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2023 National Healthcare Quality and Disparities Report. Rockville (MD): Agency for Healthcare Research and Quality (US); 2023 Dec.

## Executive Summary

The United States is a global leader in scientific discovery and developing innovative technologies to diagnose and treat disease. Health professionals, provider organizations, health insurance plans, and other diverse entities bring those advancements to people. But the various healthcare systems often emerged at different points in our nation's history, under varied contexts and for different purposes. Thus, they were not always designed to function as a single, coherent system. But it is essential that they work together to ensure that the benefits of science and innovation reach all Americans.

Since 2003, the Agency for Healthcare Research and Quality's (AHRQ) *National Healthcare Quality and Disparities Report* (NHQDR) has summarized the status of healthcare delivery in the United States, providing a statistical portrait of how effectively healthcare delivery systems provide safe, high-quality, and equitable care to Americans. At its core, the NHQDR asks: *How successful are the nation's healthcare systems in ensuring that all people benefit from the scientific advancements and treatments available today?*

Many partners, including Department of Health and Human Services (HHS) agencies and health officials from all U.S. states, contribute data for the report, which the Secretary of HHS delivers to Congress annually as mandated by law. The 2023 NHQDR examines the data in three sections:

- **Portrait of American Healthcare** provides an overview of healthcare delivery systems. It characterizes the U.S. population, their leading health concerns, the main components of healthcare delivery, and the nation's capacity to deliver services to the population.
- **Special Emphasis Topics** are focused data briefs that examine quality and disparities in healthcare. This year's special emphasis topics explore the nation's experiences with COVID-19 healthcare delivery from five perspectives: the U.S. population, hospitals, ambulatory care settings, nursing and residential care facilities, and telehealthcare.
- **Quality and Disparity Tables** provide statistical assessments of healthcare delivery performance in eight topic-related areas through the application of more than 550 quality measures.

## Portrait of American Healthcare: Key Findings

### Demographics

- The U.S. population is aging. The number of people age 65 and over increased from 40.2 million to 55.9 million between 2010 and 2021, or from 13.0% to 16.8% of the population. Currently, there is one adult age 65 or over for every three working age adults; the Census Bureau projects that there will be two older adults for every three working age adults by 2060.
  - This trend has important implications for healthcare delivery because older adults are more likely to have chronic conditions; mental disorders, including cognitive limitations; and physical disabilities. A higher ratio of older adults to working age adults raises concern that the number of people who need healthcare services will exceed the number available to provide care.
  - Healthcare delivery systems can respond to this demographic concern by pursuing approaches that promote "heathy aging." Such approaches include preventing chronic diseases, addressing chronic

conditions early so they do not lead to disability, and enabling people with disabilities to participate more fully in society.

- The population has become more diverse racially and ethnically. Non-Hispanic (NH) White people accounted for a smaller share of the population in 2020 (57.8%) than in 2010 (63.7%). At the same time, Hispanic (16.3% to 18.7%), NH-multiracial (1.9% to 4.1%), and NH-Asian (4.7% to 5.9%) people increased as a share of the population.
  - The change in racial and ethnic diversity has occurred largely in younger age groups. For example, 92.2% of Hispanic, 94.0% of NH-multiracial, and 86.8% of NH-Asian people are under age 65.
  - In contrast, only 79.0% of NH-White people are age 65 years or younger.

This trend suggests an increased need for more culturally and linguistically appropriate services for pediatric care, obstetric care, and mental health care, among others.

- More people are living in metropolitan areas. The population in both metropolitan and nonmetropolitan counties grew between 1990 and 2020, but it grew faster in metropolitan areas. Large central metropolitan areas (“cities”) grew by 32.0%, large fringe metropolitan (“suburban”) counties grew by 52.7%, micropolitan (“small town”) counties grew by 14.5%, and noncore (“rural”) areas grew by 5.7%. Therefore, healthcare services have declined in many nonmetropolitan areas, even as services in metropolitan communities have grown. However, substantial numbers of people (46 million, or 13.9% of the population) still live in nonmetropolitan counties, resulting in a healthcare access crisis for some people in those communities.

## Leading Health Concerns

- In 2021, overall life expectancy decreased for the second year in a row, further expanding a life expectancy gap between U.S. residents (76.1 years) and people who live in peer countries, including Japan (84.5 years), Switzerland (84.0 years), Australia (83.4 years), Sweden (83.2 years), France (82.5 years), Belgium (81.9 years), the Netherlands (81.5 years), Austria (81.3 years), Germany (80.9 years), and the United Kingdom (80.8 years).
- The leading contributors to the drop in life expectancy in 2021 were COVID-19 (which contributed 50% of the decrease in life expectancy), unintentional injuries (15.9%, a plurality of which were drug overdose), heart disease (4.1%), liver disease (3.0%), and suicide (2.1%). The decrease in life expectancy would have been even greater except that deaths due to homicide, influenza and pneumonia, congenital malformations, and perinatal events decreased in 2021 compared with historical trends.
- Substantial disparities in life expectancy exist among people of different racial and ethnic backgrounds. NH-Asian people had the highest life expectancy in 2021 (83.5 years), followed by Hispanic (77.7 years), NH-White (76.4 years), NH-Black (70.8 years), and NH-American Indian or Alaska Native (AI/AN) (65.2 years) people. For comparison, the average life expectancy for peer countries in 2021 was 82.4 years.
- All racial and ethnic groups experienced substantial loss of life expectancy during the COVID-19 public health emergency (PHE). Between 2019 and 2021, NH-AI/AN communities suffered the greatest loss in life expectancy (−6.6 years, a 9.2% decline), followed by Hispanic (−4.2 years, 5.1% decline), NH-Black (−4 years, 5.3% decline), NH-White (−2.4 years, 3.0% decline), and NH-Asian (−2.1 years, 2.5% decline) people. For comparison, the average loss of life expectancy in peer countries during COVID-19 was −0.2 years, a 0.2% decline.

## Social Determinants of Health

- Social determinants of health, (social, economic, environmental, and community conditions) often have a stronger influence on the population's health and well-being than services delivered by practitioners and healthcare delivery organizations. They also influence the extent to which people use healthcare services and how well they respond to treatment and recover from illness.
- One of the most important social determinants of health is having health insurance. The percentage of people under age 65 years with health insurance coverage continued to increase in 2021. Between 2020 and 2021, the percentage of Americans with private health insurance coverage increased 1.1%, and the percentage of those with public insurance increased 0.2%.

However, insurance coverage varied by state and by race and ethnicity. States ranged between providing health insurance coverage to as many as 96.7% of their populations to as little as 77.6% of their populations. Hispanic and NH-AI/AN populations are less likely to have any health insurance coverage compared with other racial and ethnic groups.

## Healthcare Delivery Systems

- Healthcare delivery systems are sectors of the healthcare industry that perform distinct but overlapping functions. They include healthcare workers and resources, as well as organizations, such as outpatient medical offices, clinical laboratories, pharmacies, home and community-based services, hospitals, and nursing and residential care facilities. Americans receive healthcare services from a diverse range of healthcare delivery systems.

(As a concept, “healthcare delivery systems” are distinct from “health systems,” which are networks of healthcare entities that share a central organizational structure, such as a network of medical offices and community hospitals anchored by a tertiary care academic hospital.)

- The number of healthcare workers decreased sharply during the COVID-19 PHE. As of January 2023, overall healthcare workforce participation has returned to levels reported in January 2020. The recovery, however, has varied by healthcare setting and by occupation.
  - Although the population is aging and demand for long-term services and supports has grown, the nursing and residential care facilities workforce shrank during the COVID-19 PHE. In January 2023, there were 8.4% fewer nursing and residential care workers than in January 2020. In contrast, the number of “employed and at work” hospital and ambulatory care workers has returned to or surpassed prepandemic levels.
  - Although a potential shortage of nurses and doctors has received much attention, the total number of physicians and nurses employed and at work was stable between January 2020 and December 2022. However, the number of workers employed in occupations requiring an associate's degree or less education (medical assistants, phlebotomists, etc.) decreased from 2.26 million workers in January 2020 to a low of 1.55 million workers in April 2020, before partially recovering to 2.15 million workers as of December 2022.

The data suggest that a widely reported shortage of healthcare workers may be driven by loss of workers in occupations that required less educational attainment for entry, many of whom have employment options beyond healthcare.

- Many rural Americans lack access to primary care services, and the primary care providers who are available are often isolated from their professional peers. The Health Resources and Services Administration (HRSA) has designated more than 63% of U.S. counties as “whole county” primary care health professional shortage areas

(HPSAs), indicating areas where lack of primary care practitioners threatens access to needed services. Of these 71.7% are rural and micropolitan (i.e., small town) counties.

- Many rural Americans also lack access to hospital care, as 174 rural hospitals closed (i.e., either closed completely or stopped offering inpatient services while continuing to provide other healthcare services) between 2005 and 2020. The pace of rural hospital closures slowed during the COVID-19 PHE, with 2 closures in 2021 and 6 closures in 2022, compared with an annual average of 13.8 closures per year in the preceding 5 years. The slowdown occurred after passage of several federal COVID-19-related bills, which included temporary financial support for at-risk hospitals.
- Nearly one-fifth of the population has provided unpaid long-term and postacute care for a loved one instead of using a formally recognized healthcare establishment. This estimate reflects the growing share of the population that relies on long-term and postacute care services. The long-term and postacute care sector that seeks to address this need is fragmented and consists of many different types of healthcare delivery organizations and varying levels of government support and health insurance coverage.

## National Health Expenditures

- Where a nation spends its limited resources often reflects its needs and priorities. The National Healthcare Expenditures provide a financial accounting of healthcare spending.
- National healthcare consumption represents the sum of all spending for medical care services plus governmental health administration and public health activities. As a share of national healthcare consumption, out-of-pocket spending has decreased, correlating with an increase in spending by publicly sponsored health insurance (Medicare and Medicaid). In 2021, publicly sponsored health insurance accounted for 40.4% of all healthcare consumption. Private health insurance accounted for 29.9%, and out-of-pocket spending accounted for 10.7%.
- Spending on public health activities, which includes worksite and school-based healthcare services, maternal and child health programs, the Indian Health Service, HRSA's Health Center program, and many other federal programs, declined from 18.0% to 12.4% of national health consumption between 1960 and 2019. During the COVID-19 PHE, spending on public health and other federal health programs increased to 19.0% of national health consumption in 2020 before decreasing to the most recent estimate of 14.7% in 2021.
- *Personal healthcare expenditures* represent all spending for medical goods and services, excluding government administration and public health activities. They show the nation is transitioning from hospital-based care toward delivering medical services in nonacute care settings.
  - Hospitals' share of personal health expenditures peaked at 47.8% in 1982. Since then, it has decreased steadily to 37.7% in 2021.
  - During the same period, spending for services typically delivered in nonacute care settings and people's homes replaced hospital's share of personal healthcare expenditures. These include increased spending between 1982 and 2021 for prescription drugs (5.4% to 10.6%); home care (1.2% to 3.5%); nonphysician professional care, such as physical therapists and home health aides (1.8% to 3.7%); and durable and nondurable medical equipment, such as wheelchairs, nebulizers, and home oxygen (8.7% to 10.9%).

## Geographic Variations in Care

- Overall quality of care varied among states. Four states in the Northeast region (Maine, New Hampshire, Pennsylvania, and Rhode Island), five in the Midwest region (Iowa, Minnesota, Nebraska, South Dakota, and

Wisconsin), one state in the South region (Delaware), and two states in the West region (Idaho and Utah) had the highest overall quality scores.

- There also were differences in quality of care by race and ethnicity among states. Five states in the West region (Hawaii, Idaho, Montana, Oregon, and Washington), four states in the South region (Arkansas, Kentucky, Virginia, and West Virginia), and two states in the Midwest region (Kansas and Nebraska) had the fewest racial and ethnic healthcare disparities overall.

## Special Emphasis Topics: Key Findings

The 2023 NHQDR includes an **Overview** that describes SARS-CoV-2 and the biologic and clinical considerations that enabled this virus to cause the disease COVID-19. Five other sections examine how the COVID-19 pandemic affected U.S. healthcare delivery from the perspectives of five groups within the healthcare delivery system. Highlights from each are below.

### Impact of COVID-19 on the U.S. Population

This topic examines the population's experience during the COVID-19 PHE, which varied across regions and communities due, in part, to the way that SARS-CoV-2 first affected densely populated coastal cities before spreading to suburban, rural, and remote communities. Nationally, COVID-19 death rates increased between the pandemic's first and second years, despite the nation having more knowledge about the disease and greater availability of testing, treatments, and vaccines.

Two types of factors drove the rise in COVID-19 death rates:

- First were factors that enhanced risks of getting infected. These included the emergence of variants with higher transmissibility, relaxation of public health initiatives that had limited exposure to the virus, and varying use of COVID-19 vaccines.
- Second were factors that enhanced risk of dying if infected. These included higher lethality of some SARS-CoV-2 variants, case surges that reduced hospital capacity and reduced access to appropriate treatment, and variable use of COVID-19 vaccines.

Healthcare delivery systems, such as hospitals, nursing homes, pharmacies, home and community-based service providers, and medical offices, had crucial roles mitigating both types of risks. They performed essential functions such as conducting surveillance testing, educating the public, and distributing vaccines. Healthcare delivery systems helped because the public health system lacked the resources to deliver these services at the scale needed for a global health crisis such as COVID-19 without health systems' involvement.

Despite limited vaccine availability in the early months of 2021, the combined efforts of the public health and healthcare delivery systems successfully achieved vaccination levels that were initially expected to confer population immunity. However, populations lacking health insurance, living in low-income communities, and living in rural locations were less likely to receive counseling to get the vaccine and less likely to receive it. As these groups often lack access to personal healthcare providers, the data suggest that healthcare delivery systems may have lacked capacity to equitably distribute vaccines beyond their traditional markets.

The data also show that initial targets for vaccination coverage did not achieve population immunity, as anticipated. This was due, in part, to the emergence of more transmissible variants of the virus, which occurred concurrently with declining adherence to public health guidance aimed at slowing disease transmission. Thus, multiple surges in cases associated with the Alpha (November 2020 to February 2021), Delta (August 2021 to October 2021), and Omicron (November 2021 to March 2022) variants were able to evade the population immunity conferred by vaccination efforts. These surges led to recurring spikes in cases, hospitalizations, and deaths throughout 2021.

### Key data findings follow:

- In 2021, more than 70% of adults had received at least one COVID-19 vaccine, and more than half of adults (56.6%) completed a two-dose “primary series” vaccination.
- Vaccine use also varied within the population. Older adults, NH-Asian people, and people living in metropolitan areas were more likely to complete the primary COVID-19 vaccine series than other groups.
- Although a federal mandate covered the cost of COVID-19 vaccines and prohibited prior authorization or cost sharing to get the vaccine, uninsured, publicly insured, and low-income people were less likely to complete the COVID-19 primary series. The data signal that factors other than vaccine costs hindered vaccination efforts.
- Most Americans trust their healthcare professional for information about the COVID-19 vaccine. But the percentage of Americans who received a recommendation to get the COVID-19 vaccine from their healthcare professional was lower than 40% in 2021, and rates were similar among all racial and ethnic groups.
- Uninsured people and people with annual incomes lower than \$75,000 were less likely to be recommended for COVID-19 vaccination by a healthcare professional. This was probably because these populations had less access to healthcare professionals, not because healthcare professionals treated them differently.
- Healthcare professionals were especially vulnerable to SARS-CoV-2 infection and its consequences. Thus, they were prioritized to receive the COVID-19 vaccine early. Healthcare workers were more likely to complete the two-dose COVID-19 vaccination series than other adults in 2021. But healthcare workers in nonmetropolitan areas and in publicly insured, uninsured, low-income, and high social vulnerability groups were less likely to get the vaccine than their colleagues in other groups, mirroring disparities seen in the overall adult population. These findings provide further evidence that financial and structural access barriers hindered health systems’ ability to equitably distribute vaccines.
- Most COVID-19 deaths occurred among adults age 65 and over. But large numbers of deaths also occurred among adults ages 50-64 and 18-49, especially during surges associated with the Alpha, Delta, and Omicron variants. During the second year of the pandemic, adults age 65 and over were less likely to get infected but substantially more likely to die if infected.
- Among racial and ethnic groups, NH-AI/AN, NH-Native Hawaiian/Pacific Islander (NHPI), Hispanic, and NH-Black populations were more likely to die from COVID-19 than other groups. NH-NHPI people were less likely to get infected but more likely to die if infected. Hispanic and NH-Black people were more likely to get infected but exhibited similar risks of dying if infected as NH-White people. NH-AI/AN individuals were both more likely to get infected and more likely to die if infected.
- The varying patterns among different racial and ethnic groups suggest that different underlying factors caused each group’s higher COVID-19 death rates. They signal the possibility that achieving equitable health outcomes may require tailored disease mitigation strategies to address different groups’ specific concerns.
- Disparities in COVID-19 deaths also occurred between metropolitan and nonmetropolitan communities. People in nonmetropolitan communities appeared to be somewhat more likely to get infected and appeared to be at higher risk of dying if infected. Limited access to hospital and critical care services may have contributed to the higher COVID-19 death rates experienced in those communities. Lower uptake of the COVID-19 vaccine in small towns and rural areas may also have contributed to these outcomes.

### Impact of COVID-19 on Hospitals

This topic examines the healthcare delivery sector that provides acute care services to people with serious, sometimes critical, injuries and illnesses. Hospitals were a vital resource during the COVID-19 PHE. Thus, the nation had strong

interest in ensuring that they had sufficient capacity to meet demand for acute and critical care services, particularly during the initial surge of cases in early 2020 and subsequent surges associated with the Alpha, Delta, and Omicron variants.

Key findings follow:

- Hospital and emergency department (ED) capacity was closely coupled with COVID-19 cases. Data show increased ED visits and hospital admissions during the spike in cases associated with the Alpha, Delta, and Omicron variants that occurred throughout 2021. Data also show decreased ED visits and hospital admissions for non-COVID-19 conditions during surge periods, suggesting that non-COVID-19 conditions were crowded out by COVID-19 cases.
- Admissions for COVID-19 often required critical care services. Among middle-age and older adults hospitalized for COVID-19 between March 2020 and March 2022, the median weekly percentage who required ventilator support was more than 10%. At times, use of ventilators rose as high as 26.6% for adults ages 30-59 and 28.2% for adults age 60 and over. For context, approximately 5.3% of people hospitalized for severe community-acquired pneumonia required mechanical ventilation.
- Adults admitted for COVID-19 age 60 and over were more likely to die in the hospital than adults ages 30-59, but death rates in both groups were high. For example, in the first week of July 2022, during the surge associated with the Omicron variant, 17.5% of adults age 60 and over admitted for COVID-19 died, and 11.9% of adults ages 30-59 died.
- People hospitalized with COVID-19 often required prolonged treatment, especially if they needed ventilator support. The weekly average hospital length of stay (LOS) ranged between 6.8 and 14.7 days for adults with COVID-19 age 60 and over and 5.1 and 34.5 days for adults ages 30-59.
- One outcome of people with COVID-19 needing prolonged care was that flow through the hospital slowed, resulting in delays admitting people from the ED and overall delays in assessing and treating people from the ED. The overall average hospital LOS increased by 4.3%, from 4.7 days in 2019 to 4.9 days in 2020.
- Median ED wait times (the total time spent in the ED) increased from 141 to 151 minutes (a 7.1% increase) between 2019 and 2020-2021. Median ED boarding times (the time between decision to admit and moving into a hospital bed) increased from 100 to 126 minutes (a 26.0% increase) between 2019 and 2020-2021.
- The stress put on hospitals by the COVID-19 PHE affected people hospitalized with COVID-19 more than patients hospitalized for non-COVID-19 conditions. Patient safety measures that did not include COVID-19 patients had been improving over the past 5 years.
  - From 2016 to 2020, rates of sepsis after surgery decreased from 5.1 to 3.8 infections per 1,000 admissions.
  - Rates of central line-associated bloodstream infections decreased from 0.13 to 0.09 infection per 1,000 admissions.
  - Rates of hospital-associated pulmonary embolism or deep vein thrombosis (blood clots) decreased from 3.8 to 3.0 cases per 1,000 admissions.

## Impact of COVID-19 on Ambulatory Care

This topic examines preventive care services, which are typically delivered in primary care settings. Early experiences during the COVID-19 PHE raised concern that financially distressed primary care practices would close, limiting access to preventive care services. Reports that many people were deferring routine medical visits also raised concern that fewer people would receive primary care services, leading to a wave of preventable disease later. Two exemplars

of preventive services provided in primary care settings are chronic diabetes management and screening for cancer. Measures related to these conditions suggest that COVID-19 had a limited impact on quality of preventive care.

Key findings follow:

- Approximately 1 in 6 adults delayed getting medical care due to COVID-19 in 2020. Adults age 65 and over were more likely to defer medical visits than adults ages 18-44 (22.0% vs. 12.8%), as were people with any disability compared with people with no disability (25.2% vs. 15.0%). Hispanic people were less likely to defer medical care than other racial and ethnic groups. People in micropolitan (small town) areas were less likely to defer care compared with other communities.
- Diabetes management:
  - For preventive diabetes care, the percentage of people with diabetes who received influenza vaccination increased in 2020. There were, however, no statistically significant changes in the percentage of people who received recommended diabetes monitoring or dilated eye examination. The percentage of people with diabetes who received a foot examination decreased (worsened), continuing a multiyear trend.
  - Disparities in delivering preventive diabetes care were observed. In 2020, Hispanic adults age 40 and over with diabetes were less likely to have at least two hemoglobin A1c measurements, have their feet checked for sores or irritation, or receive a flu vaccination compared with NH-White adults. Although the differences among these groups fell short of statistical significance in 2019, similar patterns were observed.
  - Although minor differences in preventive care services were observed among people living in different locations of residence, overall trends for preventive care delivery between 2002 and 2019 show an absence of urban/rural disparities for hemoglobin A1c monitoring, dilated eye exams, and diabetic foot exams.
- Cancer screening:
  - Nationally, there were no statistically significant differences in screening rates for breast and cervical cancer between 2019 and 2021. Year-to-year colorectal cancer screening was not assessed due to recent changes in how these data are collected.
  - Cancer screening appeared to decrease among some racial and ethnic groups:
    - ❖ Rates of breast cancer screening with mammogram decreased between 2019 and 2021 for Hispanic (78.2% to 73.8%), NH-Asian (72.4% to 66.3%), and NH-multiracial people (73.7% to 64.2%), while rates increased slightly for NH-White people (75.9% to 76.0%). None of the changes were statistically significant.
    - ❖ Rates of cervical cancer screening with a Pap smear or human papillomavirus test decreased between 2019 and 2021 for Hispanic (70.4% to 69.1%), NH-Asian (67.8% to 63.9%), NH-Black (78.1% to 74.4%), and NH-multiracial people (80.2% to 77.2%) and remained unchanged for NH-White people (79.9% in both years). These changes were not statistically significant.
  - Among urban and rural groups, overall, people in metropolitan communities were more likely to receive cancer screening than those in nonmetropolitan ones. This disparity appeared to narrow, as cancer screening rates decreased among people in cities and increased among people in rural counties:
    - ❖ Between 2019 and 2021, breast cancer screening rates decreased from 77.3% to 75.5% for people in large central metropolitan areas and from 78.5% to 77.3% for large fringe metropolitan areas. At the

same time, it increased from 67.6% to 71.9% for people in noncore counties. These changes were not statistically significant.

- ❖ Between 2019 and 2021, cervical cancer screening rates decreased by 4.9% for people in large central metropolitan areas (77.5% to 73.7%) but increased by 10.6% for people in noncore counties (66.8% to 73.9%). These changes met criteria for statistical significance.

## Impact of COVID-19 on Nursing Homes

This topic examines the healthcare delivery sector that provides long-term and residential support for older adults and other people with disabilities that prevent independent living. Some services also furnish short-term postacute care to safely transition people from the hospital to home. During the COVID-19 PHE, nursing homes, as one example, were an epicenter of disease activity due to factors that included close living conditions, physically vulnerable residents, and limited access to personal protective equipment.

Key findings follow:

- Case rates among nursing home residents correlated with case rates among nursing home workers, indicating infections transmitted bidirectionally between workers and residents. But COVID-19 deaths among nursing home residents far exceeded deaths among workers, emphasizing the heightened risks experienced by nursing home residents who were mostly older, medically vulnerable, and at higher risk than the mostly younger workforce who cared for them.
- COVID-19 vaccination rates among nursing home residents and workers increased gradually over the first year of vaccine availability and approached 90% as of 2022. Six months after vaccines became available, almost 80% of nursing home residents had received the primary COVID-19 vaccine series, and almost 60% of nursing home workers had. By February 2022, the percentage of primary series vaccine completion exceeded 85% in both groups.
- The nursing home workforce largely consists of low-wage personnel with limited training and high rates of turnover. Workforce capacity had been shrinking before the COVID-19 PHE, and COVID-19 exacerbated this issue. COVID-19 infections required that nursing home workers isolate several days to weeks to avoid infecting residents, which led to understaffing and conditions that promoted worker burnout.
- More than 80% of nursing home workers are women. Between 2019 and 2022, the number of female nursing home workers decreased 12%, and the number of male workers decreased 7%.
- Between May 2020 and January 2023, the percentage of nursing homes reporting “critical” shortages of nursing staff ranged between 14% and 27%. The percentage reporting a critical shortage of aides ranged between 16% and 29%. The percentage reporting a critical shortage of clinical staff, such as physicians, physician assistants, and advanced practice nurses, ranged between 2% and 4%.
- Worsening shortages coincided with surges associated with the Alpha, Delta, and Omicron variants. More than one in four (28%) nursing facilities nationally reported staffing shortages as of March 2022, when the Omicron-associated surge was receding. The greatest shortages were in Alaska (63%), the lowest in California (3%).
- Interventions to limit disease transmission, such as isolation or reduced mobility, and shortages of nursing home workers may have negatively affected quality of care for nursing home residents. The overall pattern of nursing home quality measures suggests that long-stay nursing home residents may have had less access to staff assistance and less mobility.
- The Centers for Medicare & Medicaid Services temporarily exempted nursing home providers from submitting Minimum Data Set assessment data, so apparent trends should be interpreted with caution. But available data

indicate that long-stay nursing home residents who reported needing help with daily activities was 23.7% in 2020, up from 19.9% in 2019.

- Long-stay nursing home residents who had moderate to severe pain was 7.6% in 2020, up from 7.0% in 2019. Long-stay nursing home residents who reported worsening ability to move independently was 30.3% in 2020, up from 23.2% in 2019.
- In contrast, measures that assess the effects of limiting interventions on residents or limiting their mobility were essentially unchanged. Rates of long-stay nursing home residents with urinary tract infections were 1.8% in 2019 and 1.9% in 2020; and rates of long-stay nursing home residents who experienced a serious fall were 0.6% in 2019 and 0.55% in 2020.

## Impact of COVID-19 on Telehealthcare

This topic examines the delivery of healthcare services through telecommunication technologies. Policy changes implemented during COVID-19 enabled more telehealthcare service use to minimize in-person contact and decrease disease transmission. The term “telehealthcare” includes many different types of services, including audio-only encounters that resemble telephone consultations, and video-plus-audio encounters. NHQDR data indicate that the type of service and overall telehealthcare use varied across populations. Telehealthcare use rates were often lower in populations with the potential to benefit the most from virtual care.

Key findings follow:

- Telehealthcare use has increased, especially for behavioral health specialties (such as psychology and psychiatry) and primary care. Telehealthcare accounted for about 1% of behavioral health specialty visits and non-behavioral health primary care visits in January 2020. But rates increased during the COVID-19 pandemic such that more than 55% of behavioral health specialty visits and approximately 23% of non-behavioral health primary care visits were telehealthcare visits in April 2020.
- Although telehealthcare use waned as COVID-19 receded, it still accounted for approximately 35% of behavioral health specialty visits and 5% of non-behavioral health primary care visits in December 2021.
- Overall, 8.8% of all physician’s office visits in 2021 were telehealthcare visits. Use varied by medical practice type and by population characteristics. Rates were higher for practices that provided services that do not require in-person contact, such as ordering and interpreting diagnostic studies, prescribing medications, and counseling patients. Rarely, practices that require physical contact to examine or treat people, such as ophthalmology, provided telehealthcare services.
- In 2021, telehealthcare use rates were lowest for people age 65 years and over (3.1% vs. 15.8% for people ages 18-44 years) and people living in noncore areas and small metropolitan areas (3.7% and 4.8%, respectively, vs. 11.7% in large central metropolitan areas).
- In 2021, more practices provided audio-only services (67.0%) than video-plus-audio services (56.4%).
- In 2021, older patients and low-income people were less likely to have audio-plus-video visits: 42.2% of people age 65 and over vs. 71.7% of adults ages 18-44 years; and 50.1% of people with family incomes less than 100% of the poverty guideline vs. 71.5% of people with family incomes 400% or more of the poverty guideline.
- Telehealthcare poses identifiable barriers to healthcare delivery. In 2021, of practices that use telehealthcare technology, 70.4% of physicians reported patients’ difficulty using technology as a factor affecting use of telehealthcare and 64.3% reported limitations in patients’ access to technology as a factor.
- While healthcare providers perceived telehealthcare as a useful resource, they indicated the need for telehealthcare quality improvement. In 2021, 62.0% of practices that used telehealthcare technology were very

or somewhat satisfied with using telehealthcare technology for patient visits and 70.8% planned to continue using telehealthcare visits when appropriate after the COVID-19 pandemic ended. However, only 31.0% of practices that used telehealthcare technology described being able to provide similar quality of care during telehealthcare visits as during in-person visits.

## Quality and Disparities Tables: Key Findings

Readers will find the full collection of 555 NHQDR measures online at <https://datatools.ahrq.gov/nhqdr> and in the Healthcare Quality and Disparity tables in [Appendix B](#) of the report. The tables summarize each measure, and each table shows (1) key details about the measure; (2) the nation's overall performance (*quality*) on the measure; and (3) difference in performance for priority populations or subgroups (*disparities*).

Readers will discover many healthcare delivery trends in the tables. Five notable findings follow.

**Cost of Care** – More Americans report higher burden of healthcare costs, particularly those with private health insurance:

- The overall percentage of people under age 65 whose family health insurance premium and out-of-pocket health expenditures consumed more than 10% of total family income rose 8.9% (from 14.3% to 15.7%) between 2002 and 2020.
- The percentage of people with private, employer-sponsored health insurance reporting that premiums plus out-of-pocket costs consumed more than 10% of family income rose by 25.9% (from 12.3% to 16.6%) between 2002 and 2020.
- For comparison, the percentage of people with publicly sponsored health insurance reporting that premiums plus out-of-pocket costs consumed more than 10% of family income *decreased* by 35.1% (from 17.7% to 13.1%) between 2002 and 2020.

**Postoperative Sepsis** – Efforts to improve patient safety by avoiding healthcare-associated infections have yielded measurable improvements in hospital and other healthcare settings:

- Rates of sepsis after surgery decreased 31.9% (decreasing from 5.1 to 3.8 infections per 1,000 elective surgery admissions) between 2016 and 2020.
- Similarly, hospital admissions with central venous catheter-related bloodstream infections—a common underlying cause of sepsis—decreased 44.4% (from 0.13 to 0.09 infections per 1,000 hospital discharges) between 2016 and 2020.

**Adolescent Mental Health** – Adolescents' need for mental health services has grown but access to treatment remains limited, particularly among low-income and Hispanic youths.

- Emergency department visits for mental health diagnosis by children and adolescents ages 0-17 years increased 11.5% (from 784.1 to 886.4 visits per 100,000 population) between 2016 and 2020.
- Death due to suicide among adolescents ages 12-17 increased by 75.7% (rising from 3.7 to 6.5 deaths per 100,000 population) between 2008 and 2021.
- Only 40.6% of adolescents ages 12-17 with a major depressive episode received treatment for depression in 2021.
  - Access to treatment was far lower for adolescents with household incomes below the poverty guideline (35.8%) than for adolescents with household incomes 400% of the poverty guideline or higher (46.4%).

- Access to treatment was also far lower for Hispanic (30.2%) youths than for NH-White (47.4%) youths.

**Opioid Use Disorder** – Opioids fall into three broad categories: “natural opioids” are extracted from the seed pods of certain varieties of poppy plants; “semisynthetic opioids” are compounds derived from natural opiates; and “synthetic opioids” are compounds manufactured from chemical raw materials that act on the same receptors as natural opioids. Natural opioids include medications such as oxycodone, hydrocodone, oxycodone, and hydromorphone. Synthetic opioids include medications such as fentanyl and tramadol, as well as legally and illegally manufactured substances.

Mortality data indicate that overprescribing and diversion of prescription opioid analgesics initiated the early waves of the opioid overdose epidemic. But deaths due to illicit “synthetic” opioids, which are manufactured and distributed outside healthcare delivery systems, drive the current wave. Other data also show that health systems’ efforts to limit prescribing of natural and semisynthetic opioid analgesics have had modest effects on the opioid overdose epidemic because much of the recent rise in opioid-related mortality is attributable to synthetic opioids.

The data indicate greater need for health systems to prescribe medication for opioid use disorder (MOUD, which includes treatment with methadone, buprenorphine, or naltrexone). These are evidence-based treatments that reduce opioid use and risk for overdose.

- The national percentage of adults who filled four or more outpatient opioid prescriptions in the calendar year decreased between 2013 and 2020 (from 4.6% to 2.6%).
- Between 2011 and 2021, the rate of drug overdose deaths due to natural or semisynthetic opioids fluctuated between 3.5 and 4.4 deaths per 100,000 population, while rates of drug overdose due to synthetic opioids increased sharply from 0.9 to 21.8 deaths per 100,000 population (an over 2,000% increase).
- Only 22.1% of people with an opioid use disorder received MOUD in 2021

**Kidney Transplantation** – Chronic kidney disease affects approximately 14% of adults, and approximately 0.2% have end stage kidney disease that requires long-term dialysis or kidney transplantation. Although dialysis can be lifesaving, kidney transplantation is preferred because it often provides people with better quality of life, reduced treatment burden, and longer life expectancy. Yet relatively few Americans have access to this option:

- The national percentage of people who were registered on a waiting list or received a kidney transplant within a year of starting dialysis did not change between 2000 and 2019 (15.2% to 15.7%).
- Although racial and ethnic disparities for this measure narrowed between 2000 and 2019, the percentage of Hispanic (12.9% to 14.1%) and NH-Black (11.2% to 13.1%) people who were registered on a waiting list or received a kidney transplant within a year of starting dialysis remained lower than for NH-White people (18.0% to 17.1%).

## Resources To Improve Healthcare

HHS and the administration have produced and distributed a range of resources to support healthcare delivery systems and aid Americans in addressing the concerns outlined in this report. For resources relevant to each Special Emphasis Topic, the NHQDR links to HHS websites relevant to the topic. The NHQDR team invites readers to use the data and resources in this report to improve quality of care and advance health equity. They also invite readers’ suggestions for ways to improve how they monitor healthcare quality and disparities in our nation.

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