharp increase. In 2020, the rate of deaths involving synthetic opioids was highest among non-Hispanic Black people in large urban areas (31.9 per 100,000 population), nearly four times as high as non-Hispanic Black people in rural areas (8.0 per 100,000 population) and more than twice the rate of Hispanic people in urban areas (11.7 per 100,000 population).

Resources

Efforts by the Department of Health and Human Services (HHS) are underway to prevent overdoses and save lives by ensuring equitable access to essential healthcare and support services without stigma. The Overdose Prevention Strategy includes:

- Primary Prevention

  - Prevention is critical to reducing overdoses and overdose deaths. The strategy promotes tiered, multidisciplinary prevention activities, ranging from population-level strategies to targeted interventions aimed at high-risk individuals. These activities engage health and human services providers directly and facilitate cross-sector collaboration on prevention.

- Harm Reduction

  - Evidence-based harm reduction strategies minimize negative outcomes of drug use. These activities further expand access to harm reduction interventions and better integrate harm reduction into general medical care.

- Evidence-Based Treatment

  - Evidence-based treatments for SUDs can reduce substance use, related health harms (for example, infectious disease transmission), and overdose deaths. High-quality treatment can also increase social functioning. The strategy therefore focuses on reducing barriers to the most effective treatments, using motivational and cultural enhancements to encourage those who might be reluctant, advancing strategies to improve engagement and retention, and continuing to develop new therapeutic approaches.

- Recovery Support

  - Despite the demonstrated benefits of recovery support services, such as peer support, employment, and housing services, various challenges impede their availability and uptake. Enhancing coverage and integration of recovery support services is critical to promoting access to and use of these services. Strengthening the recovery support services workforce is also essential to promoting access and quality.

The White House 2022 National Drug Control Strategy focuses on two critical drivers of the epidemic: untreated addiction and drug trafficking. It instructs federal agencies to prioritize actions that will save lives, get people the care they need, go after drug traffickers' profits, and make better use of data to guide all these efforts. The strategy aims to:

- Expand high-impact harm reduction interventions such as naloxone.
- Ensure those at highest risk of an overdose can access evidence-based treatment.
- Improve data systems and research that guide drug policy development.

The National Institutes of Health Helping to End Addiction Long-term **(HEAL) Initiative** is an aggressive, transagency effort to speed scientific solutions to stem the national opioid public health crisis. The initiative is funding hundreds of projects nationwide. Researchers are taking a variety of approaches to tackle the opioid epidemic through:

- Understanding, managing, and treating pain.
- Improving prevention and treatment for opioid misuse and addiction.

NIDAMED: Clinical Resources develop science-based resources for health professionals and those in training about screening, addressing, and treating addiction. Research shows that screening, brief intervention, and referral to treatment by clinicians in general medical settings can promote significant reductions in alcohol and tobacco use.

The Healthcare Professional's Core Resource on Alcohol, developed by the National Institute on Alcohol Abuse and Alcoholism, helps clinicians provide care for people whose alcohol use may be affecting their health. In addition to providing foundational knowledge for understanding alcohol-related problems, this resource helps fill common gaps in healthcare provider training about addiction. It covers areas such as the neuroscience of addiction, evidence-based behavioral health care and medications for alcohol use disorder, strategies to reduce stigma associated with alcohol-related problems, and varied paths to recovery.

SAMHSA Funding Opportunities lists the current SAMHSA Funding Opportunities for SUD prevention and treatment as well as current grant awardees. SAMHSA Store is a compendium of publications and digital products that includes resources for SUD prevention, treatment, and recovery resources.

SAMHSA is committed to improving prevention, treatment, and recovery support services for mental and substance use disorders. The SAMHSA Evidence-Based Practices Resource Center provides communities, clinicians, policymakers, and others with the information and tools to incorporate evidence-based practices into their communities or clinical settings.

Behavioral Health Treatment Services Locator is a confidential and anonymous source of information for people seeking treatment facilities in the United States or U.S. territories for substance use, addiction, and mental health problems.

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ORAL HEALTH

Maintaining oral health is important for overall health and well-being. Untreated oral disease can affect appetite, interfere with ability to eat, and lead to poor nutrition. Periodontitis (i.e., "gum disease") and dental caries (i.e., "cavities") lead to pain, impaired sleep, impaired academic performance, missed school and workdays, and decreased employability. Dental infections, left untreated, may lead to abscess (a severe infection) that may lead to life-threatening sepsis (the body's extreme response to an infection). Poor oral health may also be associated with other chronic diseases, such as diabetes and heart-related conditions.

Findings in this report indicate that oral healthcare for children has improved, but the same gains have not occurred for adults. For example:

- The overall percentage of children ages 5-19 years with untreated dental caries decreased nearly 50% between 1988-1994 and 2015-2018 (from 24.3% to 13.2%). However, there was no statistically significant change in the percentage of adults with dental caries in the same period.
- In 2019, 14.3% of the population reported cost as a reason for being unable to get or delayed in getting needed dental care, which was higher than the 8.8% of people who reported cost as a barrier to getting needed medical care. The percentage of children ages 0-17 years for whom cost was a barrier to receiving needed dental care was approximately one-third that of adult groups.
- Disparities for children who had a dental visit in the calendar year narrowed significantly for children in racial and ethnic minority groups and for children in low-income households between 2002 and 2019. However, trends in disparities for these outcomes among adults show more modest improvement.
- From 2002 to 2019, the percentage of children with a dental visit increased both for nonmetropolitan communities (from 49.5% to 54.7%) and metropolitan communities (from 49.0% to 57.5%). However, the rate of improvement was faster for children in metropolitan locations, widening a disparity between these groups.
- During this period, disparities between adults in metropolitan and nonmetropolitan communities narrowed. The percentage of adults with a dental visit increased from 38.4% to 41.6% in nonmetropolitan communities, a small but significant increase, while the change in the percentage of adults with a dental visit in metropolitan communities was not statistically significant.

The Department of Health and Human Services has produced several reports and resources to support and improve the quality of oral healthcare delivery, including the Surgeon General's 2000 report *Oral Health in America*; the National Institutes of Health (NIH) National Institute of Dental and Craniofacial Research's (NIDCR) 2021 comprehensive update *Oral Health in America: Advances and Challenges*; and numerous other resources from the Centers for Disease Control and Prevention (CDC), Health Resources and Services Administration (HRSA), and Centers for Medicare & Medicaid Services (CMS).

Importance

Maintaining oral health is important for overall health and well-being. However, cost may pose a barrier to achieving optimal oral health. In 2020, out-of-pocket (OOP) spending accounted for 12% of personal healthcare expenditures. Hospital services accounted for 3%, and physician services accounted for 7% of OOP expenditures, but dental services accounted for 37%.[1]

Prevalence

Oral disease is prevalent in the United States. The prevalence of dental caries (i.e., "cavities") in primary (baby) teeth was 23.3% among children ages 2-5 years and 52.1% among children ages 6-8 years in 2011-2016.[2]

The prevalence of dental caries in permanent teeth was 17.4% among children ages 6-11 years, 56.8% among adolescents ages 12-19 years, 89.9% among adults ages 20-64 years, and 96.2% among adults age 65 years and over in 2011-2016.[2]

Approximately 2.2% of adults ages 20-64 and 17.3% of adults age 65 and over are estimated to have lost their natural teeth in 2011-2016.[2]

Morbidity and Mortality

Untreated oral disease can affect appetite, interfere with ability to eat, and lead to poor nutrition. Periodontitis (i.e., "gum disease") and dental caries lead to pain, impaired sleep, impaired academic performance, missed school and workdays, and decreased employability.[3] Left untreated, dental infections may lead to abscess (a severe infection) that may lead to life-threatening sepsis (the body's extreme response to an infection). Poor oral health may also be associated with other chronic diseases, such as diabetes and heart-related conditions.[4]

Cost

Oral diseases—which range from cavities and gum disease to oral cancer—cause pain and disability for millions of Americans and cost taxpayers billions of dollars each year. Research estimates that employed adults collectively lose more than 164 million work hours due to oral health problems or dental visits.[5] People with visibly damaged or missing teeth can also face decreased opportunities for obtaining work. In addition, oral disease complications can undo the benefits of costly medical treatments covered by Medicare and Medicaid, such as heart valve replacement, radiation therapy, and hematopoietic stem cell replacement.[6]

Effective Care for Oral Health

Fluoride has an important role in preventing and treating the most prevalent oral disease condition: dental caries. Community water fluoridation makes fluoride available to all community members, regardless of their age, demographic characteristics, income, or insurance status. Drinking fluoridated water reduces the risk of developing cavities by approximately 25%.[7] An analysis conducted in 2016 estimated that adding fluoride to community water systems saves $6.5 billion per year by preventing the direct costs of dental caries and indirect costs of treating them.[7]

Oral health professionals can also apply fluoride varnishes and dental sealants, which are also effective ways to prevent cavities. Dental varnishes can prevent one-third of cavities in both primary and permanent teeth.[8] The U.S. Preventive Services Task Force recommends that primary care providers prescribe oral fluoride supplements when children lack access to community water fluoridation and apply fluoride dental varnishes for all children up to 5 years. Dental sealants have been shown to reduce cavities in permanent molars by 80% 2 years after being applied, and they continue to protect against 50% of cavities 4 years after application.[9]

If cavities develop, they can be treated with noninvasive procedures to stop caries progression and remineralize teeth, in addition to relying on fillings or tooth extraction. Modern dental practice also includes improved techniques and materials for restoring teeth and performing dental implants.[3]

Beyond preventing and treating cavities, dentists and other oral health professionals can address risks traditionally associated with overall health. People who smoke are 3 times as likely as nonsmokers to lose all their teeth.[10] HPV[i]-associated oral pharyngeal carcinoma is now more prevalent than HPV-associated cervical cancers. Thus, dental visits may provide people with opportunities to receive screening for tobacco and illicit drug use, tobacco cessation counseling, and HPV vaccination.[11]

Oral diseases are also exacerbated by diabetes, a prevalent chronic disease that often occurs with cardiovascular health conditions. Economic analyses conducted in 2014 estimated that the U.S. healthcare system could save up to $100 million if dental offices provided screening for diabetes, high blood pressure, and high cholesterol and, if needed, referred patients for treatment.[12]

Findings

Data collected by the NHQDR include two indicators that summarize the status of oral healthcare delivery in the United States: (1) the prevalence of people with untreated dental caries, and (2) the rate of emergency department (ED) visits for a primary diagnosis associated with a dental condition. Both provide evidence that the nation's investments in healthcare delivery have yielded benefits for children and adolescents, with possible downstream benefits on certain measures for younger adults. They also indicate little or no improvement in oral health outcomes for older adults.

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[i] HPV = human papillomavirus.

Figure 1 shows that the percentage of children with untreated dental caries has decreased steadily since at least 2001, while the percentage of adults with untreated dental caries has remained relatively unchanged during the same time.[ii] Figure 2 shows that rates of ED visits for dental concerns by younger adults (ages 18-44 years) decreased between 2016 and 2019, although ED visit rates for this age group remain far higher than for other age groups.

Viewed together, these measures indicate that oral healthcare for children has improved since the early 2000s. In addition, the improvements that began at that time may have generated downstream benefits in the form of reduced ED visits once children age into early adulthood. However, these indicators also show that one-fifth to one-fourth of adults continue to suffer from avoidable tooth decay.

**Figure 1. People with untreated dental caries, by age, 1988-2018**
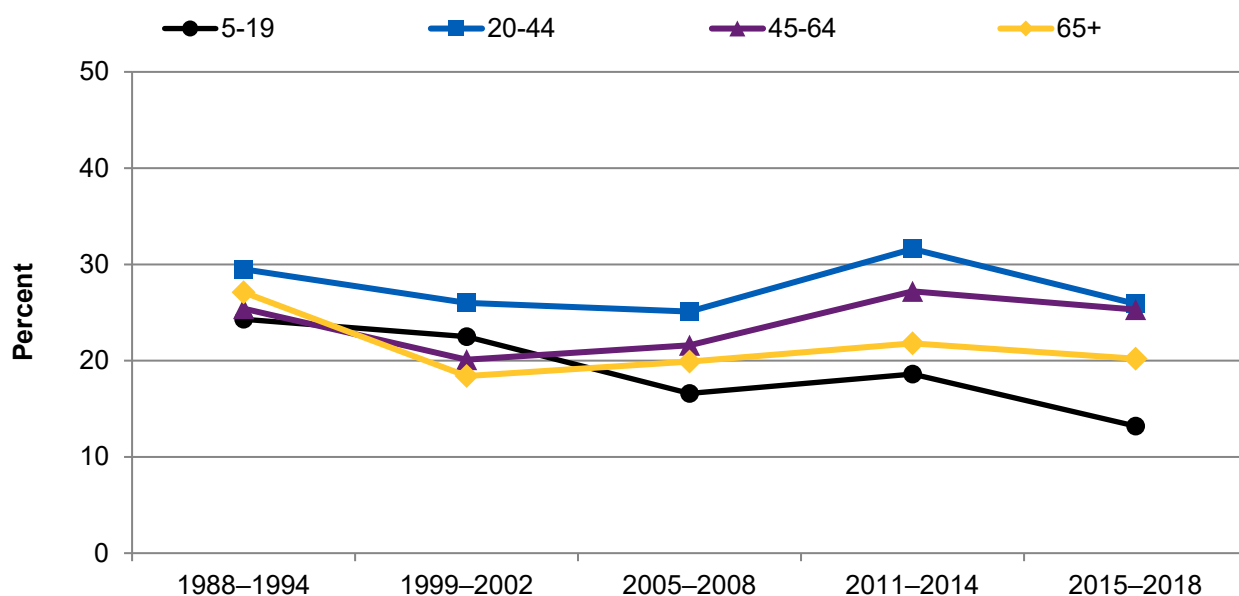
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-2018.
Note: This chart uses data previously reported in the 2019 *Health, United States* report. The estimates shown are spaced at irregular intervals.

- The overall percentage of children ages 5-19 years with untreated dental caries decreased nearly 50% between 1988-1994 and 2015-2018 (from 24.3% to 13.2%) (Figure 1).
- During the same periods, there were no statistically significant differences in the percentage of adults with dental caries.

[ii] The *National Healthcare Quality and Disparities Report* (NHQDR) has traditionally reported data for "Children ages 5-7 years with untreated dental caries" but not a similar measure for adults. Thus, this Special Emphasis Topic examines data originally reported in Table 28 of *Health, United States 2019*, which includes estimates of untreated dental caries for both children and adults. Appendix B of this report only displays data for untreated dental caries in children ages 5-17, which are data provided to the NHQDR. Future reports will collect and display data for both children and adults.

Figure 2. Emergency department visits with a principal diagnosis related to dental conditions per 100,000 population, overall and by age, 2016-2019
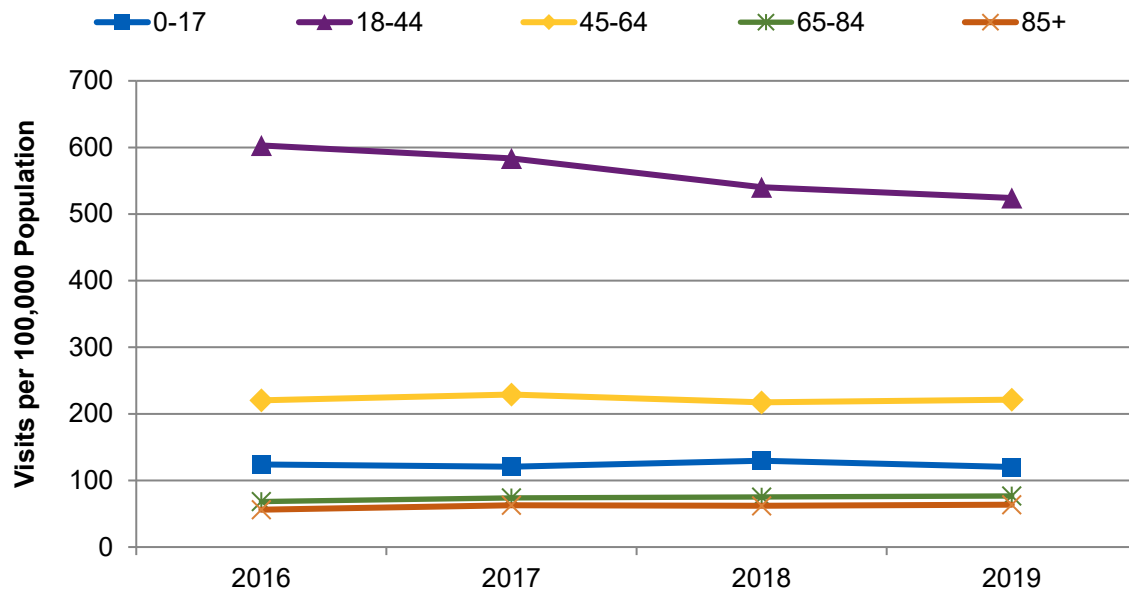
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2016-2019.

- The rate of ED visits for dental conditions decreased overall from 312.3 per 100,000 population in 2016 to 202.8 per 100,000 population in 2019 (data not shown).
- Much of the decrease in the overall ED visit rate may be attributed to a decrease in ED visits among adults ages 18-44 years from 603.0 per 100,000 population in 2016 to 524.1 per 100,000 population in 2019 (Figure 2).

# How the Nation Can Improve Oral Healthcare Delivery

This special emphasis topic focuses on three potential opportunities for further improving quality of oral healthcare and outcomes and describes the nation's progress toward realizing them:

1. Increasing water fluoridation in the public water supply.
2. Reducing financial barriers to dental services.
3. Reducing distance needed to access dental care services.

Opportunity #1: Fluoridating Community Water Systems

Fluoridated water protects teeth and reduces cavities by about 25% in children and adults. Community water fluoridation has been shown to save money both for families and for the U.S. healthcare system by preventing cavities.[13] Data from CDC show that public health efforts to fluoridate community water systems expanded in the latter half of the 20th century, but these efforts have slowed in recent decades.

Figure 3. Percentage of population served by community water system that received fluoridated water, 2018
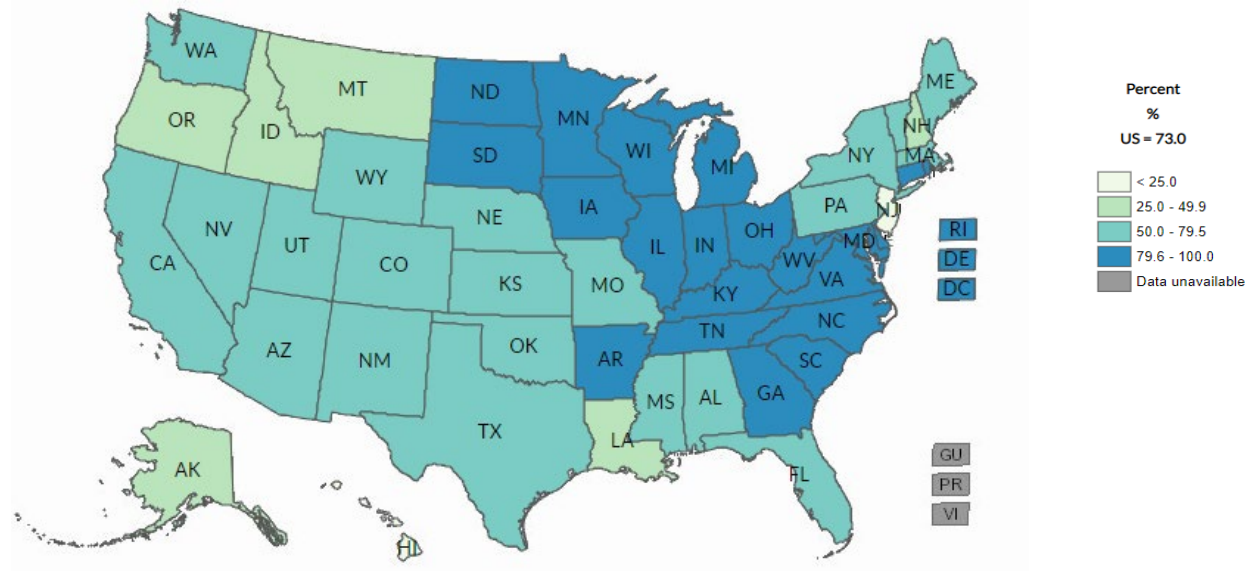

Source: Centers for Disease Control and Prevention, Oral Health Data, Water Fluoridation, 2018.

- In 2018, 63.4% of people in the United States received fluoridated water and 73.0% of people with access to community water systems received water with the recommended amount of fluoride.[14] The percentage of the population served by community water systems that received fluoridated water varied by state (Figure 3).

- The percentage in 2018 was similar to values reported in 2008, when 64.3% of the population received fluoridated water and 72.4% of the population with access to community water systems received optimally fluoridated water.

- The percentage of people with access to community water systems who receive optimally fluoridated water remains below the Healthy People 2030 target of 77.1%.

Opportunity #2: Reducing Financial Barriers to Accessing Oral Healthcare Services

Fluoride varnish and dental sealants can protect teeth independent of community water fluoridation. Although these services can be delivered in school settings, most people receive them during a dental visit. For many Americans, the cost of dental services is a more important barrier to accessing services than the cost of medical care.

Figure 4. People unable to get or delayed in getting needed dental care or medical care due to cost, by age, 2019
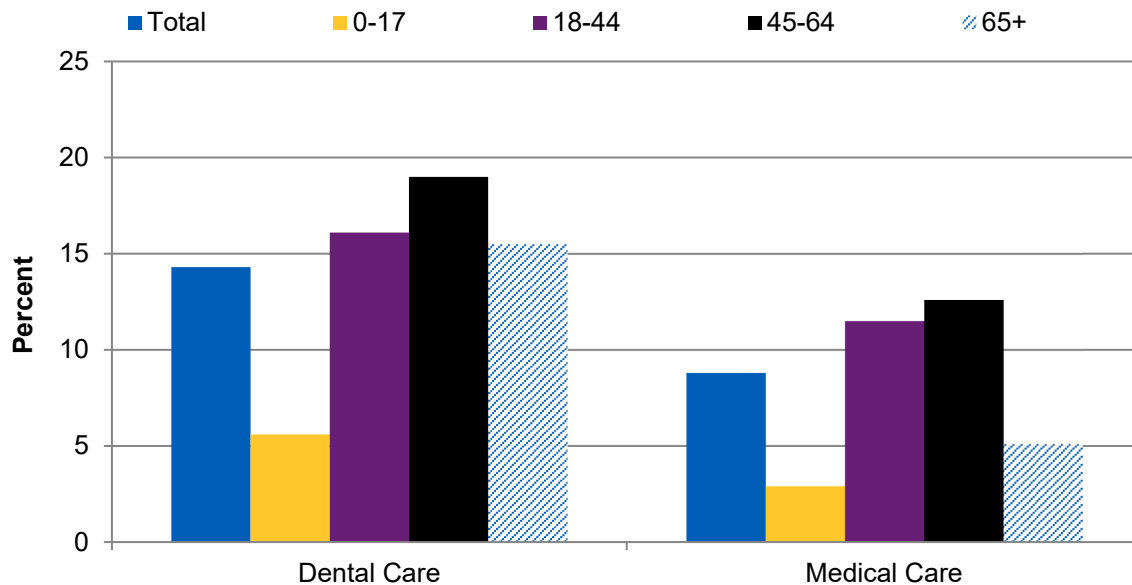
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2019.

- In 2019, 14.3% of the population reported cost as a reason for being unable to get or delayed in getting needed dental care (Figure 4), which was higher than the 8.8% of people who reported cost as a barrier to getting needed medical care.
- The percentage of children ages 0-17 years for whom cost was reported as a barrier to receiving needed dental care was approximately one-third that of adult groups.

While health insurance can mitigate the cost of healthcare services, health insurance plans often carve out separate coverage for certain types of care, including care for dental, vision, and hearing conditions. Thus, even when people have health insurance, they may still lack coverage for dental care and thus lack access to needed services. This distinction has relevance for understanding how different public health insurance programs have influenced healthcare delivery and oral health outcomes over the past two decades.

The Medicaid program and the Children's Health Insurance Program (CHIP) have provided comprehensive coverage of dental care for all enrolled children since 1998. Medicaid treats dental care coverage for adults as an optional benefit, which a growing number of states have begun to offer in recent years. In 2018, immediately prior to the period shown in Figure 4, most states covered only limited benefits, such as coverage for tooth extractions and emergency services, six states covered no dental services, and only a few states offered comprehensive dental coverage.[15]

As of August 2022, 25 states plus the District of Columbia met the American Dental Association's definition of offering "extensive" dental benefits, and only 3 states offered no dental benefits in their Medicaid plan. Traditional fee-for-service Medicare does not cover dental benefits outside a few exceptions, and Medicare Advantage plans vary widely in the types and comprehensiveness of services.

Figures 5-11 show that the percentage of people with private dental insurance has not changed but the percentage of people with health insurance coverage, including public health insurance coverage, has increased. They also show that access to dental services and outcomes have mostly improved for segments of the population for whom public insurance consistently covers dental services.

Figure 5. Percentage of people with any period of private dental insurance during the year, by age, 2006-2019
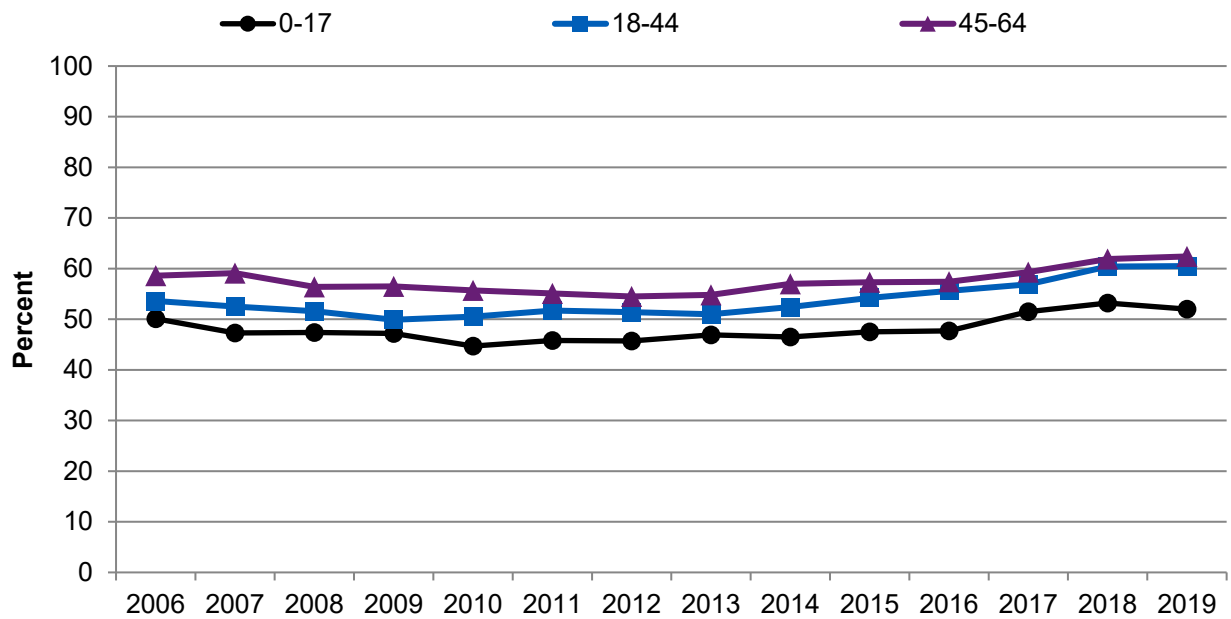
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2019.

- There were no statistically significant changes in the percentage of children and adults with private dental insurance between 2006 and 2019 (Figure 5). Between 44% and 63% of people reported having private dental health insurance.
- Rates of having private dental insurance were lowest for children ages 0-17 years, higher for adults ages 18-44 years, and highest for adults ages 45-64 years.

Figure 6. Percentage of people with any period of uninsurance during the year (top) and percentage of people with any period of public insurance only during the year (bottom), by age, 2006-2019
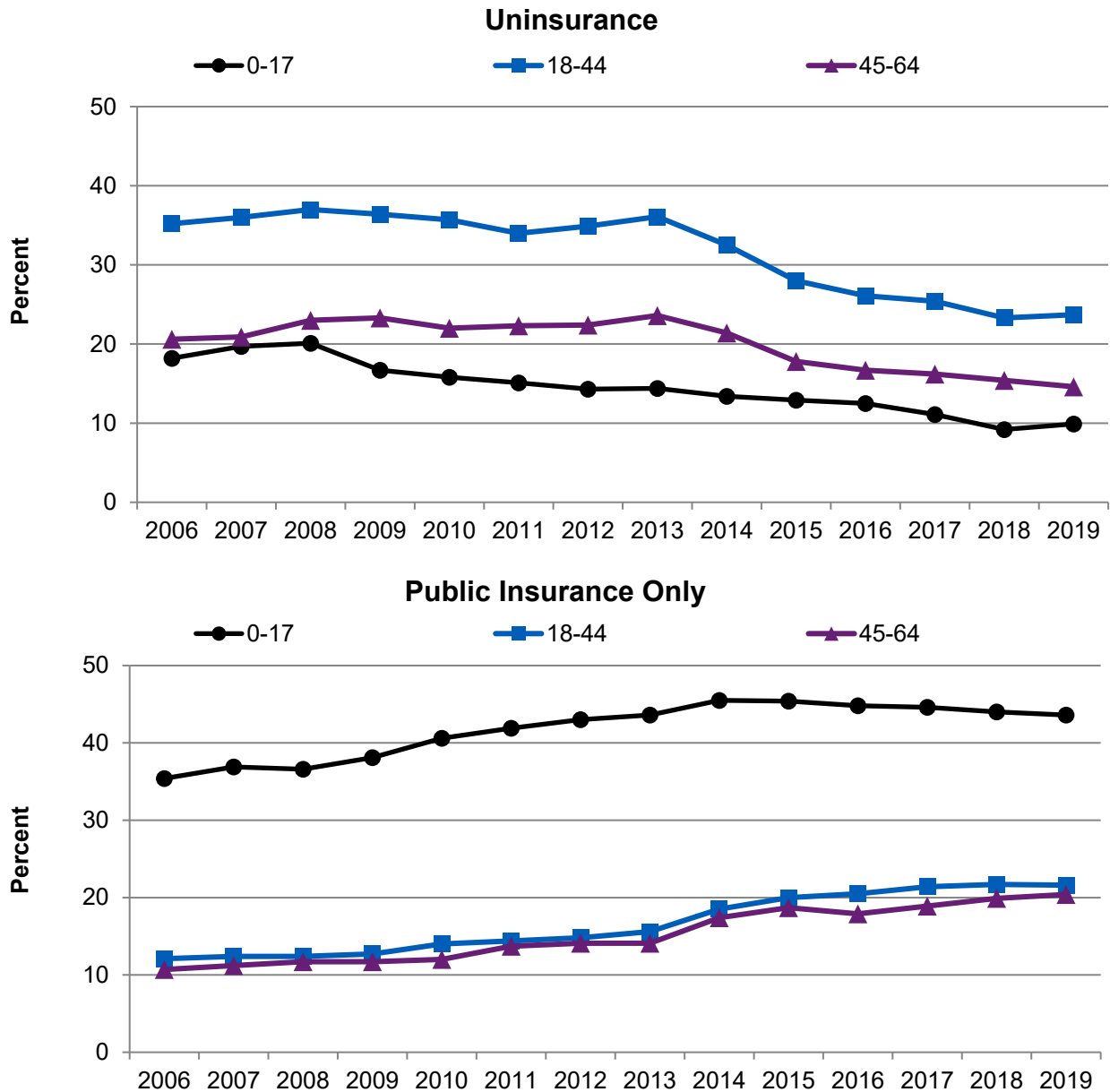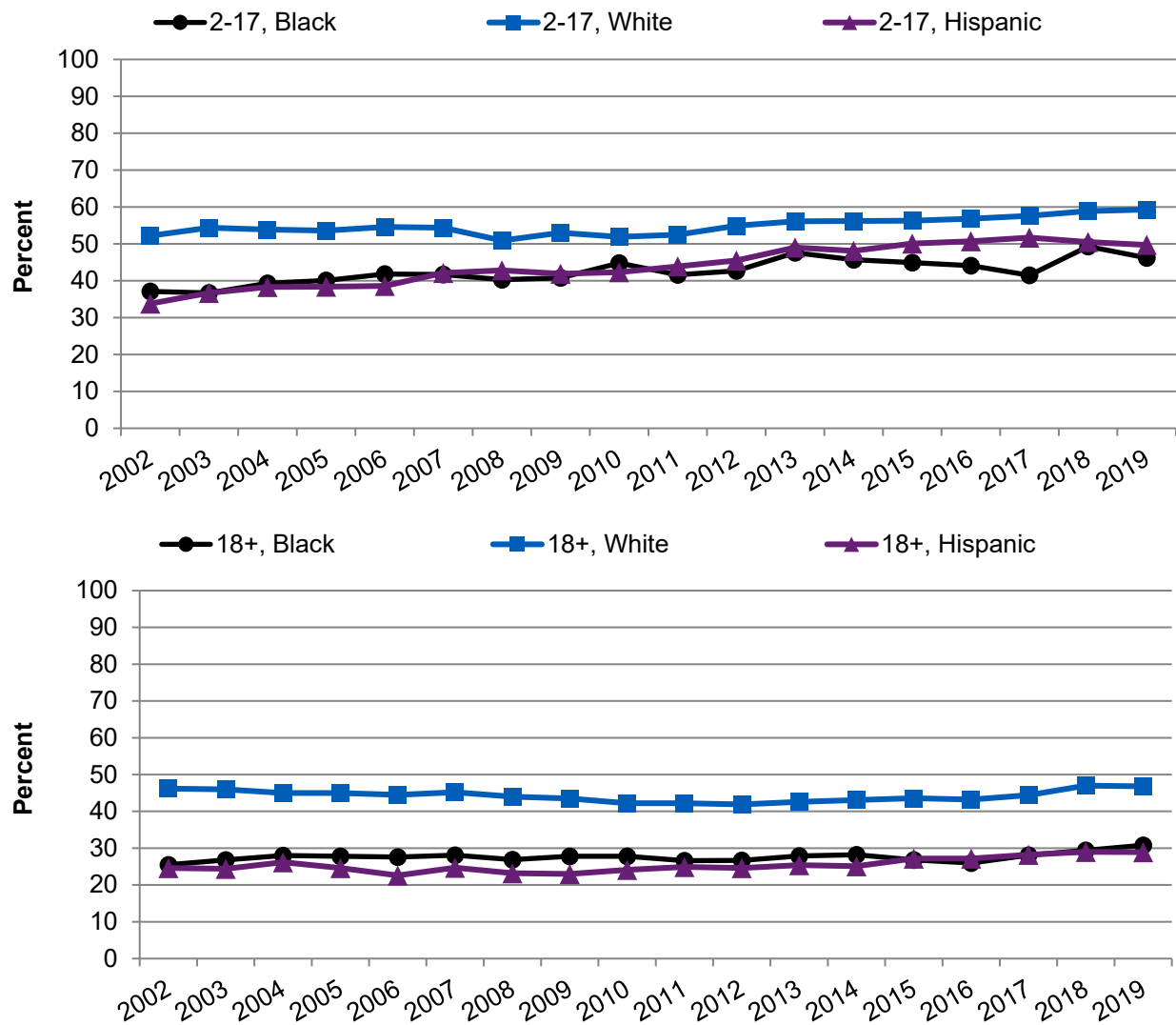

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2019.

- The percentage of uninsured children decreased after implementation of the CHIP Reauthorization Act from a peak of 20.1% in 2008 to 9.9% in 2019 (Figure 6, top). The percentage of uninsured adults decreased after implementation of the Affordable Care Act (ACA), from 36.1% (ages 18-44 years) and 23.6% (ages 45-64 years) in 2013 to 23.7% (ages 18-44 years) and 14.6% (ages 45-64 years) in 2019.
- An increase in public health insurance coverage among all age groups (Figure 6, bottom) corresponded with the decrease in uninsurance shown in the top chart.

As shown in Figures 1 and 2, the percentage of children ages 5-19 years with untreated dental caries has decreased since 2001 and the rate of young adults ages 18-44 seeking emergency care for dental conditions has decreased since 2016. The improved outcomes occurred even though access to private dental insurance did not change (Figure 5). They also appear to coincide with the period when Medicaid/CHIP, which includes a dental benefit, expanded coverage for children, but not with the ACA's health insurance expansion for adults (Figure 6).

Figures 7 to 11 reinforce the concept that inclusion of dental coverage in Medicaid/CHIP was linked to improved oral health outcomes for children. They show that disparities for these outcomes narrowed significantly for children in low-income households and for children in racial and ethnic minority groups between 2002 and 2019. In contrast, improvement in disparities for these outcomes among adults was more modest.

Figure 7. Children ages 2-17 years (top) and adults age 18 years and over (bottom) who had a dental visit in the calendar year, by ethnicity, 2002-2019

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

- The percentage of children ages 2-17 who had a dental visit in the calendar year increased by 16.3% (from 49.1% to 57.1% of the population) between 2002 and 2019 but there was no statistically significant change for adults (data not shown).
- The data indicate improved access and narrowing disparities in access to dental services between Black and Hispanic groups and White groups (Figure 7).
- Between 2002 and 2019, the percentage of Black children with dental visits increased from 37.1% to 46.2%; and the percentage of Hispanic children with dental visits increased from 33.8% to 49.7% (Figure 7, top). The percentage of White children with dental visits increased at a slower rate, from 52.2% to 59.3%.
- During this time, the disparity between Black and White children in the percentage with dental visits decreased by 13.2% and the disparity between Hispanic and White children decreased by 47.8%.
- The percentage of Black adults with dental visits increased from 25.5% to 30.8%, and the percentage of Hispanic adults with dental visits increased from 24.6% to 28.9% (Figure 7, bottom). The percentage of White adults showed no statistically significant change (going from 46.2% to 46.8%).
- The disparity between Black and White adults in the percentage with dental visits decreased by 22.7% while the disparity between Hispanic and White adults in the percentage with dental visits decreased by 17.1%.
- Similar trends were seen for children and adults in Asian and multiple-race groups. Sample sizes for American Indian or Alaska Native and Native Hawaiian/Pacific Islander groups were too small to produce statistically reliable data and thus were not analyzed.

Figure 8. ED visits for dental conditions per 100,000 population, by median income of patient's ZIP Code, 2016-2019
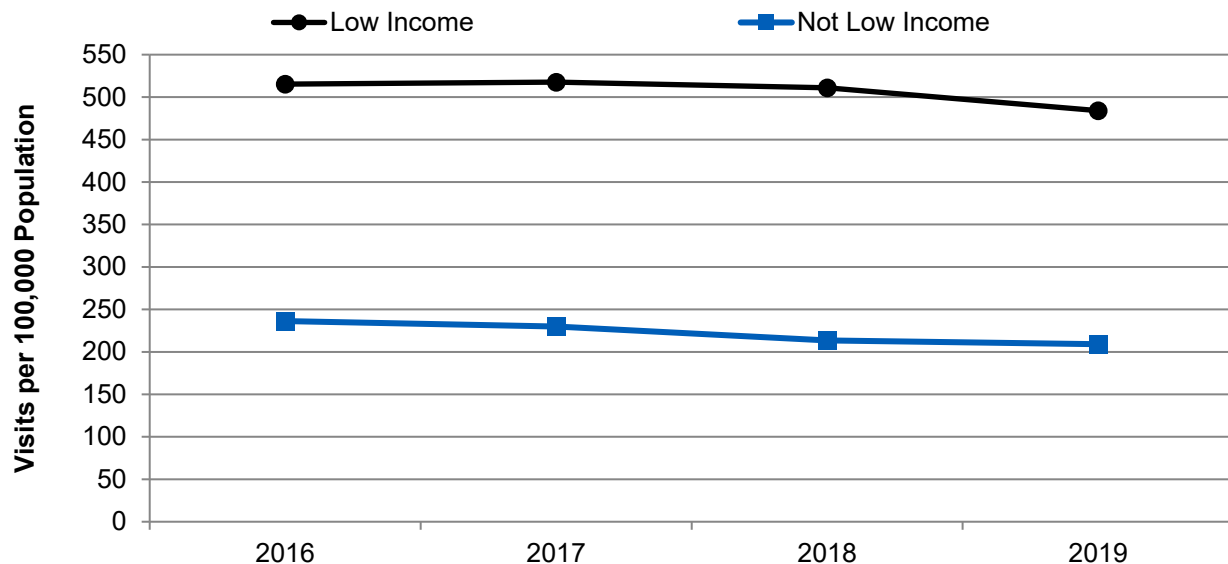
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2016-2019.

- Between 2016 and 2019, the rate of ED visits for a dental condition decreased 6.1%, from 515.4 to 484.1 visits per 100,000 population for people who live in low-income counties (the 25% of counties with the lowest median household income). It decreased 11.5%, from 236.3 to 209.1 visits per 100,000, for people who live in not low-income counties (Figure 8).

Figure 9. Children with untreated dental caries (upper left) and adults with untreated dental caries (upper right and bottom), by race/ethnicity, 1988-2018
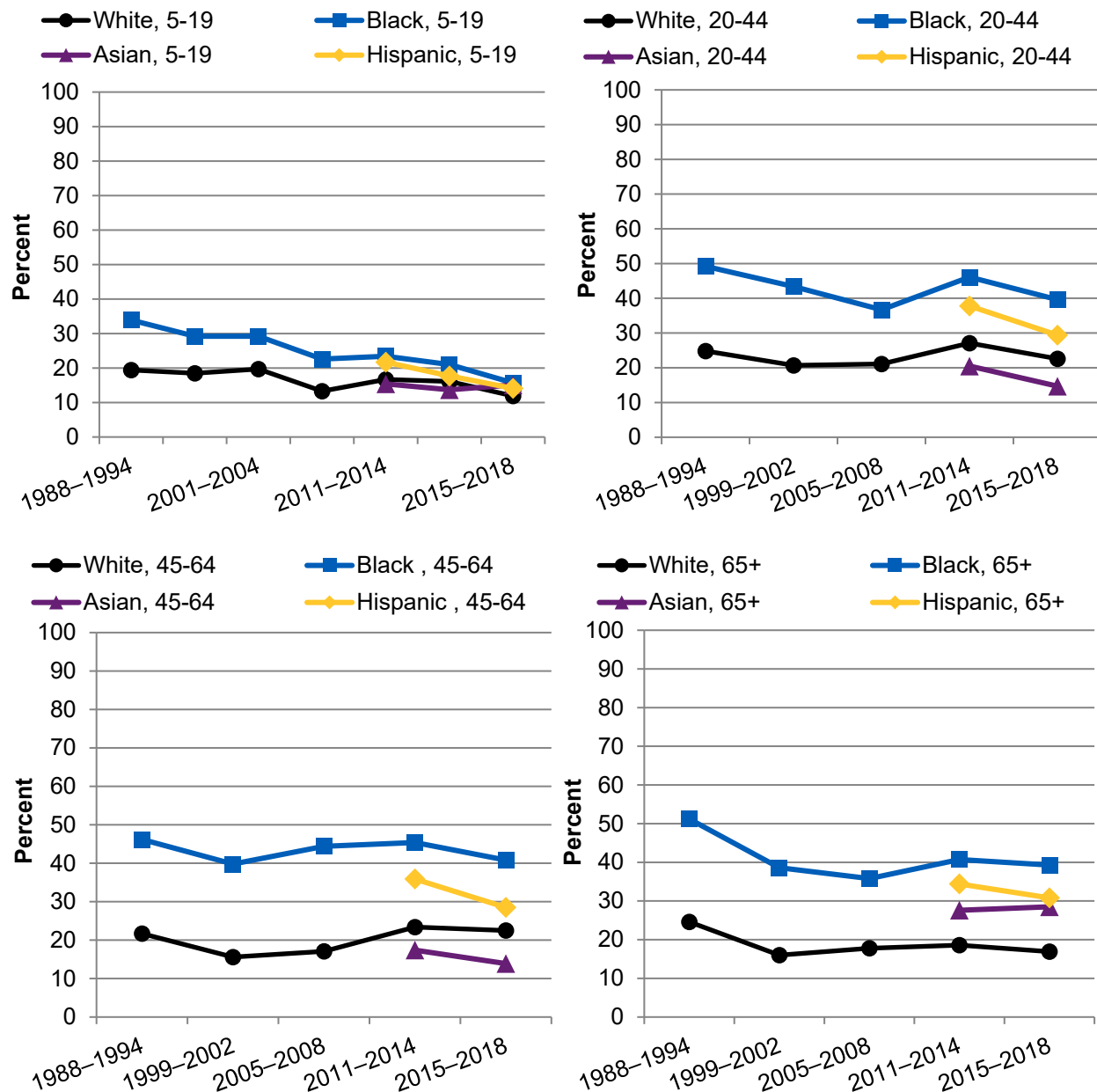

Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-2018.
Note: This chart uses data previously reported in the 2019 *Health, United States* report. The estimates shown are spaced at irregular intervals. Data for Asian race is not available prior to the 2011-2014 period; data for Hispanic ethnicity are available starting in 2007. This analysis does not include estimates for 2007 to 2010 because they were not reported in *Health, United States*.

- Racial and ethnic disparities were narrowing for untreated dental caries among children ages 5-19 years, while disparities in untreated dental caries for adults ages 20-44, 45-64, and 65+ years showed no statistically significant changes (Figure 9).
- The percentage of children ages 5-19 years with untreated dental caries decreased for Black, Hispanic, and White groups between 1988-1994 and 2015-2018 (Figure 9, upper left). Between 1988-1994 and 2015-2018, the percentage decreased from 33.9% to 15.7% for Black children and from 19.4% to 11.9% for White children. Between 2011-2014 and 2015-2018, the percentage decreased from 21.7% to 14.1% for Hispanic children. There were no statistically significant changes in the percentage of Asian children with untreated dental caries.
- There were no statistically significant changes in the percentage of adults ages 20-44 years with untreated dental caries for any race or ethnicity between 1988-1994 and 2015-2018 (Figure 9, upper right).
- There were no statistically significant changes in the percentage of adults ages 45-64 years with untreated dental caries for any race or ethnicity between 1988-1994 and 2015-2018 (Figure 9, lower left).
- There were no statistically significant changes in the percentage of adults age 65 years and over with untreated dental caries for any race or ethnicity between 1988-1994 and 2015-2018 (Figure 9, lower right).

Figure 10. Children (top) and adults (bottom) who had a dental visit in the past year, by household income-to-poverty threshold ratio, 2002-2019
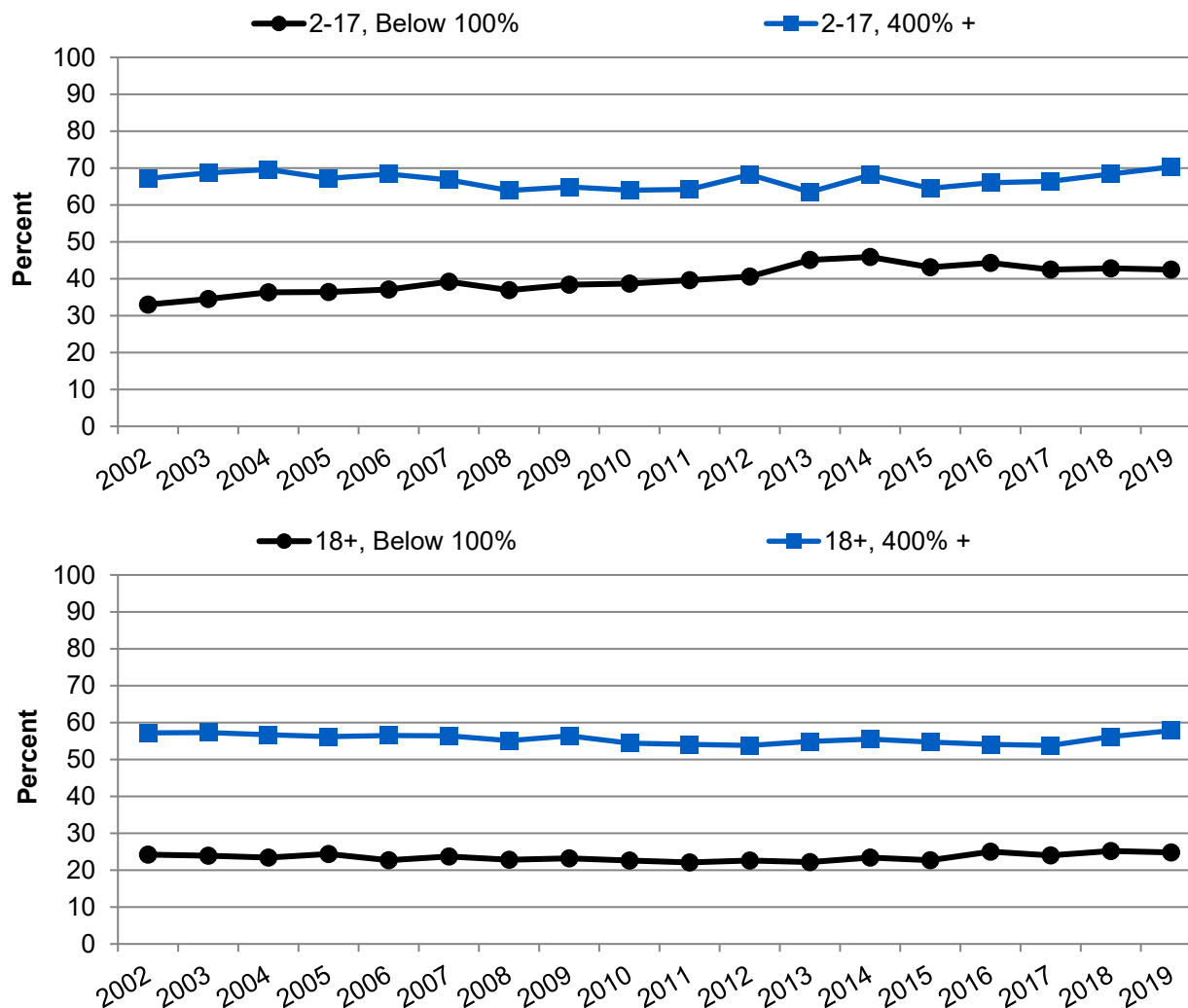
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

- From 2002 to 2019, the percentage of children ages 2-17 years with a dental visit increased from 33.0% to 42.5% in households with income less than 100% of the poverty threshold ("poor"), while the percentage of children with a dental visit grew at a slower pace (from 67.2% to 70.3%) in households with income at or above 400% of the poverty threshold ("high income") (Figure 10, top).

- From 2002 to 2019, there was no statistically significant change in the percentage of adults age 18 years and over with a dental visit in either income group: 24.2% in 2002 to 24.8% in 2019 for households with income less than 100% of the poverty threshold and 57.2% in 2002 to 57.8% in 2019 for households with income at or above 400% of the poverty threshold (Figure 10, bottom).

- Although the percentage of children with dental visits increased in poor households, narrowing the gap between children in poor and high-income households, children in poor households remain significantly less likely to have a dental visit than either children or adults in high-income households.

Figure 11. Children (left) and adults (right) with untreated dental caries, by household income, 1988-2018
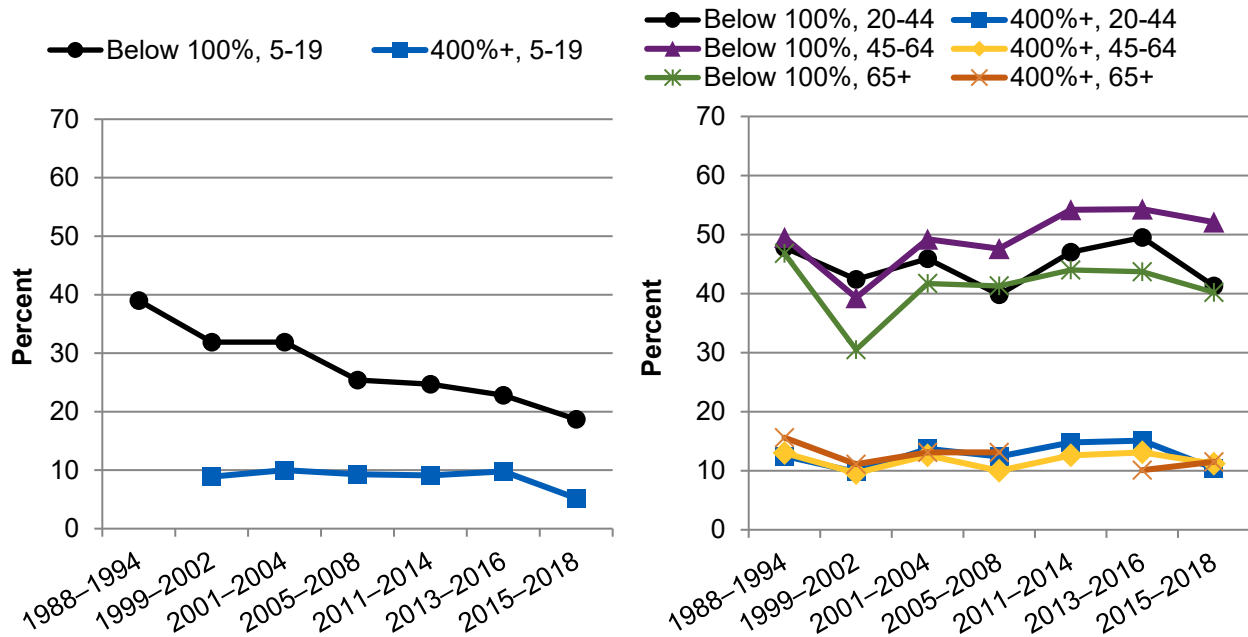
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-2018.
Note: This chart uses data previously reported in the 2019 *Health, United States* report. The estimates shown are spaced at irregular intervals. Income is expressed as a percentage of the poverty threshold. Data for the percentage of untreated dental caries for children in households with income at or above 400% of the poverty threshold in the 1988-1994 period are omitted from this analysis because the estimates are considered statistically unreliable.

- Between 1999-2002 and 2015-2018, the percentage of children with untreated dental caries decreased from 31.9% to 18.7% among households with income less than 100% of the poverty threshold (Figure 11, left). During the same period, the percentage of children with untreated dental caries decreased from 8.9% to 5.2% in households with income at or above 400% of the poverty threshold. The disparity between children in poor and high-income households narrowed by 41.3%.

- Between 1988-1994 and 2015-2018, there were no statistically significant changes in the percentage of adults with untreated dental caries for any age group or income level (Figure 11, right).

- During the same years, there were no statistically significant changes in disparities between poor and high-income adults in any age group.

## *Opportunity #3: Reducing the Distance Needed To Access Oral Healthcare Services*

Although dental insurance may reduce cost-related barriers to accessing oral healthcare services, it may not ensure people can access oral healthcare services if the services are far from where they live or if available oral healthcare providers do not accept insurance. Lack of healthcare providers, geographic isolation, and lack of adequate transportation are frequently cited barriers to healthcare services in rural communities,[16] which is also true for oral healthcare.

Increasing urbanization of the population has been associated with less financial stability among rural hospitals, hospital closures, and loss of access to the services they provide. The Government Accountability Office (GAO) documented 101 rural hospital closures from January 2013 through February 2020. Of these, 17 had offered oral healthcare services. The GAO estimates that the median distance people in the communities served by these hospitals needed to drive to access oral healthcare services increased from 2.4 to 36 miles.[17]

Rural communities also face greater challenges recruiting and supporting oral healthcare professionals. "Health Professional Shortage Area" (HPSA) is a designation HRSA assigns to areas that lack key types of healthcare practitioners, in order to prioritize support for those communities. HRSA has identified 7,018 geographic areas, population groups, and facilities as "dental HPSAs."

Nearly three-quarters of dental HPSAs are in areas classified as rural or partially rural.

Figure 12. Dental Health Professional Shortage Areas in the United States and territories, 2022
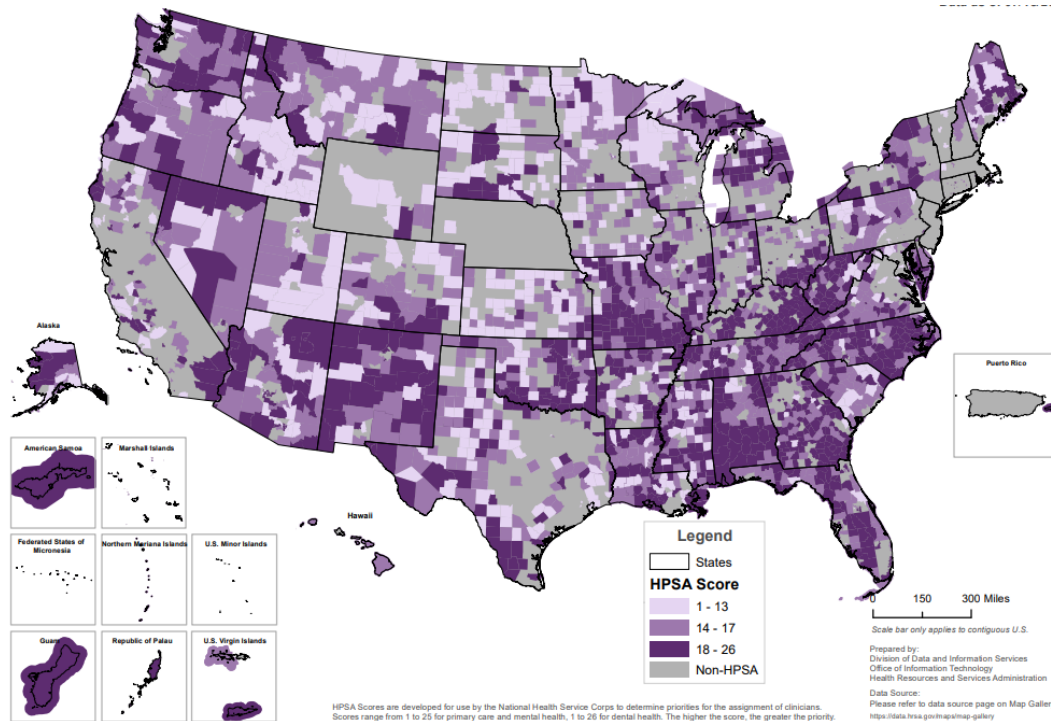

Source: Health Resources and Services Administration, Division of Data and Information Services, Office of Information Technology, July 13, 2022. https://data.hrsa.gov/maps/map-gallery.
Note: HPSA scores are developed for use by the National Health Service Corps to determine priorities for the assignment of clinicians. Scores range from 1 to 26 for dental health. The higher the score, the greater the priority.

- As of June 30, 2022, HRSA estimates that only 31.4% of dental HPSAs have met their need for practitioners, and an additional 11,694 dental professionals are needed to remove the remaining HPSA designations.[18]
- Figure 12 shows the distribution of counties with dental HPSAs. As of June 30, 2022, 4,692 of 7,018 (66.9%) dental HPSAs are classified as rural, 281 (4.0%) are classified as partially rural, and 2,044 (29.1%) are classified as nonrural.

Medical Expenditure Panel Survey data indicate that children and adults who live in micropolitan ("small town") and noncore ("rural") areas (i.e., nonmetropolitan counties) are less likely to have had a dental visit in the past year than similarly aged people who live in metropolitan locations (Figure 13).[iii]

Figure 13. Children who had a dental visit in the calendar year (top) and adults who had a dental visit in the calendar year (bottom), by location of residence, 2019
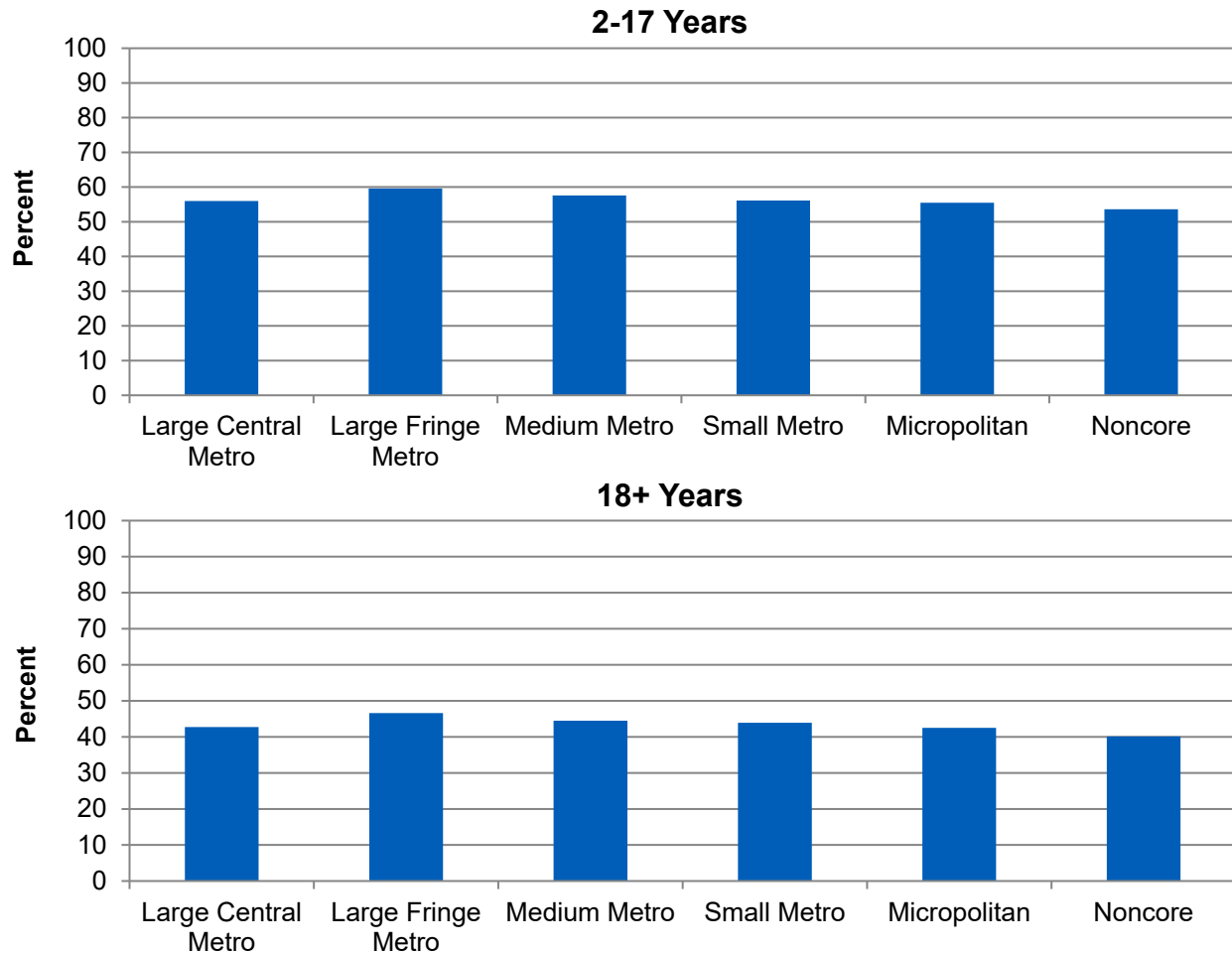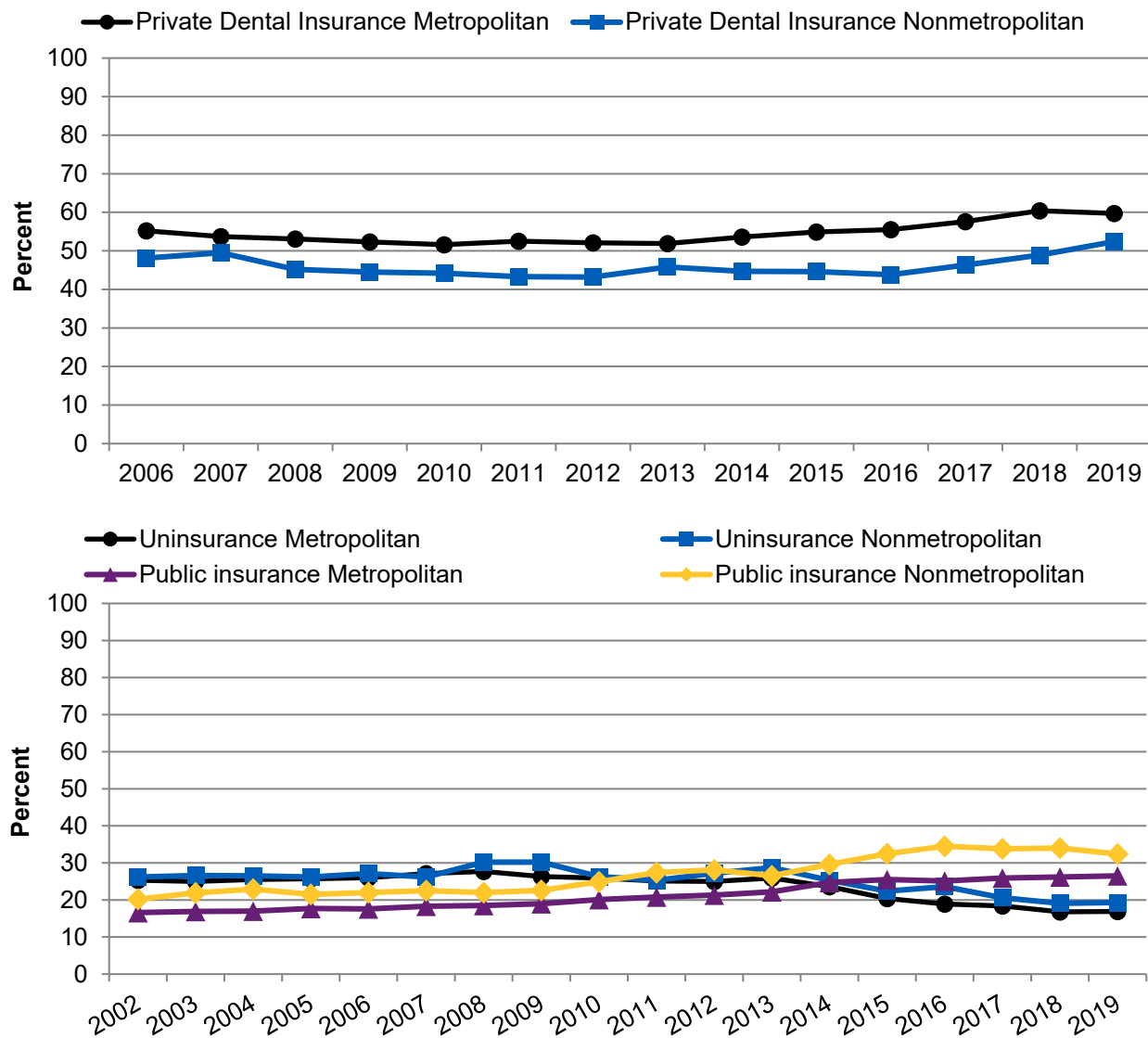
2-17 Years

18+ Years

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2019.

- Children in noncore (53.6%) and micropolitan (55.5%) communities were less likely to have a dental visit than children in large fringe metropolitan areas (59.6%) (Figure 13, top).
- Adults in noncore (40.1%) and micropolitan (42.5%) counties were less likely to have a dental visit than those in large fringe metropolitan areas (46.6%) (Figure 13, bottom).

[iii] The NHQDR provides a more detailed explanation for how the report defines terms metropolitan, nonmetropolitan, and other rural-urban categories in the Portrait of American Healthcare section. Readers may also find category specifications in the Appendix A, Methods.

Figures 14 and 15 show trends for insurance coverage and dental visits for children and adults in metropolitan and nonmetropolitan locations between 2002 and 2019. They suggest value in having dental insurance coverage in this population but also hint at barriers unrelated to insurance coverage.

Figure 14. Overall percentage of people with private dental insurance (top), 2006-2019, and overall percentage of people with no insurance or public health insurance (bottom), by location of residence, 2002-2019
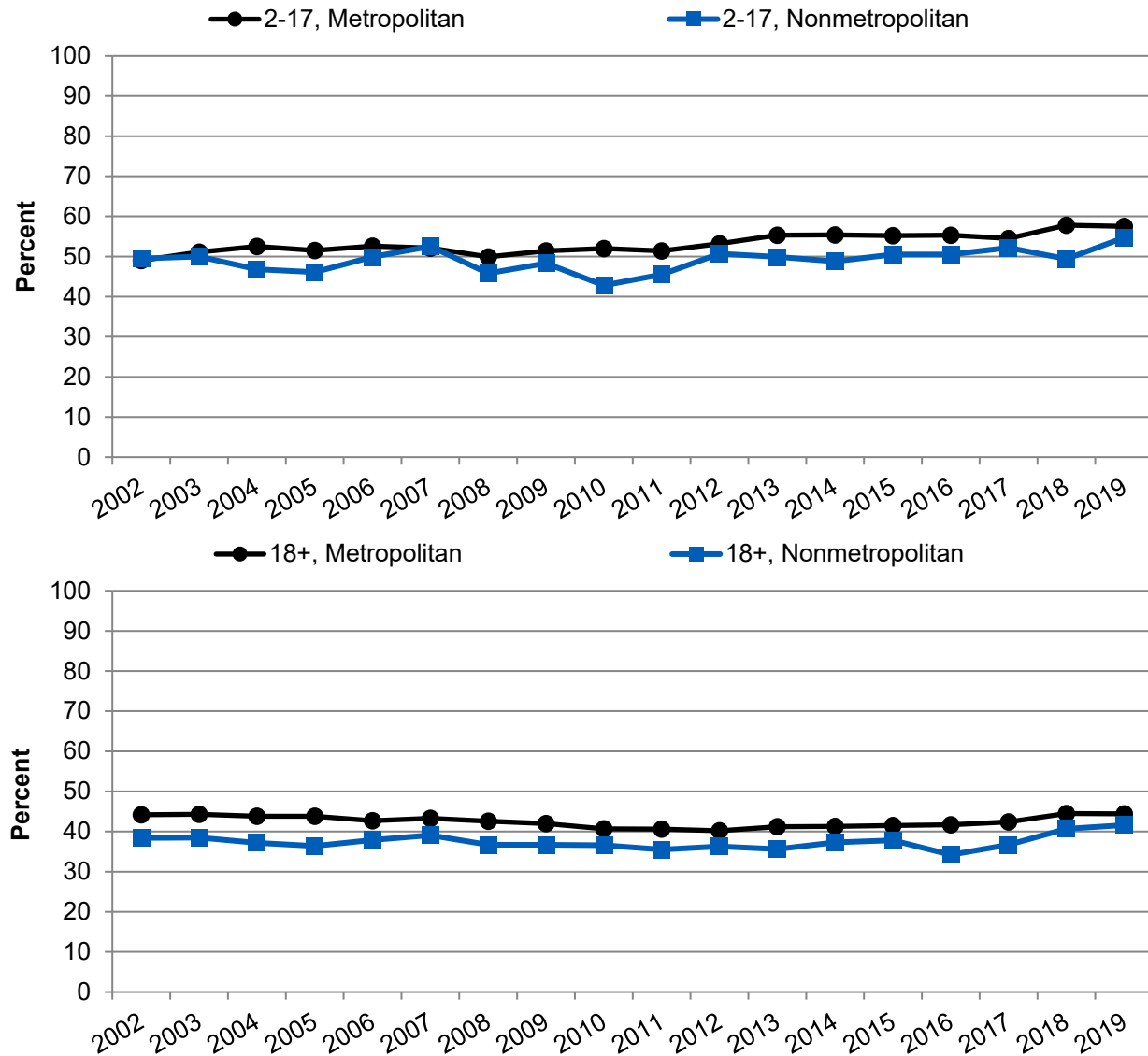

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

- For metropolitan communities, the percentage of people with private dental insurance coverage decreased from 55.2% to 51.9% between 2006 and 2013, followed by a steady rise from 51.9% to 59.7% between 2013 and 2019 (Figure 14, top).

- For nonmetropolitan communities, a similar but delayed pattern in dental insurance coverage emerged, with a relatively rapid rise from 43.8% to 52.4% between 2016 and 2019.

- Overall, the percentage of people in metropolitan communities with public insurance rose from 16.6% to 26.5% and the percentage of uninsured people decreased from 25.3% to 16.9% between 2002 and 2019 (Figure 14, bottom).
- During the same period, the percentage of people in nonmetropolitan communities with public insurance rose from 20.2% to 32.4% and the percentage of uninsured people decreased from 26.2% to 19.3%.

Figure 15. Children who had a dental visit in the calendar year (top) and adults who had a dental visit in the calendar year (bottom), by location of residence, 2002-2019

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

- From 2002 to 2019, the percentage of children with a dental visit increased both for nonmetropolitan communities (from 49.5% to 54.7%) and metropolitan communities (from 49.0% to 57.5%) (Figure 15, top). However, the rate of improvement was faster for children in metropolitan locations, widening a disparity between these groups.

- During this period, disparities between adults in metropolitan and nonmetropolitan communities narrowed (Figure 15, bottom). The percentage of adults with a dental visit increased from 38.4% to 41.6% in nonmetropolitan communities, a small but significant increase, while the change in the percentage of adults with a dental visit in metropolitan communities was not statistically significant.

Viewed together, Figures 14 and 15 suggest a potential correlation between a rise in private dental insurance coverage after 2016 and an increased percentage of adults who had a dental visit during the year in the same years. They also provide an indication that health insurance coverage is insufficient to address disparities between people in metropolitan and nonmetropolitan communities. While measures for children show an overall rise in dental visits in both metropolitan and nonmetropolitan locations, the faster rise in visits in metropolitan areas suggests those who live in nonmetropolitan communities may face barriers unrelated to insurance (e.g., lack of transportation).

Experts have proposed several strategies that could reduce dental workforce shortages and geographic distance as a barrier to receiving high-quality dental care.[16,19,20] These include policies that:

- Prioritize students from rural areas for admission to dental schools, as they are more likely to return to rural areas to practice.
- Establish dental school curricula that emphasize rural dentistry.
- Recruit and retain dentists and other oral healthcare providers through financial and tax incentives, loan repayment/forgiveness, and community development programs.
- Establish programs that integrate oral and behavioral health services into primary care practices, thus enabling primary care providers to offer at least some dental services. As of September 2020, 14 states and several tribal nations had authorized care delivered by dental therapists.[21]
- Enable a wider range of health professional roles to safely deliver oral healthcare services. For example, dental therapists are licensed health professionals who provide preventive and restorative dental care as part of a broader dental care team, comparable to the role performed by physician assistants in delivering medical care.
- Expand capacity to deliver teledental services, including building broadband internet infrastructure and amending licensing regulations to permit teledentistry.

Limited Data for Oral Health Outcomes in Nonmetropolitan Communities

If demonstration projects to expand the rural workforce transition into national initiatives, it will become increasingly desirable to assess their impact on nonmetropolitan (i.e., micropolitan and rural) communities at state and national levels. Currently, the NHQDR has limited capacity to examine trends in this area.

For example, data showing less access to routine dental care services in nonmetropolitan communities raises concern for people who live in these communities. However, it is unclear if persistent disparities in dental visit rates are associated with similar trends for untreated dental

caries for people in nonmetropolitan areas since data needed to examine differences in rate of untreated dental caries by location of residence are not available.

Data on ED visits for primary diagnosis of dental conditions by people in metropolitan and nonmetropolitan communities (Figure 16) show that disparities for this measure are narrowing. However, in the absence of corroborating data, it is unclear if this trend represents a desirable outcome (e.g., improved care and less need for emergency dental services) or an undesirable one (e.g., hospital closures leading to less access to needed emergency care).

Gathering data that would allow closer examination of oral health outcomes in nonmetropolitan counties would enhance our understanding of healthcare delivery in these communities and inform programs that seek to serve their needs.

Figure 16. Emergency department visits with a principal diagnosis related to dental conditions per 100,000 population, by location of residence, 2016-2019
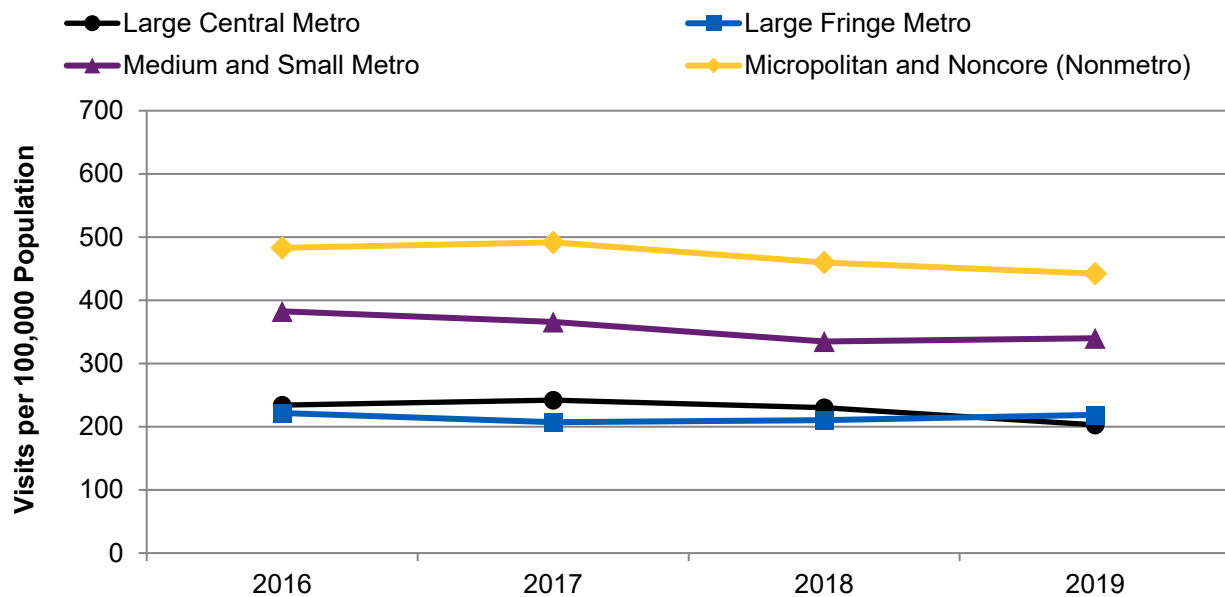
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2016-2019.

- The trend for people in large central metropolitan areas was statistically similar to those in large fringe metropolitan areas (going from 234.1 to 202.8 visits per 100,000 population in large central metropolitan areas and from 221.6 to 218.8 visits per 100,000 population in large fringe metropolitan counties) (Figure 16).
- The trend for people in medium and small metropolitan counties improved from 382.6 to 339.9 visits per 100,000 population, narrowing the disparity with large fringe metropolitan communities by 24.8%.
- The trend for people in nonmetropolitan counties improved from 482.9 to 442.2 visits per 100,000 population, narrowing the disparity with large fringe metropolitan communities by 14.5%.

Conclusion

This special emphasis topic showcases NHQDR data that indicate improved dental care delivery for children and adolescents overall; decreased dental disparities between Asian, Black, Hispanic, and multiracial children and adolescents and White children and adolescents; and decreased dental disparities between children and adolescents in poor and high-income households. It also contrasts these gains with the dental healthcare experiences of adults, for whom trends in oral health outcomes and disparities show relatively little improvement.

The data point to comprehensive dental benefits in Medicaid for children and CHIP as important drivers for these trends and signal what could be achieved if dental coverage were similarly extended to adults. They also suggest the potential value of expanding coverage to include services that often are "carved out" from traditional health insurance coverage, such as care for vision and auditory conditions.

Our examination of oral healthcare trends in nonmetropolitan counties highlights how simply providing more comprehensive health insurance coverage has been insufficient for these communities. They indicate a need to bolster the dental workforce's capacity to provide services in rural areas.

To monitor effectiveness of the many ongoing initiatives aimed at alleviating rural workforce shortages and their impact on oral health, the NHQDR team will seek measures that more fully assess quality of care in this area for future reports.

Resources

The Department of Health and Human Services has produced several resources to support and improve the quality of oral healthcare delivery.

- NIH-NIDCR published the report *Oral Health in America: Advances and Challenges* in December 2021. This report describes and summarizes scientific advances and innovations in oral healthcare delivery since the original Surgeon General's report on oral health, published 20 years earlier. It provides a detailed snapshot to inform policymakers and the public on this topic.
- CDC has compiled information, data, and other resources on their Oral Health website.
- HRSA has produced several resources intended to enhance dental health workforce capacity and support implementation of different types of oral healthcare delivery models. This information can be found on HRSA's Oral Health website.
- CMS established the Oral Health Initiative (OHI) to improve Medicaid-enrolled children's use of preventive dental care services. Through the OHI, CMS has helped states with outreach and quality improvement efforts by providing technical support in developing oral health action plans, hosting quality improvement learning collaboratives, and developing outreach materials for Medicaid beneficiaries.

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