2023 National Healthcare Quality and Disparities Report Appendixes

DEPARTMENT OF HEALTH & HUMAN SERVICES • USA

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Contents

Due to its large size, Appendix B. Quality Trends and Disparities Tables is available separately at https://www.ahrq.gov/research/findings/nhqrdr/nhqdr23/app-b.html.

Appendix A. Methods of the National Healthcare Quality and Disparities Report and Related Chartbooks

This appendix describes the methods used to select and analyze measures related to access to healthcare and quality of healthcare. The appendix also provides the data sources used to prepare the report and the populations included. In addition, the appendix describes methods for analyzing trends, benchmarks, and disparities. Lastly, the appendix describes data limitations and reporting conventions.

Measures

Access to Healthcare

Purpose. To assess access to care for the overall U.S. population and priority populations; identify racial, ethnic, and socioeconomic disparities; track changes in access to care over time; and identify aspects of access to care that are improving and aspects that are not improving.

Approach. Factors that facilitate accessing healthcare, including having health insurance and a usual source of care, have been tracked since the first reports. Measures of timeliness of care and infrastructure to provide healthcare to minority and low-income populations were later added to the access measure set. In 2023, measures were added related to the 2019 novel coronavirus (COVID-19) pandemic.

Summaries of Access. Appendix D of the report presents summary information across a panel of access measures, including measures widely considered important for accessing healthcare, such as getting care in a timely manner.

The access measure panel excludes measures with less clear interpretation. For example, increases in the percentage of people under age 65 with any period of public insurance during the year may indicate people lost their private insurance, which is undesirable. On the other hand, they obtained public insurance coverage, which indicates access to some form of health insurance is improving.

Similarly, use of emergency departments as a usual source of care is not included in the access measure panel, because rising rates have multiple interpretations. They could reflect meeting a previously unmet community need, which would be desirable, or problems getting care in provider offices, which would be undesirable. Researchers, policymakers, and other users should explore these data further to understand the underlying causes.

Quality of Healthcare

Purpose. To assess quality of care for the overall U.S. population and priority populations; identify disparities among racial, ethnic, and socioeconomic groups; track changes in quality of care over time; and identify aspects of quality of care that are improving and aspects that are not improving.

Initial Approach. The selection of quality measures to include in the first reports involved several steps:

- The Institute of Medicine (IOM)[i] provided criteria for the selection of quality measures in 2001: overall importance of the aspects of quality being measured, scientific soundness of the measures, and feasibility of the measures. It also provided criteria for the measure set as a whole: balance, comprehensiveness, and robustness.
- IOM and AHRQ issued calls for measures that yielded hundreds of measures submitted by private and governmental organizations.
- A Federal Measures Workgroup was convened to apply the IOM criteria to the measures submitted for consideration.
- A preliminary measure set was published in the *Federal Register* for public comment; additional comments were obtained through a hearing organized by the National Committee on Vital and Health Statistics.
- In 2003, this process yielded an initial measure set that included 147 measures from two dozen data sources.

Types of Quality Measures. Most measures tracked in the report reflect processes of care, outcomes of care, and patient perceptions of care:

- **Processes of Care.** These measures generally represent percentages of people receiving care they need or percentages of people receiving care they should not receive. Measures are specified so that everyone in the denominator needs the service and optimal care equals 100%. These measures are generally not adjusted for age and sex since need is captured in the specification of the denominator.
- **Outcomes of Care.** These measures generally represent rates of adverse events or deaths. Because death rates often reflect factors other than healthcare, only death rates with moderate ties to processes of care are tracked. For example, colorectal cancer death rates are tracked because they are related to rates of colorectal cancer screening.
- **Patient Perceptions of Care.** These measures generally represent percentages of people who perceived problems with aspects of their care.

Refinement of the Measure Set. Since the first reports in 2003, the measure set has been reviewed each year and changes made as needed. All changes are approved by the U.S. Department of Health and Human Services Interagency Work Group that supports the NHQDR.

Additions have been made to the measure set as new domains of quality, data, and measures have become available. For example, Care Coordination and Affordable Care were not recognized quality domains when the reports started, and measures of these domains were identified and added after they were recognized.

Deletions have been made when data collection for measures ceased or when new scientific information indicated that a measure did not represent high-quality care. In addition, process measures that achieve overall performance levels exceeding 95% are not tracked in the report.

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[i] The Institute of Medicine formally changed its name to the National Academy of Medicine in 2015.

The success of these measures limits their utility for tracking improvement over time. Because these measures cannot improve to a significant degree, including them in the measure set creates a ceiling effect that may dampen quantification of rates of change over time. Data on retired measures continue to be collected and these measures will be added back to the report if their performance falls below 95%.

Modifications have been made when clinical recommendations change. For example, clinical recommendations often set new target levels or recommended frequencies for specific services.

Summaries of Quality. Appendix D of the report presents summary information across a panel of quality measures. This panel includes measures that are widely considered important for healthcare quality, such as measures of processes, outcomes, and patient perceptions, as noted above. The panel excludes measures with less clear interpretation, typically measures of infrastructure and costs.

Data Sources

Overview of Data

The data included in the report were determined by the measures the IWG and the NHQDR team chose to track. The report is based on dozens of data sources to provide a comprehensive assessment of access to healthcare, quality of care, and disparities in the United States. Most are nationally representative or cover the entire U.S. population.

The NHQDR team uses different types of data to provide complementary perspectives on healthcare, including patient and population surveys, provider surveys, administrative data from facilities, medical records, registries, surveillance systems, and vital statistics. Settings of care covered include ambulatory care, health centers, emergency departments, hospitals, nursing homes, hospices, and home health.

Data experts from contributing agencies or organizations generate descriptive summary statistics from microdata for the NHQDR measures and population groups of interest. For certain measures, the NHQDR team downloads summary statistics directly from trusted websites.

The team takes into account all survey design features. The percentages or rates are weighted to represent the targeted population. At a minimum, statistics with a sample size of fewer than 30 individuals or relative standard errors larger than 30% are suppressed for statistical reliability, data quality, and confidentiality. Some agencies contributing data applied more strict suppression criteria.

The NHQDR team has maintained and accumulated the data since 2003, the first year of the reports. Some survey designs, questionnaires, data collection methods, definitions, and data calculation methods have changed over the years. The team and the agencies contributing data worked together to address the changes and to ensure that only comparable data are trended over time.

Some contributing agencies informed the team about changes, provided recommendations, and adjusted the measures or removed the noncomparable data from the database. We retain data if the changes are considered minor and do not significantly affect the estimates.

Only data sources that are regularly included in the report are listed below. The list does not include sources that do not collect data on a regular basis; such data are presented intermittently in the report when they address topics or populations not well covered by regular data collection.

Federal Sources of Data

Agency for Healthcare Research and Quality

- Healthcare Cost and Utilization Project (HCUP)
- National Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Database – CAHPS® Health Plan Survey Database

Centers for Disease Control and Prevention

- Behavioral Risk Factor Surveillance System (BRFSS)
- COVID Data Tracker
- National Ambulatory Medical Care Survey (NAMCS)
- National Electronic Health Records Survey (NEHRS)
- National Health and Nutrition Examination Survey (NHANES)
- National Health Interview Survey (NHIS)
- National HIV Surveillance System (NHSS)
- National Hospital Ambulatory Medical Care Survey (NHAMCS)
- National Immunization Survey (NIS)
- National Immunization Survey (NIS)-Adult COVID Module (ACM)
- National Immunization Survey (NIS)-Child COVID Module (CCM)
- National Program of Cancer Registries (NPCR)
- National Tuberculosis Surveillance System (NTSS)
- National Vital Statistics System—Linked Birth and Infant Death Data (NVSS-L)
- National Vital Statistics System—Mortality (NVSS-M)
- National Vital Statistics System—Natality (NVSS-N)

Centers for Medicare & Medicaid Services

- COVID-19 Nursing Home Data
- Home Health Care CAHPS (HHCAHPS) Survey
- Home Health Outcome and Assessment Information Set (OASIS)
- Hospital CAHPS (HCAHPS) Survey
- Hospice CAHPS Survey
- Hospital Inpatient Quality Reporting (Hospital IQR) Program
- Hospital Outpatient Quality Reporting (Hospital OQR) Program
- Minimum Data Set (MDS)

Health Resources and Services Administration

- HIV/AIDS Bureau - Ryan White HIV/AIDS Program
- Bureau of Primary Health Care Uniform Data System (UDS)

Indian Health Service

- Indian Health Service (IHS) National Data Warehouse (NDW) Workload and Population Data Mart (WPDM)

National Institutes of Health

- United States Renal Data System (USRDS)

Substance Abuse and Mental Health Services Administration

- National Survey on Drug Use and Health (NSDUH)
- Substance Use Disorder Treatment Episode Data Set (TEDS)

United States Census Bureau

- American Community Survey (ACS)

Multiagency Data Sources

- Medical Expenditure Panel Survey (MEPS)
- Quality and Safety Review System (QSRS)

Academic Institutions

University of Michigan

- University of Michigan Kidney Epidemiology and Cost Center (UMKECC)

Professional Organizations and Associations

American Hospital Association

- American Hospital Association (AHA) Annual Survey Information Technology Supplement

Commission on Cancer and American Cancer Society

- National Cancer Data Base (NCDB)

Populations

Overall U.S. Population

Purpose. To assess access to healthcare and quality of healthcare for the overall U.S. population.

Approach. National data are used as collected without additional exclusions. Common population limitations for data collection include the following:

- Most federal health surveys are limited to the civilian noninstitutionalized population and do not include people on active duty in the military or who reside in nursing homes or penal or mental institutions.

- Many facility data collections do not include federal facilities run by the Departments of Defense or Veterans Affairs or IHS.

Priority Populations

Purpose. To assess access to healthcare and quality of healthcare for select populations such as those defined by age, sex, race, ethnicity, income, education, health insurance, and geographic location.

Approach. To the extent supported by data collection, definitions of priority populations are standardized across different data sources. The NHQDR also includes categories beyond those specified by the statute identifying priority populations. While the statute includes low-income groups, it does not mention other social determinants of health, such as insurance status and education. The NHQDR includes these categories, as analyses of disparities in these areas demonstrate the impact of socioeconomic factors on quality of and access to healthcare.

Commonly used population categories in the NHQDR across multiple databases include:

- Age: 0-17, 18-44, 45-64, and 65 and over.
- Sex: Male and female.
- Race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian/Pacific Islander, White, and more than one race.[ii]
- Ethnicity and race: Hispanic, non-Hispanic Asian, non-Hispanic Black, and non-Hispanic White.[iii]
- Income: Less than 100% of poverty guideline (PG), 100-199% of PG, 200-399% of PG, and 400% of PG or more.[iv]
- Education: Less than a high school education,[v] high school graduate, and any college education.
- Health insurance, ages 0-64: Any private insurance, public insurance[vi] only, and no insurance.
- Health insurance, age 65 and over: Medicare and any private insurance, Medicare and other public insurance, and Medicare only.

[ii] Asian includes the former category of Asian or Pacific Islander prior to 1997 Office of Management and Budget guidelines, when information was not collected separately by group. Go to https://www.gpo.gov/fdsys/granule/ FR-1997-10-30/97-28653 for more information.

[iii] Not all data sources collect information by race and ethnicity separately. In such cases, comparisons are made by combining racial/ethnic group categories (e.g., comparing non-Hispanic Black people and Hispanic people with non-Hispanic White people).

[iv] These are based on U.S. census poverty guidelines for each data year, which are used for statistical purposes.

[v] Less than a high school education refers to people who did not complete high school.

[vi] Public insurance includes Medicaid, Children's Health Insurance Program, state-sponsored or other government-sponsored health plans, Medicare, and military plans.

- Disabilities: Disability status is defined by following the methodology of the American Community Survey, which is different from the activity limitation definition used in the 2007-2018 NHQDR. Adults age 18 and over are defined as with disability if reporting at least one of the following: serious difficulty hearing, serious difficulty seeing, serious cognitive difficulty, serious difficulty walking or climbing stairs, difficulty dressing or bathing, and difficulty doing errands.
- Children with special health care needs (CSHCN): Children ages 0-17 with activity limitations or need or use of more healthcare or other services than is usual for most children of the same age. Question sequences[vii] are asked about the following five health consequences:

    - Need or use of medicines prescribed by a doctor;
    - Need or use of more medical care, mental health care, or education services than is usual for most children;
    - Limitations or inability to do things most children can do;
    - Need or use of special therapy, such as physical, occupational, or speech therapy; and
    - Need or use of treatment or counseling for emotional, developmental, or behavioral problems.

  Children reporting at least one of the five health consequences were identified as having a special health care need.

[vii] A CSHCN Screener instrument was developed through a national collaborative process as part of the Child and Adolescent Health Measurement Initiative coordinated by the Foundation for Accountability. For more information, refer to Bethell CD, Read D, Stein REK, Blumberg SJ, Wells N, Newacheck PW. Identifying children with special health care needs: development and evaluation of a short screening instrument. Ambul Pediatr. 2002 Feb;2(1):38-48. https://www.ncbi.nlm.nih.gov/pubmed/11888437. Accessed September 6, 2023.

- Geographic location: Large central metropolitan, large fringe metropolitan, medium metropolitan, small metropolitan, micropolitan, and noncore areas. These areas are typically based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme (https://www.cdc.gov/nchs/data_access/ urban_rural.htm),[viii] which includes six urbanization categories:
    - Four metropolitan county designations or counties meeting the metropolitan statistical area (MSA) criteria defined by the Office of Management and Budget (OMB):
        - Large Central Metropolitan: Large central metropolitan counties in an MSA of 1 million or more population:
            1. That contain the entire population of the largest principal city of the MSA, or
            2. Whose entire population is contained within the largest principal city of the MSA, or
            3. That contain at least 250,000 residents of any principal city in the MSA.
        - Large Fringe Metropolitan: Counties in MSAs of 1 million or more population that do not qualify as large central. Large fringe metropolitan areas are also described as suburban areas. This category is the reference group that all other residence locations are compared with in this report.
        - Medium Metropolitan: Counties in MSAs of 250,000 to 999,999 population.
        - Small Metropolitan: Counties in MSAs of less than 250,000 population.
    - Two nonmetropolitan county designations for counties not meeting the MSA criteria defined by OMB:
        - Micropolitan: Counties in a micropolitan statistical area.
        - Noncore: Nonmetropolitan counties that are not in a micropolitan statistical area.

Special Analyses. Other important groups have been more difficult to identify in healthcare data:

- Beginning with the 2012 reports, contrasts by granular racial/ethnic subgroups have been included when available. The NHQDR team has not yet found a healthcare data source that includes all the subgroups of interest, because sample sizes have been too small to yield statistically reliable data. Thus, limited data have been presented for Hispanic subgroups (Mexican, Puerto Rican, Cuban, other Hispanic/Latino/Spanish origin), Asian subgroups (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian), and Native Hawaiian/Pacific Islander subgroups (Native Hawaiian, Guamanian or Chamorro, Samoan, other Pacific Islander).

[viii] Readers examining long-term trends should note that the 2013 NCHS Urban-Rural Classification scheme is similar to the 2006 version that preceded it. Although minor differences between the two classification schemes may result in counties being classified in different categories, a 2014 analysis comparing the two classification schemes found that only 286 of 3,143 counties (9.1%) had different category assignments. See Ingram DD, Franco SJ. 2013 NCHS Urban-Rural Classification Scheme for Counties. Vital Health Stat 2. 2014 Apr;(166):1-73. https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf. Accessed September 6, 2023.

- Beginning with the 2013 reports, we have included analyses of a few multiple chronic conditions, but data sources differ in the chronic conditions that can be identified. Improving measurement and data for these groups is critical to understanding the reasons people with multiple chronic conditions cannot access high-quality healthcare and to develop effective interventions to help them overcome these barriers. Due to the change from International Classification of Diseases, Ninth Revision (ICD-9-CM) codes to ICD-10-CM codes, the chronic condition data are not available in the 2023 NHQDR.
- Prior to the 2023 report, NHQDR analyses included social determinants of health (SDOH) information related to education, income, and native English language. Beginning with the 2023 report, the NHQDR team began requesting a broader range of information related to SDOH. SDOH analyses have begun including additional information such as Social Vulnerability Index score and internet access.

Analyses

NHQDR analyses typically assess size of disparities, trend over time, trend in disparities, and comparison with benchmark for each measure. The results of the analyses are summarized in charts, tables, and maps and posted on the NHQDR data tools website. The source data for all these analyses are the summary statistics, either percentages or rates, at the national, subgroup, or state level, instead of micro data. Some figures used two-dimensional data, such as ethnicity by income.

Data Preparation

For all analyses, estimates are aligned to the negative direction. For measures where higher estimates are desirable, the estimates are usually reported as percentages instead of rates. The percentages are flipped (negatively aligned) by deducting the percentage from 100%. An example of negative alignment would be changing “Adults who had an influenza vaccine” to “Adults who did not have an influenza vaccine.”

The flipped or negatively aligned estimate will be referred to as the aligned rate in the text below. For measures where lower estimates are desirable, the estimates are not flipped. The result is interpreted based on the direction of the measures, although the rates are aligned to the negative direction for positive measures.

The NHQDR applies these methods to measure changes in trends and to assess disparities. This approach is used uniformly across all measures from different data sources in order to determine whether the differences between comparison groups and reference groups are statistically significant (not due to chance) and are more likely to be true differences. These methods improve uniformity for comparability and ease of understanding of the findings and increase the sensitivity (i.e., the likelihood of a difference being considered statistically significant) but have some limitations. (Refer to “Analysis Limitations” later in this document.)

For analyses of disparities in the current year and change in disparities over time, comparisons are typically made between a priority population or comparison group and a reference group. The largest subgroup or the subgroup that often received the best healthcare is used as the reference group. Table 1 provides examples of specific reference groups.

Table 1. Reference groups

Variable Category	Reference Group
Gender	Male
Age	18-44 years
Ethnicity/race	Non-Hispanic White
Race	White
Income	400% of PG or more
Education	Any college education
Disability status	Adults without any disability
Metropolitan status	Large fringe metropolitan (suburb) or metropolitan (urban)
Health insurance	Any private insurance

For comparisons among racial groups, if a measure had data for separate racial categories, racial data were used. If a measure only had a combined race and ethnicity category, those categories (e.g., non-Hispanic White, non-Hispanic Black, Hispanic) were used. Occasionally, comparisons of ethnicity without race information were used (Hispanic, all races and non-Hispanic, all races).

Trends in Quality

Purpose. To assess change over time considering both magnitude of change and statistical significance. Magnitude of change was considered important because large databases could have trends that were statistically significant but not large enough to be clinically meaningful.

Data Requirement. Estimates for at least four time points between 2000 and the most recent year; fewer than four time points were deemed insufficient to calculate slopes of regression lines.

Approach. Data preparation is applied as discussed above. Average annual percentage change (AAPC) is estimated using unweighted log-linear regression. In previous years, weighted regression was used with weight = (M^2/v), where M^2 is the square of the measure value and v is the variance. In 2015, we changed to unweighted regression to be more consistent with methods used in the Centers for Medicare & Medicaid Services (CMS) National Impact Assessments and because analyses demonstrated few differences between weighted and unweighted regressions.

Model. $\ln(M) = \beta_0 + \beta_1 Y$, where ln(M) is the natural logarithm of the aligned rate, β_0 is the intercept or constant, and β_1 is the coefficient corresponding to year Y (e.g., the average annual percentage change = $100 \times (\exp(\beta)-1)$).

Interpretation. The AAPC falls into one of three categories:

- **Improving** = Average annual percentage change >1% per year in a favorable direction and $p<0.10$.[ix]
- **Not Changing** = Average annual percentage change ≤1% per year or $p \geq 0.10$.
- **Worsening** = Average annual percentage change >1% per year in an unfavorable direction and $p<0.10$.

Since the rates were aligned to the negative direction, if the p value is less than 0.10, AAPC less than −1% indicates improving and more than 1% indicates worsening.

The rates are assumed to change at a constant percentage of the rate of the previous year. For example, if the rate is 50% in 2000 and the average annual percentage change is 10%, then the expected rate is 50% + (50% x 10%) = 55% in 2001, instead of 50% + 10% = 60%.

Measures changing the most quickly are also identified.

- **Improving Quickly** = Average annual percentage change >10% per year in a favorable direction and $p<0.10$.

Achievable Benchmarks

Purpose. To define a high level of performance that has been attained to help readers understand national and state performance and to serve as an achievable quality improvement goal.

Approach. Data preparation is applied as discussed above. Average of the top 10% best performing states is calculated.

Data Requirement. Estimates for 2015, 2016, or 2017 are required for at least 30 states. About 262 NHQDR measures meet this requirement.

Calculation. Average of estimates from the top 10% of states (e.g., average of top five states if estimates are available on all 50 states and DC). Territories are included in the calculation of the number of states in the top 10% (e.g., top 5 of 50) but are excluded from the top 10% of states for the benchmark calculation because the estimates usually are associated with larger variance.

Updates. Data from 2015 are preferred over more recent data for the benchmark calculation. If a measure does not have 2015 data, 2016 data or 2017 data are used. A benchmark is not calculated if a measure's latest data year is 2013 or earlier. The overall state-level benchmark is used for all comparisons. A benchmark for each priority population group is not calculated.

[ix] A probability of 0.10 was selected as the significance level because the magnitude of the standard errors varied considerably by type of data. Favorable direction is defined as negative average annual percentage change for positive measures and positive average annual percentage change for negative measures.

Interpretation:

- **Figures.** When available, benchmarks are shown as dashed red lines on figures.
- **Time to Benchmark.** When a subpopulation group has at least 4 years of data, time to reach the benchmark is estimated based on the distance between the benchmark and current year's rate and the average annual change. The average annual change is calculated using unweighted linear regression.
- **Model.** $M = \beta_0 + \beta_1 Y$, where M is the aligned rate of a subgroup, β_0 is the intercept or constant, and β_1 is the coefficient corresponding to year Y. The average annual change is used to extrapolate forward to the time when the benchmark will be achieved. We calculate the year to reach the benchmark using the formula below:

  Year to reach benchmark = (Benchmark − Current year's rate)/average annual change

  The result is classified into five mutually exclusive categories describing the direction of the measure compared with the benchmark:

  1. Better than benchmark: rate in the most recent year is better than the benchmark and is changing in the desirable direction.
  2. Approaching benchmark: a rate calculated for cases where the trend shows improvement toward the benchmark. The estimated number of years to reach the benchmark is calculated using the method mentioned above.
  3. Insignificant change: the average annual change is not statistically significant ($p \geq 0.05$) or the average annual change is zero.
  4. No progress toward benchmark: rate in the most recent year is worse than the benchmark and is changing in the undesirable direction.
  5. Better than benchmark and going away from benchmark: rate in the most recent year is better than the benchmark, but the trend showed worsening.

Disparities Between Two Subpopulations

Purpose. To assess whether access or quality differs between two subpopulations for the most recent data year. Comparisons are typically made between a priority population group and a reference group within a population characteristic (e.g., Black individuals vs. White individuals within the race characteristic). The best performing subgroup is typically used as the reference group.

Measures are excluded from the analysis if the most recent available data are too old. Before the 2016 report, the latest available data were used for the current year disparities analysis.

Beginning with the 2016 report, we exclude measures from the disparities analysis if the most recent data were 3 years older than the report year. For the 2023 report, 2019 is the earliest data year included as current data.[x] An exception is applied to the measure "Patients with treated chronic

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[x] In an effort to align the report year with the publication year, the NHQDR skipped 2020 in the numbering sequence. The 2020 report was published in 2021 and thus had a date of 2021. For data purposes, the 3-year timeframe started in 2020 and extended back 3 years to 2017.

kidney failure who received a transplant within 3 years of date of renal failure." An additional 2 years of data were used for this measure because the measure includes a 3-year waiting period.

Approach. Data are prepared as discussed above. Two criteria are applied to determine whether the difference between two groups is meaningful:

- The absolute difference between the priority population group and the reference group must be statistically significant with $p<0.05$ on a two-tailed test.
- The relative difference between the priority population group and the reference group must be at least 10% when framed positively or negatively ($[p1 - p2]/p2 \geq 0.1$), where p1 is priority group's aligned rate and p2 is reference group's aligned rate.

Interpretation:

- **Better** = Priority population estimate is more favorable than reference group estimate by at least 10% and with $p<0.05$.
- **Same** = Priority population and reference group estimates differ by less than 10% or $p \geq 0.05$.
- **Worse** = Priority population estimate is less favorable than reference group estimate by at least 10% and with $p<0.05$.

Summaries of Disparities. Disparities across panels of measures are usually summarized as stacked bar charts showing the percentage of measures that are Better, Same, or Worse for priority populations compared with a reference group.

Trends in Disparities Between Two Subpopulations

Purpose. To observe whether the difference in access or quality between two subpopulations has changed over time. Comparisons are typically made between a priority population group and a reference group within a population characteristic (e.g., Black individuals vs. White individuals within the race characteristic).

Approach. Data are prepared as discussed above, and analyses use unweighted linear regression.

Data Requirement. Estimates for at least four time points between 2000 and the most recent data year for both the priority population and reference group; fewer than four time points were deemed insufficient to calculate slopes of regression lines.

Model. $M = \beta_0 + \beta_1 Y$, where M is the aligned rate of a subgroup, β_0 is the intercept or constant, and β_1 is the coefficient corresponding to year Y.

The coefficient is the average annual change (AAC). For example, if the AAC is −1 and the mean rate is 50 per 1,000 in 2000, then the expected mean rate is $50 + (-1) = 49$ in 2001 and $49 + (-1) = 48$ in 2002. It means the mean rate decreased by 1 unit per year.

The difference in the AAC between the priority population group and the reference group and the standard error are calculated as follows:

Difference in AAC = AAC (priority population group) – AAC (reference group)
Standard error = square root of [STDErr(PPG)^2 + STDErr (Ref Group)^2]

Standard errors from the regression coefficients are used to calculate the standard error of the absolute difference.

Interpretation. The trends fall into one of three categories:

- Improving = The difference in the AAC of the priority population and reference group is < −1 (in a favorable direction) and $p<0.10$ for testing the regression coefficients are the same.
- Not Changing = Absolute value of the difference in the AAC of the priority population and reference group is <1 or $p \geq 0.10$ for testing the regression coefficients are the same.
- Worsening = The difference in the AAC of the priority population and reference group is >1 (in an unfavorable direction) and $p<0.10$ for testing the regression coefficients are the same.

Example: Because the rates are aligned to the negative direction, a negative AAC value indicates a measure/subgroup's mean has been decreasing (improving) over the years, and a positive value indicates the subgroup's mean has been increasing (worsening) over the years.

Taking the "hospital admissions for uncontrolled diabetes without complications per 100,000 population" measure as an example, if the AAC of the Black population is −2.9 and the AAC of the White population is −0.4, the difference is $(-2.9) - (-0.4) = -2.5$. This difference indicates that the mean rate of the Black population has been improving (decreasing) faster than the mean rate of the White population. That is, the disparity between the Black population and the White population is improving (i.e., narrowing).

Measures with disparities that are changing the most quickly for each priority population are identified. The designation "disparities eliminated" indicates that the disparity improved and the priority population estimate reached or surpassed the reference group estimate.

State Maps

Purpose. To show differences in quality and disparities between states.

Approach for quality map. Using the same methodology as for other analyses, rates were aligned to the negative direction for the calculation of the performance score. The comparison between a state's performance and national performance is estimated using the same method as for the disparities analysis between two subpopulations groups. National rate is used as reference rate. For measures where the national rate is not available, state average is used as the reference rate.

The quality map featured in the 2023 NHQDR (Figure 45, Portrait of American Healthcare) shows each state’s performance in quartiles based on the state’s performance score. The performance score for an individual measure is assigned as follows:

- −1 point for each measure that was better than the national average.
- 0 points for each measure that was the same as the national average.
- 1 point for each measure that was worse than the national average.

The state’s performance score is calculated by summing the individual scores over all measures and then dividing by the total number of measures.

> *Performance score = (−1 * Number of Better measures + Number of Worse measures)/Total number of measures*

Then the state’s performance scores are ranked into four groups as quartiles for the map.

Interpretation for quality map. The first quartile (best quality) of the map indicates that the states performed better on more measures and performed worse on fewer measures than the national average. The fourth quartile (worst quality) indicates that the states performed better on fewer measures and performed worse on more measures than the national average.

Approach for disparities map. The disparities map featured in the Portrait of American Healthcare section of the 2023 NHQDR (Figure 46) shows the average differences in quality of care for American Indian and Alaska Native (AI/AN), Asian, Black, Hispanic, Native Hawaiian/Pacific Islander (NHPI), and multiracial people compared with the reference group, non-Hispanic White or White people.

All core measures in this report that had state-level data to assess racial/ethnic disparities were used. For measures with ethnicity data, Hispanic, non-Hispanic Asian, and non-Hispanic Black people were compared with non-Hispanic White people. For measures without ethnicity data, AI/AN, Asian, Black, NHPI, and multiracial people were compared with White people. The comparison method is the same as the current year disparities analysis described in the “Disparities Between Two Subpopulations” section.

The performance score for individual measures is assigned as follows:

- −1 point for a subgroup that was better than the reference group.
- 0 points for a subgroup that was the same as the reference group.
- 1 point for a subgroup that was worse than the reference group.

The state’s disparities score is calculated by summing the individual scores over all measures and over all subgroups and then dividing by the sum of the number of measures and multiplying by the number of subgroups.

> *Disparities score = (−1 * Number of Better measures * number of subgroups + Number of Worse measures * number of subgroups)/(Total number of measures * number of subgroups)*

Then the state's disparities scores are ranked into quartiles for the map. States with fewer than 50 measures by subgroup combination are excluded from the quartile analysis.

Interpretation for disparities map. States with lower disparities scores indicate fewer disparities, regardless of overall quality among states.

Analysis Limitations

As noted earlier, the methods used in the NHQDR improve uniformity for comparability and ease of understanding of the findings and increase the sensitivity (i.e., the likelihood of a difference being considered statistically significant). However, the methods have some limitations.

To assess disparities for all measures across the measure set in the same way, some measures are flipped so that all measures are aligned in the negative direction (e.g., "Adults who had an influenza vaccine" is changed to "Adults who did not have an influenza vaccine"). The alignment of all the measures in the same direction provides a standard way to analyze the data. However, this effect is most reliable when the original rates are well above 50%. The effect is greatly diminished if the rates are near 50% and can have the opposite effect if the original rates are well below 50%.

The z-score of absolute difference is an additional criterion for statistical reliability. It takes into account the standard errors of the point estimates. That is, if the standard errors are comparatively large, then z-scores provide an additional check on the meaningfulness of the difference and reduce the possibility of labeling the differences as worse or better when those differences are not statistically valid. Therefore, the findings in the NHQDR may be different from other studies that look at the same measures and data due to the increased sensitivity of our methodology.

In some cases, changes in the measures or how to interpret the measures may have an impact on the effectiveness of the methodology used for this report. AHRQ is continually reviewing all aspects of its methodology for determining and reporting disparities and maintaining consistency.

Limitations Due to the COVID-19 Pandemic

In response to the COVID-19 public health emergency, CMS granted exemptions to the current Medicare quality reporting requirements and value-based purchasing program requirements for 2020 quarters 1 and 2. Provider participation in Q1 and Q2 2020 was voluntary and results were not publicly reported. Therefore, the NHQDR tables for hospital, hospice, and home health measures using 2020 CMS data are based on Q3 and Q4 2020 only.

This approach is consistent with the publicly available data files on http://www.cms.gov in the Provider Data Catalog for 2020 for the HCAHPS, Hospice CAHPS, and HHCAHPS.

The 2020 NHIS data collection switched to a telephone-only mode beginning March 19, 2020. Personal visits resumed in all areas in September 2020, but cases were still attempted by telephone first. These changes resulted in lower response rates and differences in respondent characteristics for April-December 2020. Differences observed in estimates between April and December 2020 and earlier time periods may still be affected by these changes. NHIS data are based on household interviews of a sample of the civilian noninstitutionalized population.

In addition, the QSRS data were only collected for the last quarter of 2020. For the OASIS data, CMS granted a temporary exemption for reporting home health care data to CMS through June 30, 2020. OASIS was also not reported for 2021. Also, MDS data were not reported in 2021.

Due to the COVID-19 pandemic, changes were made to the 2020 and 2021 MEPS data collection that analysts should keep in mind when doing trend analysis and pooling years of data. First, MEPS moved primarily to a phone rather than in-person survey. Second, Panels 23 and 24 were extended to nine rounds (4 years) of data collection as opposed to the historical five rounds (2 years). Due to the unforeseeable nature of the pandemic, data collection for 2020 included Round 5 interviews for Panel 23 that were fielded under the assumption that the interview would be the panel's last.

Starting largely in 2021, NSDUH became a fully mixed-mode survey, with many responses from both web and in-person administration. Repeated analyses showed that web responses were not comparable to in-person responses and that the comparability is not consistent in a way we can fully account for. Therefore, we do not recommended comparing any estimates from 2021 with estimates from 2020 or earlier.

General Limitations

Some common limitations affect analyses of multiple data sources. For example, data may be unavailable or statistically unreliable, or they may not meet confidentiality criteria for relatively small subpopulations, such as the NHPI population, some rural communities, and some states. The 2023 state data analysis, for example, included 179 measures. Wisconsin had data for 153 measures, while New Hampshire had data for 113 measures. Estimates are suppressed if the sample size is small or the relative standard error is larger than 30%.

For some measures, small sample size may indicate the subgroup or state is doing better than others because they have fewer people in the denominator. Examples of these measures include bloodstream infection in adult patients receiving central venous catheter placement and adults with limited English proficiency and usual source of care (USC) whose USC had language assistance.

In addition, while most national surveys conduct data collections annually, not all modules are completed each year. Thus, data are missing for some measures included in the report.

Timeliness of national data for national surveys and data systems are also a factor since it takes time to process and ensure data quality for reporting, resulting in about a 2-year lag between the year the data are collected and the year they can be included.

Finally, for various reasons (e.g., data collection was discontinued), data for all years for all measures are not available. We exclude measures for which data will not be available in the future. Lack of data for some measures affects the measure numbers in the summary figures, such as trends in quality.

Reporting Conventions

For ease of reporting, some shorthand is used in presenting results. Unless otherwise specified:

- State maps are grouped in quartiles. Data are excluded from territories with a large variation or that looked like outliers.
- Results presented in text or bullets meet our criteria for magnitude and statistical significance.
- Children are ages 0-17, adults are age 18 and over, and older adults are age 65 and over.
- “Black” individuals are those who identify their race as Black or African American.
- “Hispanic” individuals are those who identify their ethnicity as Hispanic, Latino/a, or Spanish origin and includes all races. The race categories for Hispanic individuals are not always specified in the report.
- “Measure improved” indicates performance on the measure improved; “measure got worse” indicates performance on the measure showed worsening.
- “Disparities improved” indicates the disparity narrowed. “Disparities worsened” indicates the disparity widened.

Appendix C. Measures Used for the State Quality and Disparities Maps

Quality Map

Measure Title	Data Source	Data Year
Postoperative sepsis per 1,000 elective-surgery admissions, age 18 and over	HCUP	2020
Reclosure of postoperative abdominal wound dehiscence per 1,000 abdominopelvic-surgery admissions of length 2 or more days, age 18 and over	HCUP	2020
Home health care patients whose surgical wound improved	OASIS	2021
Hospital admissions with iatrogenic pneumothorax per 1,000 medical and surgical admissions, age 18 and over	HCUP	2020
Deaths per 1,000 elective-surgery admissions who developed serious treatable complications of care during hospitalization, ages 18-89 or obstetric admissions	HCUP	2020
Deaths per 1,000 hospital admissions with expected low mortality, age 18 and over or obstetric admissions	HCUP	2020
Home health care patients whose management of oral medications improved	OASIS	2021
Birth trauma - injury to neonate per 1,000 live births	HCUP	2020
High-risk, long-stay nursing home patients with stages 2-4 pressure ulcer or unstageable pressure ulcer	MDS	2021
Low-risk, long-stay nursing home residents with a catheter inserted and left in the bladder	MDS	2021
Long-stay nursing home residents with a urinary tract infection	MDS	2021
Long-stay nursing home patients experiencing one or more falls with major injury	MDS	2021
Adults who reported a home health care provider talking with them about how to set up their home so they can move around safely when they first started getting home health care	HHCAHPS	2022
Adults who reported a home health care provider talking with them about all the prescription and over-the-counter medicines they were taking when they first started getting home health care	HHCAHPS	2022
Adults who reported a home health care provider asking to see all the prescription and over-the-counter medicines they were taking, when they first started getting home health care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about the purpose of taking their new or changed prescription medicines in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about when to take medicines in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about the side effects of medicines in the last 2 months of care	HHCAHPS	2022

Measure Title	Data Source	Data Year
Adult hospital patients who sometimes or never had good communication about medications they received in the hospital	HCAHPS	2021
Adults who reported being told what care and services they would get when they first started getting home health care	HHCAHPS	2022
Adults who reported that home health care providers talked about pain in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always kept them informed about when they would arrive at their home in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always treated them as gently as possible in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always explained things in a way that was easy to understand in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always listened carefully to them in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always treated them with courtesy and respect in the last 2 months of care	HHCAHPS	2022
Adults who reported getting the help or advice they needed when they contacted their home health care providers in the last 2 months of care	HHCAHPS	2022
Adults who did not have any problem with the care they received from their home health care providers in the last 2 months of care	HHCAHPS	2022
Hospice patients whose hospice care team always communicated well with their family caregivers about taking care of them	HOSPICE_CAHPS	2021
Hospice patients and family caregivers who always got help as soon as they needed from the hospice care team	HOSPICE_CAHPS	2021
Hospice patients whose hospice care team always treated them with dignity and respect and really cared about them	HOSPICE_CAHPS	2021
Hospice patients who always received enough help for pain, sadness, breathing, or constipation from the hospice care team	HOSPICE_CAHPS	2021
Family members who definitely received training about taking care of their family member from the hospice care team	HOSPICE_CAHPS	2021
Family caregivers who received the right amount of emotional and spiritual support from the hospice care team	HOSPICE_CAHPS	2021
Family caregivers who rated the hospice care for their family member best (9-10) on a scale of 0-10 (where 0 is the worst and 10 is the best)	HOSPICE_CAHPS	2021
Family caregivers who would definitely recommend this hospice to their friends and family	HOSPICE_CAHPS	2021
Adult hospital patients who did not receive good communication about discharge information	HCAHPS	2021

Measure Title	Data Source	Data Year
Adult hospital patients who strongly disagree or disagree that staff took their preferences and those of their family and caregiver into account when deciding what the patient's discharge healthcare would be	HCAHPS	2021
Hospital admissions for uncontrolled diabetes without complications per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with diabetes with short-term complications per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with diabetes with short-term complications per 100,000 population, ages 6-17	HCUP	2020
Hospital admissions with diabetes with long-term complications per 100,000 population, age 18 and over	HCUP	2020
Lower extremity amputations among admissions for diabetes per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions for asthma per 100,000 population, ages 18-39	HCUP	2020
Hospital admissions for asthma per 100,000 population, ages 2-17	HCUP	2020
Home health care patients who had an emergency department visit and were then hospitalized	OASIS	2021
Home health care patients who had an emergency department visit without a hospitalization	OASIS	2021
Home health care patients who had to be admitted to the hospital	OASIS	2021
Home health care patients who had timely initiation of care	OASIS	2021
Adults who reported that home health care providers always seemed informed and up to date about all the care or treatment they got at home in the last 2 months of care	HHCAHPS	2022
Hospital admissions with hypertension per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with chronic obstructive pulmonary disease or asthma per 100,000 population, age 40 and over	HCUP	2020
Hospital admissions for community-acquired pneumonia per 100,000 population, age 18 and over	HCUP	2020
Women with clinical Stage I-IIb breast cancer who received axillary node dissection or sentinel lymph node biopsy at the time of breast cancer surgery (lumpectomy or mastectomy)	NCDB	2020
Women under age 70 treated for breast cancer with breast-conserving surgery who received radiation therapy to the breast within 1 year of diagnosis	NCDB	2020
Breast cancer deaths per 100,000 female population per year	NVSS_M	2021
Patients with colon cancer who received surgical resection of colon cancer that included at least 12 lymph nodes pathologically examined	NCDB	2020
Colorectal cancer deaths per 100,000 population per year	NVSS_M	2021
Lung cancer deaths per 100,000 population per year	NVSS_M	2021

Measure Title	Data Source	Data Year
Deaths per 1,000 hospital admissions with acute myocardial infarction, age 18 and over, without transfer cases	HCUP	2020
Hospital admissions for heart failure per 100,000 population, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with heart failure, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with abdominal aortic aneurysm repair, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with coronary artery bypass graft, age 40 and over	HCUP	2020
Deaths per 1,000 hospital admissions with percutaneous coronary intervention, age 40 and over	HCUP	2020
Adult end stage renal disease patients who saw a nephrologist at least 12 months prior to initiation of renal replacement therapy	USRDS	2020
Ratio of observed deaths to expected deaths among Medicare hemodialysis patients	UMKECC	2021
Dialysis patients under age 70 who were registered on a waiting list for transplantation or received a deceased donor kidney transplant within a year of initiation	USRDS	2019
Patients with treated chronic kidney failure who received a transplant within 3 years of date of renal failure	USRDS	2017
Hemodialysis patients whose hemoglobin level is less than 10 g/dL	UMKECC	2021
Adult hemodialysis patients who use arteriovenous fistulas as the primary mode of vascular access	USRDS	2020
Adults age 40 and over with diagnosed diabetes who received at least two hemoglobin A1c measurements in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who received a dilated eye examination in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who had their feet checked for sores or irritation in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who received a flu vaccination in the calendar year	BRFSS	2021
New HIV cases per 100,000 population age 13 and over	HIV_AIDSSS	2021
People age 13 and over living with HIV who know their serostatus	HIV_AIDSSS	2021
People age 13 and over living with diagnosed HIV who had at least two CD4 or viral load tests performed at least 3 months apart during the last year, among reporting jurisdictions	HIV_AIDSSS	2021
People age 13 and over living with diagnosed HIV whose most recent viral load in the last 12 months was under 200 copies/mL	HIV_AIDSSS	2021
HIV infection deaths per 100,000 population	NVSS_M	2021
Adults with a major depressive episode in the past year who received treatment for depression in the past year	NSDUH	2021

Measure Title	Data Source	Data Year
Children ages 12-17 with a major depressive episode in the past year who received treatment for depression in the past year	NSDUH	2021
Suicide deaths among people age 12 and over per 100,000 population	NVSS_M	2021
Long-stay nursing home residents with depression symptoms	MDS	2021
People age 12 and over who needed treatment for illicit drug use who received such treatment at a specialty facility in the past year	NSDUH	2021
People age 12 and over treated for substance use disorder who completed treatment course	TEDSD	2020
Hospital inpatient stays involving opioid-related diagnoses per 100,000 population	HCUP	2020
Emergency department visits involving opioid-related diagnoses per 100,000 population	HCUP_NEDS	2020
Deaths per 1,000 hospital admissions with pneumonia, age 18 and over	HCUP	2020
Patients with tuberculosis who completed a curative course of treatment within 1 year of initiation of treatment	NTBSS	2019
Infants born in the calendar year who received breastfeeding exclusively through 3 months	NIS	2020
Home health care patients whose ability to walk or move around improved	OASIS	2021
Home health care patients whose ability to get in and out of bed improved	OASIS	2021
Home health care patients whose bathing improved	OASIS	2021
Home health care patients who had improvement in toileting	OASIS	2021
Long-stay nursing home residents whose need for help with daily activities increased	MDS	2021
Long-stay nursing home residents whose ability to move independently worsened	MDS	2021
Long-stay nursing home residents with moderate to severe pain	MDS	2021
Long-stay nursing home residents with too much weight loss	MDS	2021
Low-risk, long-stay nursing home residents with loss of control of bowels or bladder	MDS	2021
Long-stay nursing home residents with physical restraints	MDS	2021
Short-stay nursing home residents with moderate to severe pain	MDS	2021
Home health care patients whose shortness of breath decreased	OASIS	2021
Home health care patients who stayed at home after an episode of home health care	OASIS	2021
Home health care patients who had improvement in upper body dressing	OASIS	2021
Home health care patients who had improvement in confusion frequency	OASIS	2021
Home health care patients whose pain when moving around decreased	OASIS	2021

Measure Title	Data Source	Data Year
Women ages 50-74 who received a mammogram in the last 2 years	BRFSS	2020
Breast cancer diagnosed at advanced stage (regional, distant stage, or local stage with tumor greater than 2 cm) per 100,000 women age 40 and over	USCS	2019
Women ages 21-65 who received a Pap smear in the last 3 years or a human papillomavirus test in the last 5 years	BRFSS	2020
Cervical cancer diagnosed at advanced stage (all invasive tumors) per 100,000 women age 20 and over	USCS	2019
Colorectal cancer diagnosed at advanced stage (tumors diagnosed at regional or distant stage) per 100,000 population age 50 and over	USCS	2019
Adults who received a blood cholesterol measurement in the last 5 years	BRFSS	2021
Adults ages 18-64 at high risk (e.g., COPD) who received an influenza vaccination in the last flu season	BRFSS	2021
Adults age 65 and over who received an influenza vaccination in the last flu season	BRFSS	2021
Hospital admissions for immunization-preventable influenza per 100,000 population, age 65 and over	HCUP	2020
Adults ages 18-64 at high risk (e.g., COPD) who ever received pneumococcal vaccination	BRFSS	2021
Adults age 65 and over who ever received pneumococcal vaccination	BRFSS	2021
Children ages 19-35 months who received 4 or more doses of diphtheria-tetanus-pertussis vaccine	NIS	2021
Children ages 19-35 months who received 3 or more doses of polio vaccine	NIS	2021
Children ages 19-35 months who received 1 or more doses of measles-mumps-rubella vaccine	NIS	2021
Children ages 19-35 months who received 3 or more doses of hepatitis B vaccine	NIS	2021
Children ages 19-35 months who received 1 or more doses of varicella vaccine	NIS	2021
Adolescents ages 13-15 who received 1 or more doses of meningococcal conjugate vaccine	NIS_TEEN	2021
Adolescents ages 16-17 who received 1 or more doses of meningococcal conjugate vaccine	NIS_TEEN	2021
Adolescent females ages 13-15 who received 3 doses of human papillomavirus vaccine or 2 doses when the first dose was received before age 15	NIS_TEEN	2021
Adolescent females ages 16-17 who received 3 doses of human papillomavirus vaccine or 2 doses when the first dose was received before age 15	NIS_TEEN	2021
Adolescent males ages 13-15 who received 3 doses of human papillomavirus vaccine or 2 doses when the first dose was received before age 15	NIS_TEEN	2021

Measure Title	Data Source	Data Year
Adolescent males ages 16-17 who received 3 doses of human papillomavirus vaccine or 2 doses when the first dose was received before age 15	NIS_TEEN	2021
Adolescents ages 13-15 who received 1 or more doses of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine since the age of 10 years	NIS_TEEN	2021
Adolescents ages 16-17 who received 1 or more doses of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine since the age of 10 years	NIS_TEEN	2021
Long-stay nursing home patients who were assessed and appropriately given the seasonal influenza vaccine	MDS	2021
Long-stay nursing home residents who were assessed for pneumococcal vaccination	MDS	2021
Short-stay nursing home patients who had flu vaccination appropriately given	MDS	2021
Short-stay nursing home residents who were assessed for pneumococcal vaccination	MDS	2021
Home health care patients who had influenza vaccination during flu season	OASIS	2021
Home health care patients who had pneumococcal polysaccharide vaccination	OASIS	2021
Adults who had an appointment for routine healthcare in the last 6 months who sometimes or never got an appointment for routine care as soon as wanted, Medicaid	NCBD	2022
Adults who had an appointment for routine healthcare in the last 6 or 12 months who sometimes or never got an appointment for routine care as soon as wanted, Medicare managed care	NCBD	2022
Adults who had an appointment for routine healthcare in the last 6 or 12 months who sometimes or never got an appointment for routine care as soon as wanted, Medicare fee for service	NCBD	2022
Children who had an appointment for routine healthcare in the last 6 months who sometimes or never got an appointment for routine care as soon as wanted, Medicaid	NCBD	2022
Adults who needed care right away for an illness, injury, or condition in the last 6 months who sometimes or never got care as soon as wanted, Medicaid	NCBD	2022
Adults who needed care right away for an illness, injury, or condition in the last 6 or 12 months who sometimes or never got care as soon as wanted, Medicare managed care	NCBD	2022
Adults who needed care right away for an illness, injury, or condition in the last 6 or 12 months who sometimes or never got care as soon as wanted, Medicare fee for service	NCBD	2022
Adults who needed to see a specialist in the last 6 or 12 months who sometimes or never found it easy to see a specialist, Medicare managed care	NCBD	2022

Measure Title	Data Source	Data Year
Adults who needed to see a specialist in the last 6 or 12 months who sometimes or never found it easy to see a specialist, Medicare fee for service	NCBD	2022
Adults who needed to see a specialist in the last 6 months who sometimes or never found it easy to see a specialist, Medicaid	NCBD	2022
Children who needed to see a specialist in the last 6 months who sometimes or never found it easy to see a specialist, Medicaid	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicaid	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 12 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicare managed care	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 12 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicare fee for service	NCBD	2022
Children who had a doctor’s office or clinic visit in the last 6 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicaid	NCBD	2022
Composite measure: Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully, explained things clearly, respected what they had to say, and spent enough time with them, Medicare managed care	NCBD	2022
Composite measure: Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully, explained things clearly, respected what they had to say, and spent enough time with them, Medicare fee for service	NCBD	2022
Composite measure: Adults who had a doctor’s office or clinic visit in the last 6 months whose health providers sometimes or never listened carefully, explained things clearly, respected what they had to say, and spent enough time with them, Medicaid	NCBD	2022
Composite measure: Children who had a doctor’s office or clinic visit in the last 6 months whose health providers always listened carefully, explained things clearly, respected what they or their parents had to say, and spent enough time with them, Medicaid	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully to them, Medicare managed care	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully to them, Medicare fee for service	NCBD	2022

Measure Title	Data Source	Data Year
Adults who had a doctor's office or clinic visit in the last 6 months whose health providers sometimes or never listened carefully to them, Medicaid	NCBD	2022
Children who had a doctor's office or clinic visit in the last 6 months whose health providers always listened carefully, Medicaid	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never explained things in a way they could understand, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never explained things in a way they could understand, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 months whose health providers sometimes or never explained things in a way they could understand, Medicaid	NCBD	2022
Children who had a doctor's office or clinic visit in the last 6 months whose health providers always explained things clearly to their parents, Medicaid	NCBD	2022
Children who had a doctor's office or clinic visit in the last 6 months whose health providers always explained things clearly to the child, Medicaid	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never showed respect for what they had to say, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never showed respect for what they had to say, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 months whose health providers sometimes or never showed respect for what they had to say, Medicaid	NCBD	2022
Children who had a doctor's office or clinic visit in the last 6 months whose health providers always showed respect for what their parents had to say, Medicaid	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never spent enough time with them, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never spent enough time with them, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 months whose health providers sometimes or never spent enough time with them, Medicaid	NCBD	2022
Children who had a doctor's office or clinic visit in the last 6 months whose health providers always spent enough time with them, Medicaid	NCBD	2022

Measure Title	Data Source	Data Year
Rating of healthcare 0-6 on a scale from 0 (worst grade) to 10 (best grade) by adults who had a doctor’s office or clinic visit in the last 12 months, Medicare managed care	NCBD	2022
Rating of healthcare 0-6 on a scale from 0 (worst grade) to 10 (best grade) by adults who had a doctor’s office or clinic visit in the last 12 months, Medicare fee for service	NCBD	2022
Rating of healthcare 0-6 on a scale from 0 (worst grade) to 10 (best grade) by adults who had a doctor’s office or clinic visit in the last 12 months, Medicaid	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 months who sometimes or never got advice from provider to quit smoking, Medicaid	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months who sometimes or never got advice from provider to quit smoking, Medicare managed care	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months who sometimes or never got advice from provider to quit smoking, Medicare fee for service	NCBD	2022

Disparities Map

Measure Title	Data Source	Data Year
Postoperative sepsis per 1,000 elective-surgery admissions, age 18 and over	HCUP	2020
Reclosure of postoperative abdominal wound dehiscence per 1,000 abdominopelvic-surgery admissions of length 2 or more days, age 18 and over	HCUP	2020
Home health care patients whose surgical wound improved	OASIS	2021
Accidental puncture or laceration during a procedure per 1,000 medical and surgical admissions, age less than 18 years	HCUP	2019
Hospital admissions with iatrogenic pneumothorax per 1,000 medical and surgical admissions, age 18 and over	HCUP	2020
Deaths per 1,000 elective-surgery admissions who developed serious treatable complications of care during hospitalization, ages 18-89 or obstetric admissions	HCUP	2020
Deaths per 1,000 hospital admissions with expected low mortality, age 18 and over or obstetric admissions	HCUP	2020
Home health care patients whose management of oral medications improved	OASIS	2021
Birth trauma - injury to neonate per 1,000 live births	HCUP	2020
High-risk, long-stay nursing home patients with stages 2-4 pressure ulcer or unstageable pressure ulcer	MDS	2021
Low-risk, long-stay nursing home residents with a catheter inserted and left in the bladder	MDS	2021
Long-stay nursing home residents with a urinary tract infection	MDS	2021
Long-stay nursing home patients experiencing one or more falls with major injury	MDS	2021
Adults who reported a home health care provider talking with them about how to set up their home so they can move around safely when they first started getting home health care	HHCAHPS	2022
Adults who reported a home health care provider talking with them about all the prescription and over-the-counter medicines they were taking when they first started getting home health care	HHCAHPS	2022
Adults who reported a home health care provider asking to see all the prescription and over-the-counter medicines they were taking, when they first started getting home health care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about the purpose of taking their new or changed prescription medicines in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about when to take medicines in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers talked with them about the side effects of medicines in the last 2 months of care	HHCAHPS	2022
Adult hospital patients who sometimes or never had good communication about medications they received in the hospital	HCAHPS	2021

Measure Title	Data Source	Data Year
Adults who reported being told what care and services they would get when they first started getting home health care	HHCAHPS	2022
Adults who reported that home health care providers talked about pain in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always kept them informed about when they would arrive at their home in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always treated them as gently as possible in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always explained things in a way that was easy to understand in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always listened carefully to them in the last 2 months of care	HHCAHPS	2022
Adults who reported that home health care providers always treated them with courtesy and respect in the last 2 months of care	HHCAHPS	2022
Adults who reported getting the help or advice they needed when they contacted their home health care providers in the last 2 months of care	HHCAHPS	2022
Adults who did not have any problem with the care they received from their home health care providers in the last 2 months of care	HHCAHPS	2022
Adult hospital patients who did not receive good communication about discharge information	HCAHPS	2021
Adult hospital patients who strongly disagree or disagree that staff took their preferences and those of their family and caregiver into account when deciding what the patient’s discharge healthcare would be	HCAHPS	2021
Hospital admissions for uncontrolled diabetes without complications per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with diabetes with short-term complications per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with diabetes with short-term complications per 100,000 population, ages 6-17	HCUP	2020
Hospital admissions with diabetes with long-term complications per 100,000 population, age 18 and over	HCUP	2020
Lower extremity amputations among admissions for diabetes per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions for asthma per 100,000 population, ages 18-39	HCUP	2020
Hospital admissions for asthma per 100,000 population, ages 2-17	HCUP	2020
Home health care patients who had an emergency department visit and were then hospitalized	OASIS	2021
Home health care patients who had an emergency department visit without a hospitalization	OASIS	2021
Home health care patients who had to be admitted to the hospital	OASIS	2021
Home health care patients who had timely initiation of care	OASIS	2021

Measure Title	Data Source	Data Year
Adults who reported that home health care providers always seemed informed and up to date about all the care or treatment they got at home in the last 2 months of care	HHCAHPS	2022
Hospital admissions with hypertension per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions with chronic obstructive pulmonary disease or asthma per 100,000 population, age 40 and over	HCUP	2020
Hospital admissions for community-acquired pneumonia per 100,000 population, age 18 and over	HCUP	2020
Hospital admissions for urinary tract infection per 100,000 population, ages 3 months-17 years	HCUP	2019
Hospital admissions for pediatric gastroenteritis per 100,000 population, ages 3 months-17 years	HCUP	2019
Deaths per 1,000 hospital admissions with acute myocardial infarction, age 18 and over, without transfer cases	HCUP	2020
Hospital admissions for heart failure per 100,000 population, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with heart failure, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with abdominal aortic aneurysm repair, age 18 and over	HCUP	2020
Deaths per 1,000 hospital admissions with coronary artery bypass graft, age 40 and over	HCUP	2020
Deaths per 1,000 hospital admissions with percutaneous coronary intervention, age 40 and over	HCUP	2020
Adults age 40 and over with diagnosed diabetes who received at least two hemoglobin A1c measurements in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who received a dilated eye examination in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who had their feet checked for sores or irritation in the calendar year	BRFSS	2021
Adults age 40 and over with diagnosed diabetes who received a flu vaccination in the calendar year	BRFSS	2021
Long-stay nursing home residents with depression symptoms	MDS	2021
Deaths per 1,000 hospital admissions with pneumonia, age 18 and over	HCUP	2020
Home health care patients whose ability to walk or move around improved	OASIS	2021
Home health care patients whose ability to get in and out of bed improved	OASIS	2021
Home health care patients whose bathing improved	OASIS	2021
Home health care patients who had improvement in toileting	OASIS	2021
Long-stay nursing home residents whose need for help with daily activities increased	MDS	2021

Measure Title	Data Source	Data Year
Long-stay nursing home residents whose ability to move independently worsened	MDS	2021
Long-stay nursing home residents with moderate to severe pain	MDS	2021
Long-stay nursing home residents with too much weight loss	MDS	2021
Low-risk, long-stay nursing home residents with loss of control of bowels or bladder	MDS	2021
Long-stay nursing home residents with physical restraints	MDS	2021
Short-stay nursing home residents with moderate to severe pain	MDS	2021
Home health care patients whose shortness of breath decreased	OASIS	2021
Home health care patients who stayed at home after an episode of home health care	OASIS	2021
Home health care patients who had improvement in upper body dressing	OASIS	2021
Home health care patients who had improvement in confusion frequency	OASIS	2021
Home health care patients whose pain when moving around decreased	OASIS	2021
Women ages 50-74 who received a mammogram in the last 2 years	BRFSS	2020
Women ages 21-65 who received a Pap smear in the last 3 years or a human papillomavirus test in the last 5 years	BRFSS	2020
Adults who received a blood cholesterol measurement in the last 5 years	BRFSS	2021
Adults ages 18-64 at high risk (e.g., COPD) who received an influenza vaccination in the last flu season	BRFSS	2021
Adults age 65 and over who received an influenza vaccination in the last flu season	BRFSS	2021
Hospital admissions for immunization-preventable influenza per 100,000 population, age 65 and over	HCUP	2020
Adults ages 18-64 at high risk (e.g., COPD) who ever received pneumococcal vaccination	BRFSS	2021
Adults age 65 and over who ever received pneumococcal vaccination	BRFSS	2021
Long-stay nursing home patients who were assessed and appropriately given the seasonal influenza vaccine	MDS	2021
Long-stay nursing home residents who were assessed for pneumococcal vaccination	MDS	2021
Short-stay nursing home patients who had flu vaccination appropriately given	MDS	2021
Short-stay nursing home residents who were assessed for pneumococcal vaccination	MDS	2021
Home health care patients who had influenza vaccination during flu season	OASIS	2021
Home health care patients who had pneumococcal polysaccharide vaccination	OASIS	2021

Measure Title	Data Source	Data Year
Adults who had an appointment for routine healthcare in the last 6 or 12 months who sometimes or never got an appointment for routine care as soon as wanted, Medicare managed care	NCBD	2022
Adults who had an appointment for routine healthcare in the last 6 or 12 months who sometimes or never got an appointment for routine care as soon as wanted, Medicare fee for service	NCBD	2022
Adults who needed care right away for an illness, injury, or condition in the last 6 or 12 months who sometimes or never got care as soon as wanted, Medicare managed care	NCBD	2022
Adults who needed care right away for an illness, injury, or condition in the last 6 or 12 months who sometimes or never got care as soon as wanted, Medicare fee for service	NCBD	2022
Adults who needed to see a specialist in the last 6 or 12 months who sometimes or never found it easy to see a specialist, Medicare managed care	NCBD	2022
Adults who needed to see a specialist in the last 6 or 12 months who sometimes or never found it easy to see a specialist, Medicare fee for service	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 12 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicare managed care	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 12 months and needed care, tests, or treatment who sometimes or never found it easy to get the care, tests, or treatment, Medicare fee for service	NCBD	2022
Composite measure: Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully, explained things clearly, respected what they had to say, and spent enough time with them, Medicare managed care	NCBD	2022
Composite measure: Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully, explained things clearly, respected what they had to say, and spent enough time with them, Medicare fee for service	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully to them, Medicare managed care	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never listened carefully to them, Medicare fee for service	NCBD	2022
Adults who had a doctor’s office or clinic visit in the last 6 or 12 months whose health providers sometimes or never explained things in a way they could understand, Medicare managed care	NCBD	2022

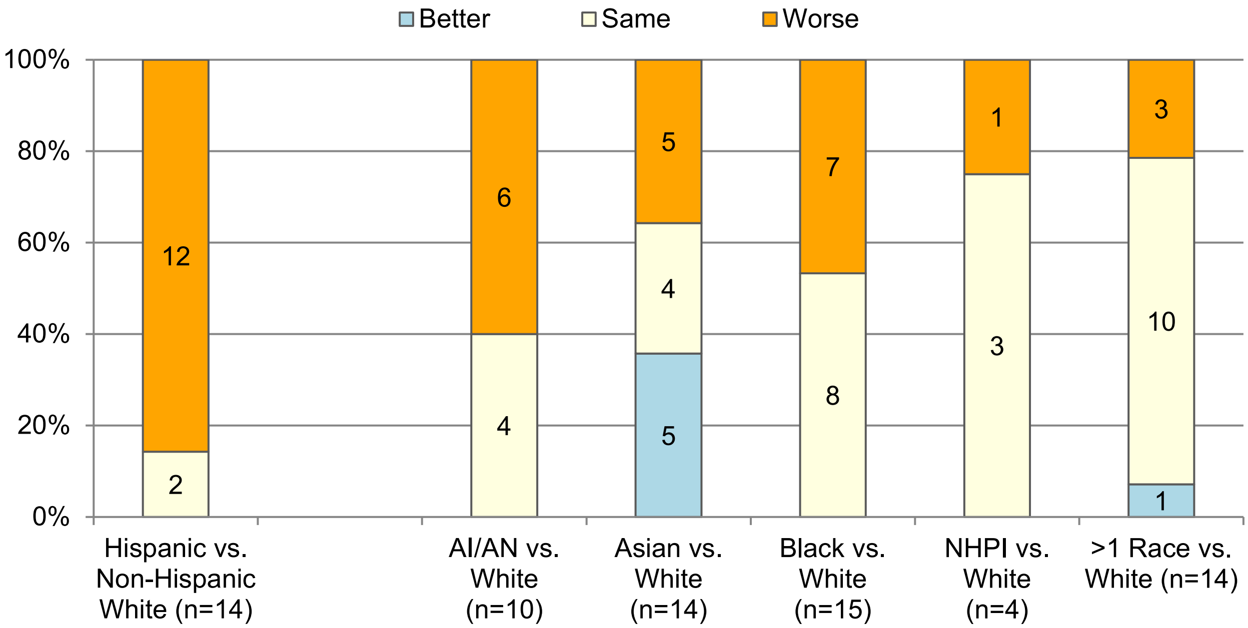
Measure Title	Data Source	Data Year
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never explained things in a way they could understand, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never showed respect for what they had to say, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never showed respect for what they had to say, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never spent enough time with them, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months whose health providers sometimes or never spent enough time with them, Medicare fee for service	NCBD	2022
Rating of healthcare 0-6 on a scale from 0 (worst grade) to 10 (best grade) by adults who had a doctor's office or clinic visit in the last 12 months, Medicare managed care	NCBD	2022
Rating of healthcare 0-6 on a scale from 0 (worst grade) to 10 (best grade) by adults who had a doctor's office or clinic visit in the last 12 months, Medicare fee for service	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months who sometimes or never got advice from provider to quit smoking, Medicare managed care	NCBD	2022
Adults who had a doctor's office or clinic visit in the last 6 or 12 months who sometimes or never got advice from provider to quit smoking, Medicare fee for service	NCBD	2022

Appendix D. Quality and Disparities Summary Charts

This appendix presents summary charts showing the number of measures that had better, worse, and same performance for various groups compared with the reference group (e.g., Black people vs. White people, uninsured people vs. people with private insurance). The charts show disparities in access, disparities in quality by priority area (e.g., person-centered care, patient safety), and trends in quality. In addition, disparities in quality and trends in disparities are shown for selected groups by race, ethnicity, income, insurance status, and residence location.

Snapshot of Disparities in Access to Care

Figure 1. Number and percentage of access measures for which members of selected race and ethnicity groups experienced better, same, or worse access to care compared with non-Hispanic White or White people for the most recent data year, 2019, 2020, or 2021

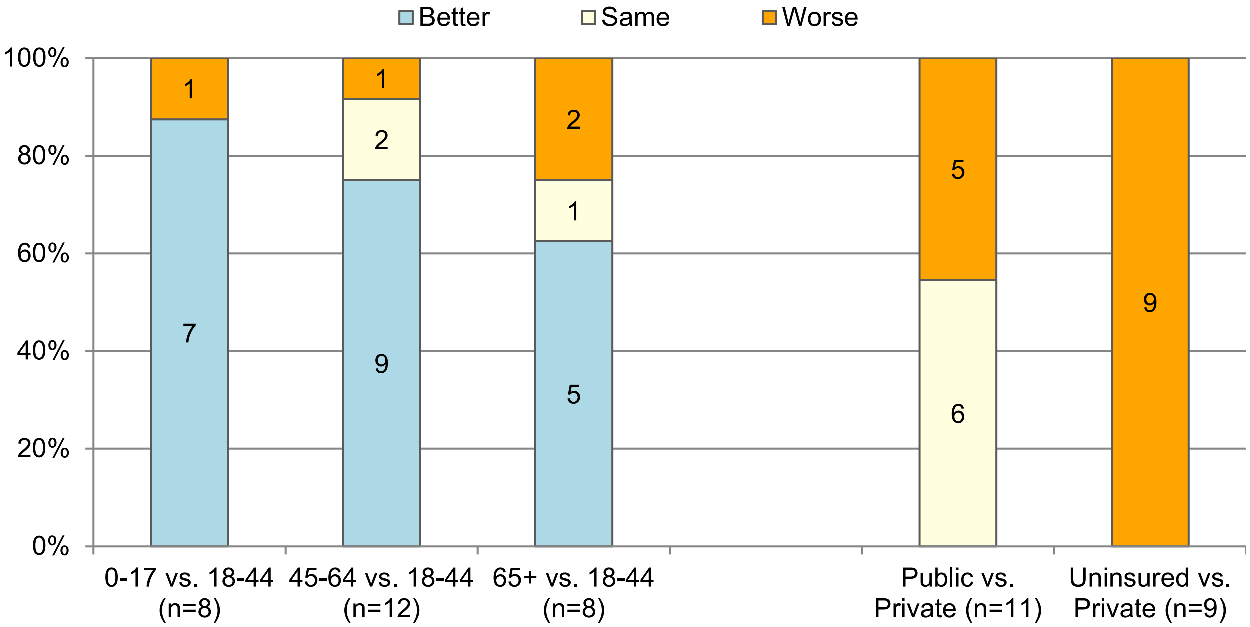


Key: n = number of measures, AI/AN = American Indian or Alaska Native, NHPI = Native Hawaiian/Pacific Islander.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, Hispanic people had worse access to care than non-Hispanic White people for 86% of access measures (Figure 1).
- American Indian and Alaska Native people had worse access to care than White people for 60% of access measures.
- Asian people had worse access to care than White people for 36% of access measures and better access to care for another 36% of access measures.
- Black people had worse access to care than White people for 47% of access measures.
- Native Hawaiian/Pacific Islander people had worse access to care than White people for 25% of access measures.

- Multiracial[i] people had worse access to care than White people for 21% of access measures and better access to care for 7% of access measures.

Figure 2. Number and percentage of access measures for which members of selected age groups and with selected insurance status experienced better, same, or worse access to care compared with adults ages 18-44 years or individuals with private insurance for the most recent data year, 2019, 2020, or 2021



Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, children ages 0-17 years had worse access to care than adults ages 18-44 years for 13% of access measures and better access to care for 88% of access measures (Figure 2).
- Adults ages 45-64 years had worse access to care than adults ages 18-44 years for 8% of access measures and better access to care for 75% of access measures.
- Adults age 65 years and over had worse access to care than adults ages 18-44 years for 25% of access measures and better access to care for 63% of access measures.
- People with only public insurance had worse access to care than people with private insurance for 45% of access measures.
- People with no insurance had worse access to care than people with private insurance for all access measures.

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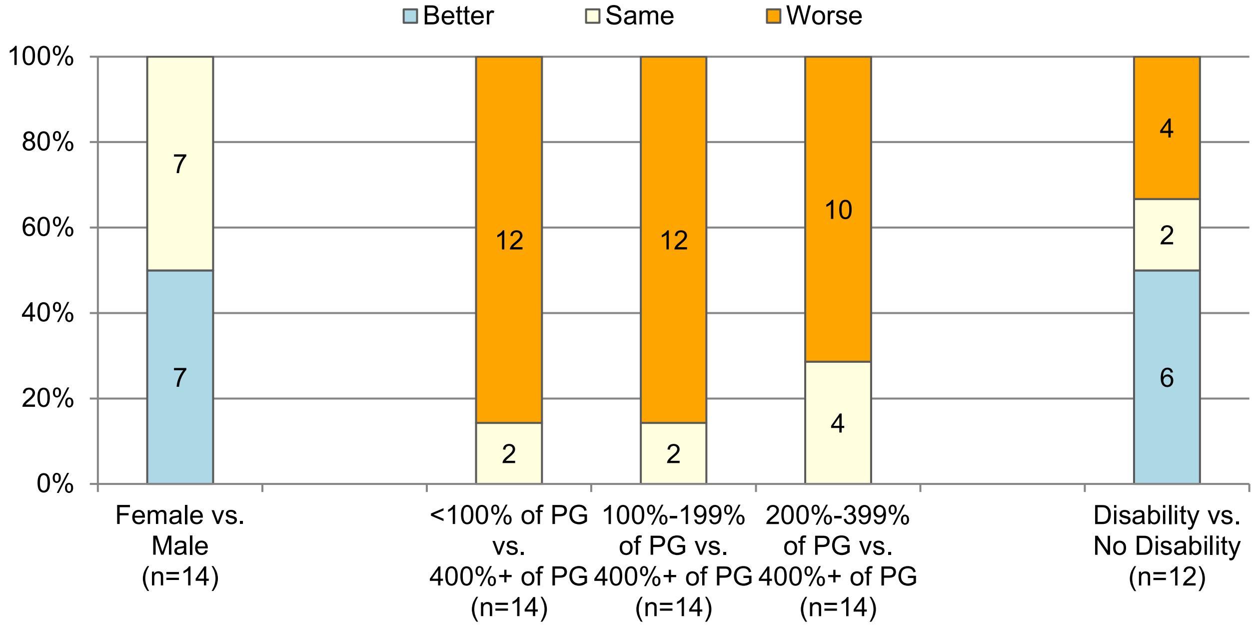
[i] Multiracial is defined as people indicating they were two or more of the following races: American Indian or Alaska Native, Asian, Black, Native Hawaiian/Pacific Islander, and White.

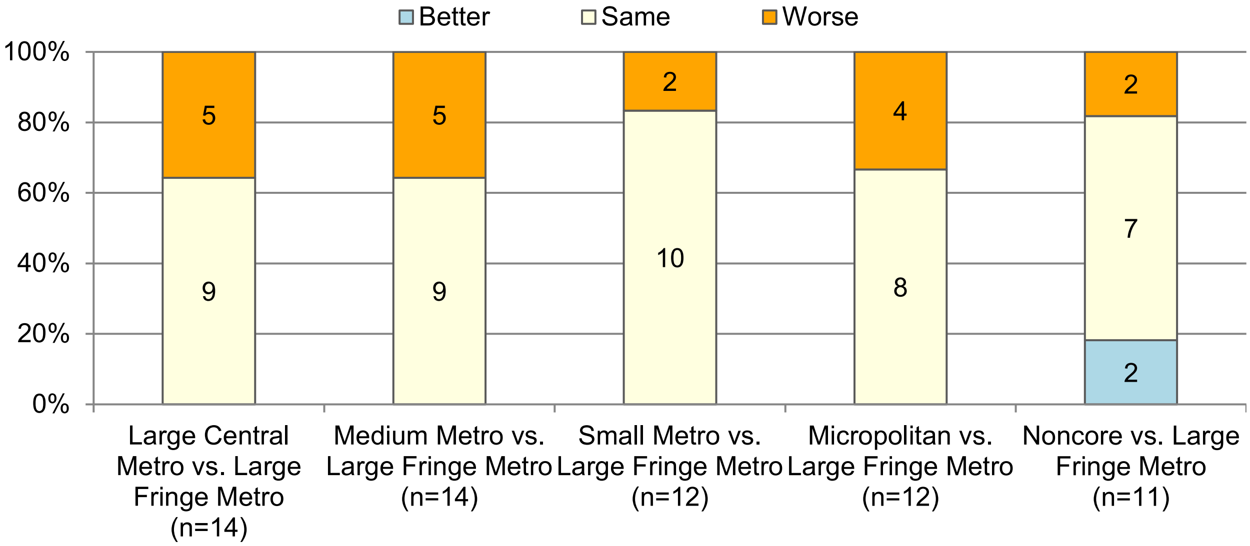
Figure 3. Number and percentage of access measures for which members of selected gender, income, and disability status groups experienced better, same, or worse access to care compared with males, people in households with incomes 400% or more of the poverty guideline, or people without disabilities for the most recent data year, 2019, 2020, or 2021



Key: n = number of measures; PG = federal poverty guideline.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, females had better access to care than males for 50% of access measures (Figure 3).
- People in households with incomes less than 100% of the federal poverty guideline (PG) had worse access to care than people in households with incomes 400% or more of the PG for 86% of access measures.
- People in households with incomes 100%-199% the PG had worse access to care than people in households with incomes 400% or more the PG for 86% of access measures.
- People in households with incomes 200%-399% of the PG had worse access to care than people in households with incomes 400% or more of the PG for 71% of access measures.
- People with disabilities had worse access to care than people without disabilities for 33% of access measures and better access to care for 50% of access measures.

Figure 4. Number and percentage of access measures for which members of selected geographic locations experienced better, same, or worse access to care compared with people in large fringe metro areas for the most recent data year, 2019, 2020, or 2021



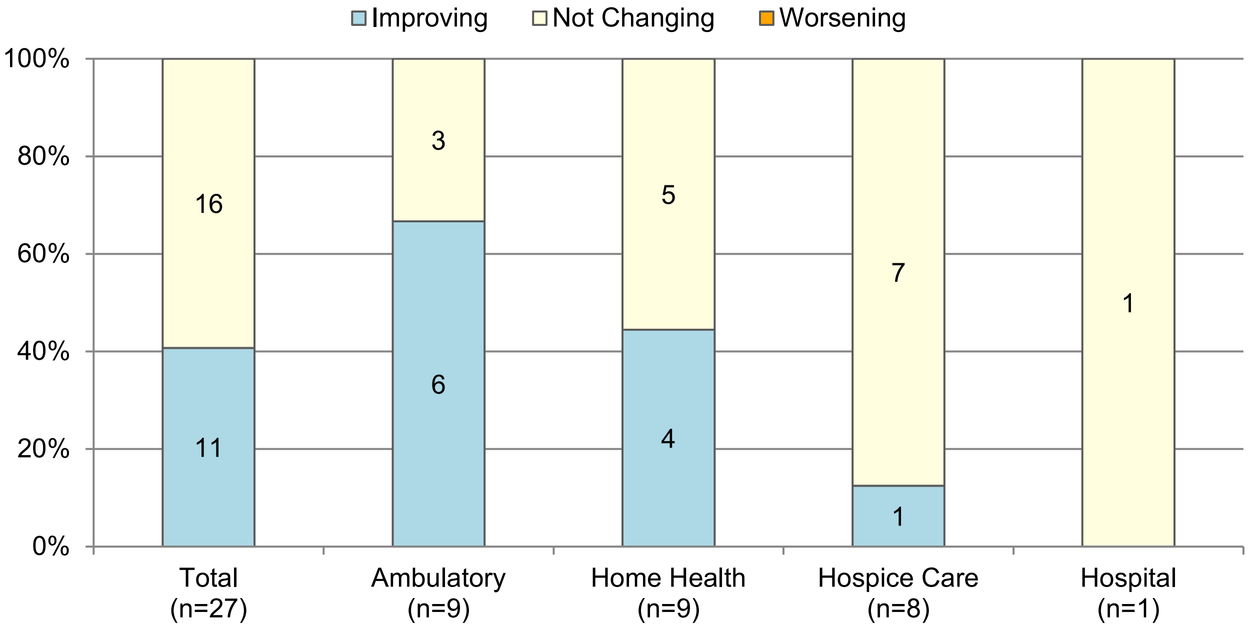
Key: n = number of measures.
Note: The difference between two groups is meaningful only if the **absolute** difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year. The geographic locations are based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme (https://www.cdc.gov/nchs/data_access/):

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

- For the most recent data year, people in large central metro areas had worse access to care than people in large fringe metro areas for 36% of access measures (Figure 4).
- People in medium metro areas had worse access to care than people in large fringe metro areas for 36% of access measures.
- People in small metro areas had worse access to care than people in large fringe metro areas for 17% of access measures.
- People in micropolitan areas had worse access to care than people in large fringe metro areas for 33% of access measures.
- People in noncore areas had worse access to care than people in large fringe metro areas for 18% of access measures and better access to care for another 18% of measures.

Person-Centered Care Quality Measures by Setting of Care

Figure 5. Number and percentage of all person-centered care measures improving, not changing, or worsening from 2002 to 2021, by setting of care



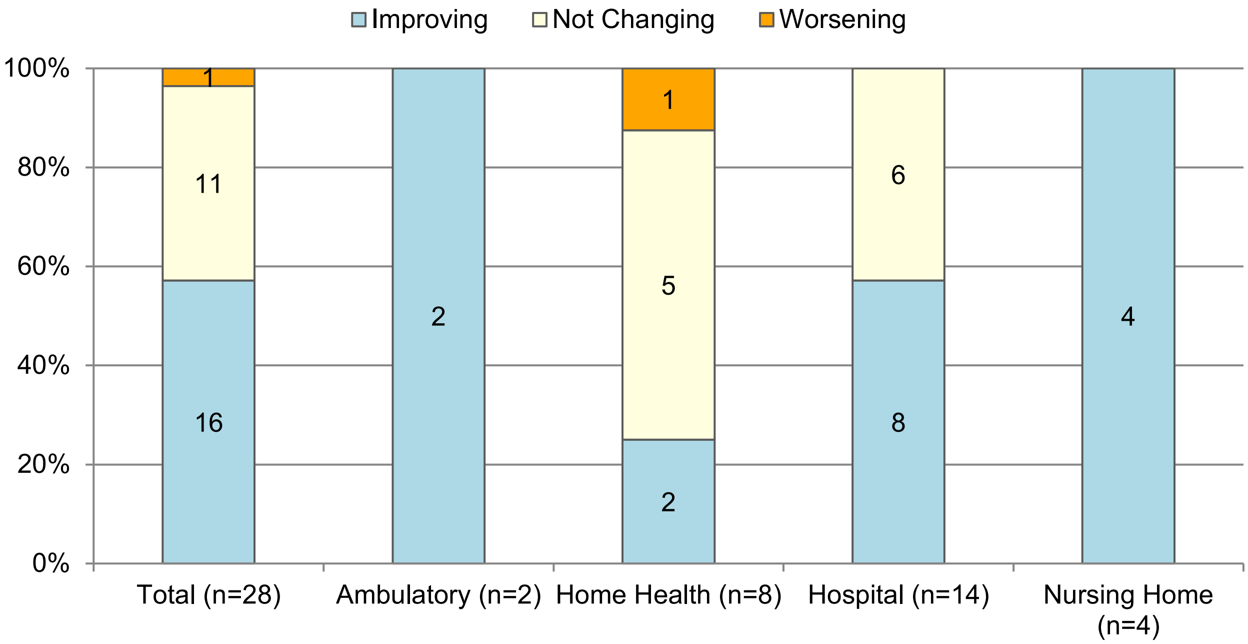
Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2002 to 2021, 41% of person-centered care measures improved (Figure 5).
- From 2002 to 2021, 67% of person-centered care measures in the ambulatory setting, 44% of person-centered care measures in the home health setting, and 14% of person-centered care measures in the hospice setting improved.

Patient Safety Quality Measures by Setting of Care

Figure 6. Number and percentage of all patient safety measures improving, not changing, or worsening from 2002 to 2021, by setting of care



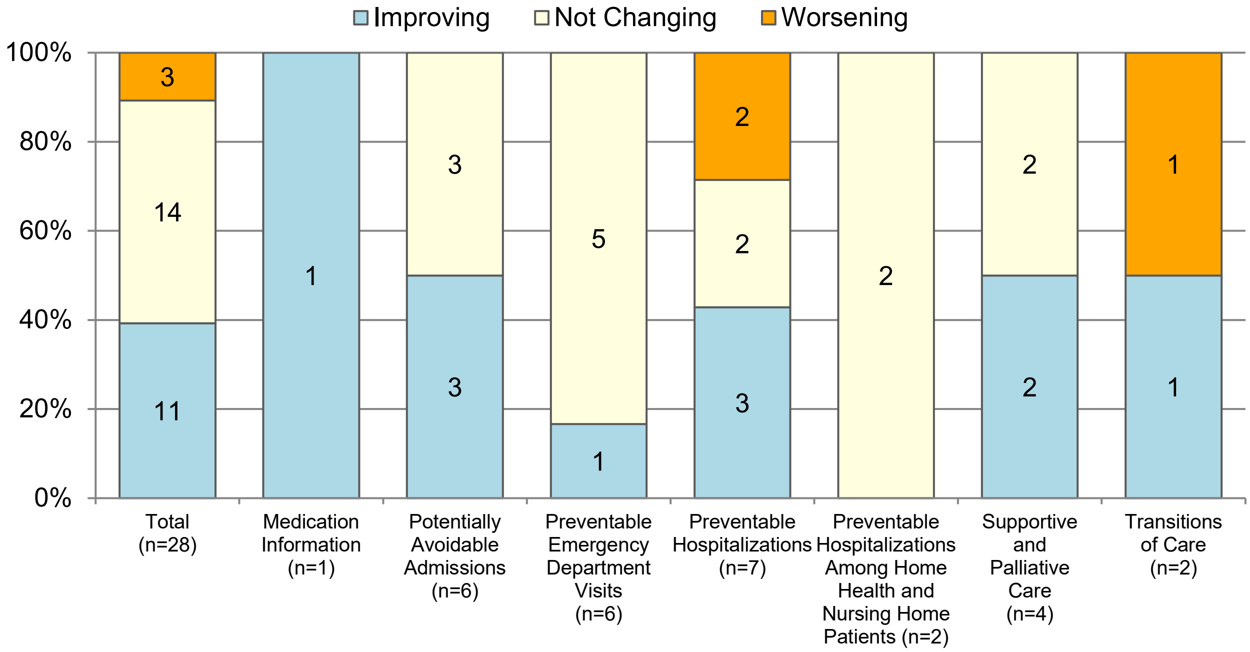
Key: n = number of measures.
Note: Patient safety measures include measures related to nursing home resident safety. For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p≤0.10.

- From 2002 to 2021, 57% of patient safety measures improved and 4% of patient safety measure worsened (Figure 6).
- From 2002 to 2021, 100% of patient safety measures in the ambulatory setting, 25% of patient safety measures in the home health setting, 57% of patient safety measures in the hospital setting, and 100% of patient safety measures in the nursing home setting improved.
- From 2002 to 2021, 13% of patient safety measures in the home health setting worsened.

Care Coordination Quality Measures by Topic Areas

Figure 7. Number and percentage of all care coordination measures improving, not changing, or worsening from 2002 to 2021, by sub-area



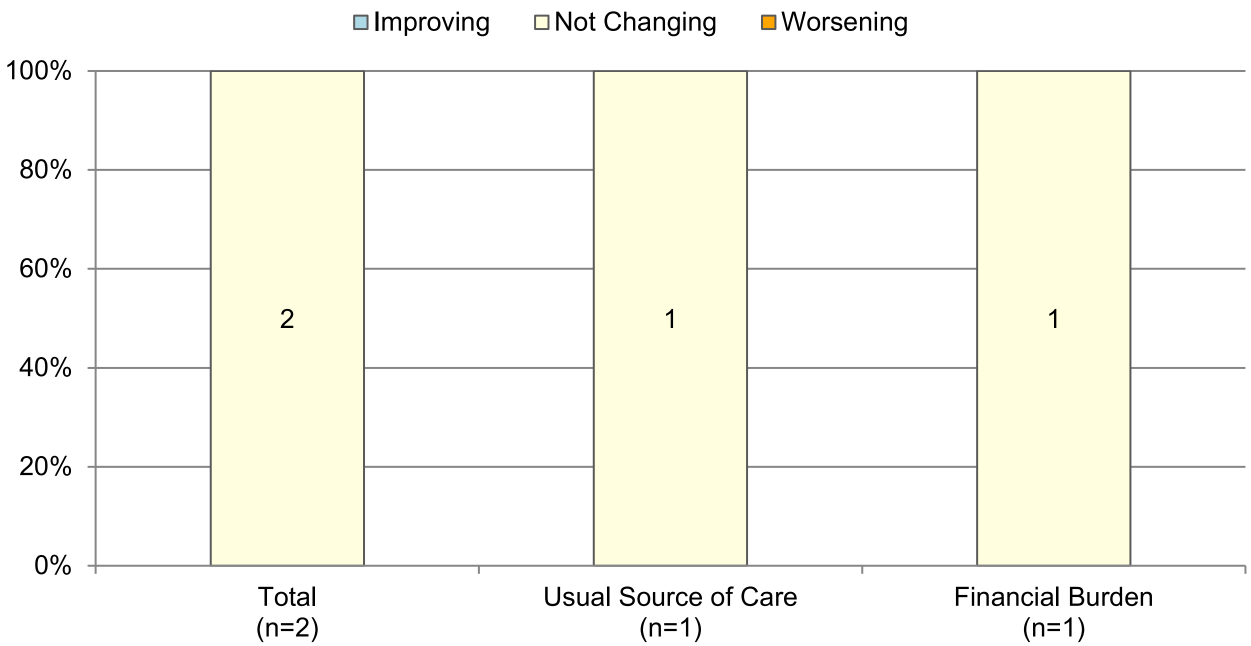
Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2002 to 2021, 39% of care coordination measures improved and 11% of care coordination measures worsened (Figure 7).
- From 2002 to 2021, the one medication information measure, 50% of potentially avoidable admissions, 17% of preventable emergency department visits, 43% of preventable hospitalizations, 50% of supportive and palliative care, and 50% of transitions of care measures improved.
- From 2002 to 2021, 29% of preventable hospitalizations measures and 50% of transitions of care measures worsened.

Affordable Care Quality Measures by Sub-Areas

Figure 8. Number and percentage of all affordable care measures improving, not changing, or worsening from 2002 to 2020, by sub-area



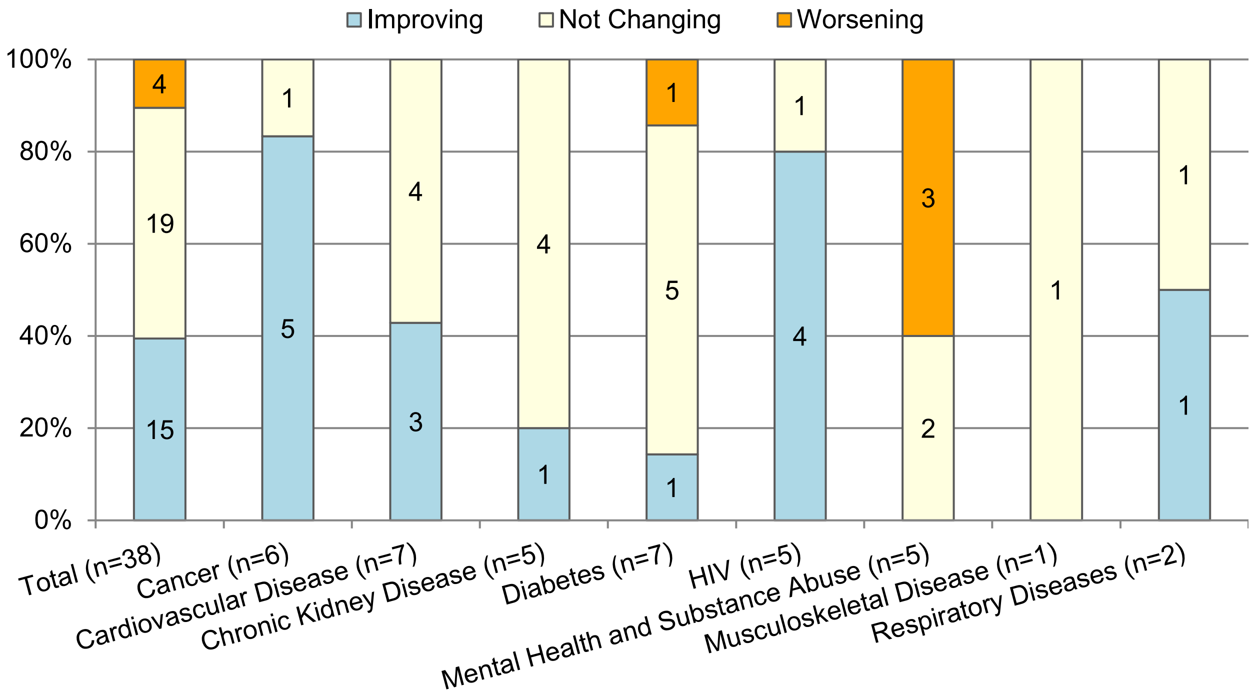
Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2002 to 2020, the two affordable care measures, one about usual source of care and the other about financial burden, had no statistically significant changes (Figure 8).

Effectiveness of Care Measures by Sub-Areas

Figure 9. Number and percentage of all effective treatment measures improving, not changing, or worsening from 2000 to 2021 by disease category



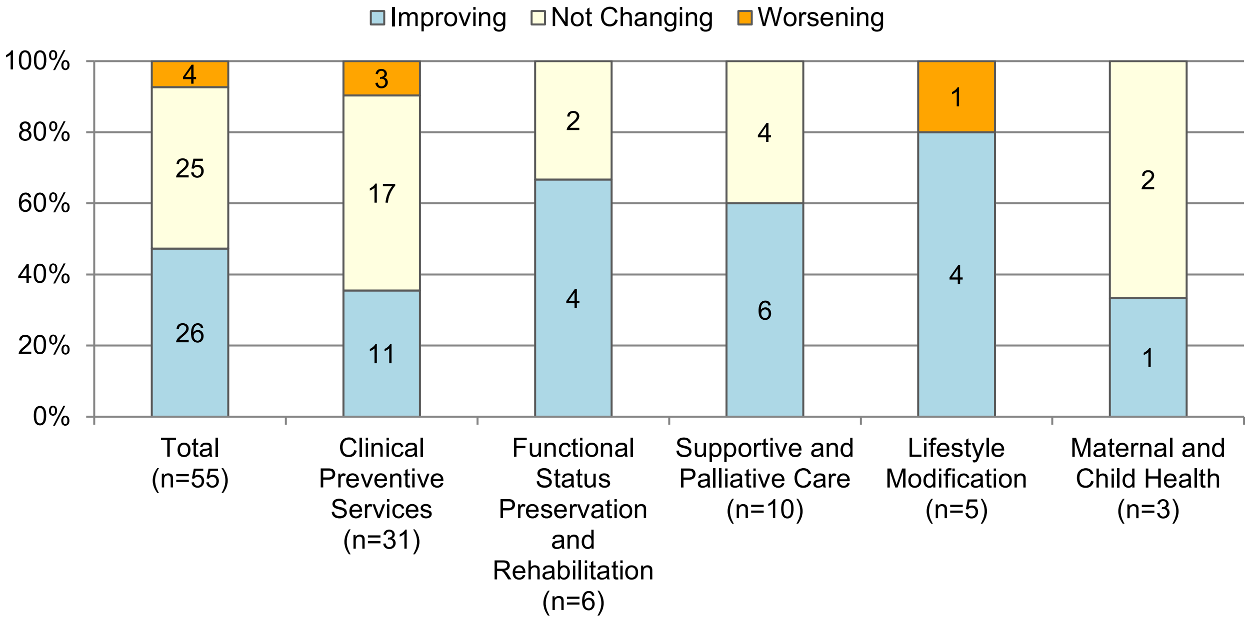
Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2000 to 2021, 39% of effective treatment measures improved and 11% of effective treatment measures worsened (Figure 9).
- From 2000 to 2021, 83% of cancer measures, 43% of cardiovascular disease measures, 20% of chronic kidney disease measures, 14% of diabetes measures, 80% of HIV measures, and 50% of respiratory disease measures improved.
- From 2000 to 2021, 14% of diabetes measures and 60% of mental health and substance abuse measures worsened.

Healthy Living Measures by Topic Areas

Figure 10. Number and percentage of all healthy living measures improving, not changing, or worsening from 2000 to 2021, by topic area

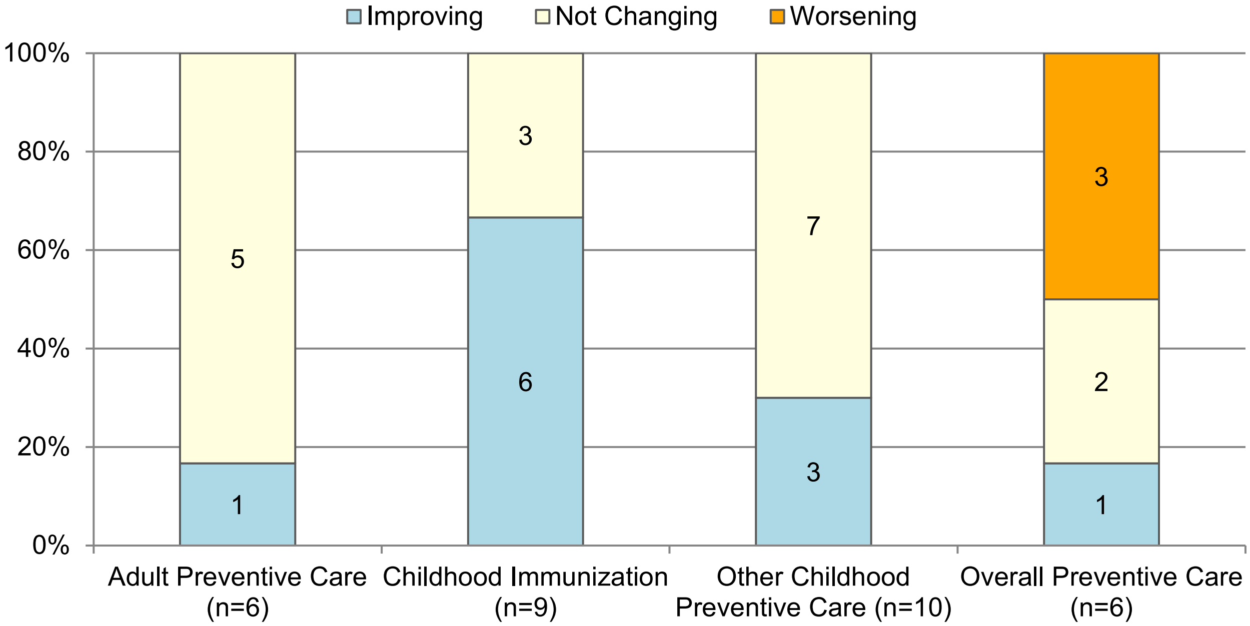


Key: n = number of measures.
Note: National Health Interview Survey measures that have been included in previous years were unavailable for this report. For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2000 to 2021, 47% of healthy living measures improved and 7% of healthy living measures worsened (Figure 10).
- From 2000 to 2021, 35% of clinical preventive services measures, 67% of functional status preservation and rehabilitation measures, 60% of supportive and palliative care measures, 80% of lifestyle modification measures, and 33% of maternal and child health measures improved.
- From 2000 to 2021, 10% of clinical preventive services measures and 20% of lifestyle modification measures worsened.

Figure 11. Number and percentage of all clinical preventive services measures improving, not changing, or worsening from 2000 to 2021, by sub-area



Key: n = number of measures.
Note: National Health Interview Survey measures that have been included in previous years were unavailable for this report. For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percentage change and to assess statistical significance. Progress on individual measures is determined as follows:

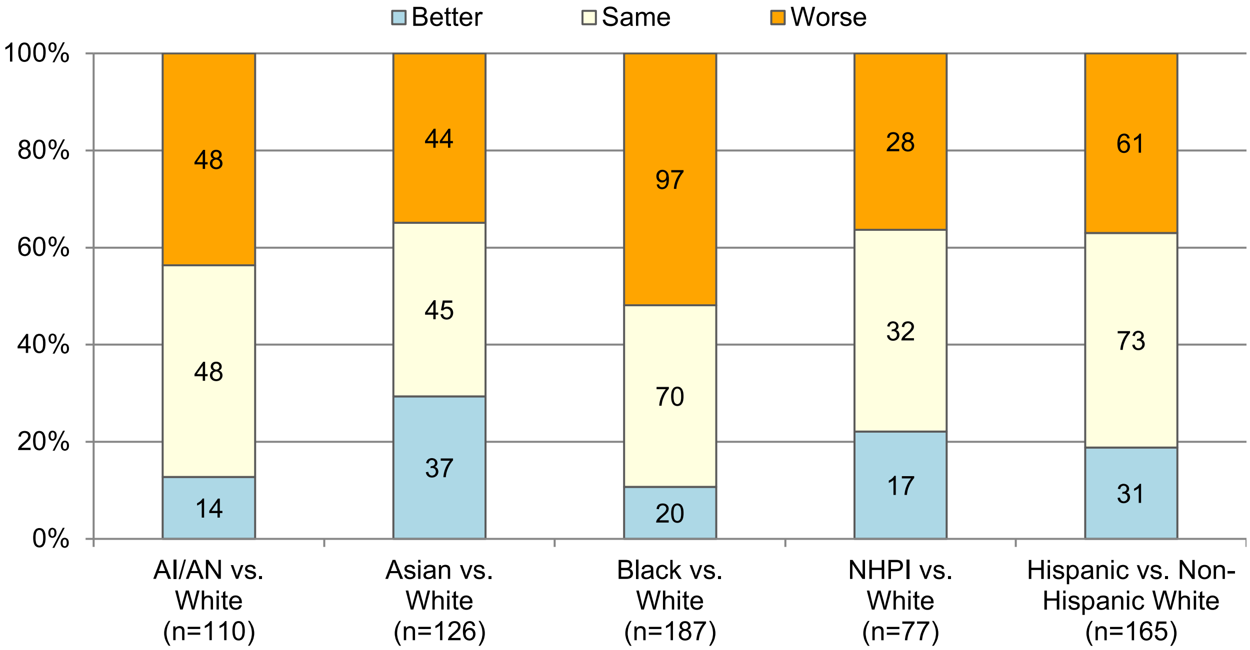
- **Improving** = The average annual percentage change is 1% or greater in the desirable direction, and p<0.10.
- **Not Changing** = The average annual percentage change is less than 1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percentage change is 1% or greater in the undesirable direction, and p<0.10.

- From 2000 to 2021, 17% of adult preventive care measures, 67% of childhood immunization measures, 30% of other childhood preventive care measures, and 17% of overall preventive care measures improved (Figure 11).
- From 2000 to 2021, 50% of overall preventive care measures worsened.

Disparities by Race and Ethnicity

Disparities in Quality of Care by Race and Ethnicity

Figure 12. Number and percentage of quality measures for which members of selected groups experienced better, same, or worse quality of care compared with White people for the most recent data year, 2019, 2020, or 2021



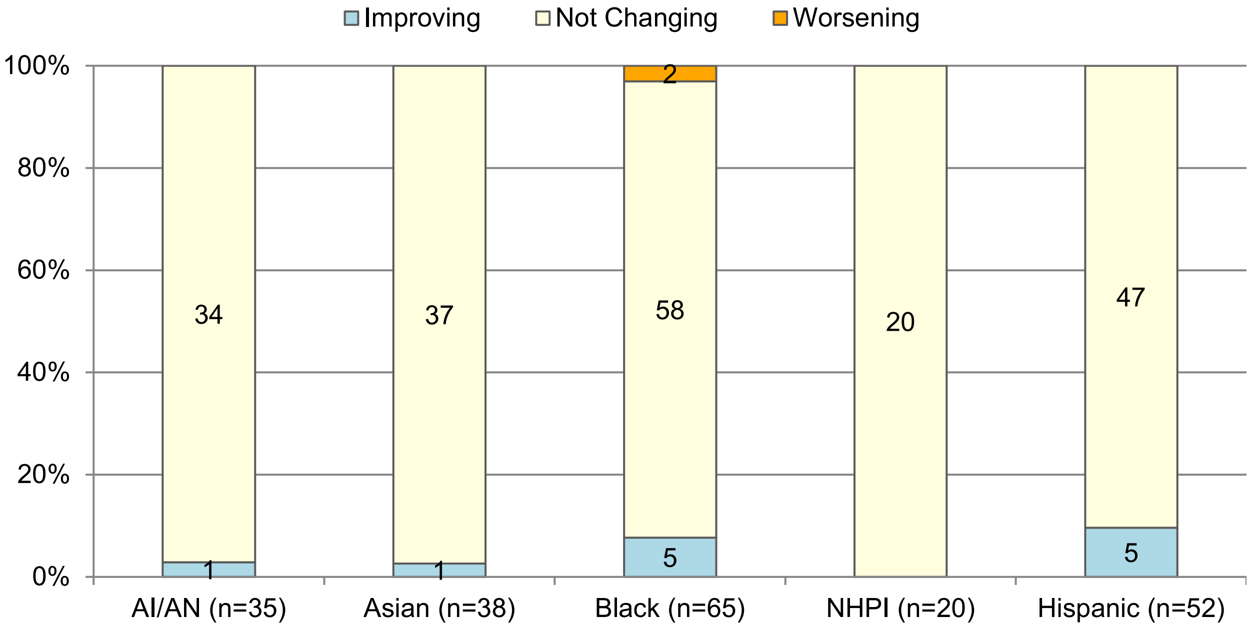
Key: AI/AN = American Indian or Alaska Native; NHPI = Native Hawaiian/Pacific Islander; n = number of measures.

Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, American Indian and Alaska Native people received worse care than White people for 44% of quality measures and better care for 13% of quality measures (Figure 12).
- Asian people received worse care than White people for 35% of quality measures and better care for 29% of quality measures.
- Black people received worse care than White people for 52% of quality measures and better care for 11% of quality measures.
- Native Hawaiian/Pacific Islander people received worse care than White people for 36% of quality measures and better care for 22% of quality measures.
- Hispanic people received worse care than non-Hispanic White people for 37% of quality measures and better care for 19% of quality measures.

Changes in Disparities by Race and Ethnicity

Figure 13. Number and percentage of quality measures with disparity at baseline for which disparities related to race and ethnicity were improving, not changing, or worsening over time, 2000 to 2021



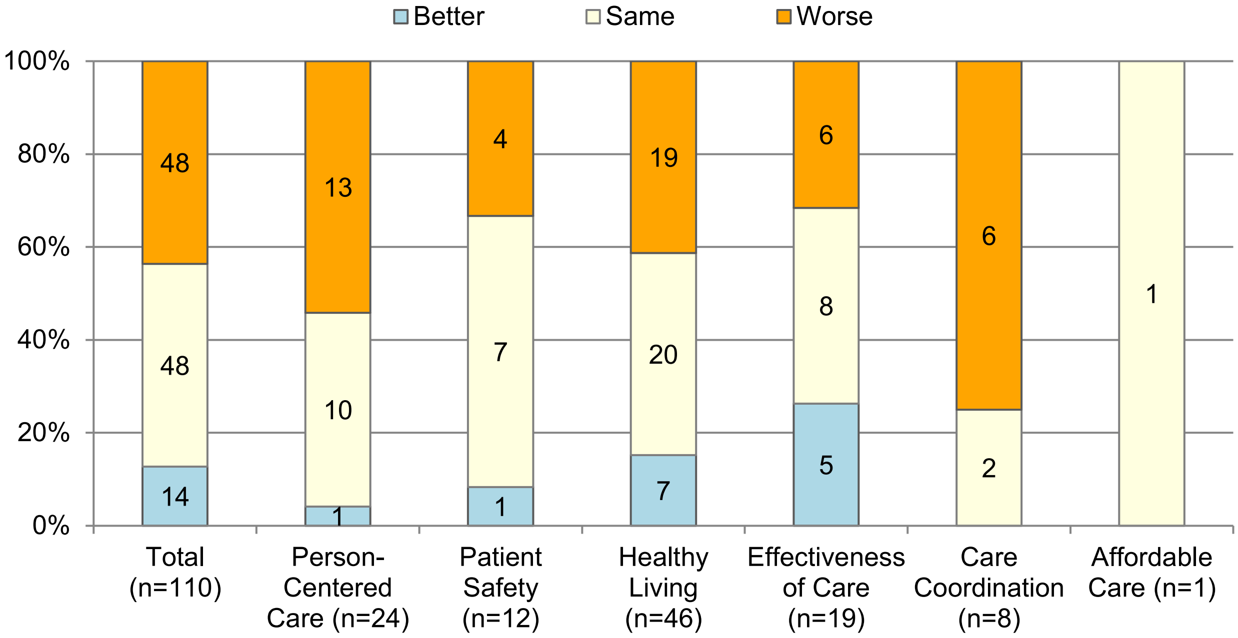
Key: AI/AN = American Indian or Alaska Native; NHPI = Native Hawaiian/Pacific Islander; n = number of measures.
Note: Different data sources have different data years for most recent data year.

- From 2000 to 2021, disparities between American Indian or Alaska Native people and White people narrowed for 3% of measures (Figure 13).
- From 2000 to 2021, disparities between Asian people and White people narrowed for 3% of measures.
- From 2000 to 2021, disparities between Black people and White people narrowed for 8% of measures and worsened for 3% of measures.
- From 2000 to 2021, disparities between Native Hawaiian/Pacific Islander people and White people had no statistically significant changes.
- From 2000 to 2021, disparities between Hispanic people and non-Hispanic White people narrowed for 10% of measures.

Disparities for American Indian and Alaska Native Populations

Disparities in Quality of Care for American Indian and Alaska Native Populations

Figure 14. Number and percentage of quality measures for which American Indian and Alaska Native people experienced better, same, or worse quality of care compared with White people for the most recent data year, 2019, 2020, or 2021

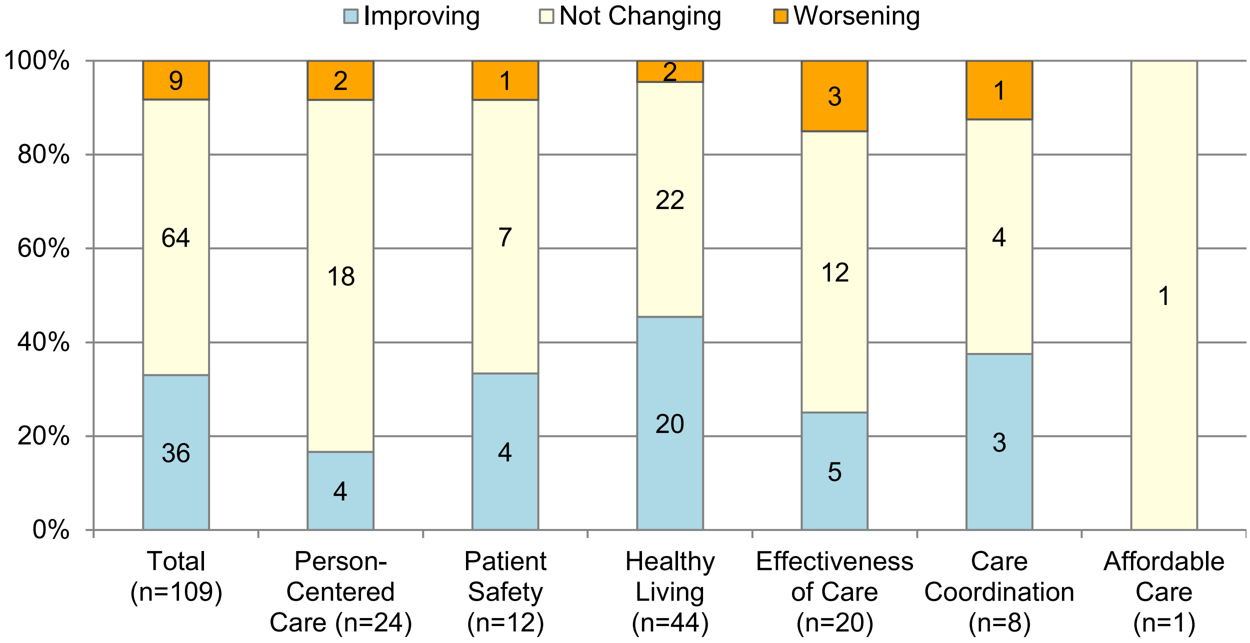


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, American Indian or Alaska Native people had worse quality of care than White people for 44% of quality measures and better quality of care for 13% of quality measures (Figure 14).

Trends in Quality of Care for American Indian and Alaska Native Populations

Figure 15. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



Key: n = number of measures.

Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

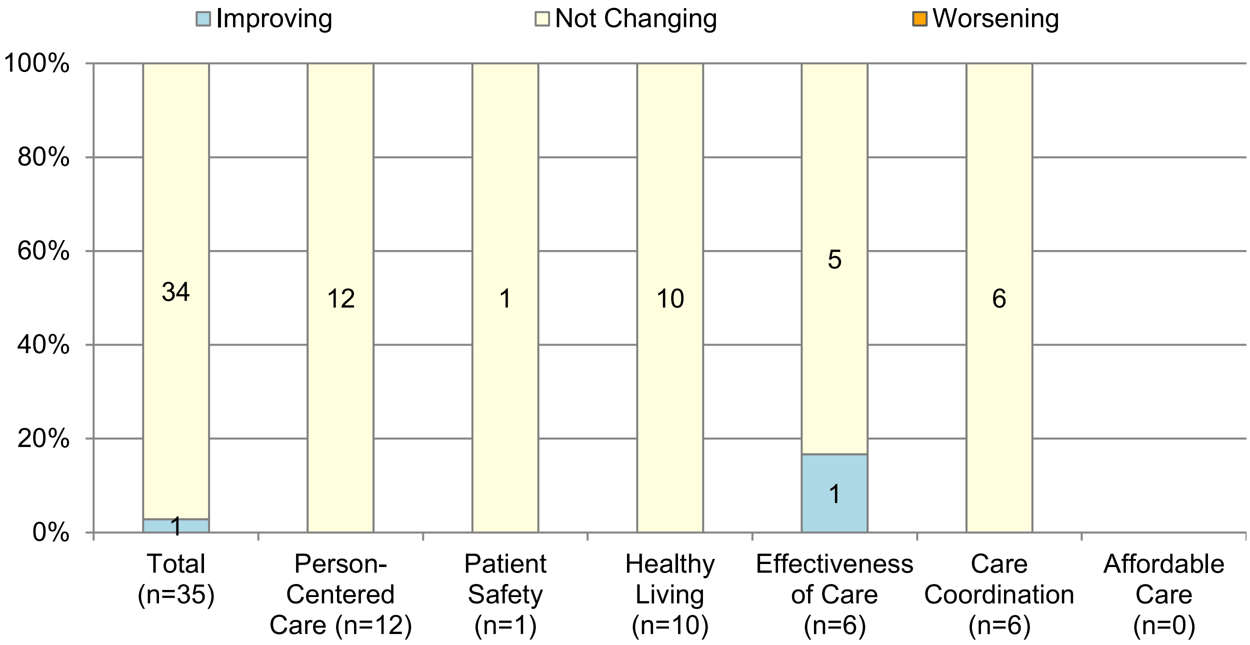
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- Among the 109 quality measures with trend data for American Indian or Alaska Native people, 33% of quality measures were improving and 8% of quality measures were worsening from 2000 to 2021 (Figure 15).

Changes in Disparities for American Indian and Alaska Native Populations

Figure 16. Number and percentage of all quality measures with disparity at baseline for which disparities between American Indian and Alaska Native people and White people were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



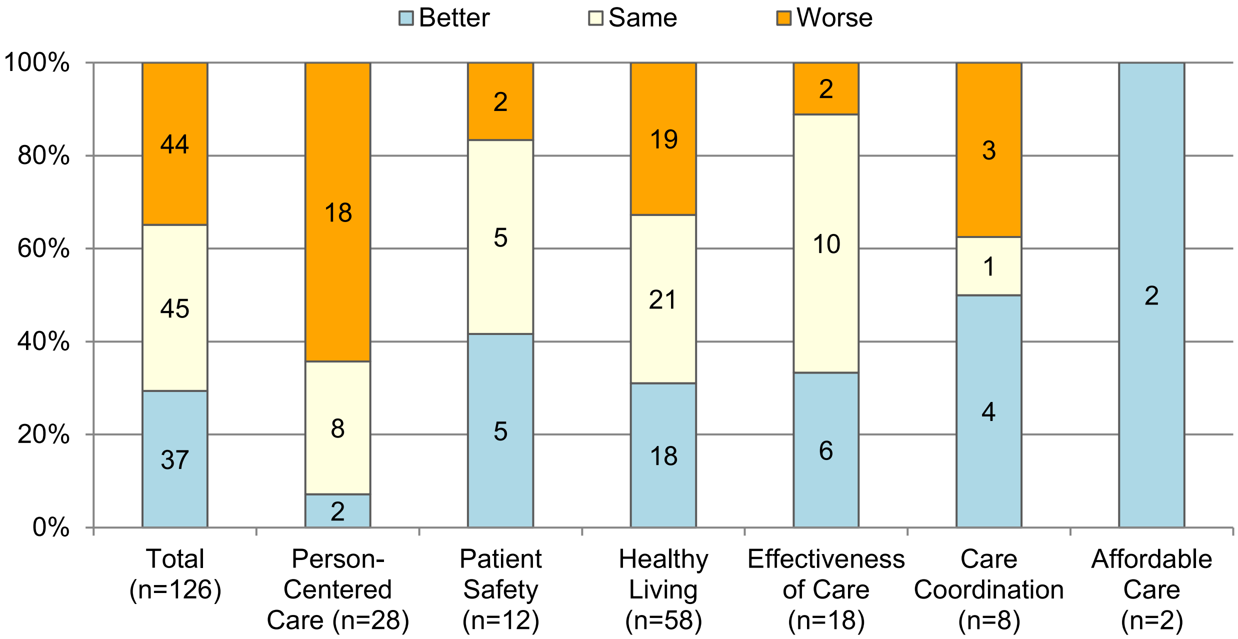
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between American Indian and Alaska Native people and White people narrowed for 3% of quality measures (Figure 16).

Disparities for Asian Populations

Disparities in Quality of Care for Asian Populations

Figure 17. Number and percentage of quality measures for which Asian people experienced better, same, or worse quality of care compared with White people for the most recent data year, 2019, 2020, or 2021

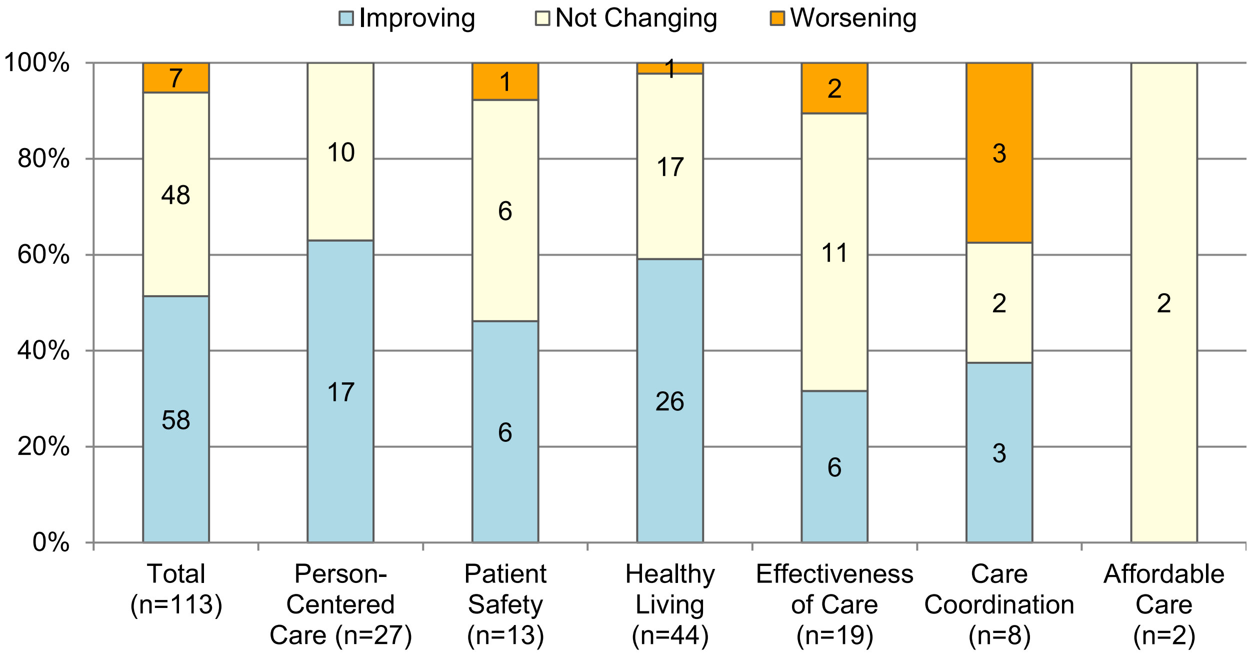


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, Asian people had worse quality of care than White people for 35% of quality measures and better quality of care for 29% of quality measures (Figure 17).

Trends in Quality of Care for Asian Populations

Figure 18. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

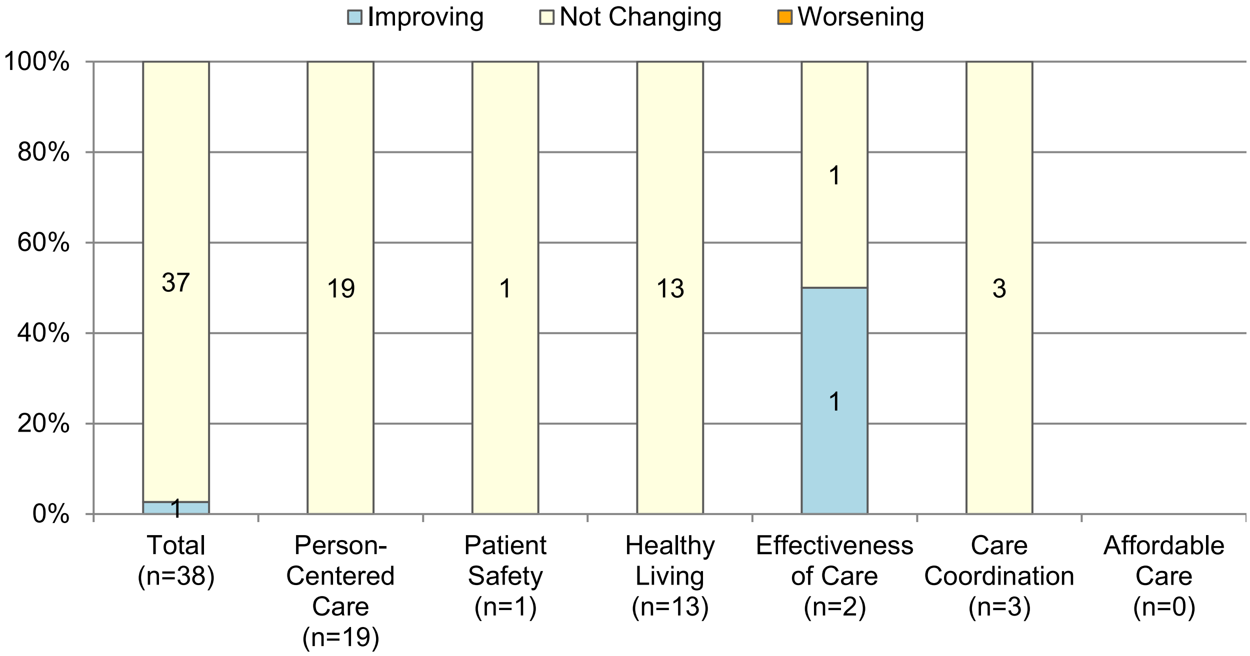
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- Among the 113 quality measures with data for Asian people, 51% of quality measures were improving and 6% of quality measures were worsening from 2000 to 2021 (Figure 18).

Changes in Disparities for Asian Populations

Figure 19. Number and percentage of all quality measures with disparity at baseline for which disparities between Asian people and White people were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



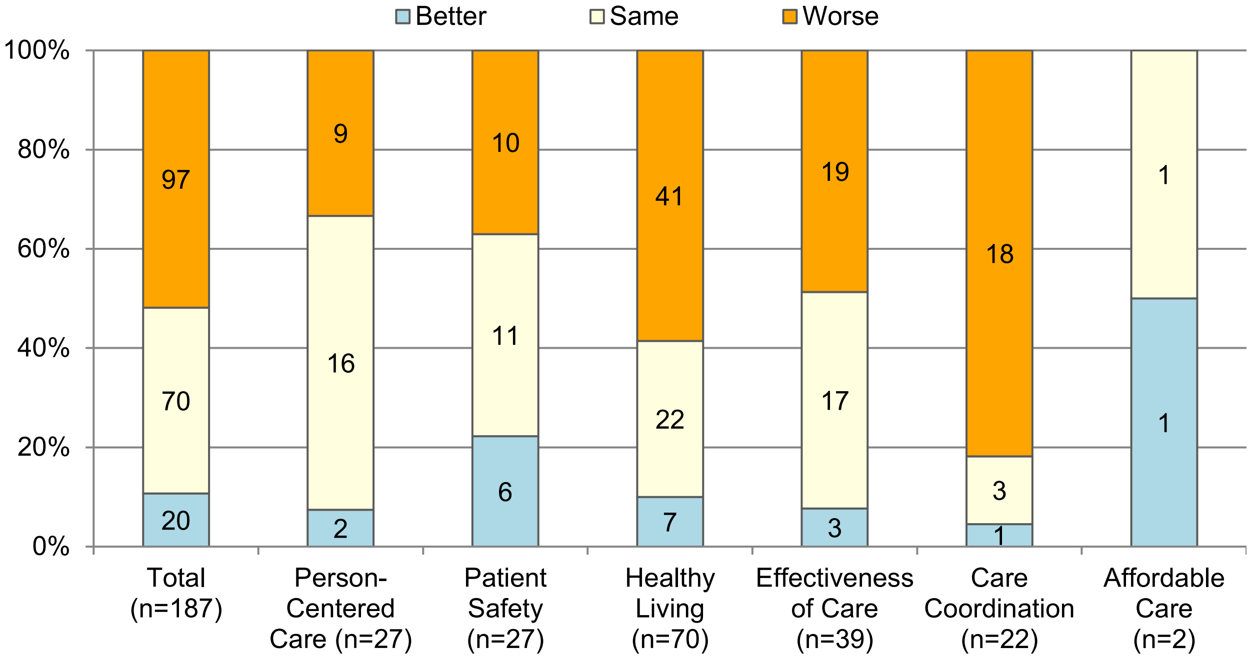
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between Asian people and White people narrowed for 3% of quality measures (Figure 19).

Disparities for Black Populations

Disparities in Quality of Care for Black Populations

Figure 20. Number and percentage of quality measures for which Black people experienced better, same, or worse quality of care compared with White people for the most recent data year, 2019, 2020, or 2021

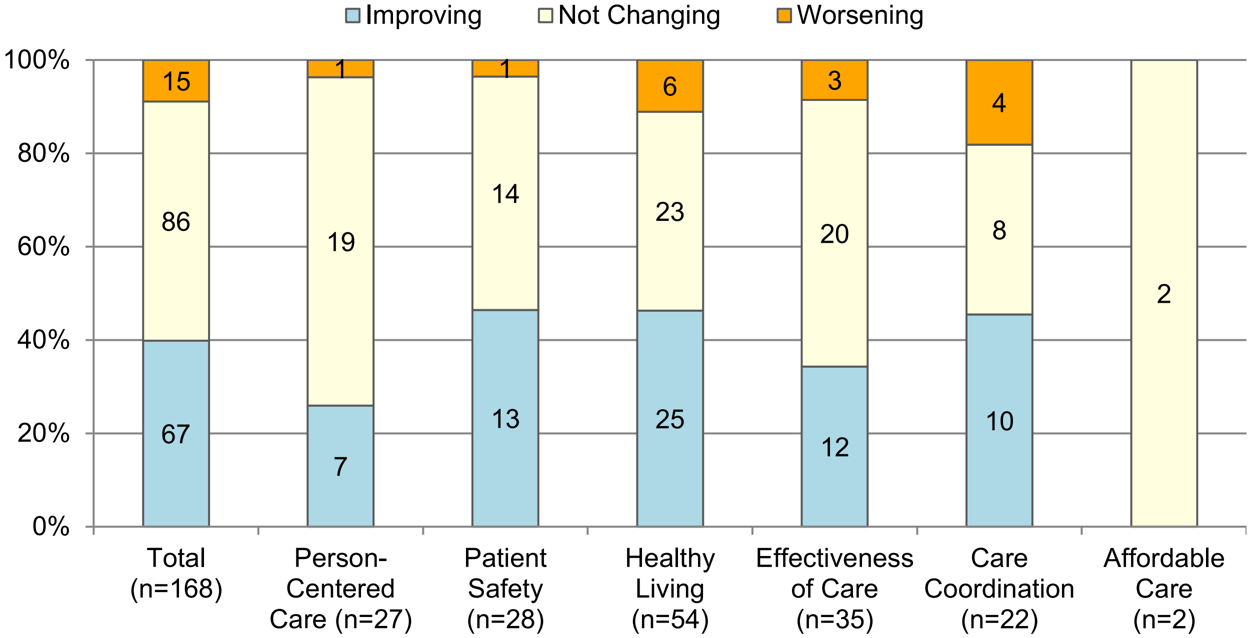


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, Black people had worse quality of care than White people for 52% of quality measures and better quality of care for 11% of quality measures (Figure 20).

Trends in Quality of Care for Black Populations

Figure 21. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



Key: n = number of measures.

Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

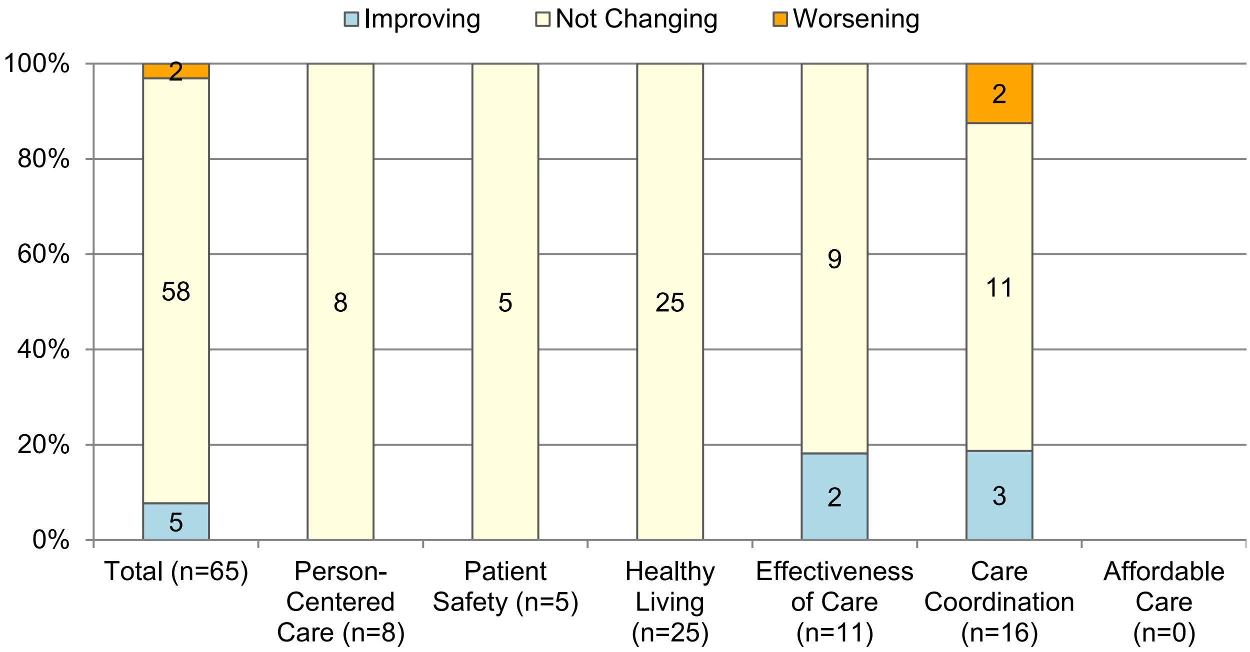
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- Among the 168 quality measures with data for Black people, 40% of quality measures were improving and 9% of quality measures were worsening from 2000 to 2021 (Figure 21).

Changes in Disparities for Black Populations

Figure 22. Number and percentage of quality measures with disparity at baseline for which disparities between Black people and White people were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



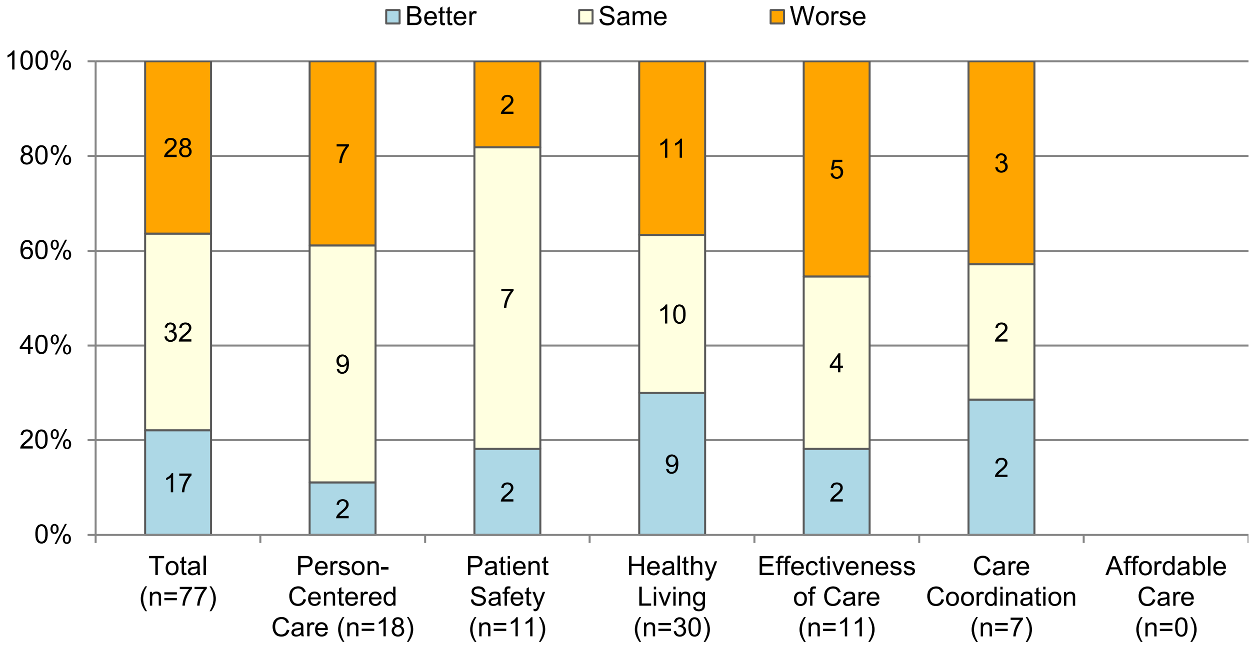
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between Black people and White people narrowed for 8% of quality measures and worsened for 3% of quality measures (Figure 22).

Disparities for Native Hawaiian/Pacific Islander Populations

Disparities in Quality of Care for Native Hawaiian/Pacific Islander Populations

Figure 23. Number and percentage of quality measures for which Native Hawaiian/Pacific Islander groups experienced better, same, or worse quality of care compared with White groups for the most recent data year, 2019, 2020, or 2021

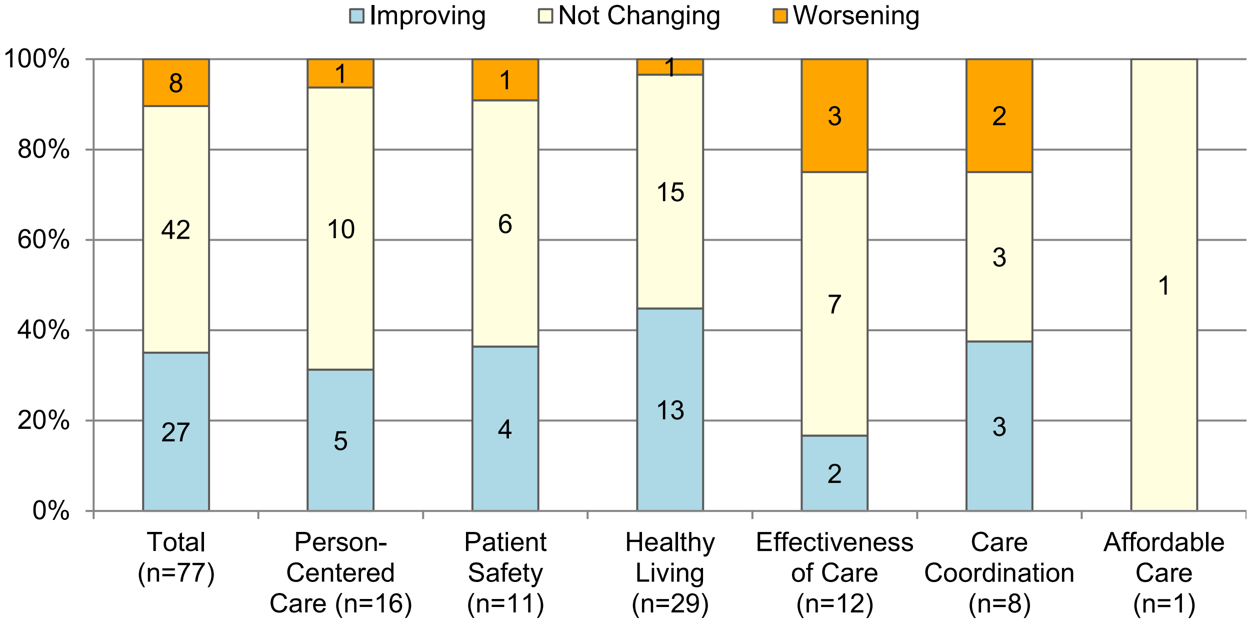


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, Native Hawaiian/Pacific Islander people had worse quality of care than White people for 36% of quality measures and better quality of care for 22% of quality measures (Figure 23).

Trends in Quality of Care for Native Hawaiian/Pacific Islander Populations

Figure 24. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total and by priority area, from 2001 to 2021



Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

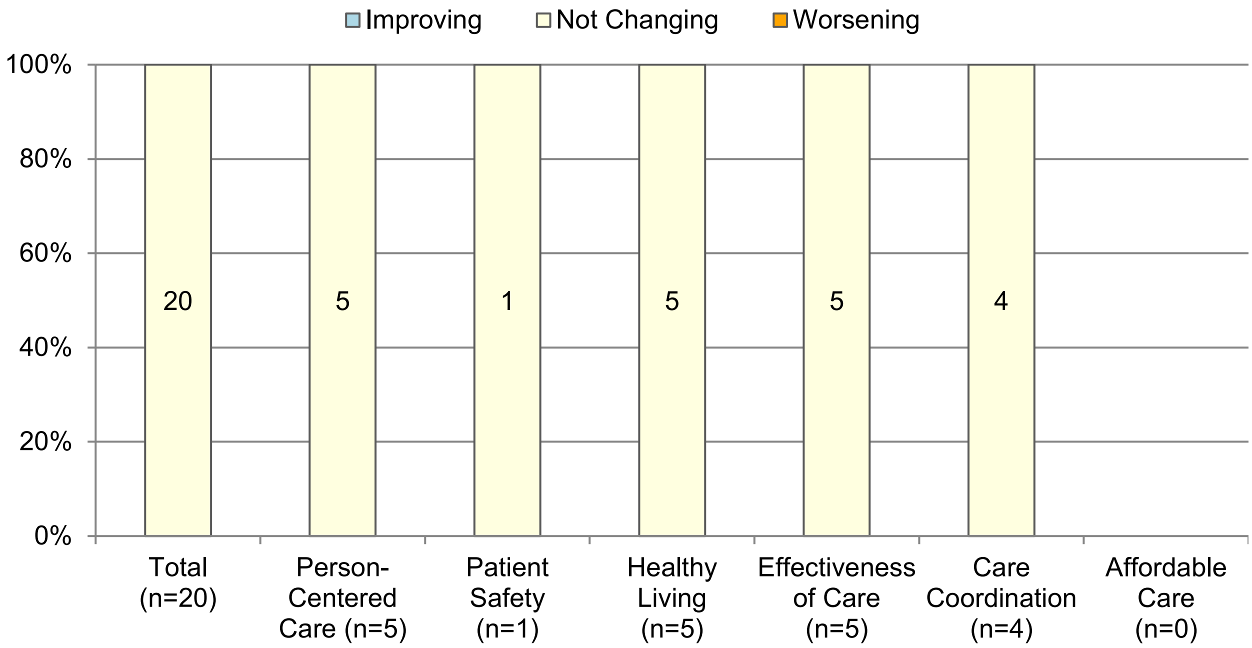
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- Among the 77 quality measures with data for Native Hawaiian/Pacific Islander people, 35% of quality measures were improving and 10% of quality measures were worsening from 2001 to 2021 (Figure 24).

Changes in Disparities for Native Hawaiian/Pacific Islander Populations

Figure 25. Number and percentage of all quality measures with disparity at baseline for which disparities between Native Hawaiian/Pacific Islander people and White people were improving, not changing, or worsening over time, total and by priority area, from 2008 to 2021



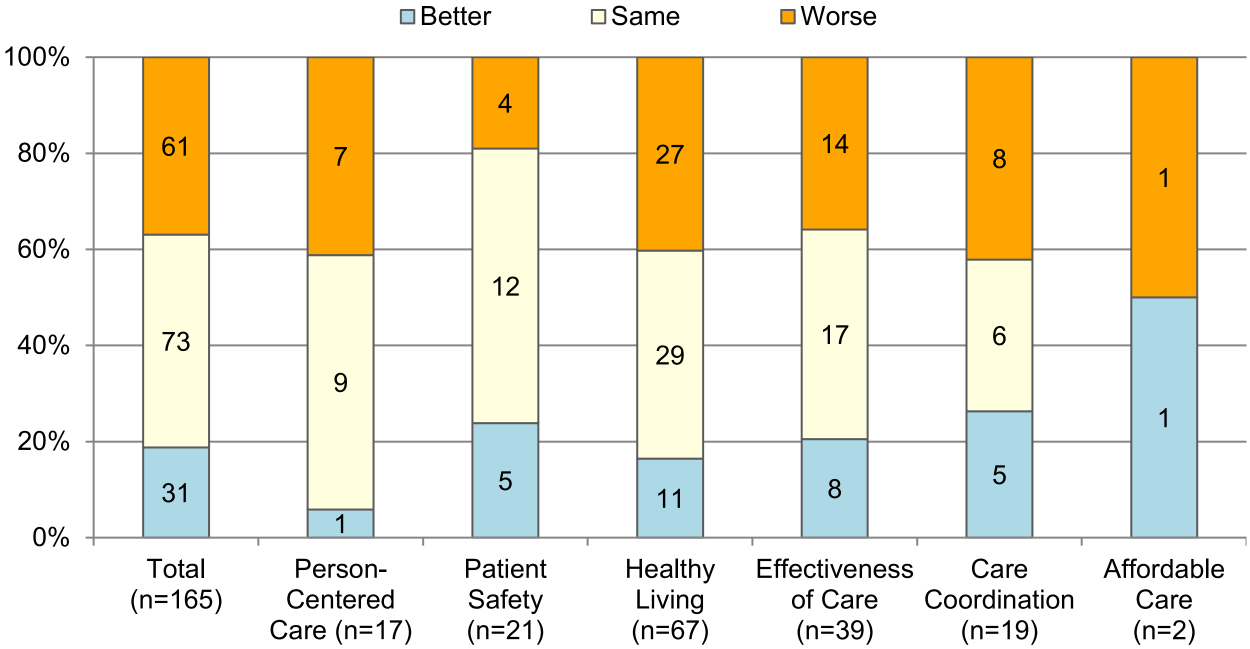
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2008 to 2021, disparities between Native Hawaiian/Pacific Islander people and White people had no statistically significant changes (Figure 25).

Disparities for Hispanic Populations

Disparities in Quality of Care for Hispanic Populations

Figure 26. Number and percentage of quality measures for which Hispanic groups experienced better, same, or worse quality of care compared with non-Hispanic White groups for the most recent data year, 2019, 2020, or 2021

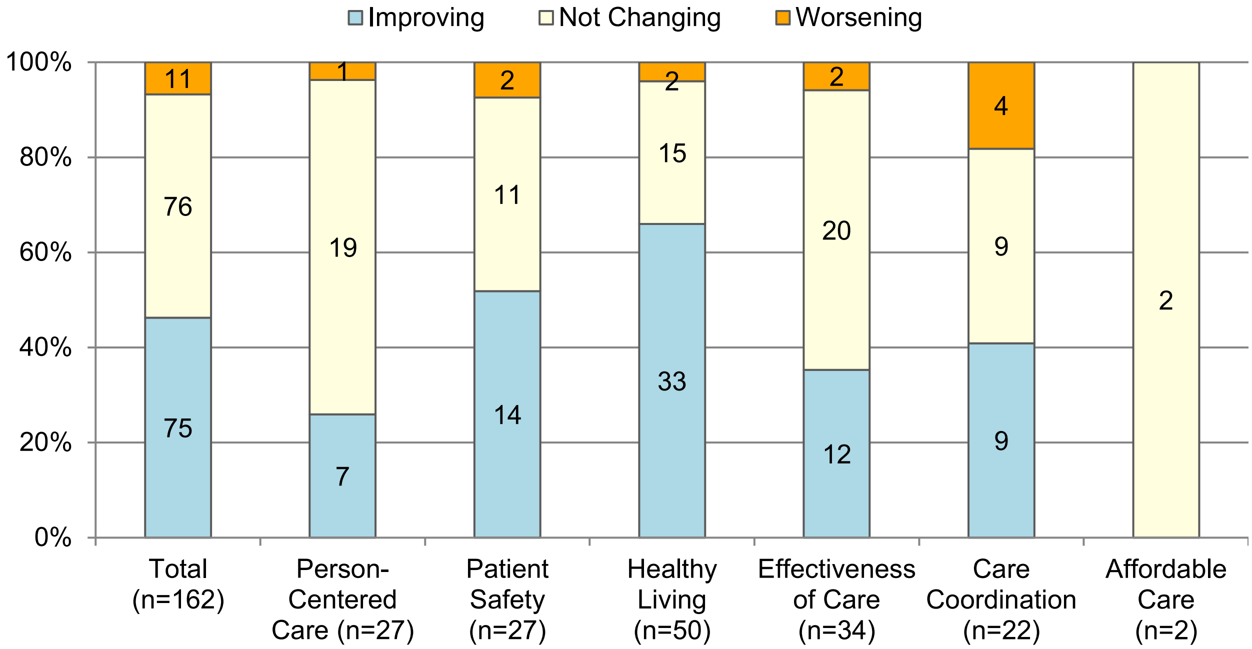


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, Hispanic people had worse quality of care than non-Hispanic White people for 37% of quality measures and better quality of care for 19% of quality measures (Figure 26).

Changes in Quality of Care for Hispanic Populations

Figure 27. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total for Hispanic groups and by priority area, from 2000 to 2021



Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

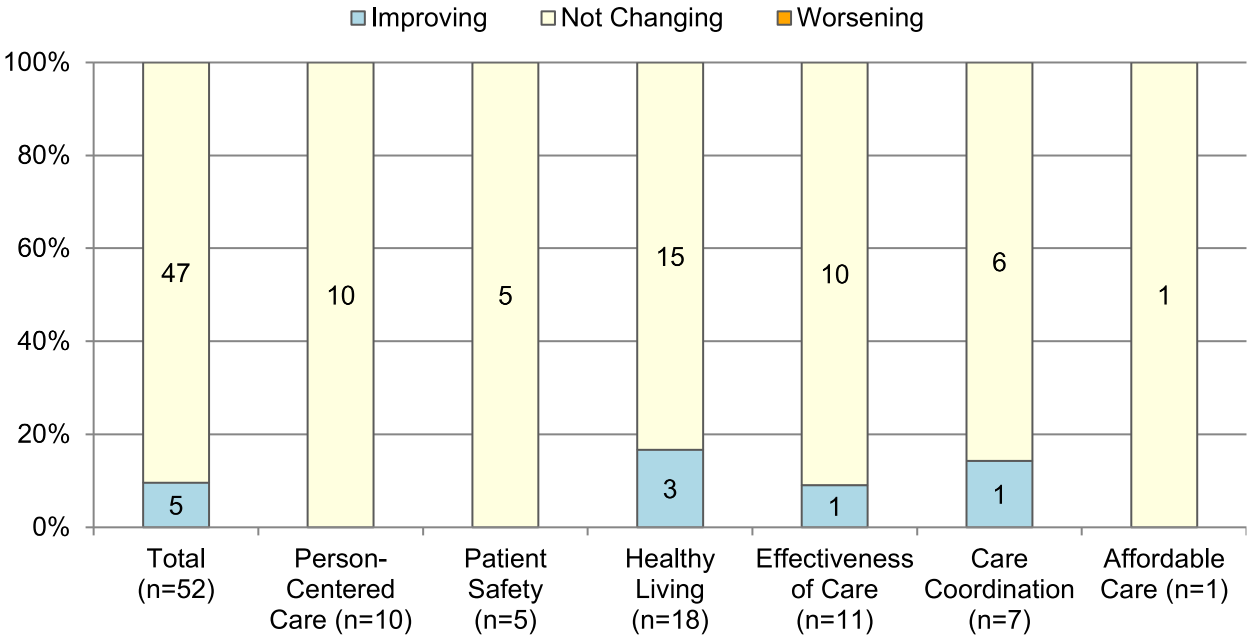
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- Among the 162 quality measures with data for Hispanic people, 46% of quality measures were improving and 7% of quality measures were worsening from 2000 to 2021 (Figure 27).

Changes in Disparities for Hispanic Populations

Figure 28. Number and percentage of all quality measures with disparity at baseline for which disparities between Hispanic people and non-Hispanic White people were improving, not changing, or worsening over time, total and by priority area, from 2000 to 2021



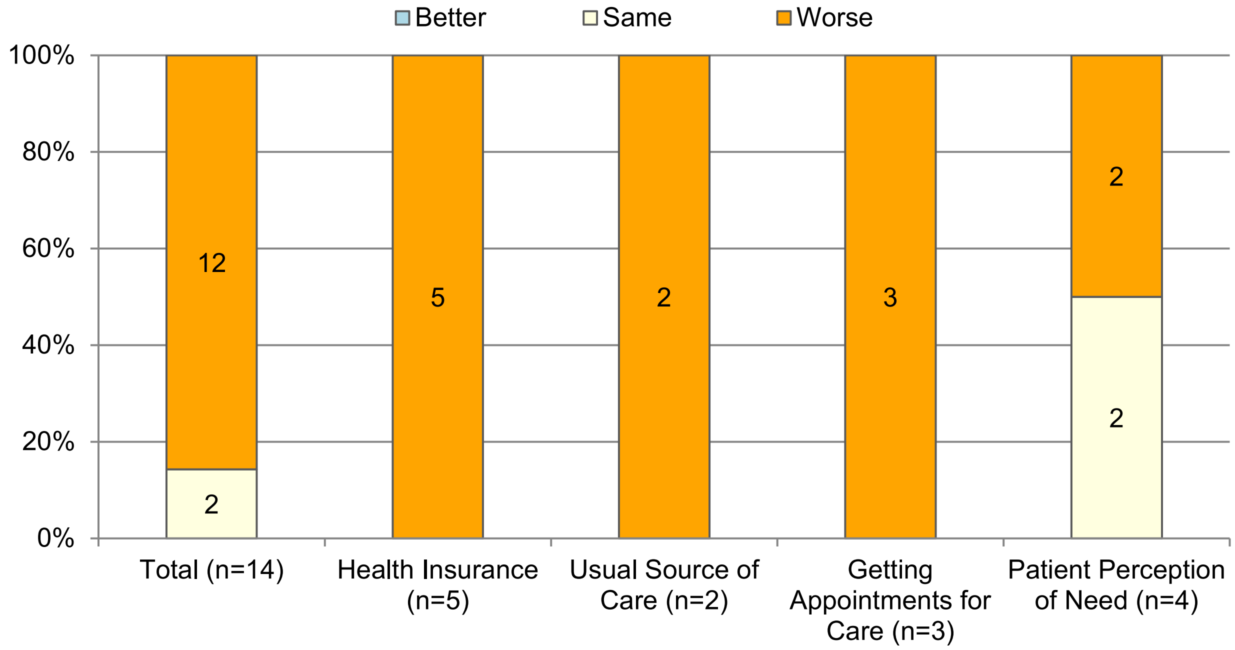
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between Hispanic people and non-Hispanic White people narrowed for 10% of quality measures (Figure 28).

Disparities by Income

Disparities in Access to Care Sub-Areas by Income Groups

Figure 29. Number and percentage of access measures for which people in households with an income less than 100% of the poverty guideline experienced better, same, or worse access to care compared with people in households with an income 400% or more of the poverty guideline, by sub-area, 2019, 2020, or 2021

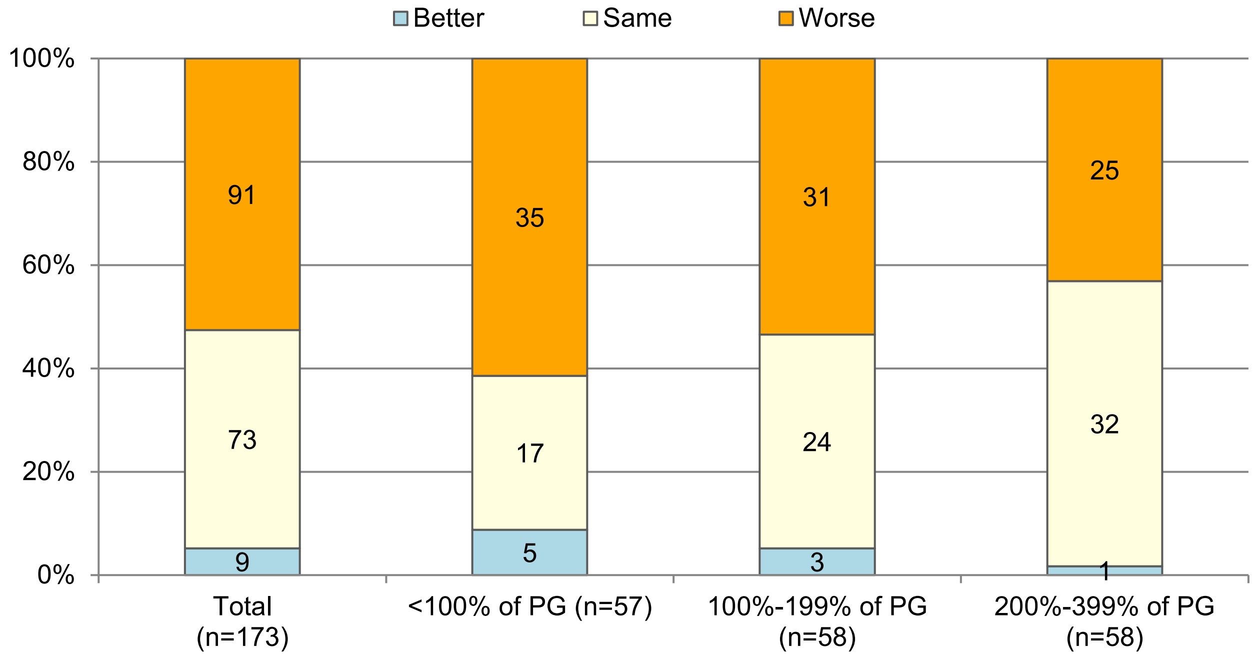


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, people in households with an income less than 100% of the PG had worse access to care than people in households with an income 400% or more of the PG for 86% of access measures (Figure 29).

Disparities in Quality of Care by Income Groups

Figure 30. Number and percentage of quality measures for which income groups experienced better, same, or worse quality of care compared with people in households with an income 400% or more of the poverty guideline for the most recent data year, 2019, 2020, or 2021

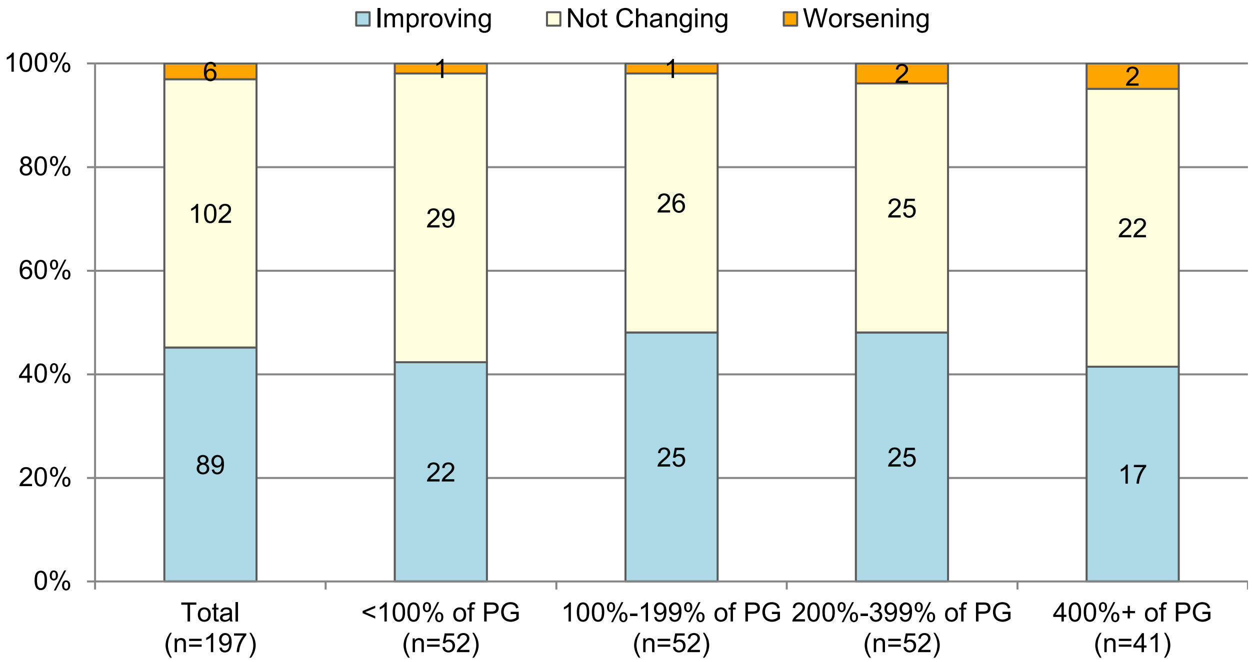


Key: n = number of measures; PG = federal poverty guideline.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, people in households with an income less than 100% the PG had worse quality of care than people in households with an income 400% or more of the PG for 61% of quality measures and better quality of care for 9% of quality measures (Figure 30).
- People in households with an income 100%-199% of the PG had worse quality of care than people in households with an income 400% or more of the PG for 53% of quality measures and better quality of care for 5% of quality measures.
- People in households with an income 200%-399% of the PG had worse quality of care than people in households with an income 400% or more of the PG for 43% of quality measures and better quality of care for 2% of quality measures.

Trends in Quality of Care by Income Groups

Figure 31. Number and percentage of all quality measures that were improving, not changing, or worsening over time, total and by income group, from 2000 to 2021



Key: n = number of measures; PG = federal poverty guideline.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

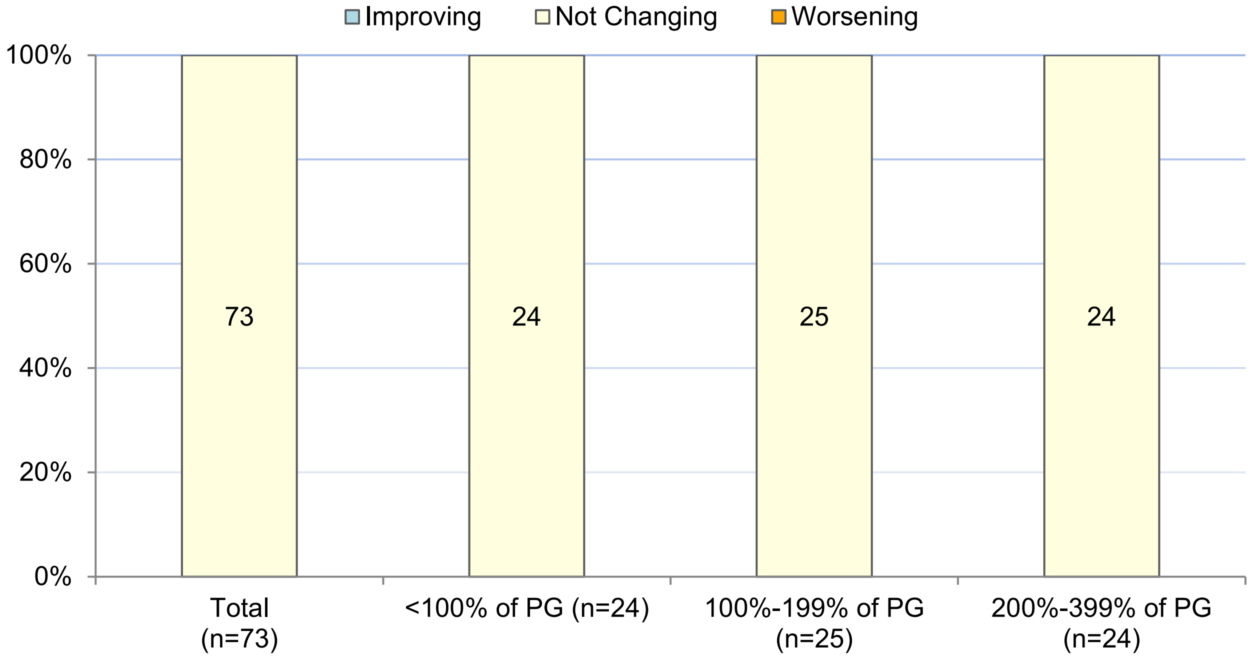
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- For people in households with incomes less than 100% of the PG, 42% of quality measures were improving and 2% of quality measures were worsening from 2000 to 2021 (Figure 31).
- For people in households with incomes 100%-199% of the PG, 48% of quality measures were improving and 2% of quality measures were worsening from 2000 to 2021.
- For people in households with incomes 200%-399% of the PG, 48% of quality measures were improving and 4% of quality measures were worsening from 2000 to 2021.
- For people in households with incomes 400% or more of the PG, 41% of quality measures were improving and 5% of quality measures were worsening from 2000 to 2021.

Changes in Disparities by Income Groups

Figure 32. Number and percentage of quality measures with disparity at baseline for which disparities related to income were improving, not changing, or worsening over time, 2000 to 2021



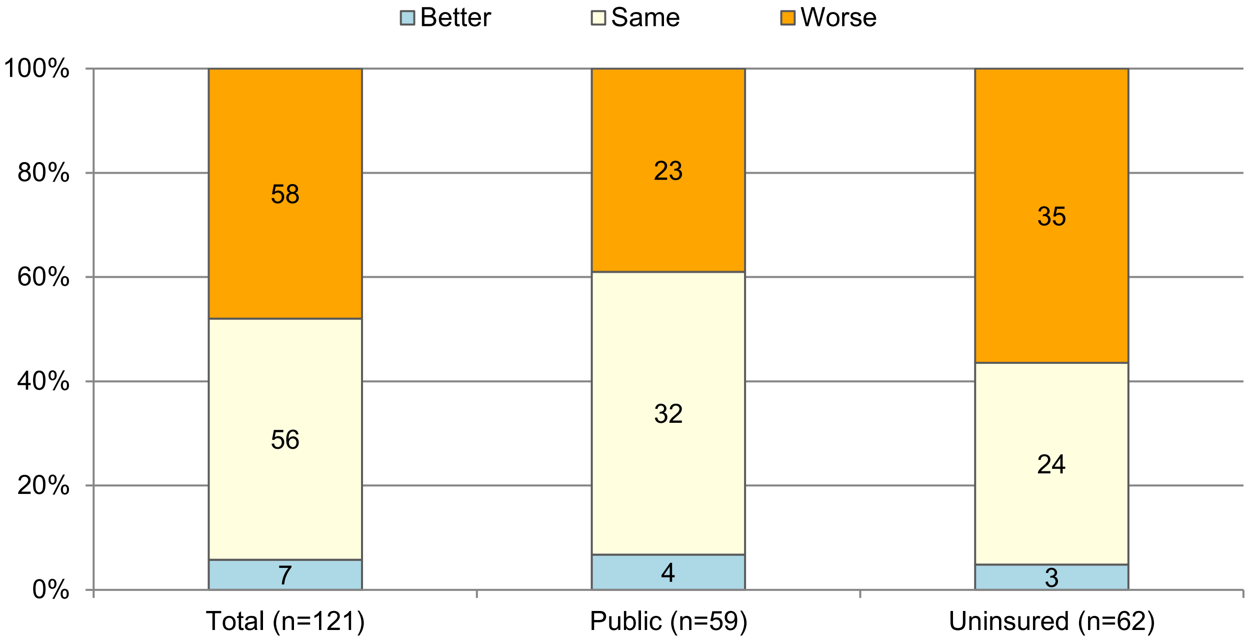
Key: n = number of measures; PG = poverty guideline.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between people in households with incomes less than 100% of the PG and people in households with incomes 400% or more of the PG had no statistically significant changes (Figure 32).
- From 2000 to 2021, disparities between people in households with incomes 100%-199% of the PG and people in households with incomes 400% or more of the PG had no statistically significant changes.
- From 2000 to 2021, disparities between people in households with incomes 200%-399% of the PG and people in households with incomes 400% or more of the PG had no statistically significant changes.

Disparities by Insurance Status

Disparities in Quality of Care by Insurance Status

Figure 33. Number and percentage of quality measures for which insurance groups experienced better, same, or worse quality of care compared with reference group (privately insured), 2019, 2020, or 2021

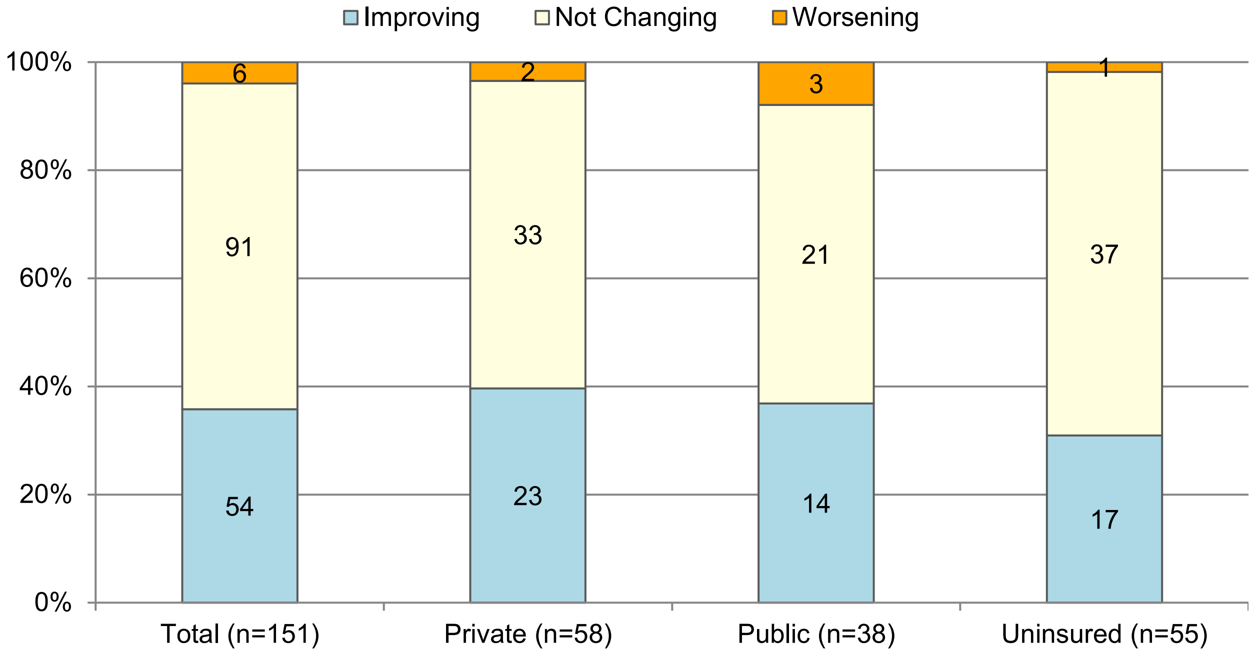


Key: n = number of measures.
Note: The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, people with public insurance had worse quality of care than people with private insurance for 39% of quality measures and better quality of care for 7% of quality measures (Figure 33).
- People without insurance had worse quality of care than people with private insurance for 56% of quality measures and better quality of care for 5% of quality measures.

Changes in Quality of Care by Insurance Status

Figure 34. Number and percentage of all quality measures that were improving, not changing, or worsening, total and by insurance status, from 2000 to 2021



Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

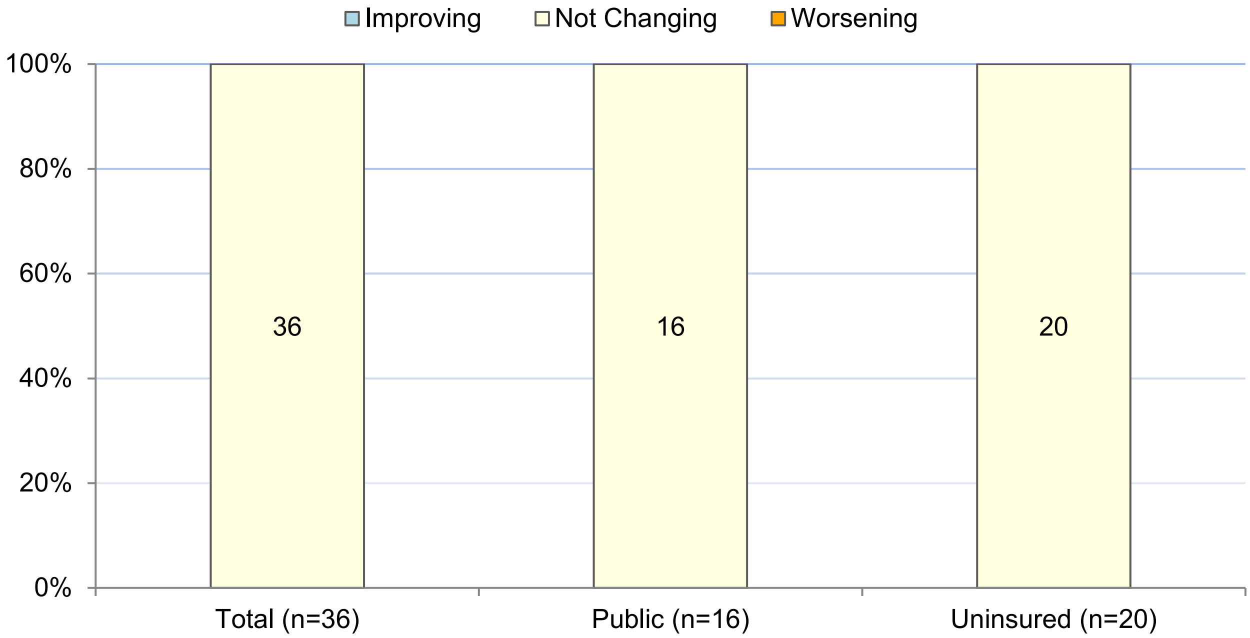
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- For people with private insurance, 40% of quality measures were improving and 3% of quality measures were worsening from 2000 to 2021 (Figure 34).
- For people with public insurance, 37% of quality measures were improving and 8% of quality measures were worsening from 2000 to 2021.
- For people without insurance, 31% of quality measures were improving and 2% of quality measures were worsening from 2000 to 2021.

Changes in Disparities by Insurance Status

Figure 35. Number and percentage of quality measures with disparity at baseline for which disparities related to insurance were improving, not changing, or worsening, 2000 to 2021



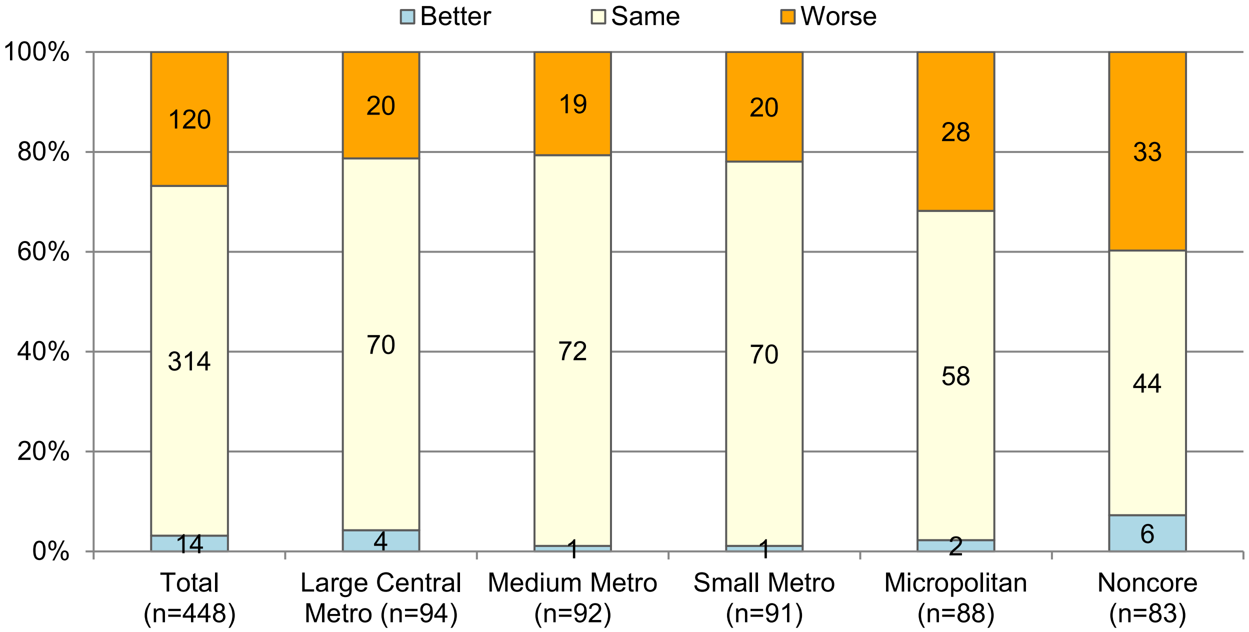
Key: n = number of measures.
Note: Different data sources have different data years.

- From 2000 to 2021, disparities between people with public insurance and people with private insurance had no statistically significant changes (Figure 35).
- From 2000 to 2021, disparities between people without insurance and people with private insurance had no statistically significant changes.

Disparities by Residence Location

Disparities in Quality of Care by Residence Location

Figure 36. Number and percentage of quality measures for which residents of selected locations experienced better, same, or worse quality of care compared with large fringe metropolitan areas, 2019, 2020, or 2021

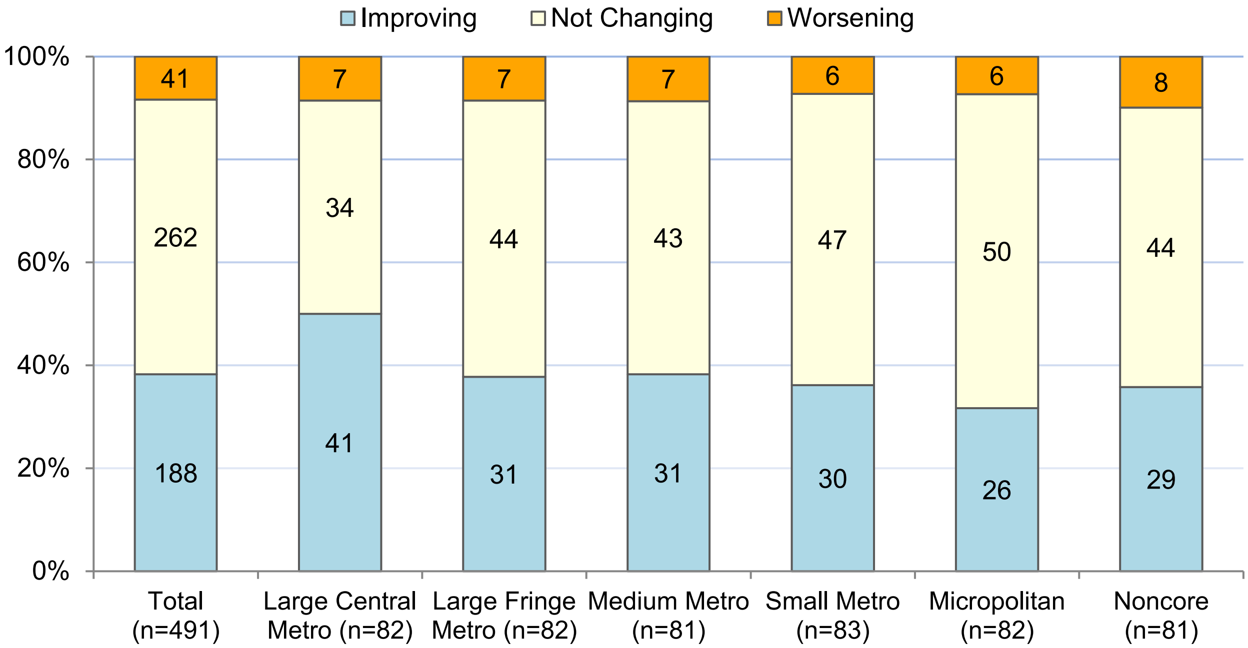


Key: n = number of measures.
Note: Definitions of residence locations are available at https://www.cdc.gov/nchs/data_access/urban_rural.htm and in Figure 4. The difference between two groups is meaningful only if the absolute difference between the two groups is statistically significant with a p value≤0.05 on a two-tailed test **and** the relative difference between the two groups is at least 10%. Different data sources have different data years for most recent data year.

- For the most recent data year, people in large central metro areas had worse quality of care than people in large fringe metro areas for 21% of quality measures and better quality of care for 4% of quality measures (Figure 36).
- People in medium metro areas had worse quality of care than people in large fringe metro areas for 21% of quality measures and better quality of care for 1% of quality measures.
- People in small metro areas had worse quality of care than people in large fringe metro areas for 22% of quality measures and better quality of care for 1% of quality measures.
- People in micropolitan areas had worse quality of care than people in large fringe metro areas for 32% of quality measures and better quality of care for 2% of quality measures.
- People in noncore areas had worse quality of care than people in large fringe metro areas for 40% of quality measures and better quality of care for 7% of quality measures.

Changes in Quality of Care by Residence Location

Figure 37. Number and percentage of all quality measures that were improving, not changing, or worsening, by residence location, from 2002 to 2021



Key: n = number of measures.
Note: For each measure with at least four data points over time, the estimates are realigned to the negative direction. Then, unweighted log-linear regression is used to calculate average annual percent change and to assess statistical significance. Progress on individual measures is determined as follows:

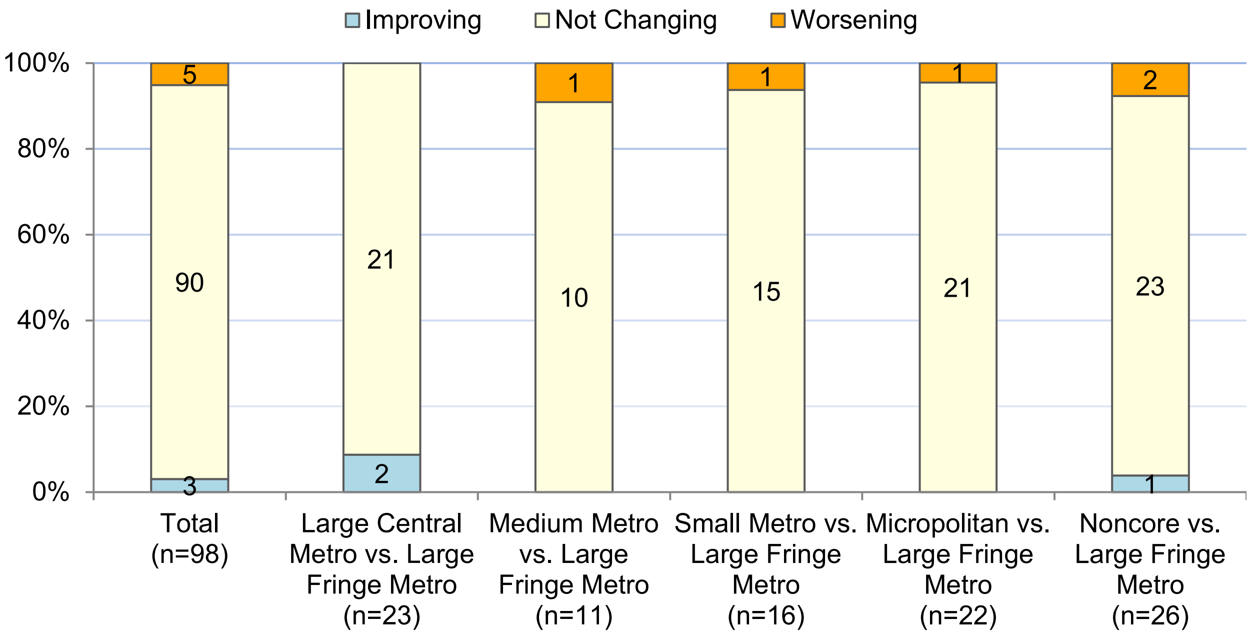
- **Improving** = The average annual percent change is 1% or greater in the desirable direction, and p≤0.10.
- **Not Changing** = The average annual percent change is ≤1% in either the desirable or undesirable direction or p>0.10.
- **Worsening** = The average annual percent change is 1% or greater in the undesirable direction, and p≤0.10.

Different data sources have different data years.

- For people in large central metro areas, 50% of quality measures were improving and 9% of quality measures were worsening from 2000 to 2021 (Figure 37).
- For people in large fringe metro areas, 38% of quality measures were improving and 9% of quality measures were worsening from 2000 to 2021.
- For people in medium metro areas, 38% of quality measures were improving and 9% of quality measures were worsening from 2000 to 2021.
- For people in small metro areas, 36% of quality measures were improving and 7% of quality measures were worsening from 2000 to 2021.
- For people in micropolitan areas, 32% of quality measures were improving and 7% of quality measures were worsening from 2000 to 2021.
- For people in noncore areas, 36% of quality measures were improving and 10% of quality measures were worsening from 2000 to 2021.

Changes in Disparities by Residence Location

Figure 38. Number and percentage of quality measures with disparity at baseline for which disparities related to residence location were improving or not changing, 2002 to 2021



Key: n = number of measures.
Note: Different data sources have different data years.

- From 2002 to 2021, disparities between people living in large central metro areas and people living in large fringe metro areas narrowed for 9% of quality measures (Figure 38).
- From 2002 to 2021, disparities between people living in medium metro areas and people living in large fringe metro areas worsened for 9% of quality measures.
- From 2002 to 2021, disparities between people living in small metro areas and people living in large fringe metro areas worsened for 6% of quality measures.
- From 2002 to 2021, disparities between people living in micropolitan areas and people living in large fringe metro areas worsened for 5% of quality measures.
- From 2002 to 2021, disparities between people living in noncore areas and people living in large fringe metro areas narrowed for 4% of quality measures and worsened for 8% of quality measures.

Appendix E. Definitions and Abbreviations Used in the 2023 National Healthcare Quality and Disparities Report

Definitions

Racial and Ethnic Groups

Racial and ethnic groups are defined according to Standards for the Classification of Federal Data on Race and Ethnicity, issued by the Office of Management and Budget (available at https://www.gpo.gov/fdsys/granule/FR-1997-10-30/97-28653).

The basic racial and ethnic categories for federal statistics and program administrative reporting are defined as follows:

1. **American Indian or Alaska Native (AI/AN).** A person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment.
2. **Asian.** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
3. **Black or African American.** A person having origins in any of the Black racial groups of Africa. Terms such as "Haitian" can be used in addition to "Black or African American."
4. **Hispanic or Latino.** A person of Cuban, Mexican, Puerto Rican, Central or South American, or other Spanish culture or origin, regardless of race. The term "Spanish origin" can be used in addition to "Hispanic or Latino."
5. **Native Hawaiian/Pacific Islander (NHPI).** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
6. **White.** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Income

Income groups are most commonly based on the poverty guideline (PG) for a family of four:

- Less than 100% of PG
- 100% to less than 200% of PG
- 200% to less than 400% of PG
- 400% or more of PG

The poverty guidelines are available at https://aspe.hhs.gov/poverty-guidelines.

Education

Education groups are most commonly the following categories:

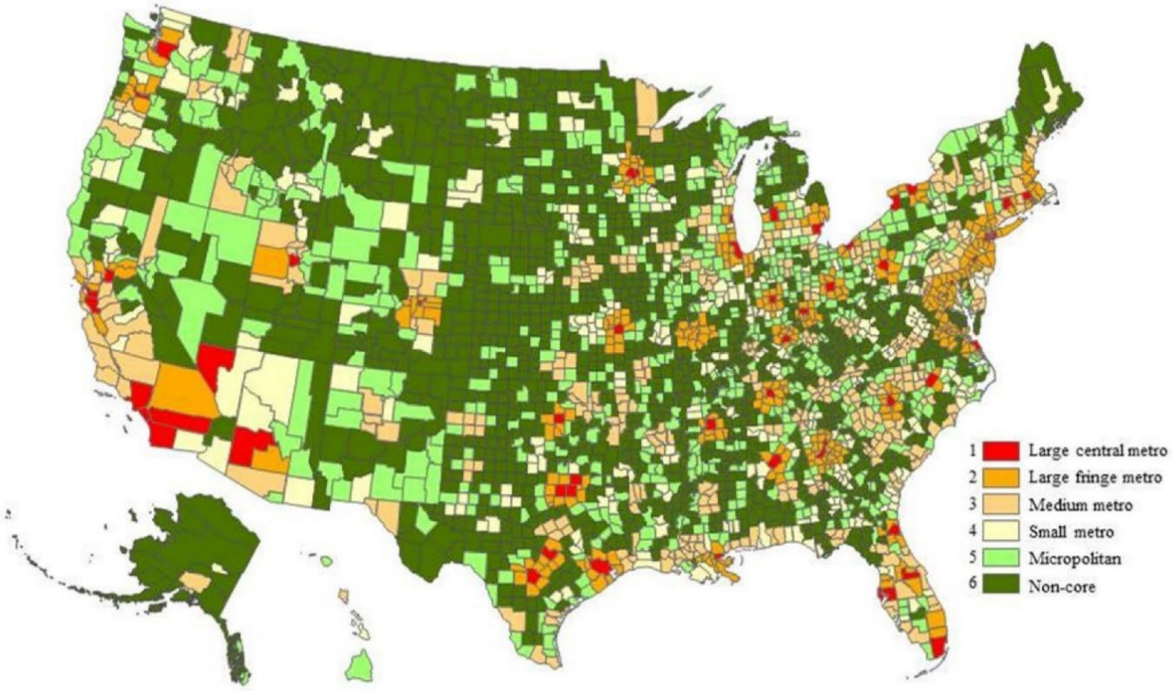
- People with less than a high school education.[i]
- High school graduate or equivalent.
- People with any college education.

Some data sources provide education information for individuals age 18 years and over while other data sources provide education information for individuals age 25 years and over.

Urban-Rural Areas

Urban and rural areas are defined based on the National Center for Health Statistics 2013 Urban-Rural Classification Scheme.

Figure 1. Map showing 2013 NCHS Urban-Rural County Classifications in the United States



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

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[i] Less than a high school education refers to people who did not complete high school.

  - Large fringe metro counties in MSA of 1 million or more population that do not qualify as large central.
  - Medium metro counties in MSA of 250,000-999,999 population.
  - Small metro counties in MSAs of less than 250,000 population.
- Nonmetropolitan counties:
  - Micropolitan: Counties in a micropolitan statistical area.
  - Noncore: Nonmetropolitan counties that are not in a micropolitan statistical area.

More information is available at https://www.cdc.gov/nchs/data_access/urban_rural.htm.

Disabilities

Disability status is defined by following the methodology of the American Community Survey, which is different from the Activity Limitation used in the 2007-2018 NHQDR.

- ❖ Adults age 18 and over are defined as with disability if one reported with serious difficulty in hearing, serious difficulty in vision, serious cognitive difficulty, serious difficulty in walking or climbing stairs, difficulty in dressing or bathing, and difficulty in doing errands.
- ❖ Children with special health care needs (CSHCN): Children ages 0-17 with activity limitations or need or use of more healthcare or other services than is usual for most children of the same age. Question sequences[ii] are asked about the following five health consequences: the need or use of medicines prescribed by a doctor; the need or use of more medical care, mental health care, or education services than is usual for most children; limitations or inability to do things most children can do; the need or use of special therapy, such as physical, occupational, or speech therapy; and the need or use of treatment or counseling for emotional, developmental, or behavioral problems. Children with responses to at least one of the five health consequences were identified as having a special health care need.

Abbreviations Used in the NHQDR

Terms

- AAC: average annual change
- AAPC: average annual percentage change
- ADL: activities of daily living
- AI/AN: American Indian or Alaska Native
- AJCC: American Joint Committee on Cancer
- API: Asian or Pacific Islander

[ii] A CSHCN Screener instrument was developed through a national collaborative process as part of the Child and Adolescent Health Measurement Initiative coordinated by the Foundation for Accountability. For more information, refer to Bethell CD, Read D, Stein REK, Blumberg SJ, Wells N, Newacheck PW. Identifying children with special health care needs: development and evaluation of a short screening instrument. Ambul Pediatr. 2002 Feb;2(1):38-48. https://www.ncbi.nlm.nih.gov/pubmed/11888437. Accessed October 9, 2023.

- APRN: advanced practice registered nurse
- BRFSS: Behavioral Risk Factor Surveillance System
- CAH: critical access hospital
- CAHPS: Consumer Assessment of Healthcare Providers and Systems
- CARES: Coronavirus Aid Relief and Economic Security
- CAUTI: catheter-associated urinary tract infections
- CCRC: continuing care retirement community
- CD4: cluster of differentiation 4
- CLABSI: central line-associated bloodstream infection (also referred to as central venous catheter-related bloodstream infection)
- COPD: Chronic obstructive pulmonary disease
- COVID-19: coronavirus disease-2019
- CRCCP: Colorectal Cancer Control Program
- CSHCN: children with special health care needs
- CT: computed tomography
- DSMES: Diabetes Self-Management Education and Support
- ECG: electrocardiogram
- ED: emergency department
- EHR: electronic health record
- EUA: emergency use authorization
- HAC: hospital-acquired conditions
- HAI: healthcare-associated infections
- HCUP: Healthcare Cost & Utilization Project
- HHS: U.S. Department of Health and Human Services
- HIPAA: Health Insurance Portability and Accountability Act
- HIQR: Hospital Inpatient Quality Reporting
- HIV: human immunodeficiency virus
- HOQR: Hospital Outpatient Quality Reporting
- HPSA: health professional shortage area
- HPV: human papillomavirus
- HRSA: Health Resources and Services Administration
- IADL: instrumental activities of daily living
- ICD-9-CM: International Classification of Diseases, Ninth Revision, Clinical Modification
- ICD-10-CM: International Classification of Diseases, Tenth Revision, Clinical Modification
- IDD: intellectual/developmental disabilities
- IOM: Institute of Medicine ((formally changed its name to the National Academy of Medicine)
- LOS: length of stay
- LTACH: long-term acute care hospital
- LTSS: long-term services and supports
- MDE: major depressive episode
- MDS: Minimum Data Set
- MEPS: Medical Expenditure Panel Survey
- MERS-CoV: Middle East respiratory syndrome virus

- MOUD: medication for opioid use disorder
- MRI: magnetic resonance imaging
- MRSA: methicillin-resistant *Staphylococcus aureus*
- MSA: metropolitan statistical area
- MSH: minority serving hospital
- NAM: National Academy of Medicine
- NAMCS: National Ambulatory Medical Care Survey
- NBCCEDP: National Breast and Cervical Cancer Early Detection Program
- NCBD: National CAHPS Benchmarking Database
- NCCCP: National Comprehensive Cancer Control Program
- NCDB: National Cancer Data Base
- NEHRS: National Electronic Health Records Survey
- NH: non-Hispanic
- NHAMCS: National Hospital Ambulatory Medical Care Survey
- NHANES: National Health and Nutrition Examination Survey
- NHEA: National Health Expenditure Accounts
- NHIS: National Health Interview Survey
- NHPI: Native Hawaiian/Pacific Islander
- NHQDR: National Healthcare Quality and Disparities Report
- NHSS: National HIV Surveillance System
- NHW: non-Hispanic White
- NIS: National Immunization Survey
- NIS-ACM: National Immunization Survey—Adult COVID Module
- NPALS: National Post-acute and Long-term Care Study
- NPCR-USCS: National Program of Cancer Registries – U.S. Cancer Statistics
- NSDUH: National Survey on Drug Use and Health
- NTSS: National Tuberculosis Surveillance System
- NVSS-L: National Vital Statistics System—Linked Birth and Infant Death Data
- NVSS-M: National Vital Statistics System—Mortality
- NVSS-N: National Vital Statistics System—Natality
- OASIS: Home Health Outcome and Assessment Information Set
- OECD: Organisation for Economic Co-operation and Development
- OHIE: Oregon Health Insurance Experiment
- OWS: Operation Warp Speed
- PCC: post-COVID-19 condition
- PG: federal poverty guideline
- PHE: public health emergency
- PL: federal poverty level
- PPE: personal protective equipment
- PREP: Public Readiness and Emergency Preparedness
- QRP: Quality Reporting Program
- QSRS: Quality and Safety Review System
- RECOVER: Researching COVID to Enhance Recovery
- RVC: Reason for Visit Classification for Ambulatory Care

- S-CHIP: State Children’s Health Insurance Program
- SARS-CoV-2: severe acute respiratory syndrome coronavirus-2
- SDOH: social determinants of health
- SID: State Inpatient Databases
- SIR: standardized infection ratio
- SNH: safety net hospital
- SNF: skilled nursing facility
- SVI: Social Vulnerability Index
- TEDS: Substance Use Disorder Treatment Episode Data Set
- UDS: Uniform Data System
- USC: Usual source of care
- USRDS: United States Renal Data System
- WHO: World Health Organization
- WISQARS: Web-based Injury Statistics Query and Reporting System

Agencies and Offices in the U.S. Department of Health and Human Services

- AHRQ: Agency for Healthcare Research and Quality
    - CFACT: Center for Financing, Access, and Cost Trends
    - CQuIPS: Center for Quality Improvement and Patient Safety
    - OC: Office of Communications
    - OEREP: Office of Extramural Research, Education, and Priority Populations
- ASPE: Office of the Assistant Secretary for Planning and Evaluation
- CDC: Centers for Disease Control and Prevention
    - ATSDR: Agency for Toxic Substances and Disease Registry
    - NCHS: National Center for Health Statistics
    - NPCR: National Program of Cancer Registries
- CMS: Centers for Medicare & Medicaid Services
- FDA: Food and Drug Administration
- HRSA: Health Resources and Services Administration
- IHS: Indian Health Service
- NIH: National Institutes of Health
    - NCI: National Cancer Institute
- OASH: Office of the Assistant Secretary for Health
- SAMHSA: Substance Abuse and Mental Health Services Administration

Other Federal Agencies

- BLS: Bureau of Labor Statistics
- GAO: Government Accountability Office
- VHA: Veterans Health Administration

Private and Academic Organizations

- ACS NSQIP: American College of Surgeons National Surgical Quality Improvement Program
- AHA: American Hospital Association
- MPSMS-Yale: Medicare Patient Safety Monitoring System
- UMKECC: University of Michigan Kidney Epidemiology and Cost Center

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