

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY

AHRQ

2022 National Healthcare Quality and Disparities Report

This presentation contains notes. Select View, then Notes page to read them.

Report Background

- 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?

Report Structure

- 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 leading causes of death in the United States in 2020 were heart disease and cancer, followed by COVID-19 and unintentional injuries.
- The leading cause of years of potential life lost (YPLL), an important cause of death that disproportionately affects younger populations, was unintentional injury.

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 in hospitals and in nursing and residential care settings has decreased since January 2020, by 2% and 12.1%, respectively.
- Almost 63% of counties in the United States have been designated as “whole county” primary care health professional shortage areas.

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.

Geographic Variations in Care

- Five states in the Northeast region (ME, MA, NH, PA, and RI), four in the Midwest region (IA, MN, ND, and WI), and two in the West region (CO and UT) had the highest overall quality scores based on NHQDR data for all states and DC.
- Seven states in the West region (AK, AZ, CA, MT, NV, NM, and WY), five states in the South region (DC, GA, MS, OK, and TX), and NY had the lowest overall quality scores when ranked nationally.

Maternal Health

- 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) and 2018 (17.4).
- The severe maternal morbidity rate increased by 11.1% (from 7.2 to 8.0 events per 1,000 deliveries) between 2016 and 2019.

Child and Adolescent Mental Health

- Child and Adolescent Mental Health has become an urgent concern.
- 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.
- 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.
- In 2020, only 41.6% of adolescents ages 12-17 with a major depressive episode in the last 12 months reported receiving treatment.

Substance Use Disorders

- 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 opioids increased in all racial and ethnic groups and in all rural-urban locations although disparities among groups exist.
- 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

- Approximately one in seven (14.3%) people was unable to get or delayed in getting needed dental care due to cost in 2019.
  - 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.
  - 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.

Quality and Disparities Tables: Overarching Findings

- The percentage of people under age 65 with health insurance coverage is at the highest level recorded in the NHQDR.
- Personal spending for healthcare services has increased for the most well-off Americans.
- The burden of out-of-pocket healthcare costs is far higher for lower income households.
- 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.
- Other health conditions warrant the nation's attention because measures of healthcare delivery and health outcomes for these conditions have worsened.
- 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.
- Overall, racial and ethnic minority communities have similar outcomes as White communities for just under half of quality-of-care measures.
- 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.

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.
- 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.

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.
- The NHQDR is produced with the support of a Department of Health and Human Services Interagency Work Group and guided by input from AHRQ's National Advisory Council and the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine.
- The 2022 NHQDR tracks about 550 measures that cover a wide variety of conditions and settings.
- 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* and *National Healthcare Disparities Report* in 2003, AHRQ has worked continuously to enhance and refine the NHQDR.

Changes to the 2022 NHQDR

- 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.
- 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.

Updates in Data Source Availability

- Healthcare Cost and Utilization Project trend data are available for the 2022 report due to the availability of 4 years of data after the change from ICD-9-CM 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.
- The report presents information on trends, disparities, and changes in disparities over time, as well as federal initiatives to improve quality and reduce disparities.

References

1. Institute of Medicine Committee on Quality of Health Care in America. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press; 2001. https://www.nap.edu/catalog/10027/crossing-the-quality-chasm-a-newhealth-system-for-the. Accessed September 21, 2022.
2. Committee on Quality of Health Care in America, Institute of Medicine. To Err Is Human: Building a Safer Health System. Kohn LT, Corrigan JM, Donaldson MS, eds. Washington, DC: National Academy Press; 2000. http://www.nap.edu/catalog/9728.html. Accessed September 21, 2022.
3. Institute of Medicine. Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Smedley BD, Stith AY, Nelson AR, eds. Washington, DC: National Academies Press; 2003. https://www.nap.edu/catalog/12875/ unequal-treatment-confronting-racial-and-ethnic-disparitiesin-health-care. Accessed September 21, 2022.

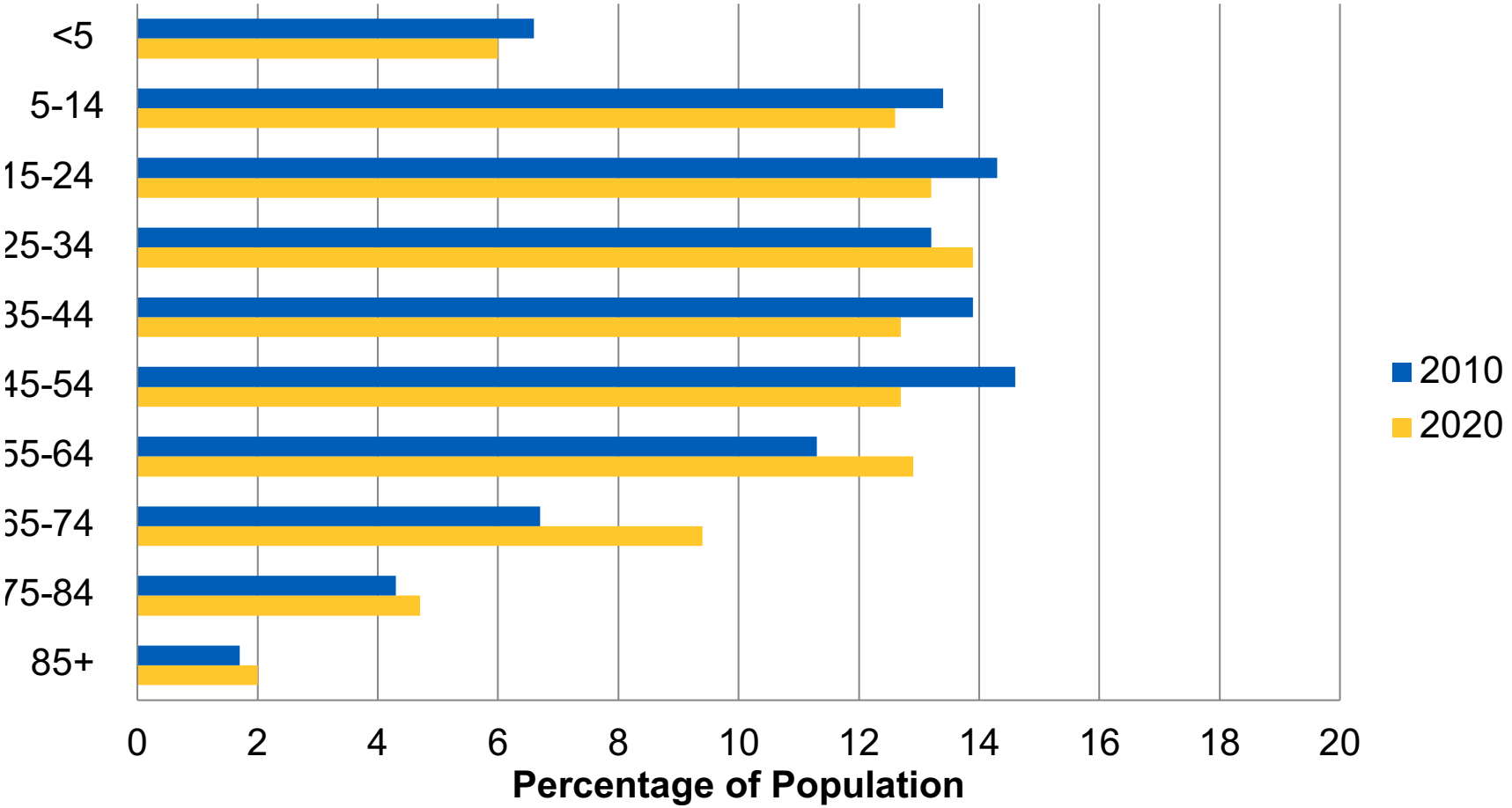
Portrait of American Healthcare

- 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, 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 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.

Figure 1. Distribution of people in the United States by 10-year age groups in 2010 and 2020

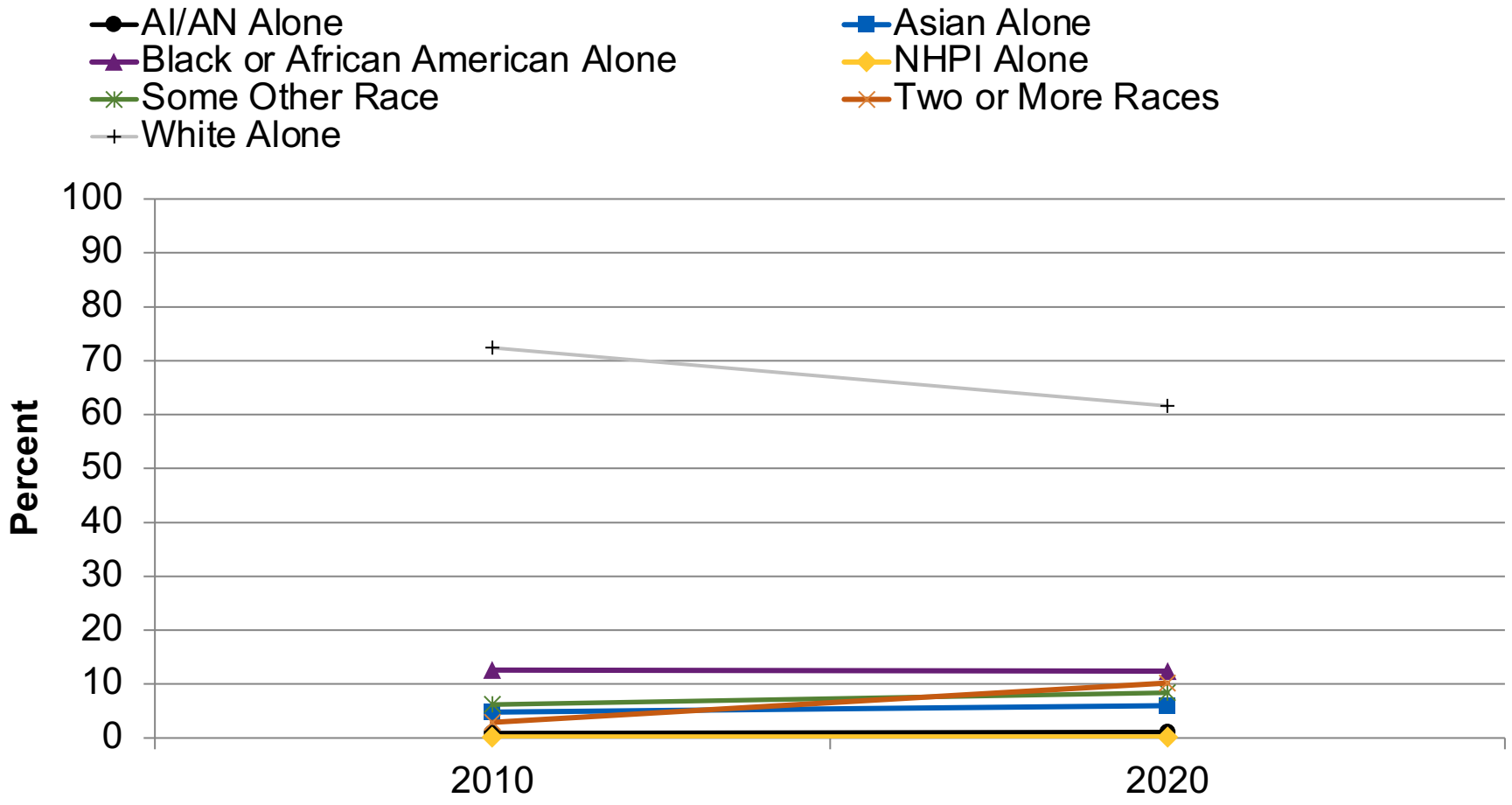


Source: U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2010 and 2020, Table S0101.

Racial and Ethnic Diversity

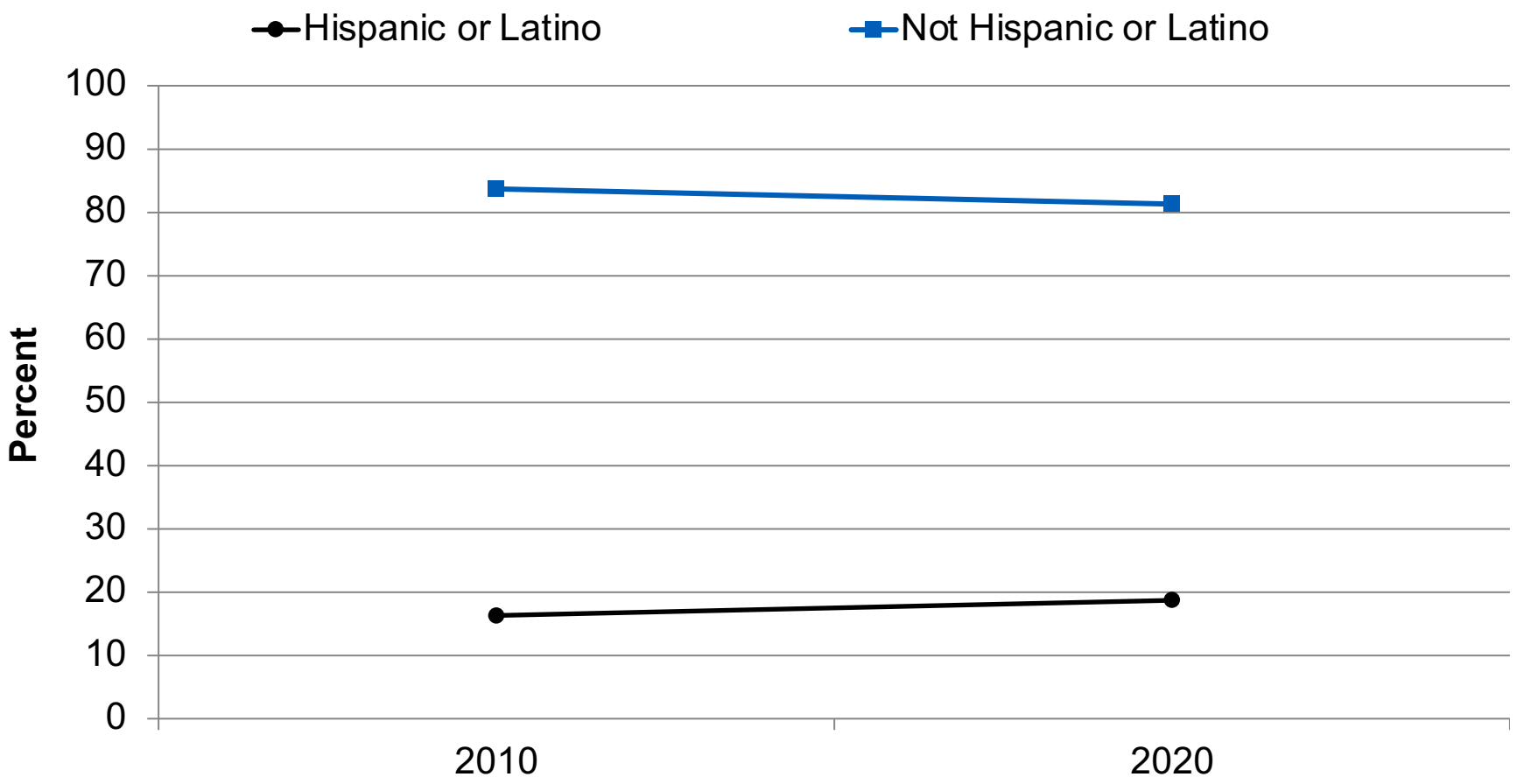
- The United States has grown more racially and ethnically diverse.
- Much of the recent growth in racial and ethnic diversity can be attributed to a rise in the number of people who self-identify as two or more races, which increased 7.3 percentage points between 2010 and 2020.
- The percentage of people 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



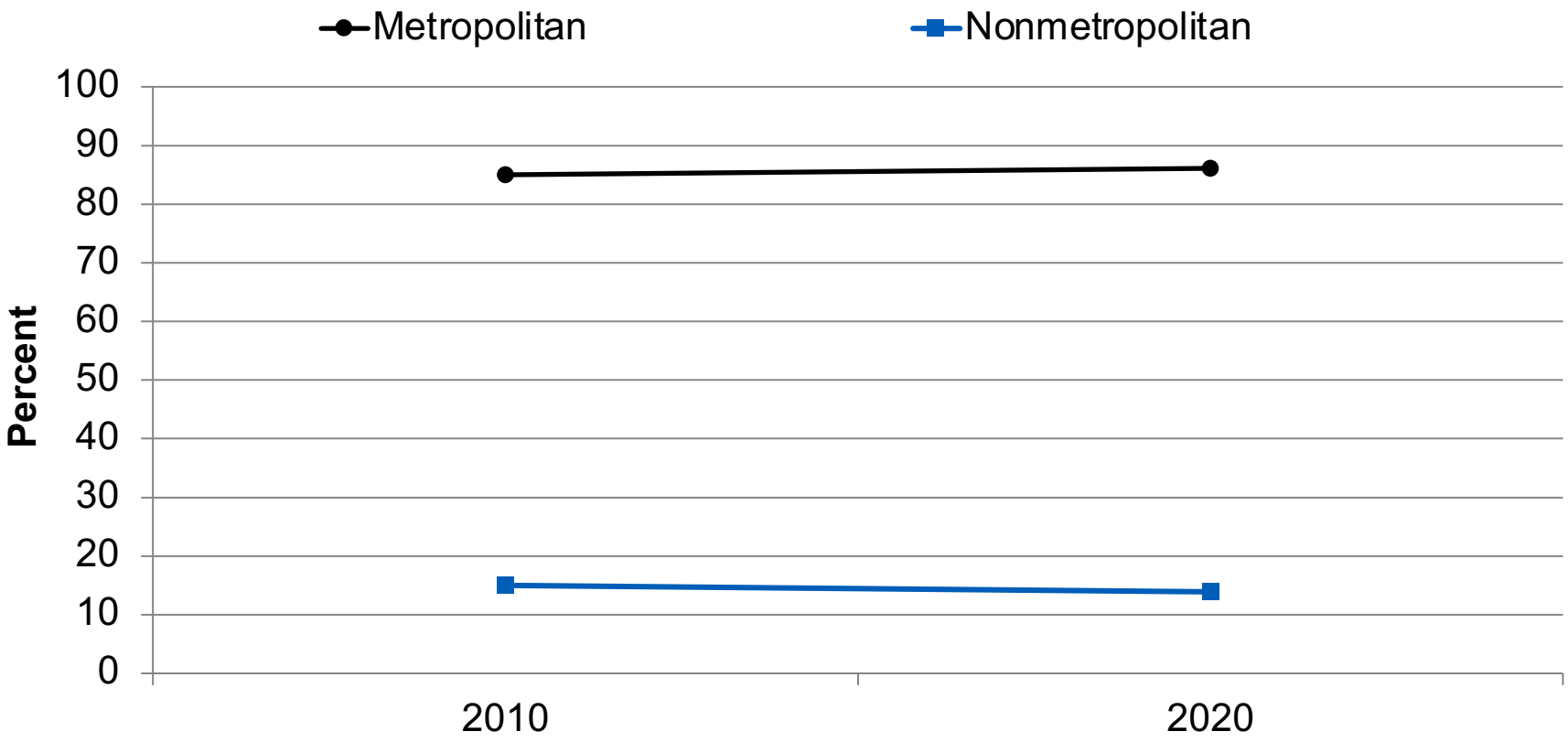
Source: U.S. Census Bureau, Decennial Census, 2010 and 2020, Table P1.

Figure 3. Distribution of people in the United States, by ethnicity, 2010 to 2020



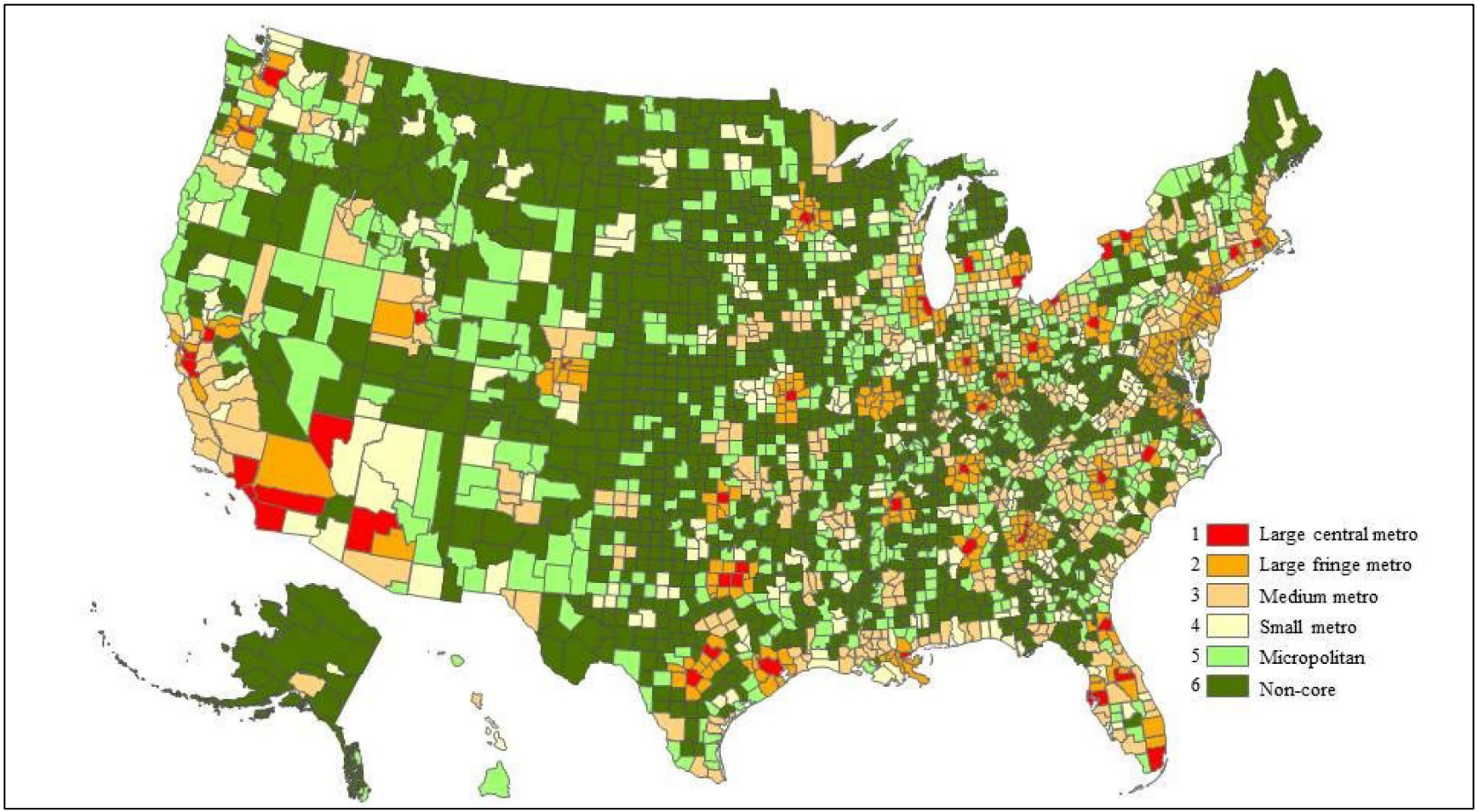
Source: U.S. Census Bureau, 2010 and 2020 Decennial Census, Table P1 and Table P2.

Figure 4. Distribution of people in the United States, by location of residence, 2010 to 2020



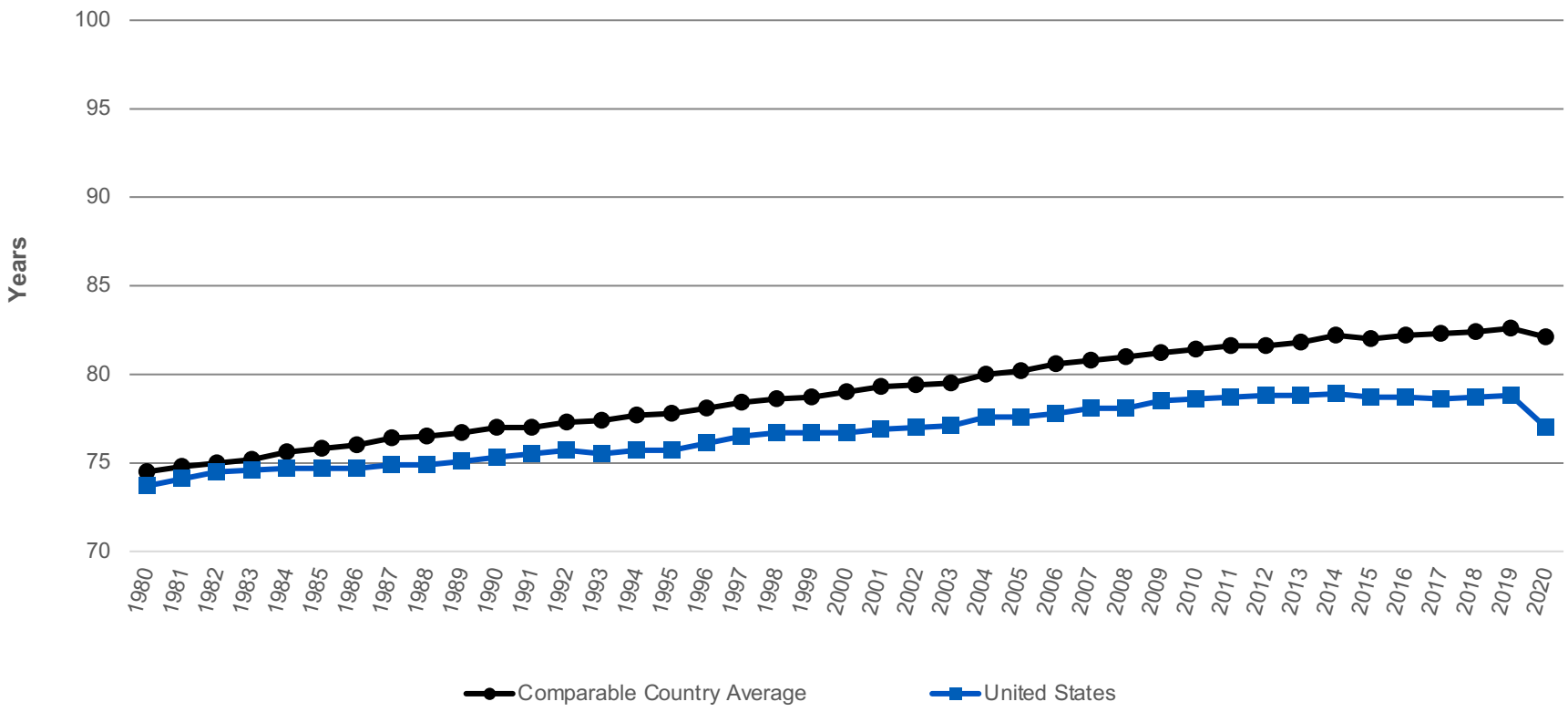
Source: U.S. Department of Agriculture, Economic Research Service, using 2015 County Typology Codes and data from the U.S. Department of Commerce, Bureau of the Census, PL-94 decennial census files, 2010 and 2020. For more information, refer to Dobis EA, Krumel Jr TP, Cromartie J, Conley KL, Sanders 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.

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.

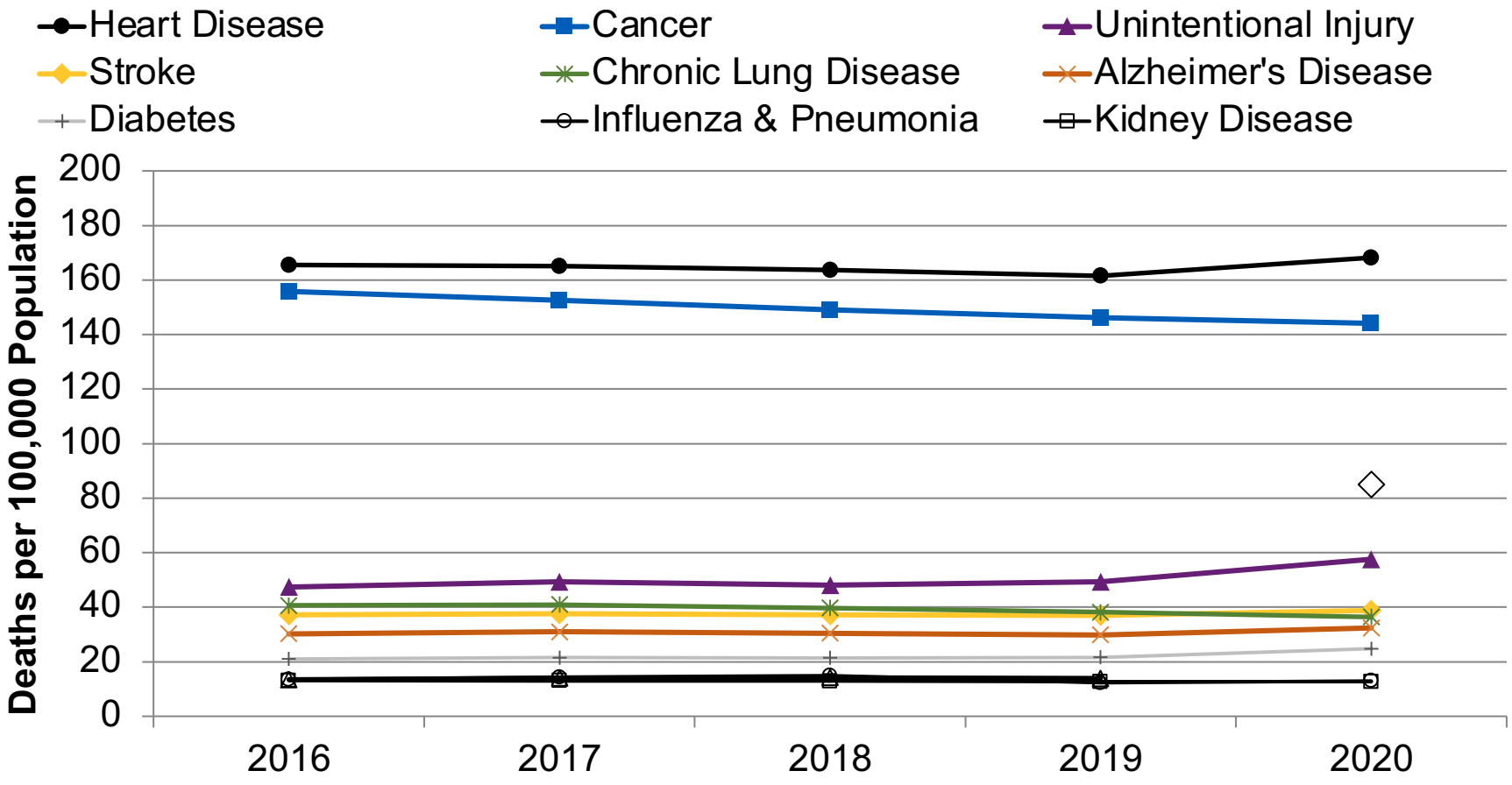
Figure 6. Life expectancy in United States vs. comparable OECD countries, 1980-2020



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.

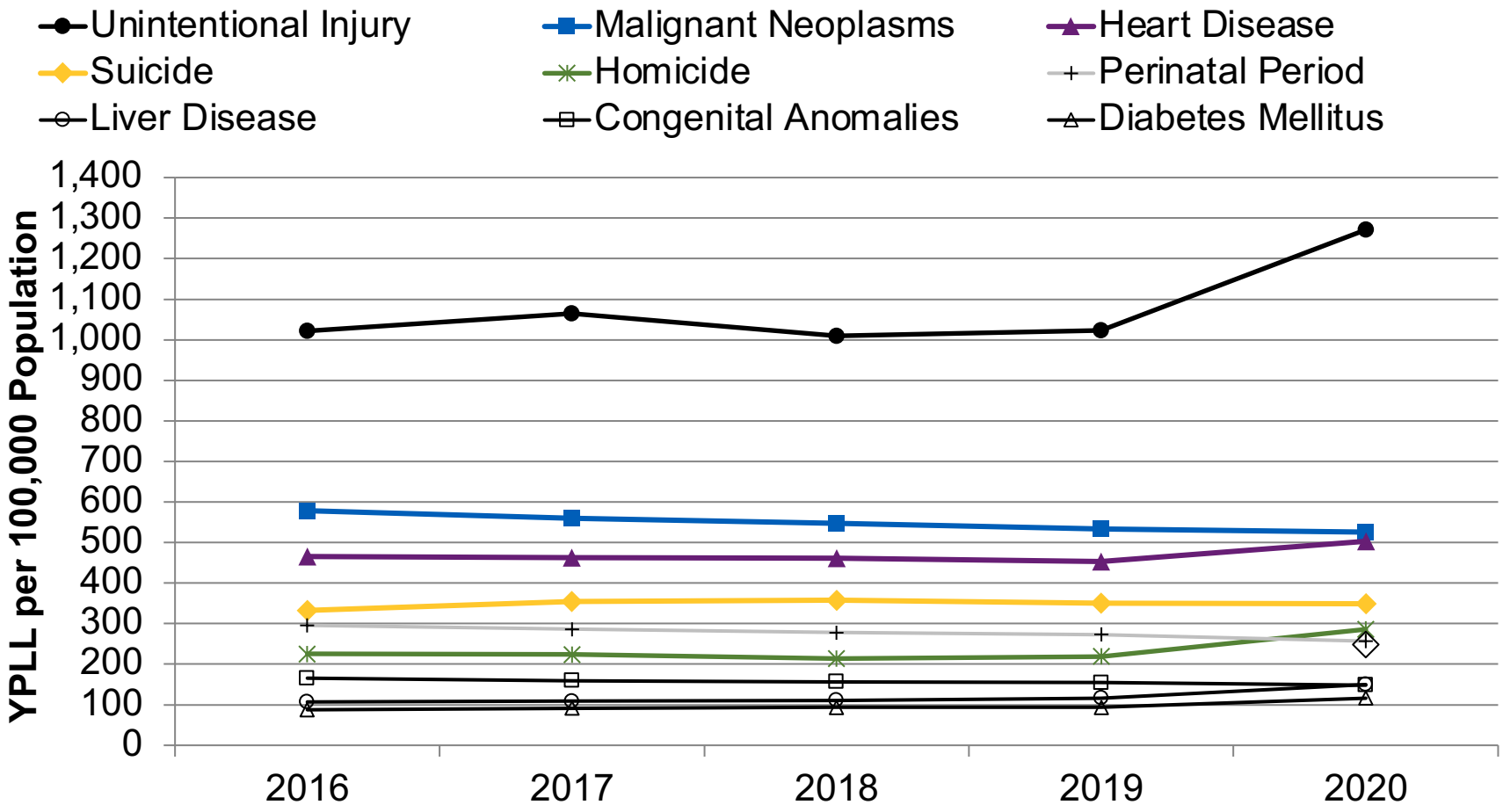
Figure 7. Ten leading causes of death, based on age-adjusted mortality, United States, 2016-2020



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.

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.

Contributors to Mortality Rate and Years of Potential Life Lost

- 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.

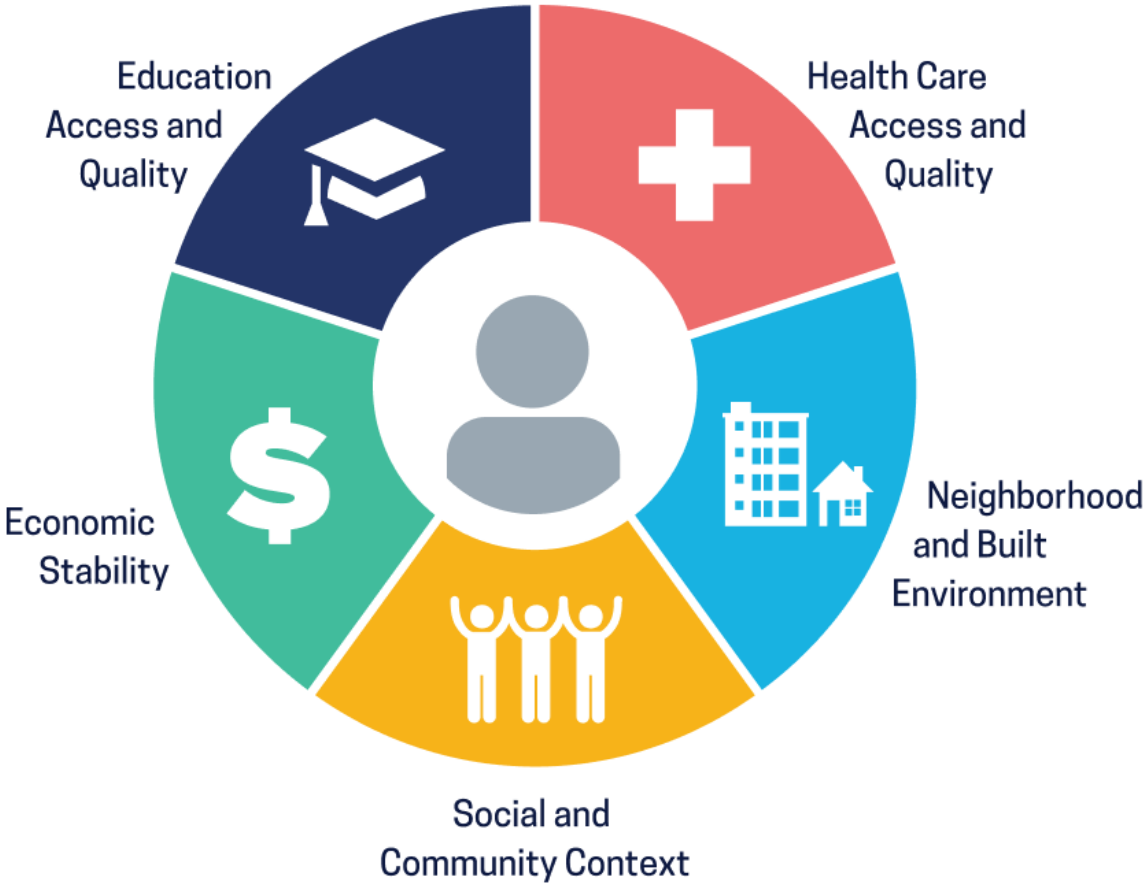
Mortality and Chronic Diseases

- Chronic diseases contribute to many of the leading causes of death and years of potential life lost.
- 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.

Management of Chronic Diseases

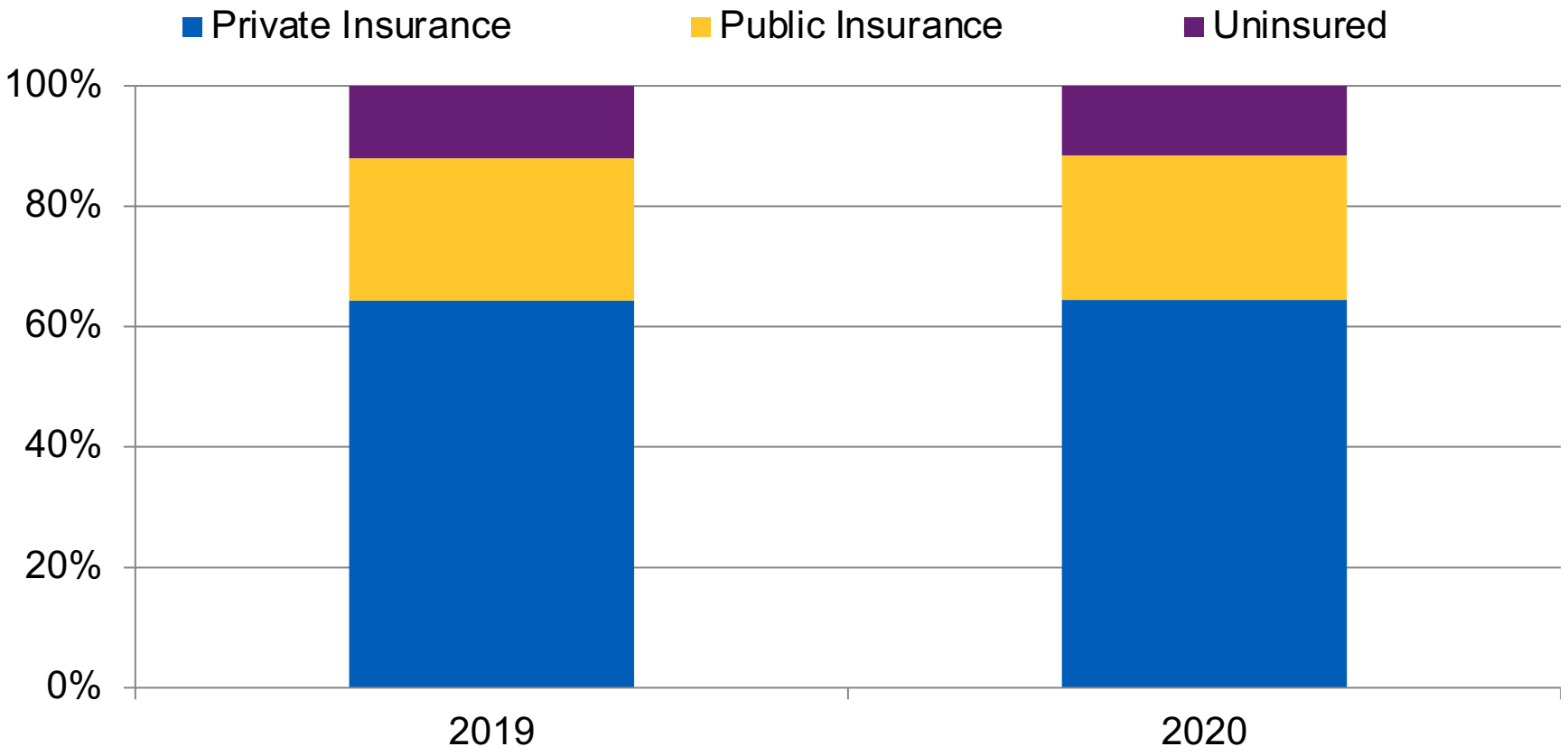
- Communities, healthcare delivery organizations, and providers can build capacity to serve the specific needs of people with chronic diseases.
- People with a chronic disease typically require ongoing support to monitor and, if needed, adjust treatment during their lifetime.
- When people have multiple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

Figure 9. Social Determinants of Health



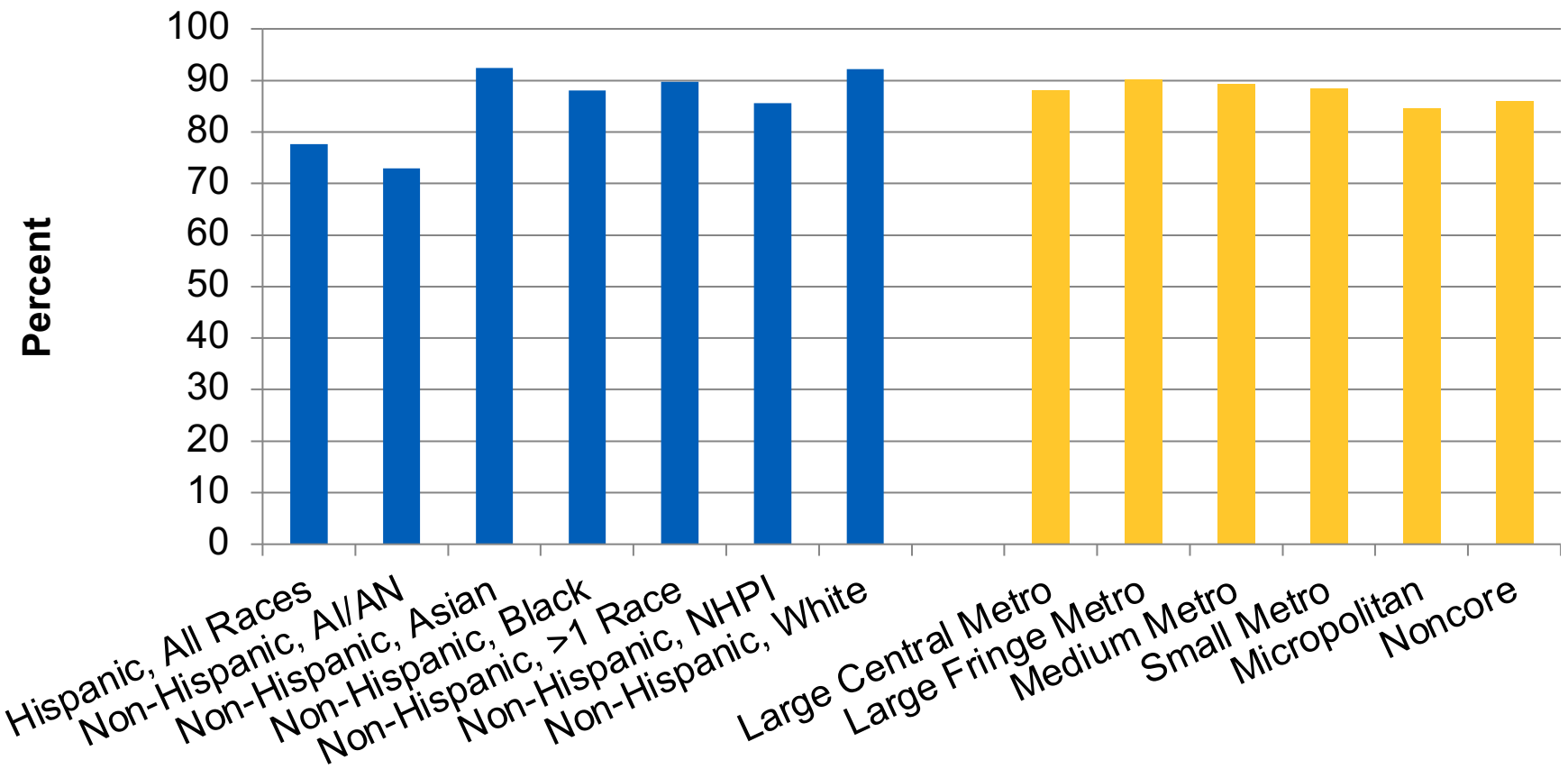
Source: Healthy People 2030. https://health.gov/healthypeople/priority-areas/social-determinants-health.

Figure 10. People under 65 years of age with public, private, or no health insurance, 2020



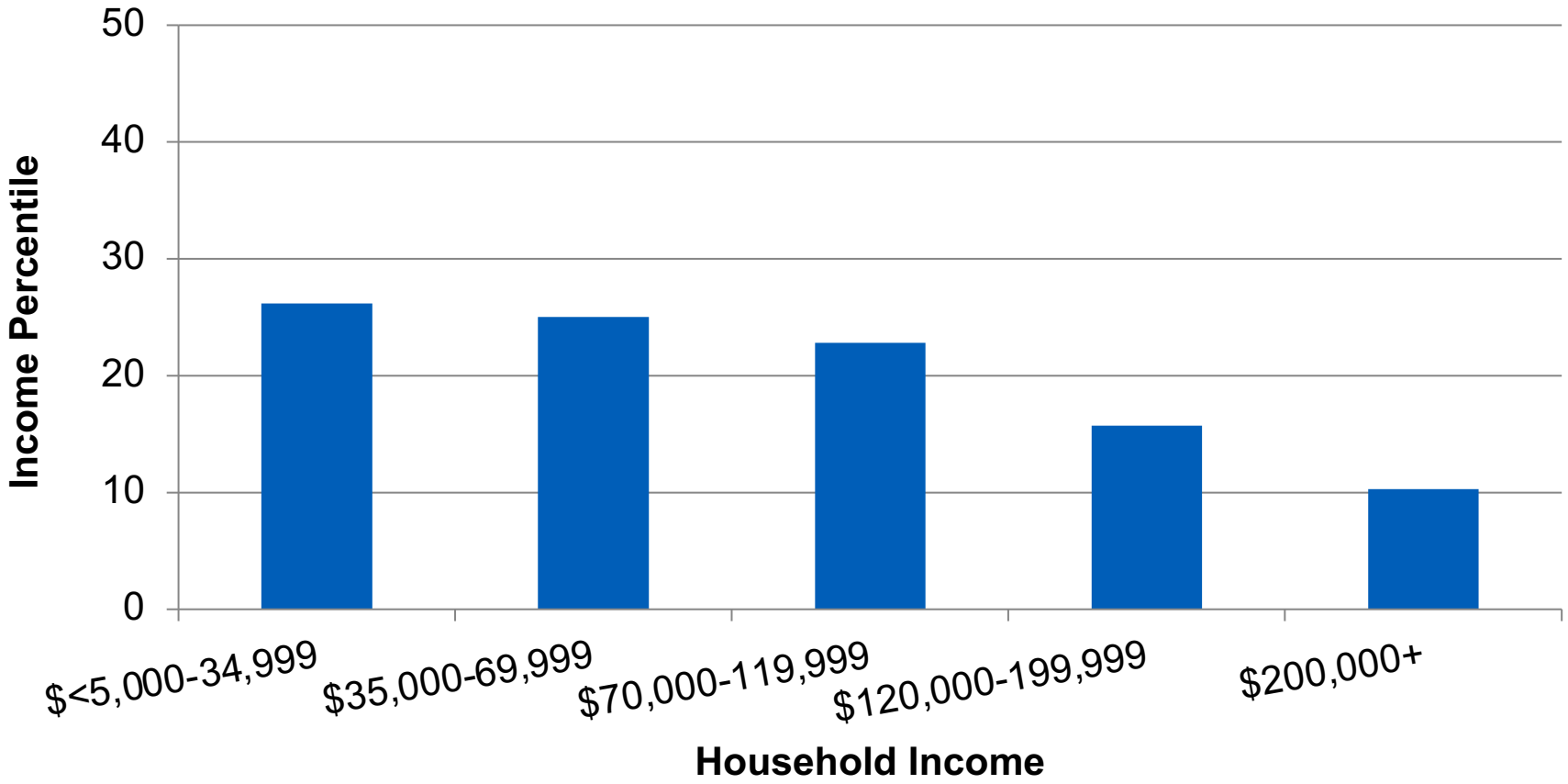
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2020.

Figure 11. People with any health insurance, by race, ethnicity, and location of residence, 2020



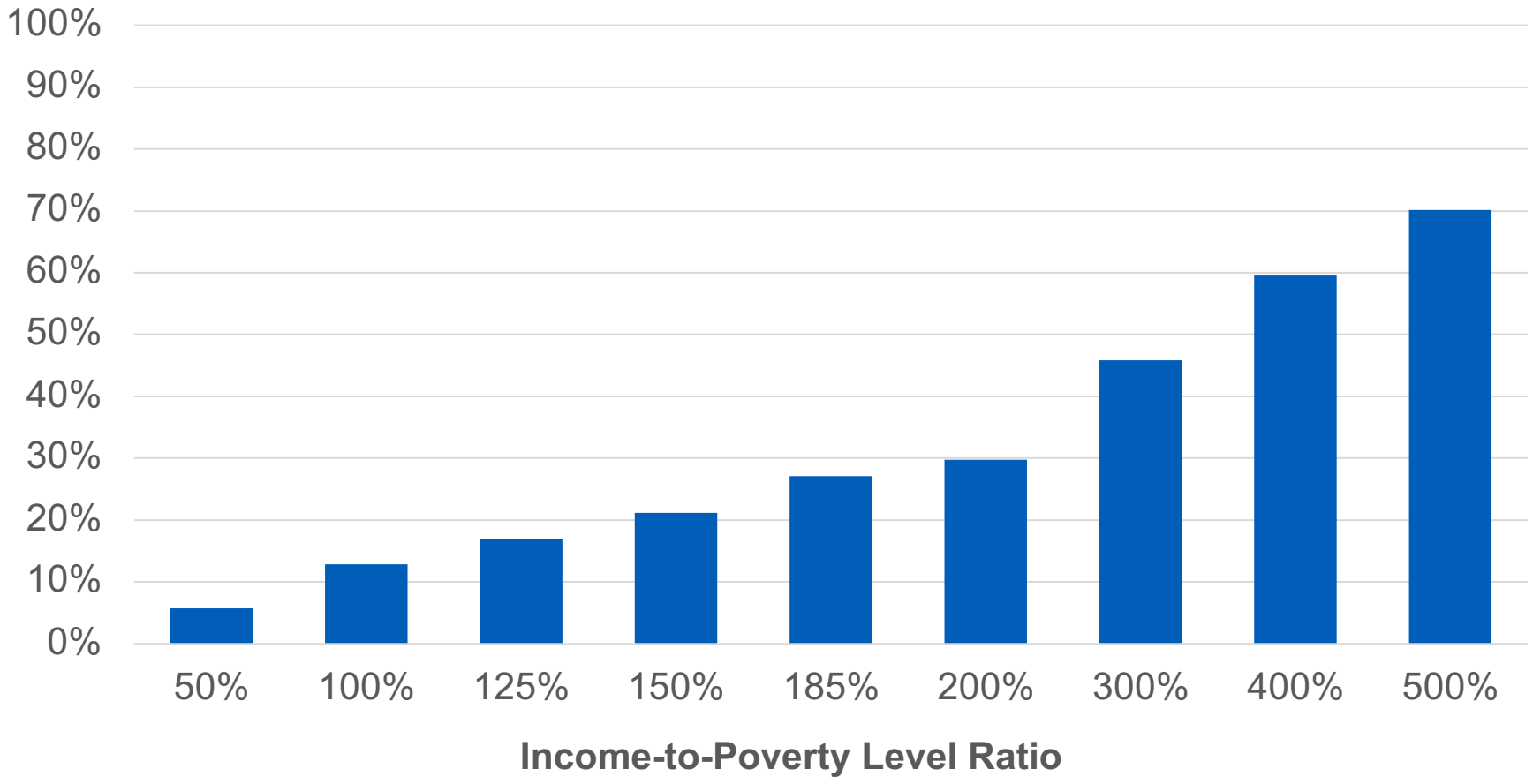
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2020.

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.

Figure 13. Cumulative percentage of U.S. households with different ratios of income to poverty, 2020

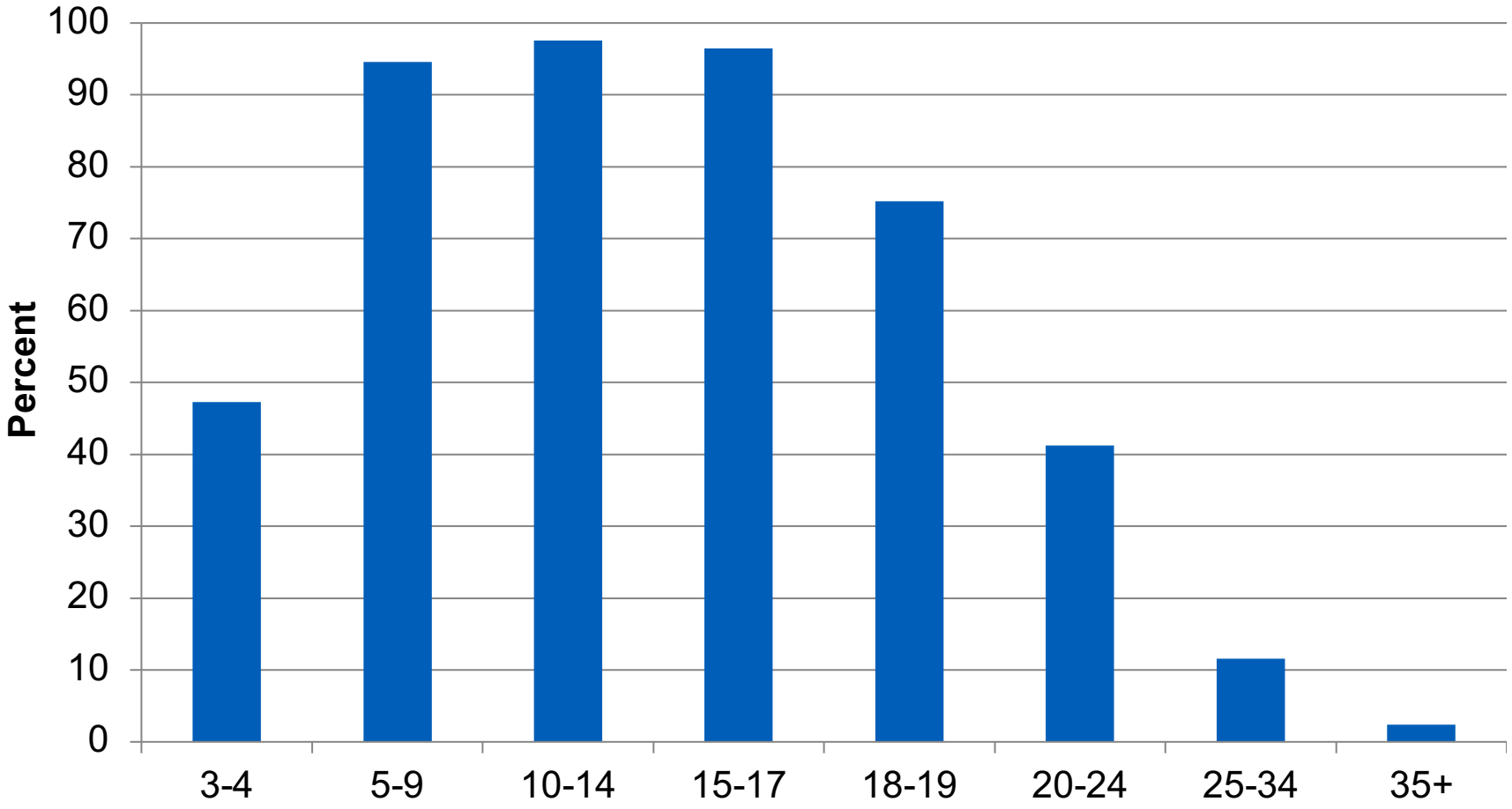


Source: American Community Survey, 5-year estimates, 2020, Table S1701.

Social and Community Context

- 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.
- Nearly four-fifths (78.5%) of the population 5 years and over speak English as their primary language at home.[21]
- Most communities appear to have relatively stable populations, with the vast majority (86.2%) staying in the same place the previous year.

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.

Neighborhood and Built Environment

- The Neighborhood and Built Environment domain accounts for the influence that physical infrastructure and the environment 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:
  - About 85% of people in the United States have a broadband internet subscription.
  - 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.

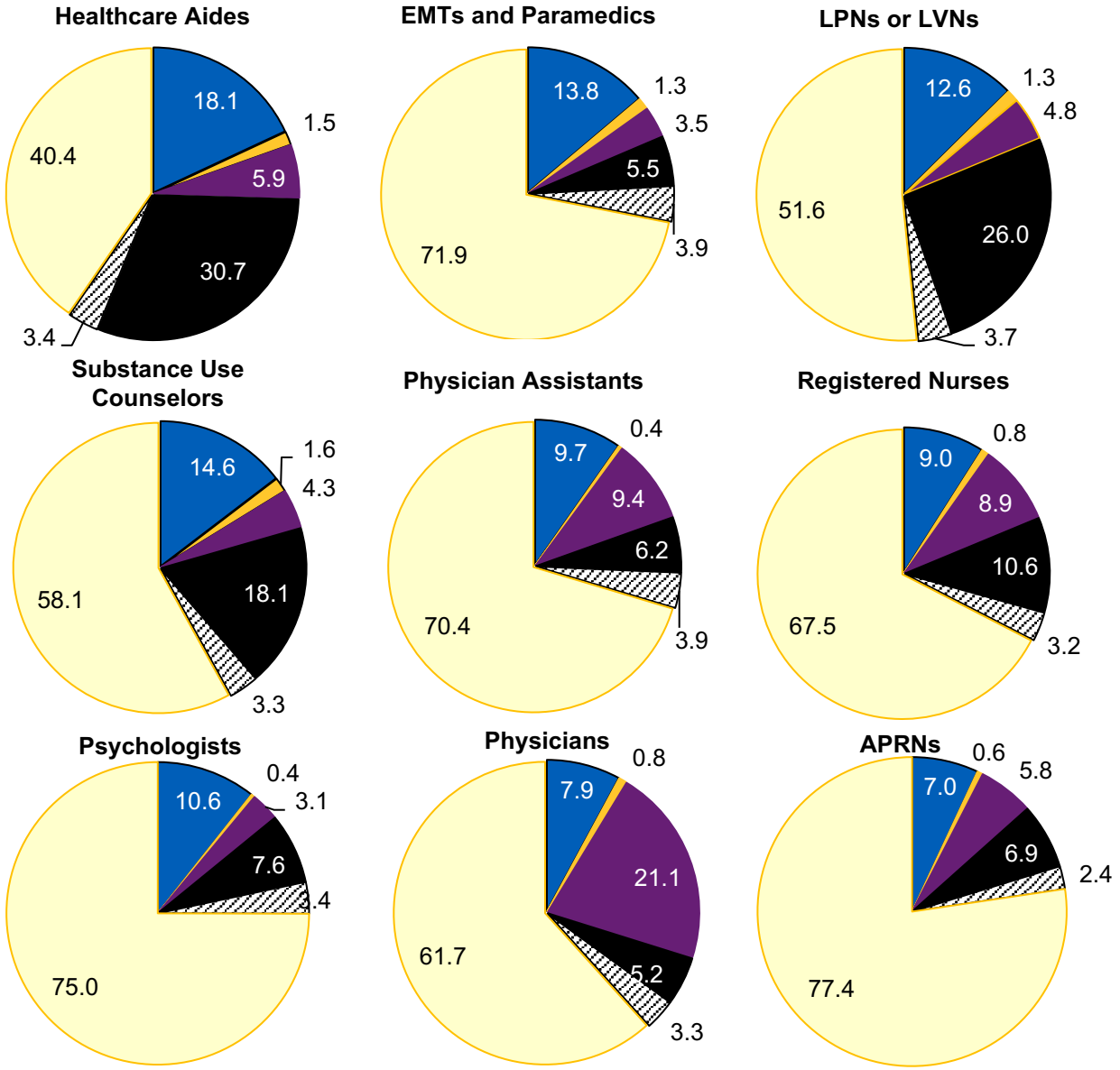
Healthcare Delivery Systems

- 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 Issues

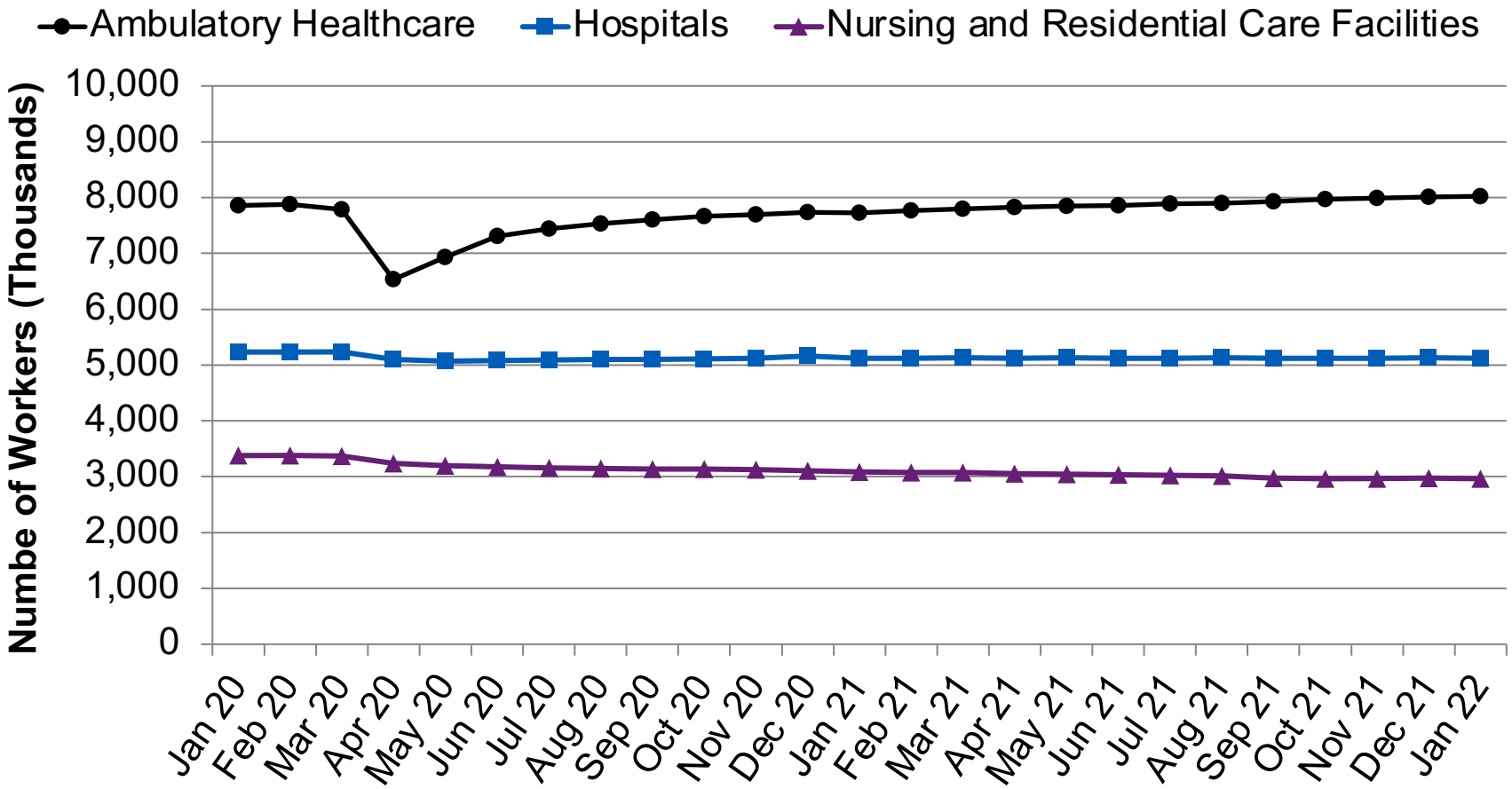
- Staffing shortages may compromise the capacity to care for patients.
- Delivering high-quality care often requires that the right number and combination of healthcare workers are available and can work together effectively.
  - For example, routine surgical procedures can be delayed if only a surgeon 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.

Figure 15. Percent distribution of race and ethnicity in different healthcare occupations degree or less education to enter



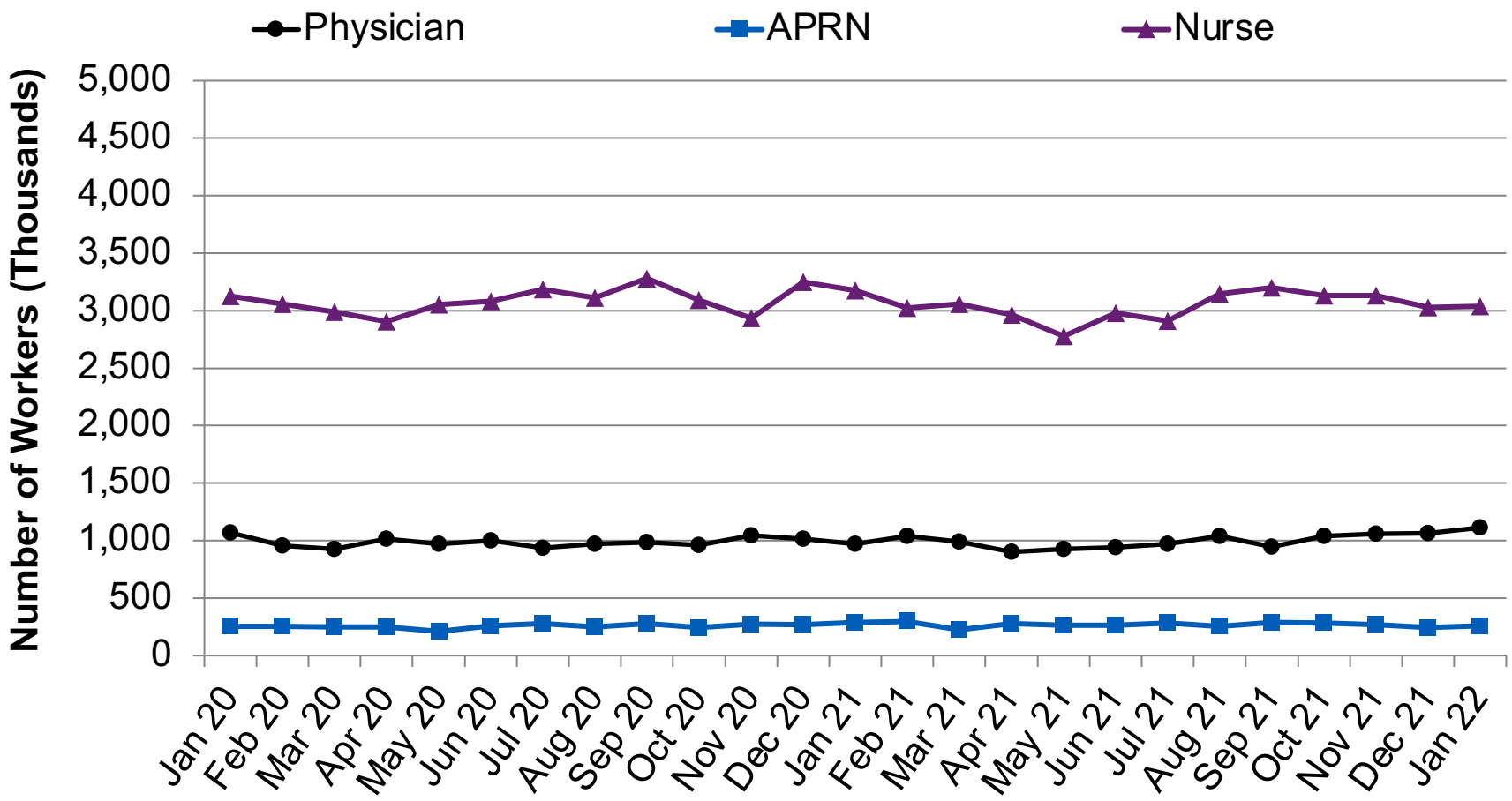
Key: EMTs = emergency medical technicians; LPNs or LVNs = licensed practical nurses or licensed vocational nurses; APRNs = advanced practice registered nurses
Row 1: Requires associate's degree or less education
Row 2: Requires bachelor's or master's degree
Row 3: Requires doctorate degree or equivalent
Source: U.S. Census, American Community Survey.

Figure 16. Number of workers employed and at work in ambulatory healthcare, hospitals, and nursing and residential care facilities, January 2020-January 2022



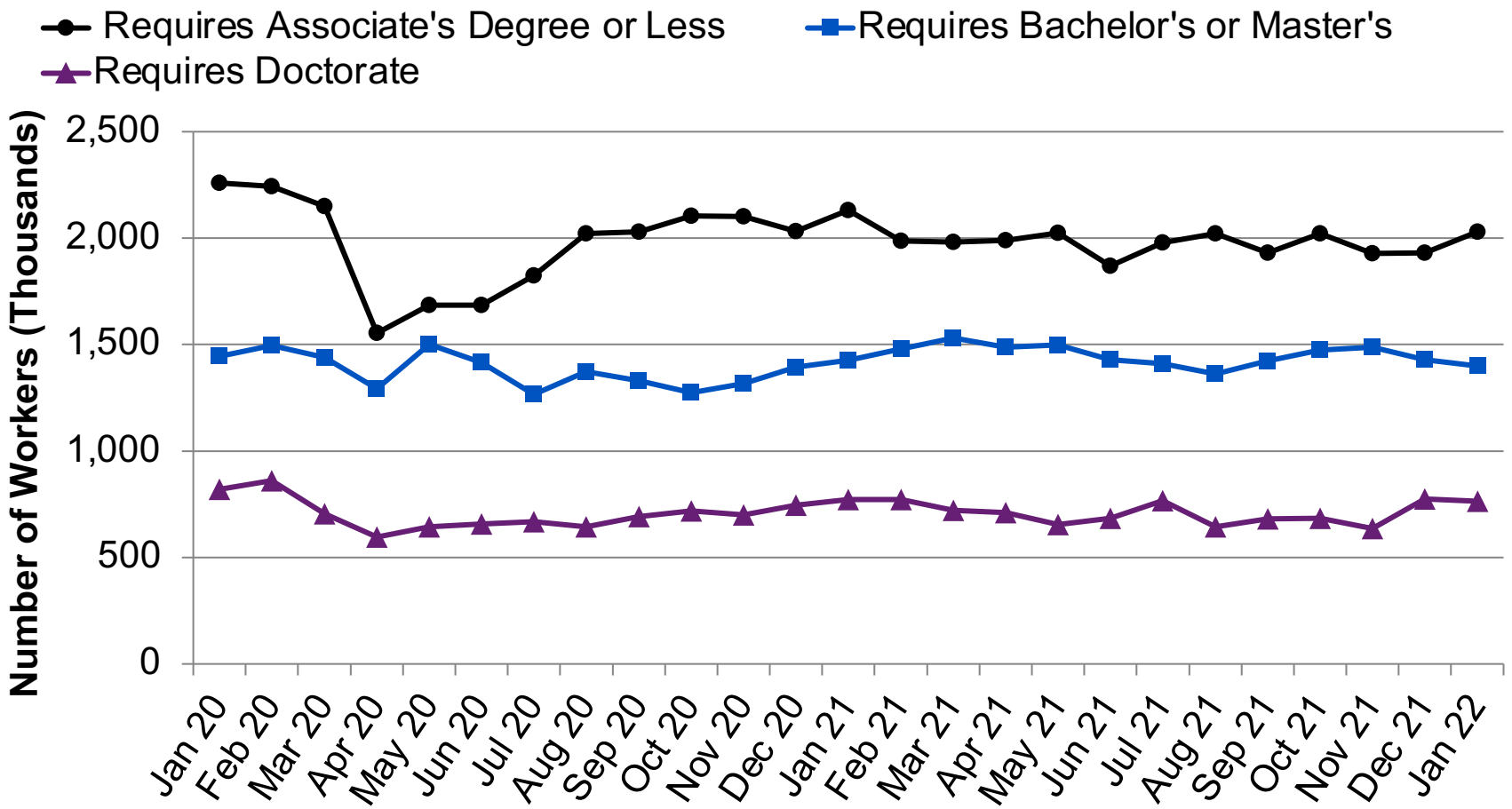
Source: Bureau of Labor Statistics, Current Employment Statistics (National), January 2020-January 2022. Accessed at https://www.bls.gov/ces/data/ on June 30, 2022.

Figure 17. Number of nurses, advanced practice registered nurses, and physicians employed and at work in any healthcare setting, January 2020-January 2022



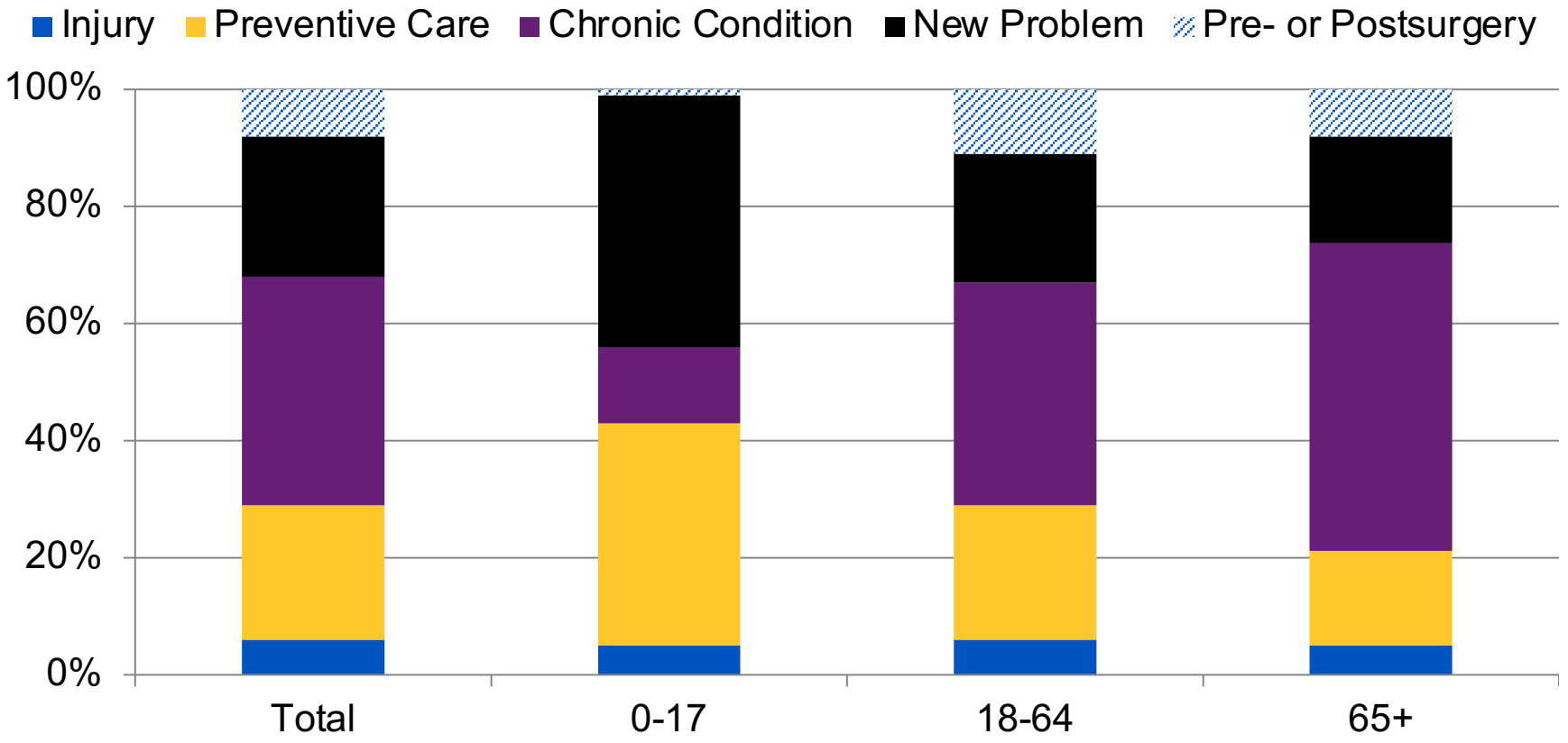
Source: U.S. Bureau of Labor Statistics, Current Population Survey, monthly data, January 2020-January 2022.

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



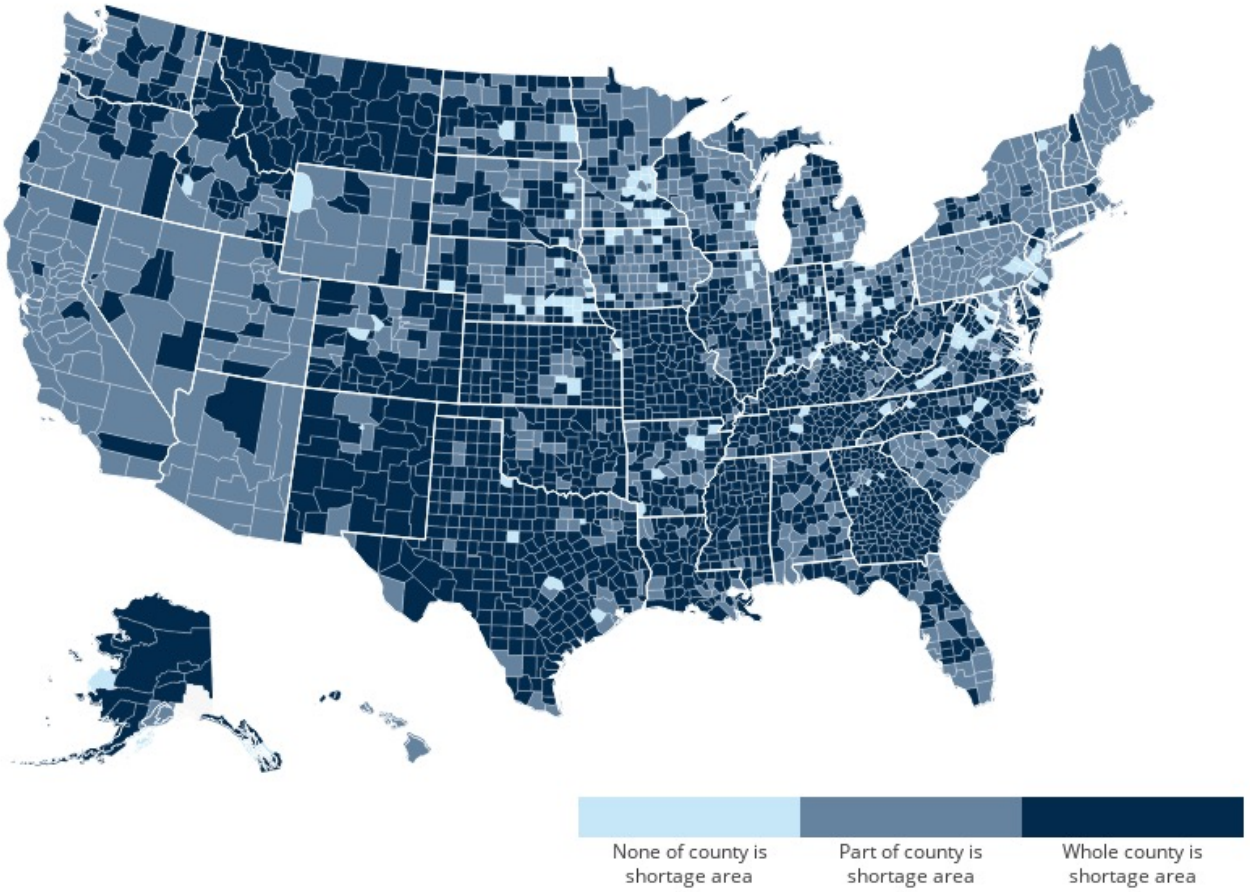
Source: U.S. Bureau of Labor Statistics, Current Population Survey, monthly data, January 2020-January 2022.

Figure 19. Major reasons for office-based physician visits, by patient age, 2018



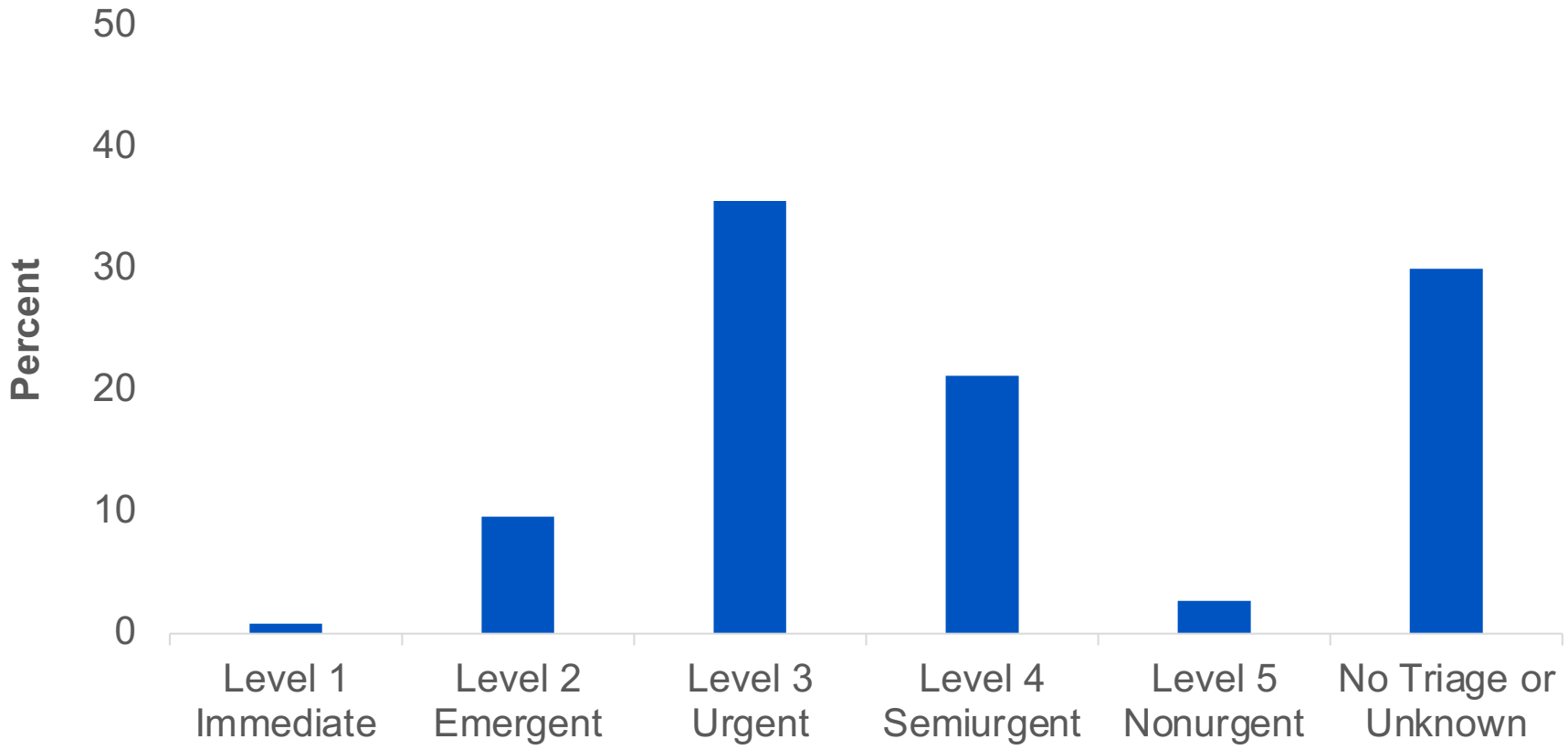
Source: Ashman JJ, Santo L, Okeyode T. Characteristics of Office-Based Physician Visits, 2018. NCHS Data Brief. 2021 May;(408):1-8. https://www.cdc.gov/nchs/products/databriefs/db408.htm.

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.

Figure 21. Triage status of emergency department visits, 2019

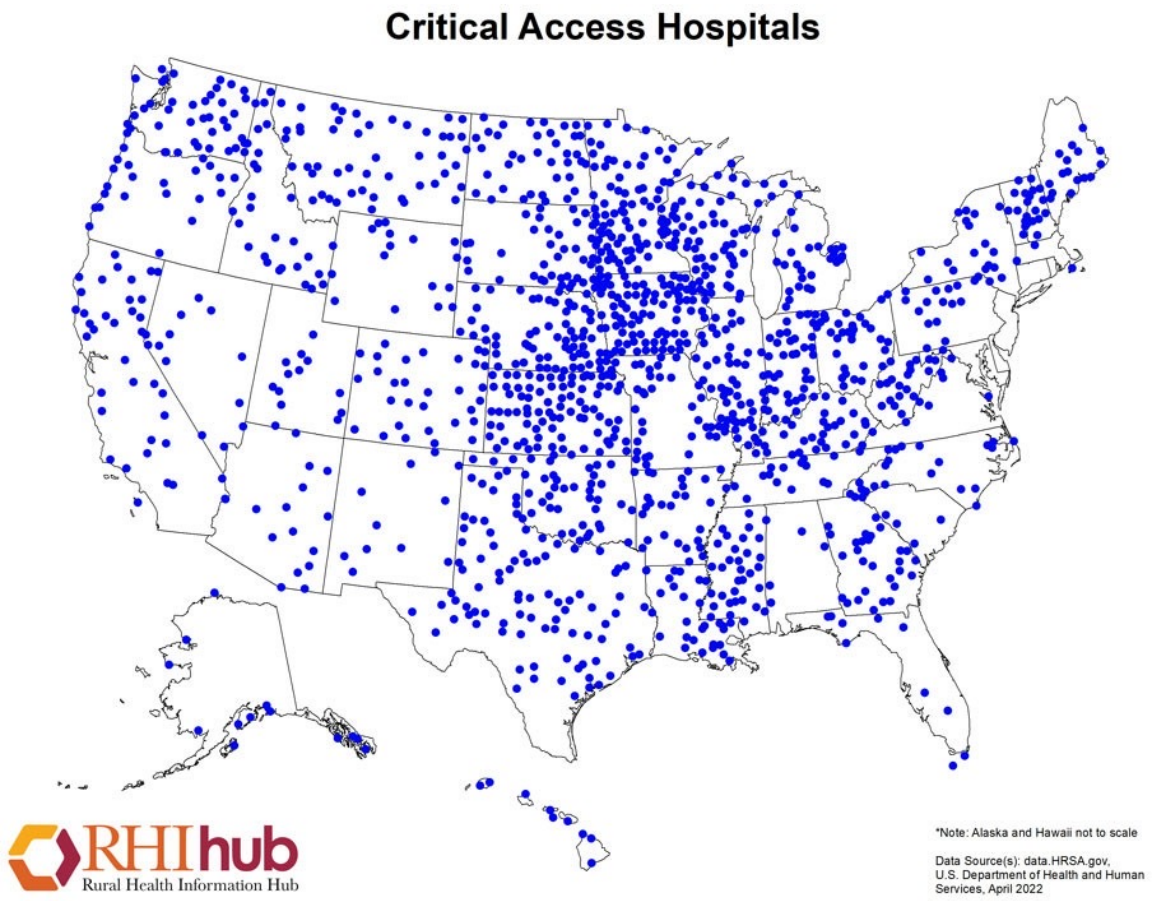


Source: Centers for Disease Control and Prevention. National Hospital Ambulatory Medical Care Survey, 2019.

Number and Types of Hospitals in the United States

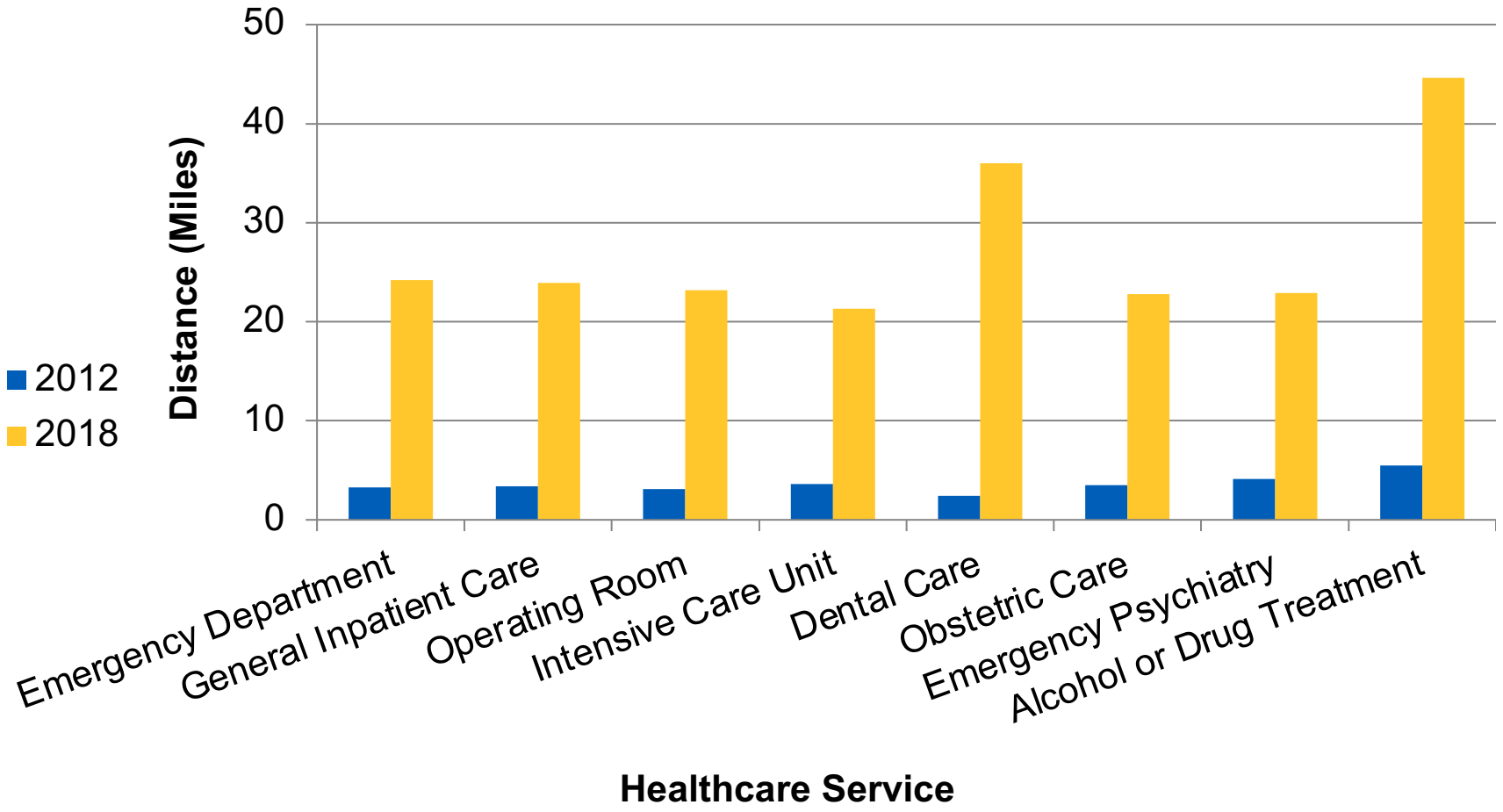
- In 2022, the American Hospital Association (AHA) counted 6,093 hospitals with a total of 920,531 staffed beds in the United States.[36] Most are community hospitals.
- More specifically:
  - Nearly half (48.6%) are not-for-profit, nongovernment community hospitals,
  - About one-fifth (20.2%) are for-profit, 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.

Figure 22. Distribution of critical access hospitals in the United States, 2022



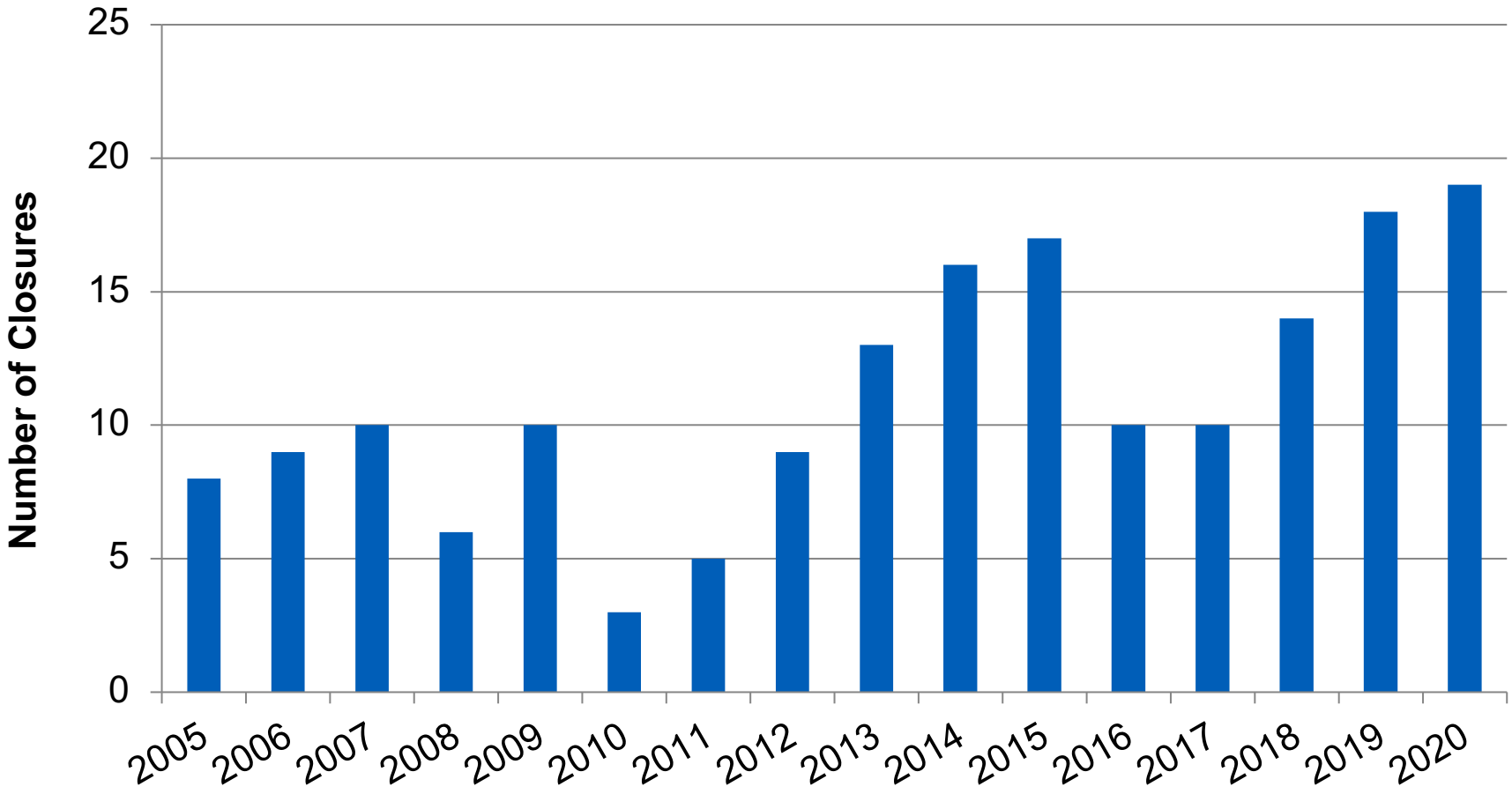
Source: Rural Health Information Hub, using data.HRSA.gov, April 2022.

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



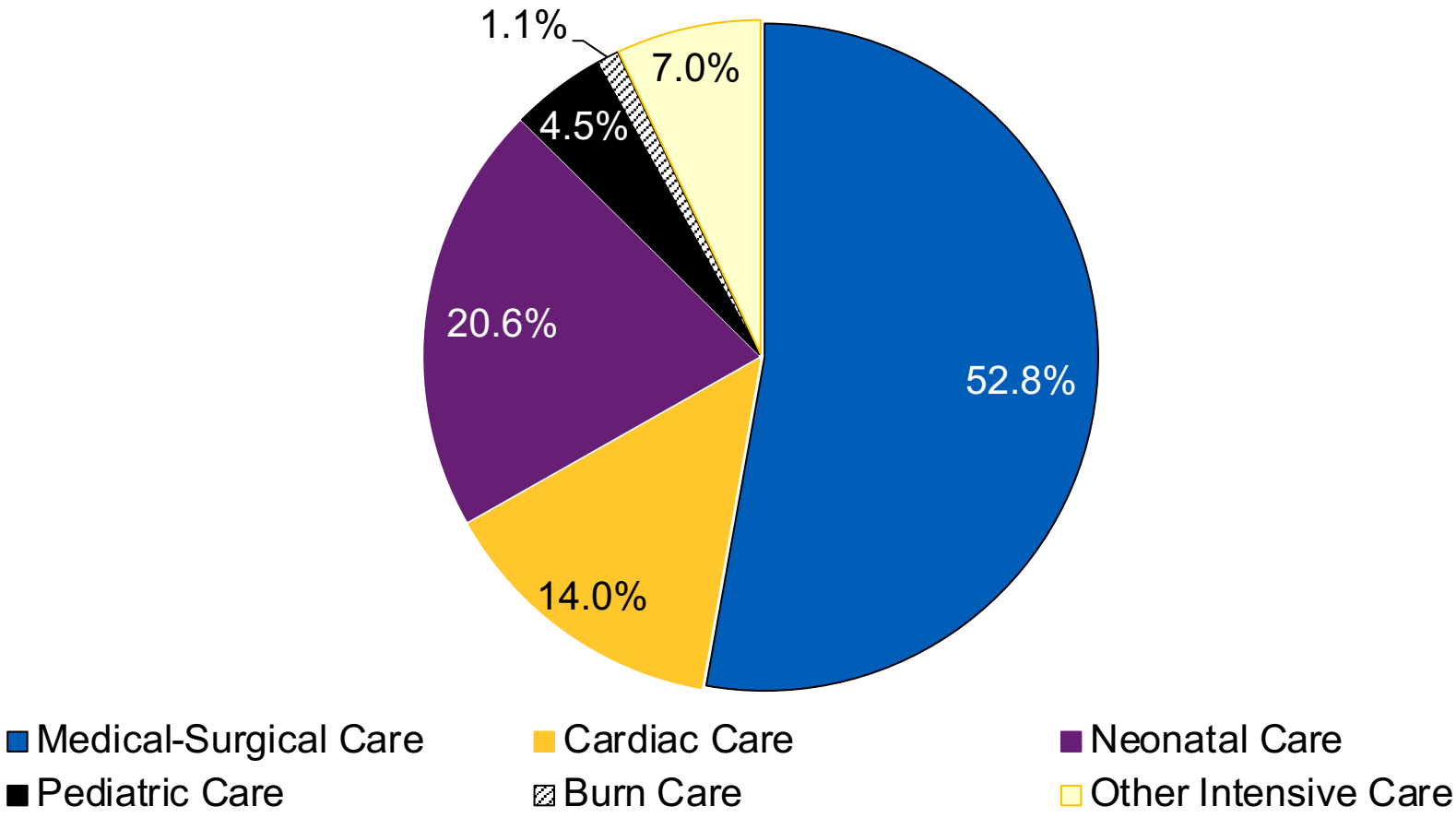
Source: Report to the Ranking Member, Committee on Homeland Security and Governmental Affairs, United States Senate. Rural Hospital Closures: Affected Residents Had Reduced Access to Healthcare Services. GAO-21-93. Washington, DC: Government Accountability Office; December 2020. https://www.gao.gov/products/gao-21-93.

Figure 24. Number of rural hospital closures by year, 2005-2020



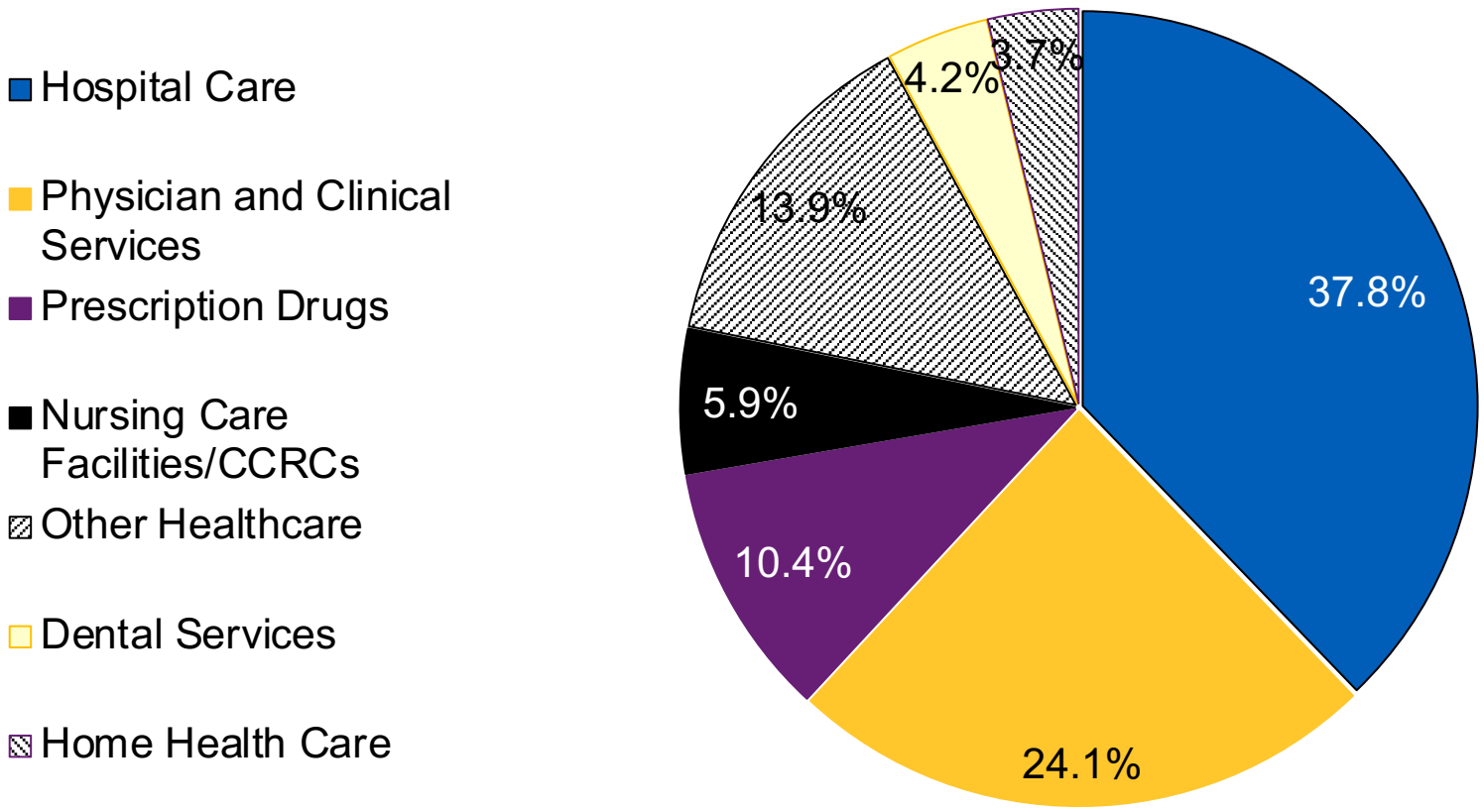
Source: North Carolina Rural Health Research Program. Rural Hospital Closures, 2005-2020. https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures/.

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



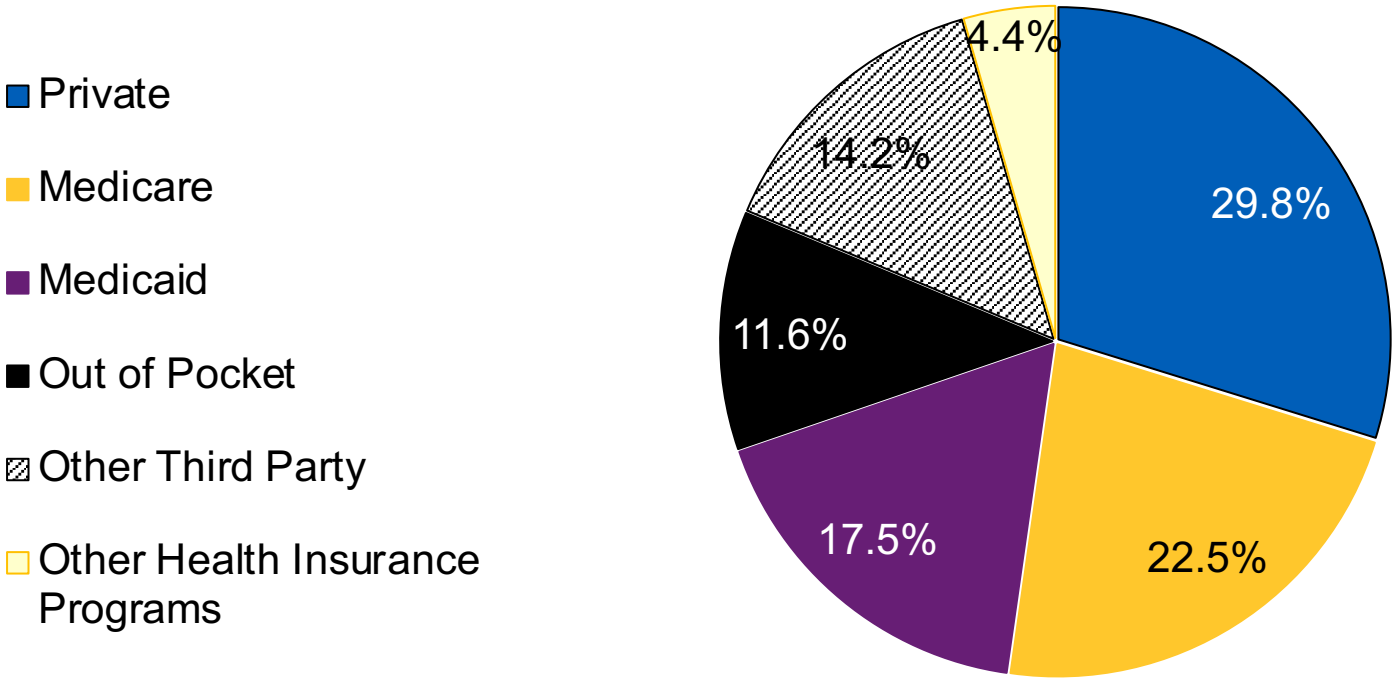
Source: American Hospital Association. Fast Facts on U.S. Hospitals, 2022. https://www.aha.org/system/files/media/file/2022/01/fast-facts-on-US-hospitals-2022.pdf.

Figure 26. Distribution of personal healthcare expenditures by type of expenditure, 2020



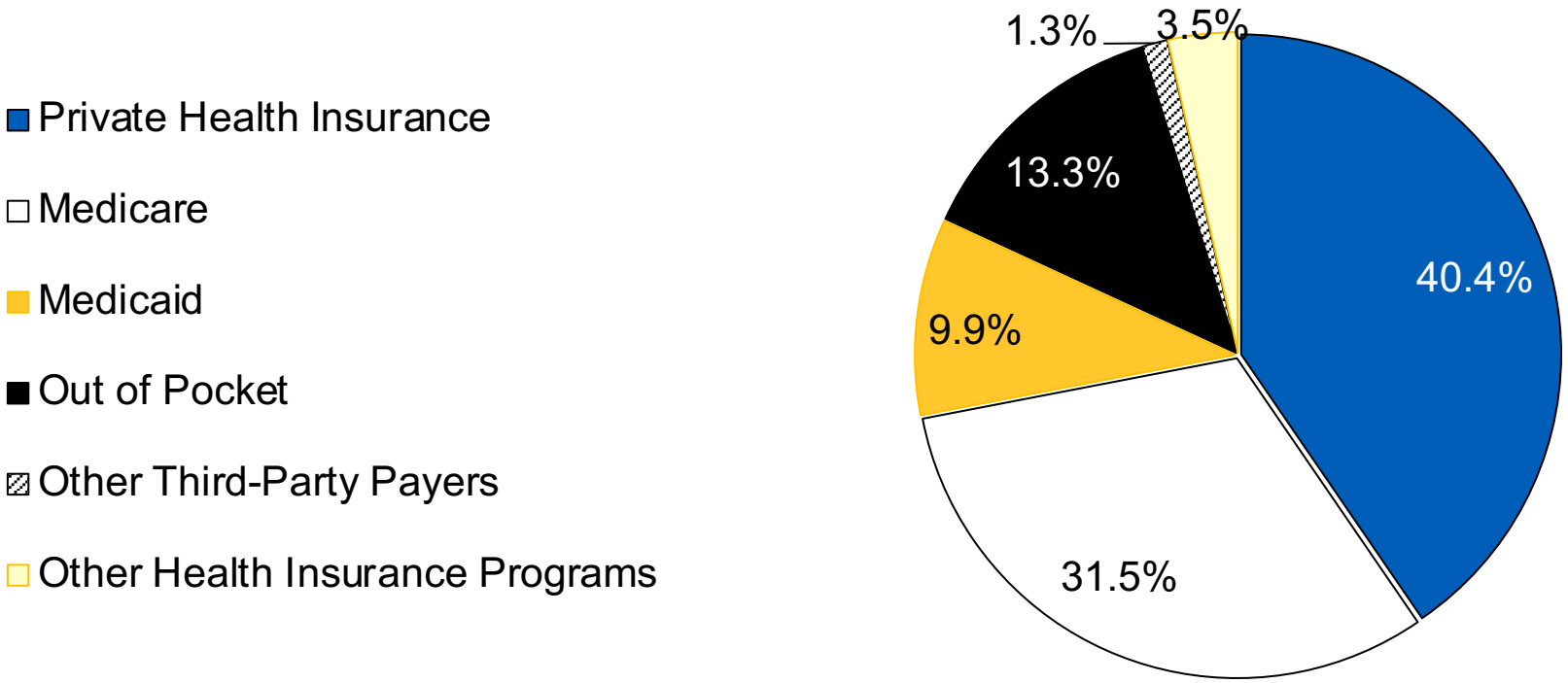
Key: CCRCs = continuing care retirement communities.
Source: Centers for Medicare & Medicaid Services, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html.
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.

Figure 27. Personal healthcare expenditures, by source of funds, 2020



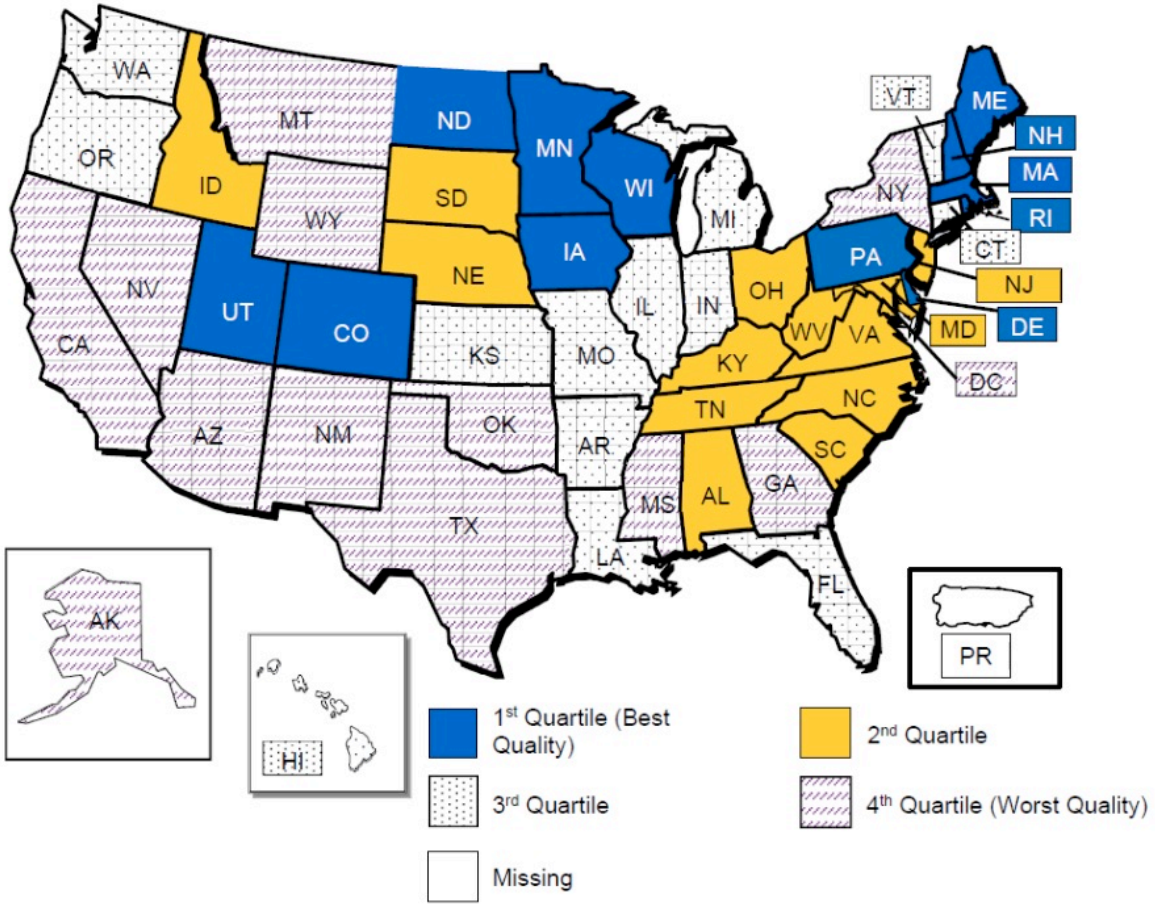
Source: Centers for Medicare & Medicaid Services, National Health Expenditures by Type of Service and Source of Funds, CY 1960-2020; and NHE Tables 6, 7, 8, 12, 14, and 15.
Note: Data are available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html. 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.

Figure 28. Prescription drug expenditures, by source of funds, 2020



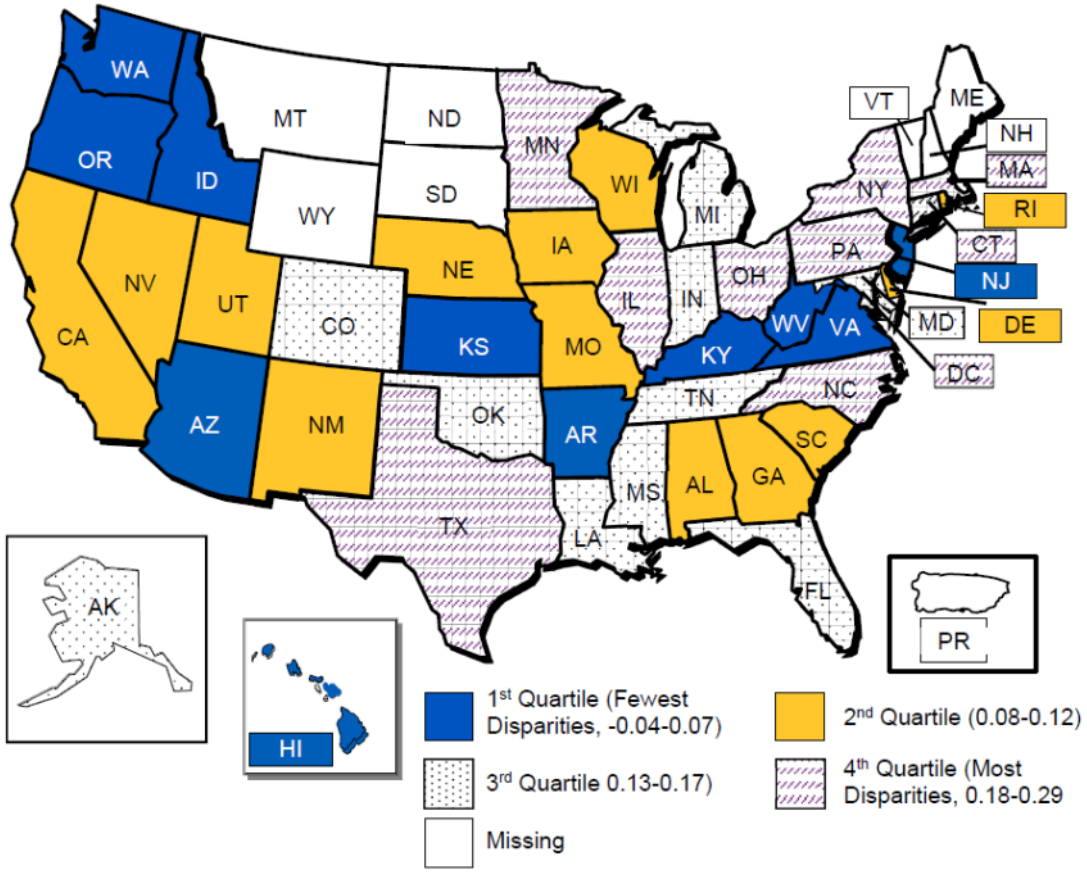
Source: Centers for Medicare & Medicaid Services, NHE Table 16, Retail Prescription Drugs Expenditures; Levels, Percent Change, and Percent Distribution, by Source of Funds: Selected Calendar Years 1970-2020.
Note: Data are available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.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.

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



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.

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.

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Maternal Health

- The United States has the highest maternal mortality rate of industrialized countries:
  - 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.

Importance

- Prevalence
  - In 2020, 3,613,647 births occurred in the United States[1] and the total fertility rate was 1.6.[2]
- 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]

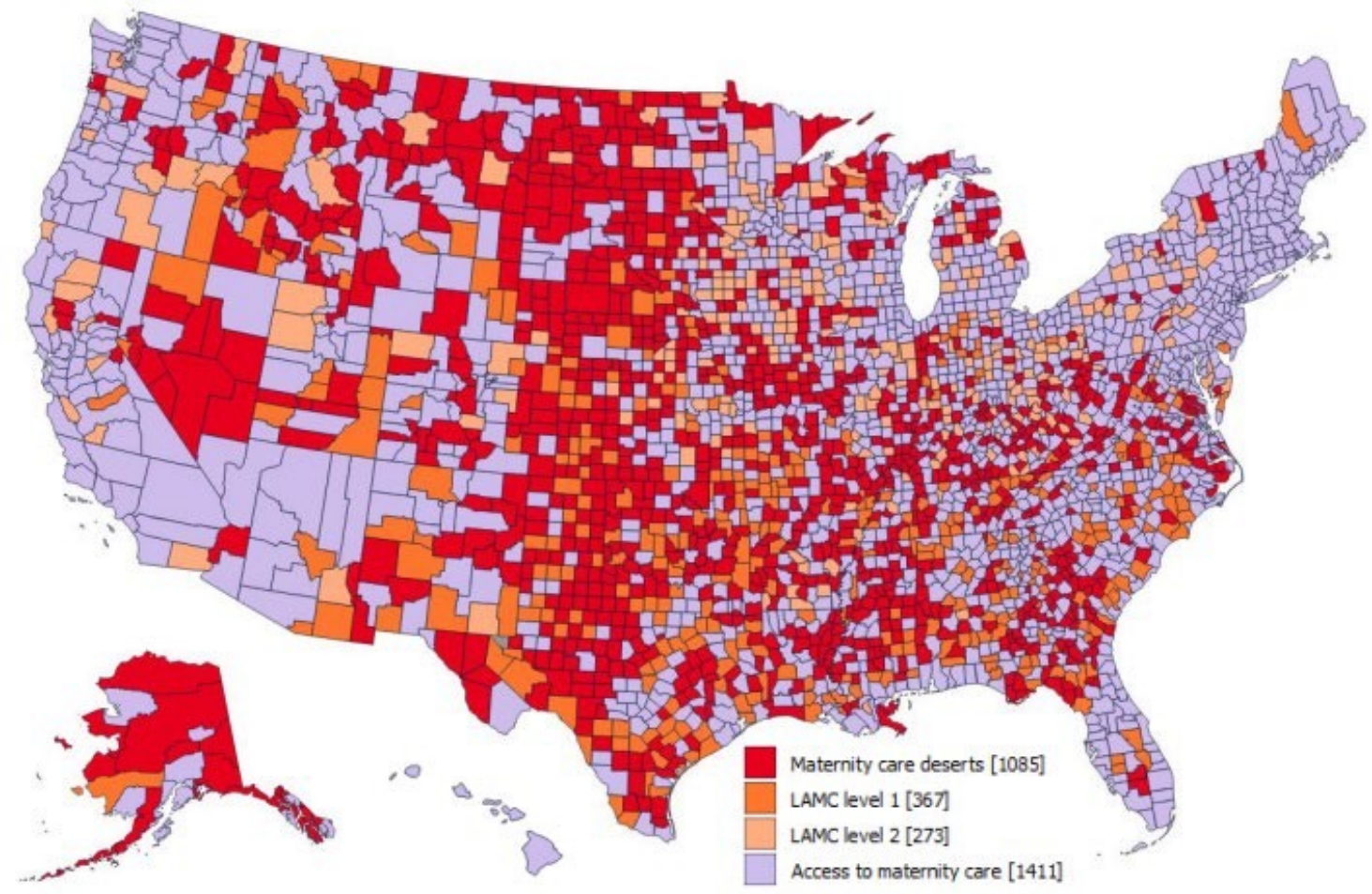
Disparities in Morbidity and Mortality

- 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]
- Black 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]
- 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]

Cost and Barriers to Care

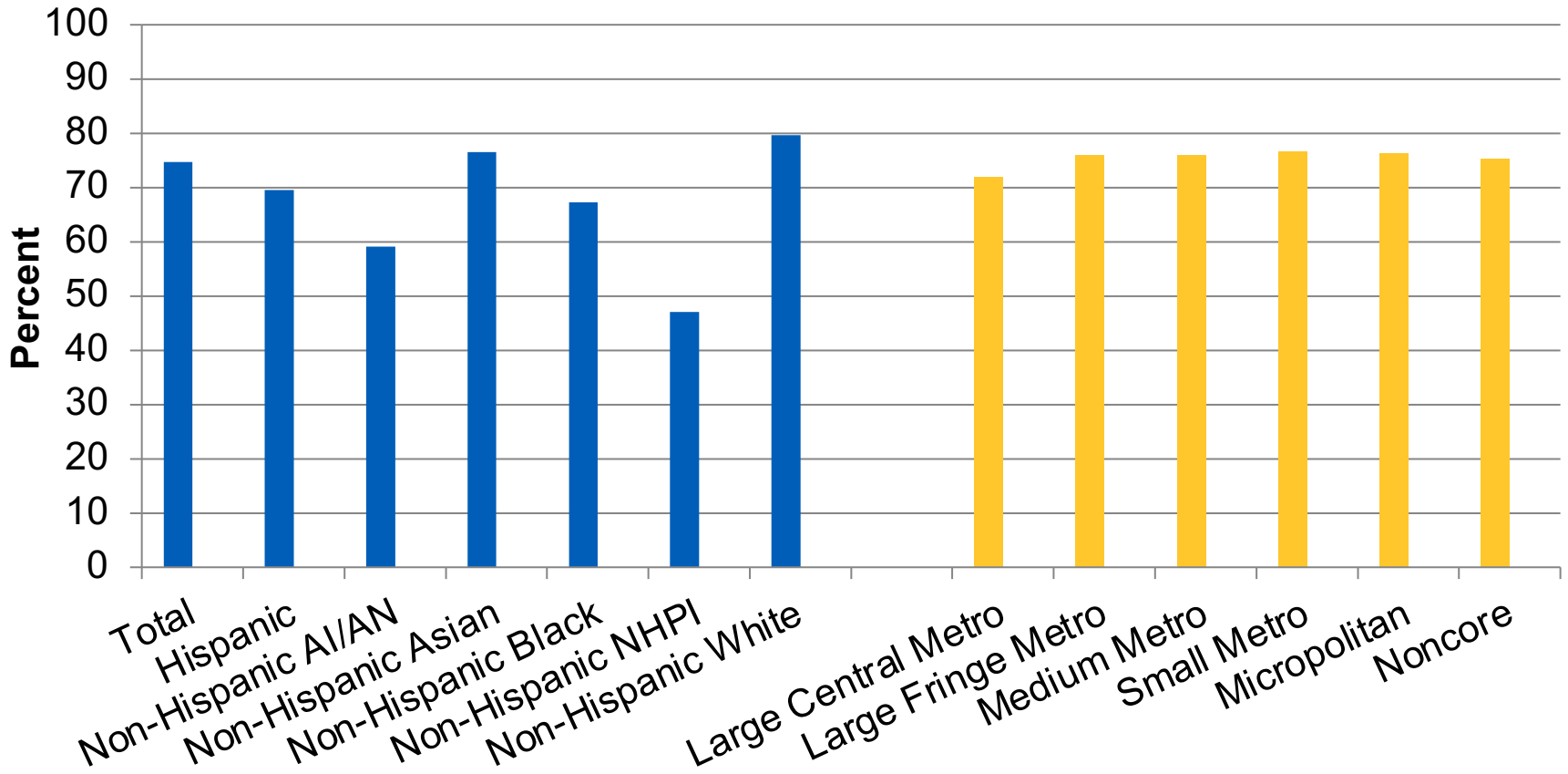
- **Cost**
  - It was estimated that total maternal morbidity costs in the United States from conception through the child's fifth birthday were $32.3 billion in 2019, nearly $9,000 for each parent-child pair.[46]
- **Barriers to Care**
  - Many cases of maternal mortality and morbidity are preventable.[47]
    - 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.

Figure 1. Access to maternity care in U.S. counties, 2016



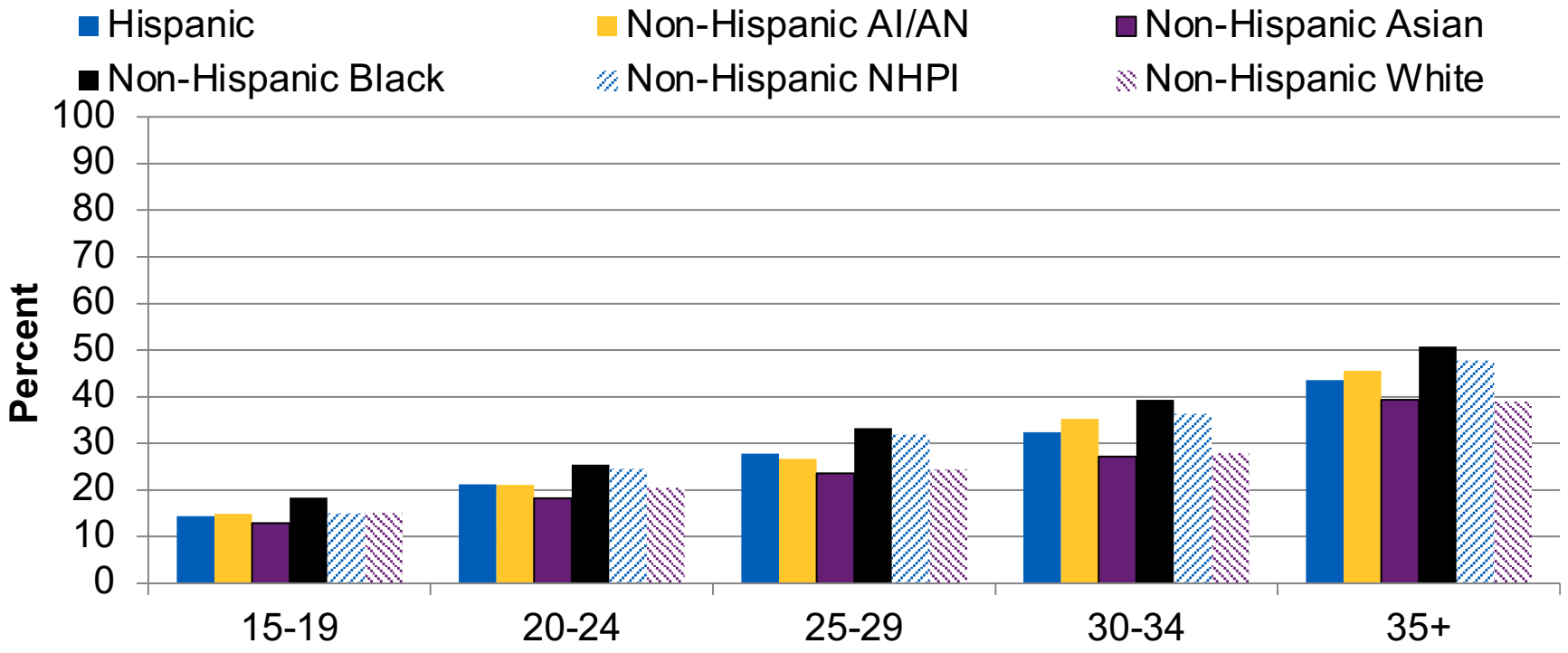
Source: U.S. Health Resources and Services Administration, Area Health Resources Files, 2019.

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



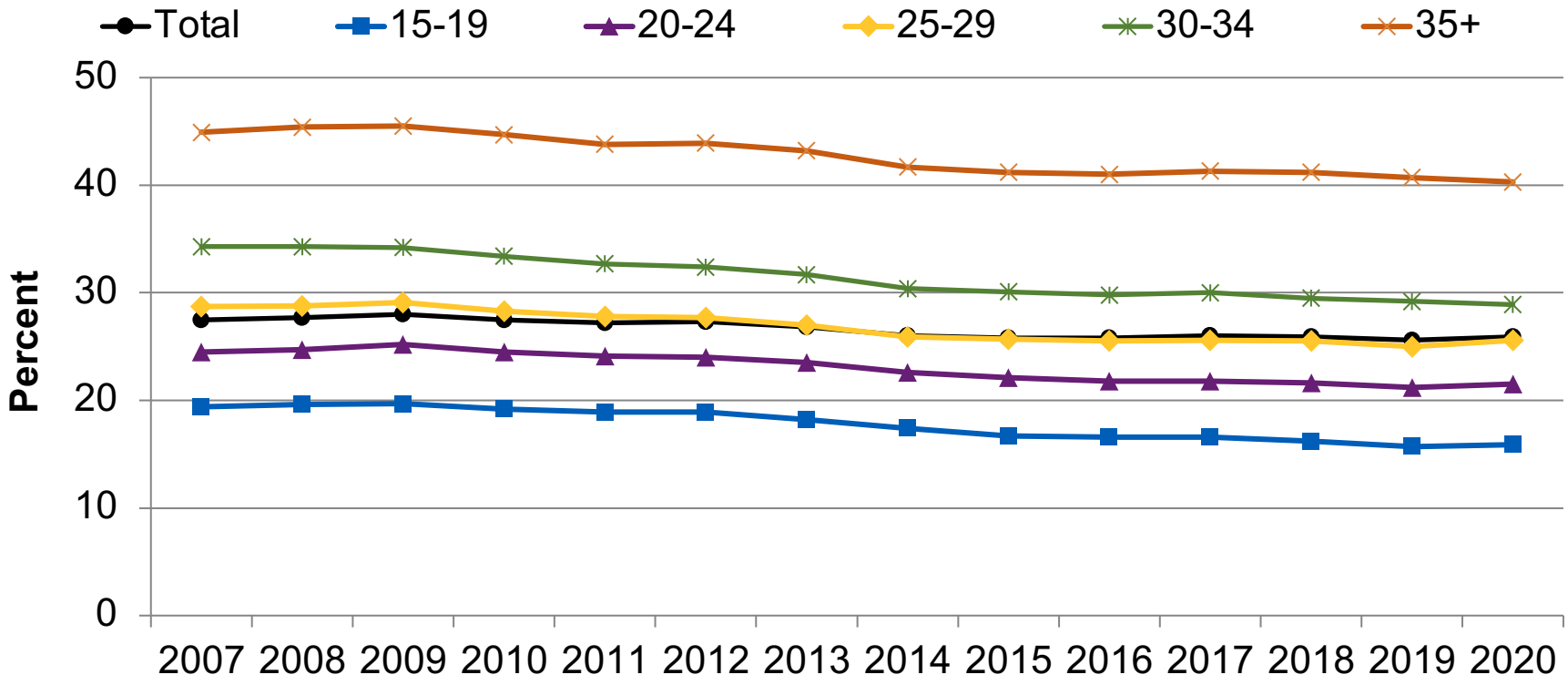
Key: AI/AN = American Indian or Alaska Native; NHPI = Native Hawaiian/Pacific Islander.
Source: Centers for Disease Control and Prevention, National Vital Statistics System - Natality, 2020.

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)



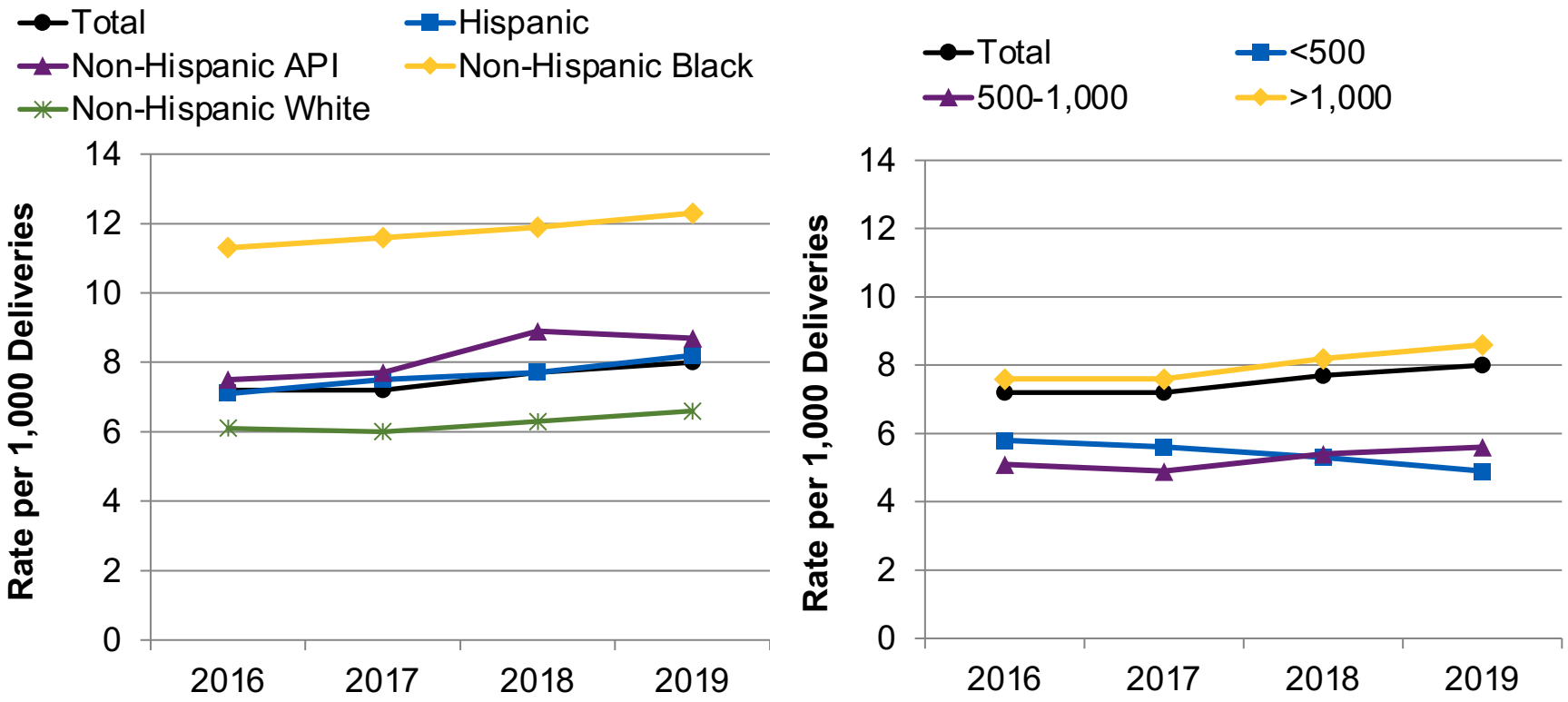
Key: AI/AN = American Indian or Alaska Native, NHPI = Native Hawaiian/Pacific Islander.
Source: Centers for Disease Control and Prevention, National Vital Statistics System - Natality, 2020.
Note: Low-risk cesarean rate is defined as the number of singleton, term (37 or more weeks of gestation based 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.

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.

Figure 5. Severe maternal morbidity per 1,000 deliveries, by race/ethnicity (left) and hospital delivery volume (right), 2016-2019 (lower rates are better)

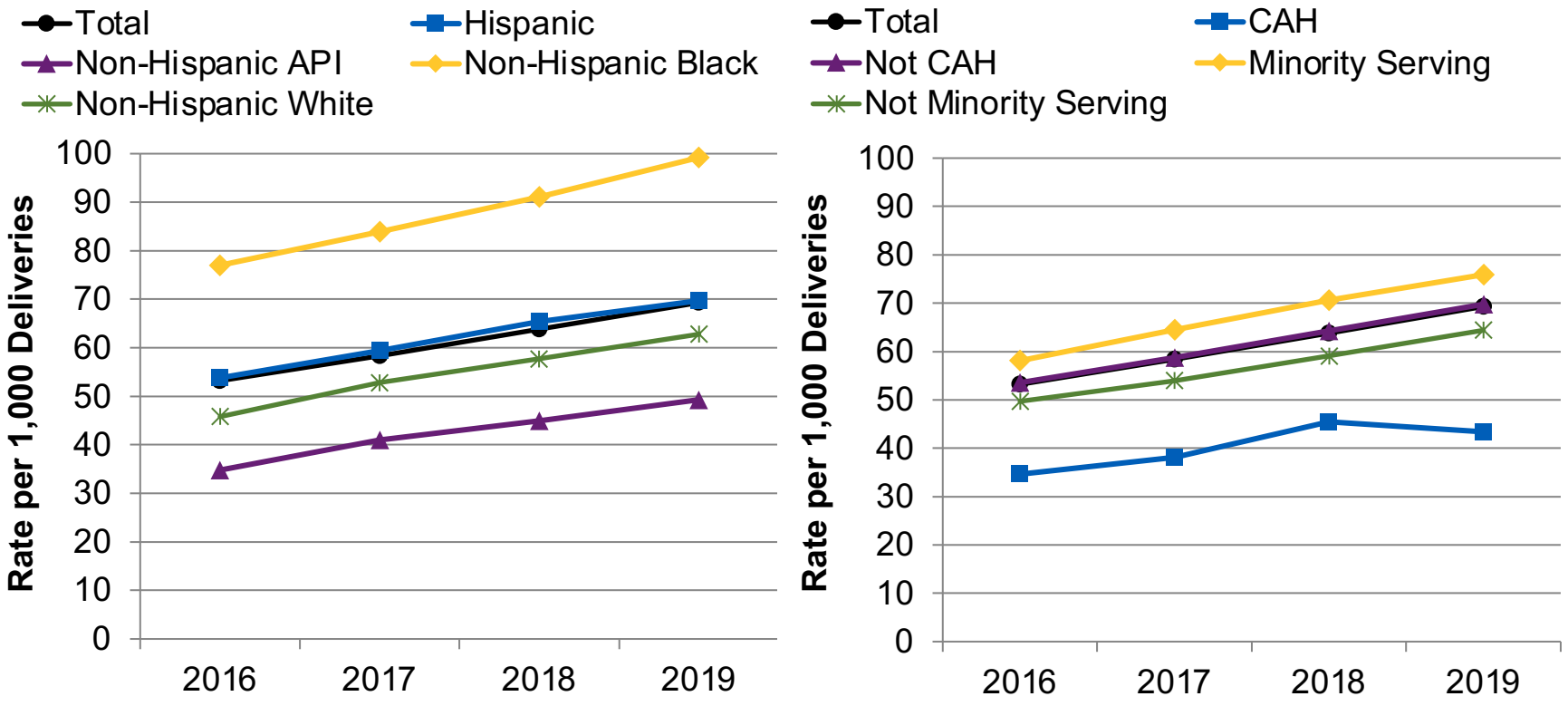


Key: API = Asian or Pacific Islander.

Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases weighted to provide national estimates, 2016-2019.

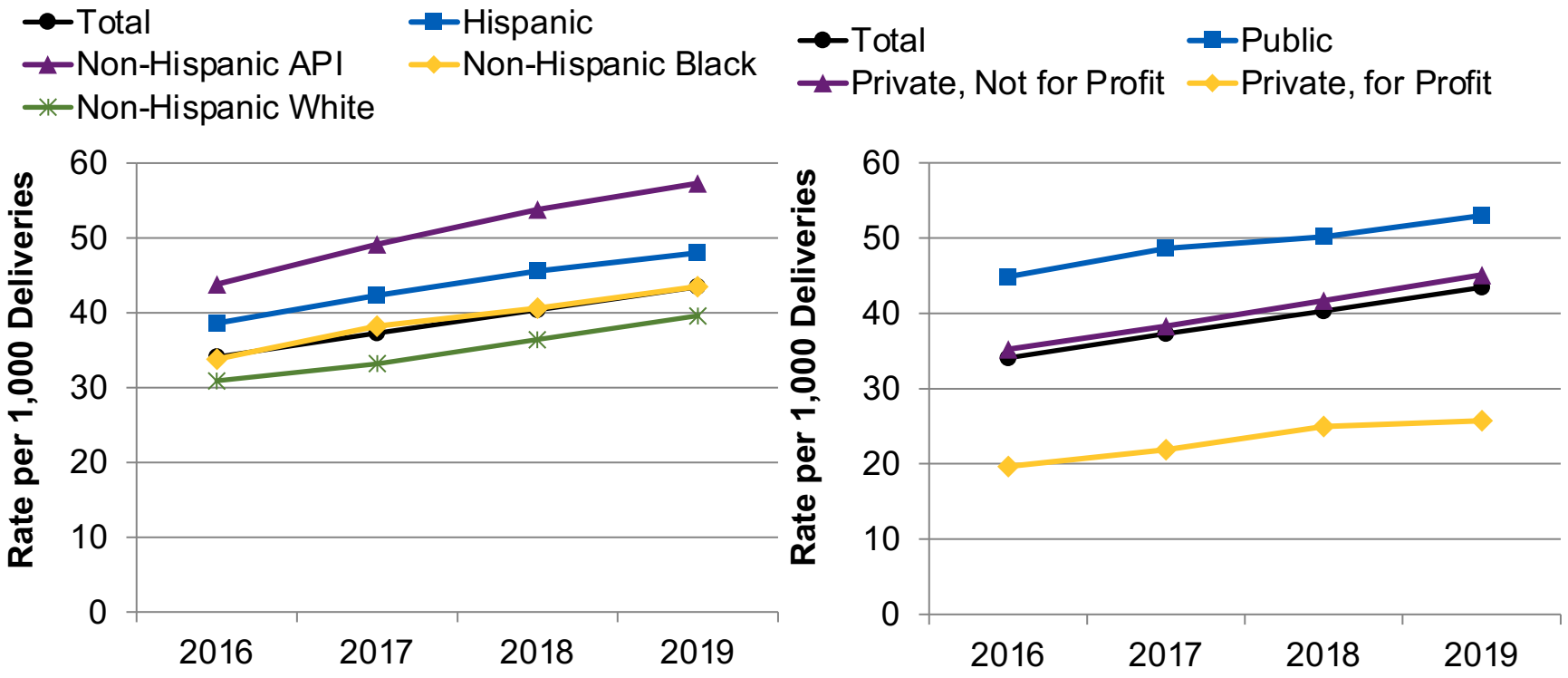
Note: Severe maternal morbidity is an overall measure of unexpected health outcomes for multiple conditions as defined by the Centers for Disease Control and Prevention: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html. This figure uses data from HCUP Fast Stats for hospital delivery volume: http://datatools.ahrq.gov//hcup-fast-stats?type=subtab&tab=hcupfsse&count=3.

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.

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

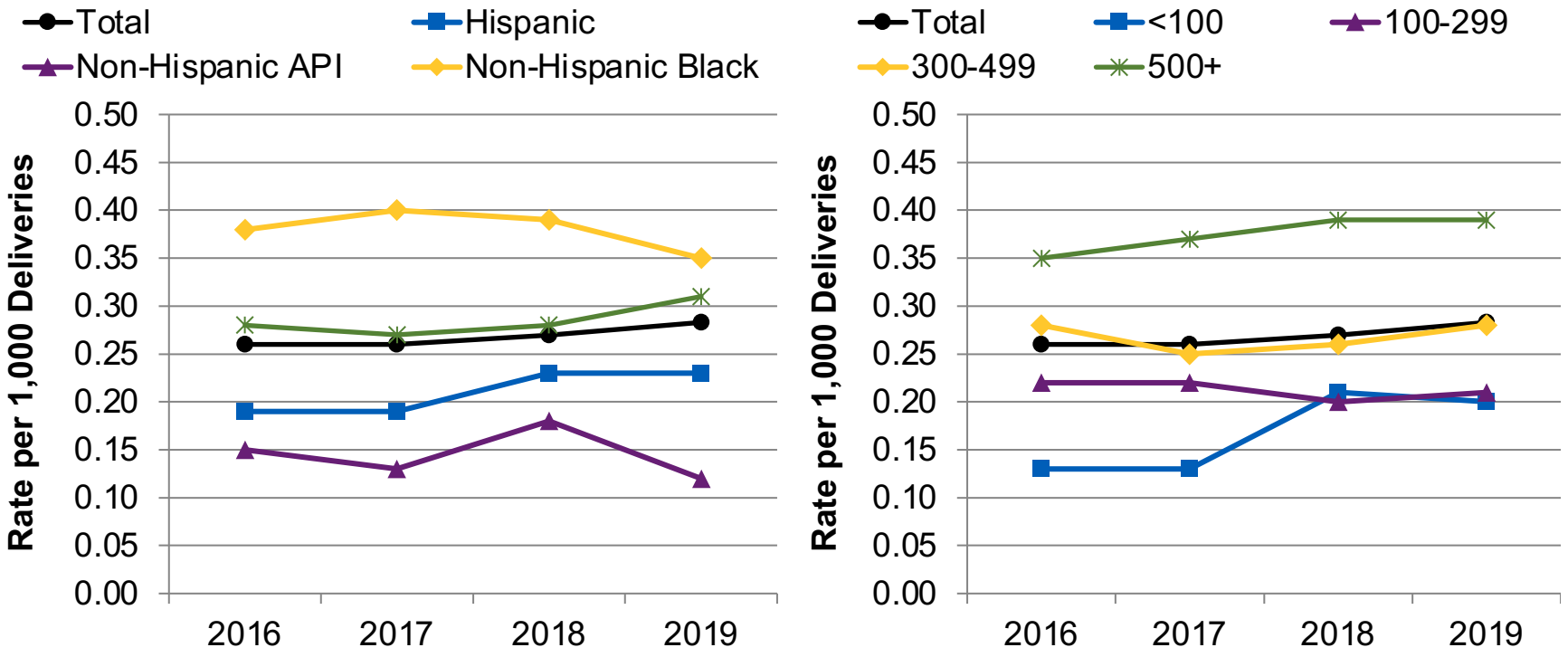


Key: API = Asian or Pacific Islander.

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.

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.

Conclusion

- For most maternal health measures included in the NHQDR, disparities are significant for comparisons by race/ethnicity, age, and hospital characteristics.
- Hispanic, AI/AN, Black, and Native Hawaiian/Pacific Islander individuals are less likely than White and non-Hispanic White individuals to receive prenatal care.
- 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.
- 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.
- Differences were also seen by hospital characteristics. For example, hospitals with fewer beds had fewer complications.
- Despite efforts to improve the quality of maternal care, most morbidities increased across nearly all population groups in the years assessed for this report.

Resources

- 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.
- HHS is also working to address factors contributing to women living in rural areas experiencing higher pregnancy-related mortality than women in nonrural areasa, such as social determinants of health.
- The White House Blueprint for Addressing the Maternal Health Crisis addresses maternal health-related priorities, including ensuring access to high-quality maternal health services.
  - The administration intends to address the priorities through several strategies, such as investments in rural maternal care and a maternal mental health hotline.
- In September 2021, HHS announced $350 million in awards to support maternal health.
  - In addition, HHS's Office on Women's Health is funding the Maternal Morbidity and Mortality Data and Analysis Initiative.

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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 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]

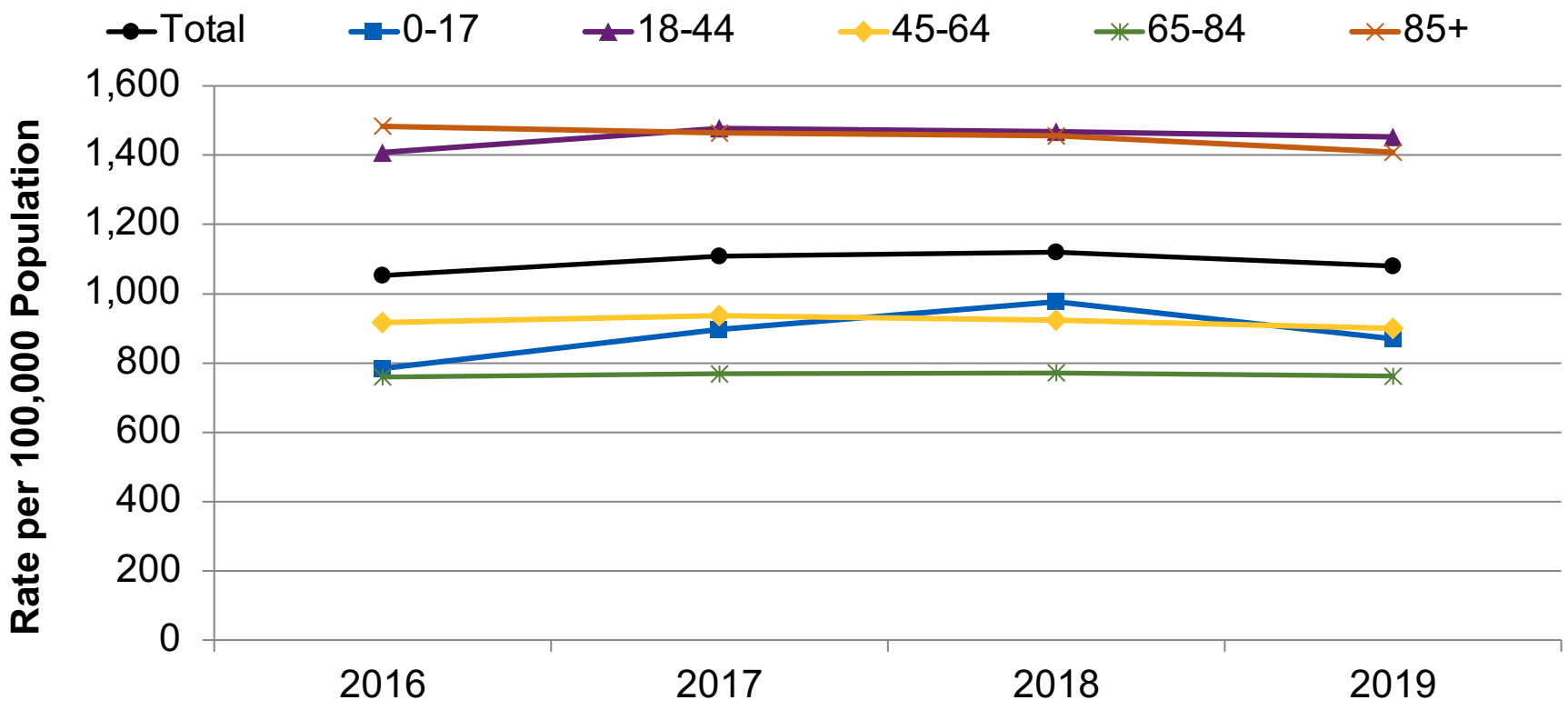
Morbidity and Mortality

- 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 and Barriers to Care

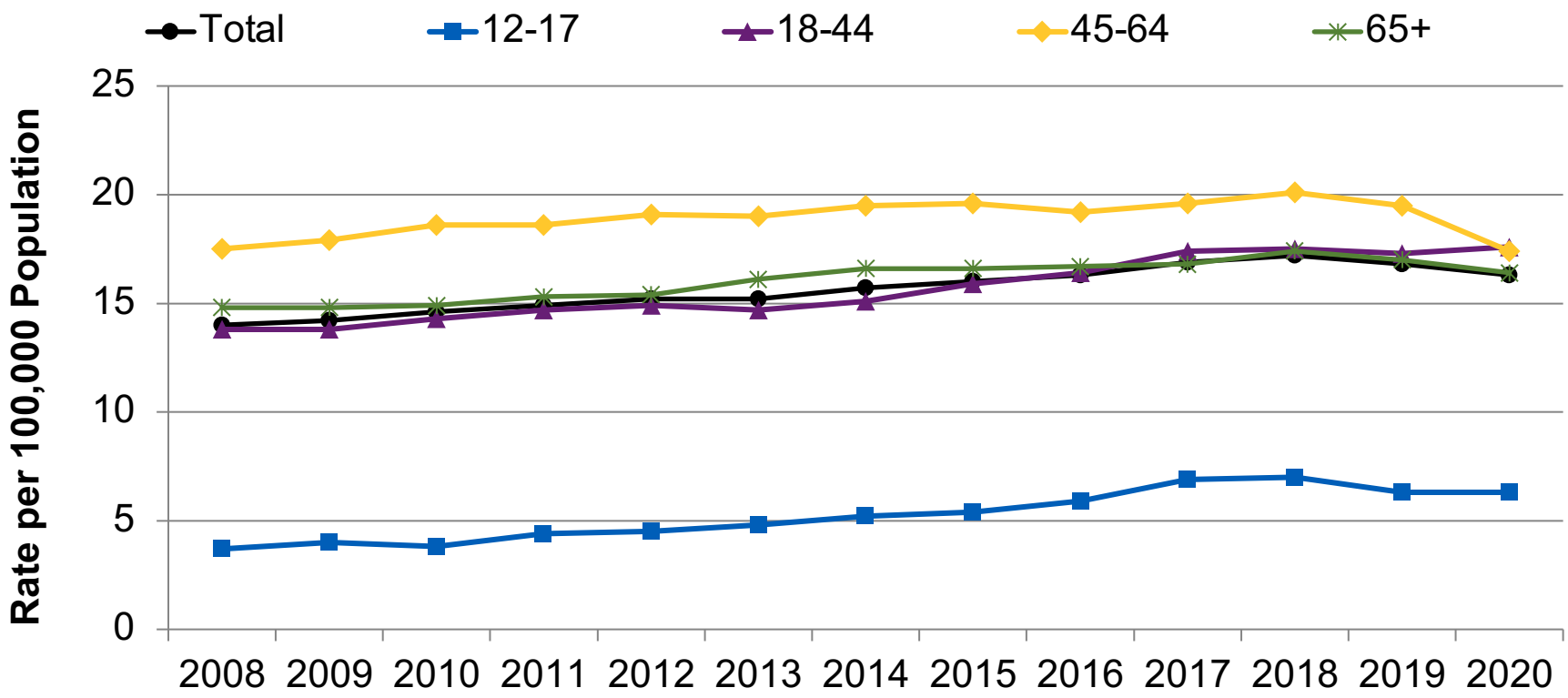
- Childhood mental health disorders impose a significant economic burden on children, families, and society. For example, the mean total cost per episode for publicly funded outpatient services for youth mental health issues was $2,673, and the average number of service encounters per episode was 14.34. 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]
- 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]

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.

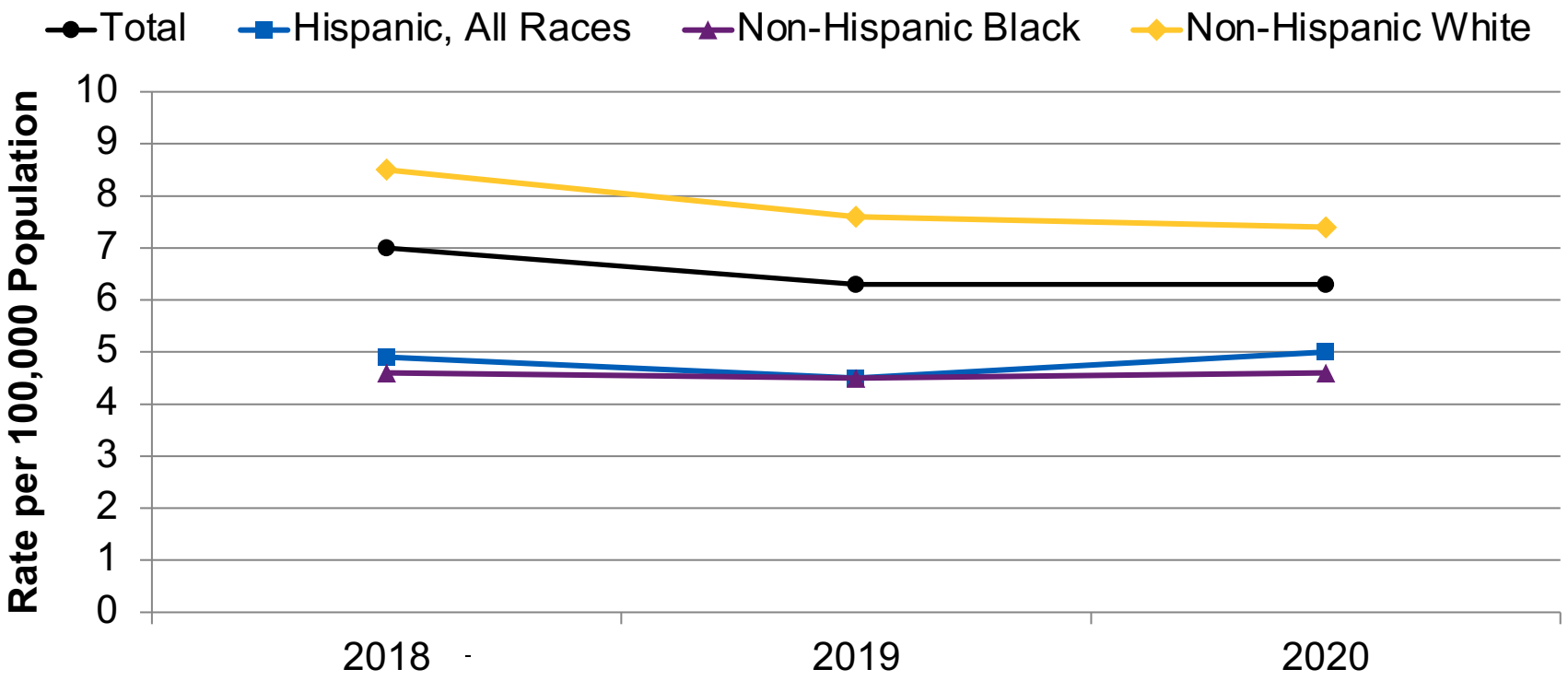
Figure 2. Suicide deaths among people age 12 and over per 100,000 population, by age, 2008-2020



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.

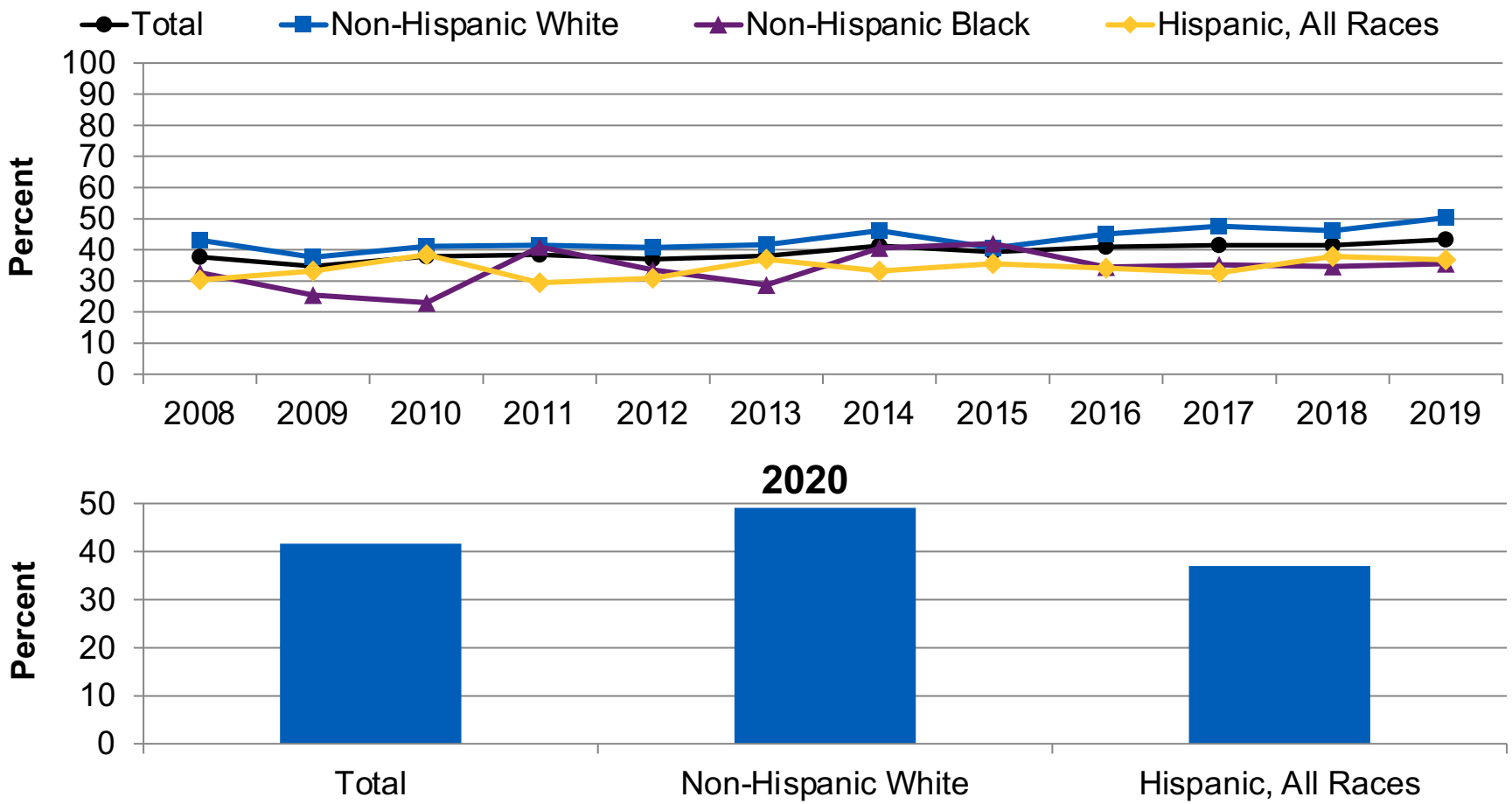
Figure 3. Suicide deaths among youths ages 12-17 per 100,000 population, by ethnicity, 2018-2020



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.

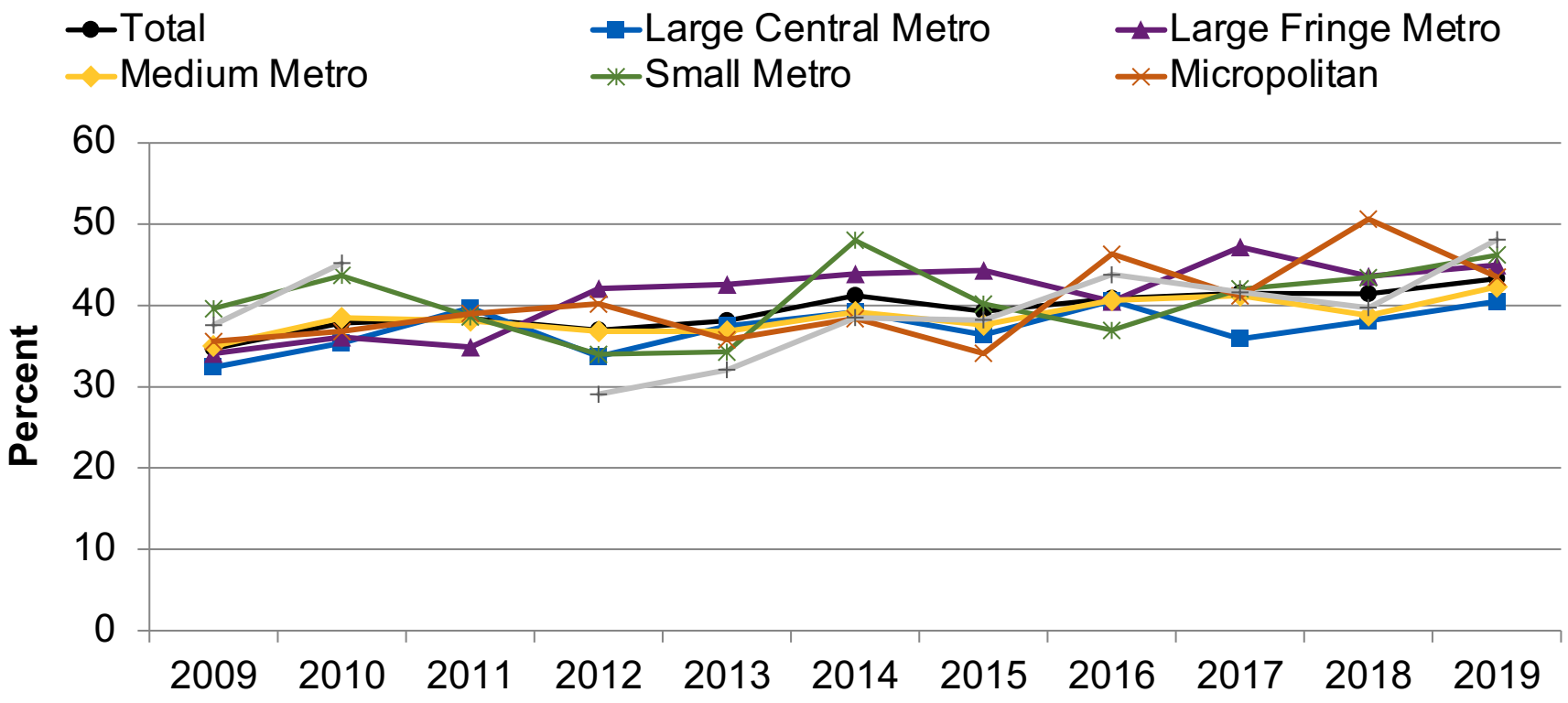
Figure 4. Children ages 12-17 with a major depressive episode in the last 12 months who received treatment, by ethnicity, 2008-2019 (top) and 2020 (bottom)



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.

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.

Conclusion

- 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 face 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 other providers.
- 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.

Resources

- Examples of available government resources:
  - 988, the universal suicide prevention and mental health crisis hotline number.
  - HRSA's Title V Maternal and Child Health Services Block Grant.
  - The Substance Abuse and Mental Health Services Administration's Community Mental Health Services Block Grant.
  - MentalHealth.gov's Parents and Caregivers page.
  - The National Institute of Mental Health Help for Mental Illnesses web page.

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Substance Use Disorders

- Substance use disorders (SUDs) are estimated to cost the United States more than $400 billion in lost productivity, healthcare expenses, criminal justice costs, and losses from motor vehicle crashes.
- Receipt of needed treatment for SUDs remained low while adverse outcomes such as emergency department visits 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.
  - Emergency department visits involving opioid-related diagnoses more than doubled overall and across all income groups.
- 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 SUDs.

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]

Cost and Barriers to Care

- 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]
- 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]

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)

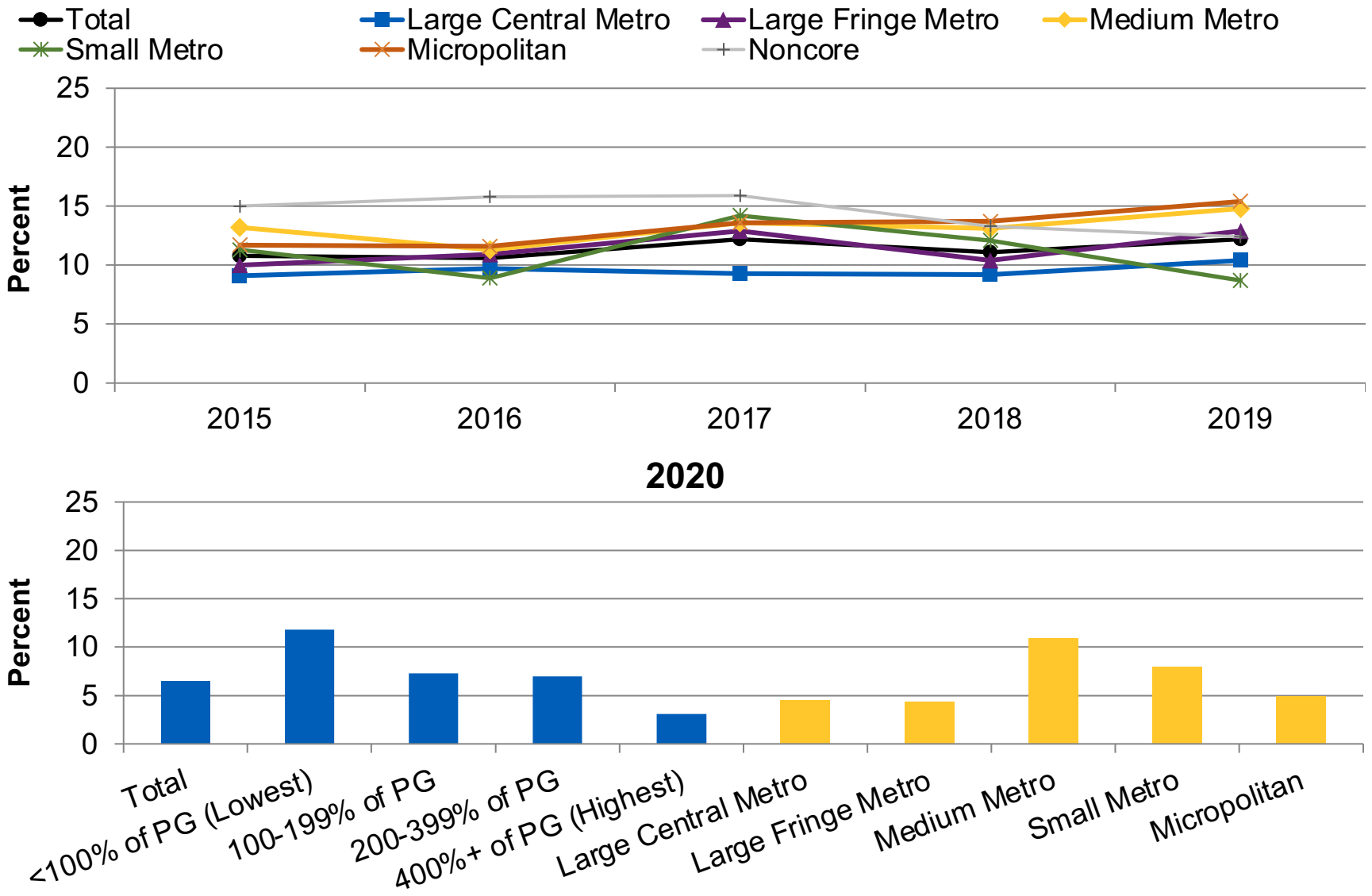


Figure 2. People age 12 and over who needed treatment for an alcohol problem and who received such treatment at a specialty facility in the last 12 months, by income, 2015-2019 (top) and by sex and income, 2020 (bottom)

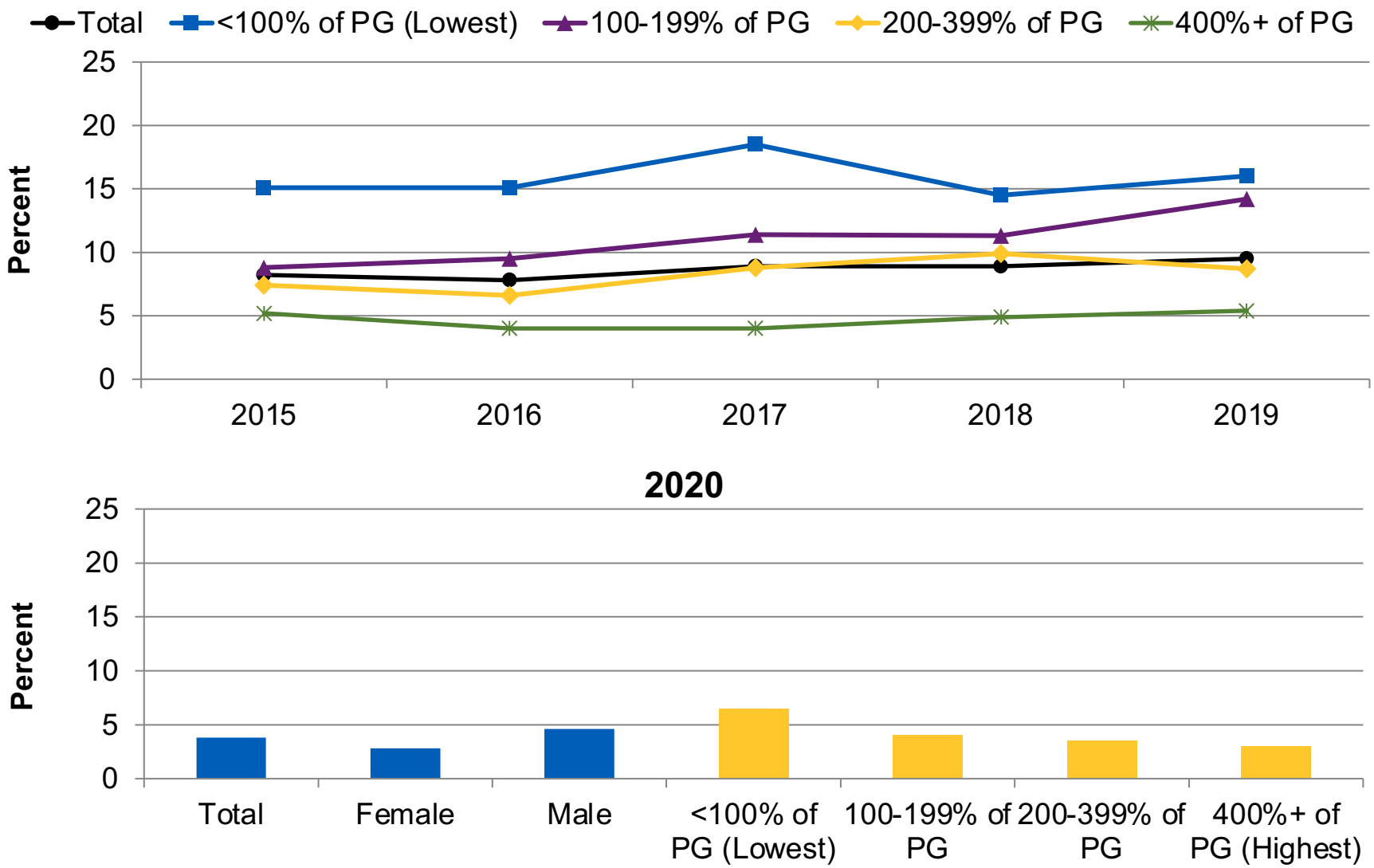
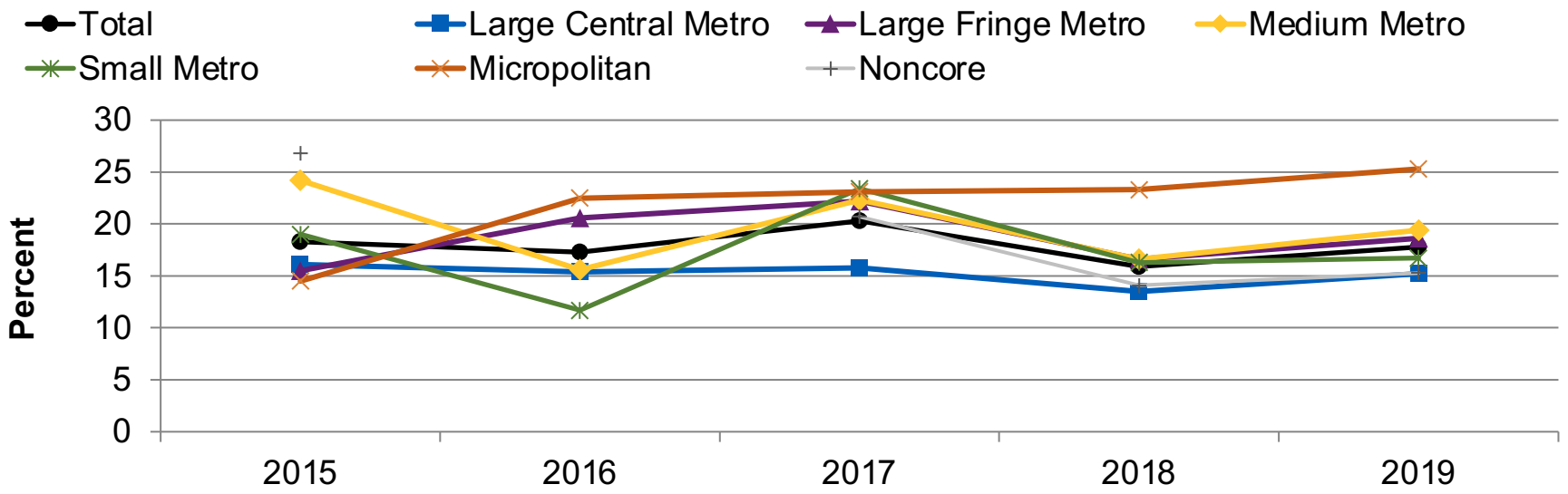


Figure 3. People age 12 and over who needed treatment for illicit drug use and who received such treatment at a specialty facility in the last 12 months, by geographic location, 2015-2019 (top) and by ethnicity and location, 2020 (bottom)

AHRQ Agency for Healthcare Research and Quality



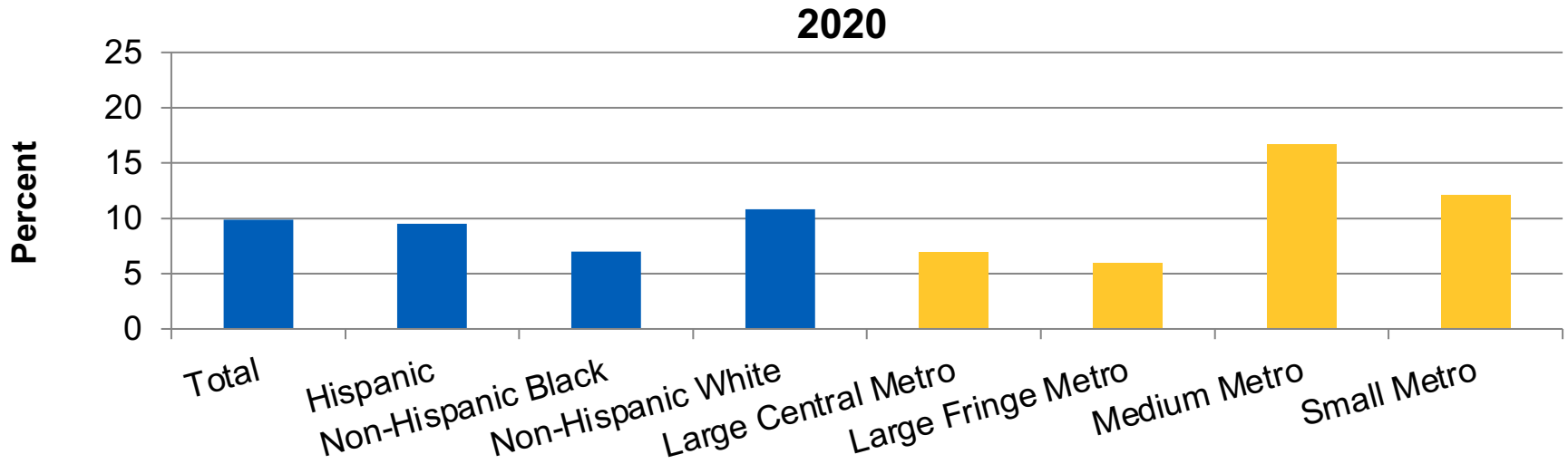
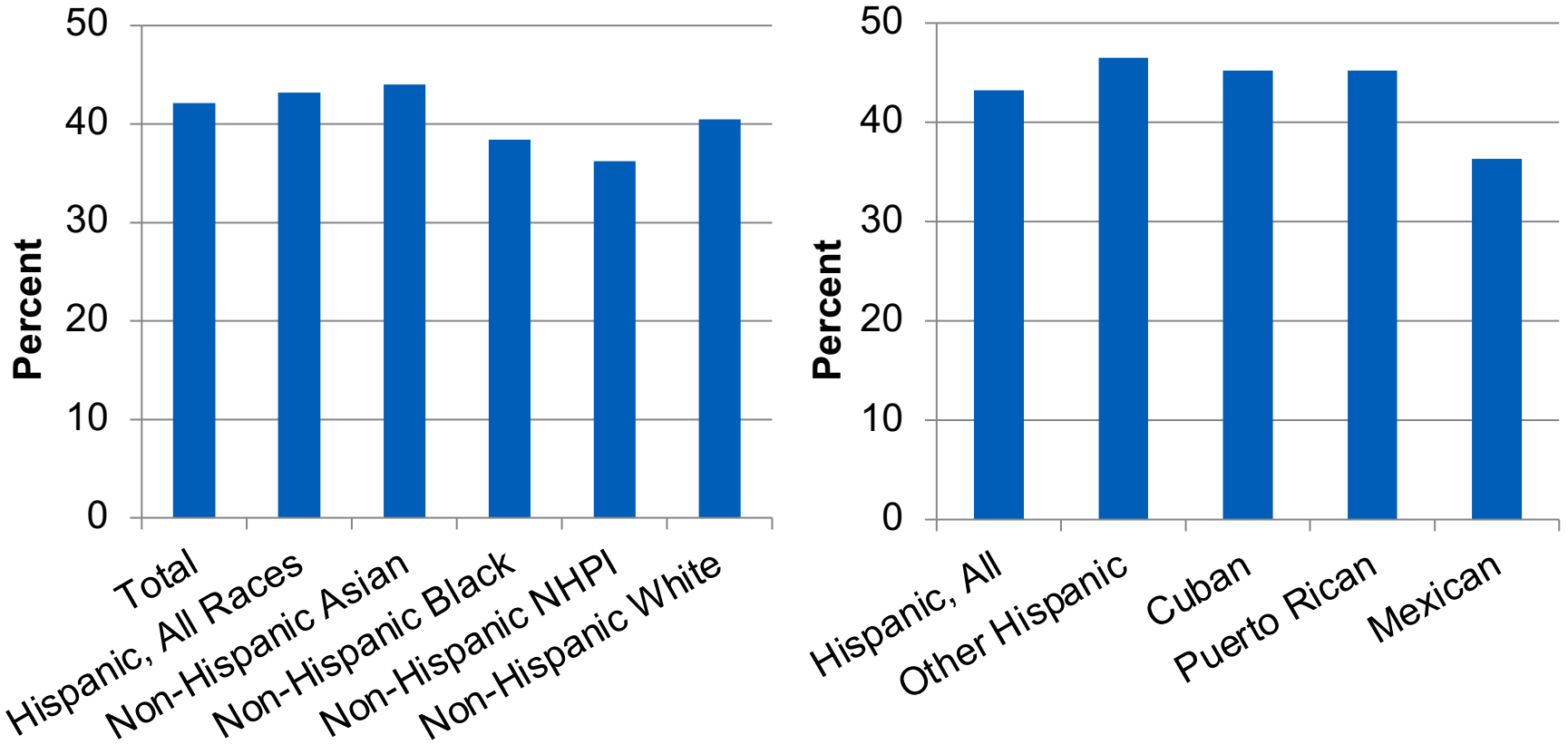
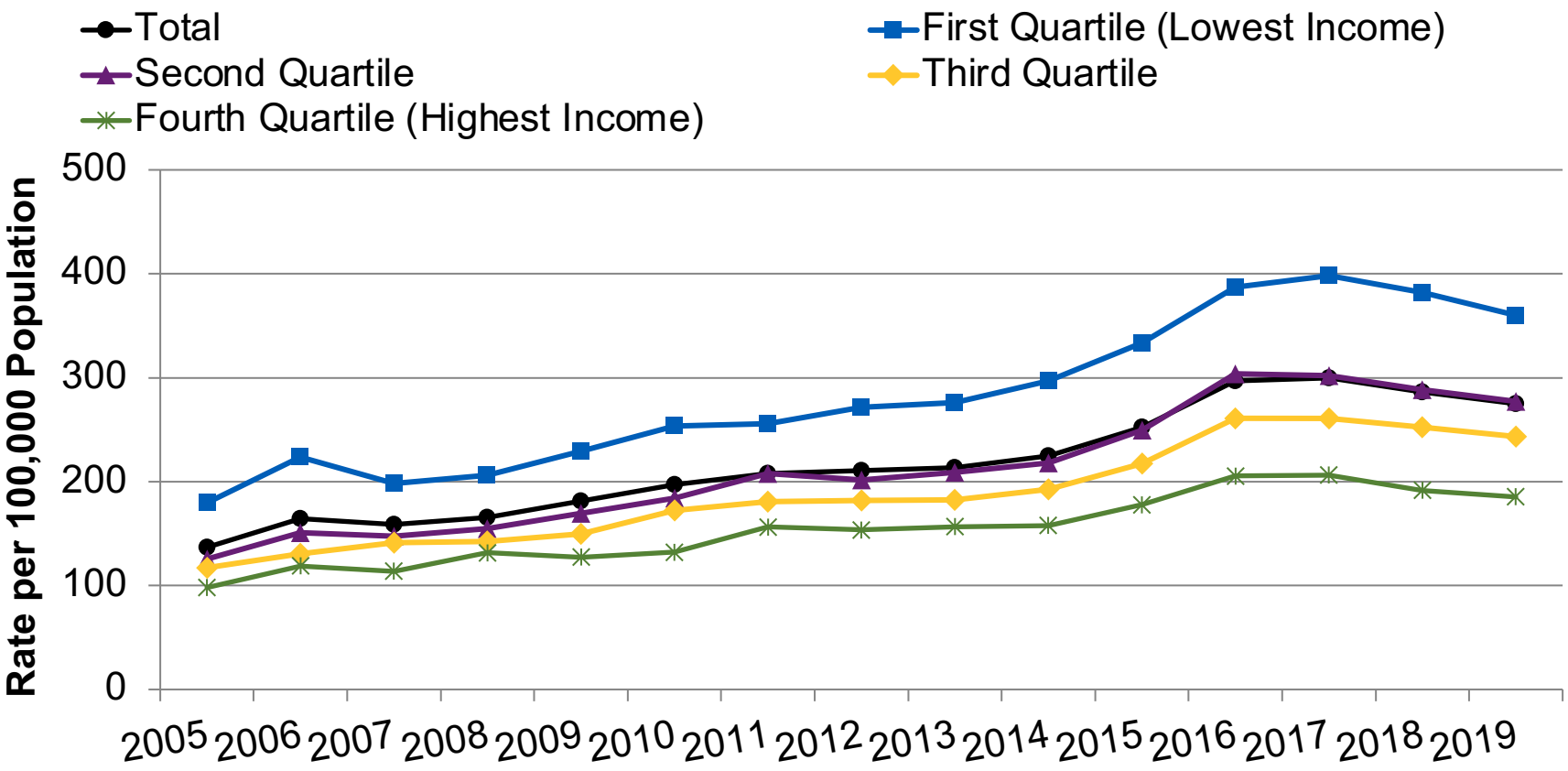


Figure 4. People age 12 and over treated for substance use disorder who completed treatment course, by race and ethnicity (left) and Hispanic subgroups (right), 2019



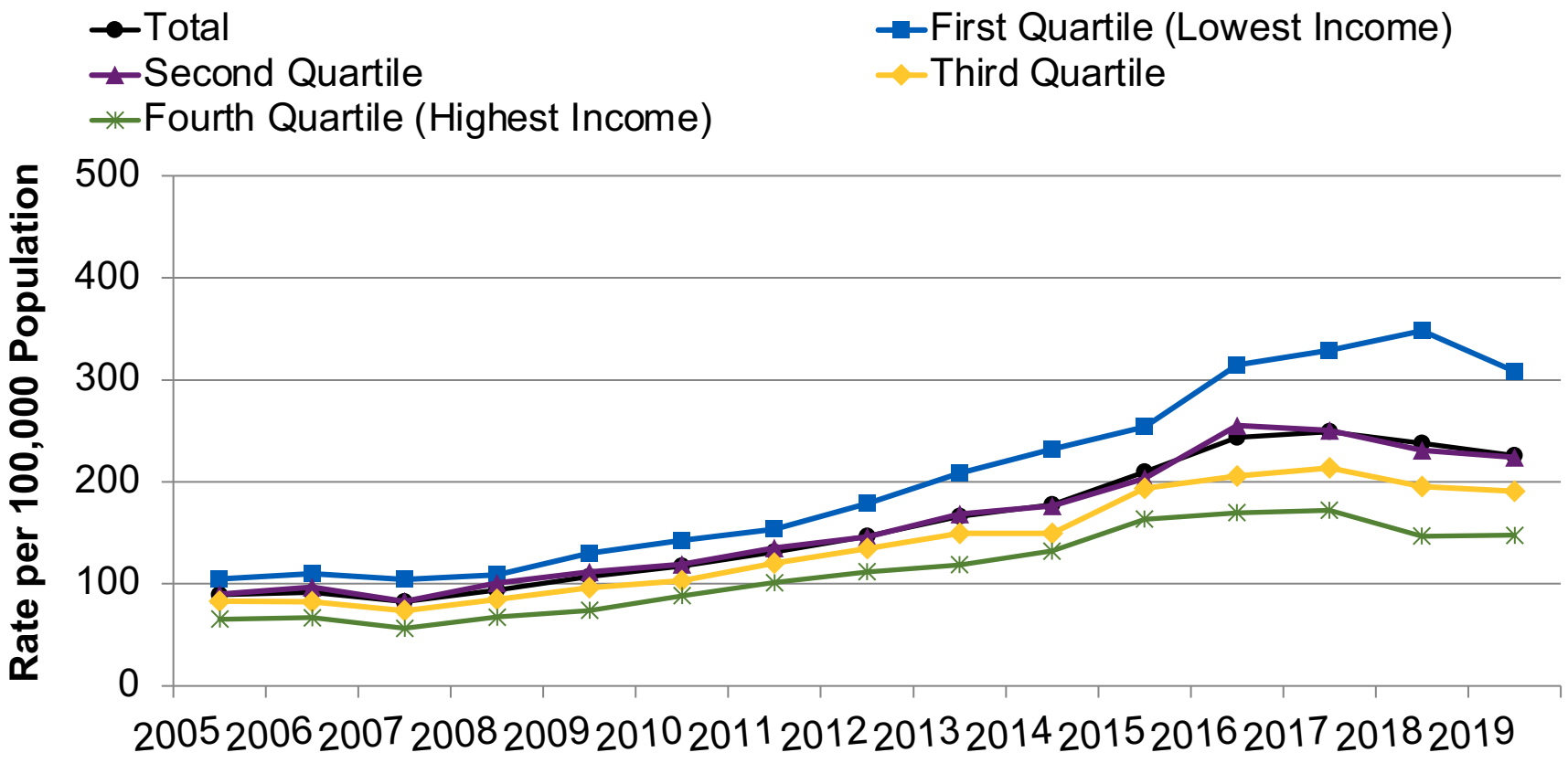
Key: NHPI = Native Hawaiian/Pacific Islander.
Source: Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set, 2019.

Figure 5. Hospital inpatient stays involving opioid-related diagnoses per 100,000 population, by income, 2005-2019



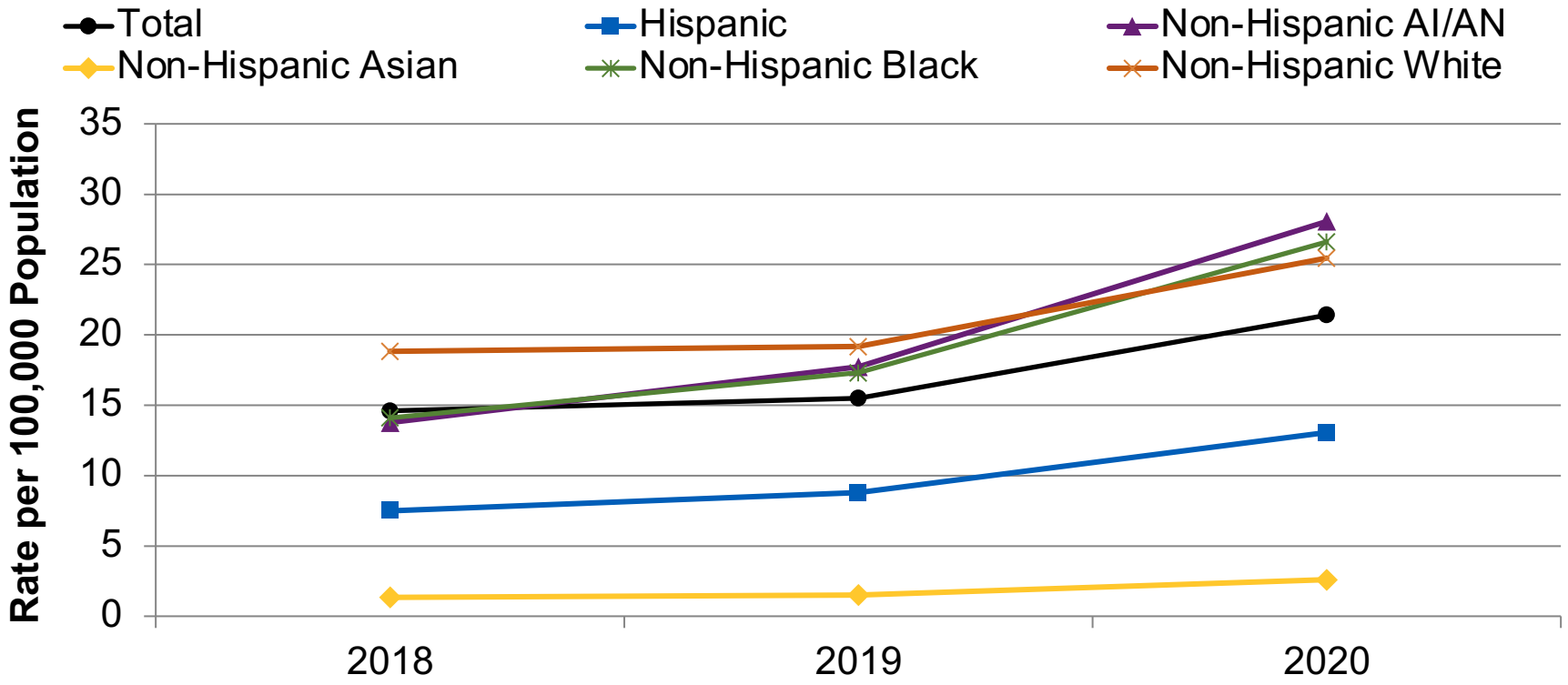
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases, 2005-2019.

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.

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

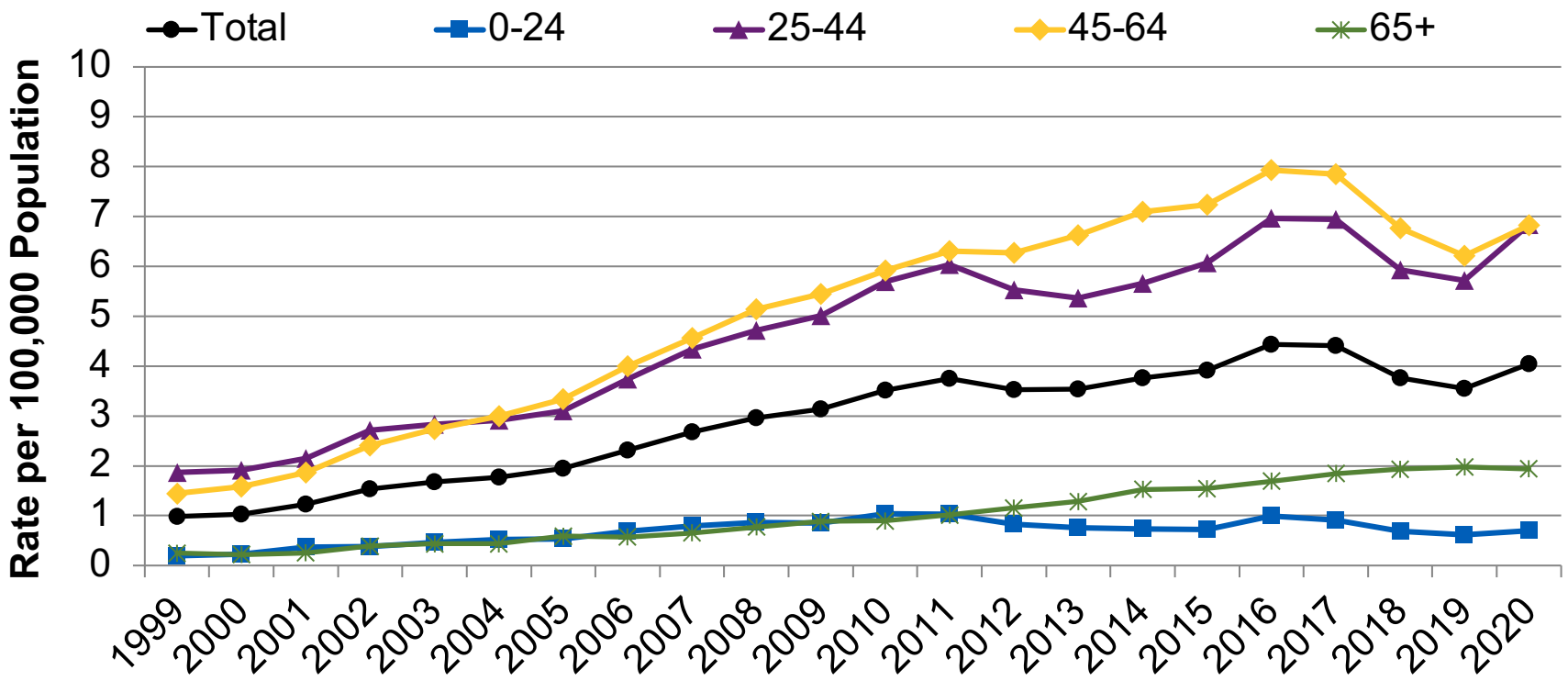


Key: AI/AN = American Indian or Alaska Native.

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.

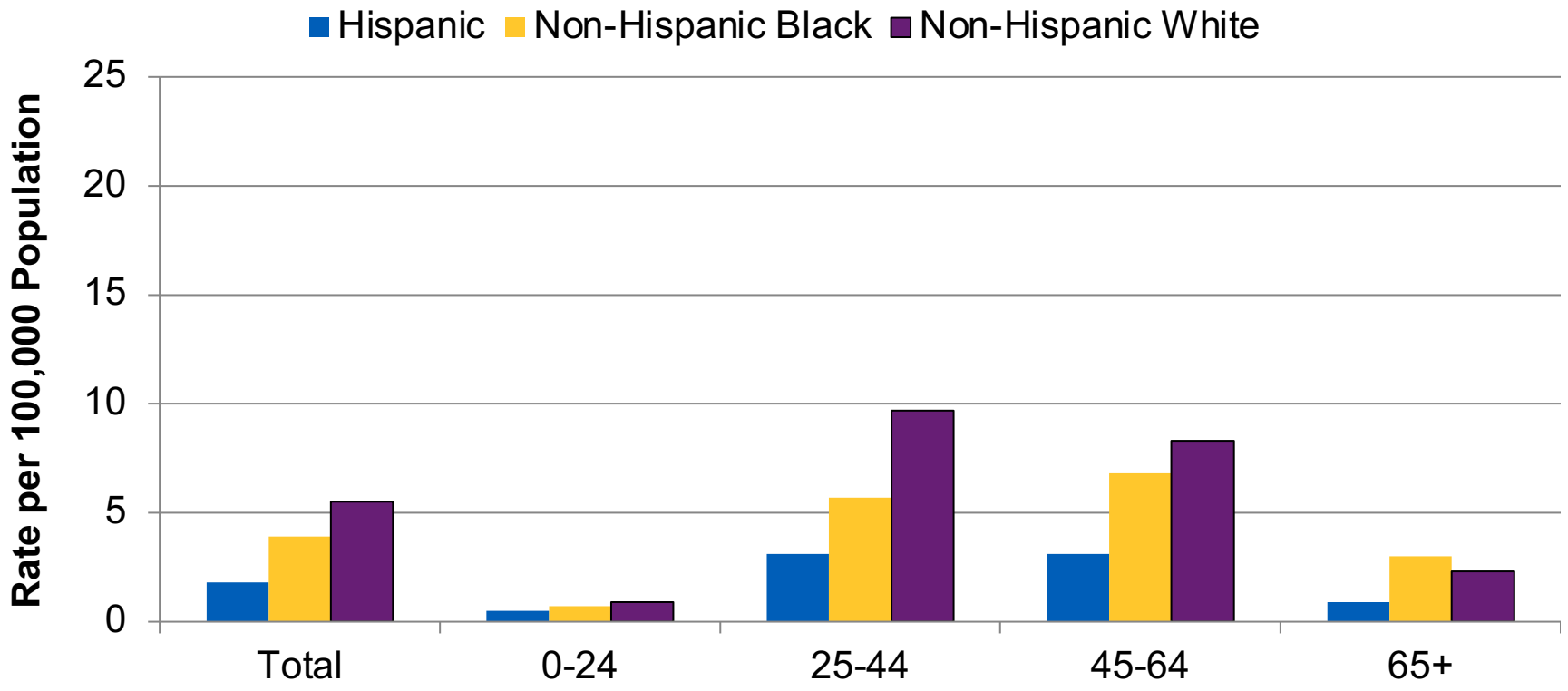
Note: Race and Hispanic origin misclassification on death certificates results in substantial underestimation of mortality for non Hispanic AI/ANs (refer to https://www.cdc.gov/nchs/data/nvsr/nvsr70/NVSR70-12.pdf). Drug overdose deaths are identified using underlying cause-of-death codes from the 10th 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.

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



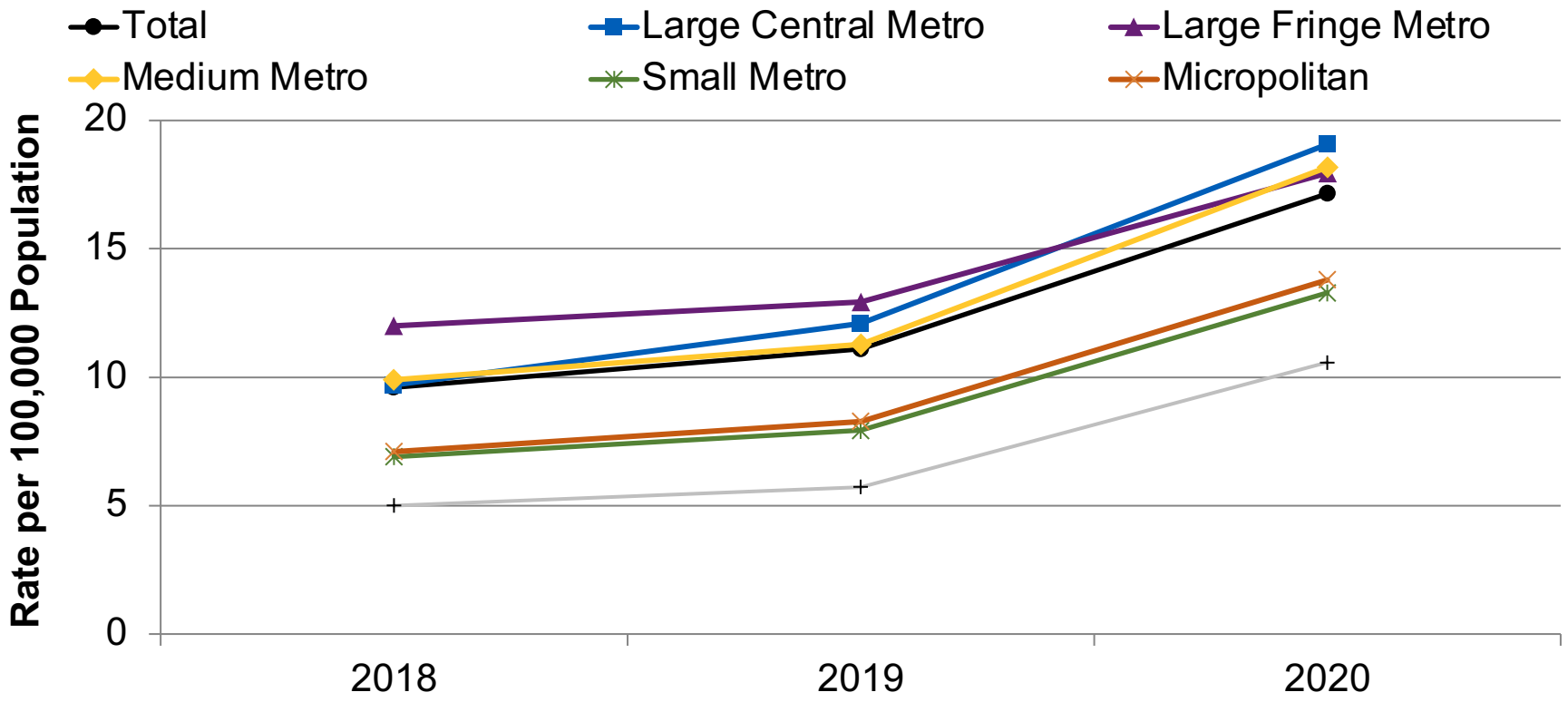
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 1999-2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
Note: Natural opioid includes morphine and codeine; semisynthetic opioid includes drugs such 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.

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



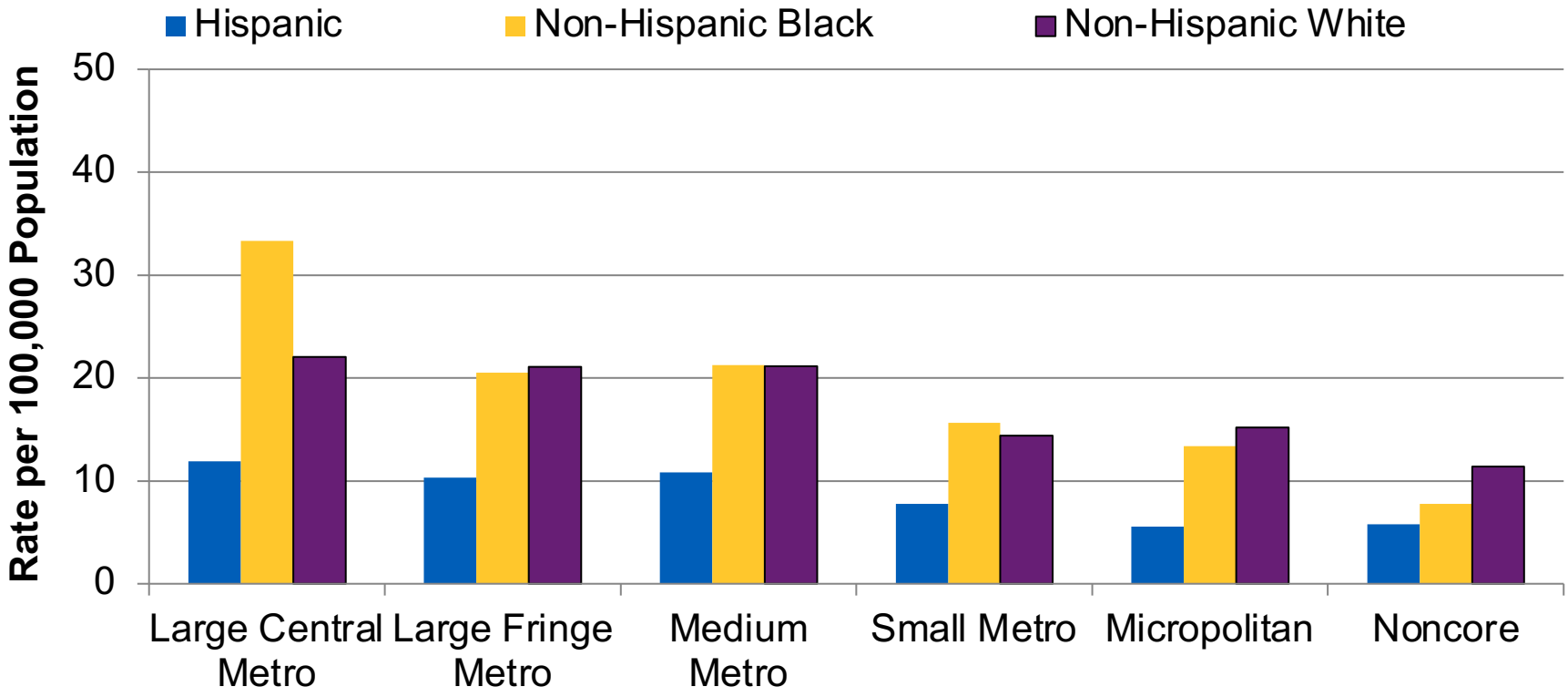
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System – Mortality, 2020. Data were downloaded from CDC WONDER, Multiple Cause of Death.
Note: Natural opioid includes morphine and codeine; semisynthetic opioid includes drugs such as 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.

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.

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.

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.

Resources (cont'd.)

- 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

- 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.

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]

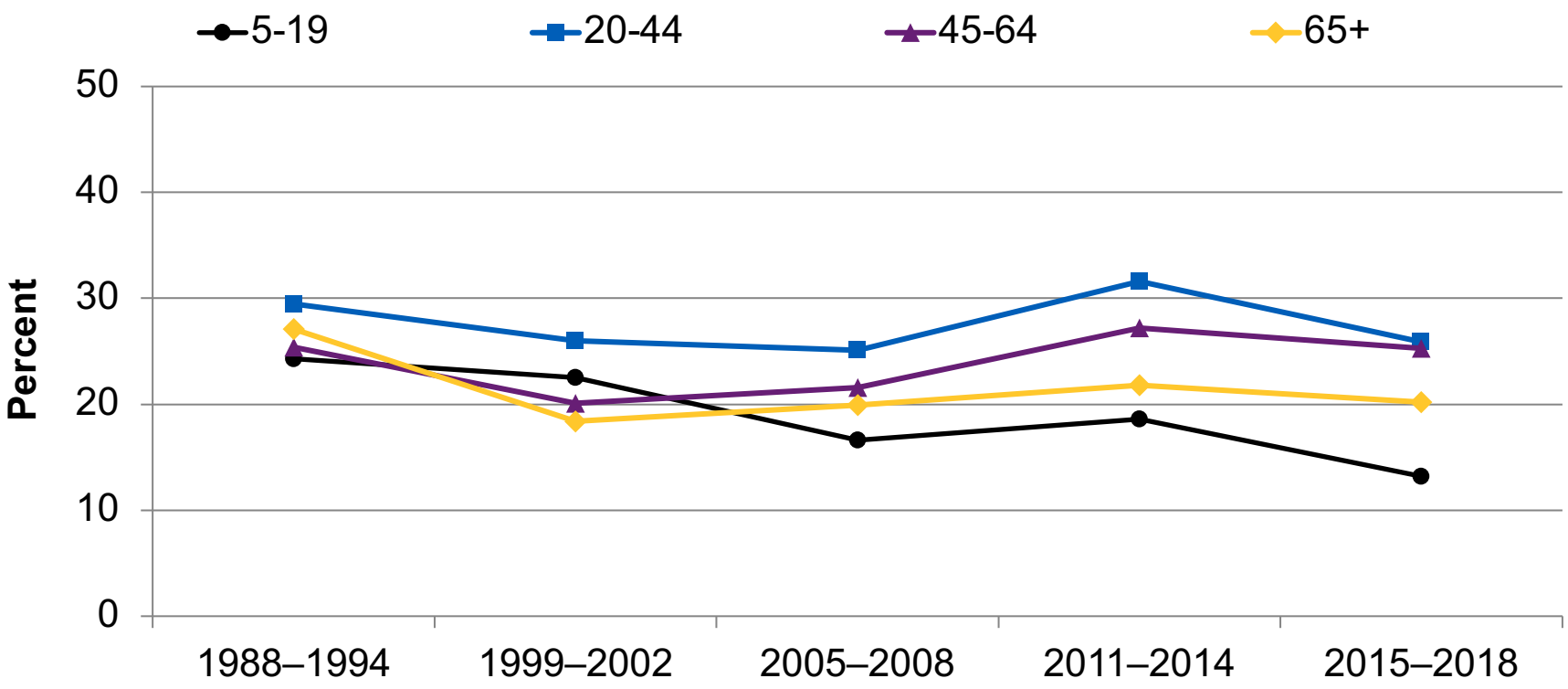
Cost

- 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.
- 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.
- Oral health professionals can also apply fluoride varnishes and dental sealants, which are also effective ways to prevent cavities.
- 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.

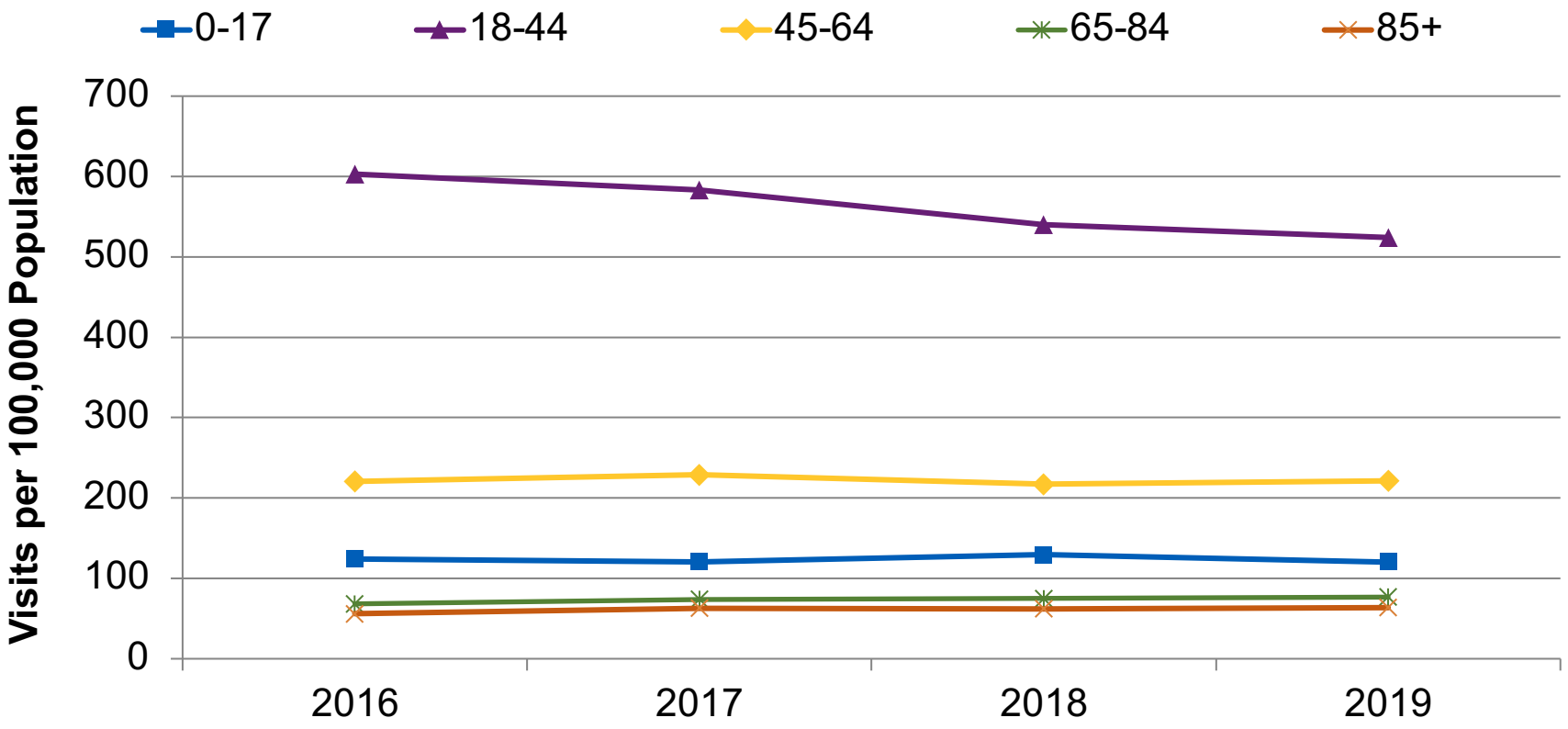
Figure 1. People with untreated dental caries, by age, 1988-2018



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-2018.

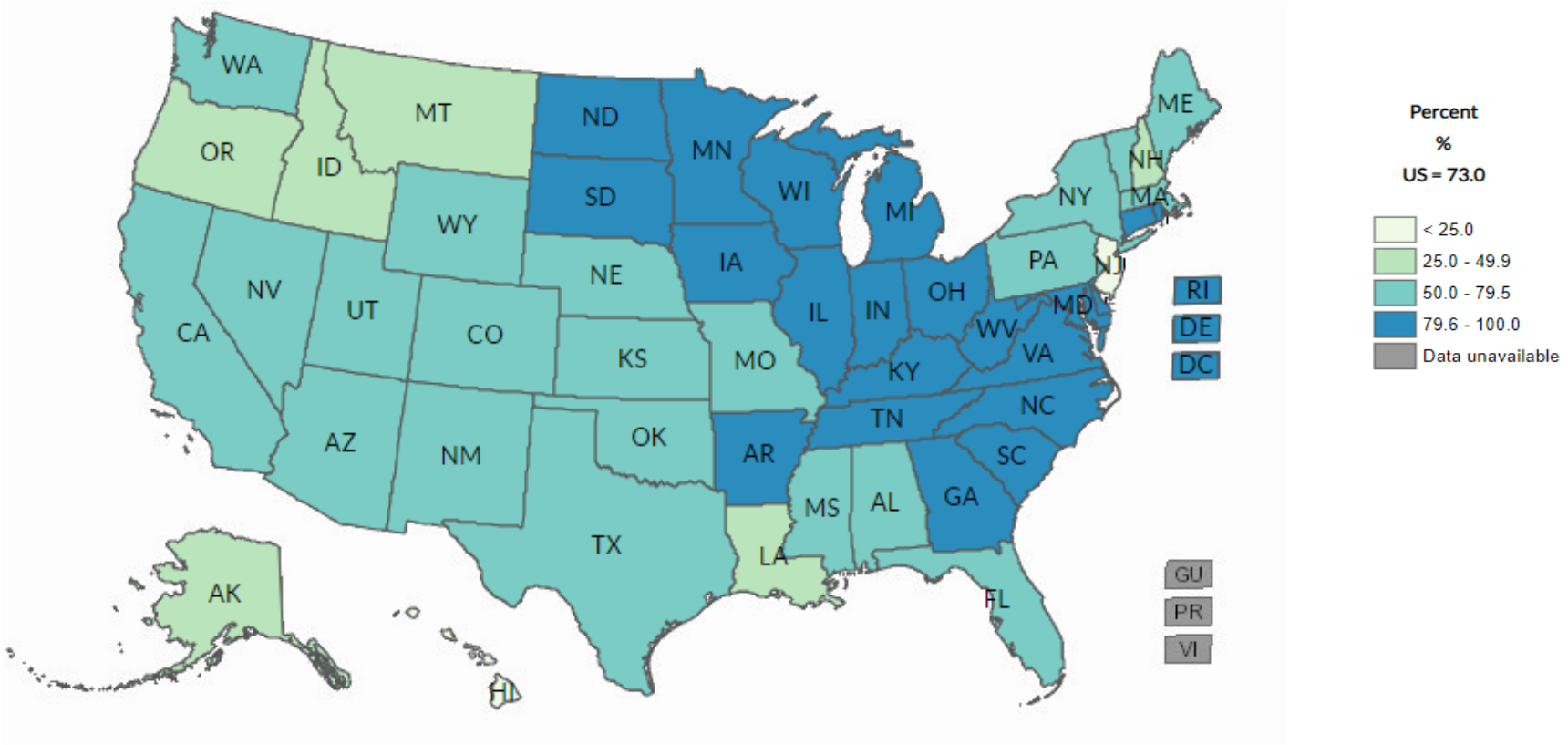
Note: This chart uses data previously reported in the 2019 *Health, United States* report. The estimates shown are spaced at irregular intervals.

Figure 2. Emergency department visits with a principal diagnosis related to dental conditions per 100,000 population, overall and by age, 2016-2019



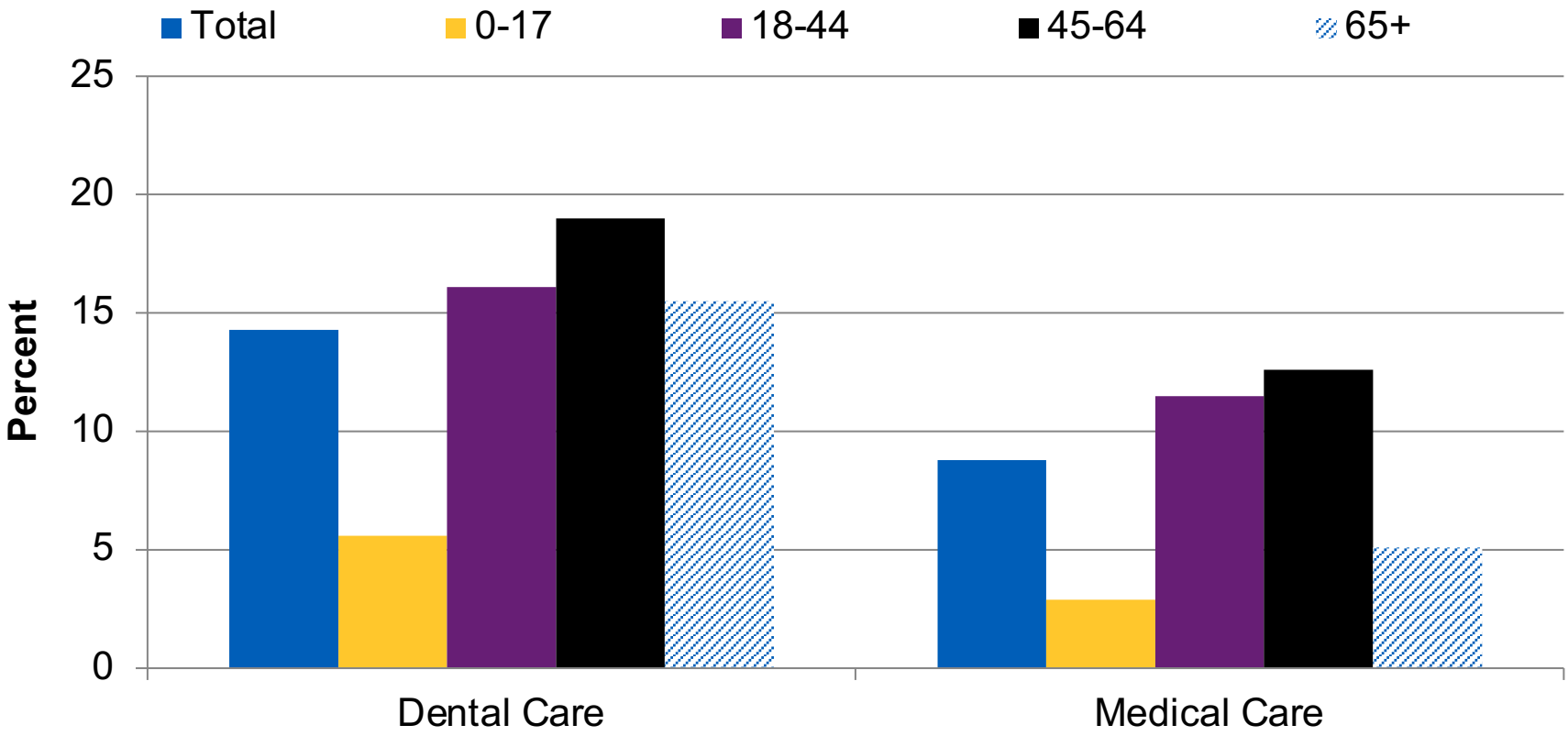
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2016-2019.

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



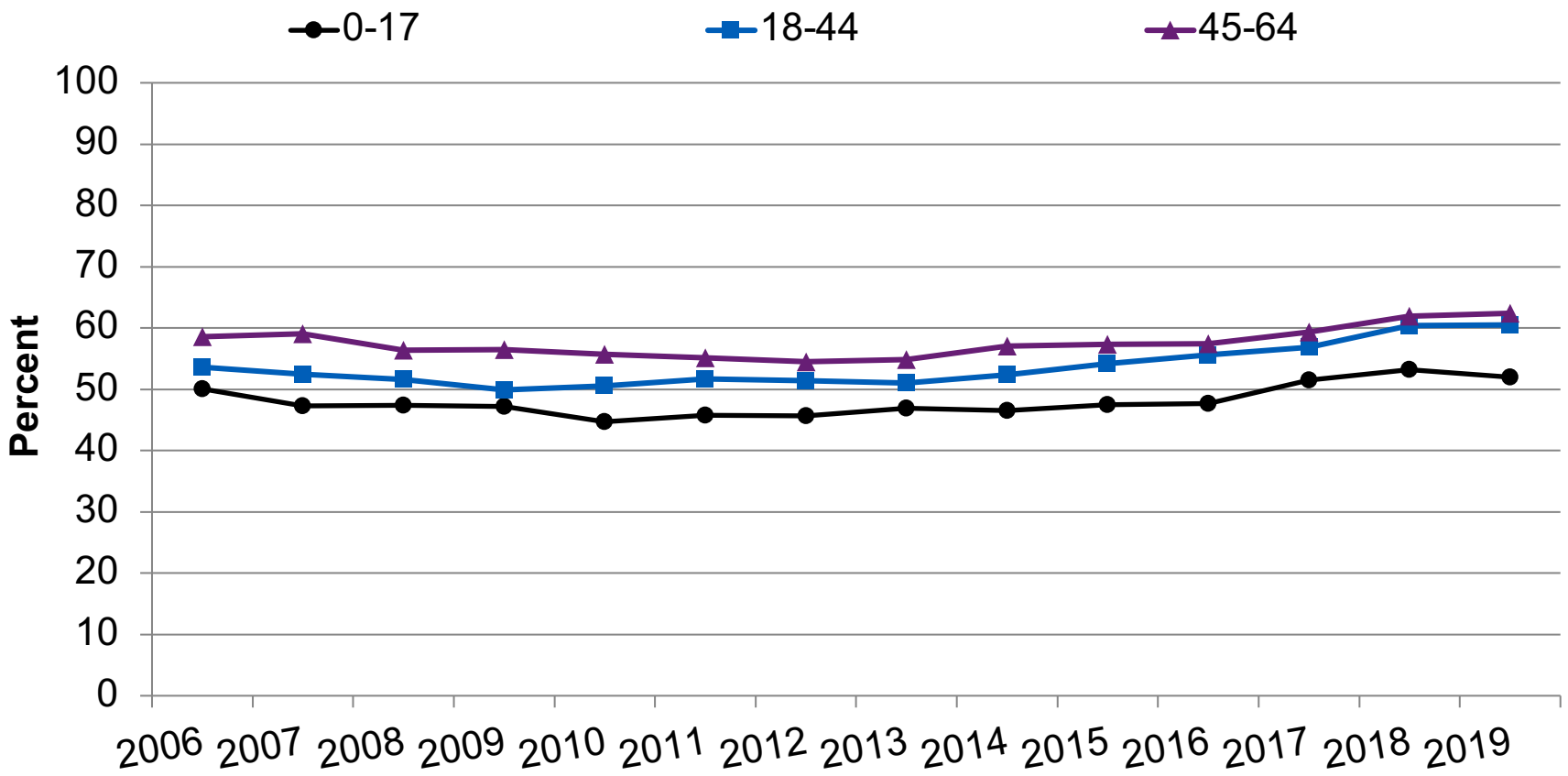
Source: Centers for Disease Control and Prevention, Oral Health Data, Water Fluoridation, 2018.

Figure 4. People unable to get or delayed in getting needed dental care or medical care due to cost, by age, 2019



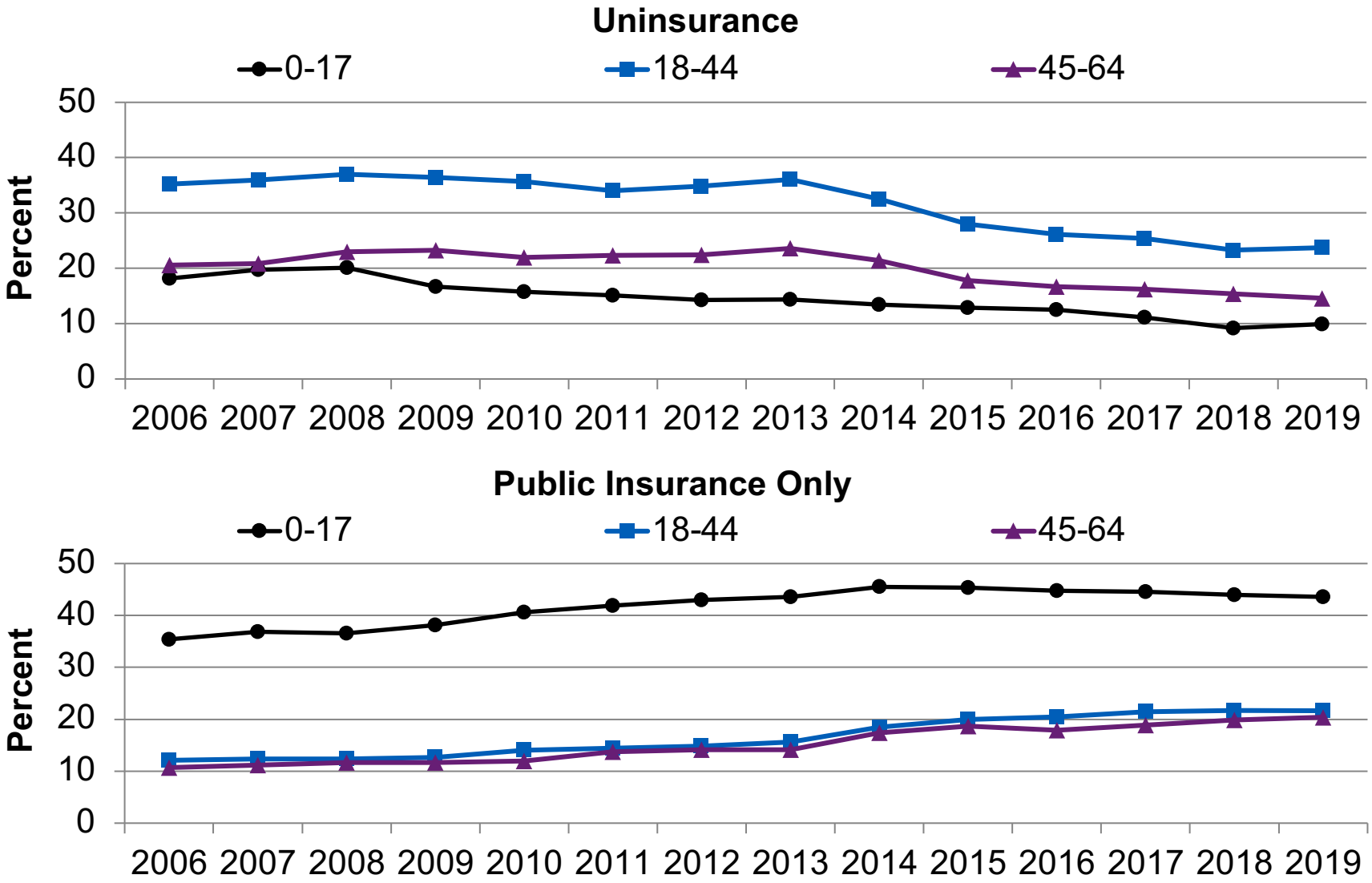
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2019.

Figure 5. Percentage of people with any period of private dental insurance during the year, by age, 2006-2019



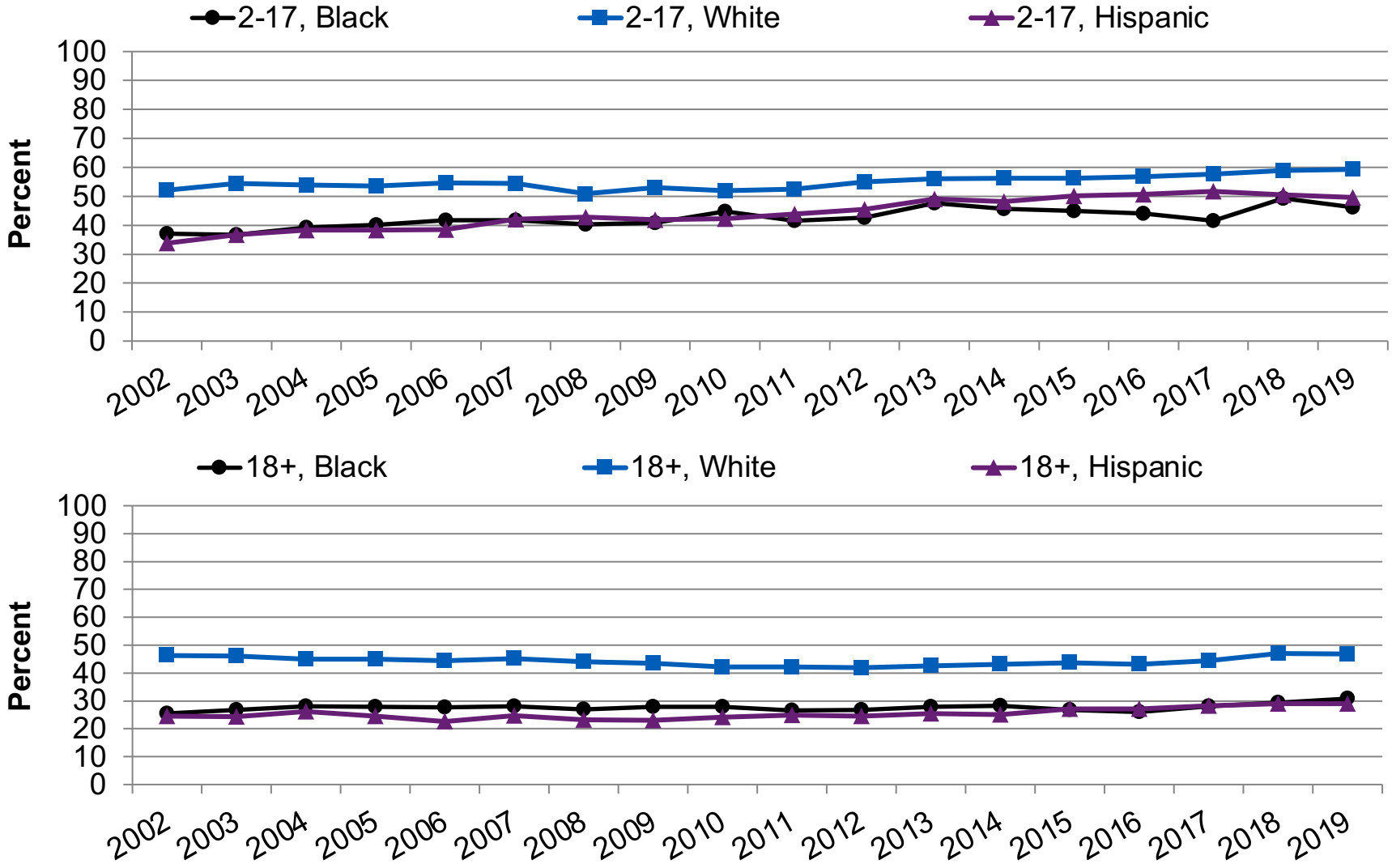
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2019.

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



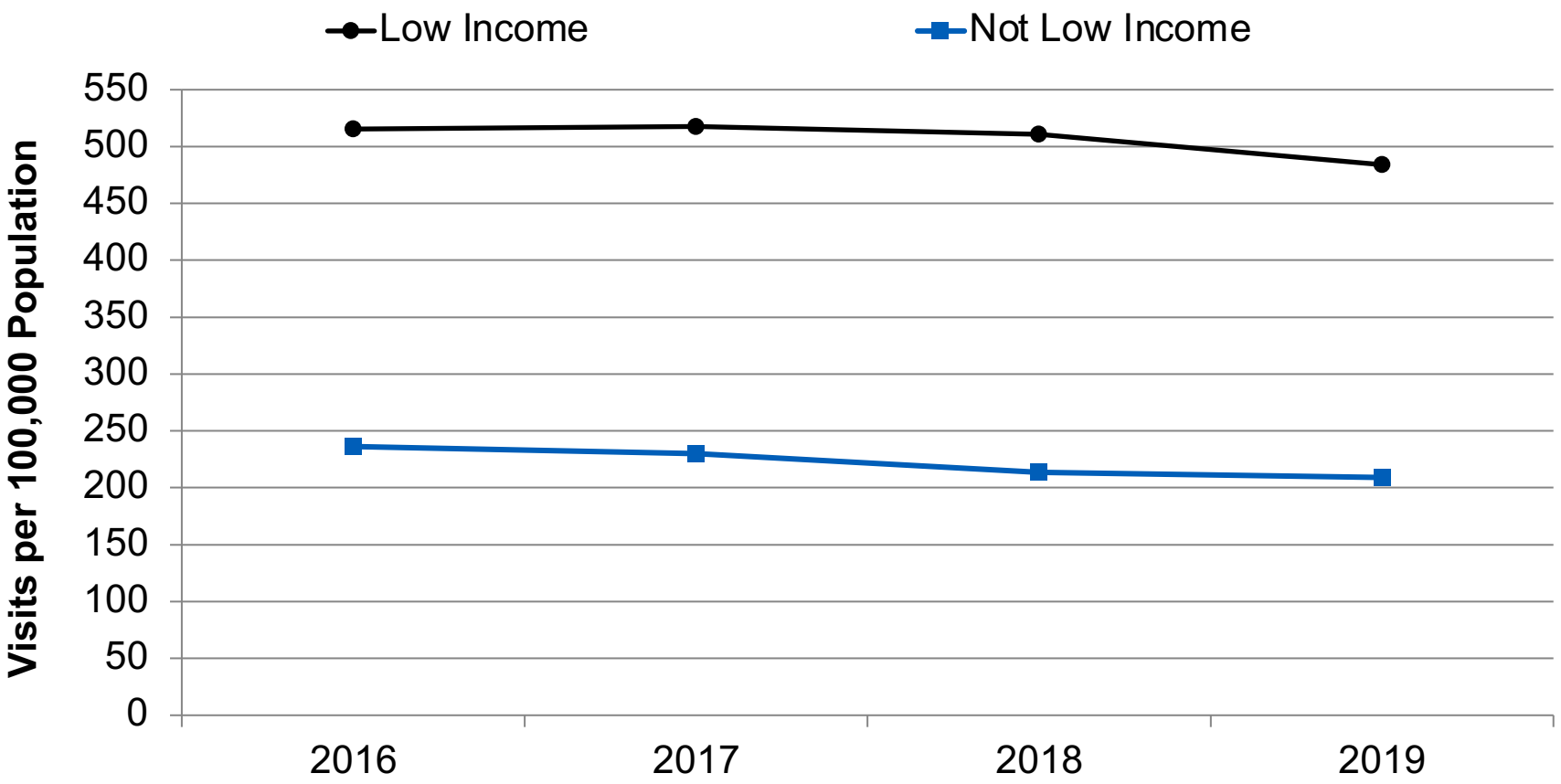
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2019.

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



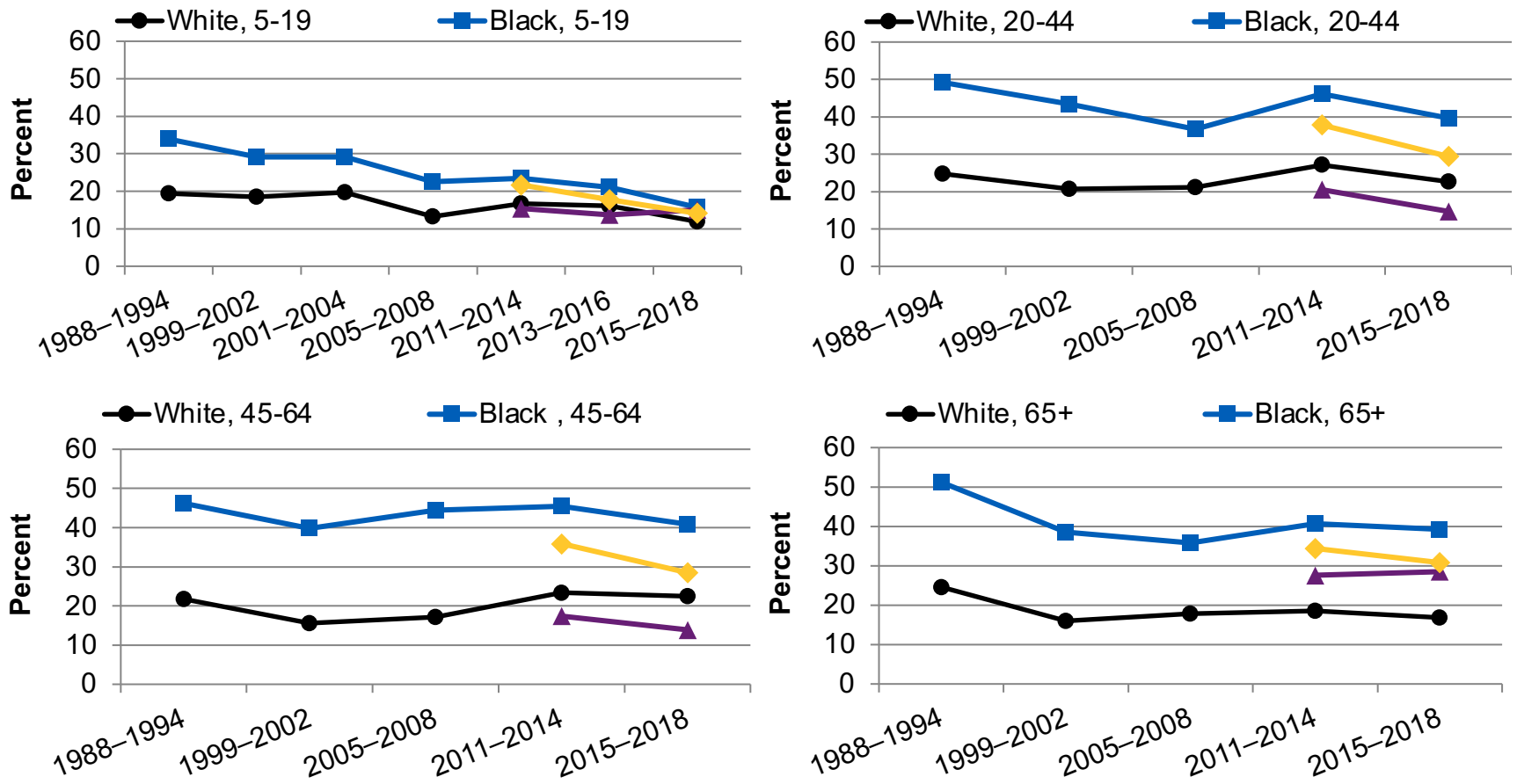
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

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.

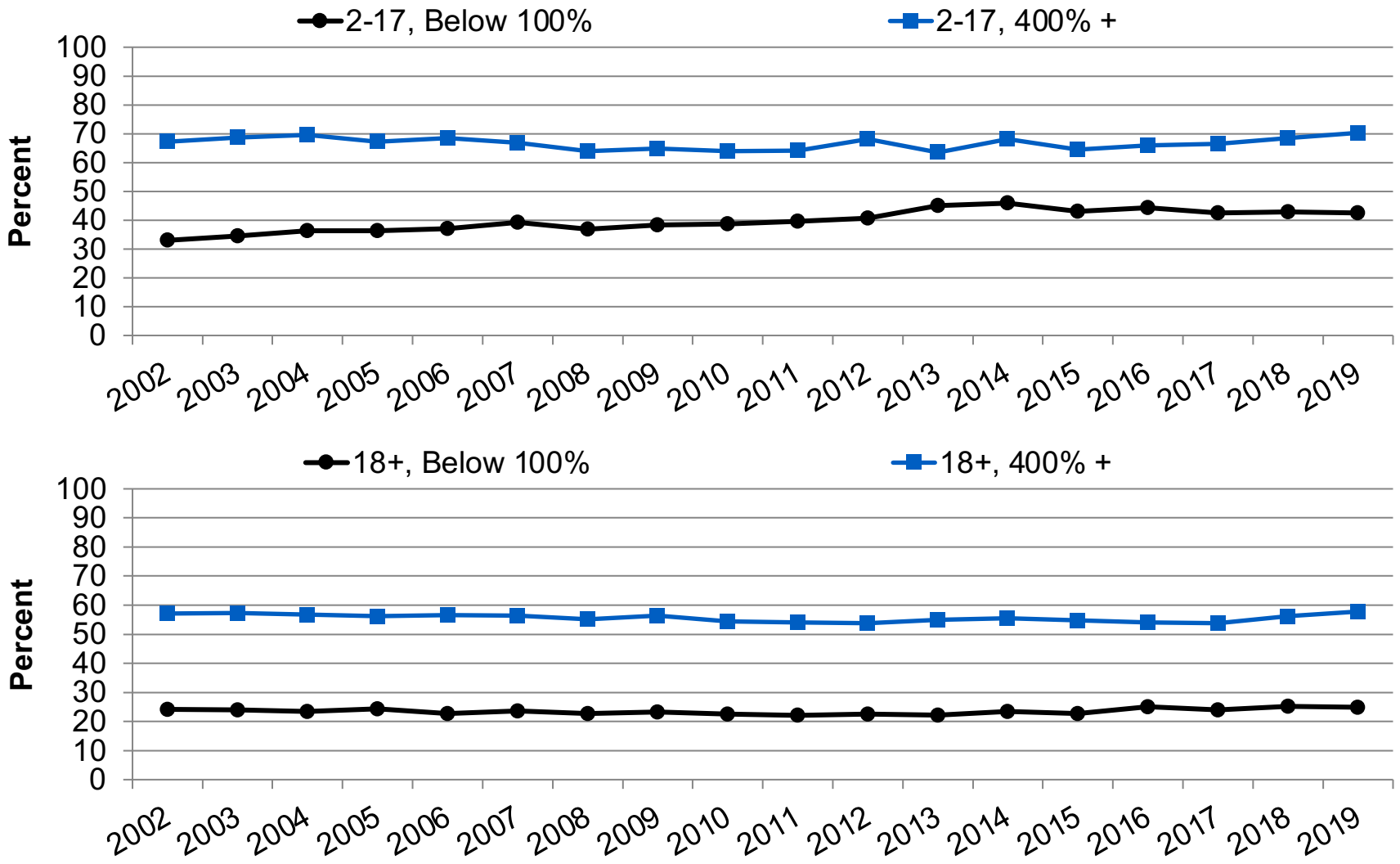
Figure 9. Children with untreated dental caries (upper left) and adults with untreated dental caries (upper right and bottom), by race/ethnicity, 1988-2018



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-2018.

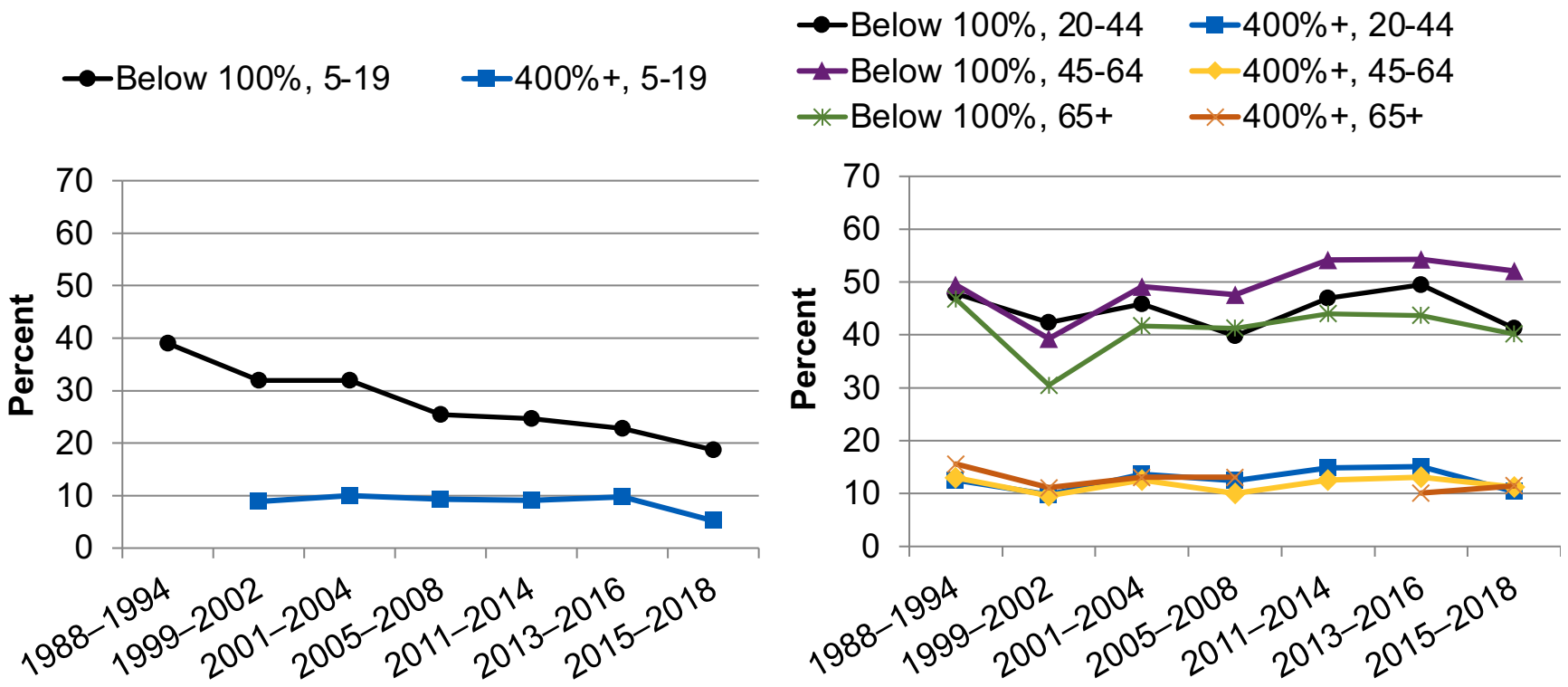
Note: This chart uses data previously reported in the 2019 *Health, United States* report. The estimates shown are spaced at irregular intervals. Data for Asian race is not available prior to the 2011-2014 period; data for Hispanic ethnicity are available starting in 2007. This analysis does not include estimates for 2007 to 2010 because they were not reported in *Health, United States*.

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.

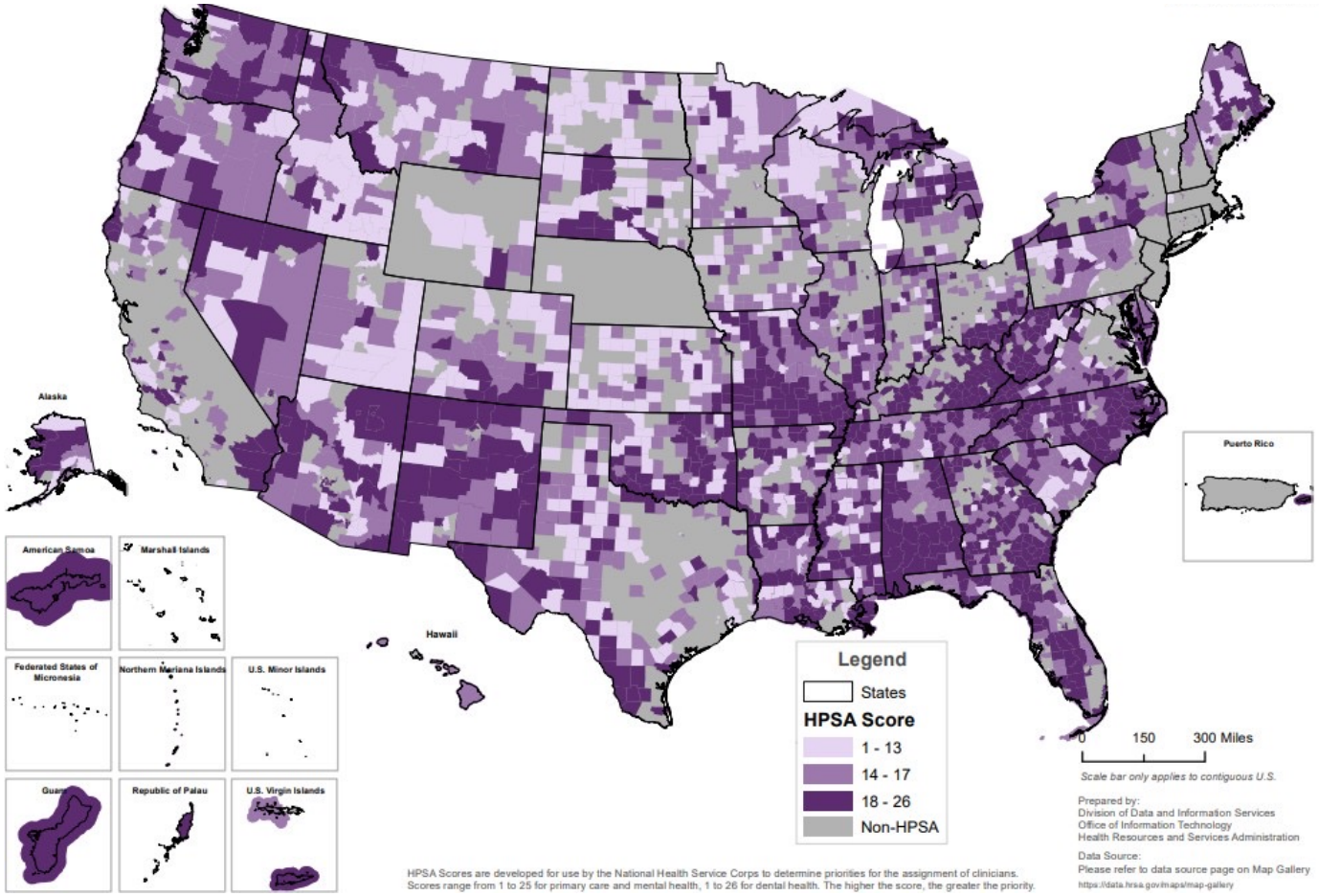
Figure 11. Children (left) and adults (right) with untreated dental caries, by household income, 1988-2018



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.

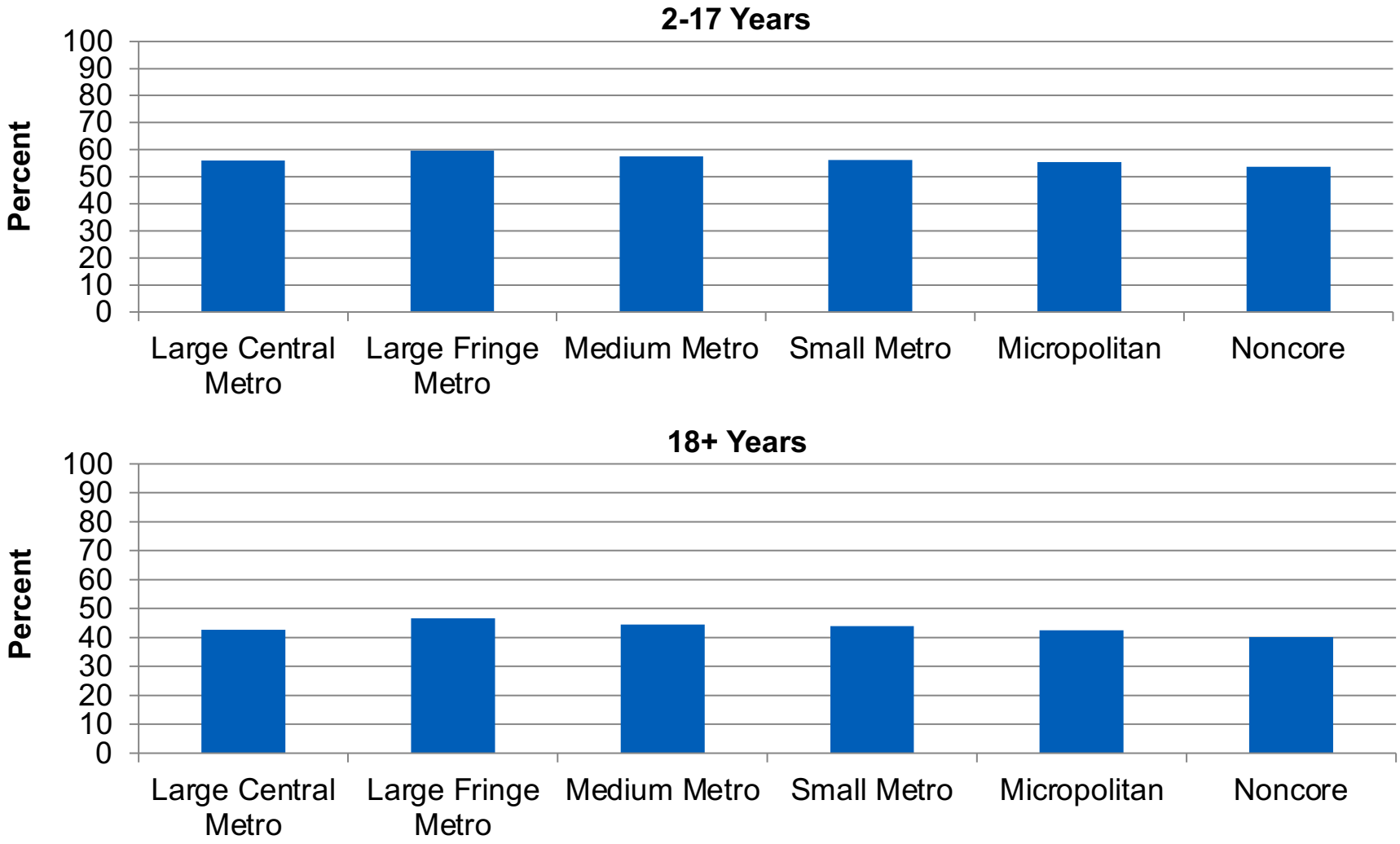
Figure 12. Dental Health Professional Shortage Areas in the United States and territories, 2022



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.

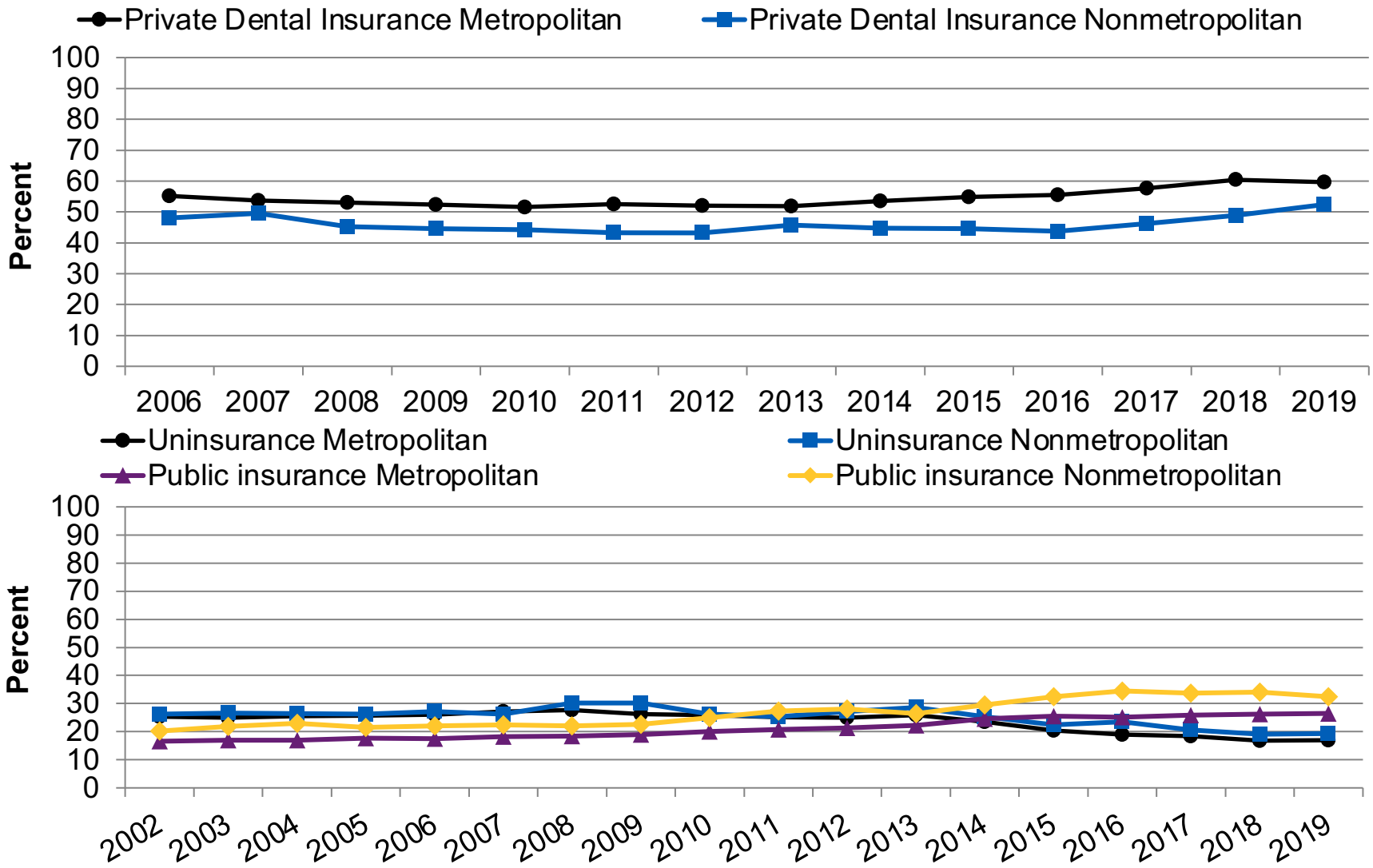
Note: HPSA scores are developed for use by the National Health Service Corps to determine priorities for the assignment of clinicians. Scores range from 1 to 26 for dental health. The higher the score, the greater the priority.

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



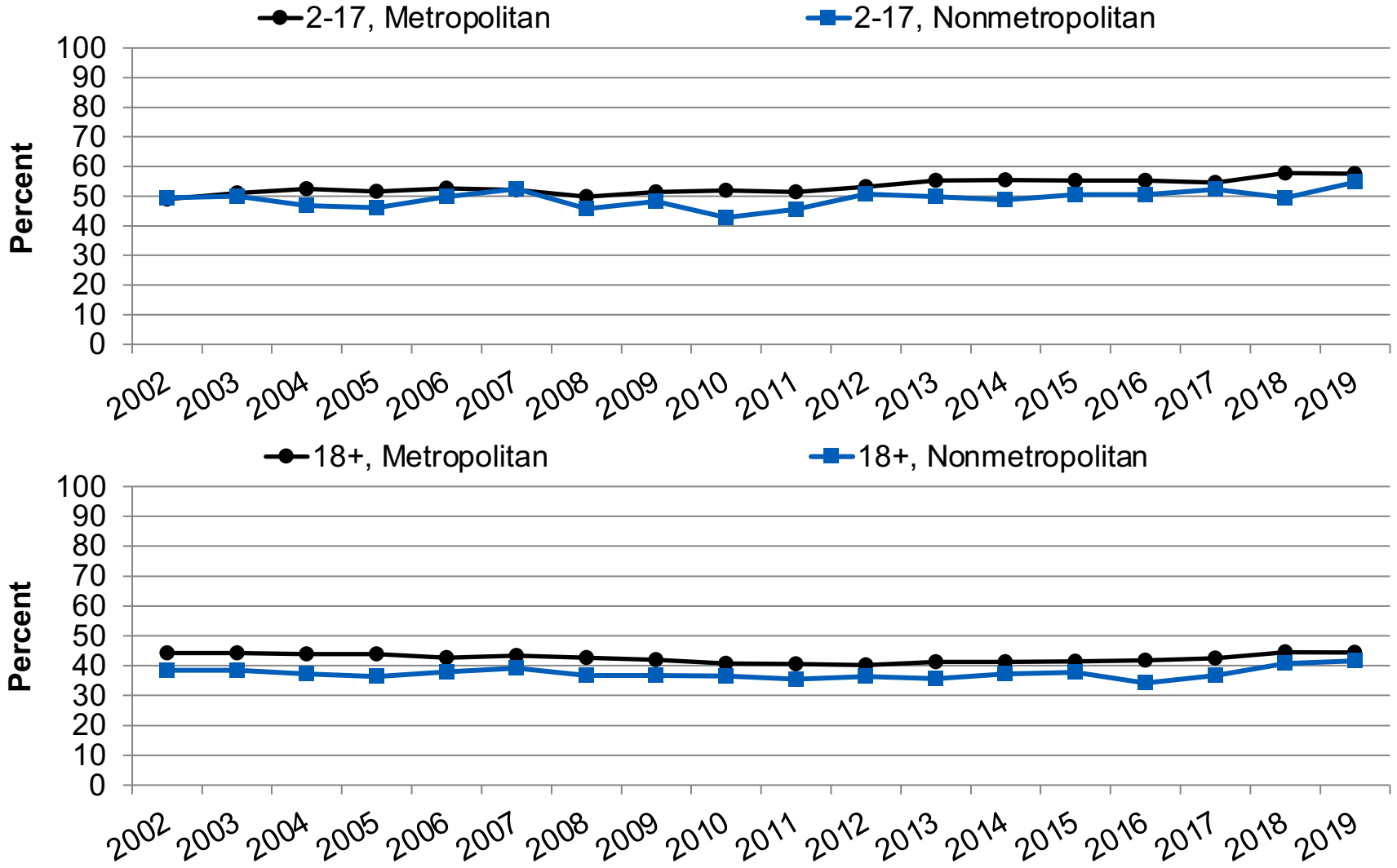
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2019.

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.

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

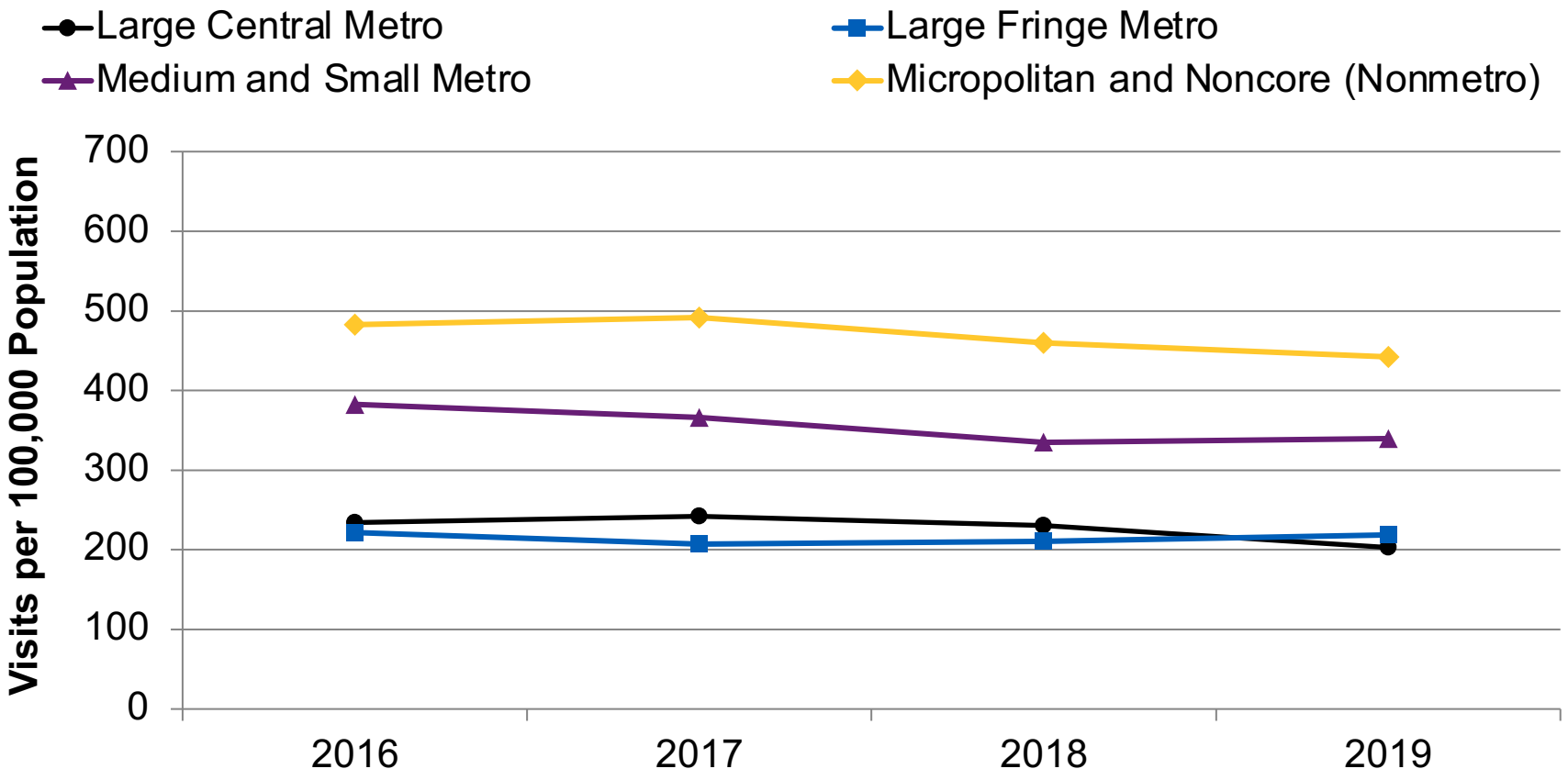


Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2019.

Dental Insurance and Dental Visits

- 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.

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.

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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