NATIONAL HEALTHCARE DISPARITIES REPORT 2012

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Note: Appendixes will be available at a later date and will include Data Sources, Detailed Methods, and Measure Specifications.

Highlights From the 2012 National Healthcare Quality and Disparities Reports

The U.S. health care system is designed to improve the physical and mental well-being of all Americans by preventing, diagnosing, and treating illness and by supporting optimal function. Across the lifespan, health care helps people stay healthy, recover from illness, live with chronic disease or disability, and cope with death and dying. Quality health care delivers these services in ways that are safe, timely, patient centered, efficient, and equitable.

Unfortunately, Americans too often do not receive care they need, or they receive care that causes harm. Care can be delivered too late or without full consideration of a patient's preferences and values. Many times, our system of health care distributes services inefficiently and unevenly across populations. Some Americans receive worse care than others. These disparities may occur for a variety of reasons, including differences in access to care, social determinants, provider biases, poor provider-patient communication, and poor health literacy.

Each year since 2003, the Agency for Healthcare Research and Quality (AHRQ) has reported on progress and opportunities for improving health care quality and reducing health care disparities. As mandated by the U.S. Congress, the *National Healthcare Quality Report* (NHQR) focuses on "national trends in the quality of health care provided to the American people" (42 U.S.C. 299b-2(b)(2)). The *National Healthcare Disparities Report* (NHDR) focuses on "prevailing disparities in health care delivery as it relates to racial factors and socioeconomic factors in priority populations" (42 U.S.C. 299a-1(a)(6)).

As in previous years, we have integrated findings from the 2012 NHQR and NHDR to produce a single summary chapter. This is intended to reinforce the need to consider concurrently the quality of health care and disparities across populations when assessing our health care system. The National Healthcare Reports Highlights seek to address three questions critical to guiding Americans toward the optimal health care they need and deserve:

- What is the status of health care quality and disparities in the United States?
- How have health care quality and disparities changed over time?[i]
- Where is the greatest need to improve health care quality and reduce disparities?

Three themes from the 2012 NHQR and NHDR emphasize the need to accelerate progress if the Nation is to achieve higher quality and more equitable health care in the near future:

- Health care quality and access are suboptimal, especially for minority and low-income groups.
- Overall quality is improving, access is getting worse, and disparities are not changing.
- Urgent attention is warranted to ensure continued improvements in:
  - Quality of diabetes care, maternal and child health care, and adverse events.
  - Disparities in cancer care.
  - Quality of care among states in the South.

[i] Data years vary across measures. For most measures, trends include data points from 2000-2002 to 2008-2010.

Health Care Quality and Access Are Suboptimal, Especially for Minority and Low-Income Groups

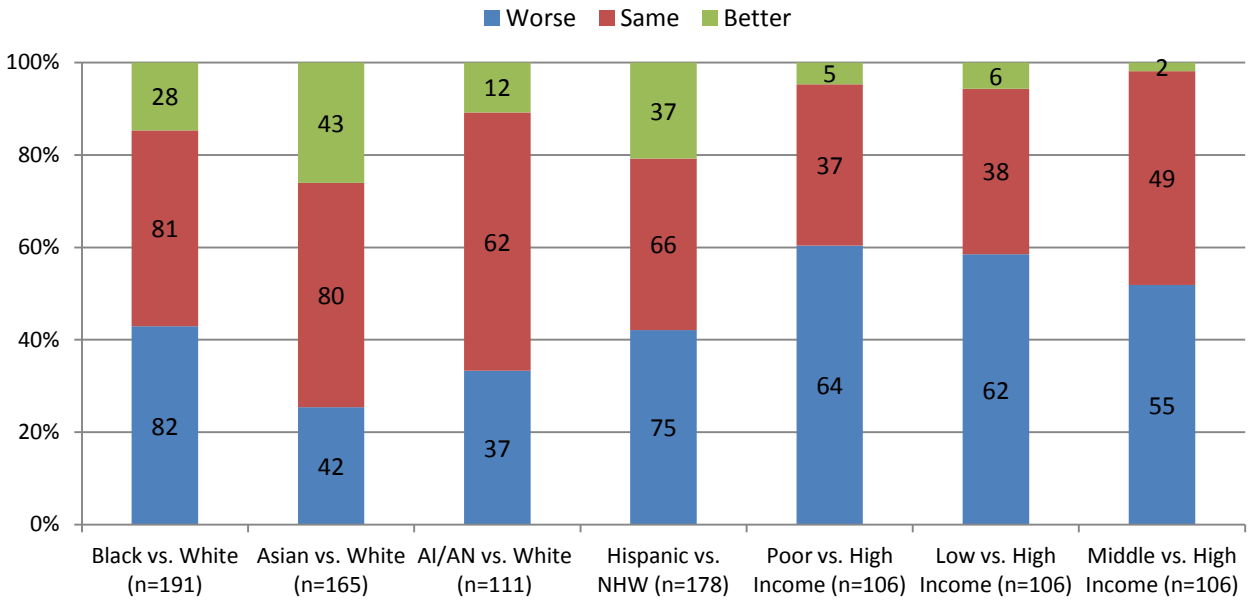
A key function of the reports is to summarize the state of health care quality, access, and disparities for the Nation. This undertaking is difficult, as no single national health care database collects a comprehensive set of data elements that can produce national and state estimates for all population subgroups each year. Rather, data come from more than three dozen databases that provide estimates for different population subgroups and data years. While most data are gathered annually, some data are not collected regularly or are old. The full set of measures tracked in the reports includes measures of access to health care (e.g., having health insurance and having a regular provider) and measures of quality of health care delivered (e.g., receipt of specific services needed to treat or prevent a medical condition and outcomes of treatment).

Despite the data limitations, our analyses indicate that access to health care and quality of health care in America are suboptimal. On average, in 2009, 26% of Americans reported barriers that restricted their access to care. Entry into the health care system did not ensure high-quality care. On average, in 2009, Americans received 70% of indicated health care services and failed to receive 30% of the care they needed to treat or prevent particular medical conditions. The gap between best possible care and what is routinely delivered remains substantial across the Nation.

All Americans should have equal access to high-quality care. Instead, we find that racial and ethnic minorities and poor people often face more barriers to care and receive poorer quality of care when they can get it. In previous years, we assessed disparities using a set of core measures. This year, we analyze disparities using the full set of measures tracked in the reports. We observe few differences in results from the core and full measure sets and present findings from the full measure set here.

For each measure, we examine the relative difference between a selected group and its reference group. Differences that are statistically significant, are larger than 10%, and favor the reference group are labeled as indicating worse quality or access for the selected group. Differences that are statistically significant, are larger than 10%, and favor the selected group are labeled as indicating better quality or access for the selected group. Differences that are not statistically significant or are smaller than 10% are labeled as the same for the selected and reference groups.

Figure H.1. Number and proportion of all quality measures for which members of selected groups experienced better, same, or worse quality of care compared with reference group

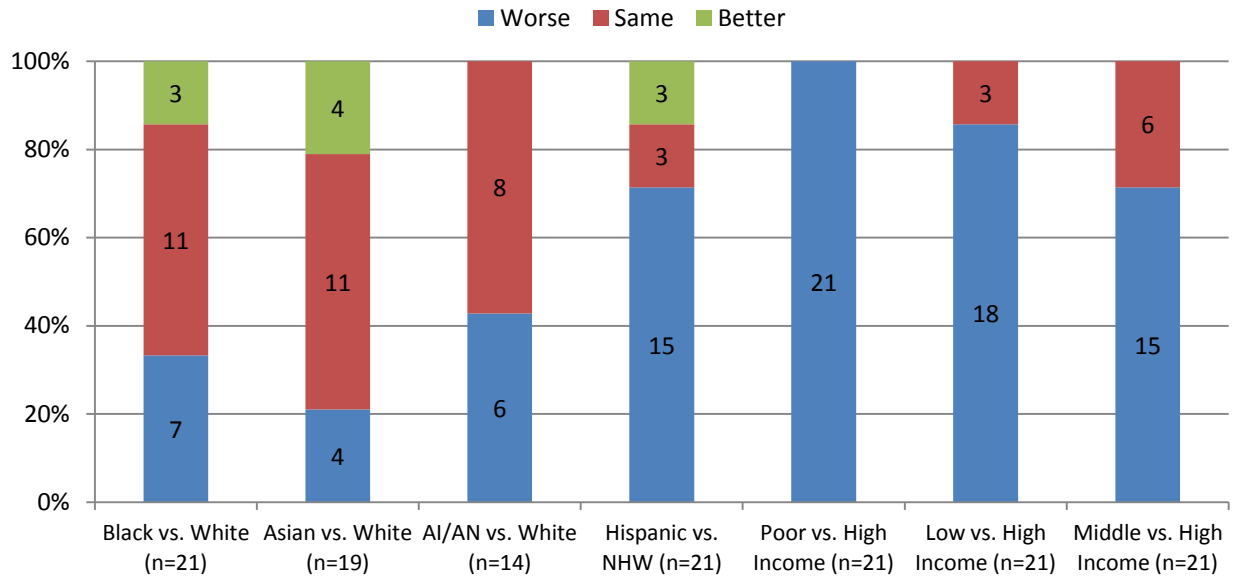


Key: AI/AN = American Indian or Alaska Native; NHW = non-Hispanic White; n = number of measures.
Better = Population received better quality of care than reference group.
Same = Population and reference group received about the same quality of care.
Worse = Population received worse quality of care than reference group.
Note: For each measure, the most recent data available to our team were analyzed; for the vast majority of measures, this represents data from 2008, 2009, or 2010.

- **Disparities in quality of care are common:**
  - Blacks received worse care than Whites, and Hispanics received worse care than non-Hispanic Whites for about 40% of quality measures (Figure H.1).
  - American Indians and Alaska Natives (AI/ANs) received worse care than Whites for one-third of quality measures.
  - Asians received worse care than Whites for about one-quarter of quality measures but better care than Whites for a similar proportion of quality measures.
  - Poor and low-income people received worse care than high-income people[ii] for about 60% of quality measures; middle-income people received worse care for more than half the measures.

[ii] Throughout the Highlights, poor, low income, middle income, and high income indicate individuals whose household income is <100%, 100-199%, 200-399%, and 400% or more of the Federal poverty level, respectively.

Figure H.2. Number and proportion of all access measures for which members of selected groups experienced better, same, or worse access to care compared with reference group



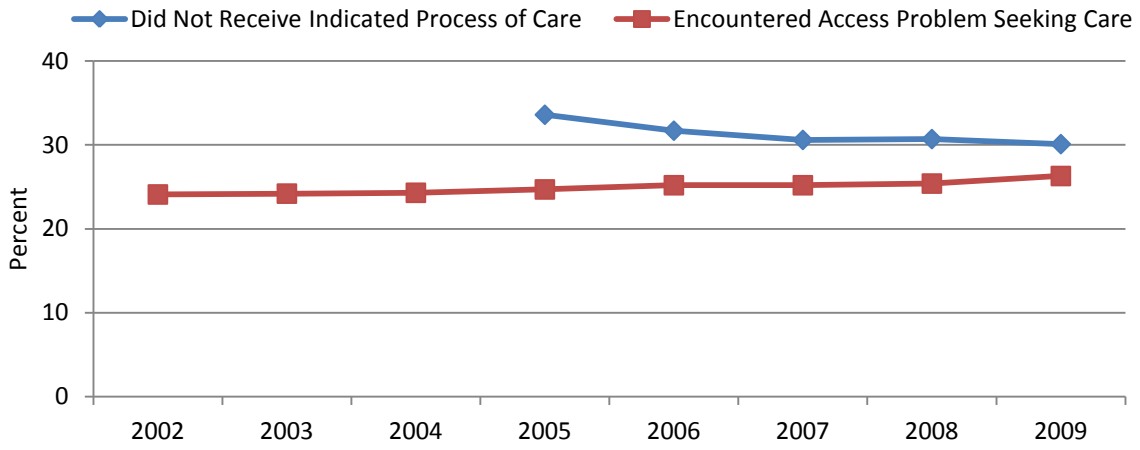
Key: AI/AN = American Indian or Alaska Native; NHW = non-Hispanic White; n = number of measures.
Better = Population had better access to care than reference group.
Same = Population and reference group had about the same access to care.
Worse = Population had worse access to care than reference group.
Note: For each measure, the most recent data available to our team were analyzed; for the vast majority of measures, this represents data from 2008, 2009, or 2010.

- **Disparities in access are also common, especially among AI/ANs, Hispanics, and poor people:**
  - Blacks had worse access to care than Whites for one-third of measures, and AI/ANs had worse access to care than Whites for about 40% of access measures (Figure H.2).
  - Asians had worse access to care than Whites for about 20% of access measures but better access to care than Whites for a similar proportion of access measures.
  - Hispanics had worse access to care than non-Hispanic Whites for about 70% of measures.
  - Poor people had worse access to care than high-income people for all measures; low-income people had worse access to care for more than 80% of measures, and middle-income people had worse access to care for about 70% of measures.

Overall Quality Is Improving, Access Is Getting Worse, and Disparities Are Not Improving

Suboptimal health care is undesirable, but we may be less concerned if we observe evidence of vigorous improvement. Hence, the second key function of these reports is to examine change over time. New this year, we assess changes in average performance through 2009 across a fixed panel of quality of care process measures and access to care measures.

Figure H.3. Average performance across a panel of quality of care process measures and access to care measures, 2002-2009

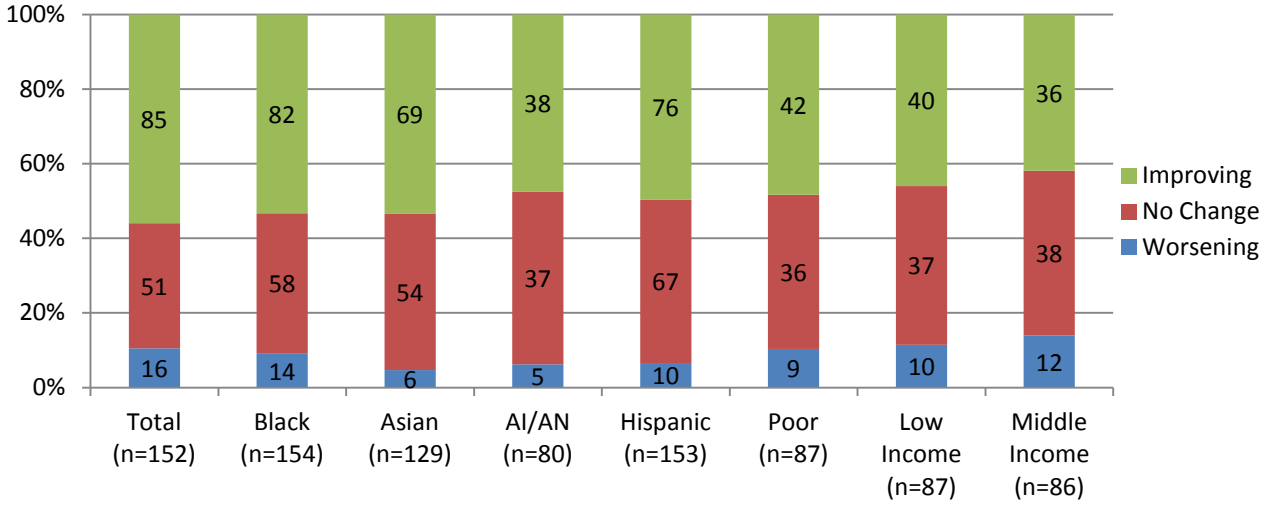


- **Problems with quality of care are decreasing while problems with access to care are increasing:**
  - In 2005, Americans failed to receive about 34% of health care services they should have received; by 2009, this had fallen to 30% of services (Figure H.3).
  - In 2002, 24% of Americans encountered difficulties accessing health care; by 2009, this had increased to 26% of Americans.

Another way to track the progress of health care quality and access presented in these reports is to calculate annual rates of change, which represent how quickly quality of and access to services delivered by the health care system are improving or declining. As in past reports, regression analysis is used to estimate annual rate of change for each measure. Annual rate of change is calculated only for measures with at least 4 years of data. For most measures, trends include data points from 2000-2002 to 2008-2010.

Weighted least squares regression is used to assess whether trends are statistically significant. Measures that are going in a favorable direction at a rate that exceeds 1% per year and is statistically significant are considered to be improving. Measures going in an unfavorable direction at a rate that exceeds 1% per year and is statistically significant are considered to be worsening. Measures that are changing at a rate that is less than 1% per year or is not statistically significant are considered to be static. Because of the addition of significance testing, this year's results cannot be compared with results in previous reports.

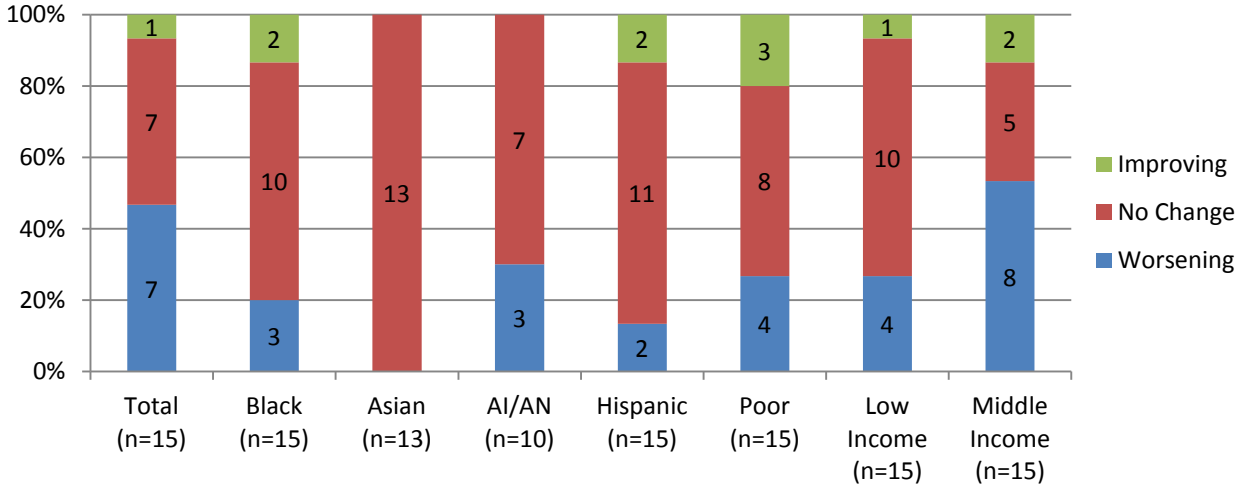
Figure H.4. Number and proportion of all quality measures that are improving, not changing, or worsening, overall and for select populations



Key: AI/AN = American Indian or Alaska Native; n = number of measures.
Improving = Quality is going in a positive direction at an average annual rate greater than 1% per year.
No Change = Quality is not changing or is changing at an average annual rate less than 1% per year.
Worsening = Quality is going in a negative direction at an average annual rate greater than 1% per year.
Note: For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents trend data from 2000-2002 to 2008-2010.

- **Quality is improving slowly for all groups:**
  - Across all measures of health care quality tracked in the reports, almost 60% showed improvement (Figure H.4).
  - Improvement occurred among all racial, ethnic, and income groups.

Figure H.5. Number and proportion of all access measures that are improving, not changing, or worsening, overall and for select populations

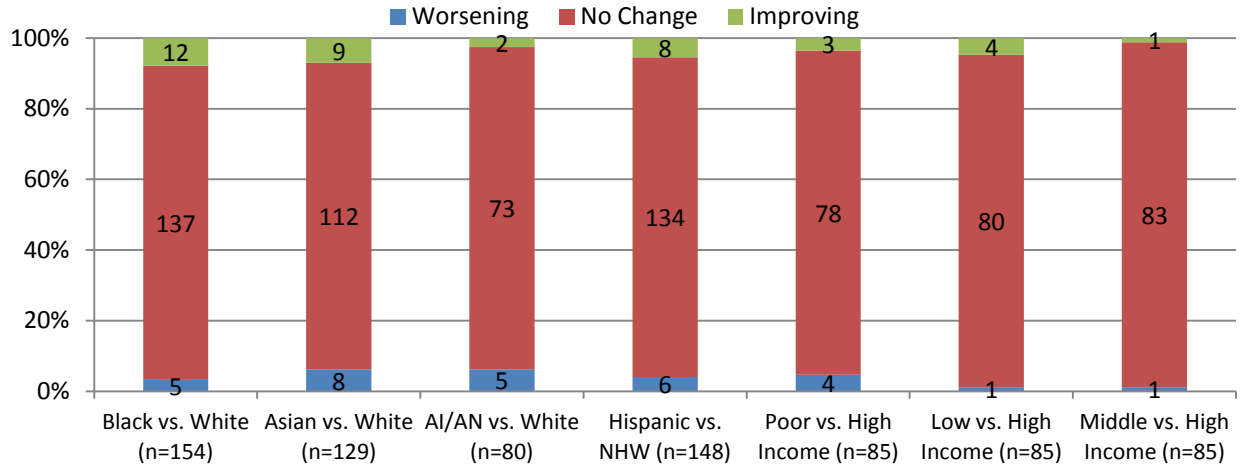


Key: AI/AN = American Indian or Alaska Native; n = number of measures.
Improving = Access is going in a positive direction at an average annual rate greater than 1% per year.
No Change = Access is not changing or is changing at an average annual rate less than 1% per year.
Worsening = Access is going in a negative direction at an average annual rate greater than 1% per year.
Note: For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents trend data from 2000-2002 to 2008-2010.

- **Access is getting worse for most groups:**
  - Across the measures of health care access tracked in the reports, only one showed improvement and almost half were getting worse (Figure H.5).
  - For most racial, ethnic, and income groups, the number of access measures that were getting worse exceeded the number that were improving.

Weighted least squares regression was also used to assess change in disparities. When a selected group's rate of change is at least 1% higher than the reference group's rate of change and this difference in rates of change is statistically significant, we label the disparity as improving. When a selected group's rate of change is at least 1% lower than the reference group's rate of change and this difference in rates of change is statistically significant, we label the disparity as worsening. When the difference is less than 1% or is not statistically significant, we label the disparity as static.

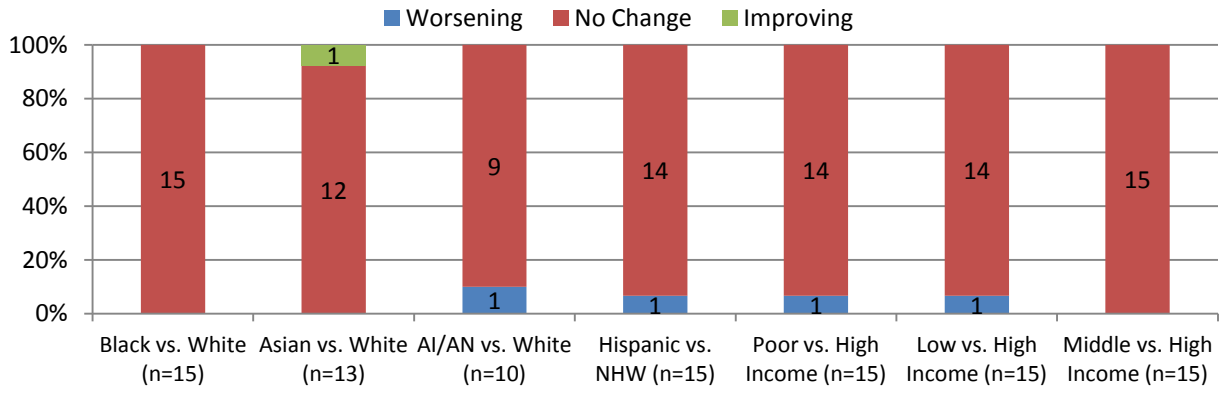
Figure H.6. Number and proportion of all quality measures for which disparities related to race, ethnicity, and income are improving, not changing, or worsening



Key: AI/AN = American Indian or Alaska Native; NHW = non-Hispanic White; n = number of measures.
Improving = Disparity is getting smaller at a rate greater than 1% per year.
No Change = Disparity is not changing or is changing at a rate less than 1% per year.
Worsening = Disparity is getting larger at a rate greater than 1% per year.
Note: For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents data on change in disparities from 2000-2002 to 2008-2010.

- **Few disparities in quality of care are improving (getting smaller):**
  - Few disparities in quality of care related to race, ethnicity, or income showed significant improvement, although the number of disparities that were getting smaller typically exceeded the number of disparities that were getting larger (Figure H.6).
  - Disparities that were getting smaller include differences between Hispanics and non-Hispanic Whites in rates of admission for congestive heart failure. Disparities that were getting larger include differences between Blacks and Whites in rates of advanced stage breast cancer.

Figure H.7. Number and proportion of all access measures for which disparities related to race, ethnicity, and income are improving, not changing, or worsening



Key: AI/AN = American Indian or Alaska Native; NHW = non-Hispanic White; n = number of measures.
Improving = Disparity is getting smaller at a rate greater than 1% per year.
No Change = Disparity is not changing or is changing at a rate less than 1% per year.
Worsening = Disparity is getting larger at a rate greater than 1% per year.
Note: For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents data on change in disparities from 2000-2002 to 2008-2010.

- **Almost no disparities in access to care are improving (getting smaller):**
  - The gap in access between Asians and Whites improved (grew smaller) for one measure (people without a usual source of care who indicate a financial or insurance reason for not having a source of care). No other disparities in access to care showed improvement (Figure H.7).

Disparities Action Plan Priority: Increasing the Availability and Quality of Data Collected and Reported on Racial and Ethnic Minority Populations

Identifying problems, targeting resources, and designing interventions all depend on reliable data. Unfortunately, data on underserved populations are often incomplete. Some data sources do not collect information to identify specific groups. Other data sources collect this information, but the numbers of individuals from specific groups included are too small to allow reliable estimates. The HHS *Action Plan To Reduce Racial and Ethnic Health Disparities* (Disparities Action Plan; HHS, 2011) includes this priority as part of its goal to advance scientific knowledge and innovation in support of reducing health disparities.

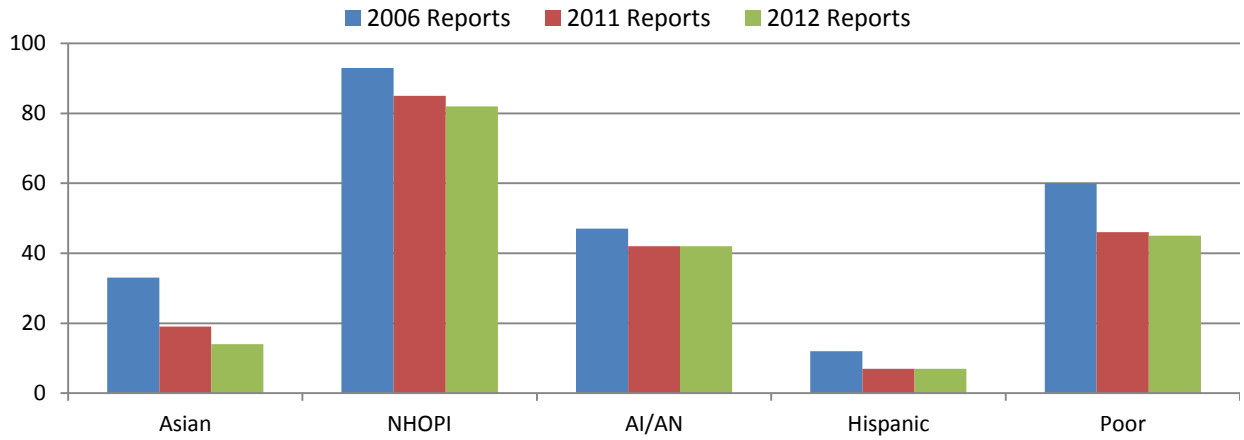
Progress in Disparities Data

In the 2006 NHDR, we presented a chart showing the percentage of core quality measures for which an estimate that met our reliability criteria could not be generated for single-race Asians, Native Hawaiians and Other Pacific Islanders (NHOPIs), AI/ANs, multiple-race individuals, Hispanics, and poor people. Except for one measure related to language assistance,[iii] all measures provided reliable estimates for Blacks, so they were not shown.

[iii] The measure is the percentage of adults with limited English proficiency and a usual source of care who had language assistance.

Below we include the percentage of all quality measures in the 2006, 2011, and 2012 reports for which a reliable estimate could not be generated for these same groups. Again, except for the one measure of language assistance, reliable estimates could be generated for Blacks for all other measures, so they are not shown.

Figure H.8. Percentage of quality measures in the 2006, 2011, and 2012 reports for which a reliable estimate could not be generated



Key: NHOPI = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.

- **Data on disparities continue to improve but are still suboptimal:**
  - Since 2006, the percentage of quality measures that could not be used to assess disparities has decreased for all groups (Figure H.8).
  - For NHOPIs, reliable estimates were not available for more than three-quarters of the measures, making any assessment of disparities incomplete. Reliable estimates for AI/AN and poor populations also could not be generated for a large percentage of measures.

Nationwide Initiatives Increasing Data on Racial and Ethnic Minority Populations

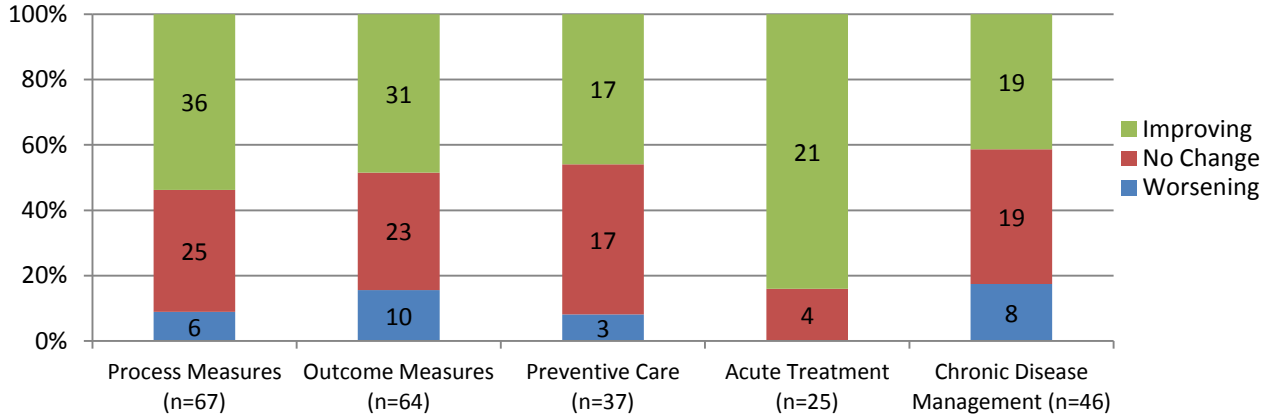
The Affordable Care Act requires that all federally funded health programs and population surveys collect and report data on race, ethnicity, sex, primary language, and disability and supports use of data to analyze and track health disparities (Andrulis, et al., 2010). To improve the quality of data collected in population surveys, HHS published Data Standards for Race, Ethnicity, Sex, Primary Language, and Disability in October 2011 (Office of Minority Health, 2011). New, more granular standards for race and ethnicity build and expand on the 1997 Office of Management and Budget data collection standards.

To strengthen data collection in Medicaid and Children's Health Insurance Programs, HHS evaluated these programs and recommended improvements in the report *Approaches for Identifying, Collecting, and Evaluating Data on Health Care Disparities in Medicaid and CHIP* (www.healthcare.gov/law/resources/reports/disparities09292011a.pdf). Recommendations include aligning the Medicaid Statistical Information System, Medicare Current Beneficiary Survey, and Consumer Assessment of Healthcare Providers and Systems with the new data standards.

Urgent Attention Is Warranted To Ensure Improvements in Quality and Success in Reducing Disparities

The third key function of these reports is to identify areas in greatest need of improvement. Potential problem areas can be defined by types of services and populations at risk. Pace of improvement varies across preventive care, acute treatment, and chronic disease management.

Figure H.9. Number and proportion of measures that are improving, not changing, or worsening, by type of quality measure



Key: n = number of measures.
Improving = Quality is going in a positive direction at an average annual rate greater than 1% per year.
No Change = Quality is not changing or is changing at an average annual rate less than 1% per year.
Worsening = Quality is going in a negative direction at an average annual rate greater than 1% per year.
Note: Preventive care includes screening, counseling, and vaccinations; acute treatment includes hospital care for cancer, heart attack, and pneumonia; chronic disease management includes ambulatory care for diabetes, arthritis, and asthma and nursing home care for pressure sores and pain. For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents trend data from 2000-2002 to 2008-2010.

- **Measures of acute treatment are improving; other measures are lagging:**
  - About half of all process and outcome measures showed improvement (Figure H.9).
  - Of the quality measures related to treatment of acute illness or injury, more than 80% showed improvement. In contrast, only about 40% of quality measures related to preventive care and chronic disease management showed improvement. Acute treatment includes a high proportion of hospital measures, many of which are tracked by the Centers for Medicare & Medicaid Services (CMS) and publicly reported. Hospitals often have more infrastructure to improve quality and to respond to performance measurement compared with providers in other settings.

The NHQR tracks the pace of change over time for measures with at least 4 years of data. Table H.1 lists the quality measures with the highest rates of improvement and deterioration.

Table H.1. Quality measures with the most rapid pace of improvement and deterioration

Quality Improving	Quality Worsening
Adult surgery patients who had prophylactic antibiotics discontinued within 24 hours after surgery end time	Children ages 19-35 months who received 3 or more doses of *Haemophilus influenzae* type B vaccine
Adult surgery patients who received prophylactic antibiotics within 1 hour prior to surgical incision	Maternal deaths per 100,000 live births
Hospital patients with heart attack who received percutaneous coronary intervention within 90 minutes of arrival	Adults age 40+ with diagnosed diabetes who had their feet checked for sores or irritation in the calendar year
Hospital patients age 65+ with pneumonia who received a pneumococcal screening or vaccination	Postoperative pulmonary embolism or deep vein thrombosis per 1,000 surgical admissions, age 18+
Hospital patients age 50+ with pneumonia who received an influenza screening or vaccination	Admissions for asthma per 100,000 population, age 65+
Hospital patients with pneumonia who had blood cultures collected before antibiotics were administered	Adults age 40+ with diagnosed diabetes who received 2+ hemoglobin A1c measurements in the calendar year
Hospital patients with heart failure who were given complete written discharge instructions	Suicide deaths per 100,000 population
Hospital patients with heart failure and left ventricular systolic dysfunction who were prescribed ACE inhibitor or ARB at discharge	Women ages 21-65 who received a Pap smear in the last 3 years
Long-stay nursing home residents who were assessed and given pneumococcal vaccination	Admissions with stage III or IV pressure ulcer per 1,000 medical and surgical admissions of length 5+ days
Patients with colon cancer who received recommended treatment: surgical resection of colon specimen that had 12+ regional lymph nodes pathologically examined	Admissions with diabetes with short-term complications per 100,000 population, age 18+

Key: ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker.
Note: Orange = CMS publicly reported measures; yellow = maternal and child health measures; blue = diabetes measures; purple = adverse events. For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents trend data from 2000-2002 to 2008-2010.

- **Quality changes unevenly across measures:**
  - Of the 10 quality measures that are improving at the fastest pace, 9 are CMS publicly reported measures (orange) (Table H.1).
  - Of the 10 quality measures that are getting worse at the fastest pace, 3 relate to diabetes (blue), 2 relate to maternal and child health (yellow), and 2 relate to adverse events in health care facilities (purple).

The NHDR focuses on disparities related to race, ethnicity, and socioeconomic status. Table H.2 summarizes the disparities for each major group tracked in the reports. For each group, it shows the measures where disparities are improving at the fastest rate and the measures where disparities favor the comparison group and are worsening.

Table H.2. Disparities that are changing over time

Groups	Disparities Improving	Disparities Worsening
Black compared with White	Admissions for congestive heart failure per 100,000 population, age 18+	Advanced stage invasive breast cancer incidence per 100,000 women age 40+
	Adjusted incidence of end stage renal disease due to diabetes per million population	Maternal deaths per 100,000 live births
	Short-stay nursing home residents who were assessed and given pneumococcal vaccination	
Asian compared with White	Hospital patients age 65+ with pneumonia who received a pneumococcal screening or vaccination	Adjusted incidence of end stage renal disease due to diabetes per million population
	Hospital patients age 50+ with pneumonia who received an influenza screening or vaccination	Hospice patients who received the right amount of help for feelings of anxiety or sadness
	Hospital patients with heart failure who were given complete written discharge instructions	Adults ages 18-64 at high risk (e.g., COPD) who ever received pneumococcal vaccination
American Indian/ Alaska Native compared with White	Adjusted incidence of end stage renal disease due to diabetes per million population	Hospital patients with heart failure and left ventricular systolic dysfunction who were prescribed ACE inhibitor or ARB at discharge
	Children who had their height and weight measured by a health provider within the past 2 years	Adults age 50+ who ever received a colonoscopy, sigmoidoscopy, or proctoscopy
Hispanic compared with Non-Hispanic White	Admissions for congestive heart failure per 100,000 population, age 18+	Home health care patients who have less shortness of breath
	Hospital patients age 65+ with pneumonia who received a pneumococcal screening or vaccination	Adults age 40+ with diagnosed diabetes who received 2+ hemoglobin A1c measurements in the calendar year
	Hospital patients age 50+ with pneumonia who received an influenza screening or vaccination	Hospital patients with heart attack who received fibrinolytic medication within 30 minutes of arrival
Poor compared with High Income	Admissions for congestive heart failure per 100,000 population, age 18+	People without a usual source of care who indicate a financial or insurance reason for not having a source of care
	Deaths per 1,000 hospital admissions with abdominal aortic aneurysm repair, age 18+	Adults age 50+ who ever received a colonoscopy, sigmoidoscopy, or proctoscopy
	Children ages 2-17 who had a dental visit in the calendar year	Admissions with diabetes with short-term complications per 100,000 population, age 18+

Key: COPD = chronic obstructive pulmonary disease; ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker.
Note: Orange = CMS publicly reported vaccination measures; purple = cardiovascular disease measures; red = cancer measures; blue = diabetes measures; yellow = maternal and child health measures. For each measure, the earliest and most recent data available to our team were analyzed; for the vast majority of measures, this represents data on change in disparities from 2000-2002 to 2008-2010.

- **Disparities also change unevenly across measures:**
  - Of the disparities that are improving, 5 are CMS publicly reported vaccination measures (orange) and 5 relate to cardiovascular disease (purple) (Table H.2).
  - Of the disparities that favor the comparison group and are getting worse, 3 relate to cancer (red).
  - Measures related to diabetes (blue) and maternal and child health (yellow) showed mixed patterns, with some disparities improving and others worsening.

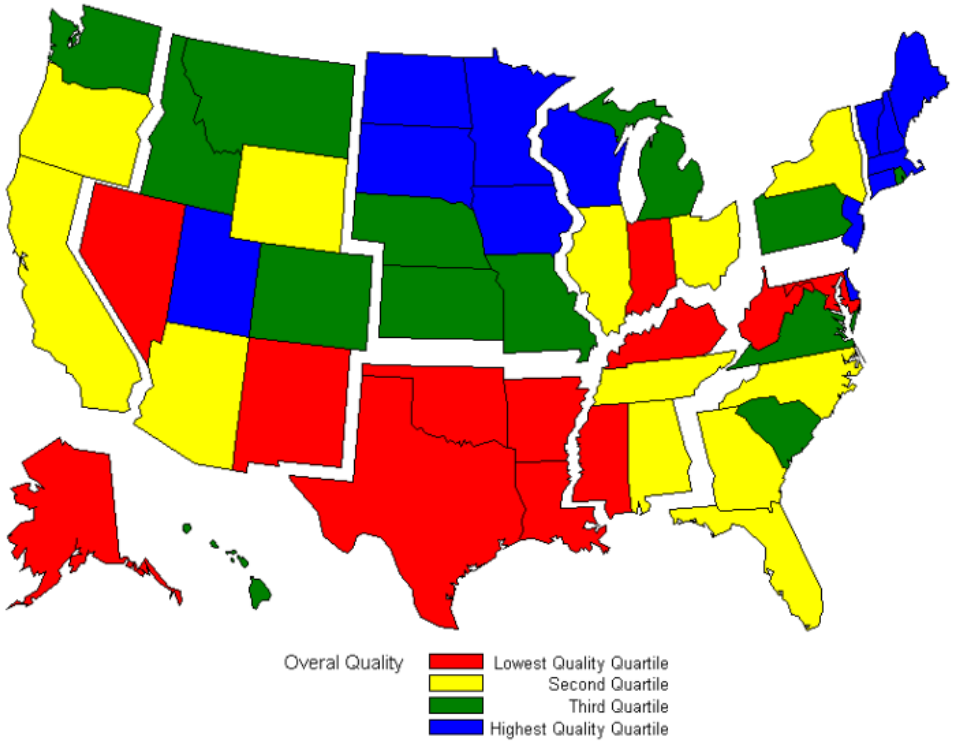
Quality of care varies not only across types of care but also across parts of the country. Knowing where to focus efforts improves the efficiency of interventions. Delivering data that can be used for local benchmarking and improvement is a key step in raising awareness and driving quality improvement.

Since 2005, AHRQ has used the State Snapshots tool (statesnapshots.ahrq.gov) to examine variation across states. This Web site helps state health leaders, researchers, consumers, and others understand the status of health care quality in individual states and the District of Columbia.

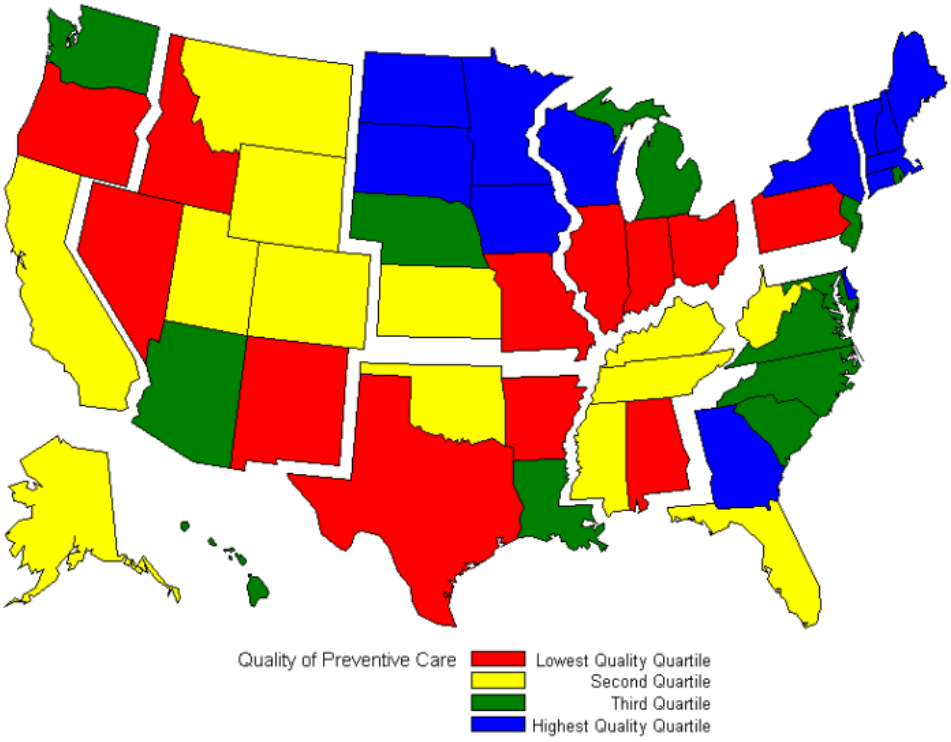
The State Snapshots are based on more than 100 NHQR measures, each of which evaluates a different aspect of health care performance and shows each state's strengths and weaknesses. Here, we use data from the 2011 State Snapshots to examine variation in quality across states.

Figure H.10. Overall quality of care, preventive care, acute care, and chronic care, by state

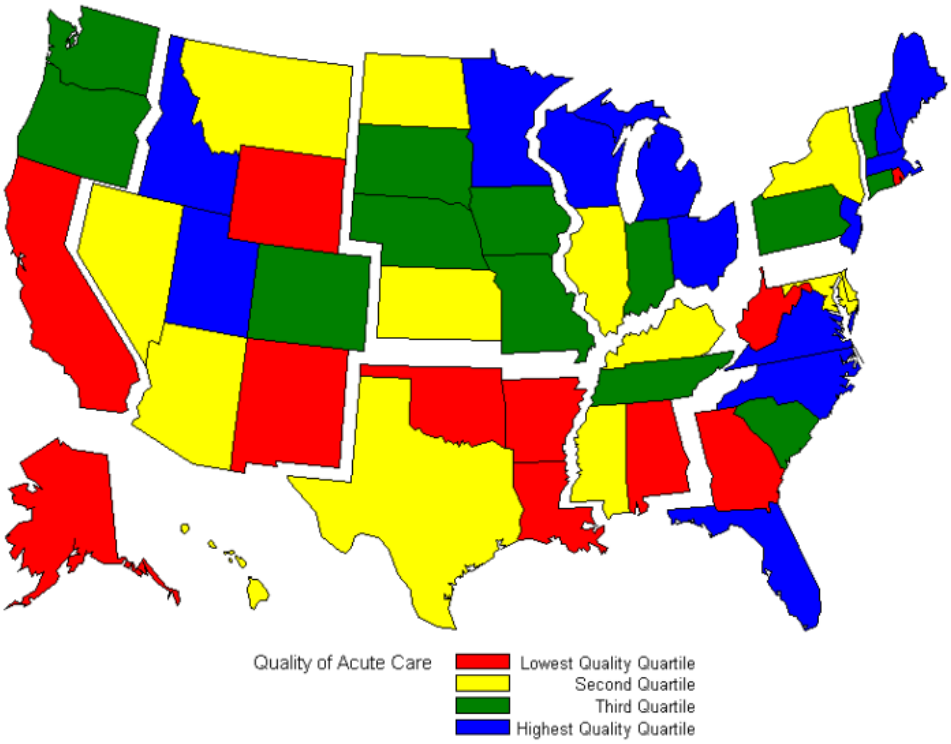
Overall Quality of Care



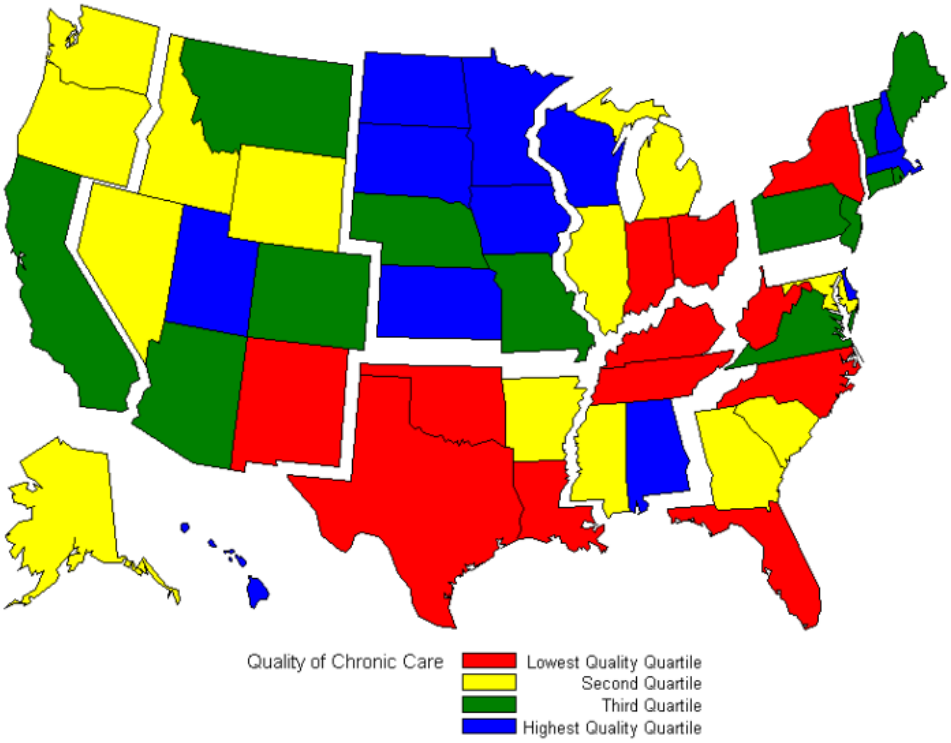
Preventive Care



Acute Care



Chronic Care



Source: Agency for Healthcare Research and Quality, 2011 State Snapshots.
Note: States are divided into quartiles based on overall health care score.

- **Quality of care differs across geographic regions:**
  - For overall quality of care, states in the New England (CT, MA, ME, NH, RI, VT) and West North Central (IA, KS, MN, MO, NE, ND, SD) census divisions were most often in the top quartile (Figure H.10). States in the South Atlantic (DC [not shown], DE, FL, GA, MD, NC, SC, VA, WV), East South Central (AL, KY, MS, TN), and West South Central (AR, LA, OK, TX) census divisions were most often in the bottom quartile.
  - States in different parts of the country faced different patterns of health care quality.
    - States in the New England and West North Central divisions performed well on preventive, acute, and chronic care quality measures while states in the East South Central and West South Central divisions performed poorly on all three types of services.
    - States in the Mountain division (AZ, CO, ID, MT, NV, NM, UT, WY) performed poorly on preventive and acute care.
    - States in the East North Central (IL, IN, MI, OH, WI) division performed well on acute care but poorly on chronic care.
    - States in the South Atlantic census division performed well on preventive care but poorly on chronic care.

Conclusion

The NHQR and NHDR track health care quality and disparities at the national level, but the statistics reported in the reports reflect the aggregated everyday experiences of patients and their providers across the Nation. Improving quality and reducing disparities require measurement and reporting, as provided in the NHQR and NHDR. These statistics, however, are only useful to the extent that they inform policies and initiatives and help us track progress toward the ultimate goal of HHS initiatives, which is to improve the lives of patients and families.

It makes a difference in people's lives when breast cancer is diagnosed early; when a patient having a heart attack gets the correct lifesaving treatment in a timely fashion; when medications are correctly administered; and when doctors listen to their patients and their families, show them respect, and answer their questions in a culturally and linguistically skilled manner. All Americans should have access to quality care that helps them achieve the best possible health.

With the publication of this 10th NHQR and NHDR, AHRQ stands ready to contribute to efforts that encourage and support the development of national, state, tribal, and local solutions using national data and achievable benchmarks of care. These documents identify areas where novel strategies have made a difference in improving patients' quality of life, as well as many areas where much more should be done.

We need to improve access to care, reduce disparities, and accelerate the pace of quality improvement, especially in the areas of preventive care and safety. More data are needed to assess progress in care coordination and efficiency. Information needs to be shared with partners who have the skills and commitment to change health care. Building on data in the NHQR, NHDR, and State Snapshots, stakeholders can design and target strategies and clinical interventions to ensure that all patients receive the high-quality care needed to make their lives better.

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Chapter 1. Introduction and Methods

In 1999, Congress directed the Agency for Healthcare Research and Quality (AHRQ) to produce an annual report on "national trends in the quality of health care provided to the American people."[i] With support from the Department of Health and Human Services (HHS) and private-sector partners, AHRQ has designed and produced the *National Healthcare Quality Report* (NHQR) to respond to this legislative mandate. The NHQR provides a comprehensive overview of the quality of health care received by the general U.S. population and is designed to summarize data across a wide range of patient needs—staying healthy, getting better, living with chronic illness and disability, and coping with the end of life.

AHRQ was further tasked with producing an annual report that tracks "prevailing disparities in health care delivery as it relates to racial factors and socioeconomic factors in priority populations."[ii] Titled the *National Healthcare Disparities Report* (NHDR), this report examines disparities in health care received by designated priority populations. The referenced priority populations consist of groups with unique health care needs or issues that require special focus, such as racial and ethnic minorities, low-income populations, and people with special health care needs. AHRQ's charge includes a directive to examine disparities in health care access, utilization, costs, outcomes, satisfaction, and perceptions of care.

The first NHQR and NHDR were significantly shaped by several Institute of Medicine (IOM) reports. *Crossing the Quality Chasm* (IOM, 2001) and *To Err Is Human* (IOM, 2000) raised awareness about gaps in the quality of health care and patient safety. The extensive literature review included in the IOM report *Unequal Treatment* (IOM, 2003) drew attention to disparities in the care rendered to racial and ethnic populations, low-income populations, and other vulnerable groups. The IOM report *U.S. Health in International Perspective: Shorter Lives, Poorer Health* (IOM, 2010) reflects inefficiencies and disparities in the US health care system.

With support from an HHS Interagency Work Group and AHRQ's National Advisory Council, AHRQ has designed and produced the NHQR and NHDR since 2003. This is the 10th in the series of reports.

Changes to the Reports

Over the past decade AHRQ has introduced several refinements to the NHQR and NHDR measure set and methodology:

- 2003: Reports were introduced.
- 2004: Goal of the reports was expanded to include tracking of the Nation's quality improvement progress.
- 2005: Reports introduced a set of core measures and several new composite measures.
- 2006: Data sources were added and the methods for quantifying and tracking changes in health care were refined.
- 2007: Chapter on health care efficiency was launched.

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[i] 42 U.S.C. 299b-2(b)(2).
[ii] 42 U.S.C. 299a-1(a)(6).

- 2008: Chapter on patient safety was expanded. AHRQ commissioned the IOM to review past reports and offer recommendations for enhancing future reports and associated products.
- 2009: New sections were included on lifestyle modification, healthcare-associated infection, patient safety culture, care coordination, and potentially avoidable hospitalizations among patients in home health and nursing facilities.
- 2010: Per IOM recommendations (IOM, 2010), reports focused on areas expected to yield the greatest gains in health care quality, including patient and family engagement, population health, safety, care coordination, palliative care, overuse of services, access to care, and health system infrastructure. Measure-specific benchmarks that reflected the highest level of performance documented for a measure were added.
- 2011: Pursuant to the provisions of the Patient Protection and Affordable Care Act of 2010,[iii] the Secretary of HHS submitted a report to Congress titled *National Strategy for Quality Improvement in Health Care* (National Quality Strategy, HHS, 2011).[iv] This report set priorities to advance three quality improvement aims: better care, healthy people, and affordable care. As the National Quality Strategy priorities considerably overlap with those proposed by the IOM, the 2011 reports were aligned with the National Quality Strategy. Additional measures to reflect the National Quality Strategy priorities were added to the reports.

The 2012 NHQR and NHDR continue to align measures according to the National Quality Strategy in an effort to inform policymakers, the public, and other stakeholders of the Nation's progress in achieving National Quality Strategy aims. Featured in the 2012 reports are measures and analyses that focus on (1) long-term trends in performance, (2) regional and State differences in quality, and (3) health care disparities for granular ethnicity categories, which consist of more specific levels of categorization of population subgroups.

Organization of the NHQR and NHDR

The NHQR and NHDR are designed as chartbooks that contain data on more than 250 health care quality measures from more than 45 databases. Measures in these reports are selected with guidance from the AHRQ Interagency Work Group, an advisory body of representatives from across many HHS agencies. Measures represented in these reports are among the most important and scientifically-supported measures. Together, these measures provide an annual snapshot of how our Nation's health care system is performing and the extent to which health care quality and disparities have improved or worsened over time.

[iii] Public Law 111-148.

[iv] The National Quality Strategy identified six priority areas as a means to achieve the quality improvement aims. These include: (1) making sure care is safer by reducing harm in the delivery of care; (2) ensuring that each person and family is engaged as partners in their care; (3) promoting effective communication and coordination of care; (4) promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease; (5) working with communities to promote wide use of best practices to enable healthy living; and (6) making quality care more affordable for individuals, families, employers, and governments, by developing and spreading new health care delivery models.

The NHQR and NHDR are complementary reports and, with few exceptions, are similarly organized. Where applicable, key findings from the NHDR are included in the NHQR, and NHQR findings are reported in the text of the NHDR. Readers should refer to the report from which results have been drawn to gather additional details on the data presented. Report chapters include the following:

Highlights, which immediately precede the current chapter, combines broad sets of measures to offer a high-level overview of the progress that has been made in advancing health care quality and reducing disparities in the United States. The Highlights chapter incorporates findings from both the NHQR and NHDR and the same Highlights chapter is used in both reports.

Chapter 1: Introduction and Methods provides background on the NHQR and NHDR and modifications to the reports that have occurred over time. This chapter includes measures that have been added or retired from the measure list, along with an overview of the methods used to generate estimates, measure trends, and examine disparities.

Chapter 2: Effectiveness examines prevention, treatment, and outcomes for a range of conditions or population groups. The 2012 reports are organized around several clinical areas: cancer, cardiovascular disease, chronic kidney disease, diabetes, HIV and AIDS, maternal and child health, mental health and substance abuse, musculoskeletal disease, and respiratory disease. Three types of health care services that typically cut across clinical conditions are also examined: lifestyle modification, functional status preservation and rehabilitation, and supportive and palliative care.

Chapter 3: Patient Safety tracks safety within hospitals. Among the areas examined are healthcare-associated infections, postoperative and other hospital complications, and preventable hospital deaths.

Chapter 4: Timeliness examines the delivery of time-sensitive clinical care and patient perceptions of how quickly they receive care. Among the measures reported in this chapter are the ability to get care when the patient needs it and emergency department wait times.

Chapter 5: Patient Centeredness examines individual experiences with care in an office or clinic setting, as well as during a hospital stay. Measures reported in this chapter focus on perceptions of communication with providers and satisfaction with the physician-patient relationship.

Chapter 6: Care Coordination presents data to assess the performance of the U.S. health care system in coordinating care across providers or services. Care coordination is measured, in part, using readmission measures as well as measures of success in transitioning across health care settings.

Chapter 7: Efficiency discusses how well the health care system promotes quality, affordable care, and appropriate use of services. The emphasis in this chapter is on overuse of health services, as measures representing misuse or underuse overlap with other sections of the report and are included in various chapters.

Chapter 8: Health System Infrastructure explores the capacity of health care systems to support high-quality care. Most measures of health system infrastructure were assessed on the basis of region or provider characteristics. Infrastructure measures, which are primarily structural measures of quality, include adoption of computerized data systems and the supply of selected health care professionals.

Chapter 9: Access presents measures that cut across several priority areas and includes measures that focus on barriers to care, such as lack of insurance, financial barriers to care experienced by the population with health insurance, and usual source of care.

Chapter 10: Priority Populations continues to be unique to the NHDR. This chapter summarizes quality and disparities in care for populations identified as particularly significant to quality improvement, including racial and ethnic minorities, low-income populations, older adults, residents of rural areas, and individuals with disabilities or special health care needs.

Appendixes are available online for both the NHQR and NHDR at http://www.ahrq.gov/research/findings/nhqrdr/index.html. These include:

- **Data Sources,** which provides information about each database analyzed for the reports, including data type, sample design, and primary content.
- **Measure Specifications,** which provides information about how measures are generated and analyzed for the reports. Measures highlighted in the report are described, as well as other measures that were examined but not included in the text of the report.
- **Detailed Methods,** which provides detailed methodological and statistical information about selected databases analyzed for the reports.
- **Data Tables,** which contains detailed data tables for most measures analyzed for the reports, including measures highlighted in the report text and measures examined but not included in the text. A few measures cannot support detailed tables and are not included in the appendix.

Table 1.1 provides a crosswalk between the National Quality Strategy priorities and the report chapters. Chapter 10, Priority Populations, addresses all six priorities.

Table 1.1. Alignment of NHQR and NHDR chapters to National Quality Strategy priorities

Priority	NHQR and NHDR Chapters Addressing Priority
Making sure care is safer by reducing harm in the delivery of care	Chapter 3: Patient Safety
Ensuring that each person and family is engaged as partners in their care	Chapter 5: Patient Centeredness
Promoting effective communication and coordination of care	Chapter 6: Care Coordination
Promoting the most effective prevention and treatment practices for the leading causes of mortality, starting with cardiovascular disease	Chapter 2: Effectiveness, Cardiovascular Disease
Working with communities to promote wide use of best practices to enable healthy living	Chapter 2: Effectiveness, Lifestyle Modification

Priority	NHQR and NHDR Chapters Addressing Priority
Making quality care more affordable for individuals, families, employers, and governments, by developing and spreading new health care delivery models	Chapter 7: Efficiency Chapter 9: Access

Measure Set for the 2012 NHQR and NHDR

The 2012 reports continue to focus on a consistent subset of measures, the "core" measures, which includes the most important and scientifically-supported measures in the full measure set. "Supporting measures" are included in summary statistics and may be presented to complement core measures in key areas. Often, data are unavailable to track these measures on an annual basis. In other cases, supporting measures may not have been as rigorously evaluated as core measures, but they are still useful in characterizing the performance of the health care system.

Core Measures

In 2005, the Interagency Work Group selected core measures from the full measure set. Consistency in core measures enables AHRQ to monitor trends over time to identify areas for which health care is improving or getting worse. For most core measures, findings are presented each year.

A subset of the core measure group is presented on an alternating basis, typically rotating across odd or even years of the report. All alternating core measures are included in trend analyses. Examples of alternating measures include the set of measures focusing on breast cancer and colorectal cancer. While measures are tracked annually, breast cancer measures are presented in odd calendar years; these measures are contained in the 2011 reports. Colorectal cancer measures are also tracked annually, but results are presented in even calendar years, such as in the 2010 quality and disparities reports.

New Measures

With the assistance of the Interagency Work Group, each year AHRQ reviews the NHQR and NHDR measure list to identify areas where additional information on the performance of the health care system is needed. Suitability of a measure for reporting may be based on the adequacy of data used to generate the measure, extent to which the measure has been scientifically tested, and acceptance of the measure by relevant stakeholders. New measures, which are listed in Table 1.2, were presented to and approved by the members of the Interagency Work Group for inclusion in the 2012 reports.

Table 1.2. New measures in NHQR/NHDR, 2012

Chapter	Measure	Data Source
Effectiveness: Asthma	People with current asthma who received a written asthma management plan from their health provider	National Health Interview Survey
*Effectiveness: Cancer	Adults ages 50-75 who reported having colorectal cancer screening	National Center for Health Statistics
*Effectiveness: Mental Health and Substance Abuse	Suicide deaths per 100,000 population, age 12 and over	National Center for Health Statistics

Chapter	Measure	Data Source
Effectiveness: Functional Status and Rehabilitation	Gain in functioning between admission and discharge from inpatient medical rehabilitation	Inpatient Rehabilitation Facility Patient Assessment Instrument
Patient Safety	Central line-associated bloodstream infections	National Healthcare Safety Network
Patient Safety	Rate of hospital-acquired conditions	Medicare Patient Safety Monitoring System
Care Coordination	Effective care coordination among children with special health care needs	National Survey of Children With Special Health Care Needs
Care Coordination	Children with special health care needs who have a medical home	National Survey of Children With Special Health Care Needs

* Existing measure with new specifications.

Retired Measures

Since the first NHQR and NHDR, significant improvements in a number of measures of quality of care have occurred, with U.S. health care providers achieving overall performance levels exceeding 95%. 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 distort quantification of rate of change over time.

Each year, measures for which performance has reached 95% are retired. Data on retired measures will continue to be collected and these measures will be added back to the reports if their performance falls below 95%.

Measures may also be retired if a more suitable measure is identified. Suitability is determined on the basis of scientific testing, measure acceptance, and availability of valid and reliable data to construct the measure.

Two patient safety measures were retired in 2012, because performance had reached the 95% threshold:

- Surgical patients' receipt of appropriate care.
- Appropriate timing of antibiotics for surgical patients.

Composite Measures

Policymakers and others have voiced support for composite measures of quality because they can be used to facilitate understanding of information from many different measures. A composite measure summarizes care represented by individual measures that are often related in some way, such as components of care for a particular disease or illness. Composite measures are composed of two or more measures that have been recommended or identified as a "best practice" in the treatment or prevention of complications associated with specific conditions.

Since measures used to construct composites represent various dimensions or processes of care, they provide a more complete understanding of the quality of the U.S. health care system. To

ensure that actionable information is available, estimates of performance on the individual measures that make up a composite measure are available in the Data Tables appendix.

Decisions concerning the appropriateness of pooling data to generate a composite measure were discussed with data sources. Several of the composite measures included in the reports were developed, tested, and estimated by the data source or other public or private organizations for use in quality assessment, monitoring, and improvement activities.

Composite measures in the NHQR and NHDR are created in several ways. The appropriateness model is sometimes referred to as the "all or none" approach because it is calculated based on the number of patients who received all of the services they needed. One example of this model is the diabetes composite, in which a patient who does not receive all four recommended services (two hemoglobin A1c tests, a foot exam, an exam to detect diabetic retinopathy, and a flu shot) would not be counted as having received all recommended care.

The opportunities model assumes that each patient needs and has the opportunity to receive one or more processes of care, but not all patients need the same care. Composite measures that use this model summarize the proportion of appropriate care that is delivered. The denominator for an opportunities model composite is the sum of opportunities to receive appropriate care across a panel of process measures. The numerator is the sum of the components of appropriate care that are actually delivered.

The composite measure of recommended hospital care for pneumonia is an example of the use of the opportunities model. The total number of patients who receive treatment represented by individual components of the composite measure (e.g., blood culture collected before antibiotic treatment, initial antibiotic dose received within 6 hours of hospital arrival, influenza or pneumonia screening or vaccination) is divided by the sum of all of the opportunities to receive appropriate care.

The CAHPS® (Consumer Assessment of Healthcare Providers and Systems) surveys have their own method for computing composite measures that has been in use for many years. These composite measures average individual components of patient experiences of care and are presented as the proportion of respondents who indicate that providers or systems sometimes or never, usually, or always performed well.

Two composite measures pertaining to patient safety are postoperative complications and complications from central venous catheters. For these composites, an additive model is used that sums individual complication rates. Thus, the numerator is the sum of individual complications and the denominator is the number of patients at risk for these complications. The composite rates are presented as the overall rate of complications. For example, for postoperative complications, if 100 patients had a total of 30 complications among them (regardless of their distribution), the composite score would be 30%.

Analyses

In the NHQR, measures are tracked for different groups, such as age, gender, and geographic location. In the NHDR, comparisons are made across groups defined by race, ethnicity, income, education, activity limitations, and geographic location. In general, either the largest subgroup or

the best performing subgroup is used as the reference group. Unless specified, the reference group is individuals ages 18-44 for age comparisons, individuals with private health insurance for insurance comparisons, and non-Hispanic Whites for racial and ethnic comparisons.

Size of Disparities Across Groups

Two criteria are applied to determine whether the difference between two groups is meaningful:

- First, the difference between the two groups must be statistically significant with $p < 0.05$ on a two-tailed test.
- Second, the relative difference between the comparison group and the reference group must have an absolute value of at least 10%.

Adjusted percentages, which quantify the magnitude of disparities after controlling for a number of confounding factors, were generated for several measures in the Effectiveness and Access chapters of the NHDR. In examining the relationship between race and ethnicity, for example, multivariate regression analyses were performed to control for differences in the distributions of income, education, insurance, age, gender, and geographic location.

Trend Analyses

Prior to the 2011 report a log-linear regression analysis was conducted to estimate average annual rate of change.[v] Historically, progress on individual measures was reported based solely on the magnitude of the annual rate of change. Progress on a measure was deemed to be improving if the annual rate of change was 1% or greater in the desirable direction. Progress on a measure was deemed to be getting worse when the annual rate of change was 1% or greater in the undesirable direction.

This approach is limited by the fact that, depending on the type of measure and the size of the standard error, a 1% difference may not be particularly meaningful. For instance, measures generated from administrative records (such as discharge data), which tend to have thousands or even millions of records, usually have smaller variances than other types of measures, such as those from surveys.

The traditional approach for determining whether progress on a measure has been made does not consider the magnitude of error around an estimate and no mechanism to ascertain whether such a change could have occurred by chance is used in making determinations about progress. It is therefore possible that while a measure may meet the 1% threshold, annual rates of change may not be significant.

Data used for trending are aggregate or average estimates for a measure, with data collected for a minimum of 4 data points (years) covering periods between 2000 and 2011. As such, trend analyses are generally conducted with a small number of observations. The level of precision across these points may be nonconstant, or heteroskedastic. Ideally, values with lower variances,

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[v] Regression models were specified as follows: $\ln(M) = \beta_0 + \beta_1(Y)$, where $\ln(M)$ = natural logarithm of the measure value (M); β_0 = intercept or constant; $\beta_1(Y)$ = coefficient corresponding to year (Y). The average annual rate of change was calculated as $100 \times (\exp(\beta_1) - 1)$.

indicative of greater precision, would be weighted more heavily than estimates with higher variances, or lower precision.

Beginning with the 2011 report, we identified and tested options for strengthening trend analyses by addressing heteroskedasticity or the amount of uncertainty around an estimate. A weighted log-linear model, where data points with lower variances are weighted more heavily than those with greater variances, as indicated below, was found to improve model fit.

Model: $\ln(M) = \beta_0 + \beta_1 Y$, where $\ln(M)$ is the natural logarithm of the measure value, β_0 is the intercept or constant, and β_1 is the coefficient corresponding to year Y

Weight: $w = (M^2/v)$, where M^2 is the square of the measure value and v is the variance

Progress on individual measures was determined as follows:

- Progress on a measure is deemed to be improving if the average annual rate of change is 1% or greater in the desirable direction, and $p < 0.10$.[vi]
- Progress on a measure is deemed to be getting worse when the average annual rate of change is 1% or greater in the undesirable direction, and $p < 0.10$.
- Progress is determined to have remained the same if the average annual rate of change is ≤1% in either the desirable or undesirable direction or $p > 0.10$.

Trends in Disparities in Population Subgroups

Across subpopulation groups, the absolute annual rate of change was estimated to ascertain the extent to which disparities in quality and access measures were increasing, decreasing, or remaining the same over time. As shown below, calculation of change in subgroup disparities was conducted in a manner similar to that described above, except that a linear regression model was used in the analyses.

Model: $M = \beta_0 + \beta_1 Y$, where M is the value of the measure, β_0 is the intercept or constant, and β_1 is the coefficient corresponding to year Y

Weight: $w = (1/v)$, where v is the variance

The difference in annual rate of change for the comparison group relative to the reference group was estimated. Determinations of whether subgroup differences have grown, narrowed, or remained the same were based on estimated differences in annual rate of change as specified below:

- Subgroup differences are deemed to be narrowing if the change in disparities is less than −1 and $p < 0.10$.

[vi] A probability of 0.10 was selected as the significance level because the magnitude of the standard errors varied considerably by type of data.

- Subgroup differences are deemed to be growing if the change in disparities is greater than 1 and $p < 0.10$.
- Subgroup differences are deemed to have remained the same if the change in disparities is between −1 and 1, or $p > 0.10$.

Only those measures with 4 or more years of data were included in this trending analysis. Due to methodological changes in trending analysis, it is not appropriate to compare the annual change or rates of change for measure subgroups estimated with this method to those estimated prior to the 2011 report.

Benchmarking Strategy

Measure-specific benchmarks, which were first incorporated into the NHQR and NHDR in 2010, are also included in the 2012 reports. Benchmarks reflect the highest level of performance documented for individual measures, with performance assessed at the State level. Benchmarks enable readers to assess national performance on a measure relative to that of the highest performing States. They also aid in establishing reasonable performance improvement goals.

From an equity perspective, standards of performance should not differ across population groups. As such, benchmarks corresponding to measures included in both the NHQR and NHDR were identical. Benchmarks were estimated for the subset of measures for which State data were available. With few exceptions, values of benchmarks estimated in 2010 (which were based on 2008 data) have been carried over to the 2012 reports. These exceptions include measures for which the benchmark has been reached. For this small number of measures, which are identified in the relevant chapters of the reports, 2010 data are used to construct new benchmarks.

For measures for which State-level data were available, benchmarks were estimated as the average value for the 10% of States that had the best performance on the measure of interest. For benchmarking purposes, the District of Columbia is treated as a State. Benchmarks were estimated only if data were available for a minimum of 30 States.

State-level estimates used in constructing benchmarks were primarily calculated from the same data source as the measure. In some cases, such as when the number of individuals sampled from a specific State was too small, data did not support estimation at a subnational level and benchmarks were not identified. We made exceptions for three measures derived from the Medical Expenditure Panel Survey (MEPS) and the National Health Interview Survey (NHIS).

For these measures of colorectal cancer screening, diabetes care, and pneumococcal vaccination, almost identical data were available from Behavioral Risk Factor Surveillance System (BRFSS) State data. However, BRFSS sampling and mode of administration differ from MEPS and NHIS. Hence, to calculate a benchmark for these measures, we first calculated the ratio of the top 10% achievable benchmark to the overall national estimate from BRFSS. We then applied this ratio to the overall national estimate from MEPS or NHIS. For example, if the BRFSS benchmark to national estimate ratio for a measure was 1.5, we would multiply the national estimate for that measure from MEPS by 1.5 to obtain a corresponding benchmark.

Time To Achieve Benchmark

The reports again include projections of the time expected for population subgroups to achieve the designated benchmark based on past performance. Using standard linear regression of the actual values over time and extrapolating to future years, we calculated the time required for the population, or population subgroup, to perform at the level of the top-performing States. Since projections of future performance were based on past performance data, we needed to ensure reliability by limiting estimates to those cases in which at least 4 data points were available.

An important caveat to consider in using information on time to achieve benchmarks is that the linear estimation approach used to derive these estimates assumes that characteristics of the population, technology, and health care infrastructure remain constant. Changes in the characteristics of the population or health care system may be expected to alter achievement of benchmarks. Advances in medical science, changes in the organization of health services, or reductions in the uninsured population following implementation of the Patient Protection and Affordable Care Act would be expected to alter the performance trajectory. In some cases, the time to achieve the benchmark will drop, while in other cases it may increase.

Time to achieve a benchmark is not presented for measures that met one or more of the following conditions:

- Average annual rate of change is less than 1%.
- Time to benchmark is estimated at 25 or more years.
- Trends over time show movement away from the benchmark (these occurrences are mentioned in the reports).
- Direction of trend changes over time; operationally, these were identified as cases in which there were at least 4 years of data showing “upward” movement and at least 4 years of data showing “downward” movement.

Methods Used in Highlights

Data presented in the Highlights differ from those in other chapters of the report in that core and supporting measures are characterized or grouped along several dimensions that offer insight into the performance of specific elements of the health care system. One category is type of care, where measures are classified as follows:

- **Prevention** measures focus on educating people about healthy behaviors and lifestyle modification in order to postpone or avoid illness and disease.
- **Acute care** measures pertain to the delivery of care for an acute condition and receipt of optimal treatment to help reduce the effects of illness and promote the best recovery possible.
- **Chronic disease management** measures pertain to diseases, such as diabetes and end stage renal disease, that are chronic and must be managed across a lifetime. Effective management of chronic disease can mean the difference between healthy living and frequent medical problems.
- **Outcome** measures are indicative of the result or impact of medical care. Many factors other than the care received affect health outcomes, such as lifestyle, social and physical

environment, and genetic predisposition to disease. Outcome measures are typically adjusted for risk or patient characteristics.

Other groupings used in the Highlights chapter to summarize results include type of measure (quality, safety, access) and care setting.

Not all measures may be readily classified into the above groupings. For instance, many measures of patient perceptions of care do not fit within "type of care" groupings (e.g., "adults who had a doctor's office or clinic visit in the last 12 months whose health providers listened carefully to them"). Because these measures contain no information to suggest the type of care rendered, they are excluded from analyses that aggregate measures by type of care.

The Highlights also summarize disparities by race and ethnicity. For each racial or ethnic subgroup, the percentages of measures for which that group received worse care, similar care, or better care than the reference group (White or non-Hispanic White) were estimated. Group rates were divided by reference group rate to calculate the relative rate for core measures, with each core measure framed negatively (e.g., for immunization, the likelihood of not receiving the vaccine).

The process involved in compiling data for the Highlights is complicated by the fact that data on all measures are not collected or reported each year. In the summary trend analyses, we obtain all available data points between the year 2000 and the current data year for each measure. For most measures, trends include data points from 2001 to 2009.

To avoid duplication of estimates within categories, composite measures are not included in other categories where estimates from their component measures are used. For example, the diabetes composite measure (which includes hemoglobin A1c measurement, eye exam, flu vaccination, and foot exam) contributes to the overall rate for the core measures group but not to the diabetes group rate, which uses the estimates from the four supporting component measures.

Using the analytic approach previously described, we calculated the sum of measures that were identified as better, worse, or the same (when considering subgroup differences) or that were improving, worsening, or remaining the same over time (when considering trend data). The distribution of measures by subpopulation, type of service, and type of measure (i.e., quality or access) is presented as a way to summarize the status of health care quality and disparities in the United States.

Priority Populations

Whereas the NHQR charts show contrast by age, gender, insurance status, and geographic location, the NHDR shows contrasts by:

- Race: White, Black, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and more than one race.[vii]

[vii] Asian includes the former category of Asian or Pacific Islander prior to Office of Management and Budget guidelines, when information was not collected separately by group.

- Ethnicity: Hispanic and non-Hispanic.[viii]
- Income: Poor, low income, middle income, and high income.[ix]
- Education: People with less than a high school education,[x] high school graduates, and people with any college.
- Disabilities: Basic activity limitations (problems with mobility, self-care, domestic life, and activities that depend on sensory functioning) and complex activity limitations (limitations experienced in work and in community, social, and civic life).[xi]

New to the 2012 report, where data were available, data showing contrasts by granular racial subgroups were reported. These racial subgroups include populations identified as Mexican, Puerto Rican, Cuban, other Hispanic/Latino, Spanish origin, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian, and Native Hawaiian.

While the reports do not address social determinants directly, analyses of disparities in health care related to family income and education are at the core of the Disparities Report and demonstrate the importance of socioeconomic status on quality of and access to health care.

In addition to including measures related to racial and ethnic groups, low-income groups, rural residents, and people with special health care needs in the NHDR Priority Populations chapter, we present measures pertaining to women, children, and older adults in other chapters of the NHDR and include comparisons.

Reporting Conventions

In presenting data and results, the NHQR and NHDR adhere to the following conventions, which are presented below to facilitate understanding of report findings.

- Unless otherwise stated, results discussed in the reports are statistically significant at the 5% level for subgroup differences and at the 10% level for trend analyses.
- For most measures presented in the reports, a higher score indicates better performance. However, in some cases, lower scores are better. Measures for which lower scores represent better performance are identified in chart notes.
- Trend analyses were performed only for measures for which a minimum of 4 years of data were available.
- Information on the construction of each measure is not always contained in the text, and readers should refer to the Measure Specifications appendix for measure details.

[viii] 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 Blacks and Hispanics with non-Hispanic Whites.)

[ix] Unless otherwise indicated, throughout this report, poor is defined as having family income less than 100% of the Federal poverty level (FPL); low income refers to income between 100% and 200% of the FPL; middle income refers to income between 200% and 400% of the FPL; and high income refers to income above 400% of the FPL. These are based on U.S. census poverty thresholds for each data year, which are used for statistical purposes.

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

[xi] For the purpose of the NHDR, people with disabilities are those with physical, sensory, and/or mental health conditions who also have an associated decrease in functioning in such day-to-day activities as bathing, walking, doing everyday chores, and/or engaging in work or social activities.

- When racial subgroups used by data sources for routine reporting are inconsistent with NHQR and NHDR standards, the source classification is used in the reports.
- Some measures may omit certain racial or ethnic groups because data for these groups were unavailable or did not meet criteria for statistical reliability, quality, or confidentiality.

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Chapter 2. Effectiveness of Care

As better understanding of health and sickness has led to superior ways of preventing, diagnosing, and treating diseases, the health of most Americans has improved dramatically. However, many Americans do not receive the full benefits of high-quality care.

This chapter is organized around nine clinical areas (cancer, cardiovascular disease, chronic kidney disease, diabetes, HIV disease, maternal and child health, mental health and substance abuse, musculoskeletal diseases, and respiratory diseases) and three types of health care services that typically cut across clinical conditions (lifestyle modification, functional status preservation and rehabilitation, and supportive and palliative care).

Two sections in this chapter focus on national priorities identified in the *National Strategy for Quality Improvement in Health Care*. The Cardiovascular Disease section addresses the priority "promoting the most effective prevention and treatment of the leading causes of mortality, starting with cardiovascular disease." The Lifestyle Modification section addresses the priority "working with communities to promote wide use of best practices to enable healthy living."

In this chapter, process measures are organized into several categories related to the patient's need for preventive care, treatment of acute illness, and chronic disease management. These are derived from the original Institute of Medicine (IOM) categories: staying healthy, getting better, living with illness or disability, and coping with the end of life. There is sizable overlap among these categories, and some measures may be considered to belong in more than one category. Outcome measures are organized separately because prevention, treatment, and management can all play important roles in affecting outcomes.

Prevention

Caring for healthy people is an important component of health care. Educating people about health and promoting healthy behaviors can help postpone or prevent illness and disease. In addition, detecting health problems at an early stage increases the chances of effectively treating them, often reducing suffering and costs.

Treatment

Even when preventive care is ideally implemented, it cannot entirely avert the need for acute care. Delivering optimal treatments for acute illness can help reduce the consequences of illness and promote the best recovery possible.

Management

Some diseases, such as diabetes and end stage renal disease (ESRD), are chronic, which means they cannot simply be treated once; they must be managed over time. Management of chronic disease often involves promotion and maintenance of lifestyle changes and regular contact with a provider to monitor the status of the disease. For patients, effective management of chronic diseases can mean the difference between normal, healthy living and frequent medical problems.

Outcomes

Many factors other than health care influence health outcomes, including a person's genes, lifestyle, and social and physical environment. However, for many individuals, appropriate preventive services, timely treatment of acute illness and injury, and meticulous management of chronic disease can positively affect mortality, morbidity, and quality of life.

Cancer

Importance

Mortality

Number of deaths (2012 est.)..... 577,190 (ACS, 2012)
Cause of death rank (2010 prelim.).....2nd (Murphy, et al., 2012)

Prevalence

Americans diagnosed and living with cancer (2008).....12 million (ACS, 2012)

Incidence

New cases of cancer (2012 est.)..... 1,638,910 (ACS, 2012)
New cases of breast cancer (2012 est.) ..... 226,870 (ACS, 2012)
New cases of colorectal cancer (2012 est.)..... 143,460 (ACS, 2012)

Cost

Total cost[i] (2007) .....$226.8 billion (ACS, 2012)
Direct costs[ii] (2007) .....$103.8 billion (ACS, 2012)
Indirect costs (2007) .....$123 billion (ACS, 2012)
Cost-effectiveness[iii] of breast cancer
screening ..... $35,000-$165,000/QALY (Maciosek, et al., 2006)
Cost-effectiveness of colorectal cancer screening ..... $0-$14,000/QALY (Maciosek, et al., 2006)

Measures

Evidence-based consensus defining good quality care and how to measure it currently exists for only a few cancers and a few aspects of care. Breast and colorectal cancers have high incidence rates and are highlighted in alternate years of the *National Healthcare Quality Report* (NHQR) and *National Healthcare Disparities Report* (NHDR). In even years, the reports focus on colorectal cancer, and in odd years, the reports focus on breast cancer.

This year, the report measures are:

- Colorectal cancer screening.
- Colorectal cancer first diagnosed at advanced stage.
- Surgical resection of colon cancer that includes at least 12 lymph nodes.
- Colorectal cancer deaths.

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[i] Throughout this report, total cost equals cost of medical care (direct cost) and economic costs of morbidity and mortality (indirect cost).
[ii] Direct costs are defined as "personal health care expenditures for hospital and nursing home care, drugs, home care, and physician and other professional services."
[iii] Cost-effectiveness is measured here by the average net cost of each quality-adjusted life year (QALY) that is saved by the provision of a particular health intervention. QALYs are a measure of survival adjusted for its value: 1 year in perfect health is equal to 1.0 QALY, while a year in poor health would be something less than 1.0. A lower cost per QALY saved indicates a greater degree of cost-effectiveness.

Findings

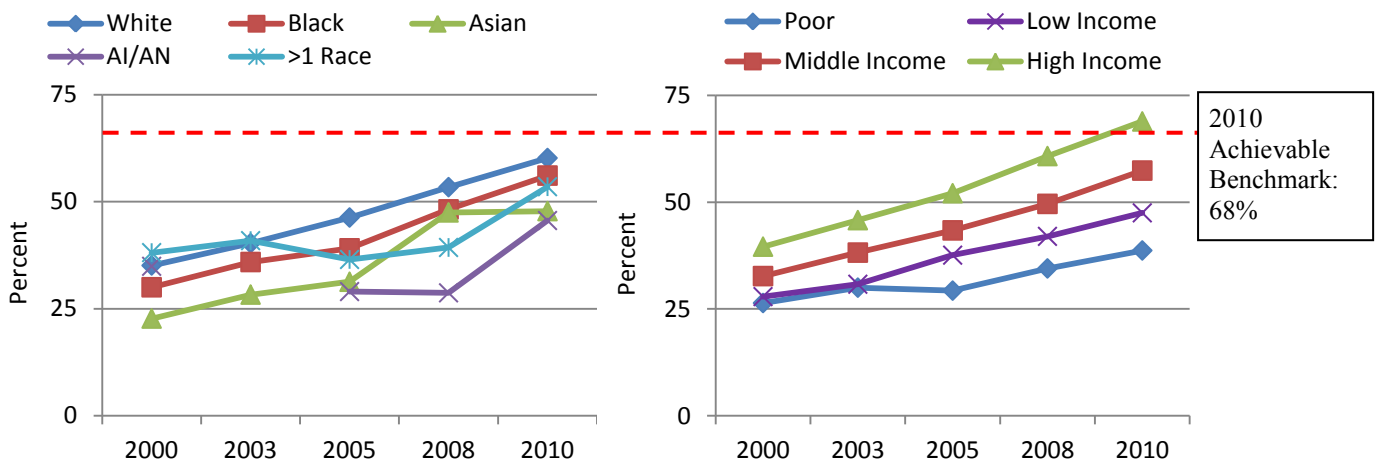
New

Prevention: Colorectal Cancer Screening

Colorectal cancer is the third most common cancer in adults. Prevention of colorectal cancer includes modifying risk factors such as weight, physical activity, smoking, and alcohol use, as well as screening for early disease. Screening can detect abnormal growths before they develop into cancer. Early detection increases treatment options and the chances for survival. Effective screening modalities include fecal occult blood testing, flexible sigmoidoscopy, and colonoscopy.

Previous reports tracked receipt of colorectal cancer screening among adults age 50 and over. The colorectal cancer screening measure used in the 2012 NHQR and NHDR reflects a more recent recommendation of the U.S. Preventive Services Task Force showing the strongest support for screening among adults ages 50-75.

Figure 2.1. Adults ages 50-75 who reported having colorectal cancer screening, by race and income, 2000, 2003, 2005, 2008, and 2010



Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2000, 2003, 2005, 2008, and 2010.
Denominator: Civilian noninstitutionalized population ages 50-75.
Note: Rates are age adjusted to the 2000 U.S. standard population. Colorectal cancer screening includes blood stool test in the past year or sigmoidoscopy in the past 5 years and blood stool test in the past 3 years or colonoscopy in the past 10 years. The 2003 data for AI/ANs did not meet criteria for statistical reliability, data quality, or confidentiality.

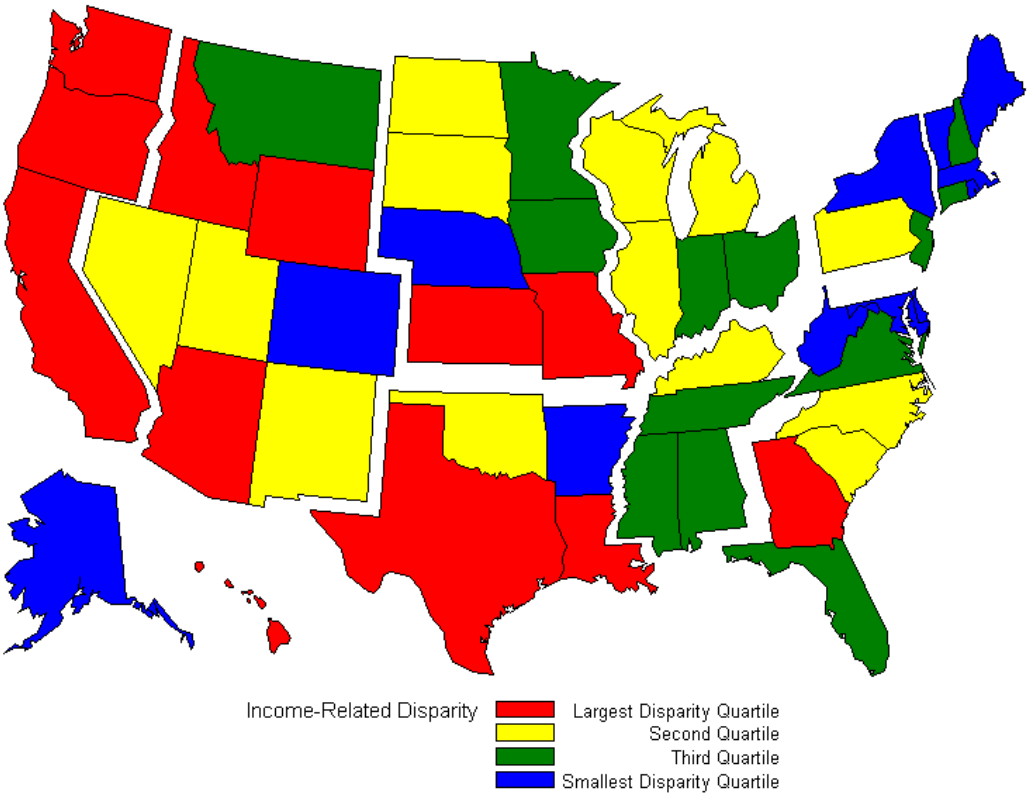
- The overall percentage of adults ages 50-75 who reported receiving colorectal cancer screening significantly increased from 34.1% in 2000 to 59.2% in 2010 (data not shown). Rates increased among all racial and income groups (Figure 2.1).
- In all years except 2008, Asians were less likely to receive colorectal cancer screening than Whites. Since 2005, Blacks have also been less likely than Whites to receive screening. In 2005 and 2008, AI/ANs were less likely than Whites to receive screening.
- In all years, poor, low-income, and middle-income adults were less likely to receive colorectal cancer screening than high-income adults.

- The 2010 top 5 State achievable benchmark was 68%.[iv] High-income adults have already attained the benchmark. At current rates of improvement, the benchmark could be achieved by Whites, Blacks, and middle-income adults in the next 5 years; and by Asian, multiple-race, and low-income adults in about 10 years. American Indians and Alaska Natives (AI/ANs) and poor adults would take more than 25 years.

Also, in the NHQR:

- In all years, among adults ages 50-64, those who were uninsured were less likely to receive colorectal cancer screening than those with private insurance.

Figure 2.2. State variation in disparities related to income: Adults ages 50-75 who reported having colorectal cancer screening, 2010



Key: Largest Disparity Quartile identifies States with the largest relative difference in rates of colorectal cancer screening between poor and high-income adults; Smallest Disparity Quartile identifies States with the smallest relative difference in rates of colorectal cancer screening between poor and high-income adults.
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2010.

- Variation across States in the size of disparities related to income was assessed by dividing the rate of colorectal cancer screening among poor adults by the rate of screening among high-income adults for each State. In States in the largest disparity quartile, poor adults had cancer screening rates that were at least 39% lower than rates for

[iv] The top 5 States that contributed to the achievable benchmark are Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island.

high-income adults. In States in the smallest disparity quartile, poor adults had cancer screening rates that were lower than rates for high-income adults by 27% or less.

- States in the West South Central, Mountain, and Pacific census divisions tended to have larger income-related disparities in colorectal cancer screening while States in the New England, South Atlantic, and East South Central census divisions tended to have smaller income-related disparities in colorectal cancer screening (Figure 2.2).

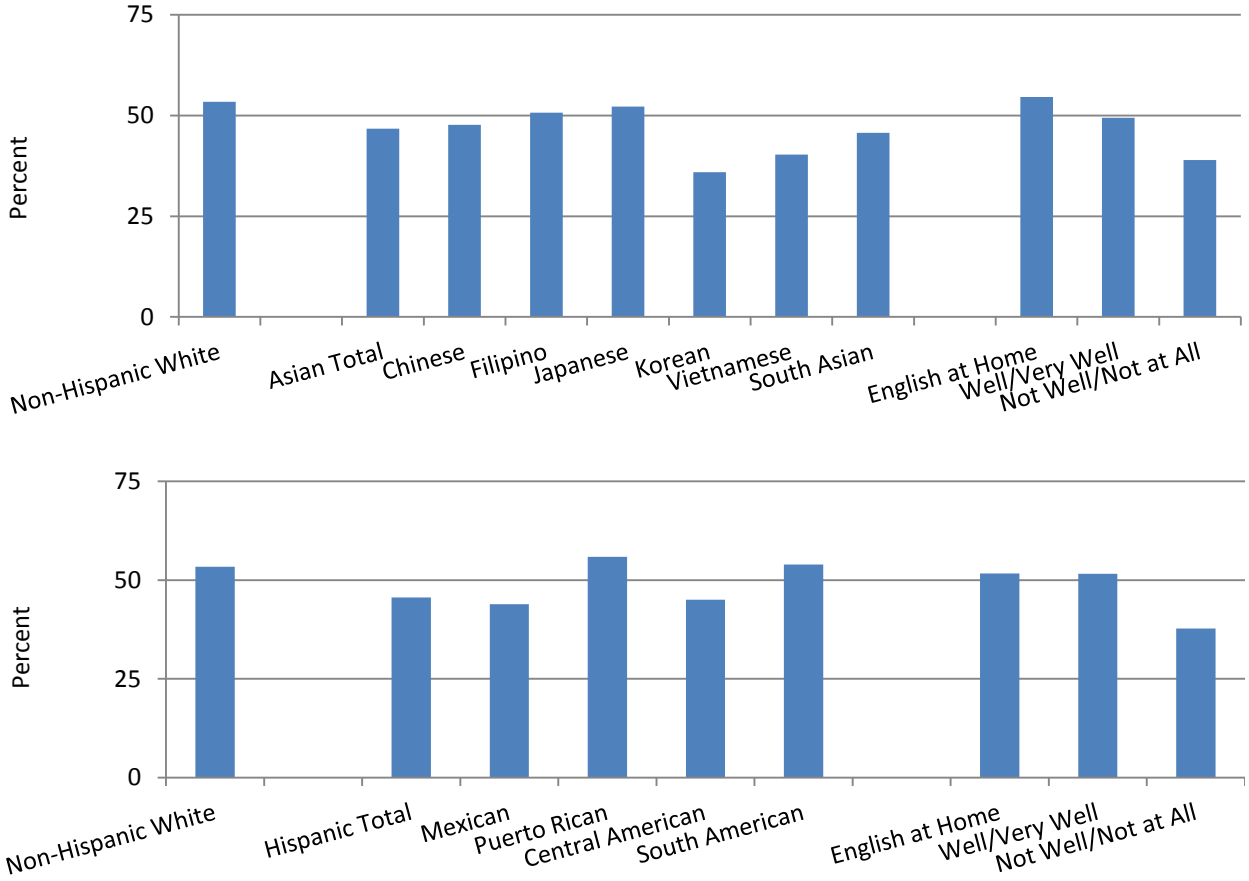
Also, in the NHQR:

- States in the East South Central, West South Central, Mountain, and Pacific census divisions tended to have lower rates of colorectal cancer screening.

Focus on Asian and Hispanic Subgroups

National data on Asian and Hispanic subgroups are limited. In this section, we show rates of colorectal cancer screening among Asian and Hispanic granular ethnicities in California. Data come from the California Health Interview Survey, which asks about colorectal cancer screening, similar to the National Health Interview Survey question presented above.

Figure 2.3. Adults ages 50-64 who reported having colorectal cancer screening, by Asian and Hispanic granular ethnicities and English proficiency, California, 2005, 2007, and 2009, combined



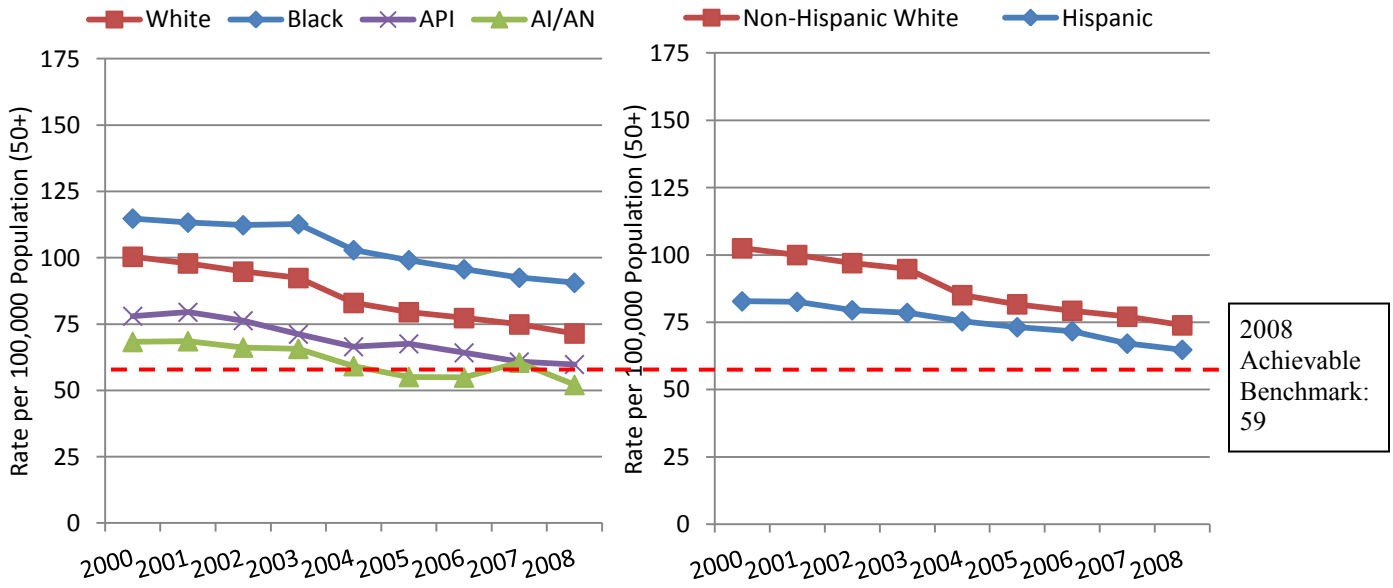
Source: UCLA, Center for Health Policy Research, California Health Interview Survey, 2005, 2007, and 2009.
Denominator: Adults ages 50-64 in California. To allow estimates for more granular ethnicity groups, California data for 2005, 2007, and 2009 were combined.

- In 2005-2009, among Asians in California, there was large variation among subgroups in the percentage of adults who received colorectal cancer screening (Figure 2.3). Chinese, Korean, and Vietnamese adults were less likely to receive colorectal cancer screening than Whites while other Asian subgroups were not. Regardless of English proficiency, Asians who did not speak English at home were less likely to receive colorectal cancer screening compared with Asians who spoke English at home.
- In 2005-2009, among Hispanics in California, there also was large variation among subgroups in receipt of colorectal cancer screening. Mexicans and Central Americans were less likely to receive colorectal cancer screening compared with Whites while other Hispanic subgroups were not. Hispanics who did not speak English well were less likely to receive screening compared with Hispanics who spoke English at home.

Outcome: Advanced Stage Colorectal Cancer

Cancers can be diagnosed at different stages of development. Cancers diagnosed early before spread has occurred are generally more amenable to treatment and cure; cancers diagnosed late with extensive spread often have poor prognoses. The rate of cancer cases that are diagnosed at late or advanced stages is a measure of the effectiveness of cancer screening efforts and of adherence to followup care after a positive screening test. Because many cancers often take years to develop, changes in rates of late-stage cancer may lag behind changes in rates of screening.

Figure 2.4. Adults age 50 and over who have advanced stage colorectal cancer, per 100,000 population, by race and ethnicity, 2000-2008



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Program of Cancer Registries and National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program, 2000-2008.
Denominator: Adults age 50 and over.
Note: For this measure, lower rates are better. Age adjusted to the 2000 U.S. standard population. Advanced stage colorectal cancer is defined as regional or distant stage. Registries meeting *United States Cancer Statistics* publication criteria for every year, 2000-2008, are included and cover 90.1% of the total U.S. population. States excluded are Arkansas, District of Columbia, Mississippi, North Carolina, South Dakota, Tennessee, and Virginia.

- From 2000 to 2008, the rate of advanced stage colorectal cancer fell among all racial and ethnic groups (Figure 2.4).
- In all years, Blacks had higher rates of advanced stage colorectal cancer than Whites.
- In all years, AI/ANs and Asians and Pacific Islanders (APIs) had lower rates than Whites, and Hispanics had lower rates than non-Hispanic Whites.
- The 2008 top 5 State achievable benchmark was 59 per 100,000 population.[v] AI/ANs have attained the benchmark and APIs are very close. At current rates of improvement, Whites and Hispanics could achieve the benchmark in about 3 years, while Blacks would need 9 years.

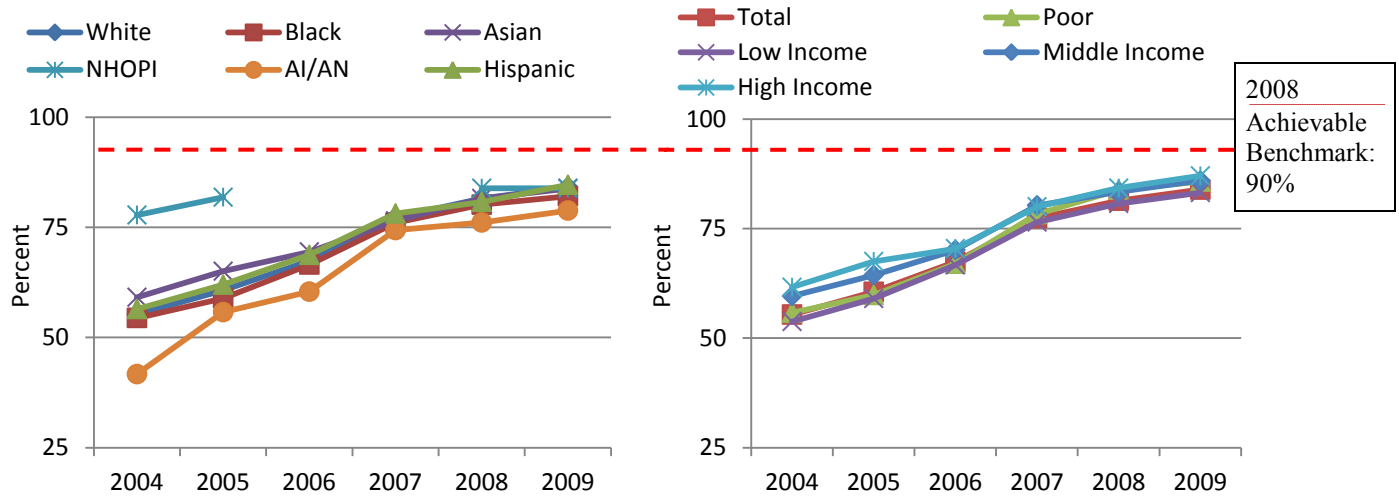
Also, in the NHQR:

- In all years, adults age 65 and over had higher rates of advanced stage colorectal cancer than adults ages 50-64 and men had higher rates than women.

Treatment: Receipt of Recommended Care for Colorectal Cancer

Different diagnostic and treatment options exist for various types of cancer. Some aspects of cancer care are well established as beneficial and are commonly recommended. The appropriateness of recommended care depends on different factors, such as the stage or the extent of the cancer within the body (especially whether the disease has spread from the original site to other parts of the body). Other types of care are important for accurate diagnosis, such as ensuring adequate examination of lymph nodes when surgery is performed.

Figure 2.5. Patients with colon cancer who received surgical resection of colon cancer that included at least 12 lymph nodes pathologically examined, by race/ethnicity and income, 2004-2009



Key: NHOPI = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Commission on Cancer, American College of Surgeons and American Cancer Society, National Cancer Data Base, 2004-2009.
Denominator: U.S. population. White and Black groups are non-Hispanic; Hispanic includes all races.
Note: The 2006 and 2007 data for NHOPIs did not meet criteria for statistical reliability, data quality, or confidentiality.

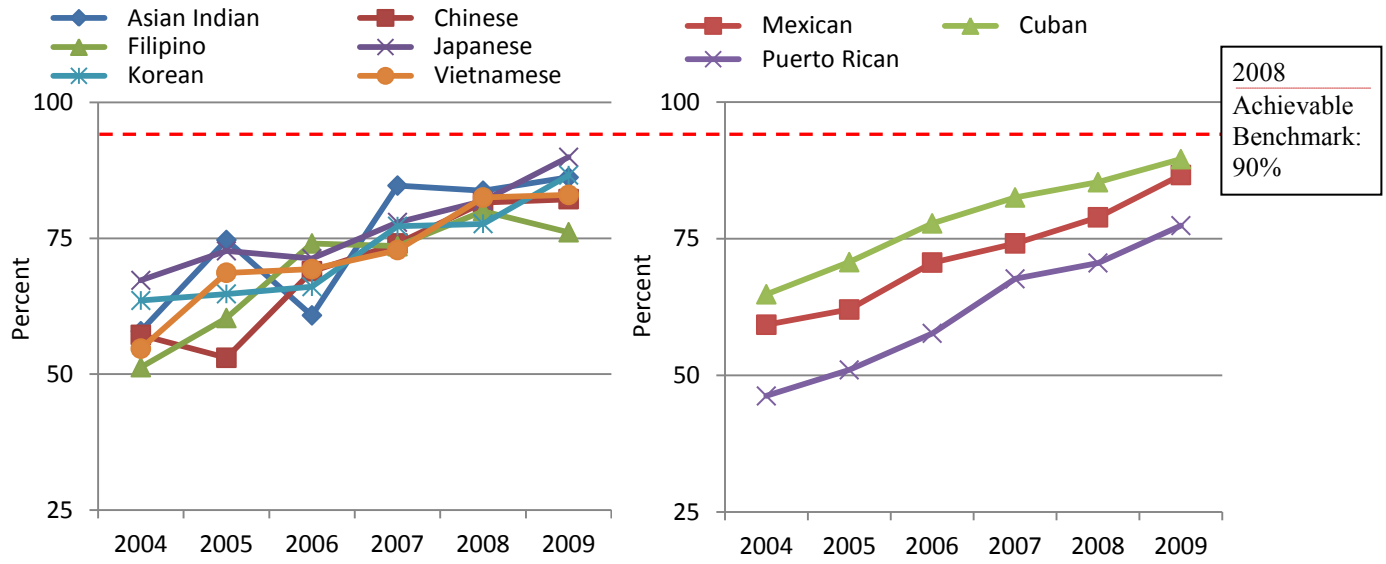
[v] The top 5 States that contributed to the achievable benchmark are Arizona, Colorado, District of Columbia, Vermont, and Virginia.

- The overall percentage of adults diagnosed with colorectal cancer who received recommended care significantly increased from 55.4% in 2004 to 83.9% in 2009 (Figure 2.5). Significant improvement was observed among all racial/ethnic and income groups.
- Few disparities related to race/ethnicity were statistically significant.
- In all years, low-income patients were less likely to receive recommended care than high-income patients.
- The 2008 top 5 State achievable benchmark was 90%.[vi] At current rates of improvement, all groups could achieve the benchmark within 2 years.

Also, in the NHQR:

- In all years, residents of micropolitan areas were less likely than residents of large metropolitan areas and patients with public insurance only were less likely than patients with private insurance to receive recommended care.

Figure 2.6. Patients with colon cancer who received surgical resection of colon cancer that included at least 12 lymph nodes pathologically examined, by Asian and Hispanic granular ethnicities, 2004-2009



Source: Commission on Cancer, American College of Surgeons and American Cancer Society, National Cancer Data Base, 2004-2009.
Denominator: U.S. population.
Note: Puerto Ricans include patients receiving cancer care in hospitals in Puerto Rico.

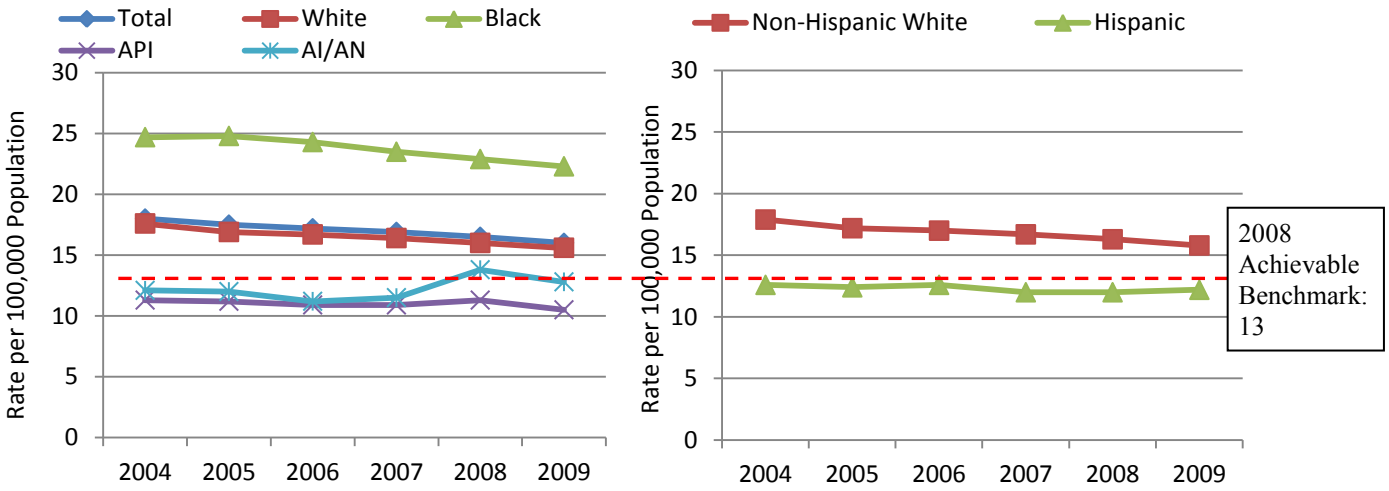
- There is considerable variation in rates of receipt of recommended care among Asian granular ethnicities and among Hispanic granular ethnicities (Figure 2.6).
- While most Asian and Hispanic granular ethnic groups should achieve the 2008 top 5 State achievable benchmark in a year, Puerto Ricans will need 2 years and Filipinos will need 3 years.

[vi] The top 5 States that contributed to the achievable benchmark are Delaware, Missouri, Utah, Vermont, and Wisconsin.

Outcome: Colorectal Cancer Deaths

The death rate from a disease is a function of many factors, including the causes of the disease; social forces; and effectiveness of the health care system in providing prevention, treatment, and management of the disease. Colorectal cancer deaths reflect the impact of colorectal cancer screening, diagnosis, and treatment. Mortality is measured as the number of deaths per 100,000 population. Declines in colorectal cancer deaths can be attributed, in part, to improvements in early detection and treatment.

Figure 2.7. Age-adjusted colorectal cancer deaths per 100,000 population, by race and ethnicity, 2004-2009



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2004-2009.
Denominator: U.S. population.
Note: For this measure, lower rates are better. Total rate is age adjusted to the 2000 U.S. standard population. Hispanic includes all races.

- Between 2004 and 2009, the rate of colorectal cancer deaths significantly decreased, from 18 to 16 per 100,000 population (Figure 2.7).
- In all years, Blacks had higher colorectal cancer death rates than Whites.
- In all years, AI/ANs and APIs had lower death rates than Whites and Hispanics had lower death rates than non-Hispanic Whites.
- The 2008 top 5 State achievable benchmark was 13 per 100,000 population.[vii] AI/ANs, APIs, and Hispanics have already attained the benchmark. At current improvement rates, Whites could achieve the benchmark in 7 years but Blacks would need 18 years.

Also, in the NHQR:

- In all years, males had higher colorectal cancer death rates than females and residents of noncore areas had higher death rates than residents of large fringe metropolitan areas.

[vii] The top 5 States that contributed to the achievable benchmark are Arizona, Hawaii, Idaho, Montana, and Utah.

Cardiovascular Disease

Importance

Mortality

Number of deaths from major cardiovascular disease
(2010 prelim.) ..... 777,548 (Murphy, et al., 2012)
Cause of death rank (2010 prelim.)..... 1st (Murphy, et al., 2012)

Prevalence

Number of cases of heart failure (2010 est.).....5.1 million (AHA, 2013)
Number of cases of high blood pressure among U.S. adults
age 18 years and over (2003-2010 est.) .....67 million (MMWR, 2012b)

Incidence

Number of heart attacks or cases of fatal coronary heart disease
(2010 est.) ..... 915,000 (AHA, 2013)

Cost

Total cost of cardiovascular disease (2009 est.) .....$312.6 billion (AHA, 2013)
Total cost of heart disease (2009 est.).....$195.2 billion (AHA, 2013)
Direct costs of cardiovascular disease (2009 est.) .....$192.1 billion (AHA, 2013)
Cost-effectiveness of hypertension screening.....$14,000-$35,000/QALY (Macosiek, et al., 2006)

Measures

The NHQR and NHDR track several quality measures for preventing and treating cardiovascular disease. Five measures are highlighted here:

- Blood pressure monitoring.
- Blood pressure control.
- Inpatient deaths following heart attack.
- Angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) for heart failure.
- Hospitalization for congestive heart failure.

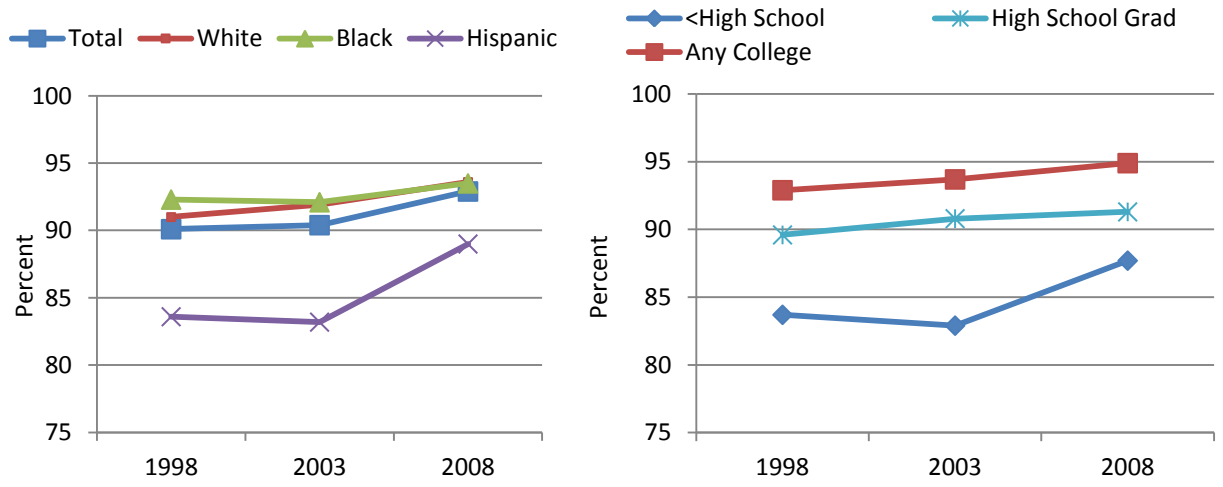
Several measures related to heart disease are also presented in other chapters of this report. Timeliness of cardiac reperfusion for heart attack patients is tracked in Chapter 4, Timeliness. Receipt of complete written discharge instructions by patients with heart failure is tracked in Chapter 6, Care Coordination.

Findings

Prevention: Blood Pressure Monitoring

National screening guidelines for hypertension are well established (USPSTF, 2007). However, since high blood pressure is asymptomatic in most cases, it is not surprising that many of those affected do not know they have this condition.

Figure 2.8. Adults who received a blood pressure measurement in the last 2 years and can state whether their blood pressure was normal or high, by race/ethnicity and education, 1998, 2003, and 2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 1998, 2003, and 2008.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: Rates are age adjusted to the 2000 U.S. standard population. White and Black are non-Hispanic; Hispanic includes all races.

- In 2008, 92.9% of adults reported they had a blood pressure measurement in the past 2 years (Figure 2.8).
- In all years, Hispanics were less likely than Whites to have a blood pressure measurement.
- In all years, adults with less than a high school education and high school graduates were less likely to have a blood pressure measurement than adults with any college education.

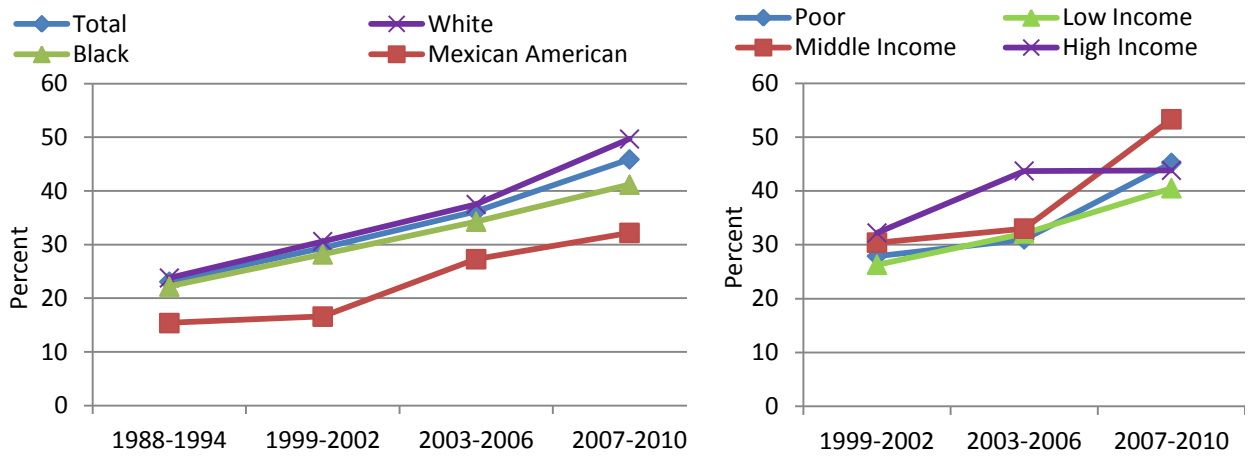
Also, in the NHQR:

- In all years, men were less likely to have a blood pressure measurement than women.
- Among adults ages 18-64, those who were uninsured were less likely to have a blood pressure measurement than those with private health insurance.

Management: Blood Pressure Control

Although progress has been made in raising awareness of blood pressure screening and monitoring, blood pressure control among people with diagnosed high blood pressure remains a problem.

Figure 2.9. Adults with hypertension whose blood pressure is under control, by race/ethnicity, 1988-1994, 1999-2002, 2003-2006, and 2007-2010, and income, 1999-2002, 2003-2006, and 2007-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-1994, 1999-2002, 2003-2006, and 2007-2010.
Denominator: U.S. civilian noninstitutionalized population age 18 and over.
Note: Rates are age adjusted to the 2000 U.S. standard population. White and Black are non-Hispanic; Mexican American includes all races. Blood pressure under control is defined as having a mean systolic blood pressure <140 and mean diastolic blood pressure <90 among all hypertensive patients.

- From 1988-1994 to 2007-2010, the percentage of adults with hypertension who had their blood pressure under control increased from 23.1% to 45.9% (Figure 2.9).
- In all years, Mexican Americans were less likely than Whites to have their blood pressure under control.
- Income-related differences were not statistically significant.

Also, in the NHQR:

- In all years, women were more likely to have their blood pressure under control than men.

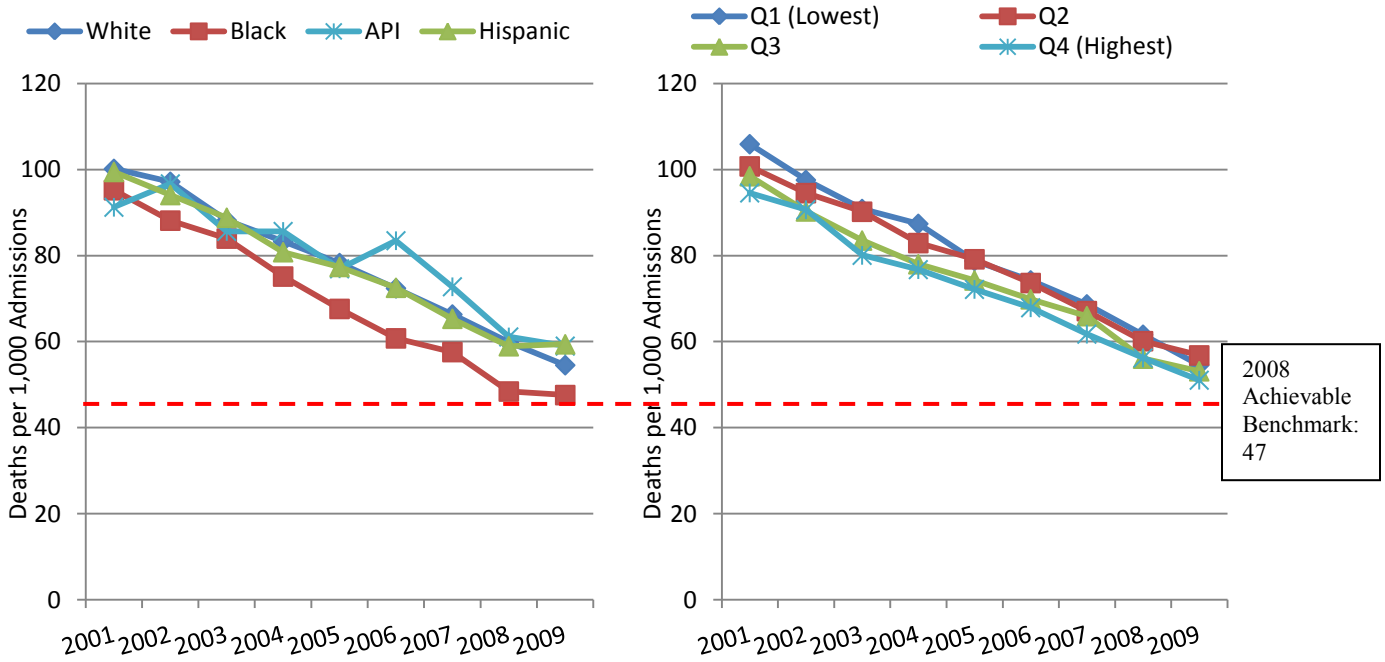
Outcome: Inpatient Deaths Following Heart Attack

Heart attack, or acute myocardial infarction, is a common life-threatening condition that requires rapid recognition and efficient treatment in a hospital to reduce the risk of serious heart damage and death. Measuring processes of heart attack care can provide information about whether a patient received specific needed services, but these processes make up a very small proportion of all the care that a heart attack patient needs. Measuring outcomes of heart attack care, such as mortality, can provide a more global assessment of all the care a patient receives and usually is the aspect of quality that matters most to patients.

Significant improvements in process measures of quality of care for heart attack have occurred in recent years. All process measures tracked in past reports have attained overall performance levels exceeding 95% and have been retired. Therefore, the 2012 NHQR and NHDR focus on outcome measures. Survival following admission for heart attack reflects multiple patient factors, such as a patient's comorbidities, as well as health care system factors, such as the

possible need to transfer patients to other hospitals for services. It also may partly reflect receipt of appropriate health services.

Figure 2.10. Inpatient deaths per 1,000 adult hospital admissions with heart attack, by race/ethnicity and area income, 2001-2009



Key: API = Asian or Pacific Islander; Q1 represents the lowest income quartile and Q4 represents the highest income quartile based on the median income of a patient's ZIP Code of residence.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, State Inpatient Databases disparities analysis file, and AHRQ Quality Indicators modified version 4.1, 2001-2009.
Denominator: Adults age 18 and over admitted to a non-Federal community hospital in the United States with acute myocardial infarction as principal discharge diagnosis.
Note: For this measure, lower rates are better. Rates are adjusted by age, major diagnostic category, all payer refined-diagnosis related group risk of mortality score, and transfers into the hospital. White, Black, and API are non-Hispanic; Hispanic includes all races.

- From 2001 to 2009, the overall inpatient mortality rate for hospital admissions with heart attack decreased significantly (data not shown) and for each racial/ethnic and area income group (Figure 2.10).
- Since 2004, Blacks have had lower inpatient mortality rates than Whites.
- In 5 of 9 years, residents of the lowest area income quartile had higher inpatient mortality rates than residents of the highest area income quartile. These differences were statistically significant.
- The 2008 top 3 State achievable benchmark for inpatient heart attack mortality was 47 per 1,000 admissions.[viii] At current rates of improvement, all racial/ethnic and area income groups would attain the benchmark within the next 3 years.

[viii] The top 3 States that contributed to the achievable benchmark are Arizona, Michigan, and Ohio.

Also, in the NHQR:

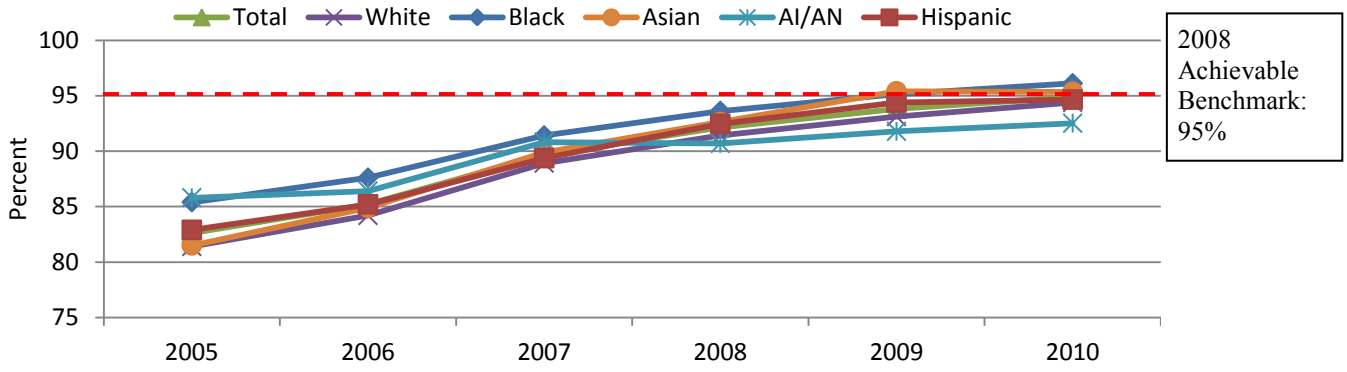
- In all years, women had higher rates of inpatient heart attack deaths than men and uninsured patients had higher rates than privately insured patients.

Treatment: Angiotensin-Converting Enzyme Inhibitor or Angiotensin Receptor Blocker for Heart Failure

Heart failure occurs when the heart muscle is too weak to adequately pump blood for the body's metabolic needs. Such impairment can result in a lack of adequate blood flow to vital organs, including the brain, kidney, and other organs, as well as a backup of fluid into the lungs. Often, heart failure is caused by damage to the heart muscle from a heart attack, which can seriously weaken the left ventricle, the main pumping chamber of the heart.

Congestive heart failure is the most frequent discharge diagnosis for Medicare beneficiaries. ACE inhibitors and ARBs have been found to improve survival and slow or prevent further loss of the heart's pumping ability.

Figure 2.11. Hospital patients with heart failure and left ventricular systolic dysfunction prescribed ACE inhibitor or ARB at discharge, by race/ethnicity, 2005-2010



Key: ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2005-2010.
Denominator: Patients hospitalized with a principal diagnosis of acute heart failure and left ventricular systolic dysfunction.
Note: White, Black, AI/AN, and Asian are non-Hispanic; Hispanic includes all races.

- From 2005 to 2010, the overall percentage of patients with heart failure and left ventricular systolic dysfunction prescribed ACE inhibitor or ARB at discharge increased from 82.6% to 94.9% (Figure 2.11). Improvements were observed among all racial/ethnic groups.
- In all years, Blacks were more likely than Whites to receive ACE inhibitors or ARBs at discharge for heart failure.
- The 2009 top 5 State achievable benchmark for patients with heart failure and left ventricular systolic dysfunction prescribed ACE inhibitor or ARB at discharge was

95%.[ix] Blacks and Asians have achieved the benchmark. At current rates of improvement, Whites and Hispanics could attain the benchmark within a year, while AI/ANs would need 2 years.

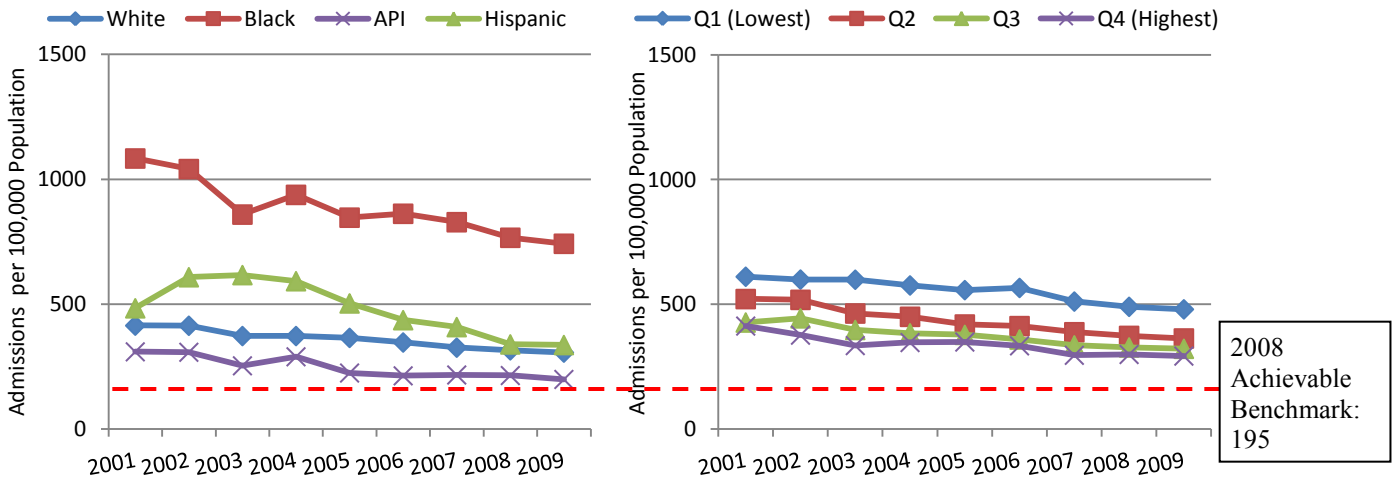
Also, in the NHQR:

- In all years, patients age 65 and over were less likely to receive ACE inhibitors or ARBs for heart failure than patients under age 65.

Outcome: Hospitalization for Congestive Heart Failure

Some hospitalizations for heart failure are unavoidable, but rates of hospitalization can be influenced by the quality of outpatient care.

Figure 2.12. Adult admissions for congestive heart failure per 100,000 population, by race/ethnicity and area income, 2001-2009



Key: API = Asian or Pacific Islander; Q1 represents the lowest income quartile and Q4 represents the highest income quartile based on the median income of a patient's ZIP Code of residence.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, State Inpatient Databases disparities analysis file, and AHRQ Quality Indicators modified version 4.1, 2001-2009.
Denominator: U.S. resident population age 18 and over.
Note: For this measure, lower rates are better. Rates are adjusted by age and gender. White, Black, and API are non-Hispanic; Hispanic includes all races.

- From 2001 to 2009, the overall hospitalization rate for congestive heart failure decreased significantly overall and for each racial/ethnic and area income group (Figure 2.12).
- In all years, Blacks had higher rates of admission for congestive heart failure compared with Whites while APIs had lower rates.
- In all years, residents of the highest area income quartile had lower rates than residents of the two lower area income quartiles.
- The 2008 top 4 State achievable benchmark for congestive heart failure admissions was 195 per 100,000 population.[x] Overall, this benchmark could not be achieved for 10 years.

[ix] The top 5 States that contributed to the achievable benchmark are Alaska, Maine, New Hampshire, South Carolina, and Virginia.

At current rates of improvement, Whites could achieve the benchmark in 8 years. Hispanics and APIs could achieve the benchmark sooner than Whites, while Blacks would require 14 years. Residents of the lowest income quartile would require 17 years while residents of other income quartiles could achieve the benchmark in 8 years.

Also, in the NHQR:

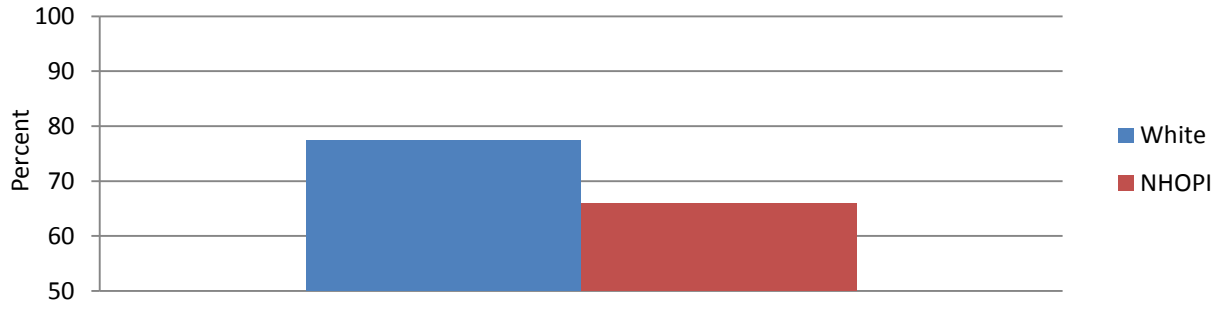
- From 2004 to 2009, patients ages 45-64 and 65 and over had higher rates of hospitalization for congestive heart failure than patients ages 18-44, and men had higher rates than women.

Focus on Native Hawaiians and Other Pacific Islanders

The ability to assess disparities among Native Hawaiians and Other Pacific Islanders (NHOPIs) has been a challenge for two main reasons. First, the NHOPI racial category is relatively new to Federal data collection. Before 1997, NHOPIs were classified as part of the API racial category and could not be identified separately in most Federal data. In 1997, the Office of Management and Budget promulgated new standards for Federal data on race and ethnicity and mandated that information about NHOPIs be collected separately from information about Asians. However, these standards have not yet been incorporated into all databases. Second, when information about this population was collected, databases often included insufficient numbers of NHOPIs to allow reliable estimates to be made.

Cardiovascular disease is a leading cause of death among Native Hawaiians. To supplement information in the reports on quality of care received by NHOPIs for heart disease, we feature data from additional data sources. Here we present data from the Behavioral Risk Factor Surveillance System (BRFSS) on cholesterol screening among NHOPIs, including people of mixed race who identify primarily as NHOPI. Note that the 2011 BRFSS cannot be compared with previous years because of the addition of cell phone data and the use of a new weighting methodology.

Figure 2.13. Adults who reported receiving a cholesterol check in the last 5 years, by race, 2011



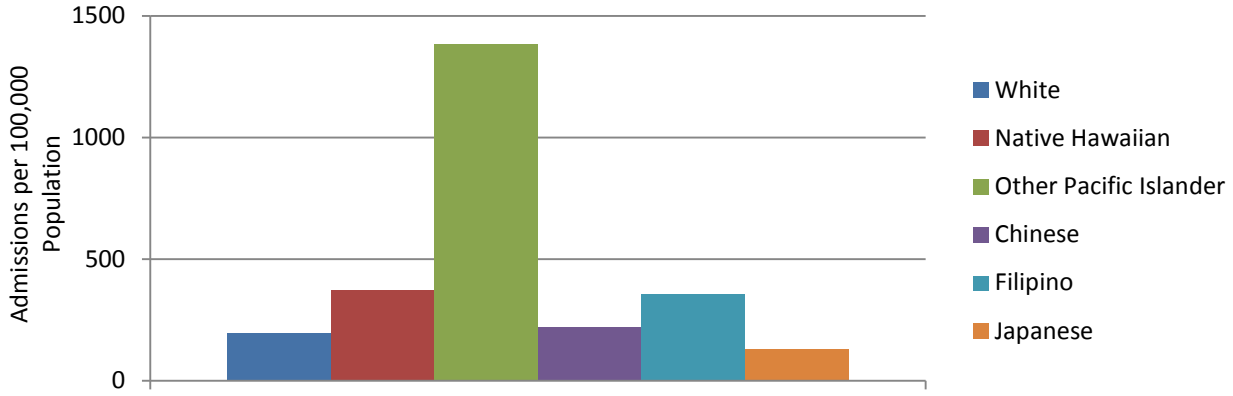
Key: NHOPI = Native Hawaiian or Other Pacific Islander.
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2011.
Denominator: Adults age 18 and over.

- In 2011, the percentage of adults who received a cholesterol check in the last 5 years was lower among NHOPIs compared with Whites (Figure 2.13).

[x] The top 4 States that contributed to the achievable benchmark are Colorado, Oregon, Utah, and Vermont.

Hawaii, home to more than half of Native Hawaiians in the United States, is a leader in collecting health information on NHOPI and Asian populations. Here we provide information from the Hawaii State Inpatient Databases on admissions for congestive heart failure among NHOPI and Asian subpopulations.

Figure 2.14. Adult admissions for congestive heart failure per 100,000 population, State of Hawaii, by granular ethnicity, 2008



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Hawaii State Inpatient Databases and AHRQ Quality Indicators modified version 4.1, 2008.
Denominator: Adults age 18 and over in Hawaii based on the Hawaii Health Survey.
Note: For this measure, lower rates are better. Rates are adjusted by age and gender using the total U.S. population for 2000 as the standard population.

- In Hawaii, in 2008, Native Hawaiians, Other Pacific Islanders, and Filipinos had higher rates of hospital admissions for congestive heart failure than Whites while Japanese people had lower rates than Whites (Figure 2.14).
- NHOPI and Asian subpopulations are quite diverse. Considerable variation in rates was observed among the different subgroups.

Chronic Kidney Disease

Importance

Mortality

Total ESRD deaths (2009) ..... 86,262 (USRDS, 2011)

Prevalence

Total ESRD cases (2009) ..... 571,414 (USRDS, 2011)

Incidence

Number of new ESRD cases (2009) ..... 116,395 (USRDS, 2011)

Cost

Total ESRD Medicare program expenditures (2009) .....$29 billion (USRDS, 2011)

Measures

The NHQR and NHDR track several measures of management of chronic kidney disease to assess the quality of care provided to renal dialysis patients. A previous core measure, adequacy of dialysis, was retired because it achieved a rate above 95%. Three measures are highlighted here:

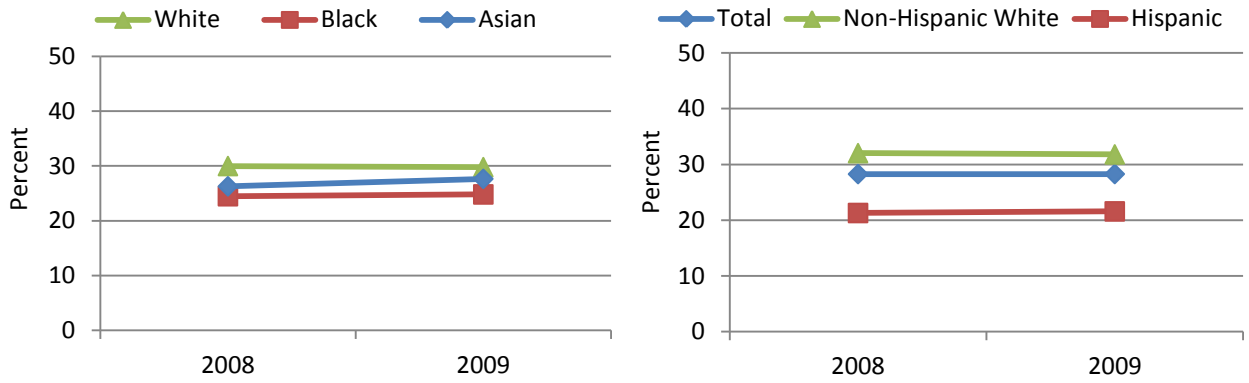
- Nephrology care before kidney failure.
- Use of arteriovenous fistula (AVF) at first outpatient dialysis.
- Registration for transplantation.

Findings

Management: Nephrology Care Before Kidney Failure

Early referral to a nephrologist is important for patients with progressive chronic kidney disease approaching kidney failure. Mindful management during the transition to ESRD permits informed selection of renal replacement therapy, placement and maturation of vascular access, and workup for kidney transplantation. Patients who begin nephrology care more than a year before kidney failure are less likely to begin dialysis with a catheter, experience infections related to vascular access, or die during the months after dialysis initiation (USRDS, 2010).

Figure 2.15. New adult end stage renal disease patients beginning nephrology care more than 12 months before start of dialysis, by race and ethnicity, 2008-2009



Source: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Renal Data System, 2008-2009.
Denominator: New end stage renal disease patients age 18 and over.

- In 2009, only 28% of new ESRD patients age 18 and over began nephrology care more than 12 months before start of dialysis (Figure 2.15).
- In both years, Blacks were less likely than Whites and Hispanics were less likely than non-Hispanic Whites to begin nephrology care more than 12 months before start of dialysis.

Also, in the NHQR:

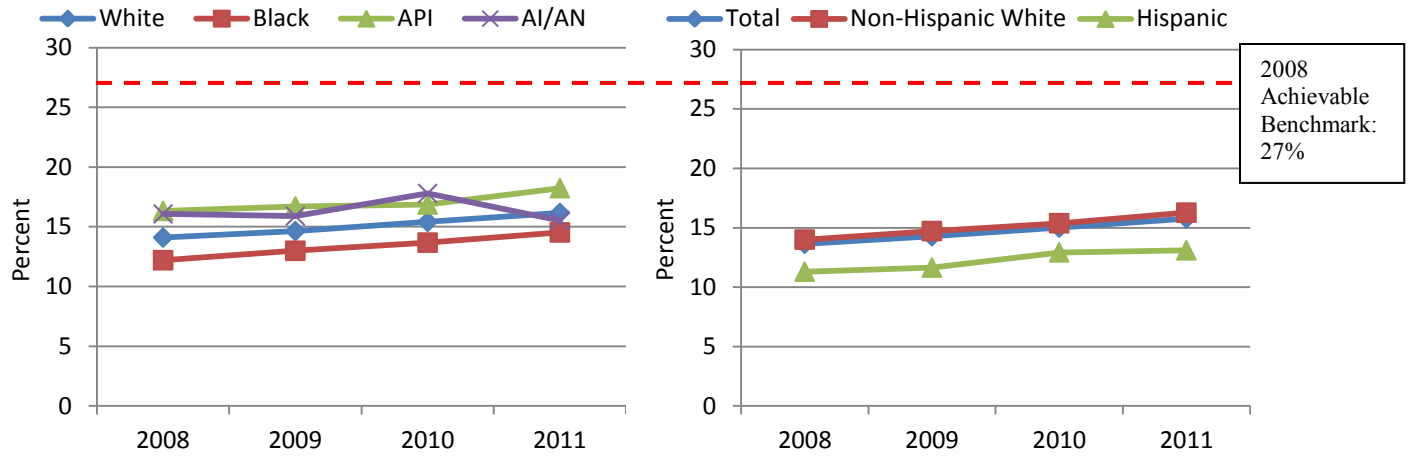
- In 2008 and 2009, patients ages 45-64 and 65 and over were more likely to receive timely nephrology care than patients ages 18-44.

Management: Use of Arteriovenous Fistula at First Outpatient Dialysis

For people with ESRD, dialysis can accommodate for lost kidney function by balancing minerals and water in the blood and removing waste. Vascular access is needed to reach blood vessels so that dialysis can be performed. An AVF is the preferred type of access for most hemodialysis patients for three reasons: It provides adequate blood flow for dialysis, it lasts a long time, and it has a low complication rate compared with other methods.

Although there is consensus that AVF should be the primary method of vascular access, AVF utilization has historically been very low. Therefore, the Centers for Medicare & Medicaid Services (CMS) has sought to increase rates of AVF for primary access by forming a nationwide initiative and collaborative effort to increase overall use of AVF. In 2005, CMS set a national AVF goal of 66% for prevalent hemodialysis patients in the United States.

Figure 2.16. Incident hemodialysis patients who used an arteriovenous fistula at first outpatient dialysis, by race and ethnicity, 2008-2011



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Medicare eligibility forms (Centers for Medicare & Medicaid Services [CMS] Form 2728) (2008-2011), Fistula First Incident AVF Dataset, CMS.
Denominator: New end stage renal disease hemodialysis patients, all ages.

- From 2008 to 2011, the percentage of dialysis patients who used an AVF at first dialysis increased from 13.7% to 15.8% (Figure 2.16).
- In all years, Blacks had lower rates of AVF at first dialysis than Whites, and Hispanics had lower rates than non-Hispanic Whites.
- The 2008 top 5 State achievable benchmark was 27%.[xi] Overall, this benchmark could not be achieved for 15 years. Whites, Blacks, APIs, and non-Hispanic Whites also could not attain the benchmark for 15 years, while Hispanics would need 20 years. AI/ANs did not experience improvement toward the benchmark.

Also, in the NHQR:

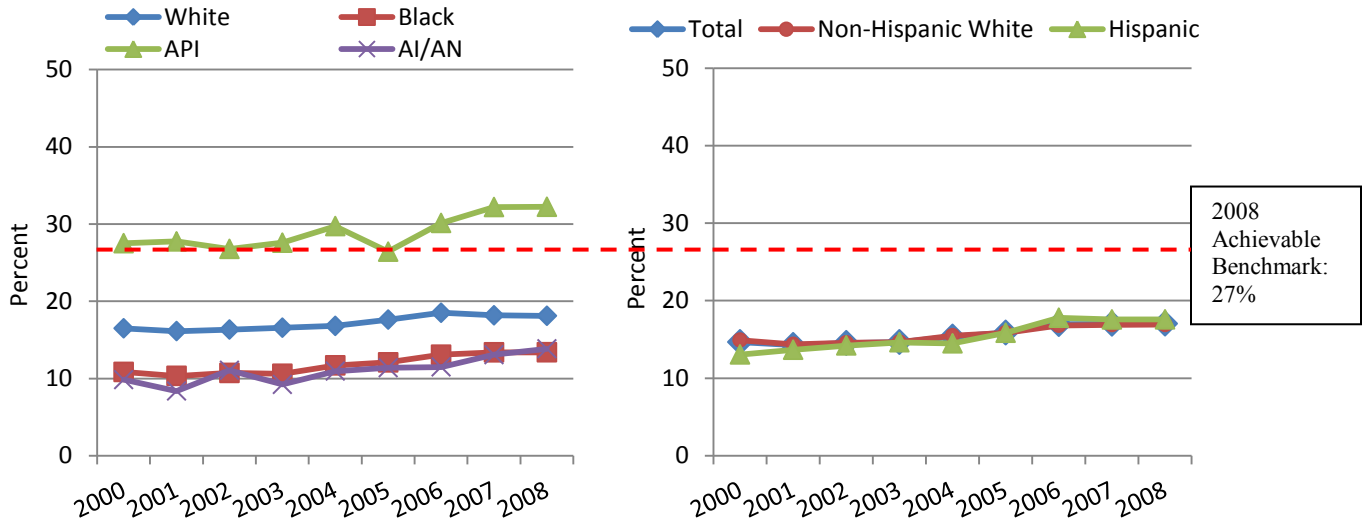
- In all years, patients ages 65-74 had higher rates of AVF at first dialysis than those younger than age 65. Female patients had significantly lower rates of AVF at first dialysis than males.

[xi] The top 5 States that contributed to the achievable benchmark are Hawaii, Maine, Montana, New Hampshire, and Oregon.

Management: Registration for Transplantation

Kidney transplantation is a procedure that replaces a failing kidney with a healthy kidney. Transplantation is not best for all patients. If a patient is deemed a good candidate for transplant, he or she is placed on the transplant program's waiting list. Patients wait for transplant centers to match them with the most suitable donor. Registration for transplantation is an initial step toward kidney transplantation. Early transplantation that decreases or eliminates the need for dialysis can also lessen the occurrence of acute rejection and patient mortality.

Figure 2.17. Dialysis patients who were registered on a waiting list for transplantation, by race and ethnicity, 2000-2008



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Renal Data System, 2000-2008.
Denominator: End stage renal disease hemodialysis patients and peritoneal dialysis patients under age 70.

- From 2000 to 2008, the percentage of dialysis patients who were registered on a waiting list for transplantation increased from 14.7% to 17% (Figure 2.17). Improvements were observed among all racial and ethnic groups.
- In all years, Blacks and AI/ANs were less likely to be registered on a waiting list than Whites. However, APIs were more likely to be registered on a waiting list than Whites.
- The 2008 top 5 State achievable benchmark was 27%.[xii] Overall, at the current rate of improvement, the benchmark would not be attained for 25 years.
- Although APIs have already surpassed the 2008 achievable benchmark, Blacks and AI/ANs could not attain the benchmark for 31 years and Whites could not attain it for 29 years.

Also, in the NHQR:

- In all years, patients ages 20-69 were less likely than patients ages 0-19 to be registered on a waiting list. Females were less likely than males to be registered on a waiting list.

[xii] The top 5 States that contributed to the achievable benchmark are Delaware, Iowa, Minnesota, Montana, and Vermont.

Diabetes

Importance

Mortality

Number of deaths (2007) ..... 71,382 (CDC, 2011b)
Cause of death rank (2007) ..... 7th (CDC, 2011b)

Prevalence

Total number of people with diabetes (2010) ..... 25.8 million (CDC, 2011c)
Number of people with diagnosed diabetes (2010) ..... 18.8 million (CDC, 2011c)
Number of people with undiagnosed diabetes (2007) ..... 7.0 million (CDC, 2011c)

Incidence

New cases (age 20 and over, 2010) ..... 1.9 million (CDC, 2011c)

Cost

Total cost (2007) ..... $174 billion (CDC, 2011c)
Direct medical costs (2007) ..... $116 billion (CDC, 2011c)
Indirect costs (2007) ..... $58 million (CDC, 2011c)

Measures

Routine monitoring of blood glucose levels with hemoglobin A1c (HbA1c[xiii]) tests and foot and dilated eye examinations have been shown to help prevent or mitigate complications of diabetes, such as diabetic neuropathy, retinopathy, and vascular and kidney disease. With more than 600,000 discharges in 2009, diabetes is one of the leading causes of hospitalization in the United States (CDC, 2011a). However, with appropriate and timely ambulatory care, it may be possible to prevent many hospitalizations for diabetes and related complications.

The measures reported in this section examine the extent to which individuals with diabetes receive care needed to prevent complications and the development of kidney failure, a serious complication of diabetes:

- Receipt of four recommended diabetes services.
- Control of hemoglobin A1c and blood pressure.
- Hospital admissions for uncontrolled diabetes.
- End stage renal disease due to diabetes.

Findings

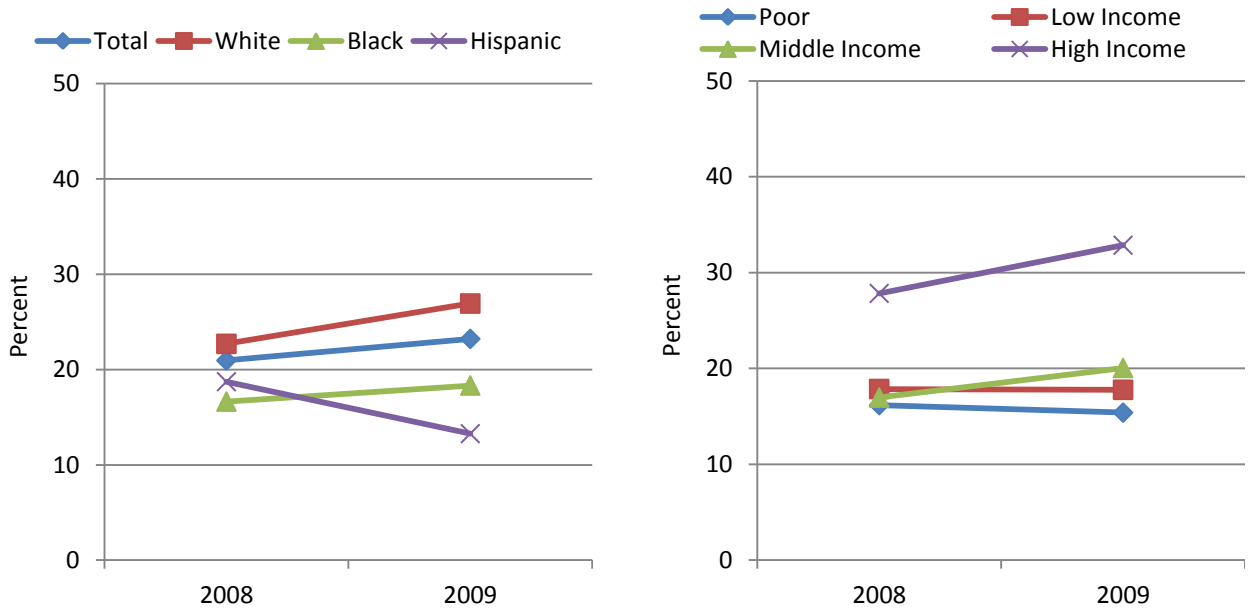
Management: Receipt of Four Recommended Diabetes Services

A composite measure is used to track the national rate of receipt of four recommended annual diabetes interventions: at least two HbA1c tests, a foot examination, an eye examination, and a

[xiii] HbA1c, or glycosylated hemoglobin, is a measure of average levels of glucose in the blood.

flu shot. These are basic process measures that provide an assessment of the quality of diabetes management. This diabetes composite measure differs from the composite presented in previous years. To be more consistent with current recommendations, the required frequency of HbA1c tests was increased in 2011 to two per year and receipt of a flu shot was added.

Figure 2.18. Adults age 40 and over with diagnosed diabetes who reported receiving four recommended services for diabetes in the calendar year (2+ hemoglobin A1c tests, foot exam, dilated eye exam, and flu shot), by race/ethnicity and income, 2008-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2008-2009.
Denominator: Civilian noninstitutionalized population with diagnosed diabetes, age 40 and over.
Note: Data include people with both type 1 and type 2 diabetes. Rates are age adjusted to the 2000 U.S. standard population. White and Black are non-Hispanic; Hispanic includes all races.

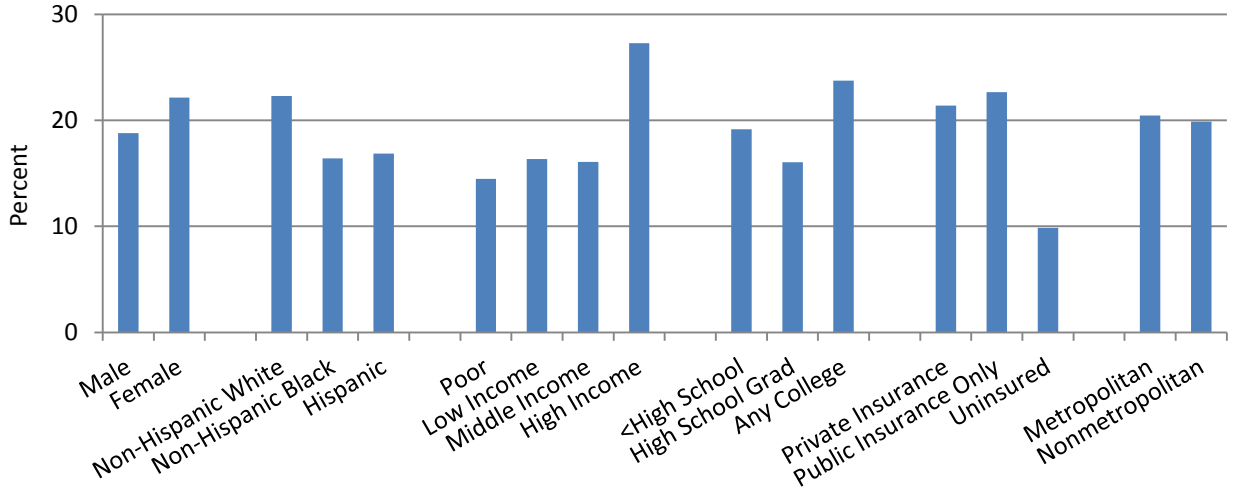
- Among adults age 40 and over with diagnosed diabetes, only 23% received all four recommended services in 2009 (Figure 2.18).
- In 2009, Blacks and Hispanics were less likely than Whites to receive recommended care for diabetes.
- In both years, poor, low-income, and middle-income adults were less likely to receive recommended care for diabetes than high-income adults.

Also, in the NHQR:

- In both years, adults ages 40-59 were less likely to receive recommended care for diabetes than adults age 60 and over.

Multivariate analyses were conducted to identify the independent effects of race/ethnicity and socioeconomic factors on several measures. Adjusted percentages are shown for receipt of diabetes services after controlling for race/ethnicity, family income, education, health insurance status, and location.

Figure 2.19. Composite measure: Adjusted percentages of adults ages 40-64 with diagnosed diabetes who received four recommended services for diabetes in the calendar year, by gender, race/ethnicity, family income, education, insurance status, and residence location, 2008/2009



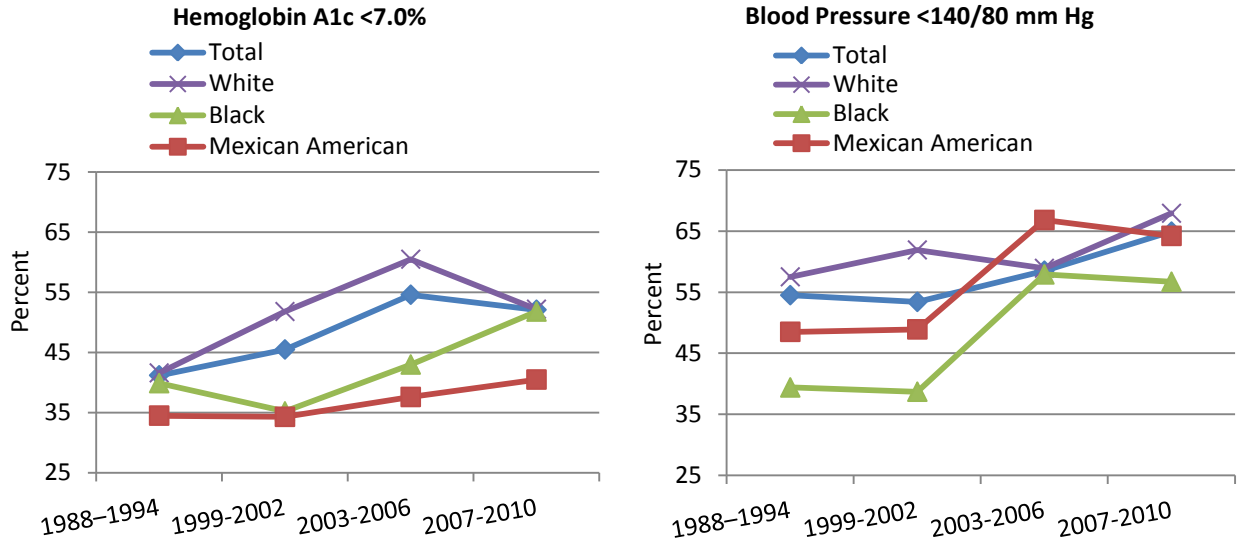
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, pooled 2008/2009.
Note: Adjusted percentages are predicted marginals from a statistical model that includes the covariates race/ethnicity, family income, education, health insurance, gender, and residence location. Chapter 1, Introduction and Methods, provides more information.

- After adjustment, among adults ages 40-64 with diagnosed diabetes, non-Hispanic Blacks were less likely than non-Hispanic Whites to receive the four recommended services for diabetes (Figure 2.19).
- In addition, poor, low-income, and middle-income adults with diabetes were less likely than high-income adults to receive all four services.
- High school graduates were less likely than adults with any college education to receive all four services.
- Uninsured adults were less likely than adults with private insurance to receive all four services.

Outcome: Control of Hemoglobin A1c and Blood Pressure

People diagnosed with diabetes are often at higher risk for other cardiovascular risk factors, such as high blood pressure and high cholesterol. Having these conditions in combination with diagnosed diabetes increases the likelihood of complications, such as heart and kidney diseases, blindness, nerve damage, and stroke. Patients who manage their diagnosed diabetes and maintain an HbA1c level <7%, total cholesterol <200 mg/dL, and blood pressure <140/80 mm Hg can decrease these risks.

Figure 2.20. Adults age 40 and over with diagnosed diabetes with hemoglobin A1c and blood pressure under control, by race/ethnicity, 1988-1994, 1999-2002, 2003-2006, and 2007-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 1988-1994, 1999-2002, 2003-2006, and 2007-2010.
Denominator: Civilian noninstitutionalized population with diagnosed diabetes, age 40 and over.
Note: Age adjusted to the 2000 U.S. standard population using two age groups: 40-59 and 60 and over. White and Black are non-Hispanic; Mexican American includes all races.

- Among adults age 40 and over with diagnosed diabetes, only 52% achieved HbA1c less than 7% and about 65% achieved blood pressure less than 140/80 mm Hg in 2007-2010 (Figure 2.20). Improvements were observed among all racial/ethnic groups although the change in HbA1c control among Mexican Americans did not meet our criteria for statistical significance.
- Since 1999-2002, Mexican Americans have been less likely than Whites to achieve HbA1c less than 7%.
- Except in 2003-2006, Blacks have been less likely than Whites to achieve blood pressure less than 140/80 mm Hg.

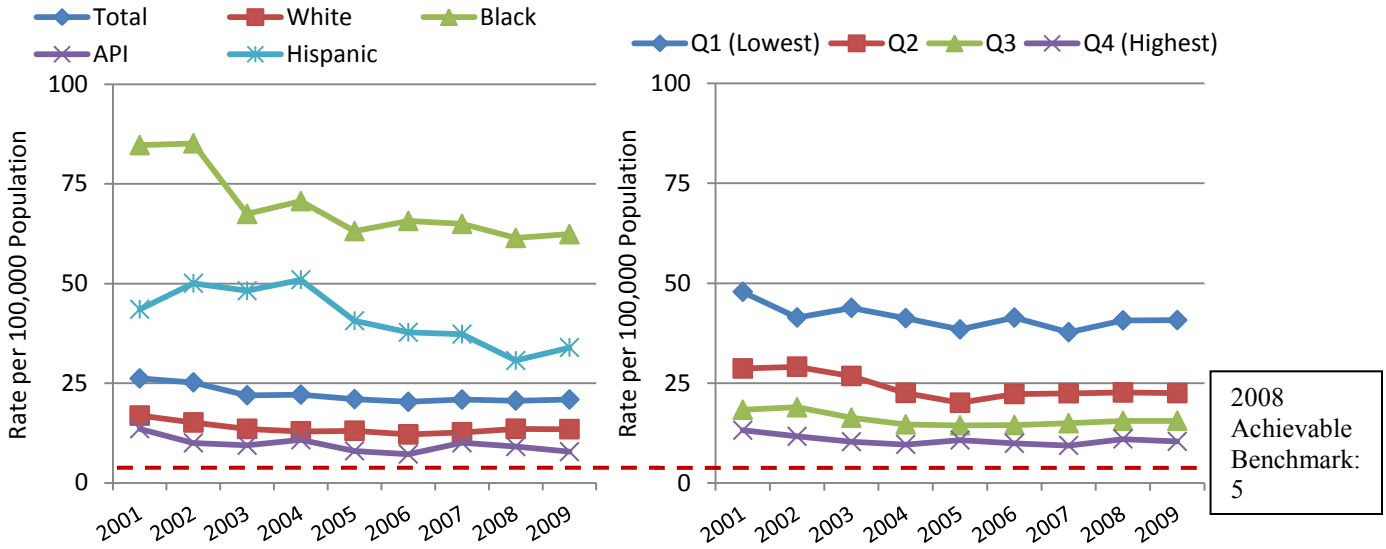
Also, in the NHQR:

- Improvements in HbA1c control and blood pressure control were observed among all age groups.

Outcome: Admissions for Uncontrolled Diabetes

Individuals who do not achieve good control of their diabetes may develop symptoms that require hospitalization to correct. Admission rates for uncontrolled diabetes may be reduced by better outpatient treatment and tighter adherence to diet and medications for diabetes.

Figure 2.21. Hospital admissions for uncontrolled diabetes per 100,000 population, age 18 and over, by race/ethnicity and area income, 2001-2009



Key: API = Asian or Pacific Islander. Q1 represents the lowest income quartile and Q4 represents the highest income quartile based on the median income of a patient's ZIP Code of residence.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file and Nationwide Inpatient Sample, 2001-2009, and AHRQ Quality Indicators, version 4.1.
Denominator: U.S. resident population age 18 and over.
Note: For this measure, lower rates are better. White, Black, and API are non-Hispanic; Hispanic includes all races. Data are adjusted for age and gender.

- Between 2001 and 2009, the rate of hospital admissions for adults for uncontrolled diabetes decreased overall and among all racial/ethnic and income groups (Figure 2.21).
- In all years, the rate of hospital admissions for uncontrolled diabetes was higher for Blacks and Hispanics and lower for APIs compared with Whites.
- In all years, the rate of hospital admissions for uncontrolled diabetes was higher for adults living in communities with median household incomes in the first, second, and third quartiles than for people living in communities in the fourth quartile.
- The 2008 top 4 State achievable benchmark was 5 per 100,000 population. [xiv] Most racial/ethnic and income groups could not achieve the benchmark for about 25 years. APIs would need 7 years and Hispanics would need 13 years, while adults living in the lowest income communities would need 51 years.

Also, in the NHQR:

- In all years, adults ages 45-64 and 65 and over had higher admission rates for uncontrolled diabetes than adults ages 18-44.
- In all years, residents of large central metropolitan areas and noncore areas had higher rates than residents of large fringe metropolitan areas.

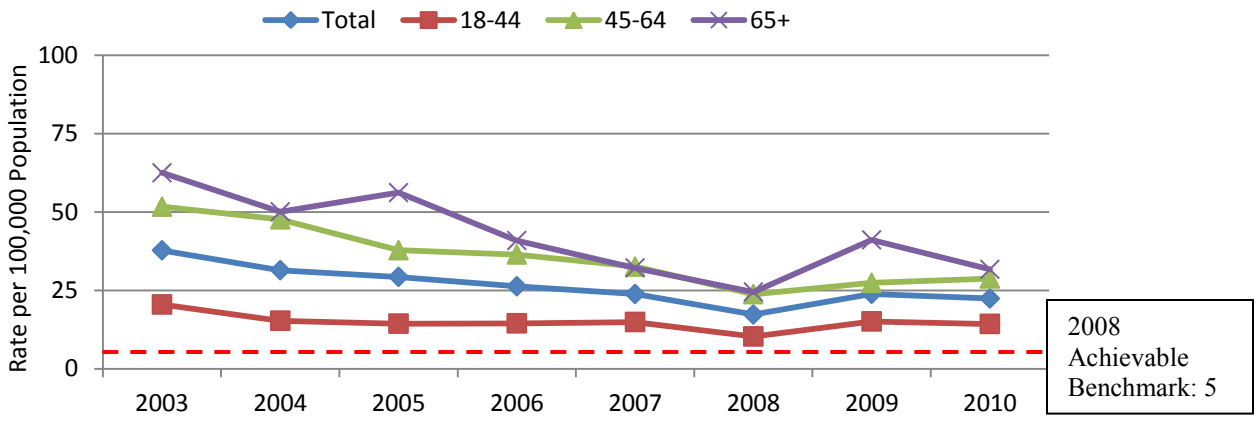
[xiv] The top 4 States that contributed to the achievable benchmark are Colorado, Hawaii, Utah, and Vermont.

Focus on Indian Health Service Facilities

AI/ANs who are members of federally recognized Tribes are eligible for services provided by the Indian Health Service (IHS). About 2 million of the 3.4 million AI/ANs in the United States receive care directly from IHS, through tribally contracted and operated health programs or through services purchased by IHS from other providers (IHS, 2011). Due to low numbers and lack of data, information about AI/AN hospitalizations is difficult to obtain in most Federal and State hospital utilization data sources. The NHQR and NHDR address this gap by examining utilization data from IHS, Tribal, and contract hospitals.

Diabetes is one of the leading causes of morbidity and mortality among AI/AN populations. Its prevention and control are a major focus of the IHS Director's Chronic Disease Initiative and the IHS Health Promotion/Disease Prevention Initiative. Addressing barriers to health care is a large part of the overall IHS goal of ensuring that comprehensive, culturally acceptable personal and public health services are available and accessible to AI/ANs.

Figure 2.22. Hospital admissions for uncontrolled diabetes per 100,000 population in IHS, Tribal, and contract hospitals, age 18 and over, by age group, 2003-2010



Source: Indian Health Service, Office of Information Technology/National Patient Information Reporting System, National Data Warehouse, Workload and Population Data Mart, 2003-2010.
Note: For this measure, lower rates are better. Total estimates are age adjusted using the total U.S. population for 2000 as the U.S. standard population. Service population does not include the Portland and California regions.

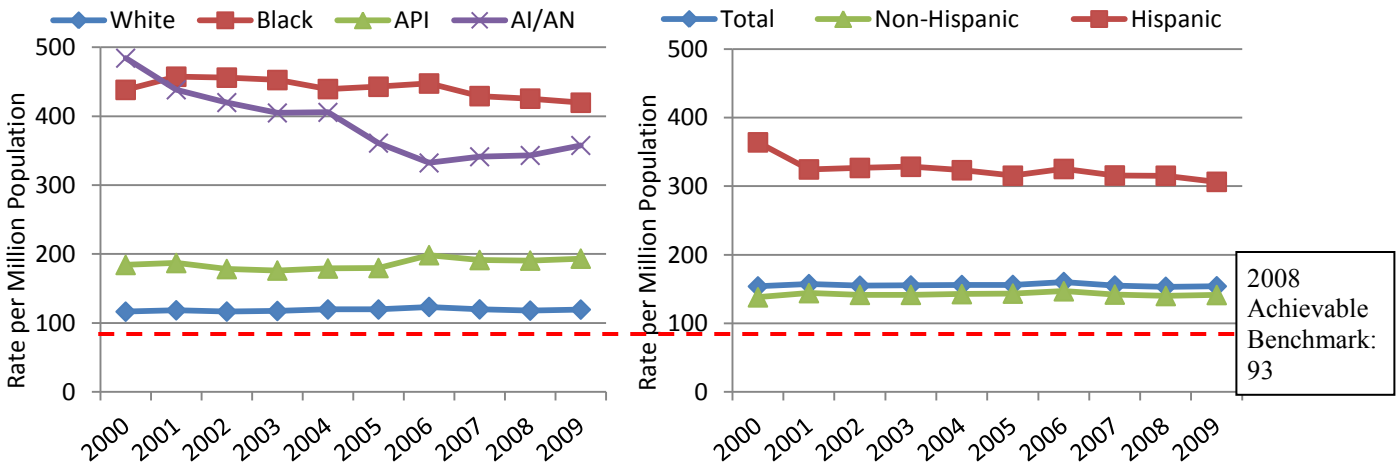
- From 2003 to 2010, the age-adjusted rate of total hospitalizations for uncontrolled diabetes in IHS, Tribal, and contract hospitals decreased from 37.8 to 22.4 per 100,000 population (Figure 2.22). Rates decreased among all age groups.
- In all years, patients ages 18-44 had lower rates than patients age 65 and over.
- The 2008 top 4 State achievable benchmark based on Healthcare Cost and Utilization Project State Inpatient Databases data was 5. This benchmark could be achieved overall and by most age groups in 8 years. Adults ages 18-44 would need 15 years.

Outcome: End Stage Renal Disease Due to Diabetes

Diabetes is the most common cause of kidney failure. Keeping blood sugar levels under control can prevent or slow the progression of kidney disease due to diabetes. In addition, when kidney disease is detected early, medication can slow the disease's progress. If it is detected late, progression to ESRD requiring dialysis is common. While some cases of kidney failure due to

diabetes cannot be avoided, other cases reflect inadequate control of blood sugar or delayed detection and treatment of early kidney disease due to diabetes.

Figure 2.23. End stage renal disease due to diabetes per million population, by race and ethnicity, 2000-2009



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Renal Data System, 2000-2009.
Denominator: U.S. resident population.
Note: For this measure, lower rates are better. Rates are age adjusted. Hispanic and non-Hispanic include all races.

- Between 2000 and 2009, the overall incidence of ESRD due to diabetes did not change overall or for most racial and ethnic groups (Figure 2.23). The rate did decrease among Hispanics and AI/ANs.
- In all years, AI/ANs, APIs, and Blacks had higher rates than Whites and Hispanics had higher rates than non-Hispanics.
- The 2008 top 5 State achievable benchmark was 93 per million population.[xv] Of all racial groups, only AI/ANs are progressing toward the benchmark but still will not achieve it for 18 years. Rates among non-Hispanics are not improving, and Hispanics will not achieve the benchmark for 54 years.

Also, in the NHQR:

- In all years, people age 45 and over had higher rates of ESRD due to diabetes than people ages 20-44. Males had higher rates than females.

[xv] The top 5 States that contributed to the achievable benchmark are Alaska, Montana, New Hampshire, Oregon, and Wyoming.

HIV and AIDS

Importance

Mortality

Number of deaths of people with AIDS (2009).....17,774 (CDC, 2012)

Prevalence

Number of people living with HIV infection (2009).....784,701 (CDC, 2012)
Number of people living with AIDS (2009).....476,732 (CDC, 2012)

Incidence

Number of new HIV diagnoses (2010).....47,129 (CDC, 2012)
Number of new AIDS diagnoses (2010).....33,015 (CDC, 2012)

Cost

Federal spending on HIV/AIDS care, cash and housing assistance,
prevention, and research (fiscal year 2013 est.)..... $22 billion (KFF, 2012)

HIV is a virus that kills or damages cells of the body's immune system. AIDS is the most advanced stage of HIV infection. HIV can be spread through unprotected sex with an infected person, sharing of drug needles, or contact with the blood of an infected person. In addition, women with HIV can pass the virus to their babies during pregnancy, childbirth, or breastfeeding.

The impact of HIV infection and AIDS is disproportionately higher for racial and ethnic minorities and people of lower income and education levels. Although access to care has improved, research shows that Blacks, Hispanics, women, and uninsured people with HIV remain less likely to have access to care and less likely to have optimal patterns of care (Tobias, et al., 2007).

The spread of HIV is linked to complex social and economic factors, including:

- Poverty,
- Concentration of the virus in specific geographic areas and smaller sexual networks,
- Sexually transmitted co-infections,
- Stigma (negative attitudes, beliefs, and actions directed at people living with HIV/AIDS or directed at people who engage in behaviors that might put them at risk for HIV), and
- Injection and noninjection drug use and associated behaviors (CDC, 2010).

According to the Centers for Disease Control and Prevention (CDC), HIV and AIDS disproportionately affect Blacks in the United States. In 2009, Blacks represented 14% of the U.S. population but accounted for 44% of all diagnoses of new HIV infections (CDC, 2012). The HIV/AIDS epidemic is also a serious threat to the Hispanic community. An estimated 20% of new HIV infections occurred among Hispanics in 2009, which is three times the rate of Whites

(CDC, 2012). In addition to being seriously affected by HIV, Hispanics continue to face challenges in accessing health care, especially preventive services and HIV treatment.

Undocumented immigrants face an even greater challenge in accessing care and information regarding HIV and AIDS, but data are limited on HIV infection rates of undocumented immigrants (Carrillo & DeCarlo, 2003). In 2007, HIV/AIDS was the fourth leading cause of death among Hispanic men and women ages 35-44 (CDC, 2011a). Having Medicaid and a usual source of care decreased the likelihood of delaying care for HIV, but research shows that delay in care is still greater for Hispanics and Blacks (Cunningham, et al., 2006).

Another group that is severely affected by HIV includes gay, bisexual, and other men who have sex with men (MSM). MSM represent 2% of the U.S. population and is the only risk group in which new HIV infections have been gradually increasing since the 1990s. MSM have constantly represented the largest percentage of people diagnosed with AIDS and people with an AIDS diagnosis who have died. In 2009, MSM accounted for more than half (61%) of all new HIV infections in the United States (CDC, 2012).

The White House Office of National AIDS Policy launched the National HIV/AIDS Strategy (NHAS) in July 2010. The NHAS is a comprehensive plan focused on: (1) reducing the number of people who become infected with HIV, (2) increasing access to care and optimizing health outcomes for people living with HIV, and (3) reducing HIV-related health disparities. The plan serves as a roadmap for policymakers, partners in prevention, and the public on steps the United States must take to lower HIV incidence, get people living with HIV into care, and reduce HIV-related health disparities.

Measures

This year, one measure is presented focusing on the quality of preventive care for HIV-infected individuals:

- New AIDS cases.

Five measures are presented on access to care, retention in care, and treatment and prevention of opportunistic infections in HIV patients:

- Adult HIV patients who had at least two outpatient visits during the year.
- Adult HIV patients who received two or more CD4 tests during the year.
- Adult HIV patients who received highly active antiretroviral therapy (HAART).
- Eligible patients receiving prophylaxis for *Pneumocystis* pneumonia (PCP).
- Eligible patients receiving prophylaxis for *Mycobacterium avium* complex (MAC).

In addition, one measure is presented on HIV infection deaths.

Findings

Management: HIV Patients Receiving Care

Management of chronic HIV disease includes outpatient and inpatient services. Without adequate treatment, as HIV disease progresses, CD4 cell counts fall and patients become increasingly susceptible to opportunistic infections.

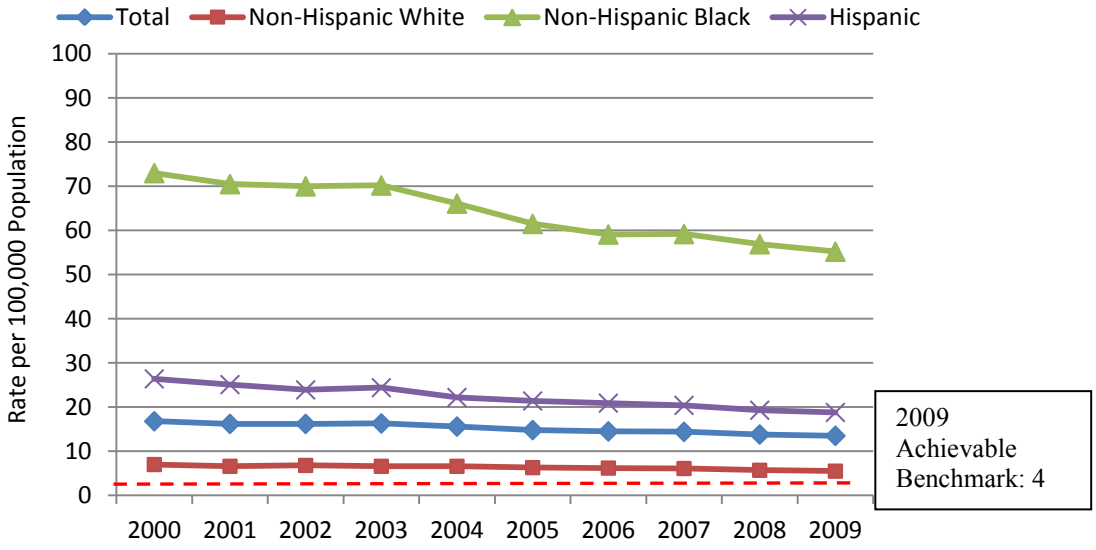
HIV/AIDS core clinical performance measures are indicators for use in monitoring the quality of care provided to adults and adolescents living with HIV. Based on the set of quality measures developed by the HIV/AIDS Bureau of the Health Resources and Services Administration (HRSA), performance can be measured for various HIV prevention and treatment services. Services needed by patients with HIV include:

- Two or more medical visits in an HIV care setting in the measurement year.
- Two or more CD4 cell counts performed in the measurement year.
- HAART for patients with AIDS.
- PCP prophylaxis for patients with CD4 cell count below 200 and MAC prophylaxis for patients with CD4 cell count below 50.

Outcome: New AIDS Cases

Changes in HIV infection rates reflect changes in behavior by at-risk individuals that may only partly be influenced by the health care system. However, individual and community programs have shown progress in influencing behavior change. Changes in the incidence of new AIDS cases are affected by changes in HIV infection rates, screening and early detection of HIV disease, and availability of appropriate treatments for HIV-infected individuals.

Figure 2.24. New AIDS cases per 100,000 population age 13 and over, by race/ethnicity, 2000-2009



Source: Centers for Disease Control and Prevention, National Center for HIV, STD, and TB Prevention, HIV/AIDS Surveillance System, 2000-2009.
Denominator: U.S. population age 13 and over.

- Overall, in 2009, the total rate of new AIDS cases was 13.5 per 100,000 population (Figure 2.24).
- From 2000 to 2009, rates of new AIDS cases decreased overall and for all racial/ethnic groups.
- In 2009, non-Hispanic Blacks (55.2 per 100,000 population) and Hispanics (18.8 per 100,000 population) had higher rates of new AIDS cases than non-Hispanic Whites (5.5 per 100,000 population).
- The 2009 top 5 State achievable benchmark for new AIDS cases was 4 per 100,000 population.[xvi] At the current rate, non-Hispanic Whites would take 10 years to achieve the benchmark, while the other racial/ethnic groups would take more than 15 years.

Also, in the NHQR:

- In 2009, people ages 18-44 had a higher rate of new AIDS cases than other age groups and males had a higher rate than females.

Management: Recommended Care for HIV

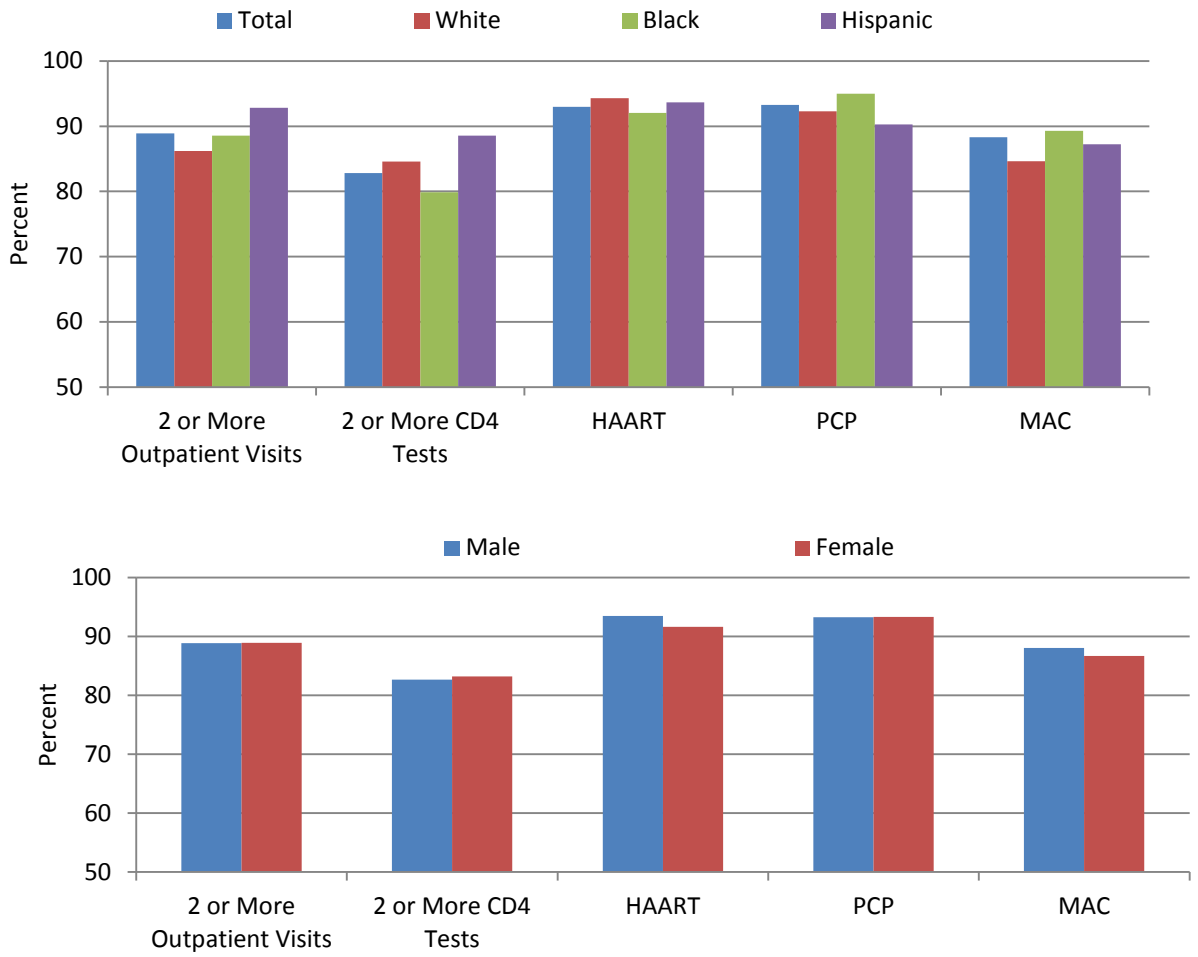
Currently, national data on HIV care are not routinely collected. HIV measures tracked in the NHDR are from the HIV Research Network, which consists of 18 medical practices across the United States that treat large numbers of patients living with HIV. Data from the voluntary HIV Research Network are not nationally representative of the level of care received by everyone in the United States living with HIV.

HIV Research Network data represent only patients with HIV who are actually receiving care (about 14,000 patients per year) and do not represent patients who do not receive care. Furthermore, data shown below are not representative of the HIV Research Network as a whole because they represent only a subset of network sites that have the most complete data.

Below are data from the HIV Research Network that capture four of the HRSA quality measures. In addition, when CD4 cell counts fall below 50, medicine to prevent development of disseminated MAC infection is routinely recommended (Yeargin, et al., 2003), which is also tracked in the reports.

[xvi] The top 4 States that contributed to the achievable benchmark are Iowa, New Hampshire, Utah, and Wisconsin,

Figure 2.25. HIV patients who received recommended care, by race/ethnicity and gender, 2009



Key: HAART = highly active antiretroviral therapy; PCP = *Pneumocystis* pneumonia; MAC = *Mycobacterium avium* complex.
Source: Agency for Healthcare Research and Quality, HIV Research Network, 2009.
Note: For HAART measure, adult HIV patients had to be enrolled in an HIV Network clinic, receive at least one CD4 test, and have at least one outpatient visit in addition to having at least one CD4 test result of 350 or less.

- Overall, in 2009, 88.9% of people with HIV had two or more outpatient visits during the year, and 82.8% of people with HIV had two or more CD4 tests during the year (Figure 2.25). In addition, 93.0% of people with HIV received HAART. A slightly higher percentage (93.3%) of people with HIV who had a CD4 count less than 200 received PCP prophylaxis and 88.3% of people with HIV received MAC prophylaxis.
- In 2009, there were no statistically significant differences by race/ethnicity or gender in the percentage of people with HIV receiving recommended services.

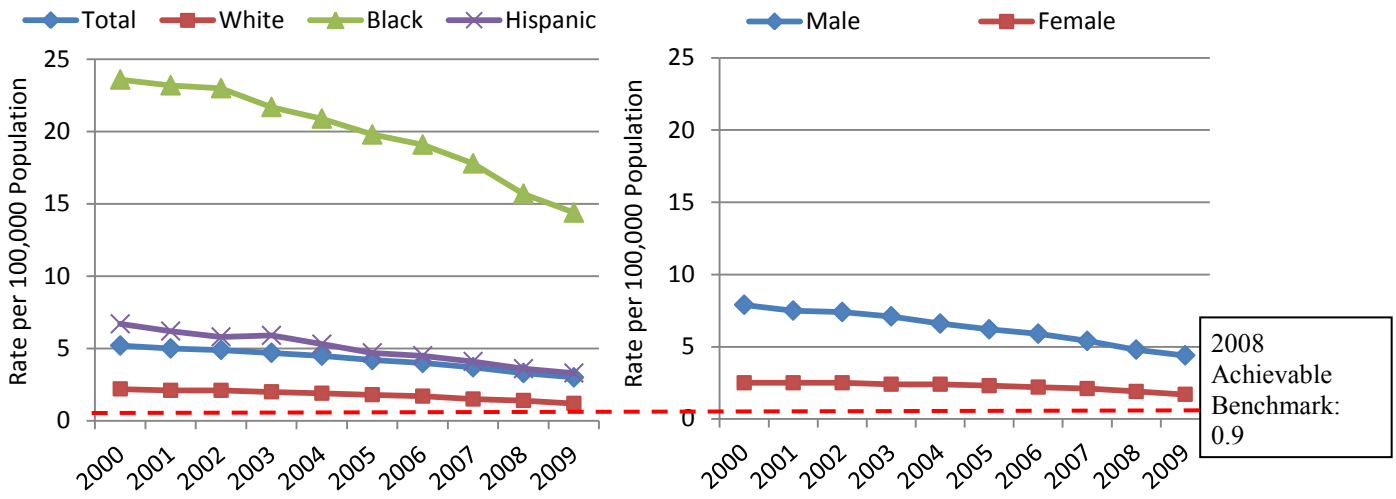
Also, in the NHQR:

- In 2009, there were no statistically significant differences by age or insurance type in the percentage of people with HIV receiving recommended services.

Outcome: Deaths of People With HIV Infection

Improved management of HIV infection has contributed to declines in the number of new AIDS cases in the United States since the 1990s (CDC, 2005). HIV infection deaths reflect a number of factors, including underlying rates of HIV risk behaviors, prevention of HIV transmission, early detection and treatment of HIV disease, and management of AIDS and its complications.

Figure 2.26. HIV infection deaths per 100,000 population, by race/ethnicity and gender, 2000-2009



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2000-2009.
Note: For this measure, lower rates are better. Rates are age adjusted to the 2000 U.S. standard population.

- Overall, in 2009, the total rate of HIV infection deaths was 3 per 100,000 population (Figure 2.26).
- HIV infection death rates are decreasing for all racial/ethnic groups and both genders.
- In 2009, HIV infection death rates were higher for the Black (14.4 deaths per 100,000) and Hispanic (3.3 deaths per 100,000) populations compared with the White population (1.2 deaths per 100,000).
- In 2009, the HIV infection death rate was higher for males (4.4 deaths per 100,000) than for females (1.7 deaths per 100,000).
- The 2008 top 4 State achievable benchmark for HIV deaths was 0.9 per 100,000.[xvii] At the current rate, Hispanics, Blacks, and Whites could achieve the benchmark in 7, 14, and 4 years, respectively. Males would take 9 years and females 11 years to reach the benchmark.

Also, in the NHQR:

- From 2004 to 2009, the rate of HIV infection deaths decreased for adults ages 18-44 and 45-64, but it increased for those age 65 and over.
- From 2004 to 2009, the rate of HIV infection deaths decreased for adults living in large central, large fringe, medium , and small metropolitan areas

[xvii] The top 4 States that contributed to the achievable benchmark are Minnesota, Oregon, Utah, and Wisconsin.

Maternal and Child Health

Importance

Mortality

Number of maternal deaths (2007) ..... 548 (Xu, et al., 2010)
Number of infant deaths (2010 prelim.) ..... 24,548 (Murphy, et al., 2012)

Demographics

Number of children[xviii] (2010) .....73,904,493 (U.S. Census Bureau, 2010)
Number of babies born in United States (2010) ..... 4,000,279 (Hamilton, et al., 2011)

Cost

Total cost of health care for children (2009) ..... $143.3 billion (AHRQ, 2009)
Cost-effectiveness of vision screening for children..... $0-$14,000/QALY (Maciosek, et al., 2006)
Cost-effectiveness of childhood immunization
series (2001)..... approx. $16 per $1 spent (Zhou, et al., 2005)

Measures

The NHQR and NHDR track several prevention, treatment, and outcome measures related to maternal and child health care. The measures highlighted in this section are:

- Prenatal care.
- Receipt of recommended immunizations by young children.
- Children's vision screening.
- Well visits in the last year.
- Receipt of meningococcal vaccine by adolescents.

Findings

New

Prevention: Early and Adequate Prenatal Care

The timing of initiation and the quality and quantity of prenatal care (PNC) may influence pregnancy outcomes, in particular the occurrence of preterm birth and low birth weight (Anum, et al., 2010; Debiec, et al., 2010; Cox, et al., 2011; AAP, 2007). In the past, the NHQR and NHDR have followed a measure of access in the first trimester as a key maternal and child health preventive measure. Because this measure does not take into account whether women then receive additional PNC throughout the pregnancy, we now report on a measure of early and adequate PNC.

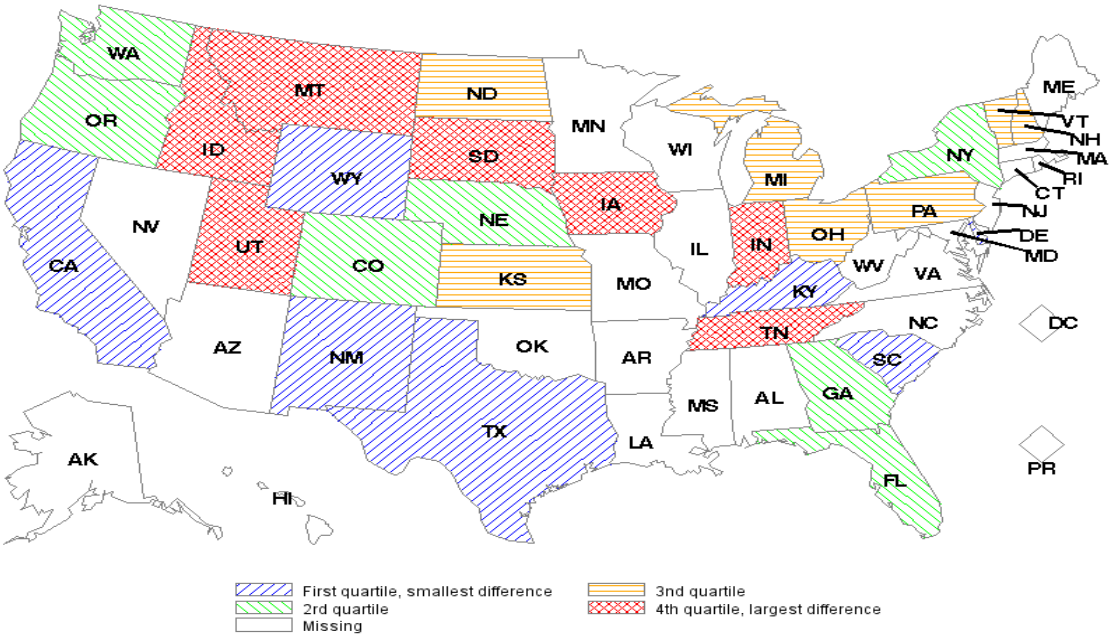
One of the Healthy People 2020 objectives is that 77.6% of pregnant women receive early and adequate PNC, based on the Adequacy of Prenatal Care Utilization Index. This index looks at both initiation of PNC and number of visits; thus, early and adequate PNC is defined as PNC initiated by month 4 of the pregnancy and in which the woman also had at least 80% of the number of expected PNC visits.

[xviii] In this report, children are defined as individuals under age 18, unless otherwise specified.

The target number of PNC visits is based on when PNC started and on the infant's gestational age at birth. Because of consistency problems between the 1998 and 2003 versions of birth certificates, PNC timing and adequacy were evaluated only for the 28 States using the 2003 standard birth certificate for all of 2009. Because we have data for only 28 States, national estimates were not generated. However, these 28 States accounted for 66% of live births in the United States in 2009.

Given the persistent Black-White disparity in infant mortality and low birth weight, we mapped the absolute percentage point differences between White and Black infants (based on the reported race of the mother) in the proportion whose mothers had obtained early and adequate PNC. The map below shows overall State rankings (by quartiles) for these differences. The first quartile represents States with the smallest differences and the fourth quartile represents States with the largest differences. States ranged from a minimum difference between Whites and Blacks of 2.9% to a maximum difference of 28.7%. [xix]

Figure 2.27. Absolute differences between percentages of White and Black infants born in 2009 whose mothers had obtained early and adequate prenatal care, by State quartiles



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Vital Statistics, National Vital Statistics System, 2009.

- Interquartile ranges were as follows:
  - First quartile (best): 2.9%-9.0% (CA, DE, KY, NM, SC, TX, WY).
  - Second quartile (second best): 9.4%-11.86%.
  - Third quartile (second worst): 11.89%-15.7%.
  - Fourth quartile (worst): 16.3%-28.7% (IA, ID, IN, MT, SD, TN, UT).

[xix] In States with small numbers of births to Black women, caution should be used in interpreting the White-Black differences in adequacy of prenatal care.

- There was no clear pattern based on geographic region.
- Only one State (CA) that was in the best quartile for the overall State rates shown in the NHQR was also in the best quartile for the difference between White and Black rates as shown here. Two States in the worst quartile for overall receipt of early and adequate PNC were in the best quartile for differences between Blacks and Whites (NM and TX). This presumably reflects relatively poor performance in both the reference group (Whites) and the comparison group (Blacks).

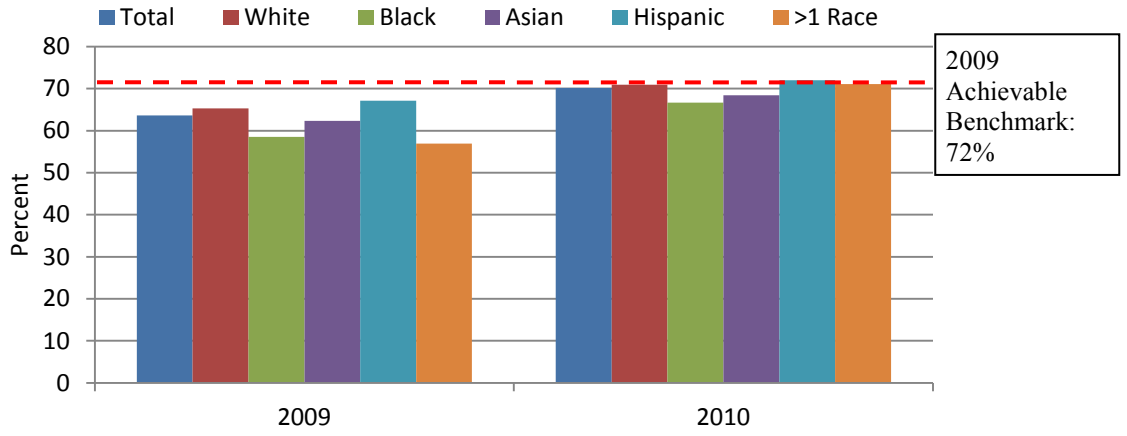
Also, in the NHQR:

- Overall State rates for obtaining early and adequate PNC ranged from 60.8% to 86.5%. There was no clear pattern based on geographic region.

Prevention: Receipt of Recommended Immunizations by Young Children

Immunizations are important in reducing mortality and morbidity. They protect recipients from illness and protect others in the community who are not vaccinated. Beginning in 2007, recommended vaccines for children that should have been completed by ages 19-35 months included diphtheria-tetanus-pertussis vaccine, polio vaccine, measles-mumps-rubella vaccine, *Haemophilus influenzae* type B vaccine, hepatitis B vaccine, varicella vaccine, and pneumococcal conjugate vaccine. These vaccines constitute the 4:3:1:3:3:1:4 vaccine series tracked in Healthy People 2020. The Healthy People 2020 target is 80% coverage in the population ages 19 to 35 months.

Figure 2.28. Children ages 19-35 months who received the 4:3:1:3:3:1:4 vaccine series, by race/ethnicity, 2009-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Immunization and Respiratory Diseases, National Immunization Survey, 2009-2010.
Denominator: U.S. civilian noninstitutionalized population ages 19-35 months.
Note: White, Black, Asian, and more than one race are non-Hispanic; Hispanic includes all races.

- In 2010, 70.2% of children ages 19-35 months had received all recommended vaccinations (Figure 2.28).
- In both years, Black children were less likely than White children to receive all recommended vaccinations.

- The 2009 top 6 State achievable benchmark was 72%.[xx] Hispanics have achieved the benchmark. At the current rate of improvement, most other racial/ethnic groups could achieve the benchmark in a year.

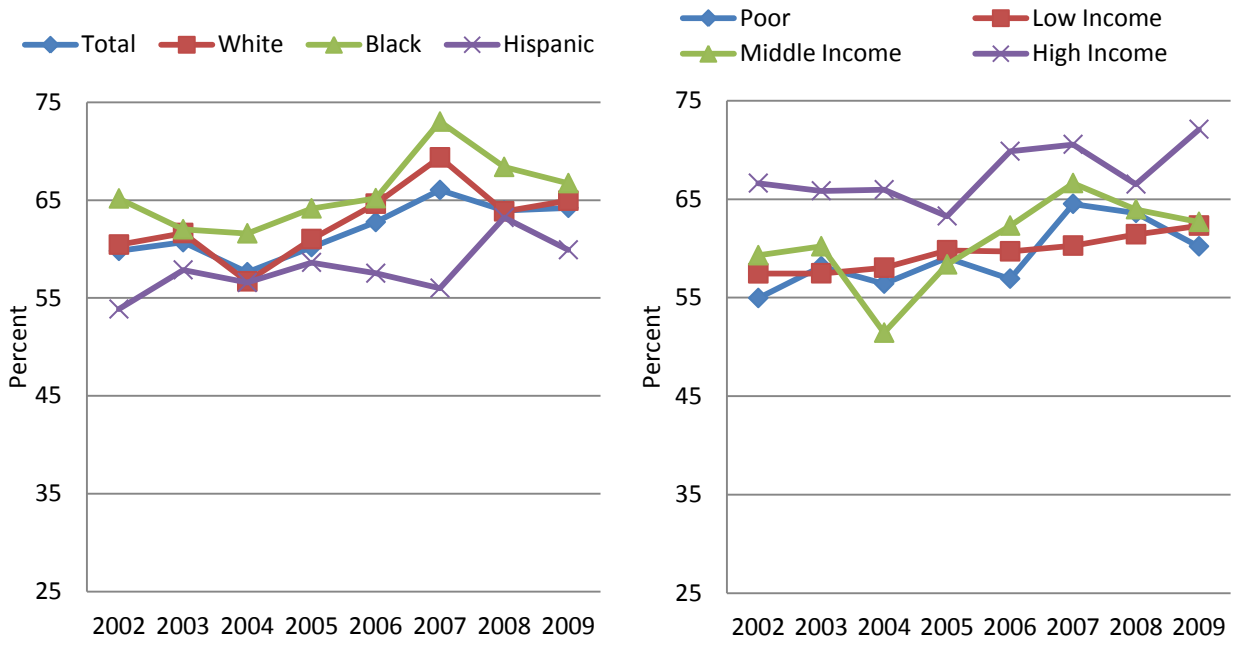
Also, in the NHQR:

- In both years, children from high-income households were more likely to receive all the recommended vaccinations than those from poor, low-income, and middle-income households.

Prevention: Children's Vision Screening

Vision checks for children may detect problems of which children and their parents were previously unaware. Early detection also improves the chances that corrective treatments will be successful.

Figure 2.29. Children ages 3-6 who ever had their vision checked by a health provider, by race/ethnicity and income, United States, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: U.S. civilian noninstitutionalized population ages 3-6.
Note: White and Black are non-Hispanic; Hispanic includes all races.

- In 2009, 64.2% of children ages 3-6 had their vision checked by a health provider (Figure 2.29). Improvements were observed in Hispanic and White children and poor and low-income groups.

[xx] The top 6 States that contributed to the achievable benchmark are California (tie), Louisiana, Maryland, Massachusetts, New Hampshire, and Ohio (tie).

- In 3 of the 8 years from 2002 to 2009, Hispanic children were less likely to have their vision checked than non-Hispanic White children.
- In 4 of the 8 years from 2002 to 2009, children from poor, low-income, and middle-income households were less likely to have their vision checked than children from high-income households.

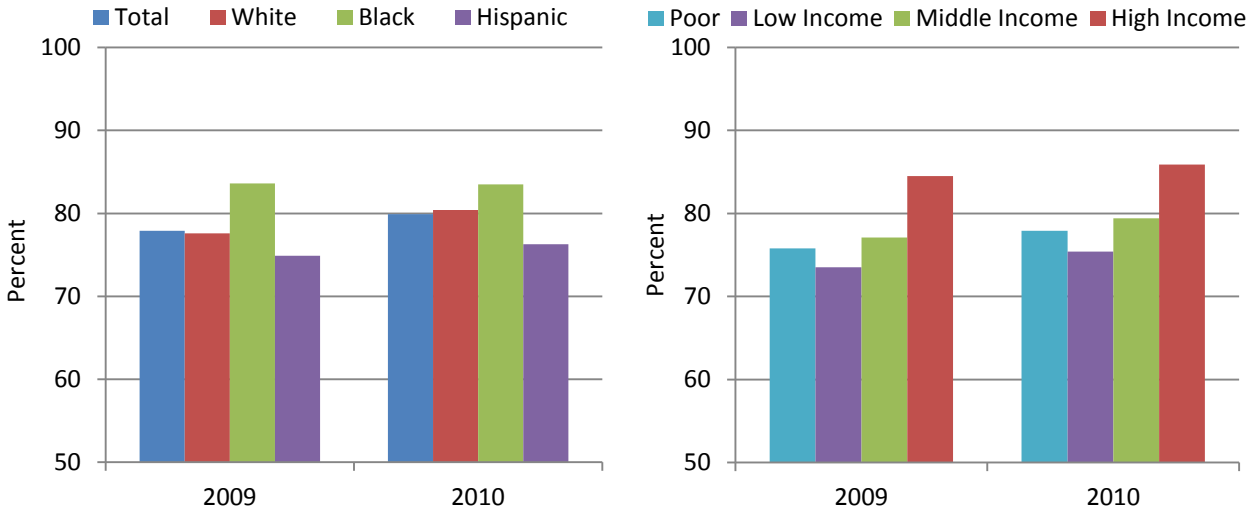
Also, in the NHQR:

- In all years, children ages 3-5 were less likely to have their vision checked than those age 6 years.
- In 5 of the 8 years from 2002 to 2009, children without special health care needs were less likely to have their vision checked than those with such needs.

Prevention: Well Visits by Children in the Last Year

The American Academy of Pediatrics recommends annual preventive health care visits for all children (AAP, 2008). The AAP recommends regular preventive health care visits for children of all ages. Current recommendations are for 7 well child visits prior to 12 months of age; 5 well child visits between 12 and 30 months of age, inclusive; and one well child visit per year from 3 years of age on.

Figure 2.30. Children ages 0-17 years with a well visit in the last 12 months, by race/ethnicity and income, 2009-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009-2010.
Denominator: U.S. civilian noninstitutionalized population ages 0-17.
Note: White and Black are non-Hispanic; Hispanic includes all races.

- In 2010, 79.9% of children ages 0-17 had a wellness checkup in the last 12 months (Figure 2.30).
- In 2009 and 2010, Black children had higher rates of well visits compared with their White counterparts, while Hispanic children had lower rates than White children.
- In both years, children from high-income households were more likely to have well visits than those from poor, low-income, and middle-income households.

Also, in the NHQR:

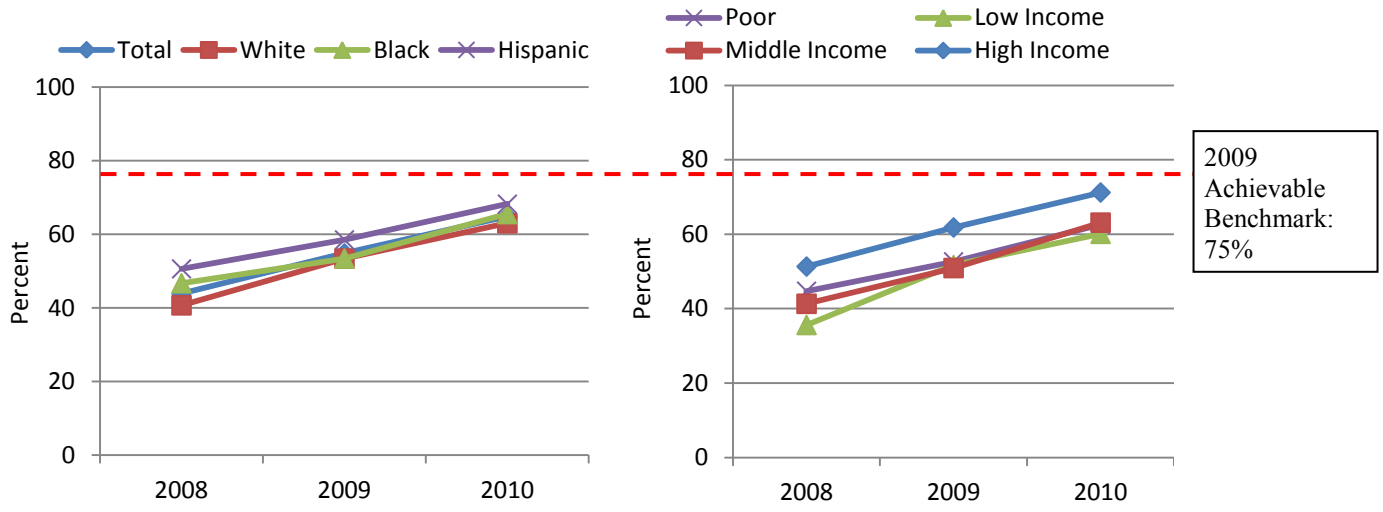
- In both years, children ages 0-5 were more likely to have a well visit than those ages 6-11 and 12-17.
- In both years, children with private insurance were more likely to have a well visit than uninsured children.

Prevention: Receipt of Meningococcal Vaccine by Adolescents

According to the 2010 Census, individuals ages 10-14 years made up 6.7% of the U.S. population while those ages 15-19 years made up 7.1% of the population (U.S. Census Bureau, 2010). Youth in these age groups are at risk of contracting meningitis.

Meningitis is an infection of the membranes that cover the brain and spinal cord. If meningitis is caused by bacteria, it is often life threatening. Meningococcal diseases are infections caused by the bacteria *Neisseria meningitidis*. Although *Neisseria meningitidis* can cause various types of infections, it is most important as a potential cause of meningitis. It can also cause meningococcemia, a serious bloodstream infection. The meningococcal vaccine can prevent most cases of meningitis caused by *Neisseria meningitidis* and is recommended for all children ages 11-12 years. Effective in January 2011, a second dose is recommended at age 16.

Figure 2.31. Adolescents ages 13-15 who ever received at least 1 dose of the meningococcal vaccine, by race/ethnicity and income, 2008-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Immunization and Respiratory Diseases, National Immunization Survey, 2008-2010.
Note: White, Black, and Asian are non-Hispanic; Hispanic includes all races.

- In 2010, 64.8% of adolescents ages 13-15 had ever received at least 1 dose of the meningococcal vaccine (Figure 2.31).
- In 2008 and 2010, Hispanic adolescents were more likely to receive the meningococcal vaccine than White adolescents.
- In all years, adolescents from high-income households were more likely to receive the meningococcal vaccine than those from poor, low-income, and middle-income households.

- The 2009 top 5 State achievable benchmark was 75%.[xxi] At the current rate, most racial/ethnic and income groups could achieve the benchmark in a year.

Also, in the NHQR:

- From 2008 to 2010, there were no statistically significant gender differences among adolescents ages 13-15 who received the meningococcal vaccine.
- In all years, residents of nonmetropolitan areas were less likely to receive the meningococcal vaccine than those living in metropolitan areas.

[xxi] The top 5 States that contributed to the achievable benchmark are the District of Columbia, Massachusetts, New Jersey, North Dakota, and Rhode Island.

Mental Health and Substance Abuse

Importance

Mortality

Number of deaths due to suicide (2010 prelim.)..... 37,793 (Murphy, et al., 2012)
Rank among causes of death in the United States—suicide
(2010 prelim.) ..... 10th (Murphy, et al., 2012)
Alcohol-impaired driving fatalities (2010) .....10,228 (NHTSA, 2010)

Prevalence

People age 12 and over with alcohol and/or illicit drug
dependence or abuse in the past year (2010) .....23.1 million (9.1%) (CBHSQ, 2010)
Children ages 6-17 who had depression or anxiety
in their lifetime (2007-2008 est. based on parent report)..... 3.8 million (7.8%) (Ghandour, 2011)
Youths ages 12-17 with a major depressive episode during
the past year (2010)..... 1.9 million (8.0%) (CBHSQ, 2010)
Adults age 18 and over with a major depressive episode
during the past year (2010) ..... 15.5 million (6.8%) (CBHSQ, 2010)
Adults with at least one major depressive episode in their
lifetime (2006) ..... 30.4 million (13.9%) (CBHSQ, 2007)

Cost

National expenditures for treatment of mental health and
substance abuse disorders (2014 est.) ..... $239 billion (CBHSQ, 2008)
Cost-effectiveness of screening and brief counseling
for problem drinking ..... $0-$14,000/QALY (Maciosek, et al., 2006)

Measures

The NHQR and NHDR track measures of the quality of treatment for major depression and substance abuse. Mental health treatment includes counseling, inpatient care, outpatient care, and prescription medications. This section highlights four measures of mental health and substance abuse treatment:

- Receipt of treatment for depression.
- Suicide deaths.
- Receipt of treatment for illicit drug use or alcohol problem.
- Completion of substance abuse treatment.

Findings

Treatment: Receipt of Treatment for Depression

Treatment for depression can be very effective in reducing symptoms and associated illnesses and returning individuals to a productive lifestyle. The Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study, funded by the National Institute of Mental Health, was the largest clinical trial ever conducted to help determine the most effective treatment strategies for

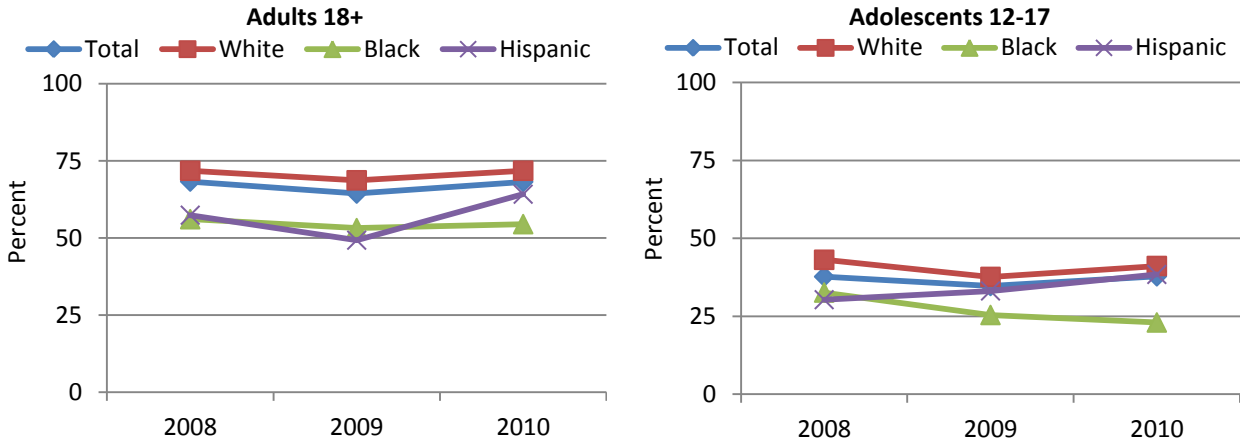
major depressive disorder. It involved both primary care and specialty care settings. Participants included people with complex health conditions, such as multiple concurrent medical and psychiatric conditions.

This study found that between 28% and 33% of participants achieved a symptom-free state after the first round of medication, and nearly 70% achieved remission after 12 months (Insel & Wang, 2009). Strategies for treating depression in primary care settings, such as the collaborative care model, have also been shown to generate positive net social benefits in cost-benefit analyses compared with usual care (Glied, et al., 2010).

Barriers to high-quality mental health care include cost of care, lack of sufficient insurance for mental health services, social stigma, fragmented organization of services, and mistrust of providers. In rural and remote areas, limited availability of skilled care providers is also a major problem. For racial and ethnic populations, these problems are compounded by the lack of culturally and linguistically competent providers.

Barriers can exist for patients across the lifespan. The National Survey of Children's Health (HRSA, 2010) showed that among children with emotional, developmental, or behavioral conditions, 45.6% were receiving needed mental health services, and about half were taking medications. Recent data indicate, however, that service use for mental health is increasing among children (Pfuntner, et al., 2013).

Figure 2.32. Adults (left) and adolescents (right) with a major depressive episode in the past year who received treatment for depression in the past year, by age and race/ethnicity, 2008-2010



Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2008-2010.
Denominator: Adults age 18 and over and adolescents ages 12-17 with a major depressive episode in the past year.
Note: Major depressive episode is defined as a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of the symptoms of depression described in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders*. Treatment for depression is defined as seeing or talking to a medical doctor or other professional or using prescription medication in the past year for depression. White and Black are non-Hispanic; Hispanic includes all races.

- In 2010, only 68% of adults and 38% of adolescents with a major depressive episode received treatment for depression (Figure 2.32).
- In all years, Black adults and adolescents were less likely to receive treatment for depression than White adults and adolescents.

Also, in the NHQR:

- In all years, adult males were less likely than adult females to receive treatment for depression. In 2009 and 2010, adolescent males were less likely than adolescent females to receive treatment for depression.

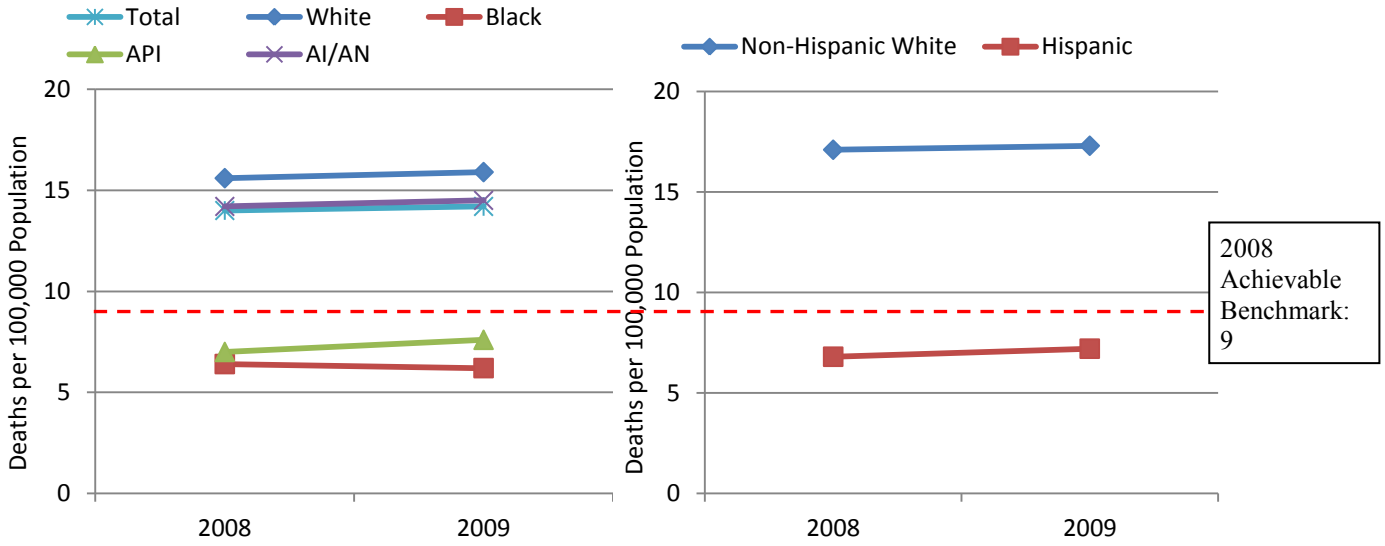
New

Outcome: Suicide Deaths

Most individuals who die by suicide have mental illnesses, such as depression or schizophrenia, or have substance abuse problems (Moscicki, 2001). Suicide may be prevented when its warning signs are detected and treated. A previous suicide attempt is among the strongest predictors of subsequent suicide. Cognitive-behavioral therapy can significantly help those who have attempted suicide consider alternative actions when thoughts of self-harm arise and may reduce suicide attempts (Tarrier, et al., 2008).

Previous reports tracked suicide death for all ages. Beginning with 2008 and 2009 data shown in the 2012 reports, we track suicide death among people age 12 and over.

Figure 2.33. Suicide deaths per 100,000 population, by race and ethnicity, 2008-2009



Key: API = Asian and Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2008-2009.
Denominator: U.S. population age 12 and over.
Note: For this measure, lower rates are better. Estimates are age adjusted to the 2000 U.S. standard population.

- In 2009, the overall suicide death rate was 14.2 per 100,000 population age 12 and over (Figure 2.33).
- In both years, Blacks, APIs, and AI/ANs had lower suicide death rates than Whites, and Hispanics had lower suicide death rates than non-Hispanic Whites.

- The 2008 top 5 State achievable benchmark was 9 suicide deaths per 100,000 population.[xxii] Data are insufficient to assess progress toward the benchmark.

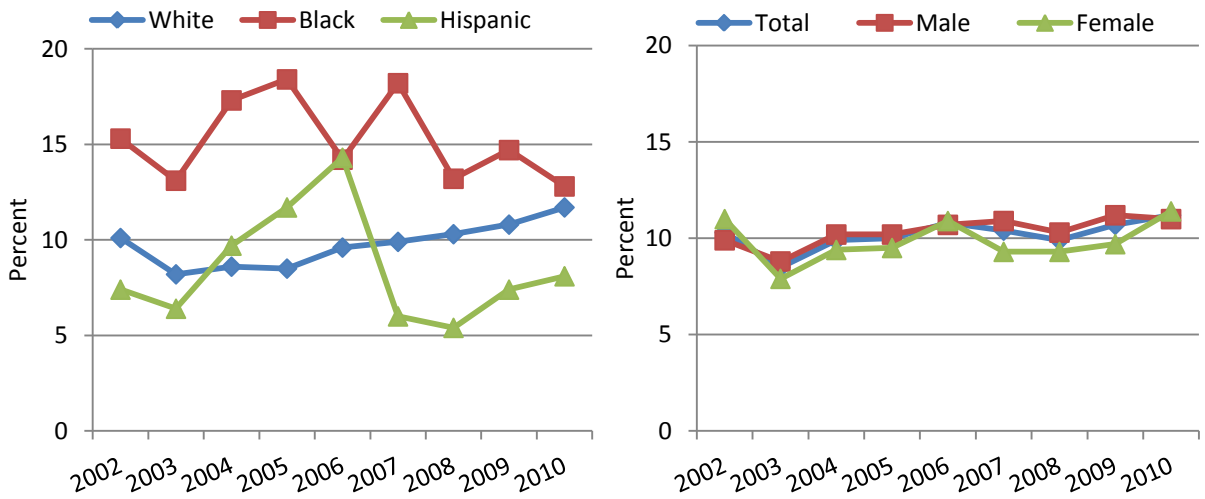
Also, in the NHQR:

- In 2008 and 2009, adolescents ages 12-17 had lower suicide death rates than adults ages 18-44 and adults ages 45-64 had higher suicide death rates than adults ages 18-44.
- In both years, residents of medium and small metropolitan areas, micropolitan areas, and noncore areas had higher suicide death rates than residents of large fringe metropolitan areas (suburbs).

Treatment: Receipt of Treatment for Illicit Drug Use or Alcohol Problem

Illicit drug[xxiii] use is a medical problem that can have a direct toxic effect on a number of bodily organs and exacerbate numerous health and mental health conditions. Alcohol problems also can lead to serious health risks. Heavy drinking can increase the risk of certain cancers and cause damage to the liver, brain, and other organs. In addition, alcohol can cause birth defects, including fetal alcohol spectrum disorders. Alcoholism and illicit drug use increase the risk of death from car crashes and other injuries (Ringold, et al., 2006). Illicit drug use and alcohol problems can be effectively treated at specialty facilities.

Figure 2.34. People age 12 and over who needed treatment for illicit drug use or an alcohol problem and who received such treatment at a specialty facility in the last 12 months, by race/ethnicity and gender, 2002-2010



Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2002-2010.
Denominator: Civilian noninstitutionalized population age 12 and over who needed treatment for illicit drug use or an alcohol problem.

[xxii] The top 5 States that contributed to the achievable benchmark are Connecticut, District of Columbia, Massachusetts, New Jersey, and New York.
[xxiii] Illicit drugs included in this measure are marijuana/hashish, cocaine (including crack), inhalants (e.g., inhalation of various substances other than for intended use, such as toluene), hallucinogens, heroin, and prescription-type psychotherapeutic drugs (nonmedical use).

Note: Treatment refers to treatment at a specialty facility, such as a drug and alcohol inpatient and/or outpatient rehabilitation facility, inpatient hospital setting, or a mental health center. White and Black are non-Hispanic; Hispanic includes all races.

- In 2010, only 11% of people age 12 and over who needed treatment for illicit drug use or an alcohol problem received such treatment at a specialty facility in the last 12 months (Figure 2.34).
- From 2002 to 2007, Blacks were more likely to receive needed treatment for illicit drug use or an alcohol problem than Whites.
- Since 2007, Hispanics have been less likely to receive treatment than Whites.

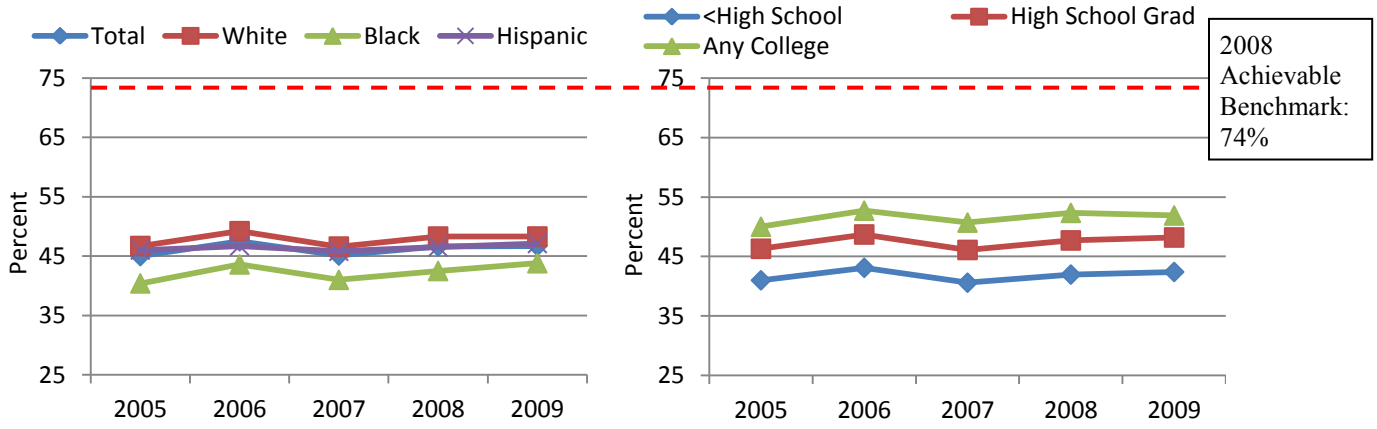
Also, in the NHQR:

- In all years, people with any college education were less likely to receive needed treatment for illicit drug use or an alcohol problem than high school graduates and people with less than a high school education.

Treatment: Completion of Substance Abuse Treatment

Completion of substance abuse treatment is strongly associated with improved outcomes, such as long-term abstinence from substance use. Dropout from treatment often leads to relapse and return to substance use.

Figure 2.35. People age 12 and over treated for substance abuse who completed treatment course, by race/ethnicity and education, 2005-2009



Source: Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set, Discharge Data Set, 2005-2009.
Denominator: Discharges age 12 and over from publicly funded substance abuse treatment facilities.
Note: White and Black are non-Hispanic; Hispanic includes all races.

- From 2005 to 2009, there were no statistically significant changes in the overall percentage of people age 12 and over treated for substance abuse who completed the treatment course (Figure 2.35).
- Except in 2009, Blacks who were treated for substance abuse were significantly less likely than Whites to complete treatment.
- In all years, people with less than a high school education treated for substance abuse were less likely than people with any college education to complete treatment.

- The 2008 top 5 State achievable benchmark was 74%.[xxiv] Only Blacks showed progress toward the benchmark but would not reach it for more than 50 years.

Also, in the NHQR:

- In all years, people ages 12-19 and 20-39 were less likely than those age 40 and over and females were less likely than males to complete substance abuse treatment.

[xxiv] The top 5 States that contributed to the achievable benchmark are Colorado, Connecticut, District of Columbia, Mississippi, and Texas.

Musculoskeletal Diseases

Importance

Prevalence

People who have arthritis, gout, lupus, or fibromyalgia (2007-2009) ..... 50 million (22% of U.S. adults) (MMWR, 2010a)
Number of people with low bone density ..... 52 million (Crandall, et al., 2012)

Morbidity

Activity limitations attributable to arthritis, gout, lupus, or fibromyalgia (2007-2009) ..... 21 million (MMWR, 2010a)
Lifetime osteoporosis-related fractures among women over age 50 ..... approx. 50% (NOF)
Lifetime osteoporosis-related fractures among men over age 50 ..... approx. 25% (NOF)

Cost

Total cost of arthritis and other rheumatic conditions (2003) ..... $128 billion (MMWR, 2007)
Direct medical cost of arthritis and other rheumatic conditions (2003) ..... $81 billion (MMWR, 2007)
Indirect costs of arthritis and other rheumatic conditions (2003) ..... $47 billion (MMWR, 2007)
Total cost of osteoporosis-related fractures (2005) ..... $19 billion (NOF)

Measures

This section tracks several quality measures for prevention and management of musculoskeletal diseases. The arthritis measures are part of the Arthritis Foundation's Quality Indicator Set for Osteoarthritis. A multidisciplinary panel of experts on arthritis and pain reviewed scientific evidence to help develop the Quality Indicator Set (Pencharz & MacLean, 2004). The measures were tracked as part of Healthy People 2010 and continue to be tracked in Healthy People 2020. Osteoporosis measures are usually tracked in this section, but no new data are available for this year's reports.

This section highlights three measures related to quality of care for arthritis:

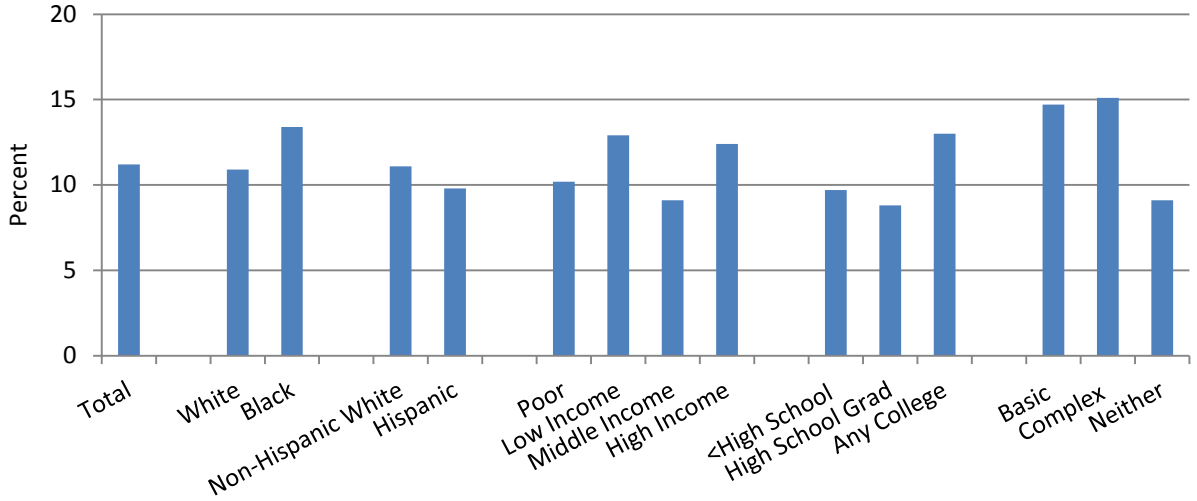
- Arthritis education for adults with arthritis.
- Counseling about physical activity for adults with arthritis.
- Counseling about weight reduction for overweight adults with arthritis.

Findings

Management: Arthritis Education for Adults With Arthritis

Osteoarthritis is the most common form of arthritis, affecting about 12% of the general population. Patients with symptomatic osteoarthritis who receive education about the natural history, treatment, and self-management of the disease have better knowledge and self-efficacy and experience less pain and functional impairment (Pencharz & MacLean, 2004).

Figure 2.36. Adults with doctor-diagnosed arthritis who reported they had effective, evidence-based arthritis education as an integral part of the management of their condition, by race, ethnicity, income, education, and activity limitation, 2009



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009.
Denominator: Civilian noninstitutionalized adults with doctor-diagnosed arthritis.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Hispanic includes all races. People were considered to have doctor-diagnosed arthritis if they answered yes to "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?"

- In 2009, only 11% of adults with doctor-diagnosed arthritis received effective, evidence-based arthritis education (Figure 2.36).
- High school graduates were less likely than adults with any college education to receive arthritis education.
- Adults with basic or complex activity limitations were more likely than adults without such limitations to receive arthritis education.

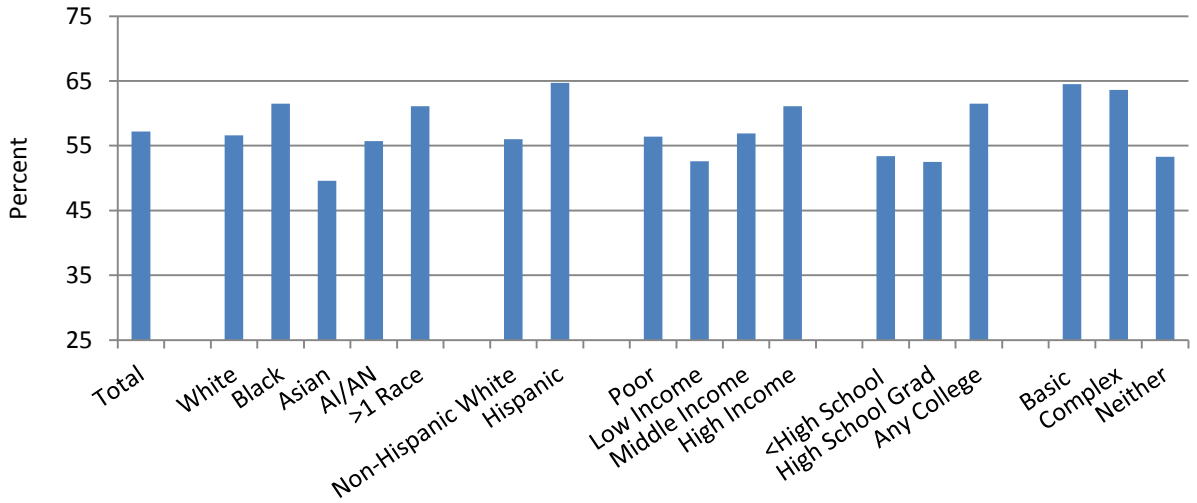
Also, in the NHQR:

- Adults age 65 and over were less likely to receive arthritis education than adults ages 45-64, and men were less likely to receive arthritis education than women.

Management: Counseling About Physical Activity for Adults With Arthritis

Patients with symptomatic osteoarthritis should also receive counseling about muscle strengthening and aerobic exercise programs. Such programs can reduce pain and improve functional ability (Pencharz & MacLean, 2004).

Figure 2.37. Adults with doctor-diagnosed arthritis who reported they received health care provider counseling about physical activity or exercise, by race, ethnicity, income, education, and activity limitation, 2009



Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009.
Denominator: Civilian noninstitutionalized adults with doctor-diagnosed arthritis.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Hispanic includes all races. People were considered to have doctor-diagnosed arthritis if they answered yes to "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?"

- In 2009, 57.2% of adults with doctor-diagnosed arthritis received health care provider counseling about physical activity or exercise (Figure 2.37).
- Hispanics were more likely than non-Hispanic Whites to receive exercise counseling.
- Low-income adults were less likely to receive exercise counseling than high-income adults.
- Adults with less than a high school education and high school graduates were less likely to receive exercise counseling than adults with any college education.
- Adults with basic or complex activity limitations were more likely than adults without such limitations to receive exercise counseling.

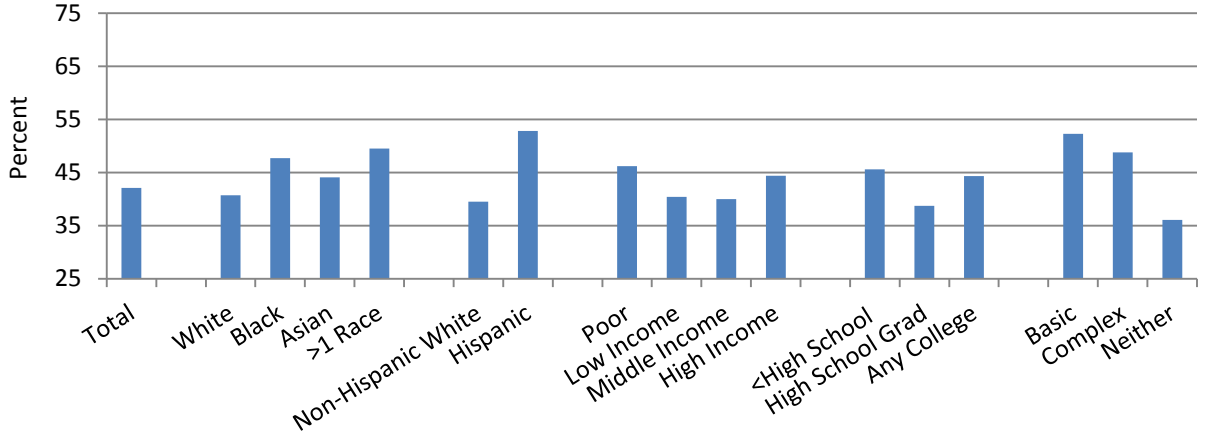
Also, in the NHQR:

- Men were less likely to receive exercise counseling than women and residents of noncore areas were less likely to receive exercise counseling than residents of large fringe metropolitan areas (suburbs).

Management: Counseling About Weight Reduction for Overweight Adults With Arthritis

Weight is a risk factor for osteoarthritis, and weight reduction can be used to prevent the development of osteoarthritis among overweight people. Moreover, overweight people with osteoarthritis who lose weight experience less joint pain and improved function (Pencharz & MacLean, 2004).

Figure 2.38. Overweight adults with doctor-diagnosed arthritis who reported they received health care provider counseling about weight reduction, by race, ethnicity, income, education, and activity limitation, 2009



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2009.
Denominator: Civilian noninstitutionalized overweight adults with doctor-diagnosed arthritis.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Hispanic includes all races. People were considered to have doctor-diagnosed arthritis if they answered yes to "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?"

- In 2009, only 42% of overweight adults with doctor-diagnosed arthritis received health care provider counseling about weight reduction (Figure 2.38).
- Overweight Blacks were more likely than Whites and overweight Hispanics were more likely than non-Hispanic Whites to receive weight reduction counseling.
- High school graduates were less likely to receive weight reduction counseling than adults with any college education.
- Overweight adults with basic or complex activity limitations were more likely than adults without such limitations to receive weight reduction counseling.

Also, in the NHQR:

- Overweight adults age 65 and over were less likely to receive weight reduction counseling than adults ages 45-64, and overweight men were less likely than overweight women to receive weight reduction counseling.

Respiratory Diseases

Importance

Mortality

Number of deaths due to chronic lower respiratory diseases
(2010 prelim.) ..... 137,789 (Murphy, et al., 2012)
Number of deaths, influenza and pneumonia combined (2010)..... 50,003 (Murphy, et al., 2012)
Cause of death rank for chronic lower respiratory diseases (2010)..... 3rd (Murphy, et al., 2012)
Cause of death rank for influenza and pneumonia combined
(2010 prelim.) ..... 9th (Murphy, et al., 2012)

Prevalence

Adults age 18 and over with current asthma (2011)..... 18.7 million (Schiller, et al., 2012)
Children under age 18 with current asthma (2010) .....7.0 million (Bloom, et al., 2011)

Incidence

Number of discharges attributable to pneumonia (2009) .....1.2 million (Wier, et al., 2011)
New cases of tuberculosis (2011) .....10,521 (MMWR, 2012a)

Cost

Total cost of upper respiratory infections (annual est.) ..... $40 billion (Fendrick, et al., 2003)
Total cost of asthma (2007) .....$56 billion (Barnett & Nurmagambetov, 2011)
Cost-effectiveness of influenza immunization
(2006).....$0-$14,000/QALY (Maciosek, et al., 2006)

Measures

The NHQR and NHDR track several quality measures for prevention and treatment of this broad category of illnesses that includes pneumonia, tuberculosis, and asthma. The five measures highlighted in this section are:

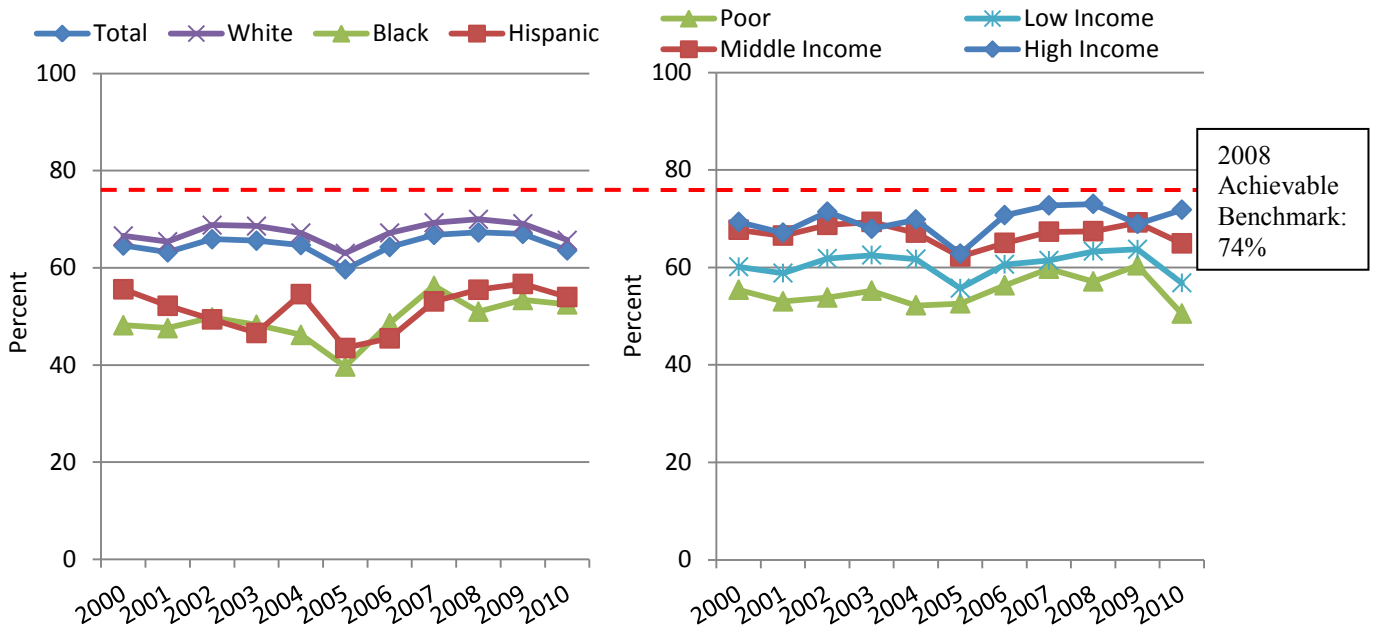
- Influenza vaccination.
- Receipt of recommended care for pneumonia.
- Completion of tuberculosis therapy.
- Daily asthma medication.
- Written asthma management plan.

Findings

Prevention: Influenza Vaccination

Vaccination is a cost-effective strategy for reducing illness, death, and disparities associated with pneumonia and influenza.

Figure 2.39. Adults age 65 and over who reported having influenza vaccination in the past 12 months, by race/ethnicity and income, 2000-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2000-2010.
Denominator: Civilian noninstitutionalized population age 65 and over.
Note: Age adjusted to the 2000 U.S. standard population. Benchmark is derived from the Behavioral Risk Factor Surveillance System; see Chapter 1, Introduction and Methods, for details. White and Black are non-Hispanic; Hispanic includes all races.

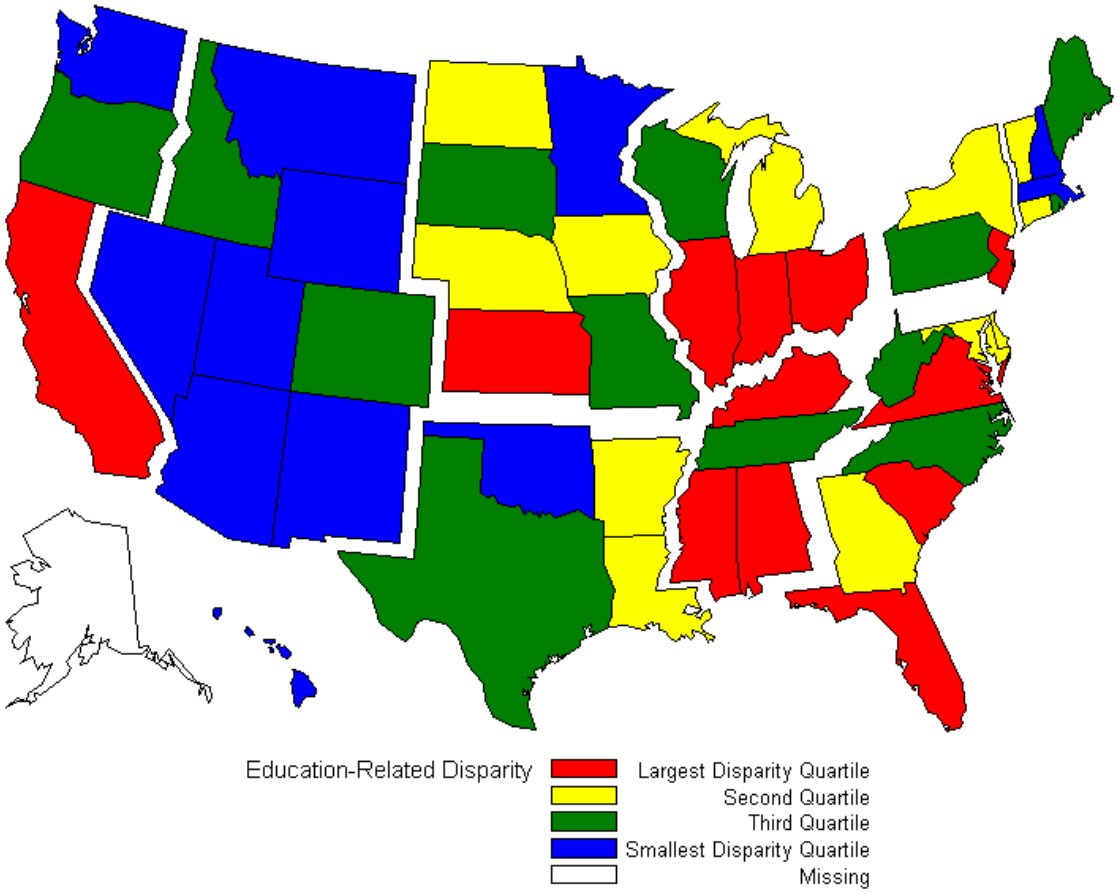
- Overall, the percentage of adults age 65 and over who reported having influenza vaccination in the past 12 months did not change between 2000 and 2010 (Figure 2.39). Only Blacks showed significant improvement over time.
- In all years, Blacks and Hispanics were less likely than Whites to have influenza vaccination.
- In all years, poor and low-income adults were less likely than high-income adults to have influenza vaccination.
- The 2008 top 5 State achievable benchmark was 74%.[xxv] Only Blacks showed progress toward the benchmark but could not achieve it for 35 years.

Also, in the NHQR:

- In all years, adults with Medicare only were less likely than adults with Medicare and private supplemental health insurance to have influenza vaccination.
- In all years, adults with less than a high school education were less likely than adults with any college education to have influenza vaccination.

[xxv] The top 5 States that contributed to the achievable benchmark are Colorado, Hawaii, Iowa, Minnesota, and New Hampshire.

Figure 2.40. State variation in disparities related to education: Adults age 65 and over who reported having influenza vaccination in the past 12 months, 2010



Key: Largest Disparity Quartile identifies States with the largest relative differences in rates of influenza vaccination between adults with less than a high school education and adults who graduated from college; Smallest Disparity Quartile identifies States with the smallest relative differences in rates of influenza vaccination between adults with less than a high school education and adults who graduated from college.
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2010.

- The States in the lowest quality quartile had influenza vaccination rates under 65.5% while the States in the highest quality quartile had vaccination rates over 70.1% (see NHQR).
- States in the East North Central, South Atlantic, and East South Central census divisions tended to have larger education-related disparities in influenza vaccination while States in the New England, Mountain, and Pacific census divisions tended to have smaller education-related disparities in influenza vaccination (Figure 2.40).

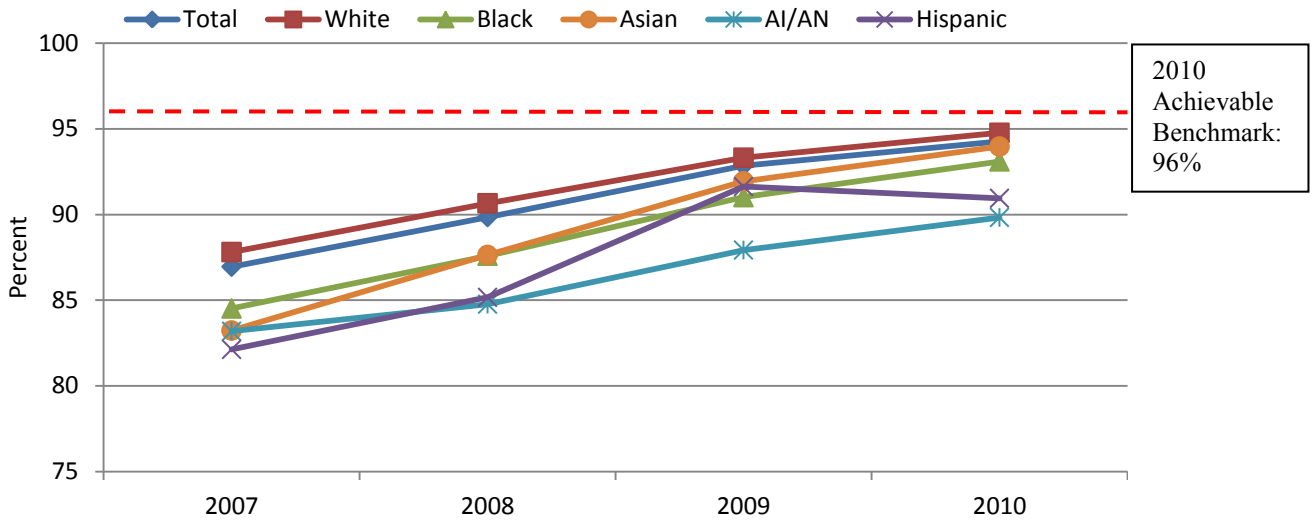
Also, in the NHQR:

- States in the East South Central, West South Central, Mountain, and Pacific census divisions tended to have lower rates of influenza vaccination.

Treatment: Receipt of Recommended Care for Pneumonia

CMS tracks a set of measures for quality of pneumonia care for hospitalized patients. This set of measures was adopted by the Hospital Quality Alliance. Recommended care for patients with pneumonia was measured by receipt of (1) initial antibiotics within 6 hours of hospital arrival, (2) antibiotics consistent with current recommendations, (3) blood culture before antibiotics are administered, (4) influenza vaccination status assessment or provision, and (5) pneumococcal vaccination status assessment or provision. An opportunities model composite of these five measures is presented here.

Figure 2.41. Hospital patients with pneumonia who received recommended hospital care, by race/ethnicity, 2007-2010



Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2007-2010.
Denominator: Patients hospitalized with a principal discharge diagnosis of pneumonia or a principal discharge diagnosis of either septicemia or respiratory failure and secondary diagnosis of pneumonia.
Note: White, Black, AI/AN, and Asian are non-Hispanic; Hispanic includes all races. Recommended care includes initial antibiotics within 6 hours of hospital arrival, antibiotics consistent with current recommendations, blood culture before antibiotics are administered, influenza vaccination status assessment or provision, and pneumococcal vaccination status assessment or provision.

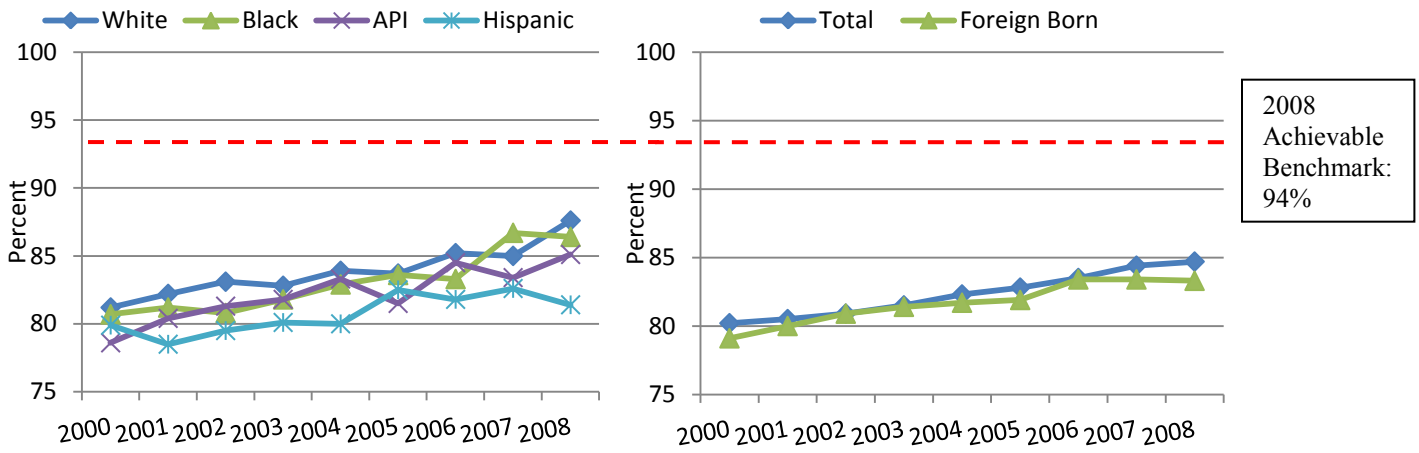
- In 2010, the 2008 top 5 State achievable benchmark of 94% was attained (Figure 2.41). Improvements were observed among all racial/ethnic groups.
- In all years, the percentage of patients with pneumonia who received recommended hospital care was significantly lower for Blacks, Asians, AI/ANs, and Hispanics compared with Whites.
- In 2010, the new top 5 State achievable benchmark was 96%.[xxvi] Whites, Blacks, and Asians were within 1 year of the benchmark. Hispanics would need 2 years and AI/ANs 3 years to achieve the benchmark.

[xxvi] The top 5 States that contributed to the achievable benchmark are Florida, Maine, New Hampshire, New Jersey, and Vermont.

Outcome: Completion of Tuberculosis Therapy

Failure to complete tuberculosis therapy puts patients at increased risk for treatment failure and for spreading the infection to others. Even worse, it may result in the development of drug-resistant strains of tuberculosis.

Figure 2.42. Patients with tuberculosis who completed a curative course of treatment within 1 year of initiation of treatment, by race/ethnicity and place of birth, 2000-2008



Key: API = Asian or Pacific Islander.
Source: Centers for Disease Control and Prevention, National Tuberculosis Surveillance System, 2000-2008.
Denominator: U.S. civilian noninstitutionalized population treated for tuberculosis.
Note: White, Black, and API are non-Hispanic; Hispanic includes all races.

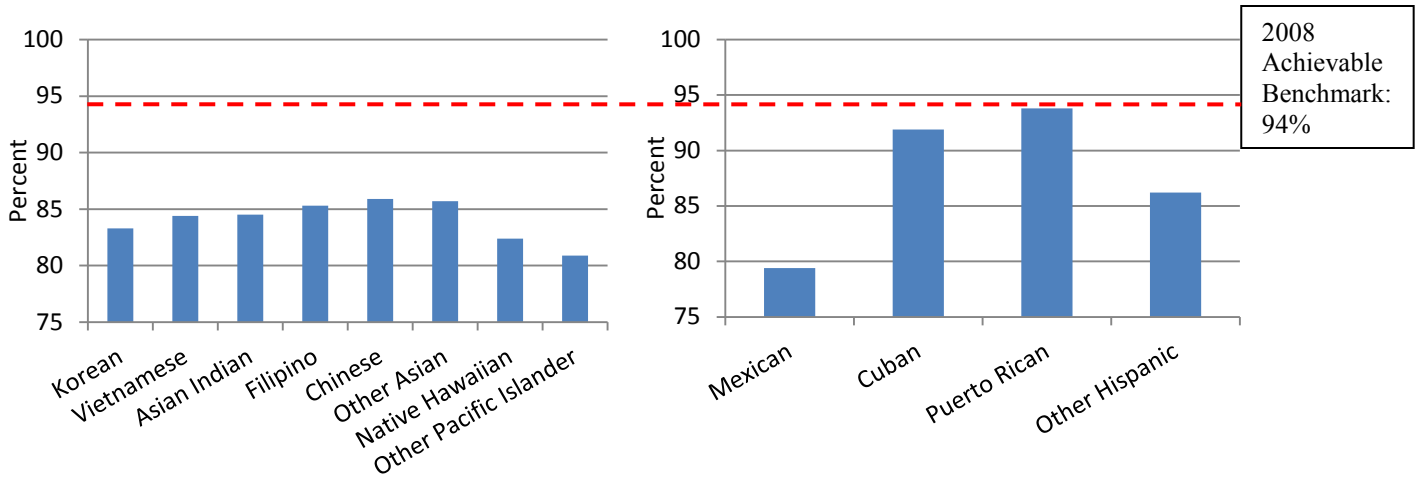
- The percentage of patients who completed tuberculosis therapy within 1 year increased from 80.2% in 2000 to 84.7% in 2008 (Figure 2.42). Improvements were observed among foreign-born patients and among all racial/ethnic groups.
- In 7 of 9 years, Hispanics were less likely than Whites to complete tuberculosis treatment.
- The 2008 top 4 State achievable benchmark was 94%.[xxvii] At the current annual rate of increase, this benchmark could not be attained overall for about 15 years. Whites, Blacks, and APIs could achieve the benchmark sooner while Hispanics would need about 29 years. Foreign-born people would need about 19 years.

Also, in the NHQR:

- In all years, children ages 0-17 with tuberculosis were more likely than adults ages 18-44 to complete a curative course of treatment within 1 year of initiation of treatment.
- Since 2004, males have been less likely than females to complete tuberculosis treatment.

[xxvii] The top 4 States that contributed to the achievable benchmark are Colorado, Kansas, Mississippi, and Oregon.

Figure 2.43. Patients with tuberculosis who completed a curative course of treatment within 1 year of initiation of treatment, by Asian and Pacific Islander and Hispanic granular ethnicities, 2008



Source: Centers for Disease Control and Prevention, National Tuberculosis Surveillance System, 2008.
Denominator: U.S. civilian noninstitutionalized population treated for tuberculosis.

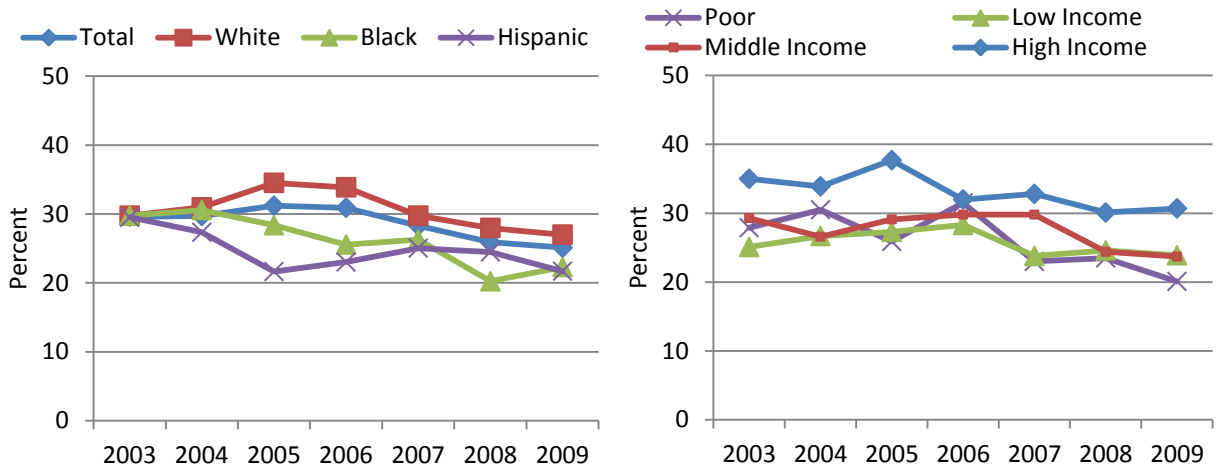
- There is considerable variation in completion of treatment for tuberculosis among API granular ethnicities and among Hispanic granular ethnicities (Figure 2.43).
- Most groups are far from the 2008 top 4 State achievable benchmark of 94%.

Management: Daily Asthma Medication

Improving quality of care for people with asthma can reduce the occurrence of asthma attacks and avoidable hospitalizations. The National Asthma Education and Prevention Program, coordinated by the National Heart, Lung, and Blood Institute, develops and disseminates science-based guidelines for asthma diagnosis and management (NHLBI, 2007). These recommendations are built around four essential components of asthma management critical for effective long-term control of asthma: assessment and monitoring, control of factors contributing to symptom exacerbation, pharmacotherapy, and education for partnership in care.

While not all patients with asthma need to take medications, patients with persistent asthma need daily long-term controller medication to prevent exacerbations and chronic symptoms. Preventive medications for people with persistent asthma include inhaled corticosteroids, inhaled long-acting beta-2-agonists, cromolyn, theophylline, and leukotriene modifiers.

Figure 2.44. People with current asthma who report taking preventive asthma medicine daily or almost daily, by race/ethnicity and income, 2003-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2003-2009.
Denominator: Civilian noninstitutionalized population with current asthma.
Note: Age adjusted to the 2000 U.S. standard population**.** People with current asthma reported that they still had asthma or had an asthma attack in the last 12 months. White and Black are non-Hispanic; Hispanic includes all races.

- From 2003 to 2009, the percentage of people with current asthma who reported taking preventive asthma medicine daily or almost daily fell from 29.6% to 25.1% (Figure 2.44). Decreases were observed among all racial/ethnic and income groups.
- In 4 of 7 years, Blacks were less likely to take daily preventive asthma medicine than Whites.
- In 4 of 7 years, poor and low-income people were less likely to take daily preventive asthma medicine than high-income people.

Also, in the NHQR:

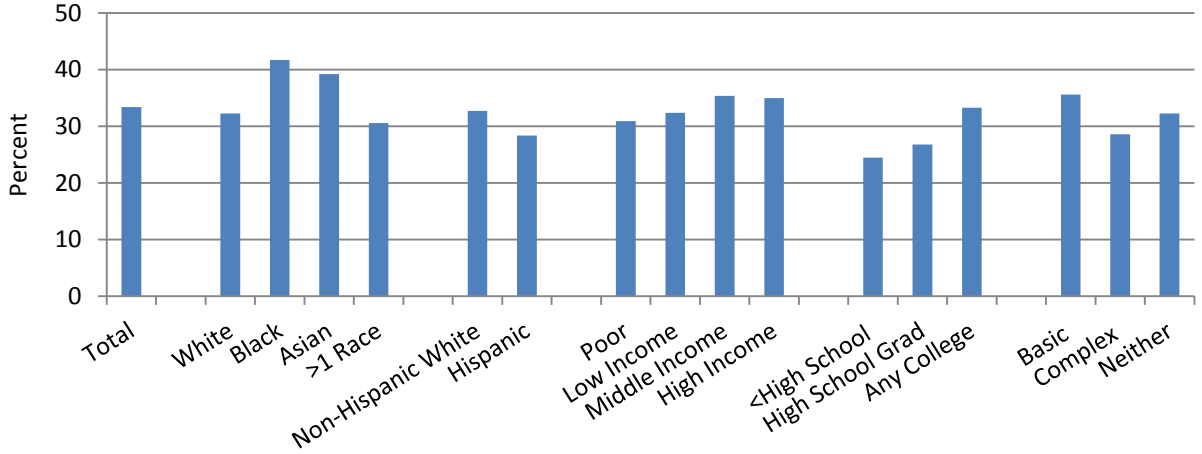
- From 2003 to 2009, people ages 18-44 were less likely than other age groups to take daily preventive asthma medicine.
- In all years, uninsured people under age 65 were less likely than people under age 65 with any private health insurance to take daily preventive asthma medicine.

New

Management: Written Asthma Management Plan

A successful partnership for asthma care requires providers to educate patients about daily management and how to recognize and handle worsening asthma. Hence, providers should develop a written asthma management plan as part of educating patients regarding self-management, especially for patients with moderate or severe persistent asthma and those with a history of severe exacerbation.

Figure 2.45. People with current asthma who received a written asthma management plan from their health provider, by race, ethnicity, income, education, and activity limitation, 2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2008.
Denominator: Civilian noninstitutionalized population with current asthma.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Hispanic includes all races.

- In 2008, only one-third of people with current asthma received a written asthma management plan from their provider (Figure 2.45).
- Blacks were more likely than Whites to receive a written asthma management plan.
- People with any college education were more likely than people with less than a high school education to receive a written asthma management plan.

Also, in the NHQR:

- Among people under age 65, those who were uninsured were less likely to receive a written asthma management plan than those who had private health insurance.
- Among people age 65 and over, those who had Medicare and private insurance were less likely to receive a written asthma management plan than those who had Medicare and other public insurance or Medicare only.
- Residents of micropolitan and noncore areas were less likely to receive a written asthma management plan than residents of large fringe metropolitan areas (suburbs).

Lifestyle Modification

Importance

Mortality

Number of deaths per year attributable to smoking (2000-2004)..... 443,000 (MMWR, 2011b)

Prevalence

Number of adult current cigarette smokers (2010).....45.3 million (MMWR, 2011b)
Number of obese adults (2009-2010) .....78 million (Ogden, et al., 2012)
Number of obese children (2009-2010).....12.5 million (Ogden, et al., 2012)
Percentage of adults with no leisure-time physical activity (2005)..... 40% (Barnes, 2010)
Percentage of adults who are obese (2009-2010) .....35.7% (Fryar, et al., 2012b)
Percentage of children who are obese (2009-2010)..... 16.9% (Fryar, et al., 2012a)

Cost

Total cost of smoking (2000-2004 est.) .....$193 billion (MMWR, 20011b)
Total health care cost related to obesity (2008 est.).....$147 billion (MMWR, 2010b)

Measures

Unhealthy behaviors place many Americans at risk for a variety of diseases. Lifestyle practices account for more than 40% of the differences in health among individuals (Satcher & Higginbotham, 2008). A recent study examined the effects on incidence of coronary heart disease (CHD), stroke, diabetes, and cancer of four healthy lifestyles:

- Never smoking,
- Not being obese,
- Engaging in at least 3.5 hours of physical activity per week, and
- Eating a healthy diet (higher consumption of fruits, vegetables, and whole grain bread and lower consumption of red meat).

Engaging in one healthy lifestyle compared with none cut the risk of developing these diseases in half while engaging in all four cut risk by 78%. Unfortunately, healthy lifestyle practices have declined over the past two decades (Ford, et al., 2009).

Helping patients choose and maintain healthy lifestyles is a critical role of health care professionals. This year, the Lifestyle Modification section includes measures for both adults and children. Whenever children are mentioned in the section, the report is actually referencing the parents or guardians who were interviewed on behalf of the children.

The NHDR tracks several quality measures for modifying unhealthy lifestyles, including the following eight core report measures:

- Counseling smokers to quit smoking.
- Obese adults told by a doctor that they were overweight.
- Obese children and teens told by a doctor that they were obese.

- Counseling obese adults about exercise.
- Obese adults who do not exercise.
- Counseling for children about physical activity.
- Counseling obese adults about healthy eating.
- Counseling for children about healthy eating.

Findings

Prevention: Counseling Smokers To Quit Smoking

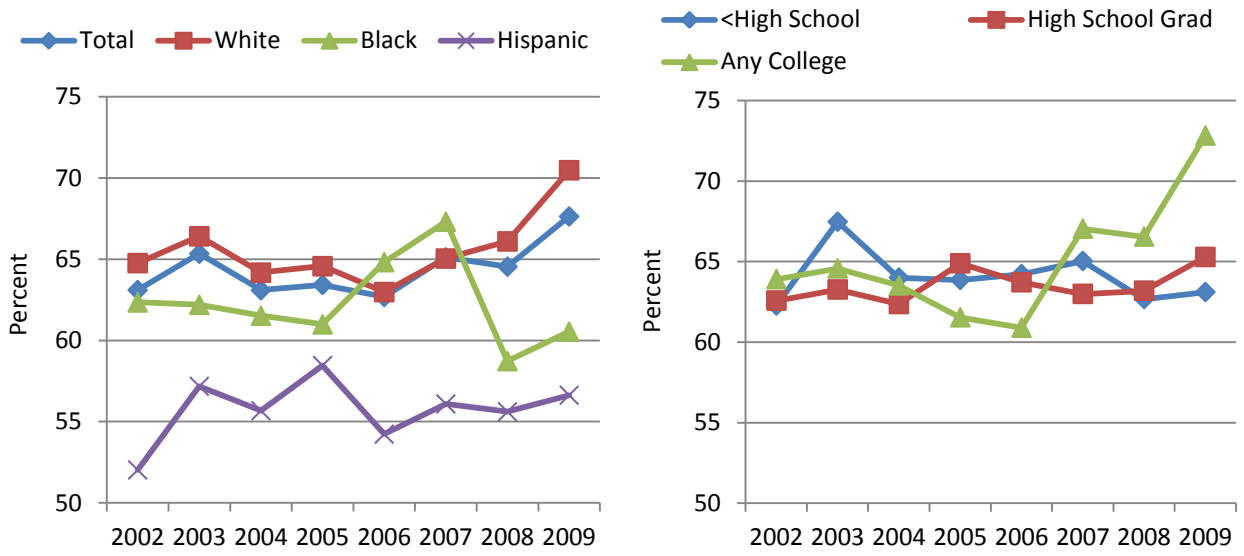
Smoking harms nearly every organ of the body and causes or exacerbates many diseases. Smoking causes more than 80% of deaths from lung cancer and more than 90% of deaths from chronic obstructive pulmonary disease (MMWR, 2008). Cigarette smoking increases the risk of dying from CHD two- to threefold (MMWR, 2008).

Quitting smoking has immediate and long-term health benefits. The risk of a heart attack and death from CHD is reduced by 50% in the first year after smoking cessation. The risk of mortality declines most rapidly in the first 3 years after smoking cessation, taking about 3 to 5 years of abstaining from smoking for cardiovascular risk to disappear (OSH, 2010).

Smoking is a modifiable risk factor, and health care providers can help encourage patients to change their behavior and quit smoking. The 2008 update of the Public Health Service Clinical Practice Guideline *Treating Tobacco Use and Dependence* concludes that counseling and medication are both effective tools alone, but the combination of the two methods is more effective in increasing smoking cessation.[xxviii]

[xxviii] More information about the 2008 Public Health Service Clinical Practice Guideline *Treating Tobacco Use and Dependence* can be found at www.ahrq.gov/clinic/tobacco/treating_tobacco_use08.pdf.

Figure 2.46. Adult current smokers with a checkup in the last 12 months who received advice from a doctor to quit smoking, by race/ethnicity and education 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized adult current smokers who had a checkup in the last 12 months.
Note: Estimates are age adjusted to the 2000 U.S. standard population using three age groups: 18-44, 45-64, and 65 and over. White and Black are non-Hispanic. Hispanic includes all races.

- Overall, in 2009, 67.6%% of adult current smokers received advice to quit smoking (Figure 2.46).
- In 6 of 8 years, White adult current smokers were more likely to receive advice to quit smoking than Hispanic adult current smokers.
- From 2002 to 2009, the percentage of adults with any college education who were advised to quit smoking increased (from 63.9% to 72.8%).
- In 7 of 8 years, there were no statistically significant differences by education among adult current smokers who were advised to quit smoking, except in 2009, when those with any college education were more likely to receive advice than those with less than a high school education and high school graduates.

Also, in the NHQR:

- From 2002 to 2009, there were no statistically significant differences between male and female adult current smokers who were advised to quit smoking.
- In all years, adult current smokers with private insurance were more likely than those without insurance to receive advice to quit smoking.

Prevention: Counseling About Exercise

Approximately one-third of adults are obese and about 17% of children and adolescents ages 2-19 are obese (CDC, 2011d). A larger proportion of individuals are overweight or obese among lower educated groups, Blacks, and Mexican Americans than among other racial, ethnic, and socioeconomic groups. Although women have lower body mass indexes than men, they gain weight faster, putting them at risk of disease (Truong & Sturm, 2005). Obesity increases the risk for many chronic, often deadly conditions, such as hypertension, cancer, diabetes, and CHD.

Physician-based exercise and diet counseling is an important component of effective weight loss interventions. Such interventions have been shown to increase levels of physical activity among sedentary patients, resulting in a sustained favorable body weight and body composition (Lin, et al., 2010). Although every obese person may not need counseling about exercise and diet, many would likely benefit from improvements in these activities.

Regular exercise and a healthy diet aid in maintaining normal blood cholesterol levels, weight, and blood pressure, reducing the risk of heart disease, stroke, diabetes, and other comorbidities of obesity. Populations at risk for overweight and obesity may not receive adequate advice about lifestyle changes for many reasons. For instance, access to information, including physician knowledge of the latest recommendations, may be limited. The 2008 Physical Activity Guidelines for Americans recommend that adults engage in 2 hours and 30 minutes a week of moderate-intensity physical activity or 1 hour and 15 minutes a week of vigorous-intensity aerobic physical activity.[xxix]

In addition to physician-based exercise and diet counseling, many national endeavors encourage lifestyle modification. For example, the President's Challenge is a program of the President's Council on Fitness, Sports, and Nutrition that promotes an active and fit lifestyle through a suite of recognition programs available to anyone age 6 and over. The Coordinated Approach to Child Health (CATCH) is a successful evidence-based program that promotes physical activity and healthy food choices, which has been implemented in many schools and afterschool organizations nationwide and in Canada, benefiting many children.[xxx]

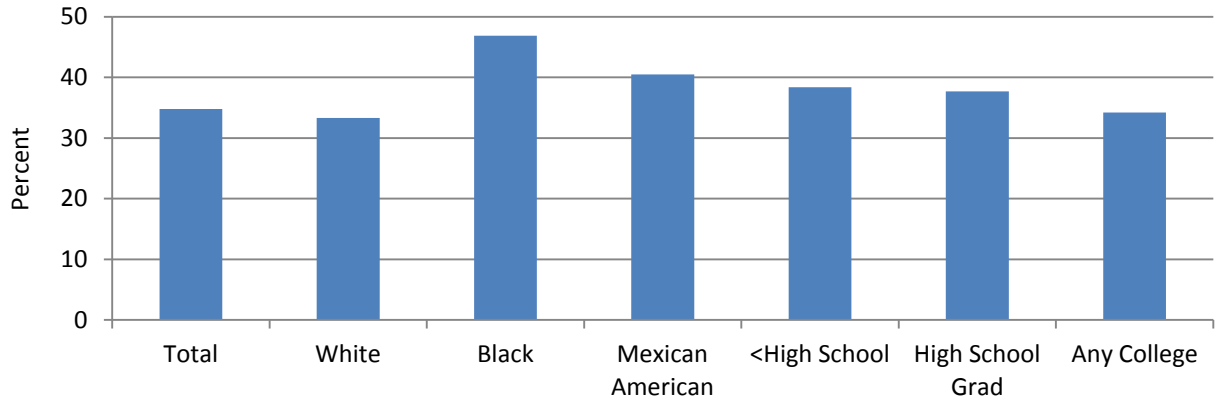
Prevention: Obese Adults Told by a Doctor That They Were Overweight

Although physician guidelines recommend that health care providers screen all adult patients for obesity (USPSTF, 2003), obesity remains underdiagnosed among U.S. adults (Diaz, et al., 2004). Physicians have direct access to many high-risk individuals, increasing the opportunity to educate patients about their personal risks, as well as suggesting realistic and sustainable lifestyle changes that can lead to a healthier weight and more active life.

[xxix] More information about the 2008 Physical Activity Guidelines for Americans is available at www.health.gov/paguidelines/guidelines/default.aspx.

[xxx] More information about Coordinated Approach to Child Health (CATCH) is available at http://catchinfo.org/

Figure 2.47. Adults with obesity age 20 and over who reported being told by a doctor they were overweight, by race/ethnicity and education, 2007-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 2007-2010.
Denominator: People age 20 and over with a body mass index of 30 or greater.
Note: Estimates are age adjusted to the 2000 U.S. standard population. Total and race/ethnicity are adjusted using three age groups: 20-44, 45-64, and 65 and over; education is also adjusted using three age groups 25-44, 45-64, and 65 and over. White and Black are non-Hispanic.

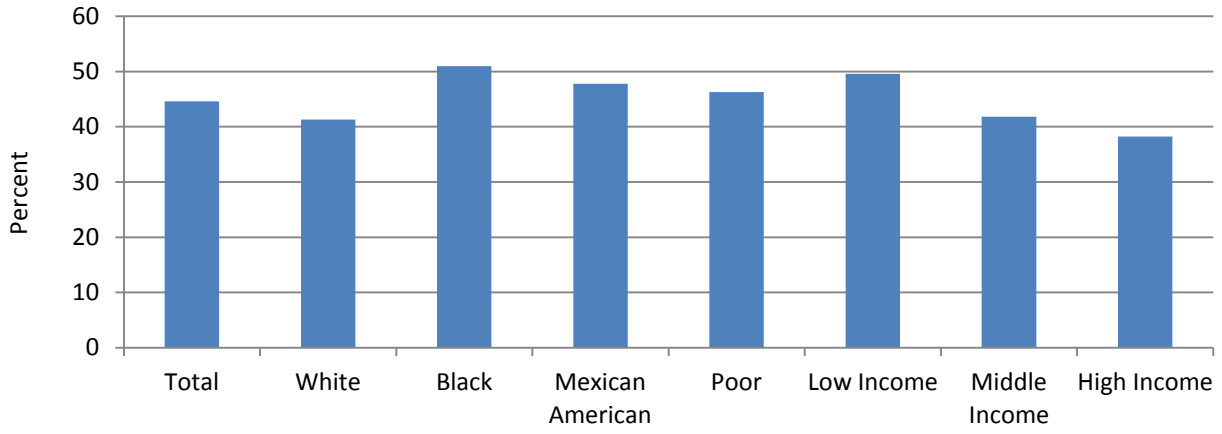
- In 2007-2010, 34.8% of obese adults age 20 and over reported being told by a doctor that they were overweight (Figure 2.47).
- In 2007-2010, White (33.3%) adults with obesity were less likely to report being told by a doctor that they were overweight compared with obese Mexican American (40.5%) and Black (46.9%) adults.
- In 2007-2010, obese adults with less than a high school education (38.4%) were more likely than obese adults with any college education (34.2%) to report being told by a doctor that they were overweight.

Also, in the NHQR:

- In 2007-2010, obese adults ages 20-44 were less likely to report being told by a doctor that they were overweight compared with those ages 45-64.
- In 2007-2010, there were no statistically significant gender differences among obese adults who were told by a doctor that they were overweight.

Prevention: Obese Children and Teens Told by a Doctor That They Were Obese

Figure 2.48. Obese children and teens ages 2-19 who were told by a doctor or health professional that they were obese, by race/ethnicity and income, 2007-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 2007-2010.
Denominator: U.S. civilian noninstitutionalized population ages 2-19 who were obese.
Note: Obese children are identified using age- and sex-specific reference data from the 2000 Centers for Disease Control and Prevention body mass index (BMI) for age growth charts. Children with BMI values at or above the 95th percentile of the sex-specific BMI growth charts are categorized as obese. White and Black are non-Hispanic.

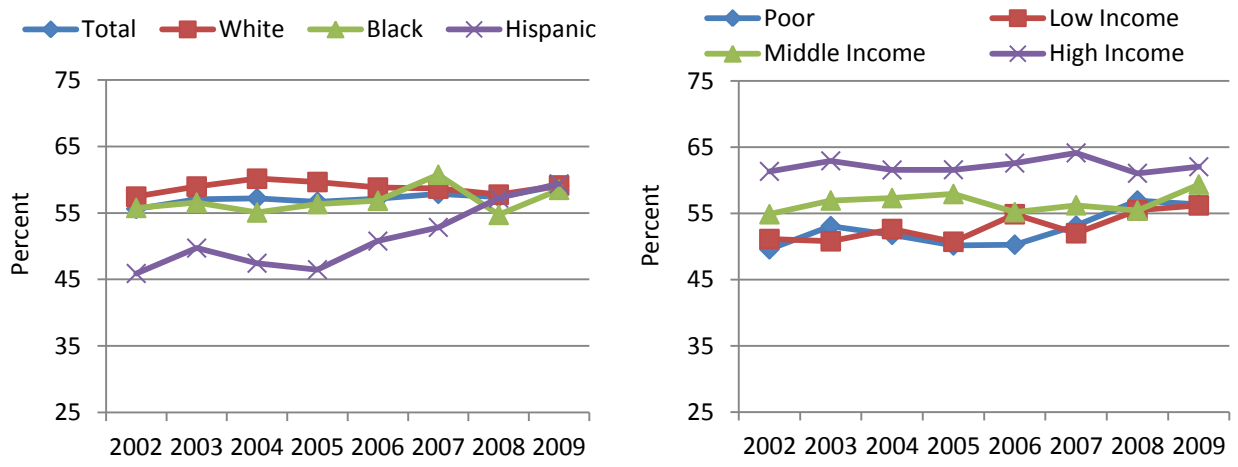
- In 2007-2010, 44.6% of obese children and teens ages 2-19 reported being told by a doctor that they were obese (Figure 2.48).
- In 2007-2010, White children who were obese were less likely than their Black counterparts to report being told that they were obese (41.3% compared with 51%).
- In 2007-2010, obese children from low-income households were more likely to report being told that they were obese compared with those from high-income households (49.6% compared with 38.2%).

Also, in the NHQR:

- In 2007-2010, obese children ages 2-5 were less likely than those ages 6-11 and 12-19 to report being told by a doctor that they were obese.
- In 2007-2010, obese female children were more likely than obese male children to report being told by a doctor that they were obese.

Prevention: Counseling Obese Adults About Exercise

Figure 2.49. Adults with obesity who ever received advice from a health provider to exercise more, by race/ethnicity and income, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized aduilts age 18 and over with obesity.
Note: Obesity is defined as a body mass index of 30 or higher. White and Black are non-Hispanic; Hispanic includes all races.

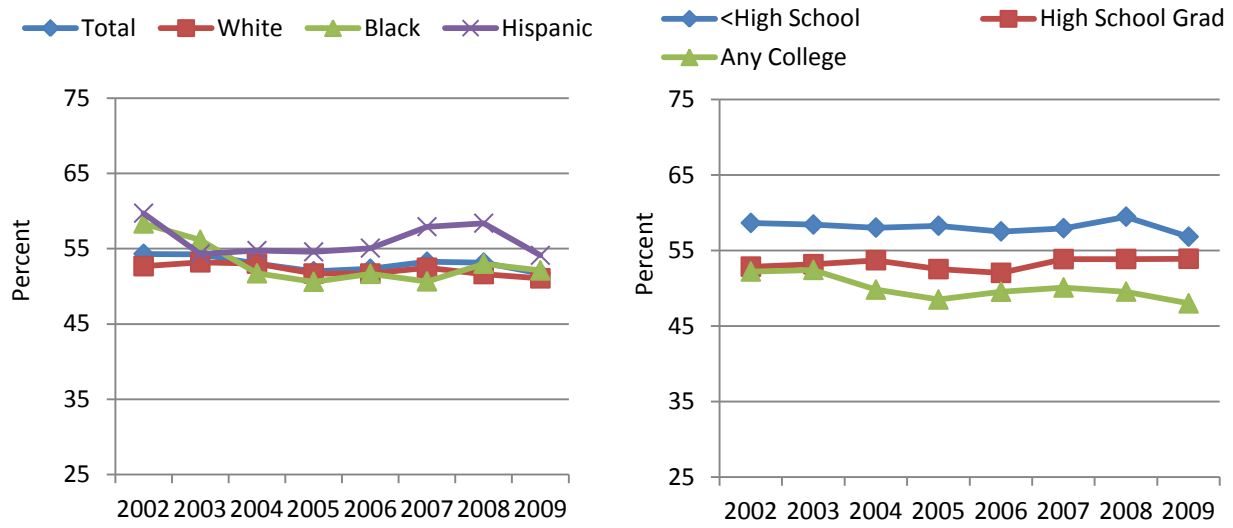
- Overall, in 2009, 59.1% of adults with obesity reported ever receiving advice from a health provider to exercise more (Figure 2.49).
- From 2002 to 2009, there were no statistically significant changes by race/ethnicity in the percentage of obese adults who received advice to exercise, except for obese Hispanic adults (from 45.9% to 59.4%).
- In 6 of 8 years, obese White adults were more likely to receive advice to exercise than obese Hispanic adults.
- From 2002 to 2009, the percentage of obese adults who received advice from a health provider to exercise increased for poor (from 49.6% to 56.4%) and low-income (from 51.1% to 56.2%) groups.
- In all years, obese adults from low-income households were less likely to receive advice to exercise than adults from high-income households; adults from poor households were less likely to receive advice in 7 of 8 years and middle-income households in 5 of 8 years.

Also, in the NHQR:

- In all years, obese female adults were more likely to receive advice to exercise than obese male adults.
- From 2002 to 2009, obese adults with neither basic nor complex activity limitations were less likely to receive advice to exercise compared with those with basic or complex activity limitations.

Outcome: Obese Adults Who Do Not Exercise

Figure 2.50. Adults with obesity who did not spend half an hour or more in moderate or vigorous physical activity at least three times a week, by race/ethnicity and education, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: Obesity is defined as a body mass index of 30 or higher. White and Black are non-Hispanic; Hispanic includes all races.

- Overall, in 2009, 51.7% of adults with obesity did not spend half an hour or more engaged in moderate or vigorous physical activity at least three times a week (Figure 2.50).
- From 2002 to 2009, there were no statistically significant changes by race/ethnicity in the percentage of adults with obesity who did not spend half an hour or more engaged in moderate or vigorous physical activity, except for obese Black adults (from 58.3% to 52.1%).
- In all years, there were no statistically significant differences by race/ethnicity in the percentage of obese adults who did not spend half an hour or more engaged in moderate or vigorous physical activity.
- From 2002 to 2009, obese adults with less than a high school education were less likely to spend half an hour or more engaged in moderate or vigorous physical activity compared with obese adults with any college education.

Also, in the NHQR:

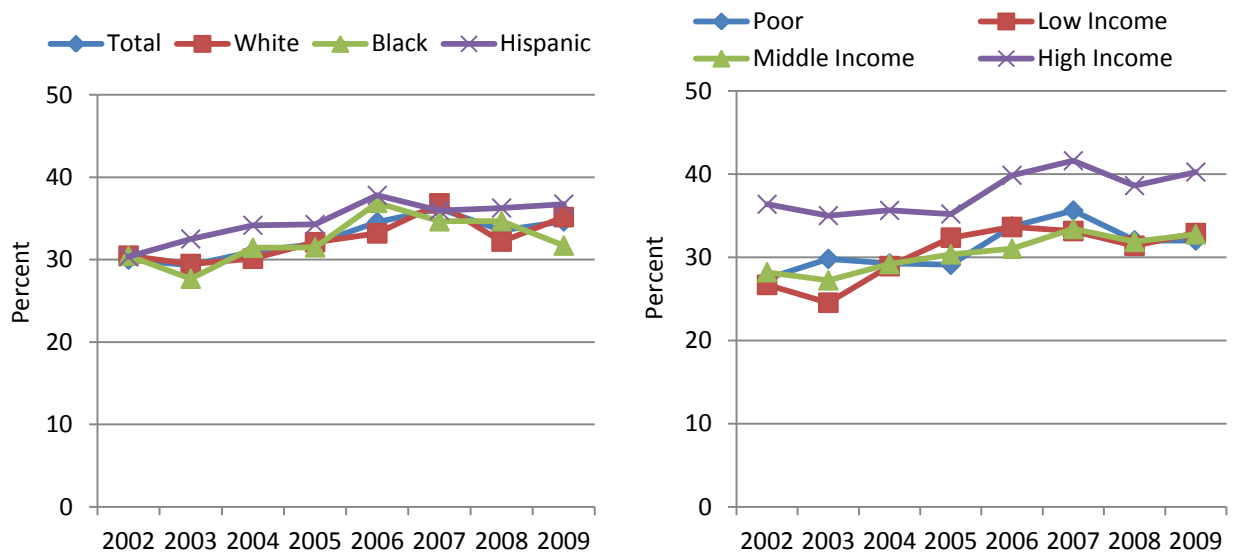
- In all years, obese female adults were less likely to engage in half an hour or more of moderate or vigorous physical activity at least three times a week compared with obese male adults.
- From 2002 to 2009, obese adults with public insurance were less likely to engage in half an hour or more of moderate or vigorous physical activity at least three times a week compared with those with private insurance.

Prevention: Counseling for Children About Physical Activity

Childhood is often a time when people establish healthy lifelong habits. Physicians can play an important role in encouraging healthy behaviors from a young age. For example, they can educate children and parents about the importance of regular exercise and healthy eating.

Overweight and obese children often become overweight and obese adults, with numerous and costly consequences. Unfortunately, the incidence of overweight and obesity has tripled since 1980. Children have become more sedentary in the last two decades, necessitating weight management through increased physical activity. In 2007-2008, 20% of children ages 6-11 years and 18% of people ages 12-19 were obese (MMWR, 2011a). The 2008 Physical Activity Guidelines for Americans recommend that children and adolescents engage in 1 hour or more of physical activity everyday.[xxxi]

Figure 2.51. Children ages 2-17 for whom a health provider gave advice within the past 2 years about exercise, by race/ethnicity and income, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: U.S. civilian noninstitutionalized population ages 2-17.
Note: Exercise advice includes the amount and kind of sports or physically active hobbies children should engage in. White and Black are non-Hispanic. Hispanic includes all races.

- Overall, in 2009, 34.7% of parents or guardians reported receiving advice within the past 2 years about the amount and kind of sports or physically active hobbies their children should engage in (Figure 2.51).
- From 2002 to 2009, the percentage of children who were given advice about exercise improved for White children (from 30.5% to 35.2%) and for Hispanic children (from 30.4% to 36.8%).
- In all years, there were no statistically significant racial/ethnic differences among children who were given advice about exercise.

[xxxi] For more information about the 2008 Physical Activity Guidelines for Americans, go to www.health.gov/paguidelines/guidelines/default.aspx.

- From 2002 to 2009, the percentage of children who were given advice about exercise improved for all income groups, although children from high-income households were more likely to receive advice to exercise compared with those from poor, low-income, and middle- income households.

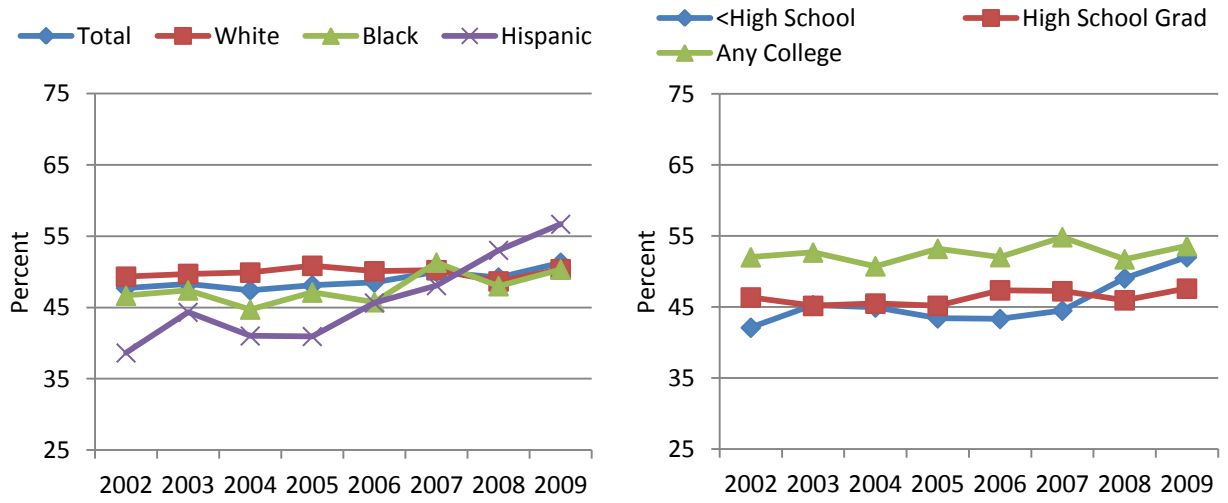
Also, in the NHQR:

- From 2002 to 2009, the percentage of children given advice about exercise improved for those ages 2-5 and those ages 6-17.
- In the same period, increases in the percentage who were given advice about exercise were observed for children with special health care needs and those without such needs.

Prevention: Counseling Obese Adults About Healthy Eating

In addition to increased physical activity, an important factor in maintaining a healthy body weight is modifying eating habits to include a diet that incorporates nutritional food and beverages. It is essential for physicians to emphasize to patients the importance of consuming foods from all food groups, including whole grains and fibers, lean proteins, complex carbohydrates, fruits, and vegetables, as well as providing education about balancing energy intake and energy expenditure. The U.S. Department of Agriculture created the Dietary Guidelines for Americans 2010 to aid people in understanding the complexity of healthy eating for both children and adults.[xxxii]

Figure 2.52. Adults with obesity who ever received advice from a health provider about eating fewer high-fat or high-cholesterol foods, by race/ethnicity and education, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: Obesity is defined as a body mass index of 30 or higher. White and Black are non-Hispanic; Hispanic includes all races.

[xxxii] For more information about the Dietary Guidelines for Americans, go to www.dietaryguidelines.gov.

- Overall, in 2009, 51.3% of adults with obesity received advice from a health provider about healthy eating (Figure 2.52).
- From 2002 to 2009, the percentage of obese Hispanic adults who received advice about healthy eating increased from 38.6% to 56.7%, but there were no statistically significant changes for other racial/ethnic groups.
- In 5 of 8 years, White adults with obesity were more likely to receive advice about healthy eating than Hispanic adults with obesity.
- From 2002 to 2009, the percentage of obese adults with less than a high school education who were advised about healthy eating increased (from 42.1% to 52.0%).
- In 7 of 8 years, obese adults with a high school education were less likely than those with any college education to receive advice about healthy eating; obese adults with less than a high school education were less likely to receive advice in 6 of 8 years.

Also, in the NHQR:

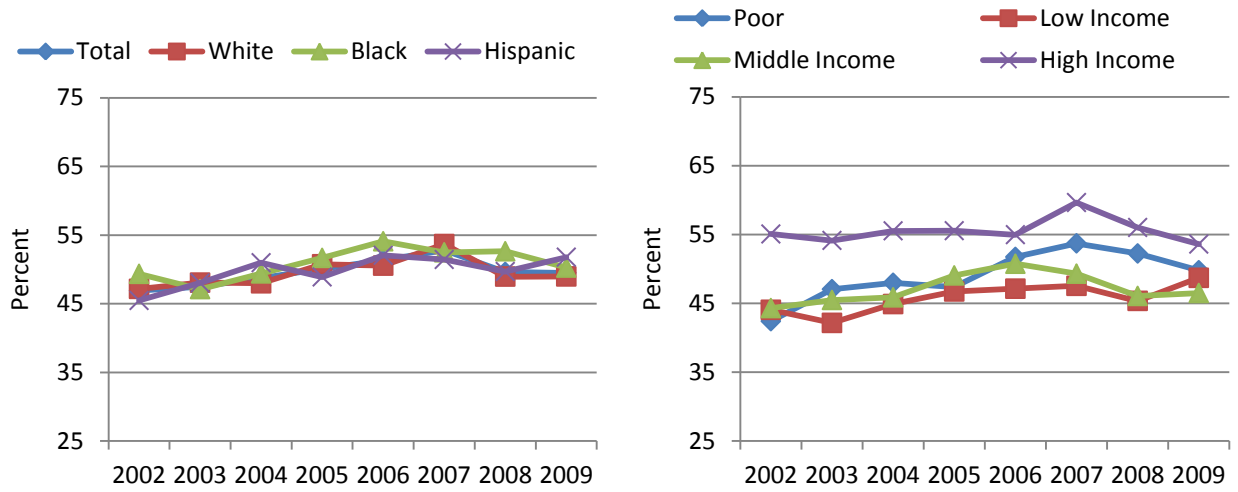
- In all years, adults with obesity ages 18-44 were less likely to receive advice about healthy eating compared with other age groups.
- From 2002 to 2009, adults without insurance were less likely to receive advice about healthy eating compared with those with private insurance.

Prevention: Counseling for Children About Healthy Eating

An increasing number of children consume diets with too many calories and little nutritional value. Growing evidence has shown the integral role nutrition plays throughout one's lifetime. Eating patterns that are established early in childhood are often adopted later in life, making early interventions important.

The Dietary Guidelines for Americans encourage children and adolescents to maintain a calorie-balanced diet to support normal growth and development without gaining excess weight. The American Academy of Pediatrics recommends that pediatricians discuss and promote healthy diets with all children and their parents or guardians, for those who are overweight and those who are not (Krebs & Jacobson, 2003).

Figure 2.53. Children ages 2-17 for whom a health provider ever gave advice about healthy eating, by race/ethnicity and household income, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: U.S. civilian noninstitutionalized population ages 2-17.
Note: White and Black are non-Hispanic;. Hispanic includes all races.

- Overall, in 2009, only about half of parents or guardians reported receiving advice within the past 2 years about their children eating a healthy diet (Figure 2.53).
- From 2002 to 2009, statistically significant improvements in the percentage of children given advice about healthy eating were observed only for Hispanic children (from 45.5% to 51.8%).
- In all years, there were no statistically significant differences by race/ethnicity.
- From 2002 to 2009, the percentage of children given advice about healthy eating increased for children from poor (from 42.4 % to 49.8%) and low-income (from 44.1% to 48.7%) households.
- In 5 of 8 years, children from high-income households were more likely to receive advice about eating healthy than those from poor, low-income, and middle-income households.

Also, in the NHQR:

- In all years, children ages 2-5 were more likely to receive advice about healthy eating than those ages 6-17.
- From 2002 to 2009, there were no statistically significant gender differences among children who received advice about healthy eating.

Functional Status Preservation and Rehabilitation

Importance

Demographics

Noninstitutionalized adults needing help of another person with activities of daily living (ADLs)[xxxiii] (2011) ..... 5.2 million (Adams, et al., 2012)
Noninstitutionalized adults needing help with instrumental activities of daily living (IADLs)[xxxiv] (2011) ..... 9.8 million (Adams, et al., 2012)
Number of Medicare beneficiaries receiving inpatient rehabilitation facility care (2010) ..... 359,000 (MedPAC, 2012)

Costs

Medicare payments for outpatient physical therapy (2006 est.) ..... $3.1 billion (Ciolek & Hwang, 2008)
Medicare payments for outpatient occupational therapy (2006 est.) ..... $747 million (Ciolek & Hwang, 2008)
Medicare payments for outpatient speech-language pathology services (2006 est.) ..... $270 million (Ciolek & Hwang, 2008)
Medicare payments for hospital outpatient rehabilitation (2011) ..... $4.6 billion (CMS, 2012a)
Medicare payments for inpatient rehabilitation facility care (2011) . $6.7 billion (MedPAC, 2012)

Measures

A person's ability to function can decline with disease or age, but it is not always an inevitable consequence. Threats to function span a wide variety of medical conditions. Services to maximize function are delivered in a variety of settings, including providers' offices, patients' homes, long-term care facilities, and hospitals.

Some health care interventions can help prevent diseases that commonly cause declines in functional status. Other interventions, such as physical activity, physical therapy, occupational therapy, and speech-language pathology services, can help patients regain function that has been lost or minimize the rate of decline in functioning.

The NHQR and NHDR track several measures related to functional status preservation and rehabilitation. Two measures are highlighted in this section:

- Improvement in mobility among home health care patients.
- Nursing home residents needing more help with daily activities.

In addition, this year we have a special focus section on functional improvement of inpatient rehabilitation facility (IRF) patients for all diagnoses.

[xxxiii] ADLs consist of basic self-care tasks, such as bathing, dressing, eating, transferring, using the toilet, and walking.
[xxxiv] IADLs consist of tasks needed for a person to live independently, such as shopping, doing housework, preparing meals, taking medications, using the telephone, and managing money.

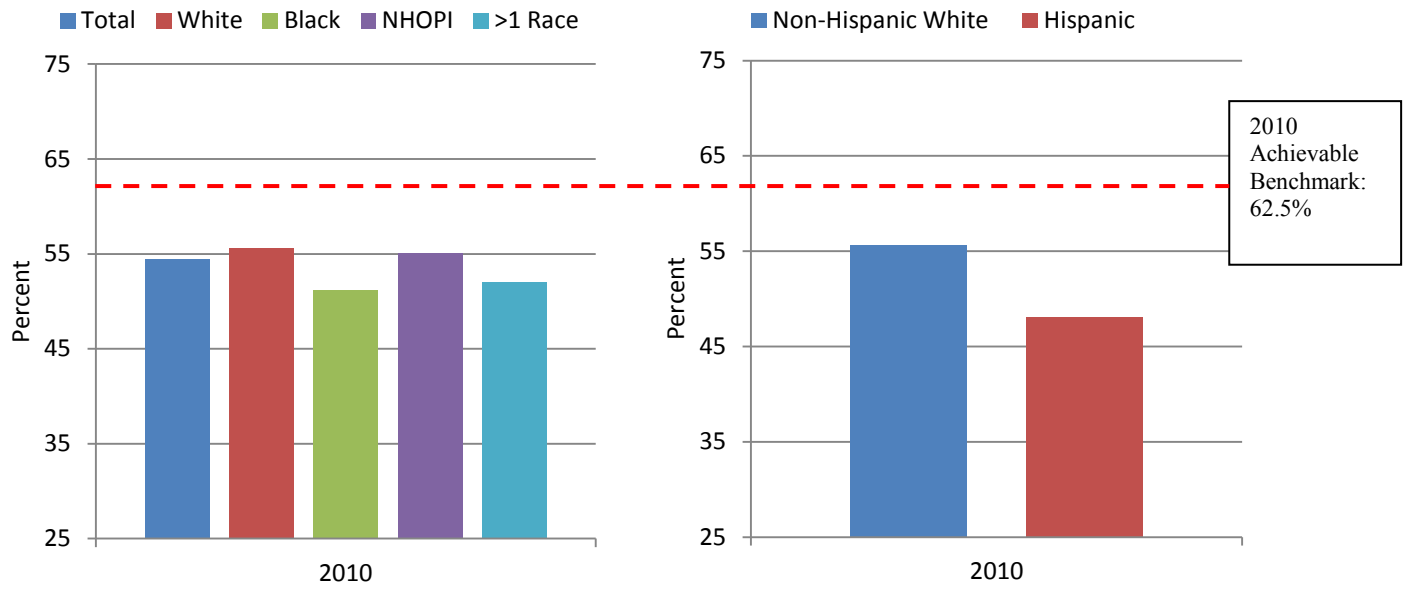
Findings

Outcome: Improvement in Mobility Among Home Health Care Patients

After an illness or injury, many patients receiving home health care may need temporary help to walk safely. This assistance can come from another person or from equipment, such as a cane. Patients who use a wheelchair may have difficulty moving around safely, but if they can perform this activity with little assistance, they are more independent, self-confident, and active.

As patients recover from illness or injury, physical therapy can facilitate improvements in walking and moving with a wheelchair. However, in cases of patients with some neurologic conditions, such as progressive multiple sclerosis or Parkinson's disease, ambulation may not improve even when the home health agency provides good care. In addition, the characteristics of patients referred to home health agencies vary across States.

Figure 2.54. Adult home health care patients whose ability to walk or move around improved, by race and ethnicity, 2010



Key: NHOPI = Native Hawaiian or Other Pacific Islander.
Source: Centers for Medicare & Medicaid Services, Outcome and Assessment Information Set (OASIS), 2010.
Denominator: Adult nonmaternity patients completing an episode of skilled home health care and not already performing at the highest level at the start of the episode, according to the OASIS question on ambulation.
Note: Starting January 1, 2010, the patient assessment instrument for home health agencies was changed to OASIS-C and ambulation improvement is measured differently than with the previous version of the assessment instrument. Therefore, we are presenting only 2010 data.

- In 2010, Black home health care patients were less likely than other racial groups to show improvement in their ability to walk or move around, but these differences were not statistically significant (Figure 2.54).
- Hispanic home health patients were less likely than non-Hispanic Whites to show improvement in their ability to walk or move around.

- The 2010 top 5 State achievable benchmark was 62.5%.[xxxv] Data are insufficient to determine time to benchmark.

Also, in the NHQR:

- Home health care patients age 85 and over were less likely than patients in other age groups to show improvement.

Outcome: Nursing Home Residents Needing More Help With Daily Activities

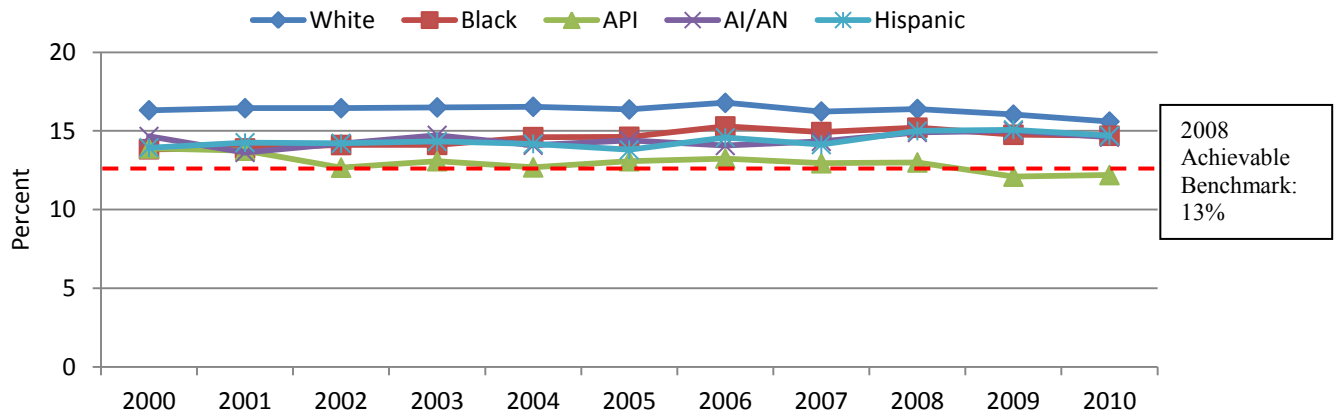
Long-stay residents typically enter a nursing facility because they can no longer care for themselves at home. They tend to remain in the facility for several months or years. While almost all long-stay nursing home residents have limitations in their ADLs, nursing home staff help residents stay as independent as possible.[xxxvi]

Most residents want to care for themselves, and the ability to perform daily activities is important to their quality of life. Some functional decline among residents cannot be avoided, but optimal nursing home care seeks to minimize the rate of decline. This measure uses assessments of need for help with daily activities, conducted regularly by nursing homes, to identify those residents whose need for help increased from one assessment to the next.

[xxxv] The top 5 States that contributed to the achievable benchmark are Maine, Missouri, New Jersey, South Carolina, and Utah.

[xxxvi] In *Olmstead v. L.C.*, 527 U.S. 581 (1999), the U.S. Supreme Court concluded that the unjustified institutionalization of people with disabilities is a form of unlawful discrimination under the Americans With Disabilities Act of 1990, 42 U.S.C. 12101 *et seq*. The Court held that States are required to provide community-based services for people with disabilities who would otherwise be entitled to institutional services when: (1) such placement is appropriate; (2) the affected person does not oppose such treatment; and (3) the placement can be reasonably accommodated, taking into account the resources available to the State and the needs of other individuals with disabilities. More information about the HHS Office for Civil Rights' Olmstead enforcement efforts is available at www.hhs.gov/ocr/civilrights/understanding/disability/serviceolmstead/index.html.

Figure 2.55. Long-stay nursing home residents whose need for help with daily activities increased, by race/ethnicity, 2000-2010



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Minimum Data Set, 2000-2010. Data are from the third quarter of each calendar year.
Denominator: All long-stay residents in Medicare- or Medicaid-certified nursing home facilities.
Note: For this measure, lower rates are better. White, Black, API, and AI/AN are non-Hispanic. Hispanic includes all races.

- In 2010, 15.4% of long-stay nursing home residents had increased need for help with daily activities (data not shown). Between 2000 and 2010, the rate increased among Blacks and Hispanics (Figure 2.55).
- In all years, API residents were less likely than White residents to need increased help with daily activities. In all years before 2008, AI/AN and Hispanic residents were also less likely to need increased help with daily activities.
- The 2008 top 5 State achievable benchmark was 13%.[xxxvii] In 2010, API residents achieved the benchmark. However, other racial/ethnic groups did not demonstrate progress toward the benchmark.

Also, in the NHQR:

- Residents ages 0-64 were less likely than residents ages 65-74 to need increased help with daily activities.

Focus on Inpatient Rehabilitation Facility Patients

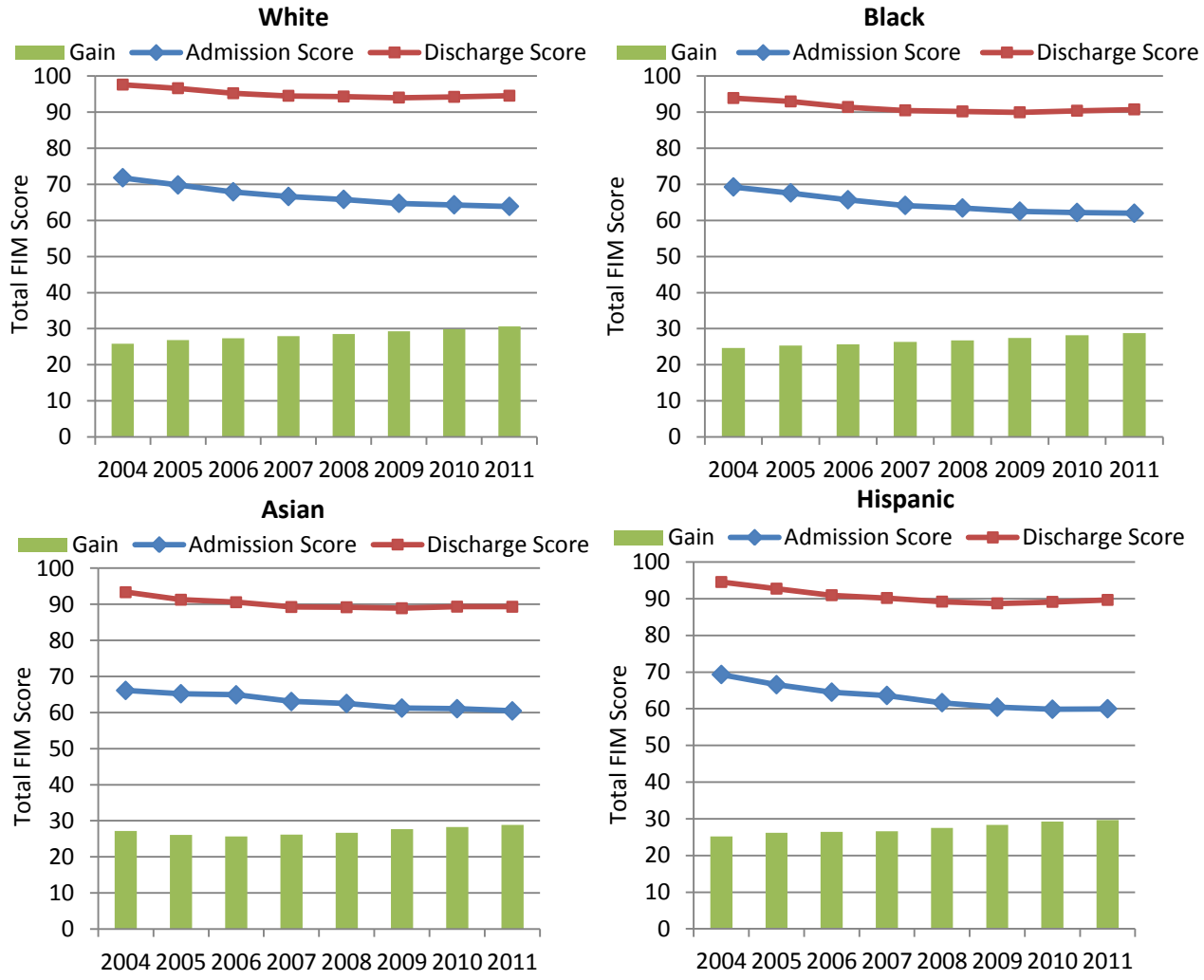
Patients receive rehabilitation therapies for a range of impairments from different types of providers, and a major distinction is whether these services are received on an inpatient or outpatient basis. The method for assessing how a patient improves with receipt of rehabilitation services varies by provider type. Each Medicare-certified IRF collects measures of functional status (called the Functional Independence Measure or FIM) at admission and discharge for each Medicare patient as part of the IRF Patient Assessment Instrument.

[xxxvii] The top 5 States that contributed to the achievable benchmark are Alabama, Alaska, New Jersey, Oklahoma, and Oregon.

By providing information on the change in functional ability (or total functional gain) between admission and discharge, we can see how much patients have improved in functional ability during their stay in the IRFs. We restricted analyses to patients who had initial rehabilitation and were discharged to the community (home, board and care, transitional living, or assisted living) as a way of controlling for patient case mix.

The 2011 report focused on mean changes in locomotion and communication subscore gain for stroke patients, a subset of the total population. The estimates presented here include patients with all diagnoses and use a different method of scoring. The 2012 estimates should not be compared with estimates in the 2011 report.

Figure 2.56. FIM scores at admission and discharge and changes in total functional gain among patients with all diagnoses in inpatient rehabilitation facilities, by race/ethnicity, 2004-2011



Key: FIM = Functional Independence Measure.
Source: Centers for Medicare & Medicaid Services, Inpatient Rehabilitation Facility Patient Assessment Instrument, 2004-2011.
Denominator: All Medicare patients in an inpatient rehabilitation facility for initial rehabilitation and discharged to the community (home, board and care, transitional living, or assisted living).
Note: White, Black, and Asian are non-Hispanic.

- In 2011, White patients discharged to the community experienced an average FIM gain of 30.7 compared with 28.8 among Blacks, 28.9 among Asians, and 29.7 among Hispanics (Figure 2.56).
- From 2004 to 2011, patients in all racial/ethnic groups experienced an overall increase in FIM gain, but Asian patients experienced a decrease in FIM gain from 2004 to 2006.
- In all years except 2004, White patients experienced the greatest FIM gain while Black and Asian patients experienced the lowest FIM gain.
- In all years, for every racial/ethnic group, average FIM score at admission decreased for all patients (score range: 7-126; highest score indicates complete independence).
- In all years, White patients were admitted and discharged with higher FIM scores than all other groups.

Also, in the NHQR:

- In 2011, patients discharged to the community experienced an average FIM gain of 30.3.
- From 2004 to 2011, patients showed a trend toward increase in functional gain but this was not statistically significant.

Supportive and Palliative Care

Importance

Demographics

Number of Medicare nursing home residents ever admitted during the calendar year (2011).....2.6 million (CMS, 2012b)
Number of Medicare fee-for-service (FFS) home health patients[xxxviii](2011).....3.5 million (CMS, 2012c)
Number of Medicare FFS beneficiaries using Medicare hospice services (2011).....1.2 million (CMS, 2012d)

Cost

Total costs of nursing home care[xxxix] (2010).....$143.1 billion (CMS, 2011)
Total costs of home health care[xxxix] (2010).....$70.2 billion (CMS, 2011)
Medicare FFS payments for hospice services (2011).....$13.8 billion (CMS, 2012d)

Measures

Disease cannot always be cured, and functional impairment cannot always be reversed. For patients with long-term health conditions, managing symptoms and preventing complications are important goals. Supportive and palliative care cuts across many medical conditions and is delivered by many health care providers. Supportive and palliative care focuses on enhancing patient comfort and quality of life and preventing and relieving symptoms and complications.

Toward the end of life, hospice care provides patients and families with practical, emotional, and spiritual support to help cope with death and bereavement. Honoring patient values and preferences for care is also critical. Palliative and end-of-life care needs to be "capable of promising dignity, comfort, companionship, and spiritual support to patients and families facing advanced illness or dying" (National Priorities Partnership, 2008).

The NHQR and NHDR track several measures of supportive and palliative care delivered by home health agencies, nursing homes, and hospices. The five measures presented in this section reflect patient- and family-centered care and goals and care planning, which are two of the critical areas of care delivery identified by the Measure Applications Partnership (MAP, 2012):

- Relief of suffering:
  - Shortness of breath among home health care patients.
  - Pressure sores in nursing home residents.

- Help with emotional and spiritual needs:
  - Right amount of emotional support among hospice patients.

[xxxviii] Medicare FFS patients represent only a portion of all home health patients.
[xxxix] Cost estimates for nursing home and home health services include only costs for freestanding skilled nursing facilities, nursing homes, and home health agencies and not those that are hospital based.

- Effective communication:
  - Enough information about what to expect among hospice family caregivers.

- High-quality palliative care:
  - Care consistent with patient's wishes among hospice patients.

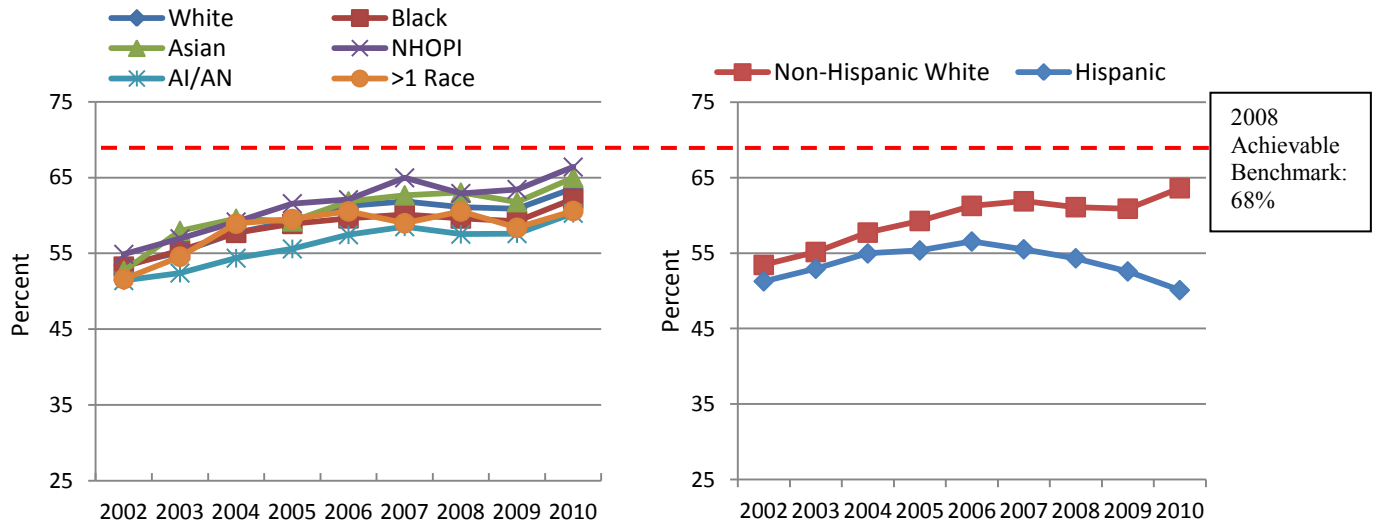
Findings

Relief of Suffering

Outcome: Shortness of Breath Among Home Health Care Patients

Shortness of breath is uncomfortable. Many patients with heart or lung problems experience difficulty breathing and may tire easily or be unable to perform daily activities. Doctors and home health staff should monitor shortness of breath and may give advice, therapy, medication, or oxygen to help lessen this symptom.

Figure 2.57. Adult home health care patients who had less shortness of breath between the start and end of a home health care episode, by race and ethnicity, 2002-2010



Key: NHOPI = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Outcome and Assessment Information Set (OASIS), 2002-2010.
Denominator: Adult nonmaternity patients completing an episode of skilled home health care.
Note: Starting January 1, 2010, the patient assessment instrument for home health agencies was changed to OASIS-C. Because dyspnea improvement is measured similarly in both the previous and current versions of the assessment instrument, we are presenting 2002 through 2010 trend data.

- Between 2002 and 2010, the percentage of adult home health care patients who showed improvement in shortness of breath over the course of a home health episode increased for each racial and ethnic group except Hispanics (Figure 2.57).
- From 2006 to 2010, Hispanics were less likely than non-Hispanic Whites to show improvement in shortness of breath.

- The 2008 top 5 State achievable benchmark was 68%.[xl] At the current annual rate of increase, this benchmark could be attained overall in about 5 years. Whites, Asians, and NHOPIs could attain the benchmark in less than 5 years, while Blacks, AI/ANs, and multiple-race individuals would take between 7 and 10 years to attain the benchmark. Hispanics show movement away from the benchmark.

Also, in the NHQR:

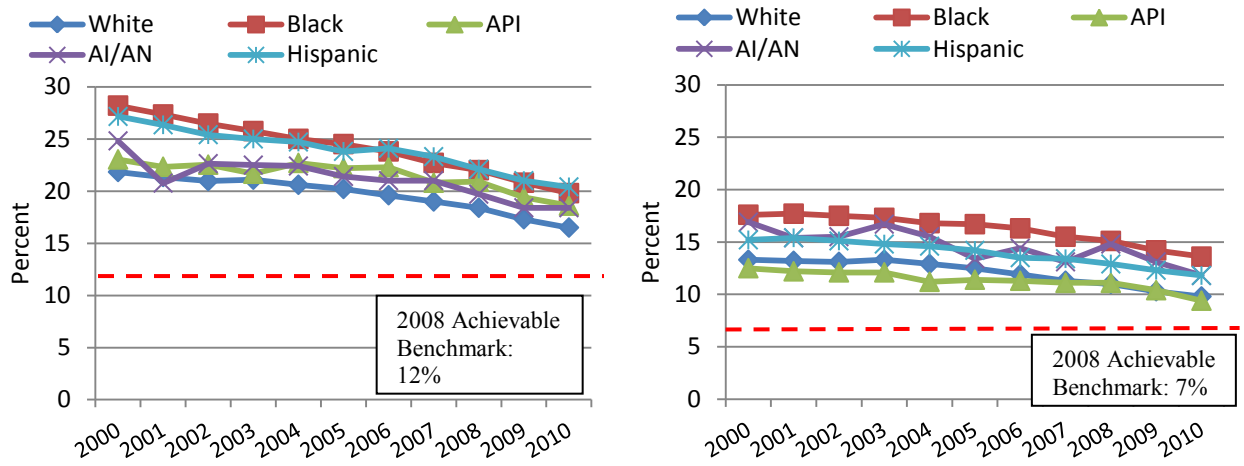
- Between 2002 and 2010, the percentage of adult home health care patients who showed improvement in shortness of breath increased for the total population and for every age group.

Outcome: Pressure Sores in Nursing Home Residents

A pressure ulcer, or pressure sore, is an area of broken-down skin caused by sitting or lying in one position for an extended time and can be very painful. Residents should be assessed by nursing home staff for presence or risk of developing pressure sores.

Nursing homes can help to prevent or heal pressure sores by keeping residents clean and dry and by changing their position frequently or helping them move around. Other interventions include making sure residents get proper nutrition and using soft padding to reduce pressure on the skin. However, some residents may get pressure sores even when a nursing home provides good preventive care.

Figure 2.58. Short-stay (left) and high-risk long-stay (right) nursing home residents with pressure sores, by race/ethnicity, 2000-2010



Key: API = Asian or Pacific Islander; AI /AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Minimum Data Set, 2000-2010. Data for long-stay residents are from the third quarter of each calendar year. Data for short-stay residents are full calendar-year estimates.
Denominator: Short-stay and high-risk long-stay nursing home residents in Medicare- or Medicaid-certified nursing and long-term care facilities.
Note: For this measure, lower rates are better. White, Black, API, and AI/AN are non-Hispanic; Hispanic includes all races.

[xl] The top 5 States that contributed to the achievable benchmark are Georgia, Hawaii, New Jersey, Rhode Island, and South Carolina.

- From 2000 to 2010, the percentage of both short-stay[xli] and high-risk long-stay[xlii] residents with pressure sores decreased for all racial/ethnic groups (Figure 2.58).
- In all years, for both short-stay and high-risk long-stay residents, Blacks and Hispanics were more likely than Whites to have pressure sores.
- The 2008 top 5 State achievable benchmark for short-stay residents was 12%.[xliii] At the current annual rate of decrease, this benchmark could be attained overall in about 9 years. Whites could attain the benchmark in less than 9 years. Blacks, APIs, AI/ANs, and Hispanics would take between 9 and 18 years to attain this benchmark.
- The 2008 top 5 State achievable benchmark for high-risk long-stay residents was 7%.[xliv] At the current annual rate of decrease, this benchmark could be attained overall in about 9 years. Whites and APIs could achieve the benchmark in 9 years or less. Blacks, AI/ANs, and Hispanics would take between 11 and 16 years to attain this benchmark.

Also, in the NHQR:

- From 2000 to 2010, the percentage of short-stay residents with pressure sores fell. The percentage also fell for high-risk long-stay residents. Improvements included lower percentages for both males and females.
- Short-stay residents were more likely than high-risk long-stay residents to have pressure sores. Some of these patients may be admitted to nursing homes because of or with sores acquired during an acute care hospitalization.
- In all years, males were more likely than females to have pressure sores.

Help With Emotional and Spiritual Needs

Hospice care is generally delivered at the end of life to patients with a terminal illness or condition who desire palliative medical care; it also includes practical, psychosocial, and spiritual support for the patient and family. The goal of end-of-life care is to achieve a "good death," defined by the IOM as one that is "free from avoidable distress and suffering for patients, families, and caregivers; in general accord with the patients' and families' wishes; and reasonably consistent with clinical, cultural, and ethical standards" (Field & Cassell, 1997).

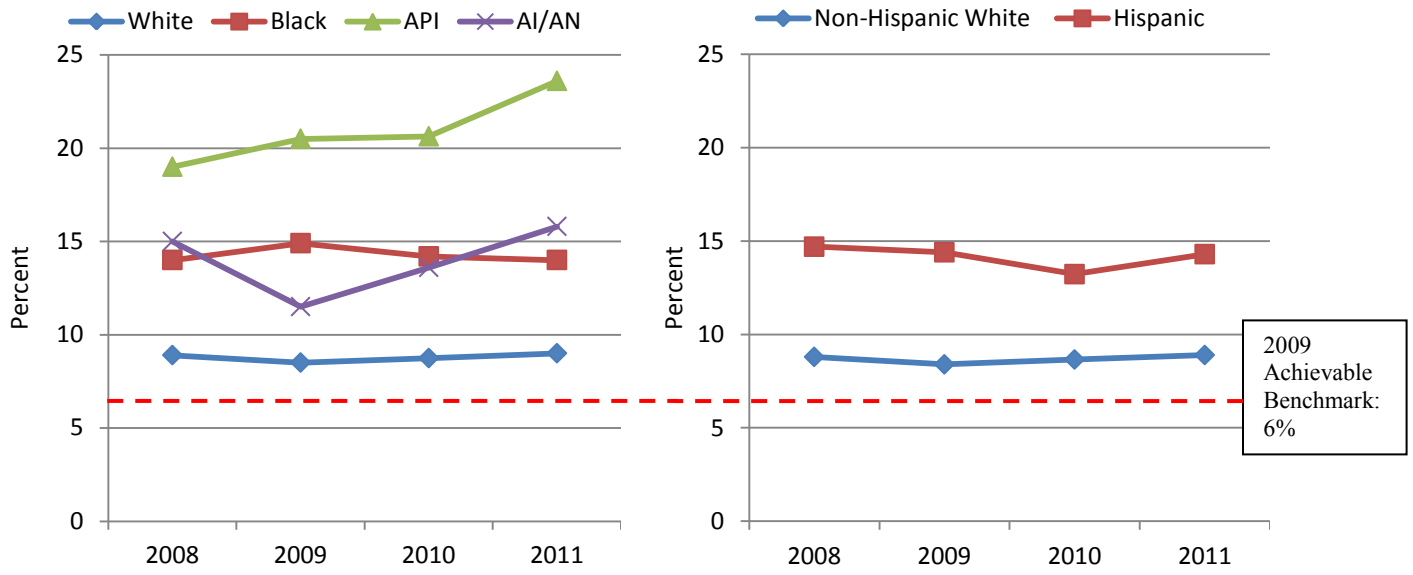
[xli] Short-stay residents stay fewer than 30 days in a nursing home, typically following an acute care hospitalization.
[xlii] Long-stay residents enter a nursing facility typically because they can no longer care for themselves at home. They tend to remain in the facility for several months or years. High-risk residents are those who are in a coma, do not get the nutrients needed to maintain skin health, or cannot change position on their own.
[xliii] The top 5 States that contributed to the achievable benchmark are Colorado, Iowa, Minnesota, Nebraska, and Utah.
[xliv] The top 5 States that contributed to the achievable benchmark are Hawaii, Minnesota, Nebraska, New Hampshire, and North Dakota.

The National Hospice and Palliative Care Organization's Family Evaluation of Hospice Care survey examines the quality of hospice care for dying patients and their family members. Family respondents report how well hospices respect patients' wishes, communicate about illness, control symptoms, support dying on one's own terms, and provide family emotional support.[xlv]

Management: Right Amount of Emotional Support Among Hospice Patients

Dying is a stressful process, and patients at the end of life may develop depression or anxiety disorders. Health care systems and providers need to be attuned to recognizing and responding to the emotional and spiritual needs of patients with life-limiting illness and their families.

Figure 2.59. Hospice patients age 18 and over who did NOT receive the right amount of help for feelings of anxiety or sadness, by race and ethnicity, 2008-2011



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2008-2011.
Denominator: Adult hospice patients.
Note: For this measure, lower rates are better.

- In all years, Blacks, APIs, and AI/ANs were less likely than Whites and Hispanics were less likely than non-Hispanic Whites to receive the right amount of emotional support (Figure 2.59).
- The 2009 top 5 State achievable benchmark was 6%.[xlvi] Overall, hospice patients are not making progress toward this goal.

[xlv] This survey provides unique insight into end-of-life care and captures information about a large percentage of hospice patients but is limited by nonrandom data collection and a response rate of about 40%. Survey questions were answered by family members, who might not be fully aware of the patients' wishes and concerns. These limitations should be considered when interpreting these findings.
[xlvi] The top 5 States that contributed to the achievable benchmark are Alabama, Alaska, Arkansas, Kansas, and South Carolina.

Also, in the NHQR:

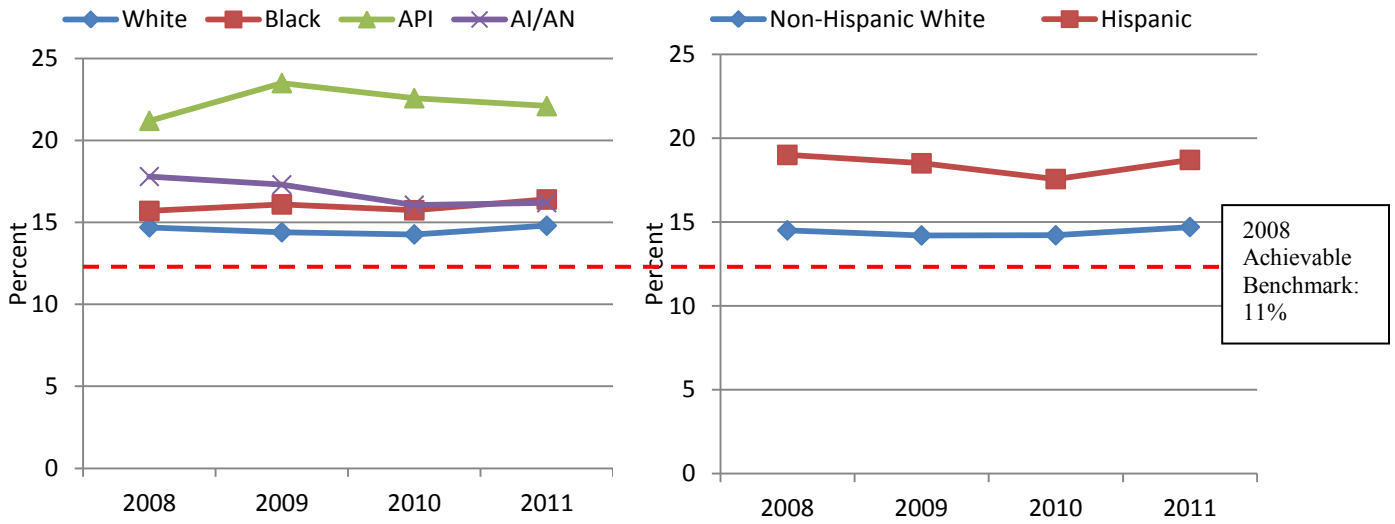
- The percentage of hospice patients whose families reported that they did not receive the right amount of help for feelings of anxiety or sadness was nearly 10% in 2011.
- Between 2008 and 2011, hospice patients ages 18-44 and 45-64 were less likely than patients age 65 and over to receive the right amount of emotional support.

Effective Communication

Management: Enough Information About What To Expect Among Hospice Family Caregivers

Patients at the end of life and their families need clear information about treatment options, prognosis, advance directives, and what to expect while the patient is dying. Health care providers need to be skilled at eliciting patient's values and preferences, accepting of different cultural and religious choices, and committed to continuing care regardless of patient treatment decisions.

Figure 2.60. Hospice patients age 18 and over whose family caregivers wanted more information about what to expect while the patient was dying, by race and ethnicity, 2008-2011



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2008-2011.
Denominator: Adult hospice patients.
Note: For this measure, lower rates are better.

- In all years, family caregivers of API hospice patients were more likely than family caregivers of White patients to want more information about what to expect while the patient was dying (Figure 2.60). Family caregivers of Hispanic hospice patients were more likely than family caregivers of non-Hispanic White patients to want more information.

- The 2008 top 6 State achievable benchmark was 11%.[xlvii] Overall, no progress has been made toward this goal. AI/ANs could attain the benchmark in about 8 years, but other groups have shown no progress.

Also, in the NHQR:

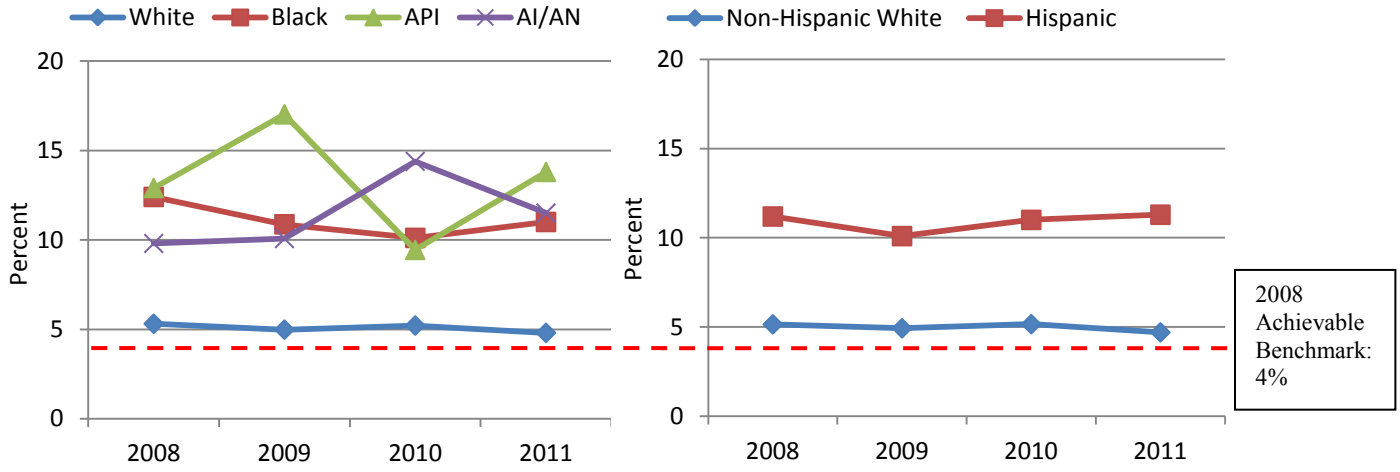
- The percentage of hospice patient family caregivers who reported that they wanted more information about what to expect while the patient was dying was about 15% in 2011.
- Between 2008 and 2011, family caregivers of hospice patients ages 18-44 and 45-64 were more likely than family caregivers of patients age 65 and over to want more information about what to expect while the patient was dying.

High-Quality Palliative Care

Management: Care Consistent With Patient's Wishes Among Hospice Patients

Hospice care should respect patients' stated goals for care. Respecting patients' goals requires shared communication and decisionmaking between providers and hospice patients and their family members and sensitivity to cultural and religious beliefs.

Figure 2.61. Hospice patients age 18 and over who did NOT receive care consistent with their stated end-of-life wishes, by race and ethnicity, 2008-2011



Key: API = Asian or Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2008-2011.
Denominator: Adult hospice patients.
Note: For this measure, lower rates are better.

- In all years, Blacks, APIs, and AI/ANs were less likely than Whites and Hispanics were less likely than non-Hispanic Whites to receive end-of-life care consistent with their wishes (Figure 2.61).
- The 2008 top 5 State achievable benchmark was 4%.[xlviii] At current rates of improvement, Whites could attain the benchmark in less than 10 years. Blacks and APIs could not attain

[xlvii] The top 6 States that contributed to the achievable benchmark are Alabama, Idaho, Iowa (tie), Kansas, South Dakota (tie), and West Virginia.

the benchmark for about 15 and 21 years, respectively. AI/ANs are not making progress toward the benchmark.

Also, in the NHQR:

- The percentage of hospice patients whose families reported that they did not receive end-of-life care consistent with their stated wishes was 5.4% in 2011.
- In 2011, hospice patients ages 18-44 were less likely than patients ages 45-64 and 65 and over to receive end-of-life care consistent with their wishes.

[xlviii] The top 5 States that contributed to the achievable benchmark are Maine, Minnesota, Mississippi, New Hampshire, and Tennessee.

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Chapter 3. Patient Safety

Importance

Mortality

Number of Americans who die each year from
medical errors (1999 est.) .....44,000-98,000 (Kohn, et al., 2000)

Prevalence

Rate of selected hospital-acquired conditions
(2010 est.) ..... 145 per 1,000 hospital admissions (HHS, 2012)
Adverse drug reactions during hospital admissions
(annual est.)..... 49 per 1,000 hospital admissions[i]
Rate of adverse drug events among Medicare
beneficiaries in ambulatory settings..... 50 per 1,000 person-years (Gurwitz, et al., 2003)

Cost

Cost attributable to medical errors (2008) .....$19.5 billion (Shreve, et al., 2010)
Total cost per error (2008) .....$13,000 (Shreve, et al., 2010)
Annual cost attributable to surgical errors (2008) .....$1.5 billion (Encinosa & Hellinger, 2008)

Measures

The Institute of Medicine (IOM) defines patient safety as "freedom from accidental injury due to medical care or medical errors" (Kohn, et al., 2000). In 1999, the IOM published *To Err Is Human: Building a Safer Health System*, which called for a national effort to reduce medical errors and improve patient safety (Kohn, et al., 2000).

In response to the IOM's report, President George W. Bush signed the Patient Safety and Quality Improvement Act of 2005 (Patient Safety Act).[ii] The act was designed to spur the development of voluntary, provider-driven initiatives to improve the quality, safety, and outcomes of patient care. The Patient Safety Act addresses many of the current barriers to improving patient care.

Central to this effort is the ability to measure and track adverse events. Measuring patient safety is complicated by difficulties in assessing and ensuring the systematic reporting of medical errors and adverse events. All too often, adverse event reporting systems are laborious and cumbersome. Health care providers may also fear that if they participate in the analysis of medical errors or patient care processes, the findings may be used against them in court or harm their professional reputations. In addition, many factors limit the ability to aggregate data in sufficient numbers to rapidly identify prevalent risks and hazards in the delivery of patient care,

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[i] Calculated by Noel Eldridge of the Center for Quality Improvement and Patient Safety, Agency for Healthcare Research and Quality. This number is a subset calculation based on the medication-related measures that were used to calculate the overall hospital-acquired condition rate for 2010.
[ii] Patient Safety and Quality Improvement Act of 2005, 42 U.S.C. 299b-21 to 299b-26.

their underlying causes, and practices that are most effective in mitigating them. These include difficulties aggregating and sharing data confidentially across facilities or State lines.

To Err Is Human does not mention race or ethnicity when discussing the problem of patient safety, and data are limited. Any differences that suggest patient race or ethnicity might influence the risk of experiencing a patient safety event must be investigated to better understand the underlying reasons for any differences before the differences can be eliminated.

Despite these limitations, a more complete picture of patient safety is emerging. In recent years, progress has been made in raising awareness, developing reporting systems, and establishing national data collection standards. Examining patient safety using a combination of administrative data, medical record abstraction, spontaneous adverse event reports, and patient surveys allows a more robust understanding of what is improving and what is not. Still, data remain incomplete for a comprehensive national assessment of patient safety (Aspden, et al., 2004).

To increase access to high-quality, affordable health care for all Americans, one of the broad aims of the National Quality Strategy (NQS) is providing better care. One way to advance this aim is by focusing on the priority of making care safer by reducing harm caused during the delivery of care. This priority has great potential for rapidly improving health outcomes and increasing the effectiveness of care for all populations. The NQS states that health care providers should aim to reduce the rates of care-related injury to zero whenever possible and should strive to create a system that reliably provides high-quality health care for everyone.

The Department of Health and Human Services (HHS) created the Partnership for Patients to improve the quality, safety, and affordability of health care for all Americans. One of the goals of this partnership is to:

- Keep patients from getting injured or sicker.
    - By the end of 2013, preventable hospital-acquired conditions would decrease by 40% compared with 2010. Achieving this goal would mean approximately 1.8 million fewer injuries to patients, with more than 60,000 lives saved over 3 years.

Achieving the partnership's goals will save lives and prevent injuries to millions of Americans. In addition, up to $35 billion could be saved across the health care system, including up to $10 billion in Medicare savings over a period of 3 years. Over a period of 10 years, it could reduce costs to Medicare by about $50 billion and result in billions more in Medicaid savings. This will help put our Nation on the path toward a more sustainable health care system.

The *National Healthcare Disparities Report* (NHDR) has tracked a growing number of patient safety measures. Organized around the Partnership for Patients' priority of safety, the 2012 NHDR presents the following measures that relate to the goal to keep patients from getting injured or sicker:

- Healthcare-associated infections (HAIs):
    - Postoperative sepsis.
    - Catheter-associated urinary tract infections (UTIs).

  - Central line-associated bloodstream infections (CLABSIs).

- Adverse events:
  - Mechanical adverse events associated with central venous catheters.
  - Obstetric trauma.

- Patient safety culture:
  - Results from the 2011 Hospital Survey on Patient Safety Culture.

Two measures related to HAIs have reached the 95% threshold and have therefore been retired:

  - Appropriate care among surgical patients.
  - Appropriate timing of antibiotics among surgical patients.

Findings

Healthcare-Associated Infections

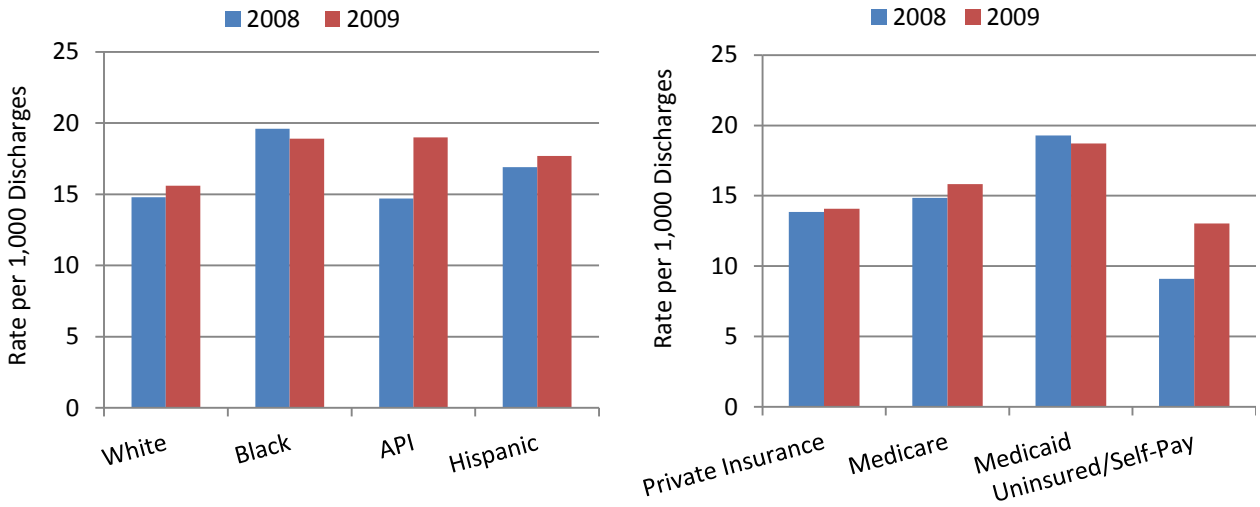
Infections acquired during hospital care (nosocomial infections) are one of the most serious patient safety concerns. They are the most common complication of hospital care (Gastmeier, 2004). An estimated 1.7 million HAIs occur each year in hospitals, leading to about 100,000 deaths. The most common infections are urinary tract, surgical site, and bloodstream infections (Klevens, et al., 2007).

A specific medical error cannot be identified in most cases of HAIs. However, better application of evidence-based preventive measures can reduce HAI rates within an institution.

Outcome: Postoperative Sepsis

Sepsis, a severe bloodstream infection, can occur after surgery. In a recent study, postoperative sepsis occurred in 5% of emergency surgery patients and 2% of elective surgery patients (Moore, et al., 2010). Another study revealed that higher rates of infection and higher risk of acute organ dysfunction both contribute to higher sepsis rates among Blacks compared with Whites (Mayr, et al., 2010). One way to reduce sepsis rates is by giving patients appropriate prophylactic antibiotics 1 hour prior to surgical incision.

Figure 3.1. Postoperative sepsis per 1,000 adult elective-surgery discharges with an operating room procedure, by race/ethnicity and insurance, 2008-2009



Key: API = Asian and Pacific Islander.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2007, and AHRQ Quality Indicators, modified version 4.1.
Denominator: All elective hospital surgical discharges, age 18 and over, with length of stay of 4 or more days, excluding patients admitted for infection, patients with cancer or immunocompromised states, patients with obstetric conditions, and admissions specifically for sepsis.
Note: For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Rates are adjusted by age, gender, age-gender interactions, comorbidities, and diagnosis-related group clusters.

- In 2009, Whites had a significantly lower rate of postoperative sepsis than Blacks, APIs, and Hispanics (15.6 per 1,000 hospital discharges compared with 18.9, 19, and 17.7, respectively; Figure 3.1).
- In 2009, surgery patients with Medicaid had significantly higher rates of postoperative sepsis than surgery patients with private insurance (18.7 per 1,000 hospital discharges compared with 14.1).

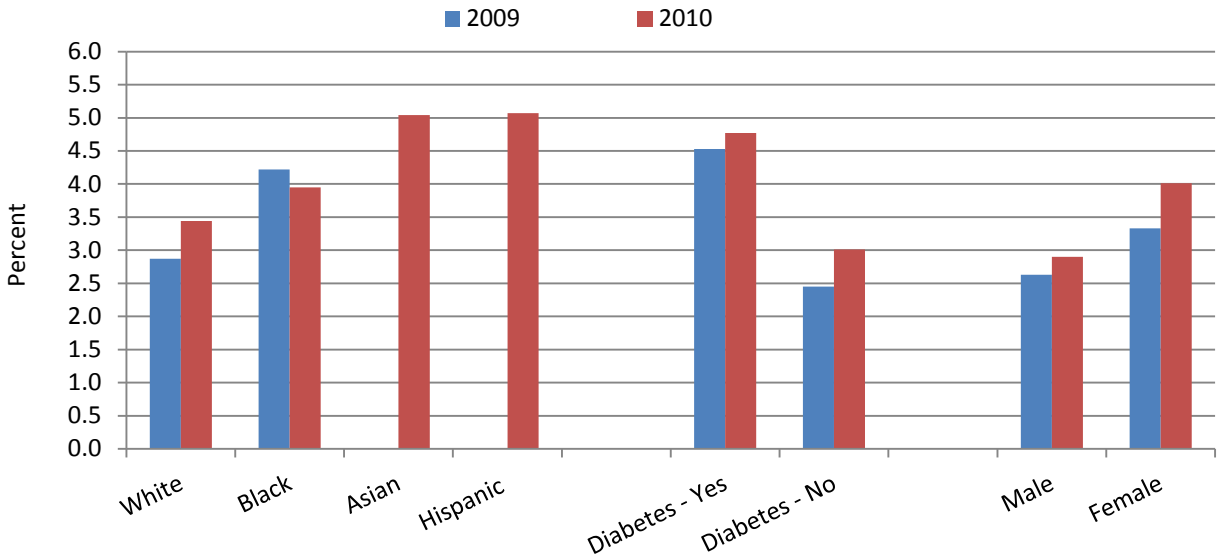
Also, in the NHQR:

- In 2009, surgery patients ages 18-44 had significantly lower rates of postoperative sepsis than those ages 45-64 and those age 65 and over.

Outcome: Catheter-Associated Urinary Tract Infections

The urinary tract is a common site of HAI. Urinary catheter use and specific comorbid conditions can increase the risk of developing a UTI. Approximately 40% of all HAIs are attributed to catheter-associated UTIs (Niel-Weise & van den Broek, 2005).

Figure 3.2. Adult surgery patients with postoperative catheter-associated urinary tract infection, by race/ethnicity, diabetes status, and gender, 2009-2010



Source: Agency for Healthcare Research and Quality, Medicare Patient Safety Monitoring System, 2009-2010.
Denominator: Selected discharges of hospitalized patients age 18 and over having major surgery and meeting specific criteria for each measure.
Note: For this measure, lower rates are better. White. Black, and Asian are non-Hispanic. Hispanic includes all races. Data for Asians and Hispanics in 2009 did not meet criteria for statistical reliability.

- In 2010, Hispanic adult surgery patients had a higher percentage of catheter-associated UTIs than Whites (5.1% compared with 3.4%; Figure 3.2).
- Also in 2010, adult surgery patients with diabetes had a higher percentage of catheter-associated UTIs than adult surgery patients without diabetes (4.8% compared with 3.0%).
- In 2010, female surgery patients had a higher percentage of catheter-associated UTIs than male surgery patients (4.0% compared with 2.9%).

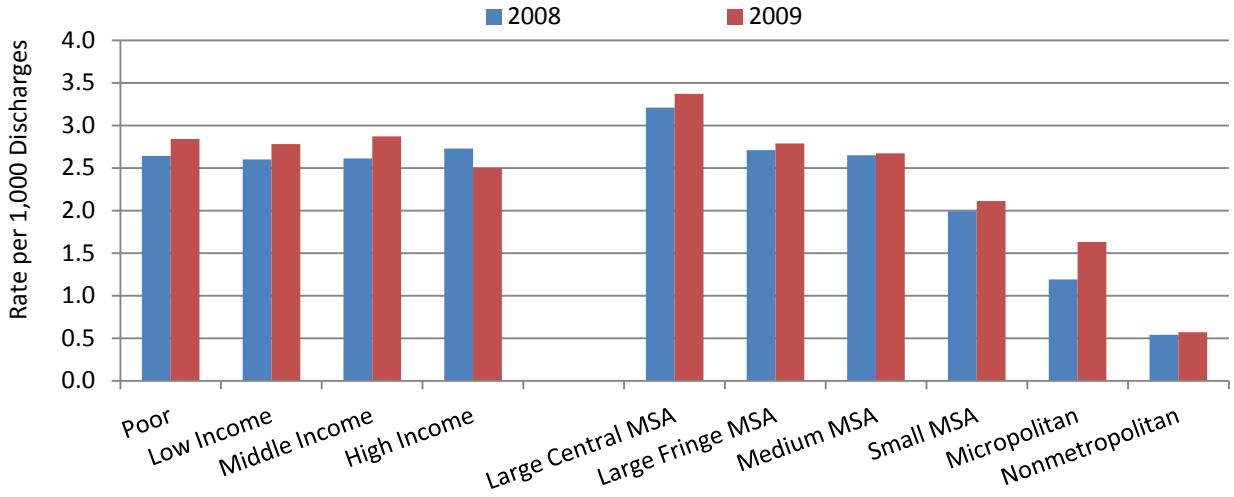
Also, in the NHQR

- In 2010, adult surgery patients ages 65 to 74, 75 to 84, and 85 and over had a higher percentage of catheter-associated UTIs compared with adult surgery patients under age 65.
- In 2010, the percentage of adult surgery patients with catheter-associated UTIs was higher for patients with chronic obstructive pulmonary disease (COPD) than for patients without COPD.

Outcome: Central Line-Associated Bloodstream Infections

Patients who require a central venous catheter inserted into the great vessels leading to the heart tend to be severely ill. However, the placement and use of these catheters can result in infections and other complications.

Figure 3.3. Adult admissions with central venous catheter-related bloodstream infections per 1,000 medical and surgical discharges of length 2 or more days, by patient income and hospital geographic location, 2008-2009



Key: MSA = metropolitan statistical area.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, and AHRQ Quality Indicators, version 4.1, 2008-2009.
Denominator: People age 18 and over or obstetric admissions.
Note: For this measure, lower rates are better.

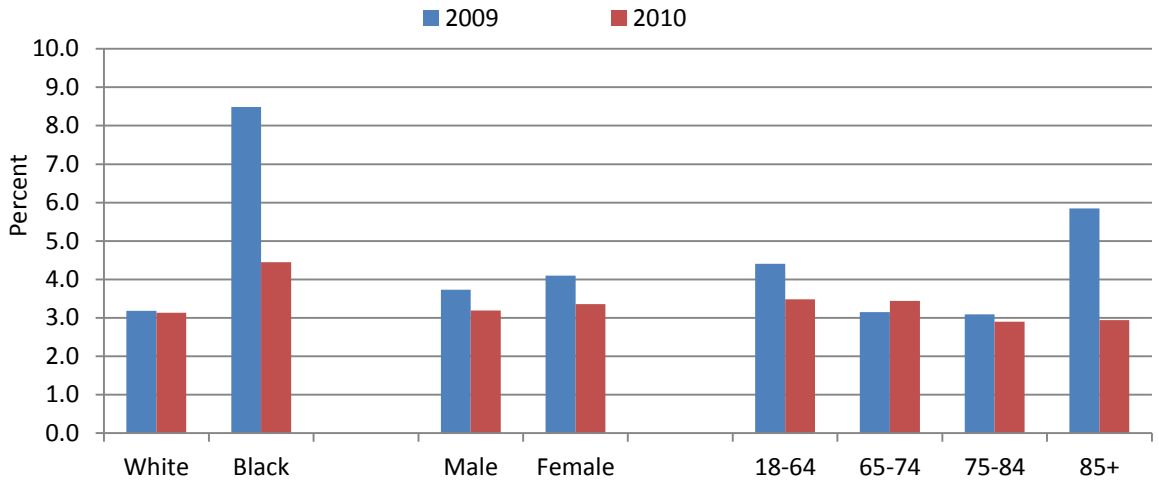
- In 2009, the three lower income groups had worse rates of bloodstream infections than the high-income group (Figure 3.3).
- Also in 2009, hospitals in large central metropolitan areas had higher rates than hospitals in large fringe metropolitan areas (3.4 per 1,000 discharges compared with 2.8). Hospitals in small metropolitan, micropolitan, and nonmetropolitan areas had lower rates than hospitals in large fringe metropolitan areas (2.1, 1.6, and 0.6, respectively, compared with 2.8).

Adverse Events

Outcome: Mechanical Adverse Events Associated With Central Venous Catheters

Some patients need a central venous catheter inserted into a major vein in the neck, chest, or groin so that providers can administer medication or fluids, obtain blood for tests, and take cardiovascular measurements. Patients who require a central venous catheter tend to be severely ill. The placement and use of these catheters can result in mechanical adverse events, including bleeding; hematoma; perforation; pneumothorax; air embolism; and misplacement, occlusion, shearing, or knotting of the catheter.

Figure 3.4. Composite: Mechanical adverse events associated with central venous catheter placement, among adults, by race, gender, and age, 2009-2010



Source: Agency for Healthcare Research and Quality, Medicare Patient Safety Monitoring System, 2009-2010.
Denominator: Selected discharges of hospitalized patients age 18 and over with central venous catheter placement.
Note: For this measure, lower rates are better. White and Black are non-Hispanic. Mechanical adverse events include allergic reaction to the catheter, tamponade, perforation, pneumothorax, hematoma, shearing off of the catheter, air embolism, misplaced catheter, thrombosis or embolism, knotting of the pulmonary artery catheter, and certain other events.

- In 2010, there were no statistically significant differences by race, gender, or age in the percentage of mechanical adverse events associated with central venous catheter placement (Figure 3.4).

Also, in the NHQR:

- In 2010, the percentage of hospitalized adults with adverse events associated with central venous catheter placement was higher for adults with obesity than for those without obesity.

Outcome: Obstetric Trauma

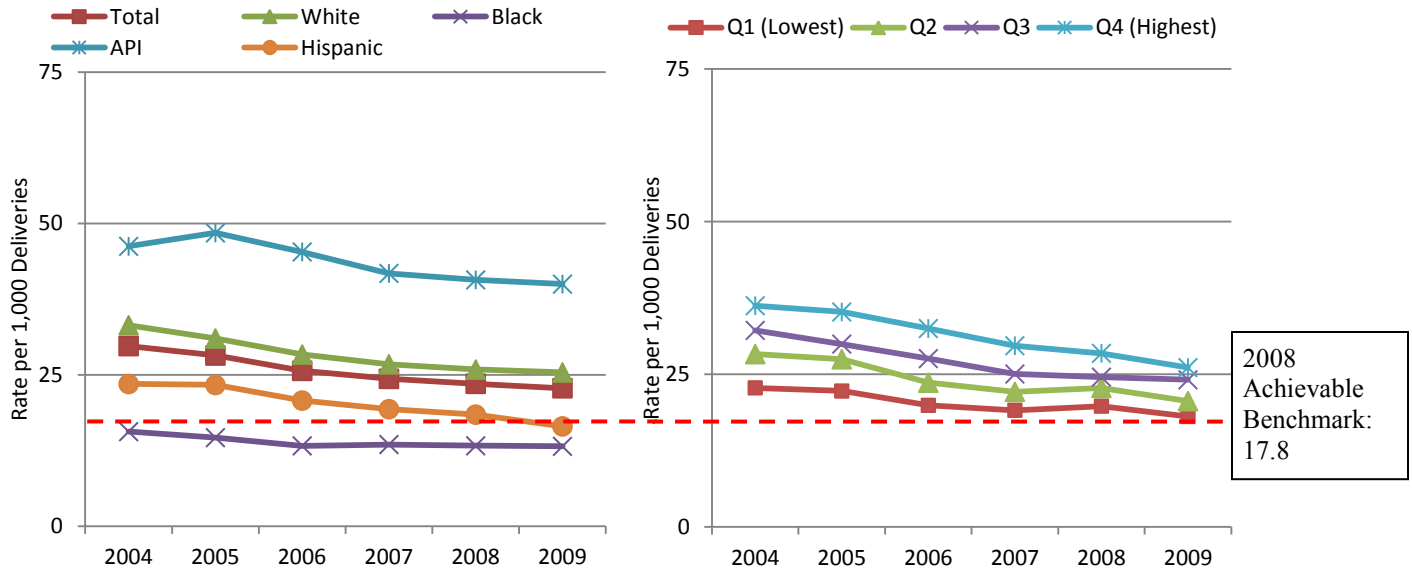
Childbirth and reproductive care are the most common reasons for women of childbearing age to use health care services. As 11,300 babies are born each day in the United States (Martin, et al., 2011), childbirth is the most common reason for hospital admission among women.

Obstetric trauma involving a severe tear to the vagina or surrounding tissues during delivery is a common complication of childbirth. Higher risks of severe (i.e., 3rd or 4th degree) perineal laceration may be related to the degree of fetal-maternal size disproportion. Adolescents, who often have smaller body sizes because they have not finished growing, may be more likely to experience obstetric trauma than older women (Riskin-Mashiah, et al., 2002). In addition, although any delivery can result in trauma, existing evidence shows that severe perineal trauma can be reduced by restricting the use of episiotomies and forceps (Kudish, et al., 2008).

Previous reports used AHRQ Quality Indicators version 3.1 to generate obstetric trauma rates. As of 2011, the reports use a modified version 4.1 of the software. While the effects of version

change are extremely small, these estimates should not be compared with estimates in previous reports.

Figure 3.5. Obstetric trauma with 3rd or 4th degree laceration per 1,000 vaginal deliveries without instrument assistance, by race/ethnicity and area income, 2004-2009



Key: API = Asian or Pacific Islander; Q1 represents the lowest income quartile and Q4 represents the highest income quartile based on the median income of a patient's ZIP Code of residence.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, State Inpatient Databases disparities analysis file, and AHRQ Quality Indicators, modified version 4.1.
Denominator: All patients hospitalized for vaginal delivery without indication of instrument assistance.
Note: For this measure, lower rates are better. Rates are adjusted by age. White, Black, and API are non-Hispanic; Hispanic includes all races.

- From 2004 to 2009, rates of obstetric trauma with 3rd or 4th degree laceration decreased from 29.8 to 22.8 per 1,000 vaginal deliveries without instrument assistance (Figure 3.5). The rates for all racial/ethnic and income groups decreased.
- In all years, API mothers had higher rates of obstetric trauma than White mothers. In the same period, Black and Hispanic mothers had lower rates of obstetric trauma than White mothers.
- From 2004 to 2009, residents of the lower three area income quartiles had lower rates than residents of the highest area income quartile.
- The 2008 top 4 State achievable benchmark was 17.8 per 1,000 deliveries.[iii] Hispanic and Black mothers have already attained the benchmark. At the current annual rate of decrease, White mothers could achieve this benchmark in 4 years, while API mothers would take 12 years. All income groups could achieve the benchmark within about 4 years.

[iii] The top 4 States that contributed to the achievable benchmark are South Dakota, Utah, West Virginia, and Wyoming.

Also, in the NHQR:

- In all years, mothers ages 18-24 and 35-54 had lower rates of obstetric trauma than mothers ages 25-34. Mothers who were insured with Medicare, Medicaid, and no insurance had lower rates of obstetric trauma than mothers with private health insurance.

Patient Safety Culture

Measuring patient safety directly is difficult because of the complexity of systematically reporting medical errors and adverse events. High-reliability organizations that achieve low rates of adverse events establish "cultures of safety." A culture of safety is characterized by shared dedication to making work safe, blame-free reporting and communication about error, collaboration and teamwork across disciplines, and adequate resources to prevent adverse events.

AHRQ developed the Hospital Survey on Patient Safety Culture to help hospitals assess the culture of safety in their facilities. AHRQ began producing comparative database reports in 2007 to help hospitals assess their performance relative to similar institutions.

In this NHDR, we present data from the *Hospital Survey on Patient Safety Culture: 2012 User Comparative Database Report*. This report is based on survey responses collected from 567,703 hospital staff in 1,128 hospitals representing approximately 18% of the Nation's hospitals. The average hospital response rate was 53%, with an average of 503 completed surveys per hospital.

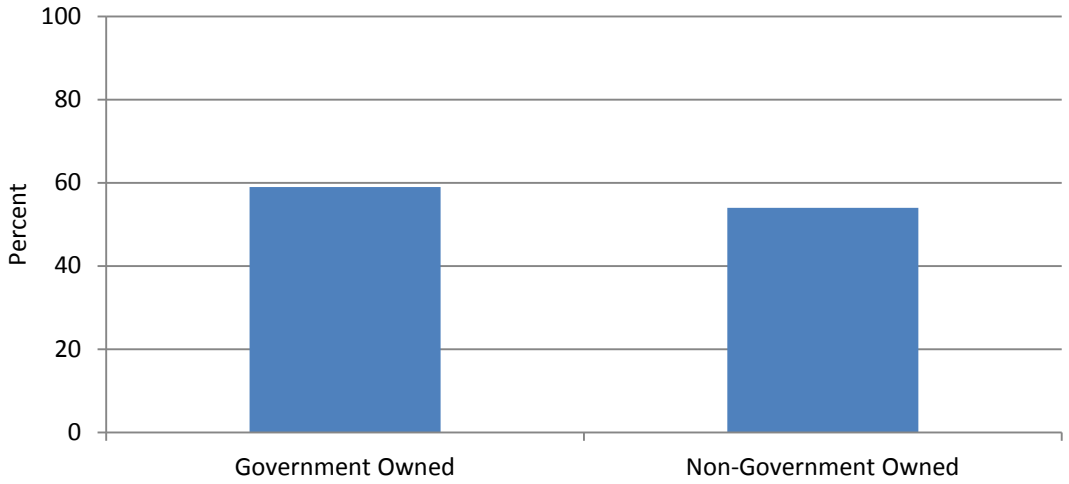
Most hospitals administered Web surveys (66%), up from 25% in 2007, when most hospitals administered paper surveys, and up from 56% in 2011. Web surveys resulted in slightly lower response rates (51%) than response rates from paper surveys (61%) but were about the same as mixed-mode administered surveys (49%). Most hospitals administered the survey to all staff or a sample of all staff from all hospital departments. Nurses accounted for more than one-third of respondents. More than three-quarters of respondents had direct interaction with patients.

Results are presented for the 12 patient safety culture composites assessed in the survey, as an average percent positive response. Percent positive refers to the percentage of responses that agree or strongly agree with a positively worded item (e.g., "People support one another in this unit") and the percentage that disagree or disagree strongly with a negatively worded item (e.g., "We have patient safety problems in this unit"). Hospitals contributing data to the comparative database mirror the population of U.S. hospitals as a whole, but participation is entirely voluntary.

Twenty percent of the database hospitals were government owned, which is similar to the distribution of registered hospitals (26% government owned) included in the 2010 American Hospital Association (AHA) Annual Survey of Hospitals. There were few differences between government-owned and non-government-owned hospitals across the 12 patient safety culture composites, with an average of 63% positive across the composites for both types of ownership.

Nearly two-thirds (66%) of the database hospitals were nonteaching, which is slightly lower than the distribution of 2010 AHA registered hospitals (76%). Nonteaching hospitals scored higher than teaching hospitals across all 12 patient safety culture composites.

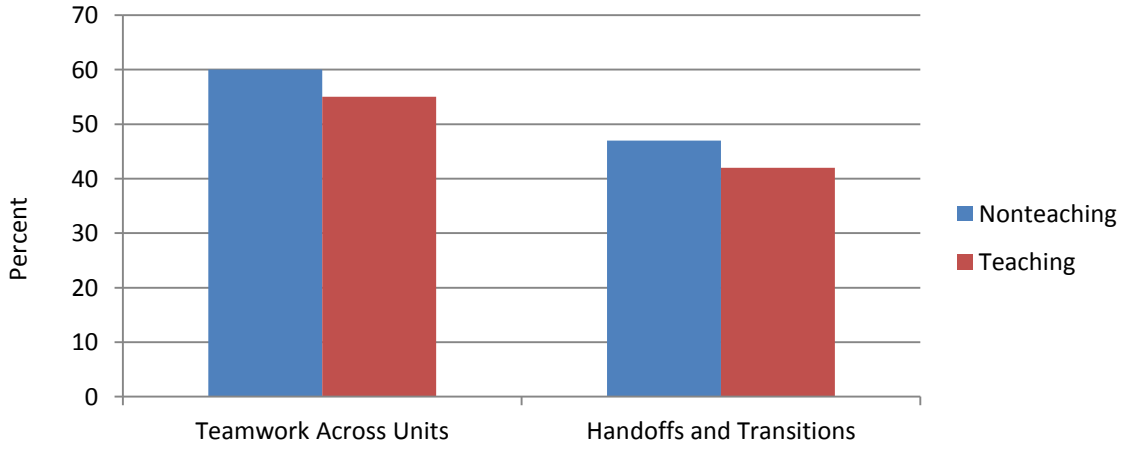
Figure 3.6. Average percentage of respondents who did not report any patient safety events, by hospital ownership



Source: Agency for Healthcare Research and Quality, *Hospital Survey on Patient Safety Culture: 2012 User Comparative Database Report*.
Denominator: Hospital staff responding to the 2011 Hospital Survey on Patient Safety Culture.

- More staff in government-owned hospitals did not report any events in the past 12 months (59%) than in non-government-owned hospitals (54%; Figure 3.6). It is likely that this represents underreporting of events in both settings.
- Staff in government-owned hospitals on average gave only slightly higher patient safety grades than staff in non-government-owned hospitals (76% compared with 75% saying "Excellent" or "Very Good"; data not shown).

Figure 3.7. Average percent positive response for teamwork across units and handoffs and transitions, by hospital teaching status



Source: Agency for Healthcare Research and Quality, *Hospital Survey on Patient Safety Culture: 2012 User Comparative Database Report*.
Denominator: Hospital staff responding to the 2011 Hospital Survey on Patient Safety Culture.

- Nonteaching hospitals on average scored 5 percentage points higher on Teamwork Across Units (60% positive compared with 55%), and Handoffs and Transitions (47% positive compared with 42%; Figure 3.7).
- Nonteaching hospitals on average had a slightly higher patient safety grade (76% compared with 73% saying "Excellent" or "Very Good"; data not shown). Yet the same percentage of nonteaching and teaching hospital staff on average did not report any events in the past 12 months (55%; data not shown).

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Chapter 4. Timeliness

Timeliness in health care is the system's capacity to provide care quickly after a need is recognized. It is one of the six dimensions of quality the Institute of Medicine established as a priority for improvement in the health care system (Institute of Medicine, 2001). Measures of timeliness include time spent waiting in doctors' offices and emergency departments (EDs) and the interval between identifying a need for specific tests and treatments and actually receiving services.

Importance

Morbidity and Mortality

- Lack of timeliness can result in emotional distress, physical harm, and higher treatment costs (Boudreau, et al., 2004).
- Stroke patients' mortality and long-term disability are largely influenced by the timeliness of therapy (Kwan, et al., 2004).
- Timely delivery of appropriate care also can help reduce mortality and morbidity for chronic conditions such as kidney disease (Kinchen, et al., 2002).
- Timely delivery of childhood immunizations helps maximize protection from vaccine-preventable diseases while minimizing risks to the child and reducing the chance of disease outbreaks (Luman, et al., 2005).
- Timely antibiotic treatments are associated with improved clinical outcomes (Houck & Bratzler, 2005).

Cost

- Early care for comorbid conditions has been shown to reduce hospitalization rates and costs for Medicare beneficiaries (Himelhoch, et al., 2004).
- Some research suggests that, over the course of 30 years, the costs of treating diabetic complications can approach $50,000 per patient (Caro, et al., 2002). Early care for complications in patients with diabetes can reduce overall costs of the disease (Ramsey, et al., 1999).
- Timely outpatient care also can reduce admissions for pediatric asthma, which account for $1.25 billion in total hospitalization charges annually (AHRQ, 2009).

Measures

This report includes three measures related to timeliness of primary, emergency, and hospital care:

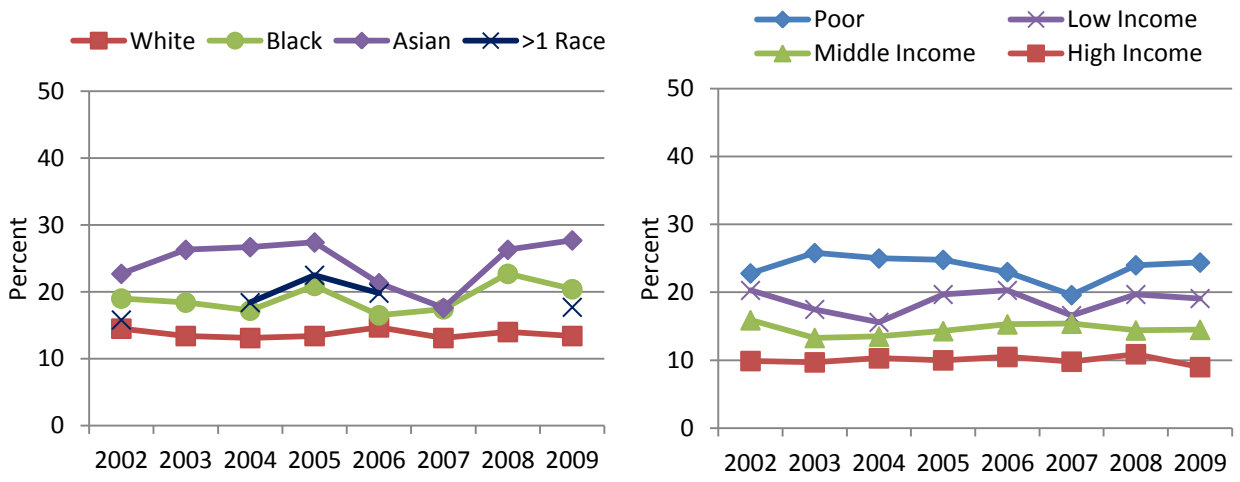
- Getting care for illness or injury as soon as wanted.
- ED wait times.
- Timeliness of cardiac reperfusion for heart attack patients.

Findings

Getting Care for Illness or Injury As Soon As Wanted

A patient's primary care provider should be the first point of contact for most illnesses and injuries. A patient's ability to receive timely treatment for illness and injury is a key element in a patient-centered health care system.

Figure 4.1. Adults who needed care right away for an illness, injury, or condition in the last 12 months who sometimes or never got care as soon as wanted, by race and income, 2002-2009



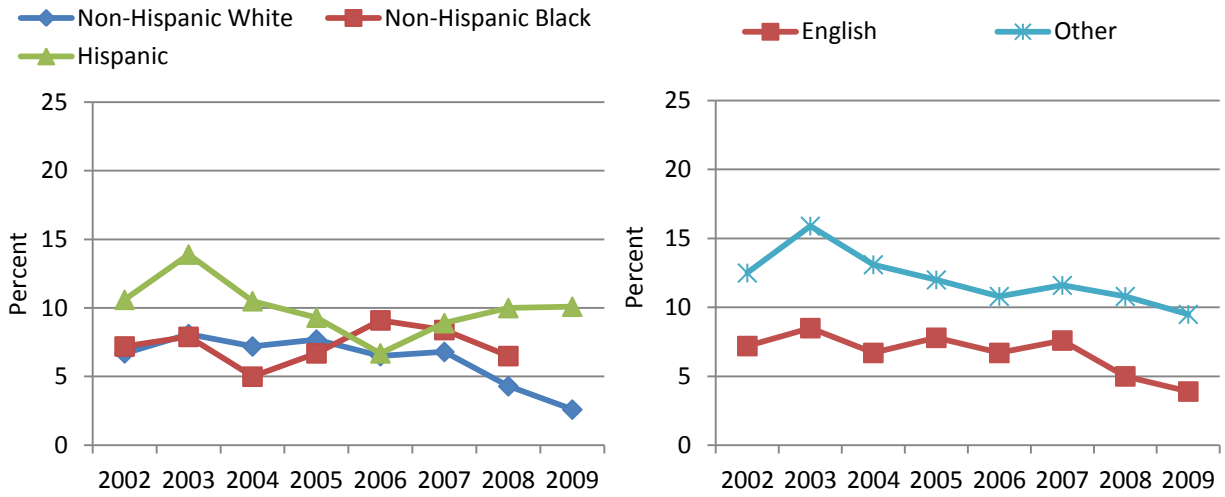
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: For this measure, lower rates are better. Data were insufficient for this analysis for multiple race in 2003, 2007, and 2008.

- In 7 of 8 years from 2002 to 2009, the percentage of adults who needed care right away for an illness, injury, or condition in the last 12 months who sometimes or never got care as soon as wanted was significantly lower for Whites than for Blacks. In 6 of 8 years, the percentage was lower for Whites than for Asians (Figure 4.1). The gap between Whites and Blacks and Whites and Asians remains unchanged.
- In all years, the percentage who reported not getting care as soon as wanted was significantly lower for high-income people than for poor, low-income, and middle-income people.
- In all years, the percentage who reported not getting care as soon as wanted was significantly lower for people with any college education than for people with less than a high school education (data not shown).

Also, in the NHQR:

- From 2002 to 2009, the percentage of adults who did not receive care as soon as wanted was significantly higher for adults ages 18-44 compared with all other age groups.

Figure 4.2. Children who needed care right away for an illness, injury, or condition in the last 12 months who sometimes or never got care as soon as wanted, by ethnicity and language spoken at home, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population under age 18.
Note: For this measure, lower rates are better. The 2009 data for non-Hispanic Blacks did not meet criteria for statistical reliability, data quality, or confidentiality.

- From 2002 to 2009, non-Hispanic White children and children who spoke English at home showed improvement in the percentage who received care as soon as wanted (Figure 4.2).
- During this period, there was no statistically significant difference between non-Hispanic White and non-Hispanic Black children in any year.
- In 5 of 8 years, the percentage of children who did not receive care as soon as wanted was significantly lower for children from homes where English was the language spoken most often than for children from homes where a language other than English was spoken most often.

Also, in the NHQR:

- From 2002 to 2009, the percentage of children residing in large central metropolitan areas who needed care right away for an illness, injury, or condition in the last 12 months and sometimes or never got care as soon as wanted decreased.

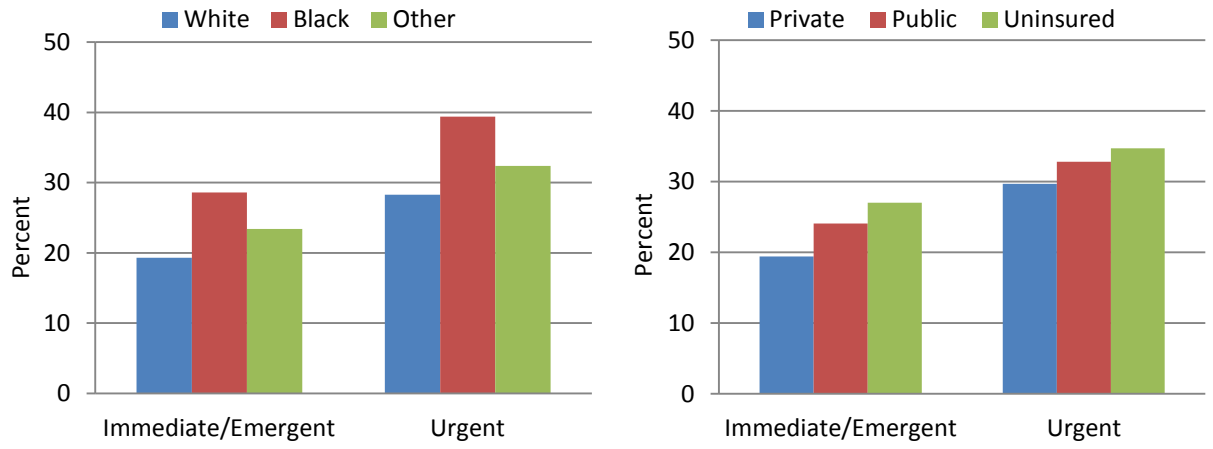
Emergency Department Visit Waiting Times

- In 2010, an estimated 130 million visits were made to hospital EDs compared with almost 124 million visits in 2008 (CDC, 2010).
- The median waiting time for patients to be seen by a physician during an ED visit in the United States was 28 minutes (CDC, 2010).
- Not all patients seeking care in an ED need urgent care, and use of EDs for nonurgent care could lead to longer wait times.

The National Hospital Ambulatory Medical Care Survey defines five levels of urgency of ED visits:

- Immediate, requiring immediate care.
- Emergent, requiring care in less than 15 minutes.
- Urgent, requiring care within 1 hour.
- Semiurgent, requiring care within 2 hours.
- Nonurgent, not requiring care within 2 hours.

Figure 4.3. Emergency department visits in which patient had to wait an hour or more, by urgency, race, and insurance, 2009-2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Ambulatory Medical Care Survey (NHAMCS), 2009-2010.
Denominator (Immediate or Emergent): Visits to U.S. emergency departments with triage assessments of immediate or emergent.
Denominator (Urgent): Visits to U.S. emergency departments with triage assessments of urgent.
Note: For this measure, lower rates are better. Race data were missing for 13.3% of total visits included in this chart. Missing race data were imputed. Standard errors were inflated as described in 2007 NHAMCS Microdata File Documentation, ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHAMCS/. Insurance status is shown for patients under age 65 and classified based on all expected payment sources. Public insurance includes Medicare, Medicaid, and State Children's Health Insurance Program. Uninsured is defined as having "only self-pay" or "no charge/charity" as payment sources.

- In 2009-2010, among ED visits for immediate/emergent conditions, the percentage of patients who had to wait an hour or more was higher for Blacks than for Whites (Figure 4.3). Also, a higher percentage of uninsured patients had to wait an hour or more compared with patients with private insurance.
- Among visits for urgent conditions, the percentage of patients who had to wait an hour or more was higher for Blacks than for Whites and for uninsured patients than for privately insured patients.

Also, in the NHQR:

- In 2009-2010, among ED visits for both immediate/emergent and urgent conditions, the percentage of patients who had to wait an hour or more was significantly higher for those ages 18-44 than for those under age 18 and those age 65 and over.

- For both immediate/emergent and urgent conditions, the percentage was lower among patients in nonmetropolitan areas compared with patients in metropolitan areas.

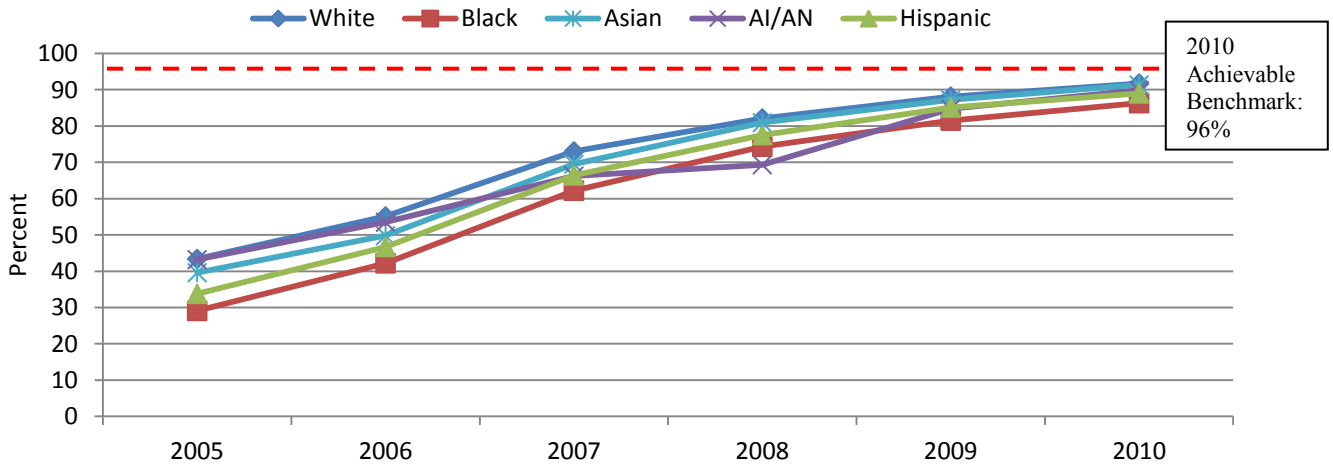
Timeliness of Cardiac Reperfusion for Heart Attack Patients

The capacity to treat hospital patients in a timely manner is especially important for emergency situations such as heart attacks. Some heart attacks are caused by blood clots. Early actions, such as percutaneous coronary intervention (PCI) or fibrinolytic medication, may open blockages caused by blood clots, reduce heart muscle damage, and save lives (Gerczuk & Kloner, 2012). To be effective, these actions need to be performed quickly after the start of a heart attack.

In this report, we present two measures of timeliness of cardiac reperfusion:

- PCI within 90 minutes among appropriate patients.
- Fibrinolytic medication within 30 minutes among appropriate patients.

Figure 4.4. Hospital patients with heart attack who received percutaneous coronary intervention within 90 minutes, by race/ethnicity, 2005-2010



Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2005-2010.
Denominator: Patients hospitalized with a principal diagnosis of acute myocardial infarction who were appropriate candidates for percutaneous coronary intervention.

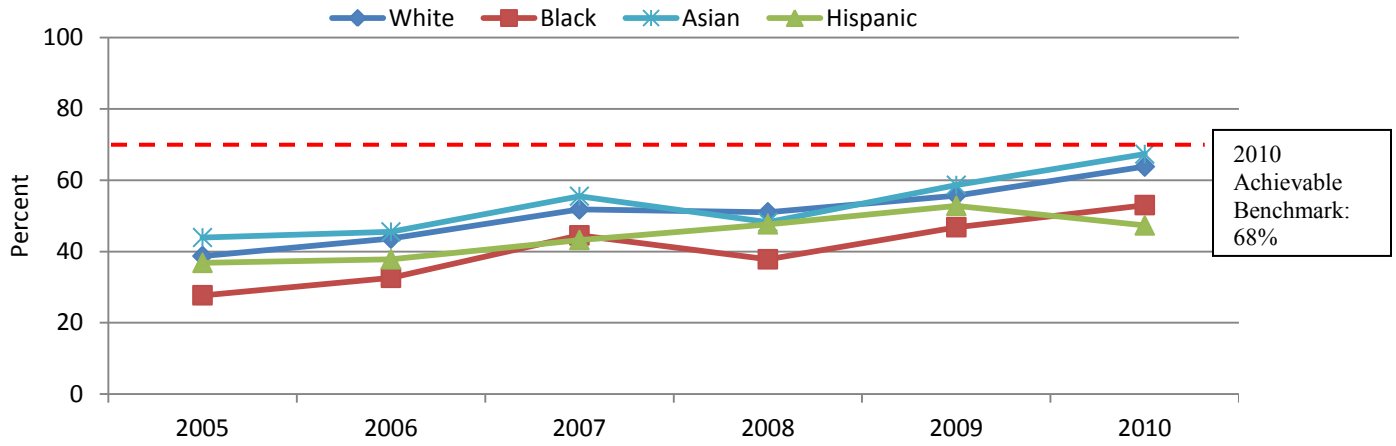
- Among heart attack patients, the percentage of patients receiving timely PCI improved for all racial/ethnic groups from 2005 to 2010 (Figure 4.4). In all years, Blacks and Hispanics were less likely than Whites to receive timely PCI.
- The benchmark for this measure was changed because, overall, the 2008 benchmark had been achieved.

- The 2010 top 5 State achievable benchmark was 96%.[i] At the current rates of improvement, the achievable benchmark could be attained overall and among all racial/ethnic groups in less than 1 year.

Also, in the NHQR:

- In 2005, a significantly higher percentage of patients under age 65 received PCI than patients in all other age groups; however, by 2010 there were no statistically significant differences by age in the percentage of patients who received PCI.

Figure 4.5. Hospital patients with heart attack who received fibrinolytic medication within 30 minutes, by race/ethnicity, 2005-2010



Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2005-2010.
Denominator: Patients hospitalized with a principal diagnosis of acute myocardial infarction who were appropriate candidates for fibrinolytic medication.

- Among heart attack patients, the percentage of patients receiving timely fibrinolytic medication improved for all racial/ethnic groups from 2005 to 2010 (Figure 4.5). In all years, Blacks were less likely to receive timely fibrinolytic medication compared with Whites and the disparity between Hispanics and Whites grew.
- The benchmark for this measure was changed because, overall, the 2008 benchmark had been achieved.
- In 2010, the top 5 State achievable benchmark was 68%.[ii] At the current rate of improvement, the achievable benchmark could be attained overall in less than a year (data not shown).
- At their current rates of improvement, Whites and Asians should reach the achievable benchmark in about 1 year; Blacks should reach the benchmark in about 3 years, and Hispanics should reach the benchmark in about 7 years.

[i] The top 5 States that contributed to the achievable benchmark are Maine, Minnesota, North Carolina, Rhode Island, and South Carolina.
[ii] The top 5 States that contributed to the achievable benchmark are Arkansas, California, Georgia, Mississippi, and Texas.

Also, in the NHQR:

- The percentage of patients who received fibrinolytic medication was significantly higher for patients under age 65 than for patients ages 75-84 in 4 of 6 years and significantly higher than for patients age 85 and over in 5 of 6 years.

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Chapter 5. Patient Centeredness

The Institute of Medicine identifies patient centeredness as a core component of quality health care (IOM, 2001a). Patient centeredness is defined as:

> [H]ealth care that establishes a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patients' wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care (IOM, 2001b).

Patient centeredness "encompasses qualities of compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient" (IOM, 2001a). In addition, translation and interpretation services facilitate communication between the provider and the patient and are often a legal requirement.[i] The patient-centered approach includes viewing the patient as a unique person, rather than focusing strictly on the illness, building a therapeutic alliance based on the patient's and the provider's perspectives.

Patient-centered care is supported by good provider-patient communication so that patients' needs and wants are understood and addressed and patients understand and participate in their own care (IOM, 2001b). This approach to care has been shown to improve patients' health and health care (DiMatteo, 1998; Stewart, et al., 2000; Little, et al., 2001; Anderson, 2002; Beck, et al., 2002). Unfortunately, many barriers exist to good communication.

Providers also differ in communication proficiency, including varied listening skills and different views from their patients of symptoms and treatment effectiveness (Rhoades, et al., 2001). Additional factors influencing patient centeredness and provider-patient communication include:

- Language barriers.
- Racial and ethnic concordance between the patient and provider.
- Effects of disabilities on patients' health care experiences.
- Providers' cultural competency.

Efforts to remove these possible impediments to patient centeredness are underway within the Department of Health and Human Services (HHS). For example, the Office of Minority Health has developed a set of Cultural Competency Curriculum Modules that aim to equip providers with cultural and linguistic competencies to help promote patient-centered care (HHS, 2011).[ii] These modules are based on the National Standards on Culturally and Linguistically Appropriate Services. The standards are directed at health care organizations and aim to improve patient centeredness of care for people with limited English proficiency (LEP). Another example, which is administered by the Health Resources and Services Administration, is *Effective*

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[i] For example, Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d, may require the practitioner or hospital to provide language interpreters and translate vital documents for limited-English-proficient persons. Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794, may require the practitioner or hospital to provide sign language interpreters, materials in Braille, and/or accessible electronic formats for individuals with disabilities.

[ii] This free, online educational program (available at www.thinkculturalhealth.hhs.gov) is accredited for Continuing Medical Education credits for physicians, as well as Continuing Education Units for physician assistants, nurse practitioners, registered nurses, social workers, and emergency response personnel.

Communication Tools for Healthcare Professionals, a Web-based course for providers that integrates concepts related to health literacy with cultural competency and LEP.[iii]

Similarly, the HHS Office for Civil Rights (OCR), in partnership with 18 medical schools in the National Consortium for Multicultural Education, funded by the National Institutes of Health, provides a course on cultural competency in medicine. The course, *Stopping Discrimination Before It Starts: The Impact of Civil Rights Laws on Health Care Disparities*,[iv] focuses on Title VI compliance. This course discusses, in part, the HHS OCR's Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons. This guidance explains that recipients of Federal financial assistance must take reasonable steps to give individuals with LEP a meaningful opportunity to participate in HHS-funded programs. Failure to do so may violate the prohibition under Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d *et seq*., against national origin discrimination (HHS, 2003).

In addition, the HHS OCR is responsible for the enforcement of Section 1557 of the Affordable Care Act, 42 U.S.C. 18116. This section provides that an individual shall not be excluded from participation in, be denied the benefits of, or be subjected to discrimination on the grounds prohibited under Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d *et seq*. (race, color, national origin); Title IX of the Education Amendments of 1972, 20 U.S.C. 1681 *et seq*. (sex); the Age Discrimination Act of 1975, 42 U.S.C. 6101 *et seq*. (age); or Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. 794 (disability), under any health program or activity, any part of which is receiving Federal financial assistance, or under any program or activity that is administered by an executive agency or any entity established under Title I of the Affordable Care Act or its amendments.

On February, 26, 2013, the Department published its 2013 Language Access Plan (2013 HHS LAP; HHS, 2013), ensuring access to HHS programs and activities for people with LEP. The covered programs and activities include, but are not limited to, Medicare, Medicaid, and the Children's Health Insurance Program. The 2013 HHS LAP was developed by the HHS Language Access Steering Committee, which is led by the Director of the OCR on behalf of the Secretary.

In accordance with Executive Order 13166, *Improving Access to Services for Persons With Limited English Proficiency* (White House, 2000), the 2013 HHS LAP establishes the Department's policy and strategy for serving individuals with LEP and reaffirms the Department's commitment to language access principles. The 2013 HHS LAP serves as a blueprint for HHS staff and operating divisions charged with developing their own agency-

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[iii] This online program (available at www.hrsa.gov/publichealth/healthliteracy/) is accredited for Continuing Medical Education credits for physicians and Continuing Education Units for nurses, physician assistants, pharmacists, and Certified Health Education Specialists.

[iv] This course (available in the Association of American Medical Colleges' MedEdPORTAL, https://www.mededportal.org/publication/7740) has been presented at five national medical schools. Emory University School of Medicine and the University of Colorado School of Medicine have incorporated this course into their fourth year curriculums.

specific language access plans. Additional information regarding language access requirements is available from the Department of Justice (DOJ, 2011).

The 2013 HHS LAP is organized into 10 cross-cutting elements:

1. Assessment – Needs and Capacity;
2. Oral Language Assistance Services;
3. Written Translations;
4. Policies and Procedures;
5. Notification of the Availability of Language Assistance at No Cost;
6. Staff Training;
7. Assessment – Access and Quality;
8. Stakeholder Consultation;
9. Digital Information; and
10. Grant Assurance and Compliance.

Importance

Morbidity and Mortality

- Patient-centered approaches to care have been shown to improve patients' health status. These approaches rely on building a provider-patient relationship, improving communication, fostering a positive atmosphere, and encouraging patients to actively participate in provider-patient interactions (Stewart, et al., 2000; Anderson, 2002).
- A patient-centered approach has been shown to lessen patients' symptom burden (Little, et al., 2001).
- Patient-centered care encourages patients to comply with treatment regimens (Beck, et al., 2002).
- Patient-centered care can reduce the chance of misdiagnosis due to poor communication (DiMatteo, 1998).

Cost

- Patient centeredness has been shown to reduce underuse and overuse of medical care (Berry, et al., 2003).
- Patient centeredness can reduce the strain on system resources and save money by reducing the number of diagnostic tests and referrals (Little, et al., 2001).
- Although some studies have shown that being patient centered reduces medical costs and use of health service resources, others have shown that patient centeredness increases providers' costs, especially in the short run (Bechel, et al., 2000).

Measures

The *National Healthcare Quality Report* (NHQR) and the *National Healthcare Disparities Report* (NHDR) track several measures of patients' experience of care. The reports also address the priority of ensuring that each person and family is engaged as partners in their care, found in the *National Strategy for Quality Improvement in Health Care* (National Quality Strategy).[v] The rationale is that "[h]ealth care should give each individual patient and family an active role in their care. Care should adapt readily to individual and family circumstances, as well as differing cultures, languages, disabilities, health literacy levels, and social backgrounds." Examples of person-centered care could be ensuring that patients' feedback on their preferences, desired outcomes, and experiences of care is integrated into care delivery and enabling patients to effectively manage their care.

The NHDR has tracked a growing number of patient centeredness measures. Organized around the National Quality Strategy, the 2012 NHDR presents the following measures that relate to the goal to provide patient-centered care:

- Adults and children who reported poor communication at the doctor's office (composite).
- Adults who reported poor communication with nurses and doctors at the hospital.
- Adults with LEP, by whether they had a usual source of care with or without language assistance.
- Adults who needed an interpreter during last office visit.
- Provider's involvement of the patient in making treatment decisions.

The last measure also relates to the National Quality Strategy goal of patient engagement.

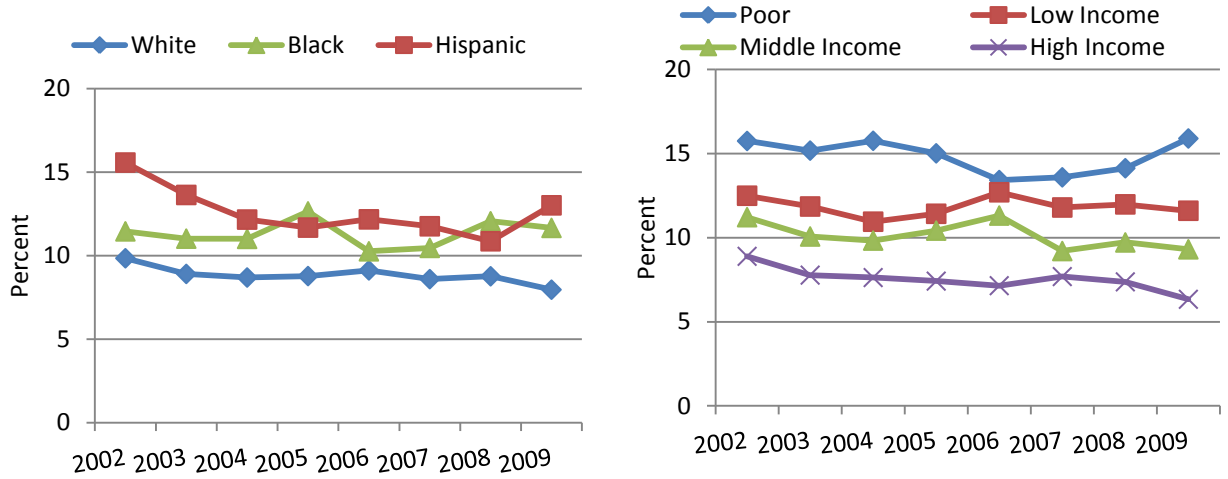
Findings

Patients' Experience of Care—Adults

Optimal health care requires good communication between patients and providers, yet barriers to provider-patient communication are common. To provide all patients with the best possible care, providers need to understand patients' diverse health care needs and preferences and communicate clearly with patients about their care.

[v] Available at www.healthcare.gov/center/reports/nationalqualitystrategy032011.pdf.

Figure 5.1. Composite: Adults who had a doctor's office or clinic visit in the last 12 months who reported poor communication with health providers, by race/ethnicity and income, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population age 18 and over who had a doctor's office or clinic visit in the last 12 months.
Note: For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Patients who report that their health providers *sometimes* or *never* listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them are considered to have poor communication.

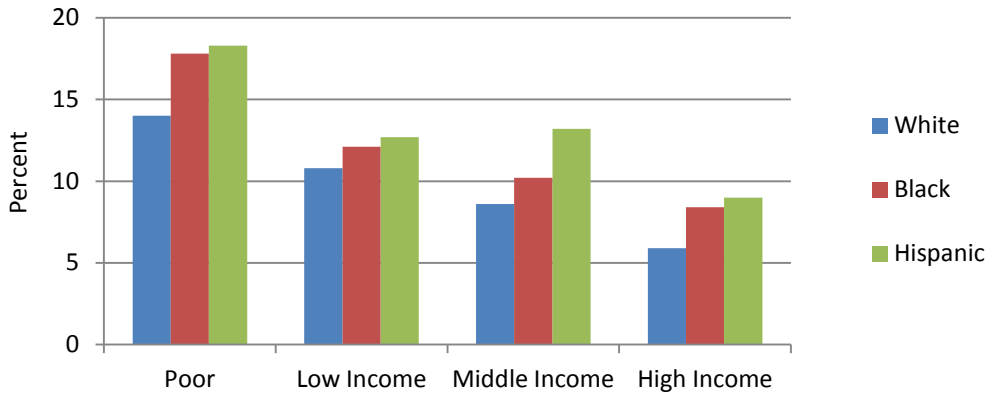
- Between 2002 and 2009, there was no statistically significant decrease in the percentage of adults who reported poor communication with their health providers for racial/ethnic groups or for income groups (Figure 5.1).
- From 2002 to 2009, Hispanics were significantly more likely than Whites to report poor communication. In 2009, the percentage who reported poor communication was significantly higher for Black and Hispanic adults than for White adults.
- From 2002 to 2009, poor and low-income adults were more likely than high-income adults to report poor communication with health providers.
- In 2009, the percentage of patients reporting poor communication was higher for poor, low-income, and middle-income groups than for the high-income group (15.9%, 11.6%, 9.3%, and 6.3%, respectively).

Also, in the NHQR:

- From 2002 to 2009, a significantly lower percentage of adults with private insurance reported poor communication with their health providers compared with adults who were uninsured and those with public insurance.

Racial and ethnic minorities are disproportionately of lower income levels. To distinguish the effects of race, ethnicity, and income on provider-patient communication, this measure is stratified by income.

Figure 5.2. Adult ambulatory patients who reported poor communication with health providers, by race/ethnicity, stratified by income, 2009



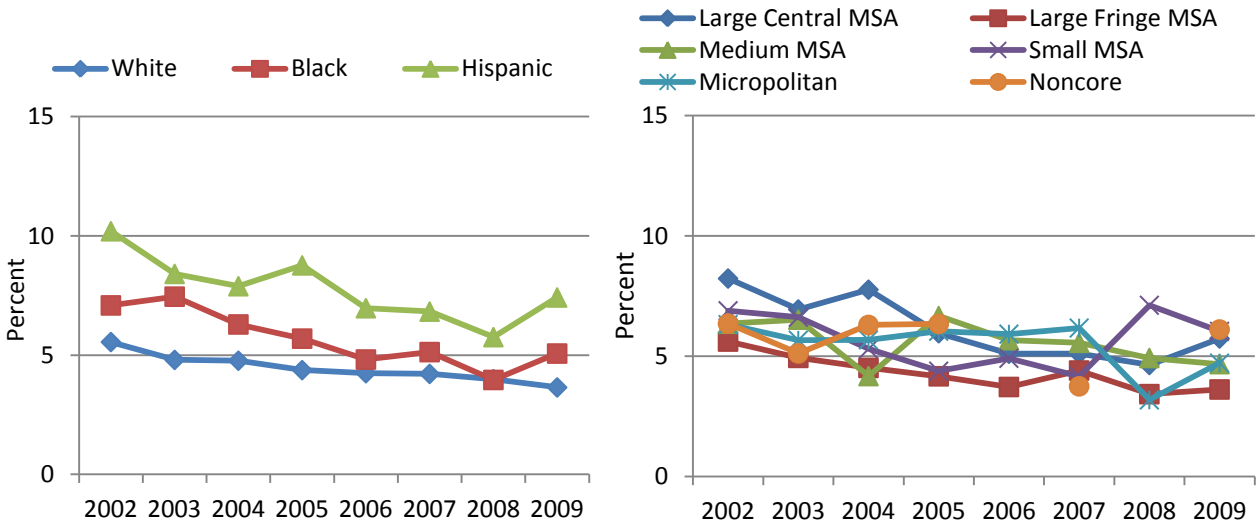
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2009.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Patients who report that their health providers *sometimes* or *never* listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them are considered to have poor communication.

- In 2009, a higher percentage of poor Hispanics and Blacks reported poor communication compared with poor Whites (18.3% and 17.8%, respectively, compared with 14%; Figure 5.2).

Patients' Experience of Care—Children

Communication in children's health care can be challenging since the child's experiences are interpreted through the eyes of a parent or guardian. During a health care encounter, a responsible adult caregiver will be involved in communicating with the provider and interpreting decisions to the patient in an age-appropriate manner. Optimal communication in children's health care can therefore have a significant impact on receipt of high-quality care and subsequent health status.

Figure 5.3. Composite: Children who had a doctor's office or clinic visit in the last 12 months whose parents reported poor communication with health providers, by race and geographic location, 2002-2009



Key: MSA = metropolitan statistical area.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population under age 18 who had a doctor's office or clinic visit in the last 12 months.
Note: For this measure, lower rates are better. White and Black are non-Hispanic. Hispanic includes all races. Data for children in noncore areas in 2006 and 2008 did not meet criteria for statistical reliability. Parents who report that their child's health providers *sometimes* or *never* listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them are considered to have poor communication.

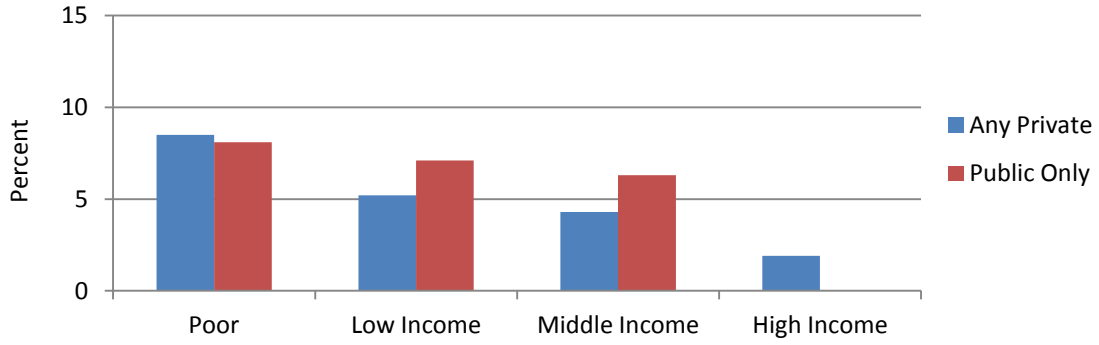
- From 2002 to 2009, the percentage of children whose parents or guardians reported poor communication significantly decreased among Hispanics (Figure 5.3). There were no other statistically significant changes in the percentage of children whose parents or guardians reported poor communication with their health providers.
- In 2009, there were no statistically significant differences by location in the percentage of children whose parents or guardians reported poor communication with their health providers.

Also, in the NHQR:

- In 2009, the percentage of children whose parents reported poor communication was higher for those with public insurance only than for those with any private insurance.

Insurance status varies by income. To distinguish the effects of various insurance groups on provider-patient communication, this measure is stratified by income.

Figure 5.4. Composite: Children who had a doctor's office or clinic visit in the last 12 months whose parents reported poor communication with health providers, by insurance status, stratified by income, 2009



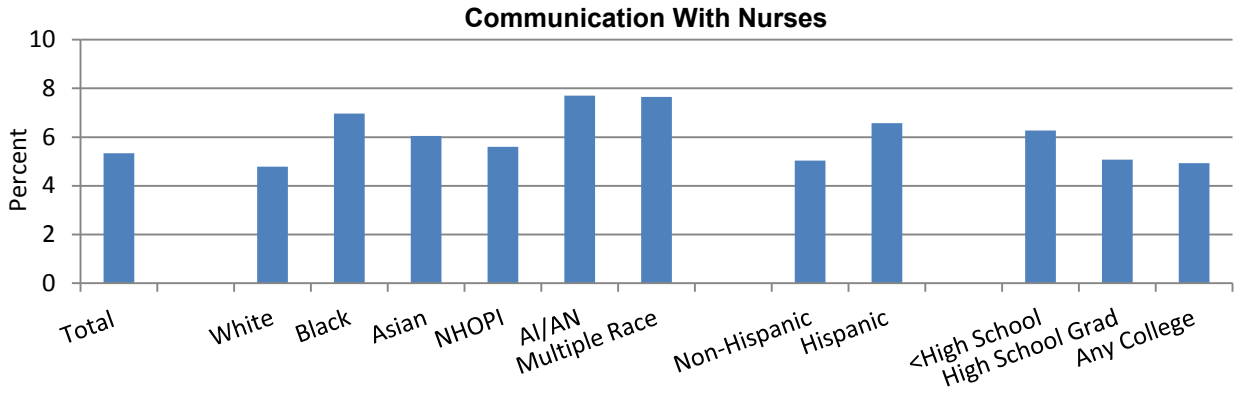
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2009.
Denominator: Civilian noninstitutionalized population under age 18.
Note: For this measure, lower rates are better. Data were not available for high-income people with public insurance only. Parents who report that their child's health providers *sometimes* or *never* listened carefully, explained things clearly, showed respect for what they had to say, or spent enough time with them are considered to have poor communication.

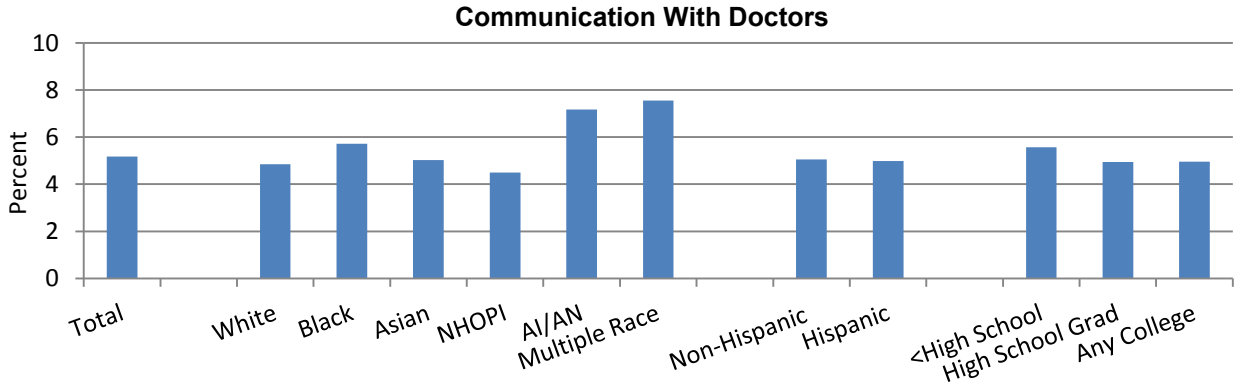
- When data are stratified by income, there are no statistically significant differences between those with any private insurance and those with public insurance only who reported poor communication with their health providers (Figure 5.4).

Patients' Experience of Care—Hospital

Using methods developed for the CAHPS® (Consumer Assessment of Healthcare Providers and Systems) survey (Hargraves, et al., 2003), the NHQR and NHDR use a composite measure that combines three measures of provider-patient communication into a single core measure. The composite measure presented includes data on providers who sometimes or never listened carefully, explained things clearly, and respected what patients had to say. These data are presented separately for communication with nurses and communication with doctors.

Figure 5.5. Adult hospital patients who reported poor communication with nurses and doctors, by race, ethnicity, and education, 2010





Key: NHOPI = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Agency for Healthcare Research and Quality, Hospital CAHPS (Consumer Assessment of Healthcare Providers and Systems) Survey, 2010.
Denominator: Adult hospitalized patients.
Note: For this measure, lower rates are better. Non-Hispanic and Hispanic include all races. Poor communication is defined as responded *sometimes* or *never* to the set of survey questions: "During this hospital stay, how often did doctors/nurses treat you with courtesy and respect?" "During this hospital stay, how often did doctors/nurses listen carefully to you?" and "During this hospital stay, how often did doctors/nurses explain things in a way you could understand?"

- In 2010, overall, 5.3% of adult hospital patients reported poor communication with nurses during their hospital stay, and 5.2% reported poor communication with doctors (Figure 5.5).
- In 2010, compared with Whites, all minority groups were more likely to report poor communication with nurses.
- Blacks, American Indians and Alaska Natives, and patients of more than one race were more likely than Whites to report poor communication with doctors.
- Adults with less than a high school education were more likely than those with any college education to report poor communication with nurses and doctors.

Also, in the NHQR:

- In 2010, patients age 65 and over were less likely to report poor communication with nurses compared with patients ages 18-44.

Patient and Family Engagement: Enabling Effective Patient Navigation and Management of Care

To effectively navigate the complicated health care system, health care providers need to give patients access to culturally and linguistically appropriate tools to support patient engagement. Culturally and linguistically appropriate services (CLAS) are important components of effective health care delivery. It is vital for providers to understand patients' health care needs and for patients to understand providers' diagnoses and treatment recommendations. Communication barriers can relate to language, culture, and health literacy. This year, we provide data on language diversity.

For people with LEP, having language assistance is of particular importance, so they may choose a usual source of care in part based on language concordance. Not having a language-concordant provider may limit or discourage some patients from establishing a usual source of care.

To fill the data gap that currently exists, we examined subnational data-gathering activities and identified the California Health Interview Survey (CHIS) as a unique source of this type of information. CHIS is conducted by the UCLA Center for Health Policy Research in collaboration with the California Department of Public Health, the Department of Health Care Services, and the Public Health Institute.

Every 2 years, CHIS involves random-dial telephone interviews with up to 50,000 California households. The people included in CHIS are a statistically representative sample of the entire State's diverse population. With each survey cycle, new households are selected to participate. Beginning in 2007, CHIS also includes a sample of cell-phone-only households, which are often younger and more mobile Californians frequently overlooked in land-line surveys.

Language Assistance

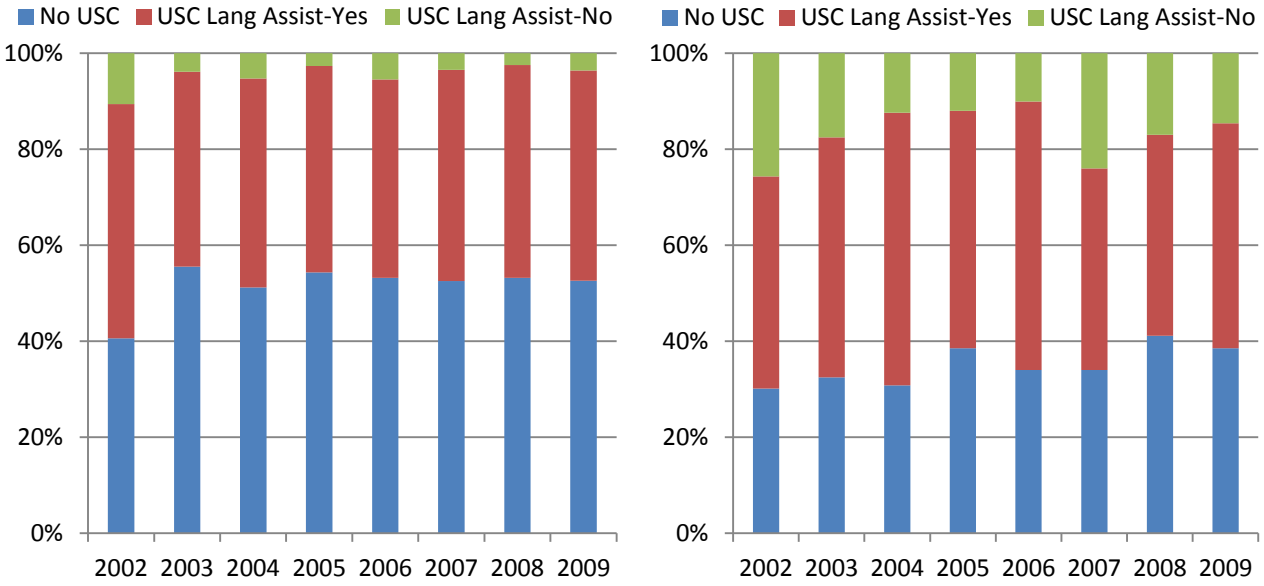
Language barriers in health care are associated with decreases in quality of care, safety, and patient and clinician satisfaction and contribute to health disparities, even among people with insurance.

To address these barriers, the HHS OCR enforces Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d *et seq*. Title VI prohibits discrimination on the basis of race, color, or national origin in any program that receives Federal financial assistance. Title VI requires that recipients of Federal funds, like most hospitals and health care providers, take reasonable steps to ensure meaningful access to their programs and services by individuals with LEP.

As part of its Title VI enforcement activities, OCR recently entered into a voluntary compliance agreement with the North Carolina Department of Health and Human Services (NCDHHS), which administers an annual budget of $18.3 billion, including the State's Medicaid; Early and Periodic Screening, Diagnosis and Treatment; and Children's Health Insurance Programs. To comply with Title VI, NCDHHS has agreed to provide timely and competent language assistance services, including oral interpreters and written translations of vital documents, at no cost to individuals with LEP.

In addition, the HHS Office of Minority Health has issued 14 National Standards for Culturally and Linguistically Appropriate Services in Health Care. These standards, which are directed at health care organizations, are also encouraged for individual providers to improve accessibility of their practices. The 14 standards are organized by themes: Culturally Competent Care (Standards 1-3), Language Access Services (Standards 4-7), and Organizational Supports for Cultural Competence (Standards 8-14). For people with LEP, having CLAS is of particular importance and may influence the patient's choice of a usual source of care.

Figure 5.6. Adults with limited English proficiency, by whether they had a usual source of care with or without language assistance, Hispanics (left) and non-Hispanics (right), 2002-2009



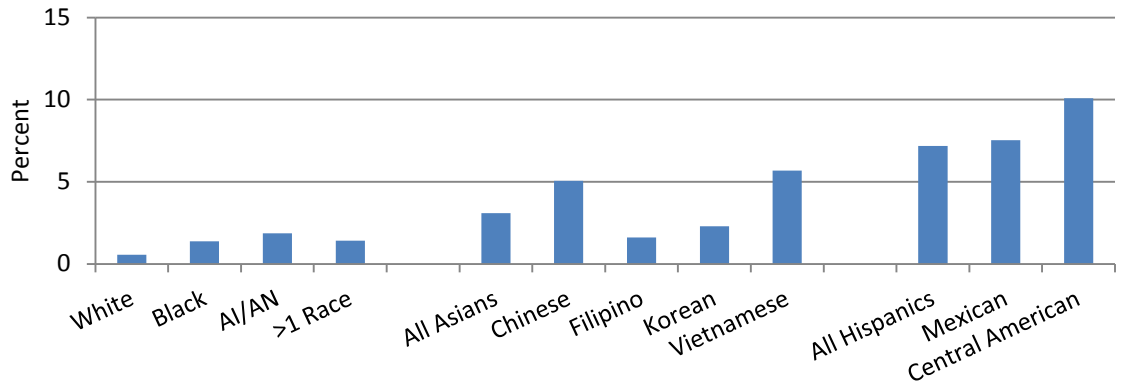
Key: USC = usual source of care.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.

- From 2002 to 2009, the percentage of adults with LEP who did not have a usual source of care was higher for Hispanics than for non-Hispanics (Figure 5.6).
- During the same period, non-Hispanics were more likely than Hispanics to have a usual source of care that did not provide language assistance.

Need for an Interpreter

The ability of providers and patients to communicate clearly with each other can be compromised if they do not speak the same language. Quality may suffer if patients with LEP cannot express their care needs to providers who speak English only or who do not have an interpreter's assistance. Communication problems between the patient and provider can lead to lower patient adherence to medication regimens and decreased participation in medical decisionmaking. It also can exacerbate cultural differences that impair the delivery of quality health care.

Figure 5.7. Adults age 18 and over who needed an interpreter during last doctor visit (California only), by race/ethnicity and granular ethnicities, 2005, 2007, and 2009 (combined/pooled)



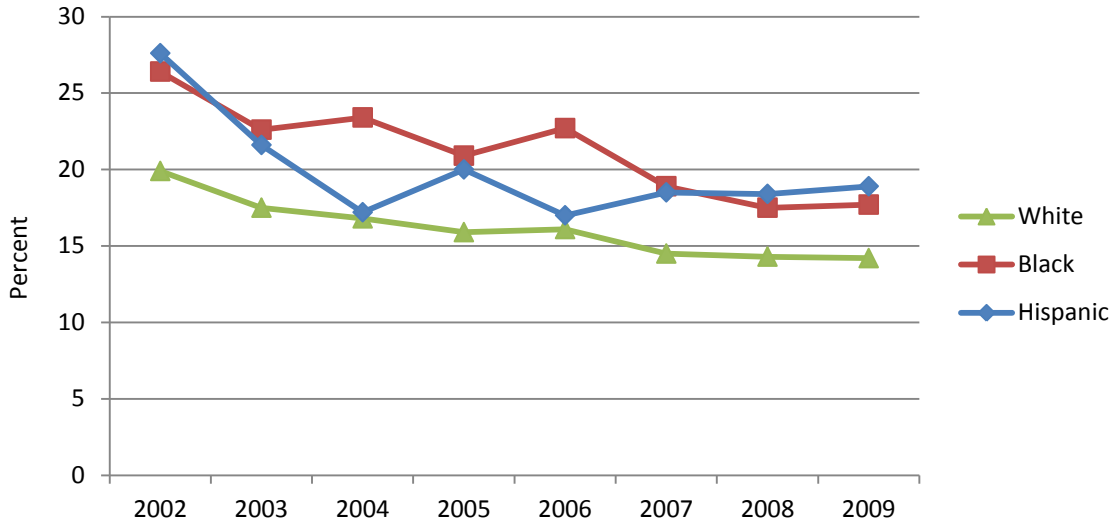
Key: AI/AN = American Indian or Alaska Native.
Source: University of California, Los Angeles, Center for Health Policy Research, California Health Interview Survey, 2005, 2007, and 2009.
Denominator: Adults with previous doctor visit.
Note: Racial groups are non-Hispanic; Hispanic groups include all races.

- To allow estimates for more granular ethnicity groups, California data for 2005, 2007, and 2009 were combined. During this time, Blacks, American Indians and Alaska Natives, people of more than one race, Asians, and Hispanics were more likely than Whites to need an interpreter (Figure 5.7).
- All Asian granular ethnicities were also more likely than Whites to need an interpreter, but rates ranged from 1.6% among Filipinos to 5.7% among Vietnamese people.
- All Hispanic granular ethnicities were more likely than Whites to need an interpreter, but rates ranged from 7.5% among Mexicans to 10.1% among Central Americans.

Providers Asking Patients To Assist in Making Treatment Decisions

The increasing prevalence of chronic diseases has placed more responsibility on patients, since conditions such as diabetes and hypertension require self-management. Patients need to be provided with information that allows them to make educated decisions and feel engaged in their treatment. Treatment plans also need to incorporate their values and preferences.

Figure 5.8. Adults with a usual source of care whose health providers sometimes or never asked for the patient's help to make treatment decisions, by race/ethnicity, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population with a usual source of care.
Note: For this measure, lower rates are better.

- In 2009, Black and Hispanic patients were significantly more likely than White patients to have a usual source of care who did not ask for their help in making treatment decisions (17.7% and 18.9%, respectively, compared with 14.2%; Figure 5.8).
- From 2002 to 2009, the percentage of patients whose usual source of care did not ask for their help in making treatment decisions decreased overall (from 21.9% to 15.4%; data not shown) and for all racial/ethnic groups presented.

Also, in the NHQR:

- In 2009, patients with a high school education and less than a high school education were significantly more likely than patients with any college education to have a usual source of care who did not ask for their help in making treatment decisions.

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Chapter 6. Care Coordination

Health care in the United States is often fragmented. Clinical services are frequently organized around small groups of providers who function autonomously and specialize in specific symptoms or organ systems. Therefore, many patients receive attention only for individual health conditions rather than receiving coordinated care for their overall health. For example, the typical Medicare beneficiary sees two primary care providers and five specialists each year (Bodenheimer, 2008). Communication of important information among providers and between providers and patients may entail delays or inaccuracies or fail to occur at all.

Care coordination is a conscious effort to ensure that all key information needed to make clinical decisions is available to patients and providers. It is defined as the deliberate organization of patient care activities between two or more participants involved in a patient's care to facilitate appropriate delivery of health care services (Shojania, et al., 2007). Care coordination is multidimensional and essential to preventing adverse events, ensuring efficiency, and making care patient centered (Powell-Davies, et al., 2008).

Patients in greatest need of care coordination include those with multiple chronic medical conditions, concurrent care from several health professionals, many medications, and extensive diagnostic workups, or transitions from one care setting to another. Effective care coordination requires well-defined multidisciplinary teamwork based on the principle that all who interact with a patient must work together to ensure the delivery of safe, high-quality care.

In early 2011, the Partnership for Patients was created to improve the quality, safety, and affordability of health care for all Americans. One of the two major goals of this public-private partnership is to heal patients without complications arising. This goal specifically ties to care coordination by seeking to decrease preventable complications during transitions from one care setting to another. The objective is to decrease all hospital readmissions by 20% overall by the end of 2013 (compared with 2010).

One example of the Federal Government's efforts to support care coordination is the Health Resources and Services Administration's (HRSA) initiative "Enhancement & Evaluation of Existing Health Information Electronic Network Systems for PLWHA (People Living With HIV/AIDS) in Underserved Communities." Begun in 2007, the initiative funded six demonstration sites throughout the Nation for up to 4 years.[i]

Another more recent funding opportunity also offered by HRSA is "Systems Linkages and Care Initiative to High Risk Populations Evaluation and Technical Assistance Center." This initiative promotes the development of innovative strategies to successfully integrate different components of the public health system into quality HIV care of hard-to-reach populations who have never been in care.

The Agency for Healthcare Research and Quality (AHRQ) intends this chapter to be the leading step in the evolving national discussion on measuring care coordination. Furthermore, AHRQ

[i] For more information, see http://hab.hrsa.gov/abouthab/special/underservedcommunities.html.

hopes that this chapter will stimulate productive discussions in the area of care coordination, including development and use of valid, reliable, and feasible quality measures.

Importance

Morbidity and Mortality

- Care coordination interventions have been shown to:
  - Reduce mortality among patients with heart failure.
  - Reduce mortality and dependency among patients with stroke.
  - Reduce symptoms among patients with depression and at the end of life.
  - Improve glycemic control among patients with diabetes (Shojania, et al., 2007).

Cost

- Care coordination interventions have been shown to:
  - Reduce hospitalizations among patients with heart failure.
  - Reduce readmissions among patients with mental health conditions.
  - Be cost-effective when applied to treatment of depression (Shojania, et al., 2007).

Measures

The *National Strategy for Quality Improvement in Health Care*[ii] identified care coordination as one of six national priorities for health care. The vision is health care providers, patients, and caregivers all working together to "ensure that the patient gets the care and support he needs and wants, when and how he needs and wants it." While measurement of care coordination is at an early stage in development, key goals include: coordinating transitions of care, reducing hospital readmissions, communicating medication information, and reducing preventable emergency department visits.

Measures reported in this chapter are organized around these goals:

- Transitions of care:
  - Adequate hospital discharge information.
- Integration of information:
  - Provider asking about medications from other doctors.
  - Electronic exchange of medication information.
- Children with special health care needs (CSHCN):
  - CSHCN with effective care coordination.
  - CSHCN with a medical home.

[ii] Available at www.healthcare.gov/center/reports/quality03212011a.html.

Findings

Transitions of Care

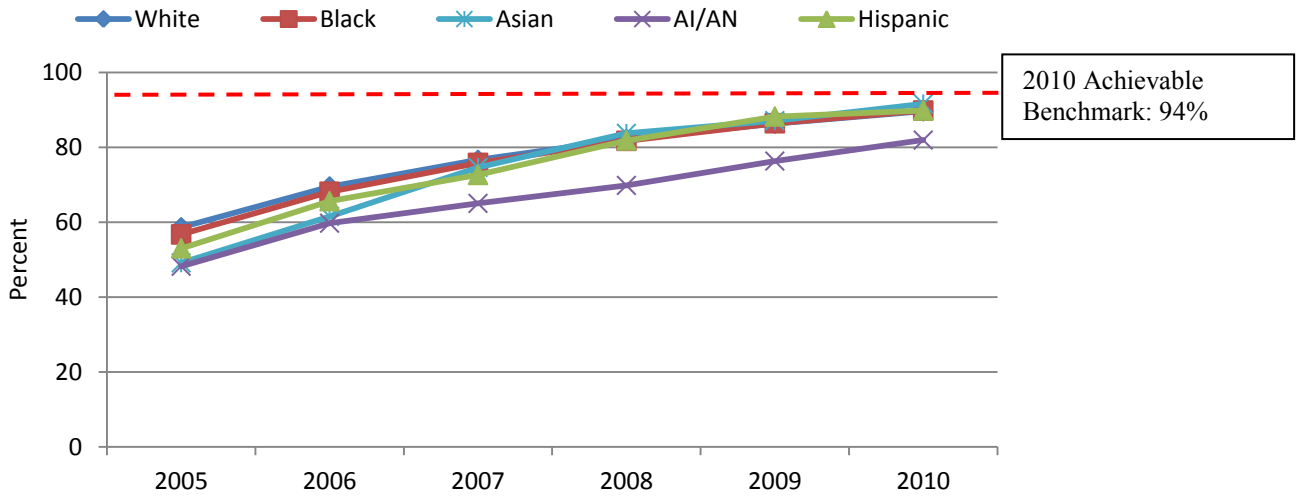
As health care conditions and needs change, patients often need to move from one setting to another. These transitions of care place patients at heightened risk of adverse events. Important information may be lost or miscommunicated as responsibility is delivered to new parties.

Management: Complete Written Discharge Instructions

Effective care coordination begins with ensuring that accurate clinical information is available to support medical decisions by patients and providers. A common transition of care is discharge from the hospital. Giving patients and caregivers self-management support after discharge has been shown to reduce readmissions to the hospital and lower costs (Coleman, et al., 2006).

Discharge from a hospital typically indicates improvement in a patient's condition so that the patient no longer requires inpatient care. It also means that the patient and family must resume responsibility for the patient's daily activities, diet, medications, and other treatments. The patient also needs to visit his or her personal doctor and know what to do if his or her condition deteriorates. Written discharge instructions are critical to help ensure that a patient receives the information needed to stay healthy after leaving the hospital.

Figure 6.1. Hospitalized adult patients with heart failure who were given complete written discharge instructions, by race/ethnicity, 2005-2010



Key: AI/AN = American Indian or Alaska Native.
Source: Centers for Medicare & Medicaid Services, Quality Improvement Organization Program, 2005-2010.
Denominator: Hospitalized adult patients with a principal discharge diagnosis of heart failure.
Note: Complete written discharge instructions needed to address all of the following: activity level, diet, discharge medications, followup appointment, weight monitoring, and actions to take if symptoms worsen.

- From 2005 to 2010, the percentage of hospitalized adult patients with heart failure who were given complete written discharge instructions improved from 57.4% to 89.7% (data not shown).
- Improvements were observed among all racial and ethnic groups (Figure 6.1).

- In 2010, the percentage of American Indian or Alaska Native (AI/AN) hospitalized adult patients with heart failure who were given complete written discharge instructions was lower than for Whites (81.9% compared with 89.6%).
- The 2010 top 5 State achievable benchmark was 94%.[iii] This benchmark could be attained by most of the racial/ethnic groups in less than a year. The one exception is AI/ANs, who would require almost 2 years to reach the benchmark.

Also, in the NHQR:

- Statistically significant differences by age and gender were not observed in receipt of written instructions.

Integration of Information

Patients often seek care from many providers. Medical information generated in different settings may not be sent to a patient's primary care provider. Actively gathering and managing all of a patient's medical information is an important part of care coordination. Tasks include ensuring that patients are informed of important findings such as test results, primary care doctors are informed of care from specialists, and providers within a practice have access to needed information.

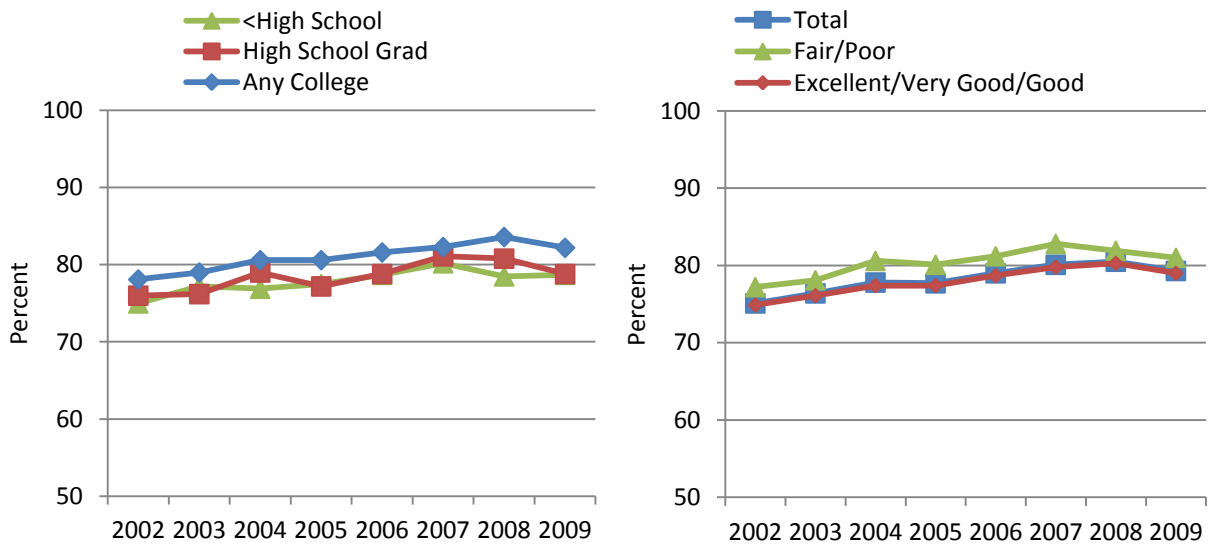
Management: Provider Asking About Medications From Other Doctors

Different providers may prescribe medications for the same patient. Patients are responsible for keeping track of all their medications, but medication information can be confusing, especially for patients on multiple medications. When care is not well coordinated and some providers do not know about all of a patient's medications, patients are at greater risk for adverse events related to drug interactions, overdosing, or underdosing. In addition, providers need to periodically review all of a patient's medications to ensure that they are taking what is needed and only what is needed. Medication reconciliation has been shown to reduce both medication errors and adverse drug events (Whittington & Cohen, 2004).

Medication information generated in different settings may not be sent to a patient's primary care provider. In the absence of communication from other providers, the patient is the primary source of medication information. Actively gathering and managing all of a patient's medical information is an important part of care coordination.

[iii] The top 5 States that contributed to the achievable benchmark are Colorado, Delaware, New Hampshire, New Jersey, and Utah.

Figure 6.2. People with a usual source of care whose health provider usually asks about prescription medications and treatments from other doctors, by education and perceived health status, United States, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population who report a usual source of care.

- From 2002 to 2009, the percentage of people with a usual source of care whose health provider usually asked about prescription medications and treatments from other doctors improved from 75.1% to 79.3% (Figure 6.2).
- In 2009, there were no statistically significant differences by education or perceived health status (79% for excellent/very good/good and 81% for fair/poor).

Also, in the NHQR:

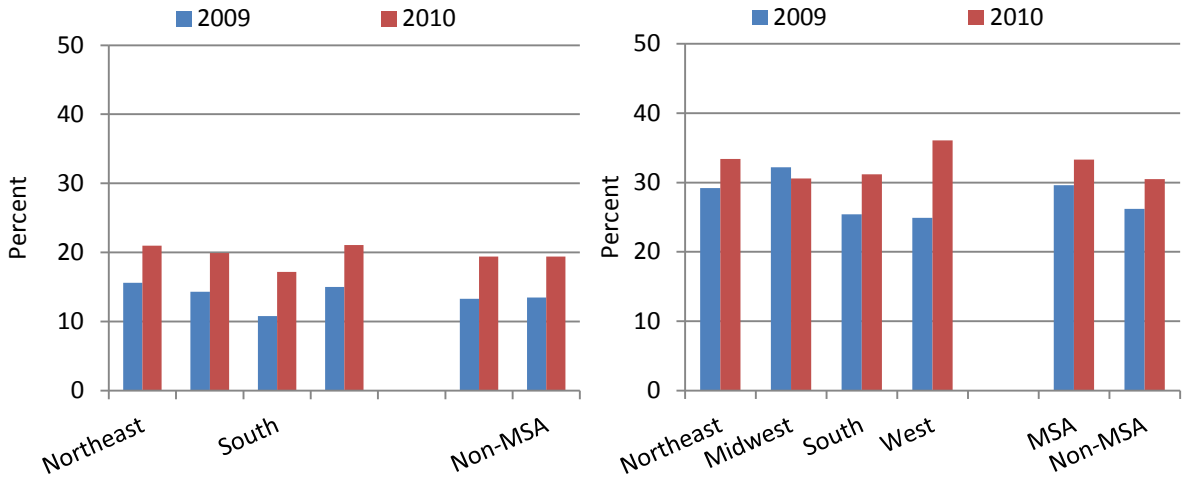
- In 2009, there were no statistically significant differences by family income or insurance.

Structure: Electronic Exchange of Medication Information

Ideally, information about medications prescribed for a patient by one provider would be available to all providers taking care of that patient. One way to exchange this information efficiently is to build this function into health information technologies. The American Hospital Association recently surveyed hospitals about their use of health information technologies. Questions about whether a hospital electronically exchanged patient information on medication history with other providers were included, and 2,112 hospitals responded.

Data are shown by region and geographic location (urban or rural) of the hospitals. Urban hospitals provide a disproportionate share of care to low-income and minority patients.

Figure 6.3. Hospitals with electronic exchange of patient information on medication history, by region and geographic location, 2009-2010, with hospitals outside their system (left) and with ambulatory providers outside their system (right)



Key: MSA = metropolitan statistical area.
Source: American Hospital Association Annual Survey Information Technology Supplement, 2009 and 2010.

- In 2010, urban hospitals were more likely than rural hospitals to share information with ambulatory providers outside their system (33.3% compared with 30.5%; Figure 6.3).
- In 2010, hospitals in the West were the most likely to exchange information with ambulatory providers outside their system, followed by hospitals in the Northeast, South, and Midwest (36.1%, 33.4%, 31.2%, and 30.6%, respectively).

Also, in the NHQR:

- In 2010, 19.4% of hospitals electronically exchanged patient information on medication history with hospitals outside their system, up from 13.4% in 2009. Also, 32.1% of hospitals exchanged information with ambulatory providers outside their system, up from 28.2% in 2009.

New

Children With Special Health Care Needs

Addressing questions on access to and quality of care for children with chronic conditions is difficult due to the low prevalence of most conditions in children. A standard definition of CSHCN was developed in 1995. This definition was subsequently used to develop the CSHCN Screener Questionnaire and was included in the National Survey of Children With Special Health Care Needs, among other surveys.

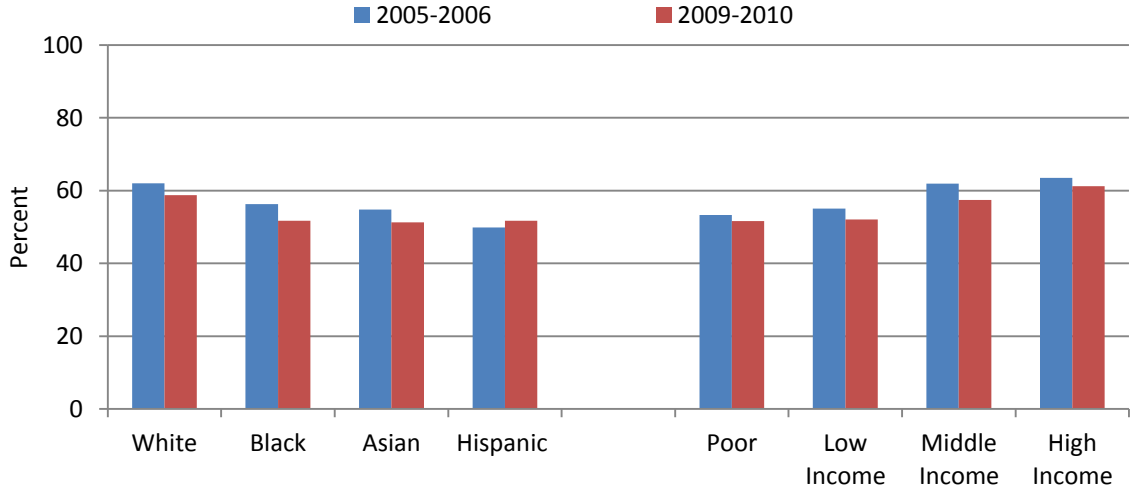
According to the Medical Expenditure Panel Survey, in 2004, approximately 13.8 million children, or 20% of the population ages 0-17, were identified as having a special health care need (i.e., a specific chronic condition with a functional limitation or other consequence). Among the most highly prevalent chronic conditions of childhood in 2005 were asthma (13% of children under age 18), upper respiratory allergies (12% of children under 18), learning disabilities (7% of children ages 3-17), and attention-deficit/hyperactivity disorder (7% of children ages 3-17).

Other conditions that may affect CSHCN include depression, spina bifida, hemophilia, HIV infection, cystic fibrosis, and metabolic disorders.

Having greater health care needs makes CSHCN susceptible to cost, quality, and access weaknesses in the health care system. Because they need more medical care, CSHCN have higher medical expenses, on average, than other children. For more than one in five CSHCN, costs of care caused financial problems for their families.

In addition to financial burdens, families of CSHCN spend considerable time caring for them. An estimated 9.7% of CSHCN had families who spent 11 or more hours per week providing or coordinating care in 2005-2006 (MCHB, 2007). Studies have documented that children with chronic conditions in poor families and racial and ethnic minority groups may experience lower quality care. Children with chronic conditions are reported by their parents to be less likely than other children to receive the full range of needed health services. Among CSHCN, minorities are more likely than White children to be without health insurance coverage or a usual source of care.

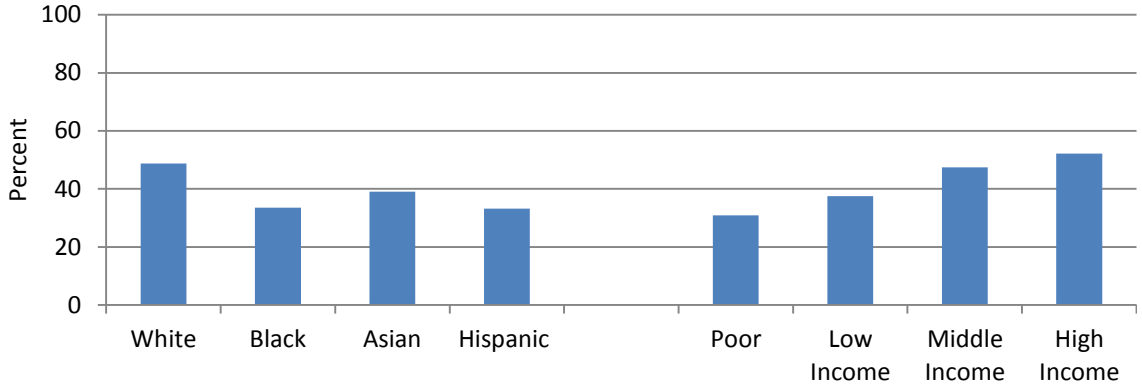
Figure 6.4. Effective care coordination among children with special health care needs, by race/ethnicity and income, 2005-2006 and 2009-2010



Source: Health Resources and Services Administration, Maternal and Child Health Bureau; Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Children With Special Health Care Needs (CSHCN), 2005-2006 and 2009-2010.
Denominator: CSHCN who were reported to use more than one service during the survey period.
Note: White, Black, and Asian are non-Hispanic. Hispanic includes all races.

- In 2009-2010, the percentage of CSHCN with effective care coordination was higher for White children than for Black, Asian, and Hispanic children (58.8% compared with 51.7%, 51.3%, and 51.7%, respectively; Figure 6.4).
- Also in 2009-2010, the percentage of CSHCN with effective care coordination was higher for high-income children than for middle-income, low-income, and poor children (61.2%, 57.4%, 52.1%, and 51.6%, respectively).

Figure 6.5. Children with special health care needs with a medical home, by race/ethnicity and income, 2009-2010



Source: Health Resources and Services Administration, Maternal and Child Health Bureau; Centers for Disease Control and Prevention, National Center for Health Statistics, National Survey of Children With Special Health Care Needs (CSHCN), 2009-2010.
Denominator: Civilian noninstitutionalized population ages 0-17 with special health care needs.
Note: White, Black, and Asian are non-Hispanic. Hispanic includes all races.

- In 2009-2010, the percentage of CSHCN with a medical home was higher for White children than for Black, Asian, and Hispanic children (48.8% compared with 33.5%, 39.1%, and 33.2%, respectively; Figure 6.5).
- Also in 2009-2010, the percentage of CSHCN with a medical home was higher for high-income children than for middle-income, low-income, and poor children (52.2%, 47.4%, 37.5%, and 30.9%, respectively).

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Chapter 7. Efficiency

Health care cost increases continue to outpace the rise in wages, inflation, and economic growth. One approach to containing the growth of health care costs is to improve the efficiency of the health care delivery system. This approach would allow finite health care resources to be used in ways that best support high-quality care.

Recent work examining variations in Medicare spending and quality shows that higher cost providers do not necessarily provide higher quality care, illustrating the potential for improvement (Fisher, et al., 2003). Improving efficiency in the Nation's health care system is an important component of Department of Health and Human Services (HHS) efforts to support a better health care system.

Measures

Part of the discussion about how to improve efficiency involves the question about how best to measure it. Varying perspectives and definitions of health care efficiency exist; although consensus has not yet emerged on what constitutes appropriate measurement of efficiency, the Agency for Healthcare Research and Quality (AHRQ) has supported development in this area.

This chapter has been largely shaped by a number of documents that have developed the field of health care efficiency measurement. One major contributor is an AHRQ-commissioned report by RAND Corporation. This report systematically reviewed efficiency measures, assessed their tracking potential, and provided a typology that emphasizes the multiple perspectives on health care efficiency (McGlynn, 2008).

This chapter of the *National Healthcare Disparities Report* (NHDR) is organized around the concepts of overuse and misuse. As noted in the *National Strategy for Quality Improvement in Health Care*,[i] "Achieving optimal results every time requires an unyielding focus on eliminating patient harms from health care, reducing waste, and applying creativity and innovation to how care is delivered."

The measures this year are presented in the following layout:

- Inappropriate medication use:
  - Adults age 65 and over who received potentially inappropriate prescription medications.

- Preventable hospitalizations:
  - Potentially avoidable hospitalization rates for adults.

- Preventable emergency department visits:
  - Potentially avoidable emergency department visit rates.
  - Emergency treatment for mental illness or substance abuse.
  - Emergency treatment for dental conditions.

[i] Available at www.healthcare.gov/center/reports/quality03212011a.html.

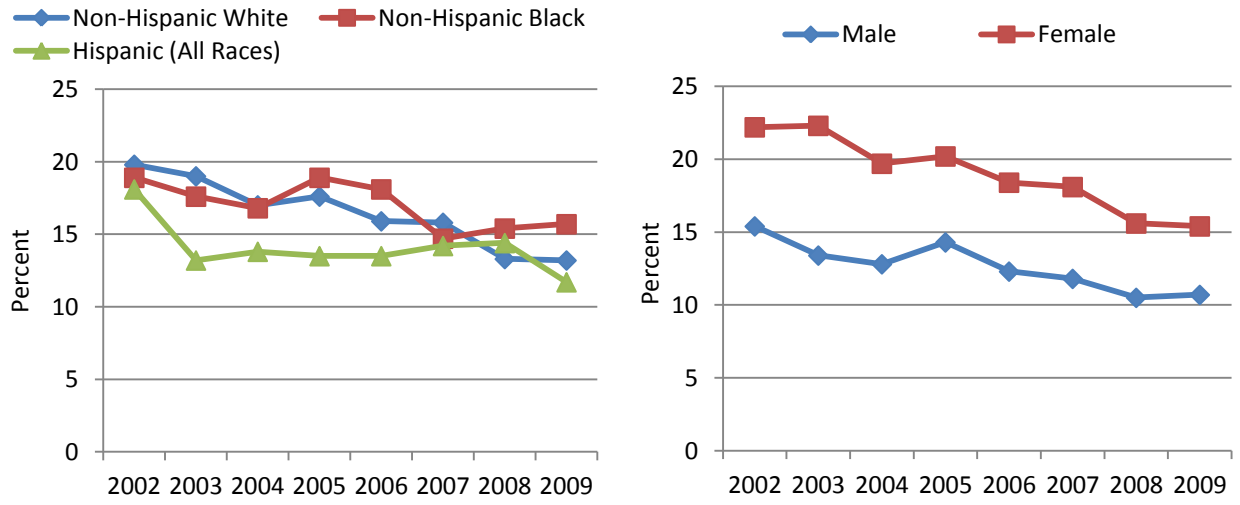
- Excess avoidable hospitalizations.
- Perforated appendixes.

Findings

Inappropriate Medication Use

Some drugs are potentially harmful for older patients but still are prescribed to them (Zhan, et al., 2001).[ii] Using inappropriate medications can be life threatening and may result in hospitalization, as well as increased costs of pharmaceutical services (Lau, et al., 2005). To measure inappropriate medication use, we have followed the Beers criteria, which have been generally accepted by the medical community and by expert opinion, although there is still some disagreement. This disagreement relates to the many factors that must be considered when identifying what constitutes inappropriate use by certain populations (Zhan, et al., 2001).

Figure 7.1. Adults age 65 and over who received potentially inappropriate prescription medications in the calendar year, by race/ethnicity and gender, 2002-2009



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population age 65 and over.
Note: For this measure, lower rates are better. Prescription medications received include all prescribed medications initially purchased or otherwise obtained, as well as any refills.

- In 2009, there were no statistically significant differences between older racial/ethnic groups in the percentage of adults age 65 and over who received potentially inappropriate medications (Figure 7.1).
- In 2009, the percentage of adults age 65 and over who received potentially inappropriate medications was higher for females than for males (15.4% compared with 10.7%).

[ii] Drugs that should always be avoided for older patients include barbiturates, flurazepam, meprobamate, chlorpropamide, meperidine, pentazocine, trimethobenzamide, belladonna alkaloids, dicyclomine, hyoscyamine, and propantheline. Drugs that should often or always be avoided for older patients include carisoprodol, chlorzoxazone, cyclobenzaprine, metaxalone, methocarbamol, amitriptyline, chlordiazepoxide, diazepam, doxepin, indomethacin, dipyridamole, ticlopidine, methyldopa, reserpine, disopyramide, oxybutynin, chlorpheniramine, cyproheptadine, diphenhydramine, hydroxyzine, promethazine, and propoxyphene.

Also, in the National Healthcare Quality Report (NHQR):

- From 2002 to 2009, the overall percentage of adults age 65 and over who received potentially inappropriate medications decreased.

Preventable Hospitalizations

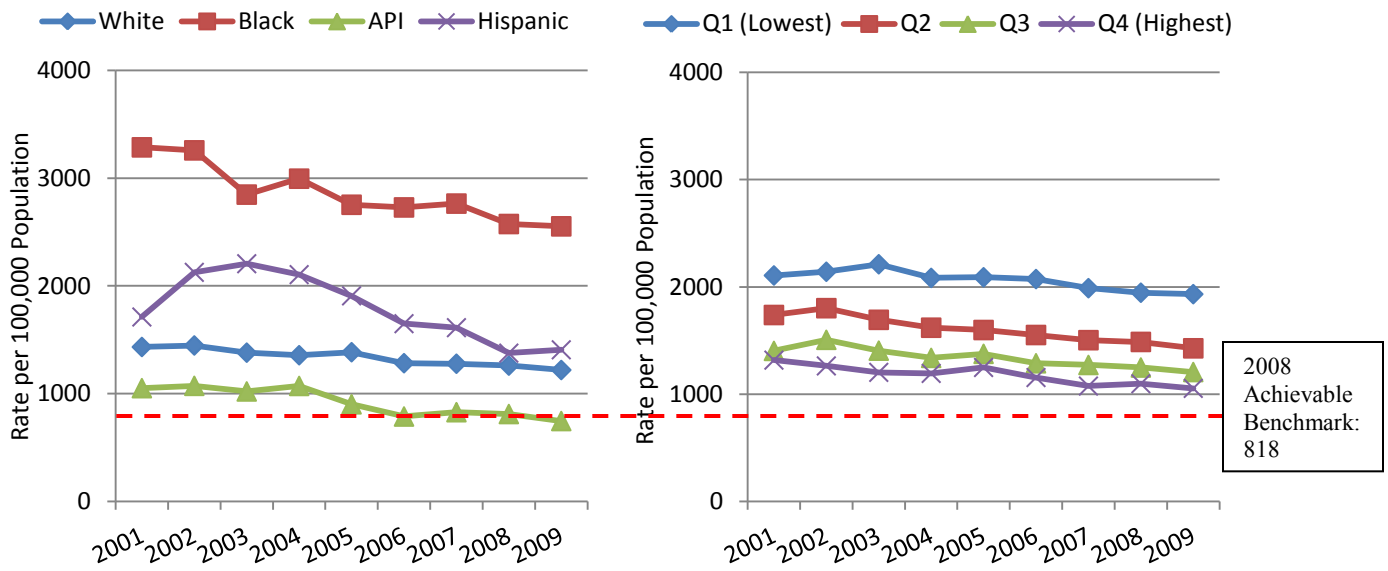
Potentially Avoidable Hospitalization Rates for Adults

Hospitalization is expensive. Preventing avoidable hospitalizations could improve the efficiency of health care delivery. To address potentially avoidable hospitalizations from the population perspective, data on ambulatory care-sensitive conditions are summarized here using the AHRQ Prevention Quality Indicators (PQIs). Not all hospitalizations that the AHRQ PQIs track are preventable. But ambulatory care-sensitive conditions are those for which good outpatient care can prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease.

The AHRQ PQIs track these conditions using hospital discharge data. Hospitalizations for acute conditions, such as dehydration or pneumonia, are distinguished from hospitalizations for chronic conditions, such as diabetes or congestive heart failure. Results presented this year apply a modified version 4.1 of the AHRQ Quality Indicators and are not comparable to results from previous years.

A critical caveat should be noted regarding potentially avoidable hospitalizations. Comparatively high rates of potentially avoidable hospitalizations may reflect inefficiency in the health care system. Therefore, groups of patients should not be “blamed” for receiving less efficient care. Instead, examining disparities in efficiency may help make the business case for addressing disparities in care. Investments that reduce disparities in access to high-quality outpatient care may help reduce rates of avoidable hospitalizations among groups that have high rates.

Figure 7.2. Potentially avoidable hospitalization rates for adults, by race/ethnicity and area income, 2001-2009



Key: API = Asian or Pacific Islander.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, Nationwide Inpatient Sample, and AHRQ Quality Indicators, modified version 4.1, 2001-2009.
Denominator: Civilian noninstitutionalized adults age 18 and over.
Note: For this measure, lower rates are better. Annual rates are adjusted for age and gender. White, Black, and API are non-Hispanic. Hispanic includes all races. Income quartiles are based on median income of ZIP Code of patient's residence.

- From 2001 to 2009, the overall rate of avoidable hospitalizations fell from 1,657 to 1,395 per 100,000 population (data not shown). Declines in avoidable hospitalizations were observed among all racial/ethnic and income groups (Figure 7.2).
- In all years, rates of potentially avoidable hospitalizations were lower among Asians and Pacific Islanders (APIs) compared with Whites. Rates were higher among Blacks compared with Whites. Except in 2001 and 2008, rates were also higher among Hispanics compared with Whites.
- In all years, rates of potentially avoidable hospitalizations were higher among residents of areas in the lowest and second income quartiles compared with residents of the highest income quartile.
- The 2008 top 3 State achievable benchmark for all potentially avoidable hospitalizations was 818 hospitalizations per 100,000.[iii] Given current trends, the overall achievable benchmark could not be attained for 18 years.
- The only racial/ethnic group to attain the achievable benchmark as of 2009 was APIs, whereas Whites could not attain the benchmark for 14 years. Blacks would not attain the benchmark for 19 years, but Hispanics could attain the benchmark in 7 years.
- High-income groups would attain the benchmark sooner than lower income groups (lowest quartile, about 38 years; second quartile, 14 years; third quartile, 12 years; and highest quartile, 8 years).

[iii] The top 3 States that contributed to the achievable benchmark are Hawaii, Utah, and Washington.

Also, in the NHQR:

- Declines in avoidable hospitalizations were observed for both acute and chronic conditions.

Preventable Emergency Department Visits

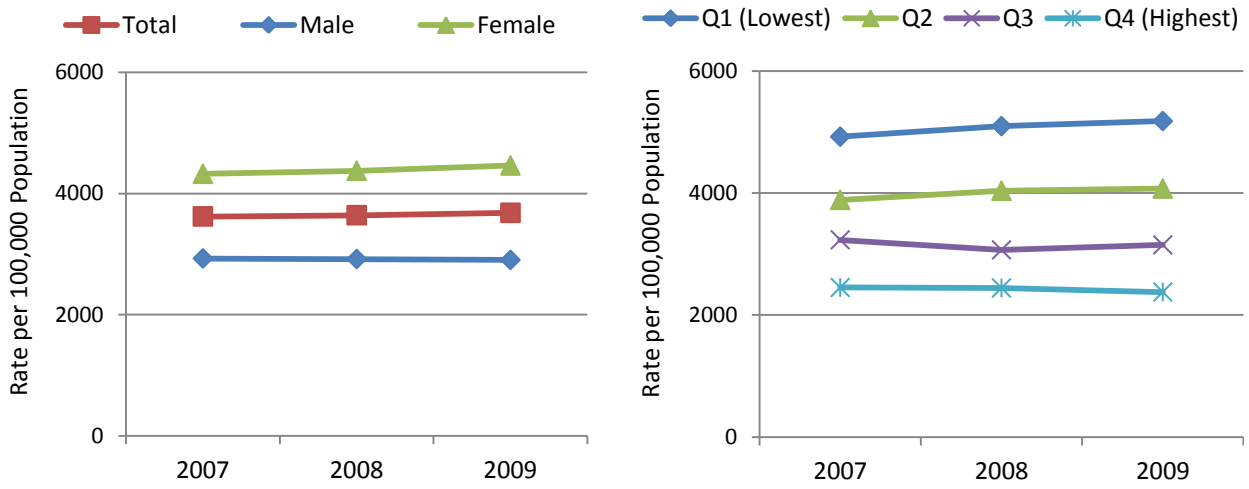
Potentially Avoidable Emergency Department Visit Rates for Adults

Potentially preventable, high-cost encounters with the medical system occur not only in hospitals, but also in emergency departments (EDs). There were more than 125 million ED encounters in 2008 (AHRQ, 2008). ED crowding, boarding (i.e., holding patients until an inpatient bed is available), and ambulance diversion have become more prevalent and have given rise to increasing concerns about the quality of care delivered in EDs.

Some hospitalizations and ED encounters cannot be avoided, but appropriate ambulatory care can help keep some patients from having to visit an ED or from being hospitalized. Reducing potentially avoidable ED encounters, in particular, holds promise for reducing cost, improving quality, and enhancing efficiency.

For this analysis, the AHRQ PQI software was applied to the Healthcare Cost and Utilization Project (HCUP) Nationwide Emergency Department Sample (NEDS). The overall potentially avoidable ED visit rate includes visits for acute conditions such as dehydration and pneumonia and chronic conditions such as diabetes and congestive heart failure.

Figure 7.3. Potentially avoidable emergency department rates, by gender and area income, 2007-2009



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2007-2009.
Denominator: Adults age 18 and over.
Note: Annual rates are adjusted for age and gender.

- In 2009, the rate of ED visits for potentially avoidable conditions was 3,681 per 100,000 adults (Figure 7.3).
- In all years, women had a higher rate of potentially avoidable ED visits compared with men.

- In all years, residents of the highest income quartile had a lower rate of potentially avoidable ED visits compared with residents of lower income quartiles.

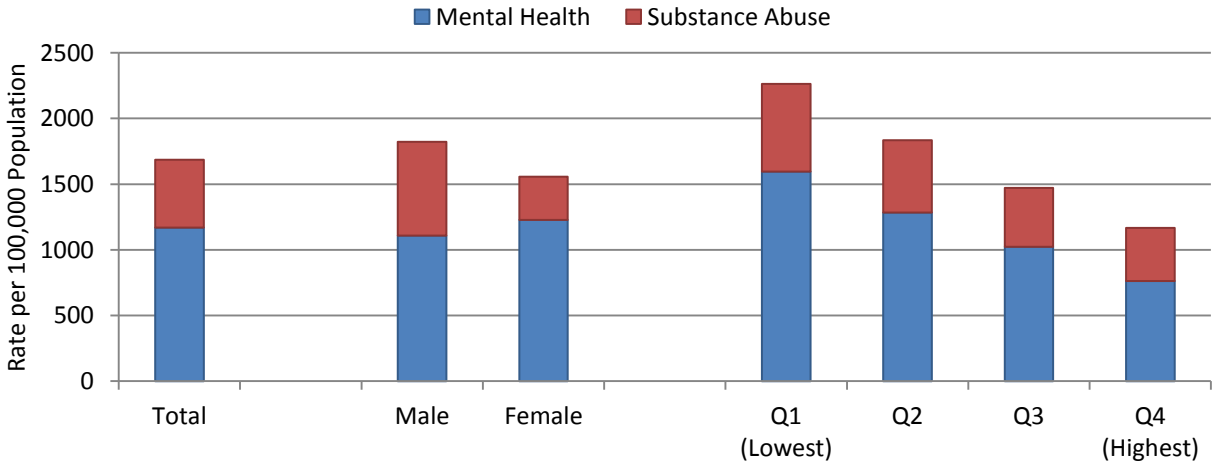
Also, in the NHQR:

- In all years, adults ages 45-64 and age 65 and over had higher rates of potentially avoidable ED visits compared with adults ages 18-44.
- In all years, residents of small metropolitan, micropolitan, and noncore areas had higher potentially avoidable ED visit rates compared with residents of large metropolitan areas.

Emergency Treatment for Mental Illness or Substance Abuse

When high-quality mental health care is not available in the community, patients with mental illness tend to rely on emergency rooms for care (Alakeson, et al., 2010). EDs are often not staffed or equipped to provide optimal psychiatric care, and patients with mental illness often wait long periods before receiving appropriate care. ED staff observing patients waiting for psychiatric care cannot care for patients with other medical emergencies. This measure provides information on the quality of the local mental health care system and the degree to which EDs function as safety net providers for people with mental health and substance abuse problems.

Figure 7.4. Rate of emergency department visits with a principal diagnosis related to mental health and alcohol or substance abuse, per 100,000 population, by gender and area income, 2009



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009.
Denominator: U.S. population.
Note: For this measure, lower rates are better. Substance abuse includes visits for co-occurring substance abuse and mental health disorders.

- In 2009, the rate of ED visits for mental health was 1,170 per 100,000 population, and the rate of ED visits for substance abuse (including co-occurring substance abuse and mental health disorders) was 518 per 100,000 population (Figure 7.4).
- Females had higher rates of ED visits for mental health but lower rates of ED visits for substance abuse compared with males.
- Residents of the highest income quartile had lower rates of ED visits both for mental health and for substance abuse compared with residents of lower income quartiles.

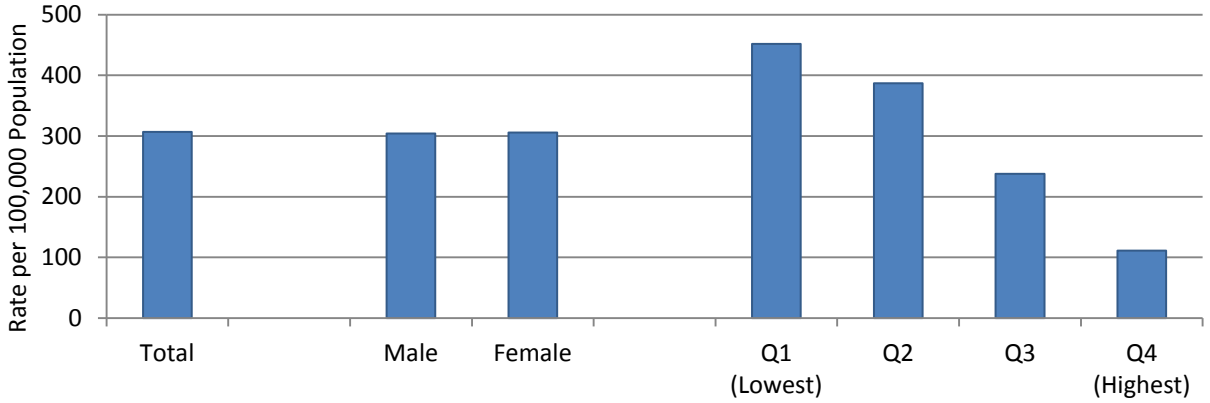
Also, in the NHQR:

- Children ages 0-17 and adults age 65 and over had lower rates of ED visits for mental health and for substance abuse compared with adults ages 18-44.
- Residents of large central metropolitan, medium metropolitan, small metropolitan, micropolitan, and noncore areas had higher rates of ED visits for mental health compared with residents of large fringe metropolitan areas (suburbs). Residents of large central and medium metropolitan areas also had higher rates of ED visits for substance abuse compared with residents of large fringe metropolitan areas.

Emergency Treatment for Dental Conditions

Dental health requires periodic oral exams and timely treatment of tooth decay and gum disease. When patients do not access outpatient dental services, dental disease may progress and necessitate emergent treatment and even hospitalization. EDs often cannot provide definitive dental treatment and can only provide medication for pain and infection. Hence, use of EDs for dental conditions may reflect system inefficiency in the delivery of dental care.

Figure 7.5. Rate of emergency department visits with a principal diagnosis related to dental issues, per 100,000 population, by gender and area income, 2009



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009.
Denominator: U.S. population.
Note: For this measure, lower rates are better.

- In 2009, the rate of ED visits for dental conditions was 307 per 100,000 population (Figure 7.5).
- Males and females had similar rates of ED visits for dental conditions.
- Residents of the highest income quartile had lower rates of ED visits for dental conditions compared with residents of lower income quartiles.

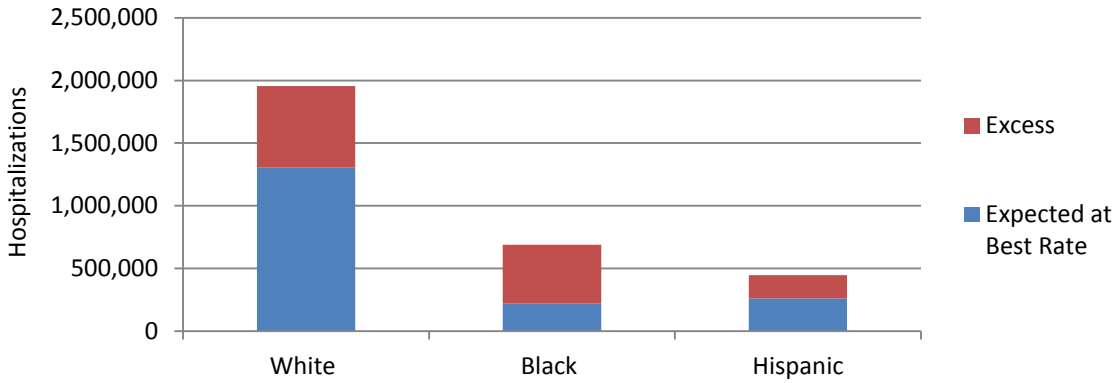
Also, in the NHQR:

- Children ages 0-17 and adults age 45 and over had lower rates of ED visits for dental conditions compared with adults ages 18-44.
- Residents of small metropolitan, micropolitan, and noncore areas had higher rates of ED visits for dental conditions compared with residents of large metropolitan areas.

Excess Avoidable Hospitalizations

The following analysis estimates numbers of excess preventable hospitalizations for 2009 by comparing adjusted rates of the AHRQ PQI composite with the 2009 top 4 State achievable benchmark rate of 814 hospitalizations per 100,000 population. The benchmark rate was set by the States with rates in the top 10%. For excess preventable hospitalizations to be calculated, the difference between a group's rate and the benchmark rate was multiplied by the number of people in the group (for example, for Hispanics, the difference between the Hispanic rate and the benchmark rate was multiplied by the number of Hispanics).

Figure 7.6. Excess number of potentially preventable hospitalizations, by race/ethnicity, 2009

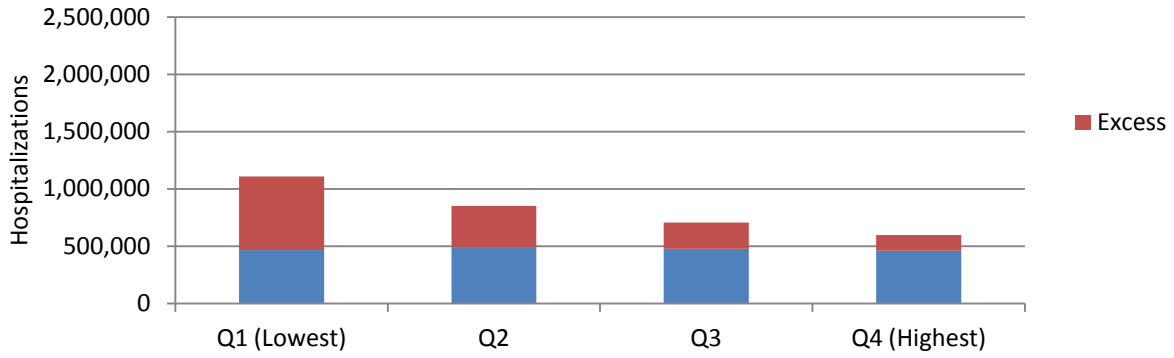


Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, and AHRQ Quality Indicators, modified version 4.1, 2009.

- In 2009, if Whites had the benchmark rate of preventable hospitalizations, they would have had almost 650,000 fewer hospitalizations (Figure 7.6). Instead of costing $14.8 billion, preventable hospitalization among Whites would have cost only $9.9 billion, saving $4.9 billion.
- If Blacks had the benchmark rate of preventable hospitalizations, they would have had almost 470,000 fewer hospitalizations. Instead of costing $5.4 billion, preventable hospitalizations among Blacks would have cost only $1.7 billion, saving $3.7 billion.
- If Hispanics had the benchmark rate of preventable hospitalizations, they would have had almost 190,000 fewer hospitalizations. Instead of costing $3.8 billion, preventable hospitalizations among Hispanics would have cost only $2.2 billion, saving $1.6 billion.
- Because the overall rate among APIs was below the benchmark rate, there are no estimated excess preventable hospitalizations for this group.

Comparisons with the top 4 State achievable benchmark for the composite rate of preventable hospitalizations in 2009 are also used to estimate excess preventable hospitalizations by area income. Area income refers to the median income of the ZIP Code in which the patient resides.

Figure 7.7. Excess number of potentially preventable hospitalizations, by income, 2009



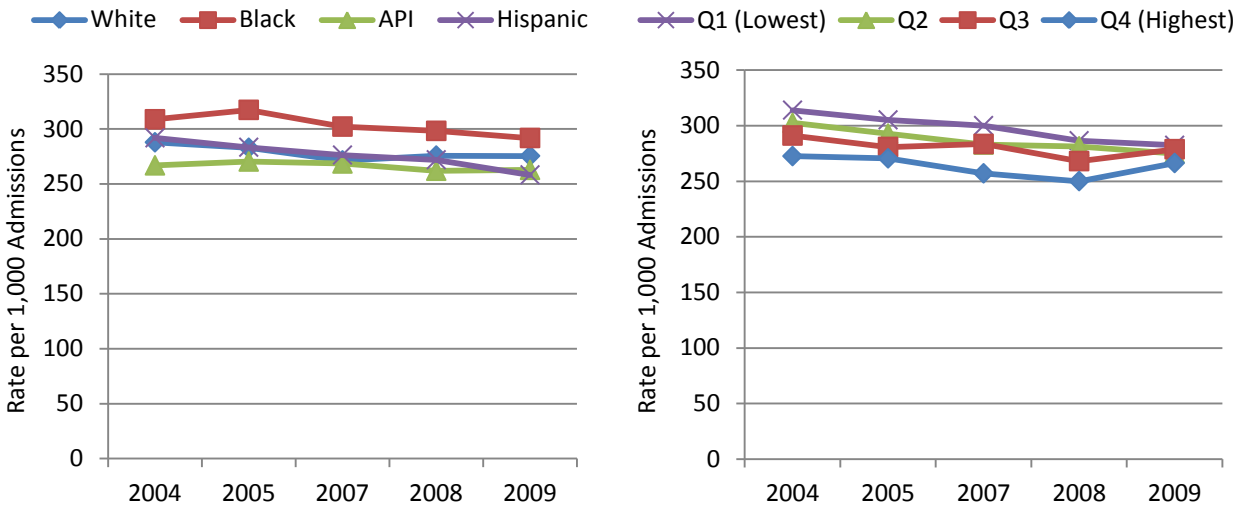
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, and AHRQ Quality Indicators, modified version 4.1, 2009.

- In 2009, if residents of the neighborhoods in the lowest income quartile had the benchmark rate of preventable hospitalizations, they would have had more than 640,000 fewer hospitalizations (Figure 7.7). Instead of costing $7.9 billion, preventable hospitalizations among income quartile 1 residents would have cost only $3.3 billion, saving $4.6 billion.
- If residents of income quartile 2 neighborhoods had the benchmark rate of preventable hospitalizations, they would have had almost 370,000 fewer hospitalizations. Instead of costing $6.3 billion, preventable hospitalizations would cost only $3.6 billion, saving $2.7 billion.
- If residents of income quartile 3 neighborhoods had the benchmark rate of preventable hospitalizations, they would have had about 230,000 fewer hospitalizations. Instead of costing $5.5 billion, preventable hospitalizations would cost only $3.7 billion, saving $1.8 billion.
- If residents of the highest income quartile neighborhoods had the benchmark rate of preventable hospitalizations, they would have had about 140,000 fewer hospitalizations. Instead of costing $5.1 billion, preventable hospitalizations would cost only $4.0 billion, saving $1.1 billion.

Perforated Appendixes

Perforation is a severe complication of appendicitis that allows intestinal contents to spill into the abdominal cavity. Patients with a perforated appendix have a worse prognosis and require longer recovery times after surgery than patients whose appendix does not rupture. More timely detection and treatment of appendicitis can reduce the percentage of appendicitis admissions in which rupture has occurred.

Figure 7.8. Perforated appendixes per 1,000 admissions for appendicitis, age 18 and over, by race/ethnicity and area income, 2004-2009



Key: API = Asian or Pacific Islander.
Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, State Inpatient Databases disparities analysis file, 2004, 2005, and 2007-2009.
Note: For this measure, lower rates are better. White, Black, and API are non-Hispanic. Hispanic includes all races. Data for 2006 are not included, because a new version of the PQI software was used to calculate rates and 2006 was not included in the calculation.

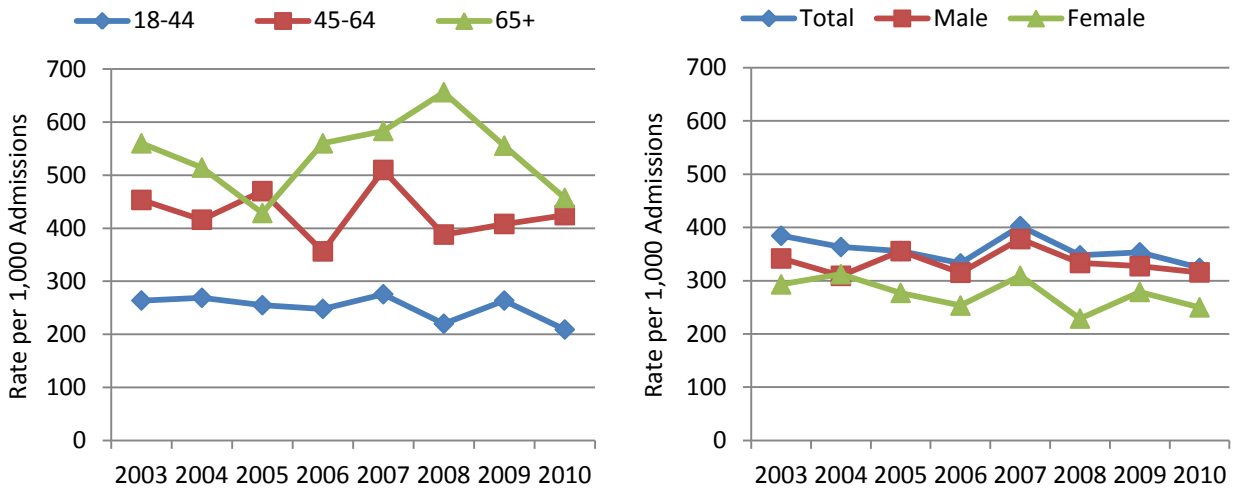
- From 2004 to 2009, there were no statistically significant differences between racial/ethnic groups or income groups in the rate of perforated appendixes (Figure 7.6).

Also, in the NHQR:

- In 2009, the rate of perforated appendixes was higher for those age 65 and over and those ages 45-64 than for those ages 18-44.

Nationwide, many American Indians and Alaska Natives (AI/ANs) who are members of a federally recognized Tribe rely on the Indian Health Service (IHS) to provide access to health care in the counties on or near reservations. Because data on AI/ANs obtained from most Federal and State sources are incomplete, the NHDR addresses the data gap for this measure by examining data submitted to the IHS National Patient Information Reporting System by IHS, Tribal, and contract hospitals.

Figure 7.9. Perforated appendixes per 1,000 admissions for appendicitis, age 18 and over, in IHS, Tribal, and contract hospitals, by age and gender, 2003-2010



Source: Indian Health Service, National Patient Information Reporting System, National Data Warehouse, Workload and Population Data Mart, 2003-2010.
Note: For this measure, lower rates are better. The total for each year is age adjusted.

- In 2010, for IHS facilities, the rates of perforated appendixes for those ages 45-64 and age 65 and over were higher than for those ages 18-44 (424.6 and 457.1 per 1,000 appendicitis admissions, respectively, compared with 208.9; Figure 7.9).
- Also in 2010, for IHS facilities, the rates of perforated appendixes for males was higher than for females (315.6 per 1,000 appendicitis admissions compared with 250.0).

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Chapter 8. Health System Infrastructure

In its 2010 report *Future Directions for the National Healthcare Quality and Disparities Reports*, the Institute of Medicine (IOM, 2010) recommended that future editions of the *National Healthcare Quality Report* (NHQR) and *National Healthcare Disparities Report* (NHDR) include data on the health care system's infrastructure capabilities. According to the IOM:

> These components are not necessarily health care aims/attributes in themselves, but are a means to those aims since they are elements of the health care system that better enable the provision of quality care….and health systems infrastructure are of interest to the extent that they improve effectiveness, safety, timeliness, patient-centeredness, access, or efficiency.

Acknowledging that the measures and data required to assess the strength and capabilities of the health care infrastructure have not been well developed, the IOM identified structural elements that may affect quality improvement. Key elements include:

- Information systems for data collection, quality improvement analysis, and clinical communication support;
- An adequate and well-distributed workforce; and
- Organizational capacity to support emerging models of care, cultural competence services, and ongoing improvement efforts.

Of significance, inadequacies in health system infrastructure may limit access and contribute to poor quality of care and outcomes, particularly among vulnerable population groups that include racial and ethnic minority groups and people residing in areas with health professional shortages.

This chapter presents data to illustrate the strength of the U.S. health system infrastructure and how this infrastructure may influence quality of care. The chapter is divided into three sections, each addressing a unique aspect of the health care system:

- Health information technology (IT),
- Workforce distribution, and
- Health care safety net.

The chapter begins with data to describe the adoption and use of health IT. Use of health IT can be an effective way to manage health care costs and improve the quality of care.

Since the publication of the IOM report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*,[i] which emphasized the need for standardized collection and reporting of racial and ethnic data, the need for more granular detail on racial and ethnic subgroups has become apparent. This is an area where the adoption and use of health IT can be beneficial.

Another area of patient care that could be improved with the adoption and use of health IT is care coordination. A Commonwealth Fund study found that health IT can facilitate care coordination

[i] Available at the National Academies Press Web site at www.nap.edu/openbook.php?isbn=030908265X.

within a practice, but a lack of interoperability makes exchange of information between health care facilities difficult (Shih, et al., 2008).

Evidence has also shown that the adoption and effective use of health IT can help reduce medical errors and adverse events, enable better documentation and file organization, provide patients with information that assists their adherence to medication regimens and scheduled appointments, and assist doctors in tracking their treatment protocols (IOM, 2010).

Following presentation of measures of the use of health IT, data on health care workforce diversity are presented. An adequate supply of health care providers is an important indicator of health care quality. Aside from a provider-to-population ratio that effectively meets demand for care, it is important that the workforce be appropriately distributed.

In previous quality and disparities reports, data have been presented on diversity in the nursing, dental, pharmacy, and allied health professional workforce. This year, the NHQR and NHDR present data on the geographic and racial/ethnic distribution of primary care physicians and primary care specialists.

The distribution and availability of a culturally competent health care workforce has significant implications for access to care, particularly among the Nation's most vulnerable populations—racial or ethnic minorities, low-income populations, and uninsured or underinsured people. People who cannot access health care services, either because of financial considerations or inadequacy in the local health care infrastructure, often rely on safety net providers for essential health care services. The final section presents measures related to the performance of safety net providers, including people served, characteristics of selected safety net providers, and patient outcomes.

Measures

The IOM acknowledges that health system infrastructure measures such as adoption and effective use of health IT are likely to be under development, and evidence of the impact on quality improvement has not yet been strongly established. The IOM highlighted three infrastructure capabilities that should be further evaluated for reporting. These capabilities include adoption and use of health IT, workforce distribution and its relevance to minority and other underserved populations, and care management processes.

Findings

Health Information Technology: Focus on Electronic Health Records

According to the Office of the National Coordinator for Health IT, an electronic health record (EHR) is a real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decisionmaking. The EHR can automate and streamline a clinician's workflow, ensuring that all clinical information is communicated. The EHR can also support the collection of data for uses other than clinical care, such as billing, quality management, outcome reporting, and disease surveillance and reporting for public health purposes.

The IOM report *Future Directions for the National Healthcare Quality and Disparities Reports* highlights the adoption and use of health IT as a tool to manage cost and improve the quality of care delivered (IOM, 2010). Meaningful use of an EHR, for instance, is increasingly viewed as essential to improving both the efficiency of service delivery and health care quality (Resnick & Alwan, 2010).

Health providers using EHRs have reported improvement in clinical decisionmaking and communication with other providers and patients, as well as faster and more accurate access to medical records and avoidance of medical errors (Romano & Stafford, 2011). Components of EHRs, such as computerized provider order entry (CPOE) and clinical decision support (CDS), have been found to be associated with significant reductions in medication errors (Devine, et al., 2010).

CPOE systems are computer applications that allow direct electronic entry of orders for medications, laboratory, radiology, referral, and procedures. CDS encompasses a wide range of computerized tools directed at improving patient care, including alerts, reminders, order sets, drug dose calculations that automatically remind the clinician of a specific action, or care summary dashboards that provide feedback on quality indicators (Bright, et al., 2012).

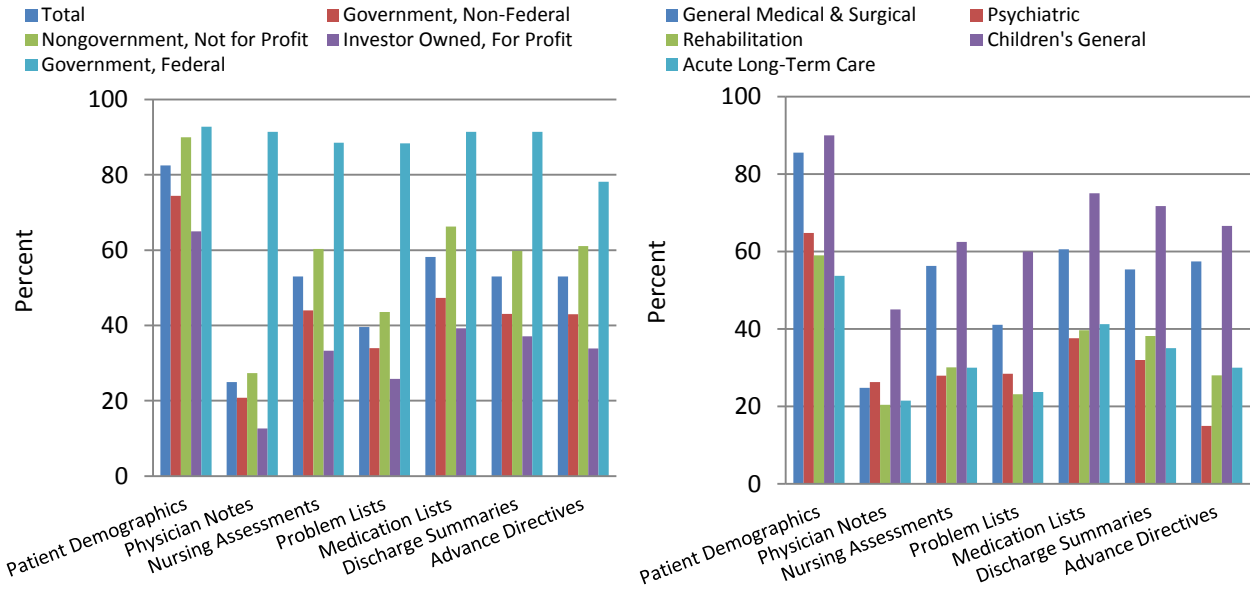
Electronic Health Records in Hospitals

The 2012 Commonwealth Fund report *Using Electronic Health Records To Improve Quality and Efficiency: The Experience of Leading Hospitals* found that successful implementation of EHRs depends on strong leadership, full involvement of clinical staff in design and implementation, and mandatory staff training. EHRs can improve health care quality and patient safety through the use of checklists and alerts and by promoting evidence-based practices. EHRs can increase efficiency by alerting physicians to duplicate orders and enabling faster prescribing and test ordering while reducing errors and redundancy. This year's NHDR tracks overall EHR use in hospitals.

EHRs can improve the quality and safety of care in all types of hospitals and in departments within hospitals. In emergency departments, for instance, electronic clinical documentation and decision support can help mitigate problems of treating new patients with complicated medical histories and gaps in their medical records. EHRs can also provide effective decision support and clinical reminders to facilitate a seamless transition of care by reducing communication breakdown between different providers.

Overall EHR use is presented by hospital ownership because many not-for-profit hospitals serve large populations who experience health care disparities, including racial and ethnic minorities and Medicaid recipients. The Government Accountability Office found that government and not-for-profit hospitals account for a larger percentage of total uncompensated cost compared with for-profit hospital groups (GAO, 2005).

Figure 8.1. Electronic medical record use in hospitals, by hospital control and hospital type, 2010



Source: American Hospital Association, 2010 Annual Survey Information Technology Supplement.

Patient Demographics

- In 2010, 82.5% of hospitals with an EHR system had a component for patient demographics (Figure 8.1).
- Nearly 93% of hospitals run by the Federal Government, 90.0% of not-for-profit, 74.4% of non-Federal, and 65.0% of investor-owned hospitals with an EHR system had a component for patient demographics.
- Ninety percent of children's general hospitals, 85.5% of general medical and surgical, and 64.8% of psychiatric hospitals had an electronic system with a patient demographics component.
- Between 53% and 59% of rehabilitation and acute long-term care hospitals had an electronic system that supports patient demographics.

Physician Notes and Nursing Assessments

- In hospitals with an EHR system, 25% support physician notes and 53.0% support nursing assessments.
- The percentage of hospitals with electronic systems that support both physician notes and nursing assessments also was much higher for Federal hospitals than for non-Federal, not-for-profit, and investor-owned hospitals.
- Forty-five percent of children's general hospitals, 26.3% of psychiatric hospitals, and 24.8% of general medical and surgical hospitals had an electronic system that supports physician notes. More than 60% of children's general hospitals (62.5%), 56.3% of general medical and surgical hospitals, and 30.1% of rehabilitation hospitals had an electronic system that supports nursing assessments.
- Between 20% and 22% of rehabilitation and acute long-term care hospitals had an electronic system that supports physician notes. Between 27% and 30% of psychiatric and acute long-term care hospitals had a system that supports nursing assessments.

Problem Lists and Medication Lists

- In hospitals with an EHR system, 39.6% support problem lists and 58.2% support medication lists.
- The percentage of hospitals with electronic systems that support both problem and medication lists was much higher for Federal hospitals than for non-Federal, not-for-profit, and investor-owned hospitals.
- Sixty percent of children's general hospitals, 41.1% of general medical and surgical hospitals, and 28.4% of psychiatric hospitals had an electronic system that supports problem lists. Seventy-five percent of children's general hospitals, 60.6% of general medical and surgical hospitals, and 41.2% of acute long-term care hospitals had an electronic system that supports medication lists.
- Between 23% and 24% of rehabilitation and acute long-term care hospitals had an electronic system that supports problem lists. Between 37% and 40% of psychiatric and rehabilitation hospitals had an electronic system that supports medication lists.

Discharge Summaries and Advance Directives

- In hospitals with an EHR system, 53% support discharge summaries and advance directives.
- The percentage of hospitals with electronic systems that support both discharge summaries and advance directives was much higher for Federal hospitals than for non-Federal, not-for-profit, and investor-owned hospitals.
- Nearly 72% of children's general hospitals, 55.4% of general medical and surgical hospitals, and 38.2% of rehabilitation hospitals had an electronic system that supports discharge summaries. Two-thirds of children's general hospitals, 57.4% of general medical and surgical hospitals, and 30.0% of acute long-term care hospitals had an electronic system that supports advance directives.
- Nearly one-third of psychiatric hospitals (32.0%) and 35.0% of acute long-term care hospitals had an electronic system that supports discharge summaries. Fifteen percent of psychiatric hospitals and 28.0% of rehabilitation hospitals had an electronic system that supports advance directives.

Also in the NHQR:

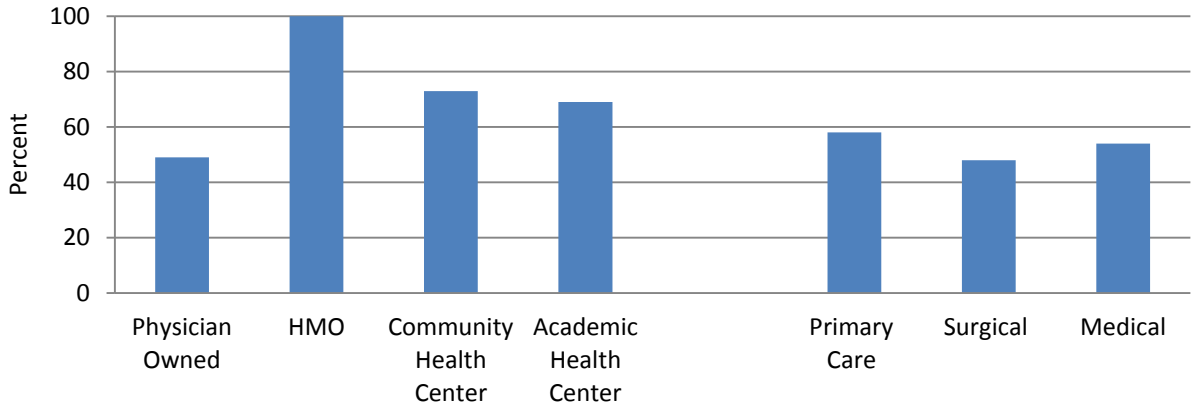
- In 2010, the percentage of hospitals with 400 beds or more with an electronic system that supports patient demographics, physician notes, nursing assessments, problem lists, medication lists, discharge summaries, and advance directives was higher than for hospitals with fewer than 400 beds.

Electronic Health Records in Physician Practices

In addition to alerts, guidelines, and electronic ordering, the ability to exchange health information efficiently between providers leads to better access to quality care and improved patient safety. Many factors outside of the physician's control may help determine his or her ability to adopt an EHR system. Unfortunately, practice size and availability of resources affect EHR adoption rates. Thus, the potential quality and efficiency benefits of an EHR system may be unavailable to resource-constrained organizations that are constantly challenged to "do more with less" (McAlearney, et al., 2010).

The most frequent reason cited for not adopting health IT is cost and potential loss of productivity. EHRs cost almost $44,000 per full-time-equivalent provider, with ongoing costs of $8,400 annually (Samantaray, et al., 2011).

Figure 8.2. Electronic health record use in physician offices, by ownership and specialty, 2011



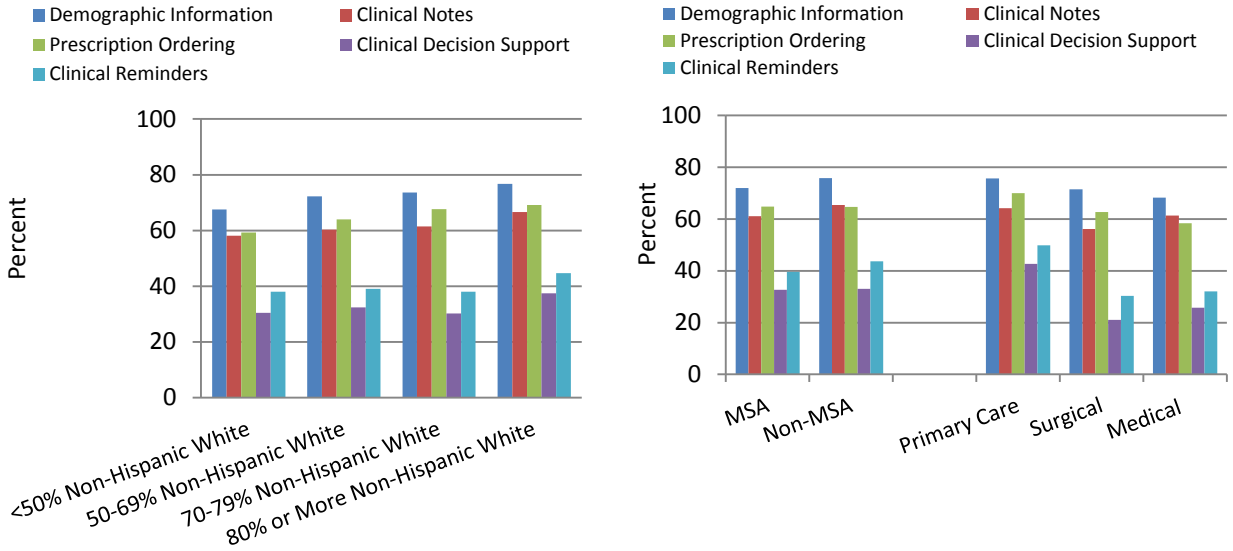
Key: HMO = health maintenance organization.
Source: Jamoom E, Beatty P, Bercovitz, et al. Physician adoption of electronic health record systems: United States, 2011. NCHS data brief, no 98. Hyattsville, MD: National Center for Health Statistics; 2012.

- In 2011, nearly all physicians in health maintenance organizations (HMOs), 73% of physicians in community health centers, and 69% of physicians in academic health centers had adopted an EHR system. Only 49% of providers in physician-owned practices had adopted EHRs (Figure 8.2).
- In 2011, 58% of primary care specialists, 54% of medical subspecialists, and 48% of surgical specialists had adopted an EHR system.

Also, in the NHQR:

- In 2011, 64% of physicians under age 50 had an EHR system but only 49% of physicians age 50 and over had an EHR system.
- In 2011, the percentage of physicians working in practices of 11 or more who had an EHR system was nearly three times as high as the percentage of physicians in solo practices who had an EHR system.

Figure 8.3. Electronic health record use in physician offices, by ethnicity of population, metropolitan status, and specialty, 2011



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Ambulatory Medical Care Survey, 2011 Electronic Medical Record Mail Survey Supplement.

Patient Demographics

- In 2011, 76.7% of physician offices in areas with a non-Hispanic White population of 80% or greater, 73.6% of physician offices in areas with a non-Hispanic White population between 70% and 79%, 72.3% of physician offices in areas with a non-Hispanic White population between 50% and 69%, and 67.5% of physician offices in areas with a non-Hispanic White population below 50% who adopted EHRs had a component for patient demographics (Figure 8.3).
- In 2011, 75.7% of primary care practices, 71.4% of surgical practices, and 68.3% of medical subspecialty practices with an EHR system had a component for patient demographics.

Clinical Notes

- In 2011, 66.6% of physician offices in areas with a non-Hispanic White population of 80% or greater, 61.4% of physician offices in areas with a non-Hispanic White population between 70% and 79%, 60.3% of physician offices in areas with a non-Hispanic White population between 50% and 69%, and 58.1% of physician offices in areas with a non-Hispanic White population below 50% who adopted EHRs had a component for clinical notes.
- In 2011, 64.2% of primary care practices, 61.3% of medical subspecialty practices, and 56.1% of surgical practices with an EHR system had a component for clinical notes.

Prescription Ordering

- In 2011, 69.1% of physician offices in areas with a non-Hispanic White population of 80% or greater, 67.6% of physician offices in areas with a non-Hispanic White population between 70% and 79%, 64.0% of physician offices in areas with a non-Hispanic White population between 50% and 69%, and 59.3% of physician offices in

areas with a non-Hispanic White population below 50% who adopted EHRs had a component for prescription ordering.

- In 2011, 70.0% of primary care practices, 58.4% of medical subspecialty practices, and 62.7% of surgical practices with an EHR system had a component for prescription ordering.

Clinical Decision Support

- In 2011, 37.4% of physician offices in areas with a non-Hispanic White population of 80% or greater, 30.2% of physician offices in areas with a non-Hispanic White population between 70% and 79%, 32.4% of physician offices in areas with a non-Hispanic White population between 50% and 69%, and 30.4% of physician offices in areas with a non-Hispanic White population below 50% who adopted EHRs had a CDS component.
- In 2011, 42.7% of primary care practices, 25.7% of medical subspecialty practices, and 21.0% of surgical practices with an EHR system had a CDS component.

Clinical Reminders

- In 2011, 44.7% of physician offices in areas with a non-Hispanic White population of 80% or greater, 38.0% of physician offices in areas with a non-Hispanic White population between 70% and 79%, 39.0% of physician offices in areas with a non-Hispanic White population between 50% and 69%, and 38.0% of physician offices in areas with a non-Hispanic White population below 50% who adopted EHRs had a component for clinical reminders.
- In 2011, 49.8% of primary care practices, 32.0% of medical subspecialty practices, and 30.3% of surgical practices with an EHR system had a component for clinical reminders.

Also, in the NHQR:

- In 2011, the percentage of practices with EHRs with a component for patient demographics, clinical notes, prescription ordering, clinical decision support, and clinical reminders was highest for physicians under age 35 and practices with 11 or more physicians.

New

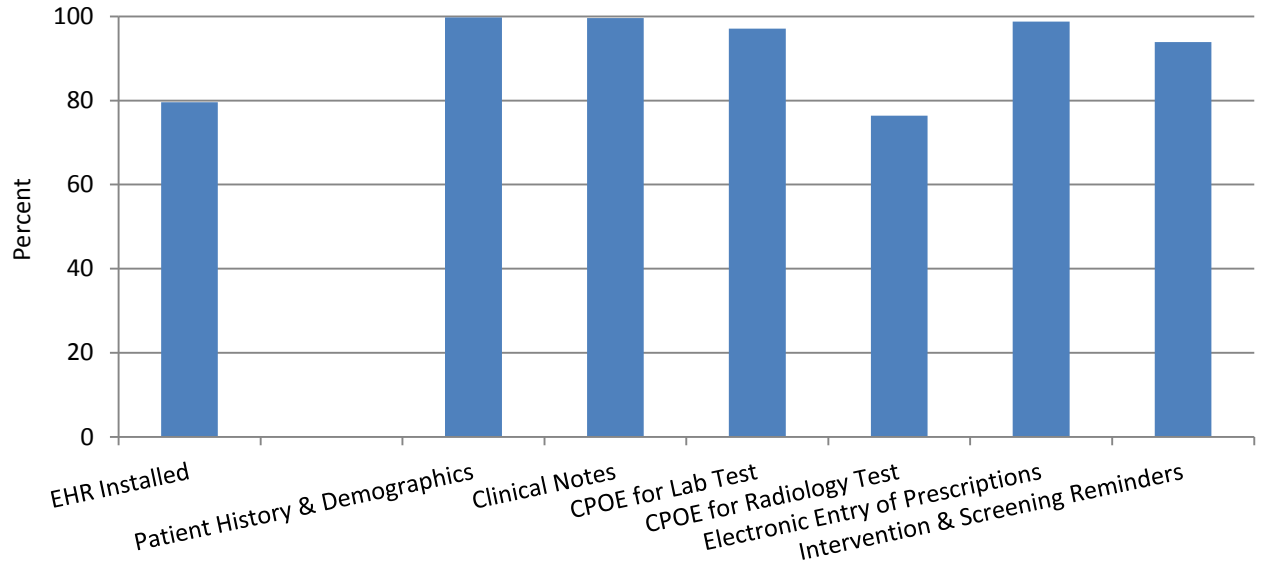
Electronic Health Records in Health Centers

Health Resources and Services Administration (HRSA)-supported health centers (HSHCs) are nonprofit private or public entities that serve designated medically underserved populations/areas or special medically underserved populations composed of migrant and seasonal agricultural workers, homeless people, or residents of public housing. Health centers provide comprehensive, culturally competent, primary health care services to medically underserved communities and vulnerable populations.

There are already 65 million Americans living in areas officially deemed primary care shortage areas and many adults have difficulty obtaining prompt access to primary care (Bodenheimer & Pham, 2010). To improve the capacity to provide care to people living in shortage areas as well as a growing insured population, the Federal Government, through the Affordable Care Act,

provides a stream of mandatory funds to expand health center capacity and capital infrastructure. As more people become covered by Medicaid, the role of health centers becomes more critical.

Figure 8.4. Electronic health record use in HRSA-supported health centers, 2011



Key: CPOE = computerized provider order entry.
Source: Health Resources and Services Administration, Bureau of Primary Health Care, Uniform Data System, 2011.

- In 2011, 79.6% of HSHCs had an EHR system installed, and nearly all of those health centers had an EHR with a component for patient history and demographics and clinical notes (Figure 8.4).
- Nearly all HSHCs with EHRs had a component for electronic prescription entry, 97.1% had a CPOE component for lab tests, 93.9% had a component for reminders for guideline-based intervention or screening tests, and 76.4% had a CPOE component for radiology tests.

Workforce Diversity

Diversity in the composition of the health care workforce is important because it affects outcomes, quality, safety, and satisfaction.

Racial and ethnic disparities in health outcomes and the lack of health providers highlight the need for family physicians. Members of racial and ethnic minority groups, who make up the majority of inner city residents, are less likely than others to receive needed services, including treatment for HIV infection, mental health problems, cardiovascular disease, and cancer.

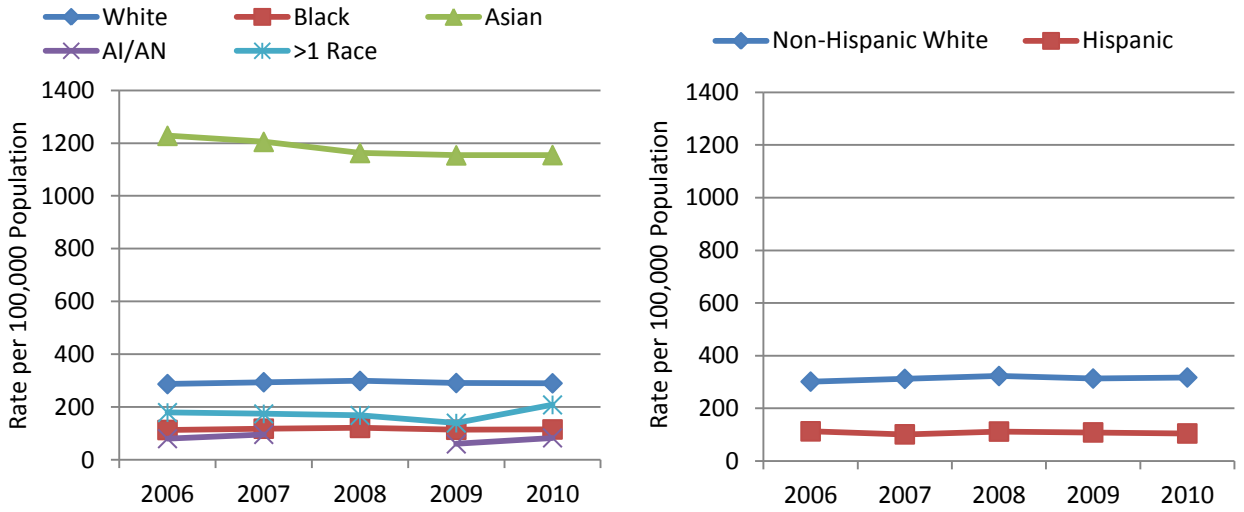
Health disparities affecting minorities have been traced to many causes, including language and cultural barriers that can deter minorities from seeking care or lead to suboptimal care. Racial and ethnic concordance in physician-patient relationships has been shown to improve care. Such positive relationships are more likely to occur when an area contains enough physicians of a given race/ethnicity to serve the local population who are of corresponding race/ethnicity (Brown, et al., 2009).

Additional research has found that physicians from groups underrepresented in the health professions are more likely to serve minority and economically disadvantaged patients. It has also been found that Black and Hispanic physicians practice in areas with larger Black and Hispanic populations than other physicians (Brown, et al., 2009).

Language differences between patients and clinicians jeopardize communication, leading to compromised care, increased health disparities and inequalities, dissatisfaction with care, and inefficiency in the health care system (Tang, et al., 2011). Research has also shown that linguistic minorities suffer more serious adverse outcomes from medical errors and receive worse care than do English-speaking patients (Tang, et al., 2011).

Patient-clinician language concordance can enhance health care quality and equity, patient safety and satisfaction, and resource stewardship. Workforce diversity has been associated with both greater satisfaction with care received and improved patient-provider communication. Conversely, the lack of a diverse workforce may foster linguistic and cultural barriers, bias, and clinical uncertainty within the patient-provider relationship (Mitchell & Lassiter, 2012).

Figure 8.5. Rate of physicians and surgeons per 100,000 population, by race and ethnicity, 2006-2010



Key: AI/AN: American Indian or Alaska Native.
Source: U.S. Census, American Community Survey, 2006-2010.
Note: Data for AI/ANs in 2008 did not meet criteria for statistical reliability.

- From 2006 to 2010, Whites had significantly higher rates of physicians and surgeons than Blacks, AI/ANs, and multiple-race individuals in all years (Figure 8.5).
- In all years, Asians had significantly higher rates of physicians and surgeons than all other racial groups. In 2010, the rate of Asian physicians and surgeons was 4 times the rate for Whites, 10 times the rate for Blacks, 14 times the rate for AI/ANs, and more than 5 times the rate for multiple-race individuals.
- In all years, the rates for non-Hispanic Whites were about three times the rates for Hispanic physicians and surgeons.

Also, in the NHQR:

- In 2008, the Midwest, South, and West all had higher rates of general family medicine physicians than the Northeast but only the Midwest had a significantly higher rate of family medicine subspecialists than the Northeast. Nonmetropolitan areas had a slightly higher rate of general family medicine physicians but the difference was not statistically significant.
- In 2008, the Northeast had higher rates of pediatricians and pediatric subspecialists than the Midwest, South, and West. The rate of pediatricians in metropolitan areas was more than five times the rate for nonmetropolitan areas, and the metropolitan rate of pediatric subspecialists was nine times the nonmetropolitan rate.

Organizational Capacity: Focus on the Health Care Safety Net

Concern has arisen about the composition and distribution of the health workforce and whether the Nation's health workforce will be able to meet the increasing demand for care that a growing and aging U.S. population will have. In his seminal work on health care quality, Donabedian (1980) describes a robust health care "structure"—the setting or infrastructure supporting the delivery of care (e.g., hospitals, providers)—as necessary to ensure that processes of care contribute to good outcomes. Structural deficiencies in the United States health care delivery system resulting from shortages of providers, growing demand, and a high rate of uninsurance and underinsurance have contributed to unmet need and could result in increased morbidity and health care costs.

Safety net providers play an integral role in relieving unmet need. As defined in an IOM report, the U.S. health care safety net is composed of "[t]hose providers that organize and deliver a significant level of health care and other health-related services to the uninsured, Medicaid, and other vulnerable populations" (IOM, 2010). Safety net providers act as a default system, or providers "of last resort," by ensuring access to care for millions of Americans lacking medical coverage or provider access, regardless of education, social status, language competency, or ability to pay.

The safety net includes many different types of providers, including public health departments, hospitals, and HSHCs. For the 50 million uninsured people and individuals with low income, safety net providers serve an essential function, eliminating financial barriers to care and enhancing access to services.

This section includes measures that show how well the health care safety net is meeting the needs of the Nation's vulnerable populations, particularly low-income populations and racial/ethnic subgroups. This section focuses on two types of safety net providers: hospitals and HSHCs.

New

Trauma Center Utilization for Severe Injuries

Trauma remains a considerable cause of mortality and morbidity worldwide, constituting a tangible public health burden with significant associated social and economic costs (Mansoor & DuBose, 2012). Trauma care systems, which were developed because it was recognized that trauma requires complex medical care, include a network of care facilities that provide a range of

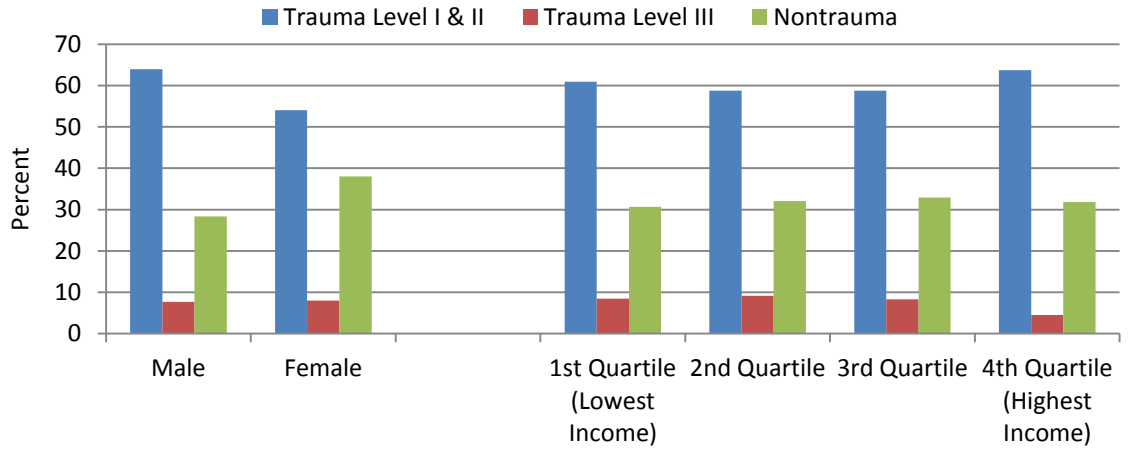
care for all injured patients. Trauma systems usually have a lead hospital, which should be the highest level available within the system. Levels range from level I to level III, with level I denoting the most clinically sophisticated hospitals.

Level I facilities are required to have a specific number of surgeons and anesthesiologists on duty at all times, as well as education, prevention, and outreach programs. The 24-hour coverage of surgery provides trauma patients with many surgical specialties as well, including neurosurgery, radiology, internal medicine, and critical care.

Level II trauma centers provide initial definitive trauma care regardless of the severity of the injury. When a level II center cannot provide the required care, the patient is transferred to a level I center.

Level III trauma centers are often considered community or rural-based hospitals and provide prompt assessment, resuscitation, emergency operations, and stabilizations and also arrange for transfer to a facility that can provide necessary care.

Figure 8.6. Trauma center utilization for severe injuries in the United States, by gender and income, 2009



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Emergency Department Sample, 2009.

- In 2009, males were more likely to use level I and II trauma centers than females (Figure 8.6).
- In 2009, there were no statistically significant differences in the level I and II utilization rates of people living in communities at different income levels.
- In 2009, people living in communities with income in the second and third quartiles were more likely to use level III trauma centers than residents of communities with the highest income.

Also, in the NHQR:

- In 2009, level I and II trauma centers located in large fringe metropolitan areas had significantly higher utilization rates than centers in small metropolitan, micropolitan, and nonmetropolitan areas.

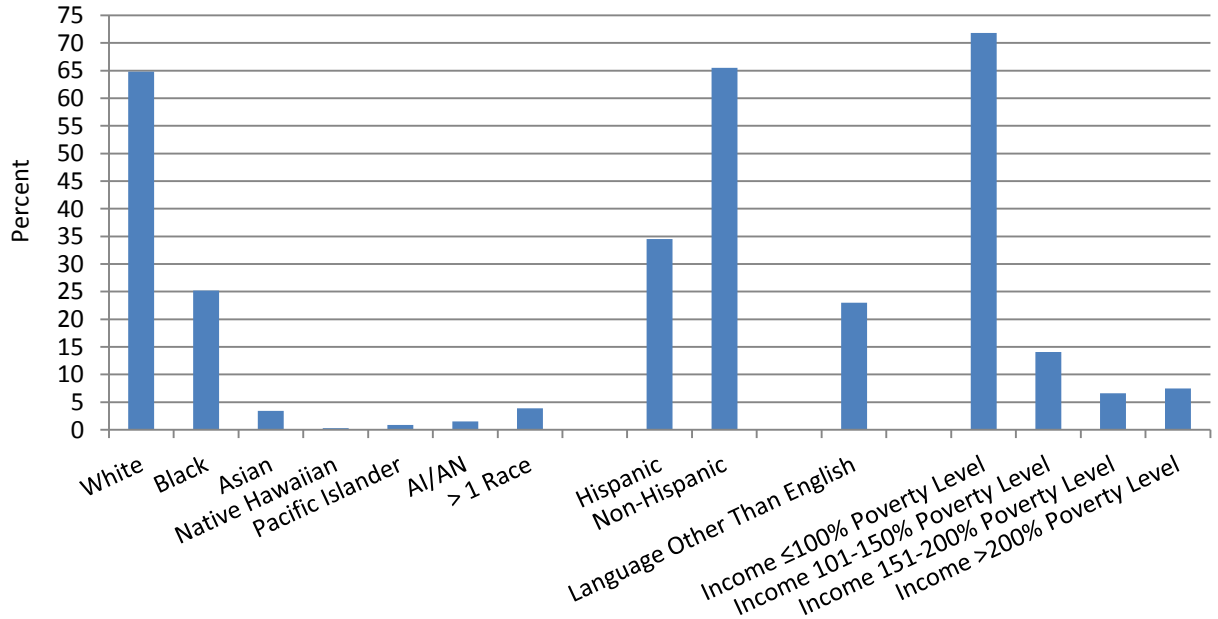
- In 2009, level III trauma centers located in small metropolitan areas were used for severe injuries at 10 times the rate of trauma centers located in large fringe metropolitan areas, 7 times the rate for medium metropolitan areas, and more than twice the rate for micropolitan and nonmetropolitan areas.

Patients Using HRSA-Supported Health Centers

HSHCs include health care organizations that receive a grant under Section 330 of the Public Health Service Act, including community health centers, migrant health centers, Health Care for the Homeless programs, and Public Housing Primary Care programs. These organizations typically render services to low-income populations, uninsured people, people with limited English proficiency, migrant and seasonal agricultural workers, individuals and families experiencing homelessness, and public housing residents.

To obtain Federal grant funding, these public and nonprofit organizations agree to provide a minimum set of services, including primary and preventive care, referrals to mental health care, and dental services. Access to care is available to all persons, regardless of ability to pay. Charges for services rendered are based on a sliding scale linked to patients' family income. More than 20 million people visited an HSHC in 2011.

Figure 8.7. Race, ethnicity, and income of patients receiving care in an HSHC, United States, 2011



Key: AI/AN: American Indian or Alaska Native.
Source: Health Resources and Services Administration, Bureau of Primary Health Care, Uniform Data System, 2011.
Note: Racial groups shown are non-Hispanic. Data were obtained from 1,128 Section 330 grantee recipients. Income shown only includes known income. Income for nearly 23% of patients is unknown.

- In 2011, approximately two-thirds (64.8%) of patients seen at an HSHC were White (Hispanics and non-Hispanics), and one-quarter were Black (Figure 8.7).
- In 2011, 34.5% of HSHC patients were Hispanic and about one-quarter of patients were determined by the HSHC to be best served in a language other than English.

- For those for whom income is known, almost three-quarters of patients seen in an HSHC in 2011 had income at or below the Federal poverty level but only 7.5% of patients had an income over 200% of the poverty level.

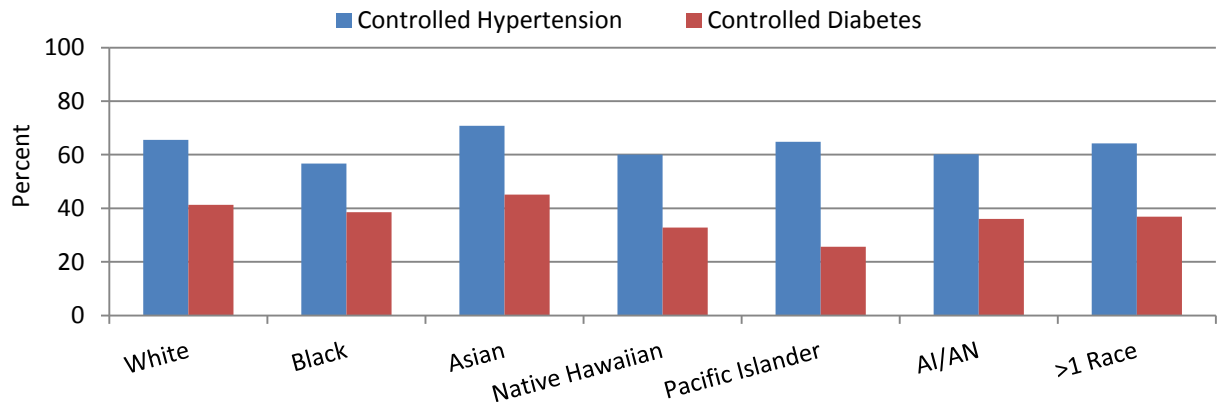
Also, in the NHQR:

- In 2011, 36.4% of patients seen at an HSHC were uninsured and 39.3% had Medicaid.

Control of Hypertension and Diabetes in HSHC Patients

More than 2.5 million adults treated at an HSHC in 2011 had a hypertension diagnosis, and almost 1.4 million had either type I or type II diabetes. The population with hypertension and diabetes may overlap, so the two numbers should not be added together. Control of hypertension and diabetes can help indicate quality of care at HSHCs since people with these conditions require frequent monitoring.

Figure 8.8. HSHC patients with hypertension or diabetes whose conditions are controlled, by race, 2011



Source: Health Resources and Services Administration, Bureau of Primary Health Care, Uniform Data System, 2011.
Note: Racial groups shown are non-Hispanic. Data were obtained from 1,128 Section 330 grantee recipients. Patients with hypertension include those ages 18-85. Hypertension is determined to be controlled if the patient's last blood pressure reading was less than 140/90 mm Hg. Patients with diabetes include those ages 18-75. Diabetes is determined to be controlled if the patient's most recent hemoglobin A1c level was 7% or less.

- In 2011, 70.8% of Asian, 65.5% of White, 64.8% of Pacific Islander, 64.2% of multiple-race, 60.2% of AI/AN, 60.1% of Native Hawaiian, and 56.7% of Black patients had their hypertension under control (Figure 8.8).
- Control of diabetes was found to be worse among Pacific Islanders (25.6%) and Native Hawaiians (32.8%) and best among Asians (45.1%).
- Among Hispanic HSHC patients with hypertension, almost two-thirds had controlled blood pressure; more than one-third of Hispanics with diabetes had their hemoglobin A1c under control (data not shown).

Also, in the NHQR:

- In 2011, about 63% of HSHC patients with hypertension had controlled blood pressure at the time of their last reading.
- Almost 40% had their diabetes under control.

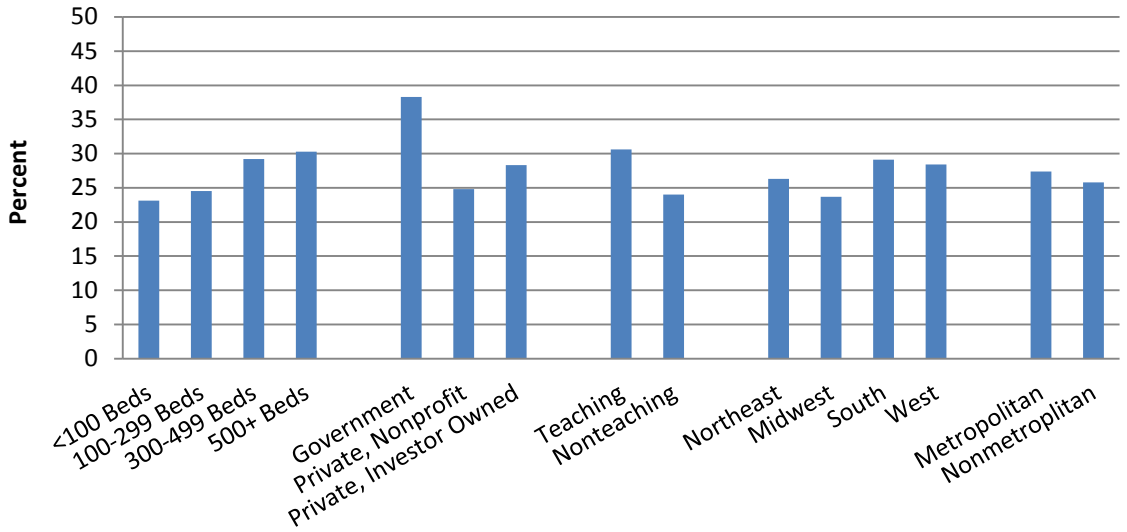
Hospital Admissions of Vulnerable Populations

Hospitals continue to play a major role in the health care safety net and, increasingly, safety net hospitals are defined by their low-income population as opposed to control or governance (e.g., public hospitals).[ii] This section includes one measure suggestive of hospitals' willingness or ability to provide care to low-income populations: hospital inpatient discharges and aggregate cost accounted for by Medicaid and uninsured patients. This measure offers insight into hospitals' contribution to the health care safety net, by selected hospital characteristics. These measures were estimated as follows:

1. (Number of Medicaid and uninsured discharges ÷ total number of discharges) × 100
2. (Total Medicaid and uninsured costs ÷ total costs across all payers) × 100

As indicated in Figure 8.9, the proportion of inpatient days and discharges provided to these vulnerable groups varied by hospital characteristics.

Figure 8.9. Medicaid and uninsured discharges, by facility characteristics, U.S. short-term acute hospitals, 2010



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, HCUPnet, 2010. Available at http://hcupnet.ahrq.gov/.

[ii] Concerned with the impact of hospital closures on the health care safety net, the Department of Health and Human Services Office for Civil Rights (OCR) has expanded its enforcement efforts to prevent ethnic and racial minority communities from suffering race or national origin discrimination when local hospital facilities close or are relocated. Recently, OCR entered into a voluntary compliance agreement with the University of Pittsburgh Medical Center (UPMC), which agreed to provide additional support for primary and urgent care services in the borough of Braddock, Pennsylvania. UPMC entered into the voluntary agreement with OCR to resolve a complaint alleging that it had violated provisions of Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d *et seq.*, when UPMC decided to close Braddock Hospital. Public response to the closure of Braddock Hospital focused on the closure's impact on access to health care for African Americans due to residents' widespread dependence on public transportation. Accordingly, the agreement required UPMC to provide door-to-door transportation services from Braddock to new outpatient facilities and the more distant UPMC McKeesport Hospital, as well as health screening, wellness, and community outreach programs.

- On average, Medicaid recipients and medically uninsured people accounted for about one in four discharges from acute care hospitals in 2010 (data not shown).
- The percentage of Medicaid and uninsured patients discharged from government hospitals was significantly higher than from private hospitals (Figure 8.9).
- Compared with hospitals with 500 or more beds, a smaller percentage of Medicaid or uninsured patients was discharged from hospitals with bed sizes under 300.
- About 31% of patients discharged from teaching hospitals were uninsured or covered by Medicaid, compared with 24% of patients in nonteaching facilities.
- Hospitals in the South discharged a greater proportion of Medicaid and uninsured patients (29.1%), while hospitals in the Midwest discharged the lowest percentage of these patients (23.7%).

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Chapter 9. Access to Health Care

Many Americans have good access to health care that enables them to benefit fully from the Nation's health care system. Others face barriers that make it difficult to obtain basic health care services. As shown by extensive research and confirmed in previous National Healthcare Disparities Reports (NHDRs), racial and ethnic minorities and people of low socioeconomic status (SES)[i] are disproportionately represented among those with access problems.

Previous findings from the *National Healthcare Quality Report* (NHQR) and NHDR showed that health insurance was the most significant contributing factor to poor quality of care for some of the core measures, and many measures are not improving. Uninsured people were less likely to get recommended care for disease prevention, such as cancer screening, dental care, counseling about diet and exercise, and flu vaccination. They also were less likely to get recommended care for disease management, such as diabetes care management.

Poor access to health care comes at both a personal and societal cost. For example, if people do not receive vaccinations, they may become ill and spread disease to others. This increases the burden of disease for society overall in addition to the burden borne individually.

According to the Centers for Disease Control and Prevention (CDC), the lack of access to health care that results from inadequate insurance coverage should be greatly reduced by the Affordable Care Act (ACA). The ACA is expected to extend insurance coverage to an additional 27 million people by 2019 (CBO, 2013).

Recent studies by the Office of the Assistant Secretary for Planning and Evaluation have demonstrated early evidence of greater rates of insurance coverage among young adults. Before ACA implementation, young adults with private insurance were more than twice as likely to lose insurance coverage as older adults (Schwartz & Sommers, 2012). New estimates, however, show that from September 2010 to December 2011, more than 3 million additional young adults had coverage (Sommers, 2012). This includes an estimated 913,000 Latino, 509,000 African American, and 121,000 Asian young adults (Sommers & Kronick, 2012). Overall, males have significantly benefited from the expanded coverage, and their rate of coverage has increased from 57.9% to 72.0% (Sommers, 2012).

The ACA also makes significant changes to the Medicaid program. All citizens and legal permanent residents with a household income up to 133% of the poverty level who do not have access to affordable health coverage through their employers and who reside in a State that chooses to participate in the expansion will be eligible for Medicaid. This change could improve the health of millions of Americans. Medicaid expansions have been shown to reduce mortality among adults, particularly those ages 35-64 years, minorities, and residents of low-income areas (Sommers, et al., 2012).

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[i] As described in Chapter 1, Introduction and Methods, income and educational attainment are used to measure SES in the NHDR. Unless specified, poor = below the Federal poverty level (FPL), low income = 100-199% of the FPL, middle income = 200-399% of the FPL, and high income = 400% or more of the FPL. The Measure Specifications and Data Sources appendixes provide more information on income groups by data source.

Components of Health Care Access

Access to health care means having "the timely use of personal health services to achieve the best health outcomes" (IOM, 1993). Attaining good access to care requires three discrete steps:

- Gaining entry into the health care system.
- Getting access to sites of care where patients can receive needed services.
- Finding providers who meet the needs of individual patients and with whom patients can develop a relationship based on mutual communication and trust.

Health care access is measured in several ways, including:

- Structural measures of the presence or absence of specific resources that facilitate health care, such as having health insurance or a usual source of care.
- Assessments by patients of how easily they can gain access to health care.
- Utilization measures of the ultimate outcome of good access to care (i.e., the successful receipt of needed services).

Facilitators and Barriers to Health Care

Facilitators and barriers to health care discussed in this chapter include health insurance, financial burden of health care costs, usual source of care (including having a specific source of ongoing care and a usual primary care provider), and patient perceptions of need.

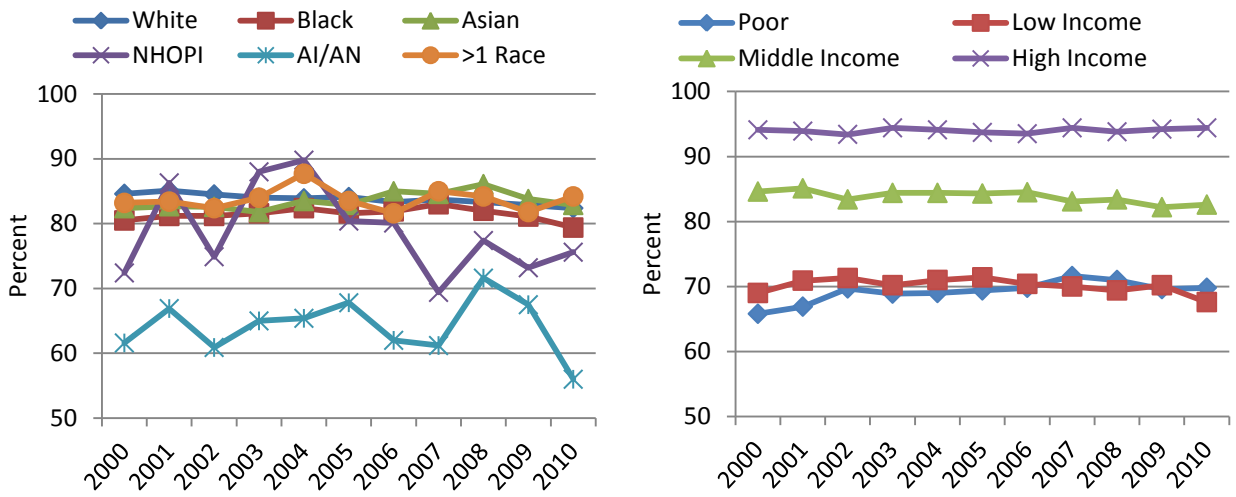
Findings

Health Insurance

Health insurance facilitates entry into the health care system. Uninsured people are less likely to receive medical care and more likely to have poor health status. The cost of poor health among uninsured people was almost $125 billion in 2004 (Hadley & Holahan, 2004).

The financial burden of uninsurance is also high for uninsured individuals; almost 50% of personal bankruptcy filings are due to medical expenses (Jacoby, et al., 2000). Uninsured individuals report more problems getting care, are diagnosed at later disease stages, and get less therapeutic care. They are sicker when hospitalized and more likely to die during their stay (Hadley & Holahan, 2004).

Figure 9.1. People under age 65 with health insurance, by race and income, 2000-2010



Key: AI/AN = American Indian or Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey (NHIS), 2000-2010.
Denominator: Civilian noninstitutionalized population under age 65.
Note: NHIS respondents are asked about health insurance coverage at the time of interview. Respondents are considered insured if they have private health insurance, Medicare, Medicaid, State Children's Health Insurance Program, a State-sponsored health plan, other government-sponsored health plan, or a military health plan. If their only coverage is through the Indian Health Service, they are not considered insured. Estimates are not age adjusted.

- Overall, there was no statistically significant change from 2000 to 2010 in the percentage of people under age 65 with health insurance. In 2010, 81.8% of people under age 65 had health insurance (data not shown).
- From 2000 to 2010, American Indians and Alaska Natives (AI/ANs) under age 65 were less likely than Whites to have health insurance in all years (in 2010, 56.0% compared with 82.4%). Blacks under age 65 were also less likely than Whites to have health insurance in 7 of 11 years (Figure 9.1).
- In all years, Hispanics under age 65 were less likely to have health insurance compared with non-Hispanic Whites (data not shown).
- The percentage of people with health insurance was significantly lower for poor, low-income, and middle-income people than for high-income people in all years (in 2010, 69.8%, 67.6%, and 82.6%, respectively, compared with 94.4%).
- Between 2000 and 2010, the percentage of people with less than a high school education who had health insurance decreased from 63.1% to 54.4%. In 2010, people with less than a high school education were about one-third less likely than people with any college education to have health insurance (54.4% compared with 86.9%; data not shown).

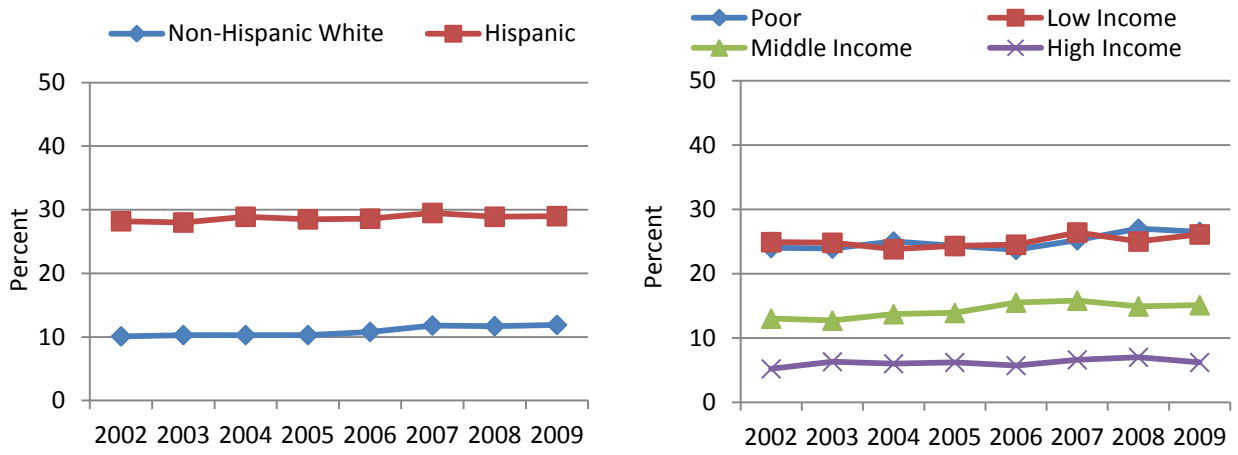
Also, in the NHQR:

- From 2000 to 2010, the percentage of children ages 0-17 who had health insurance increased. However, for adults ages 18-44 and 45-64, the percentage decreased.
- In all years, adults ages 18-44 were less likely than children ages 0-17 and adults ages 45-64 to have health insurance.
- Females were more likely to have health insurance than males throughout this period.

Uninsurance

Prolonged periods of uninsurance can have a particularly serious impact on a person's health and stability. Uninsured people often postpone seeking care, have difficulty obtaining care when they ultimately seek it, and may have to bear the full brunt of health care costs. Over time, the cumulative consequences of being uninsured compound, resulting in a population at particular risk for suboptimal health care and health status.

Figure 9.2. People under age 65 who were uninsured all year, by ethnicity and income, 2002-2009



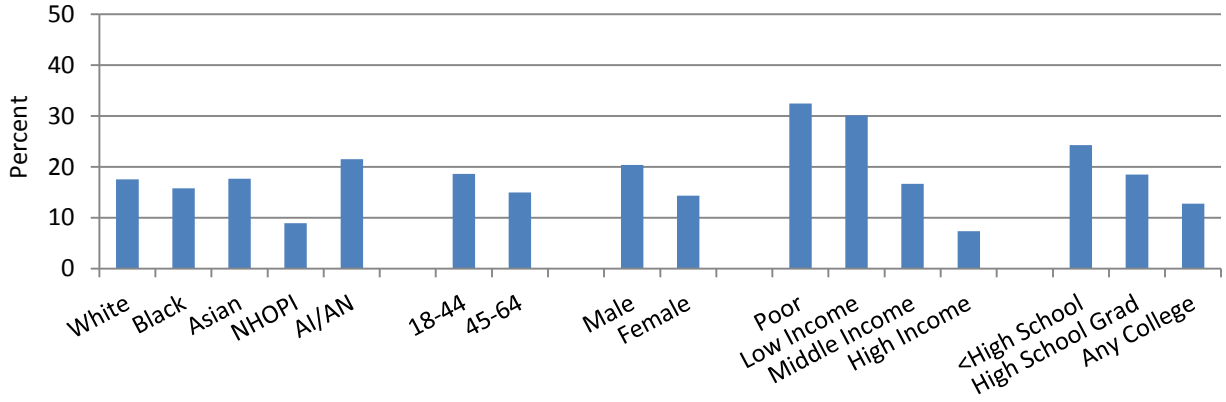
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population under age 65.
Note: For this measure, lower rates are better.

- From 2002 to 2009, the percentage of people under age 65 who were uninsured all year increased from 13.4% to 15.5% (data not shown).
- In 2009, AI/ANs were more likely than Whites to be uninsured all year (24.1% compared with 15.6%). There was no statistically significant difference between Blacks and Whites or between Asians and Whites (data not shown).
- In all years, Hispanics were much more likely than non-Hispanic Whites to be uninsured all year (in 2009, 29.0% compared with 11.9%; Figure 9.2).
- In 2009, the percentage of poor and low-income people who were uninsured all year was more than four times as high as that for high-income people (26.5% and 26.1%, respectively, compared with 6.2%). The percentage of middle-income people uninsured all year was more than twice as high as that for high-income people (15.1% compared with 6.2%).
- From 2002 to 2009, the percentage of people who were uninsured all year was nearly three times as high for people who spoke another language at home as that for people who spoke English at home (in 2009, 34.2% compared with 12.5%; data not shown).

Also, in the NHQR:

- From 2002 to 2009, children ages 0-17 were least likely to be uninsured all year, while adults ages 18-44 were most likely to be uninsured all year.
- Females were less likely to be uninsured all year than males.

Figure 9.3. Predicted percentages of adults ages 18-64 who were uninsured all year, by race, age, gender, family income, and education, 2002-2009



Key: NHOPI = Native Hawaiian or Other Pacific Islander; AI/AN = American Indian or Alaska Native.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, pooled 2002-2009 Full Year files.
Note: For this measure, lower rates are better. Predicted percentages are predicted marginals from a logistic regression model that includes the covariates race, age, gender, family income, and education. Predicted percentages for multiple races did not meet criteria for data reliability and are not reported.

- In the multivariate model used, after adjustment, 15.8% of Blacks, 17.7% of Asians, and 8.9% of Native Hawaiians and Other Pacific Islanders would have been uninsured all year compared with 17.6% of Whites (Figure 9.3). AI/ANs would have been more likely than Whites to be uninsured all year (21.5% compared with 17.6%).
- After adjustment, people ages 18-44 would have been more likely than people ages 45-64 to be uninsured all year (18.6% compared with 15.0%).
- After adjustment, 32.5% of poor, 30.1% of low-income, and 16.7% of middle-income individuals would have been uninsured all year compared with 7.4% of those with high income.
- After adjustment, 24.3% of people with less than a high school education and 18.5% of high school graduates would have been uninsured all year compared with 12.8% of those with any college education.

Hispanic and Asian Subgroups

The Hispanic population in the United States is highly heterogeneous. Almost 65% of all Hispanics in the country are of Mexican descent, making this group the largest subpopulation. People originating from Puerto Rico, Central America, and South America are the next largest subgroups. Variation is seen in access to care among Hispanics related to country of origin. Findings are presented below on differences among Hispanic subpopulations on health insurance.

In 2012, California's Hispanic population was more than twice the percentage in the United States overall (38.1% in California compared with 16.7% of the U.S. population; U.S. Census Bureau, 2012). Almost 30% of the Hispanic population in the United States lives in California (U.S. Census Bureau, 2012).

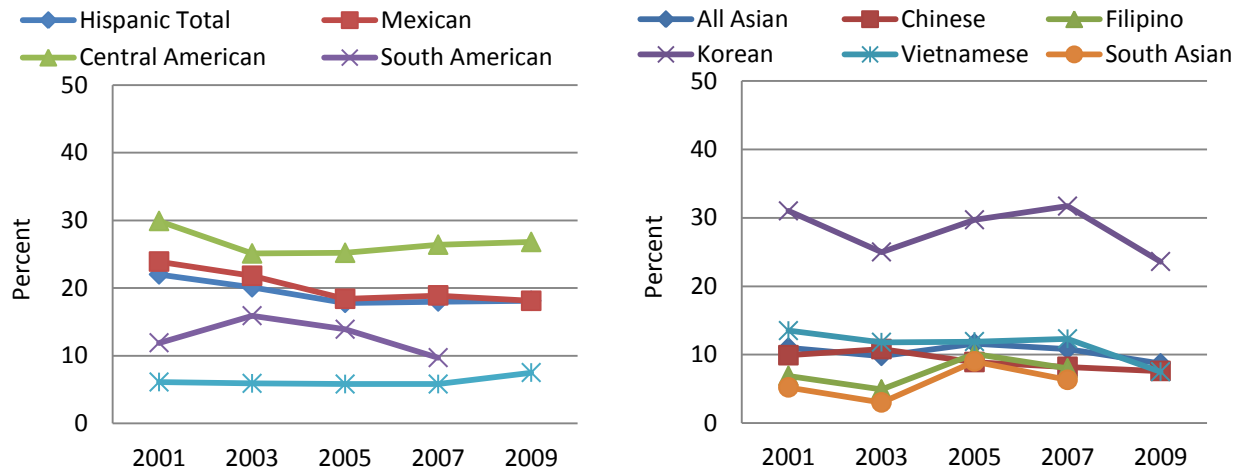
California Health Interview Survey (CHIS) data show disparities among Hispanics in California, not only compared with non-Hispanic Whites but also within Hispanic subgroups (Mexican,

Puerto Rican, Central American, and South American). The data also show disparities across Hispanic subgroups by income. This section shows only some of the significant disparities for these groups in California from CHIS data.

To show differences within racial groups, this year's NHDR also includes information from the CHIS on Asians in California. The geographic distribution of Asian subpopulations allows such comparisons in California using CHIS data.

In 2010, an estimated 5.6 million Asian people, or about 32% of the Asian population in the United States, lived in California (U.S. Census Bureau, 2011). The proportion of many Asian subpopulations in California is also greater than the proportion in the overall U.S. population. For example, in 2010, the Vietnamese population was 1.6% of California's population compared with only 0.4% of the U.S. population, and the Filipino population was 3.2% of California's population compared with only 0.7% of the U.S. population (U.S. Census Bureau, 2010). This finding is especially important when examining data for these relatively smaller groups, as most national data sources do not have sufficient data to report estimates for these groups.

Figure 9.4. People under age 65 who were uninsured all year, Hispanics and Asians, California, 2001-2009



Source: University of California, Los Angeles, Center for Health Policy Research, California Health Interview Survey, 2001-2009.
Denominator: Hispanic and Asian civilian noninstitutionalized population ages 0-64 in California.
Note: For this measure, lower rates are better. Data for Filipinos, South Asians, and South Americans did not meet criteria for statistical reliability in 2009.

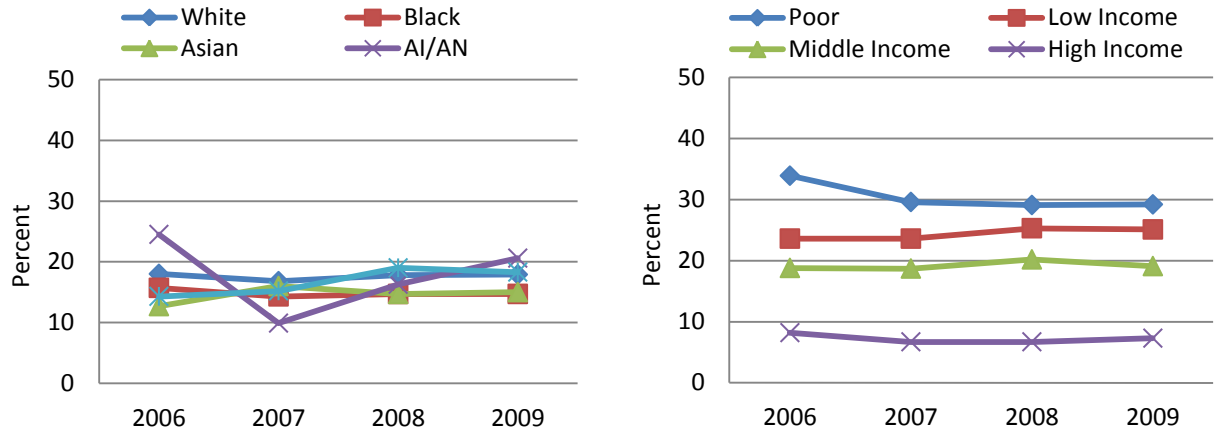
- In all years from 2001 to 2009, Mexicans and Central Americans in California were more likely than non-Hispanic Whites to be uninsured all year (Figure 9.4).
- In all years from 2001 to 2009, Koreans in California were more likely than all other Asian ethnic groups to be uninsured all year.
- In all years during this time, among Hispanics in California, people who were not born in the United States were more than three times as likely as Hispanics born in the United States to be uninsured all year. Similarly, in all years, Asians not born in the United States were approximately three times as likely as Asians born in the United States to be uninsured all year (data not shown).

Financial Burden of Health Care Costs

Health insurance is supposed to protect individuals from the burden of high health care costs. However, even with health insurance, the financial burden of health care can still be high and is increasing (Banthin & Bernard, 2006). High premiums and out-of-pocket payments can be a significant barrier to accessing needed medical treatment and preventive care (Alexander, et al., 2003).

According to one study, uninsured families can afford to pay for only 12% of hospitalizations that they experience (Chappel, et al., 2011). One way to assess the extent of financial burden is to determine the percentage of family income spent on a family's health insurance premium and out-of-pocket medical expenses.

Figure 9.5. People under age 65 whose family's health insurance premium and out-of-pocket medical expenses were more than 10% of total family income, by race and family income, 2006-2009



Key: AI/AN = American Indian or Alaska Native.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2006-2009.
Denominator: Civilian noninstitutionalized population under age 65.
Note: For this measure, lower rates are better. Total financial burden includes premiums and out-of-pocket costs for health care services.

- Overall, in 2009, 17.4% of people under age 65 had health insurance premium and out-of-pocket medical expenses that were more than 10% of total family income (data not shown).
- From 2006 to 2009, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenses were more than 10% of total family income was lower for Blacks than for Whites in all years (in 2009,14.7% compared with 17.9%; Figure 9.5).
- In all years, the percentage was also lower for Hispanics than for non-Hispanic Whites (data not shown).
- In all years, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenses were more than 10% of total family income was at least four times as high for poor individuals, about three times as high for low-income individuals, and more than twice as high for middle-income individuals compared with high-income individuals.

Also, in the NHQR:

- In all years from 2006 to 2009, the percentage of people under age 65 whose family's health insurance premium and out-of-pocket medical expenses were more than 10% of total family income was three times as high for individuals with private nongroup insurance as for individuals with private employer-sponsored insurance.
- In all years, people with activity limitations (both basic activity limitations and complex limitations) were significantly more likely than people with neither type of activity limitation to have family's health insurance premium and out-of-pocket medical expenses that were more than 10% of total family income.

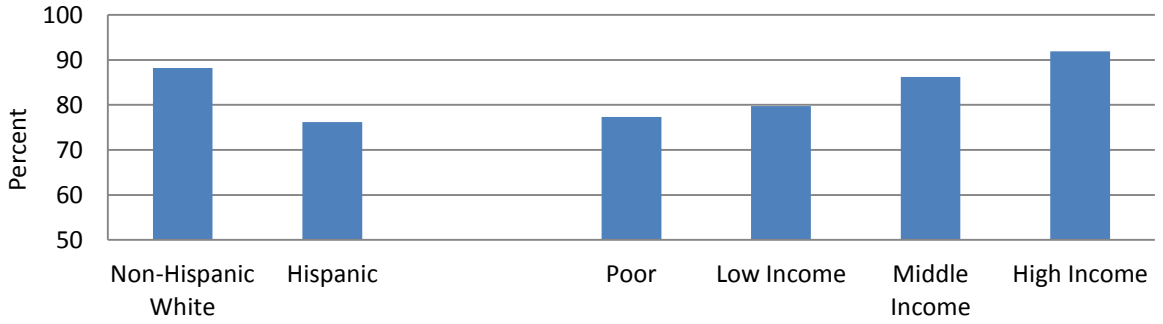
Usual Source of Care

People with a usual source of care (a provider or facility where one regularly receives care) experience improved health outcomes and reduced disparities (smaller differences between groups) (Starfield & Shi, 2004) and costs (De Maeseneer, et al., 2003). Evidence suggests that the effect on quality of the combination of health insurance and a usual source of care is additive (Phillips, et al., 2004). In addition, people with a usual source of care are more likely to receive preventive health services (Ettner, 1996).

Specific Source of Ongoing Care

The term "specific source of ongoing care" accounts for patients who may have more than one source of care. For example, women of childbearing age and older people tend to have more than one doctor. A specific source of ongoing care can include an urgent care/walk-in clinic, doctor's office, clinic, health center facility, hospital outpatient clinic, health maintenance organization/preferred provider organization, military or other Veterans Affairs health care facility, or some other similar source of care (however, hospital emergency rooms are excluded).

Figure 9.6. People with a specific source of ongoing care, by ethnicity and income, 2010



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2010.
Denominator: Civilian noninstitutionalized population of all ages.
Note: A hospital emergency room is not included as a specific source of ongoing care.

- In 2010, 85.5% percent of people had a specific source of ongoing care (data not shown).
- Whites were more likely than all other racial groups to have a specific source of ongoing care, but these differences were not statistically significant (data not shown).
- The percentage of people with a specific source of ongoing care was significantly lower for Hispanics than for non-Hispanic Whites (76.2% compared with 88.2%; Figure 9.6).

- The percentage of people with a specific source of ongoing care was significantly lower for poor and low-income people than for high-income people (77.3% and 79.7%, respectively, compared with 91.9%).
- The percentage of people with a specific source of ongoing care was significantly lower for people with less than a high school education than for people with any college education (75.1% compared with 87.4%; data not shown).

Also, in the NHQR:

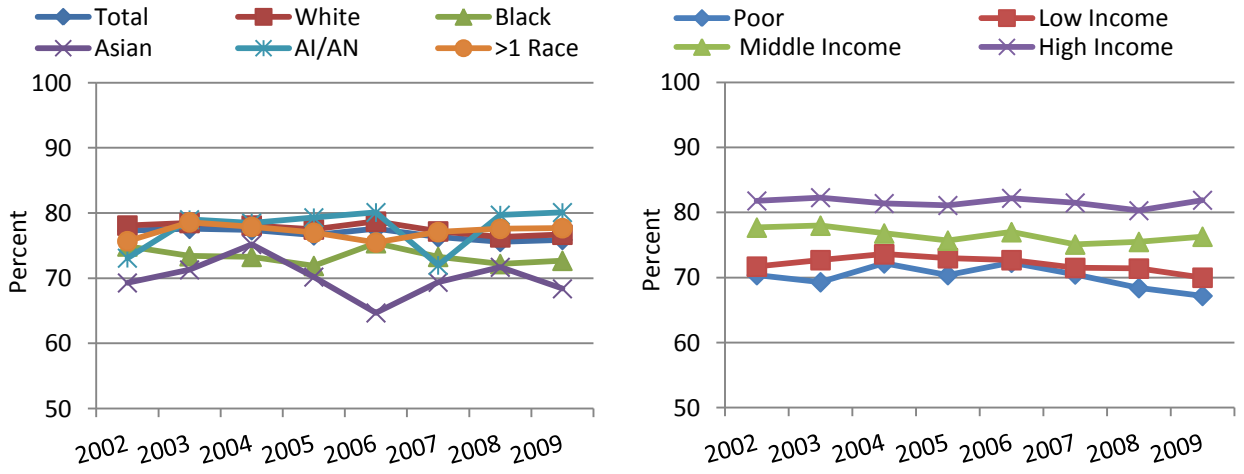
- In 2010, people age 65 and over were most likely to have a specific source of ongoing care, while people ages 18-44 were least likely to have a specific source of ongoing care.
- In 2010, people with private insurance were nearly twice as likely to have a specific source of ongoing care as uninsured people.

Usual Primary Care Provider

Having a usual primary care provider (a doctor or nurse from whom one regularly receives care) is associated with patients' greater trust in their provider and with good provider-patient communication. These factors increase the likelihood that patients will receive appropriate care. By learning about patients' diverse health care needs over time, a usual primary care provider can coordinate care (e.g., visits to specialists) to better meet patients' needs. Having a usual primary care provider correlates with receipt of higher quality care (Parchman & Burge, 2002; Inkelas, et al., 2004).

A person is determined to have had a primary care provider if his or her usual source of care setting was either a physician's office or a hospital (other than an emergency room) and he or she reported going to this usual source of care for new health problems, preventive health services, and physician referrals.

Figure 9.7. People with a usual primary care provider, by race and family income, 2002-2009



Key: AI/AN = American Indian or Alaska Native.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population of all ages.
Note: A usual primary care provider is defined as the source of care that a person usually goes to for new health problems, preventive health care, and referrals to other health professionals.

- In 2009, about 76% of people had a usual primary care provider (Figure 9.7).
- From 2002 to 2009, Blacks were less likely than Whites to have a usual primary care provider in all years and Asians were less likely than Whites to have a usual primary care provider in 7 of 8 years (in 2009, 68.4% compared with 76.7%).
- In all years, the percentage of people with a usual primary care provider was lower for Hispanics than for non-Hispanic Whites (data not shown).
- In all years, the percentage of people with a usual primary care provider was significantly lower for poor, low-income, and middle-income people than for high-income people.
- In all years, people with less than a high school education were less likely than people with any college education to have a usual primary care provider (data not shown).

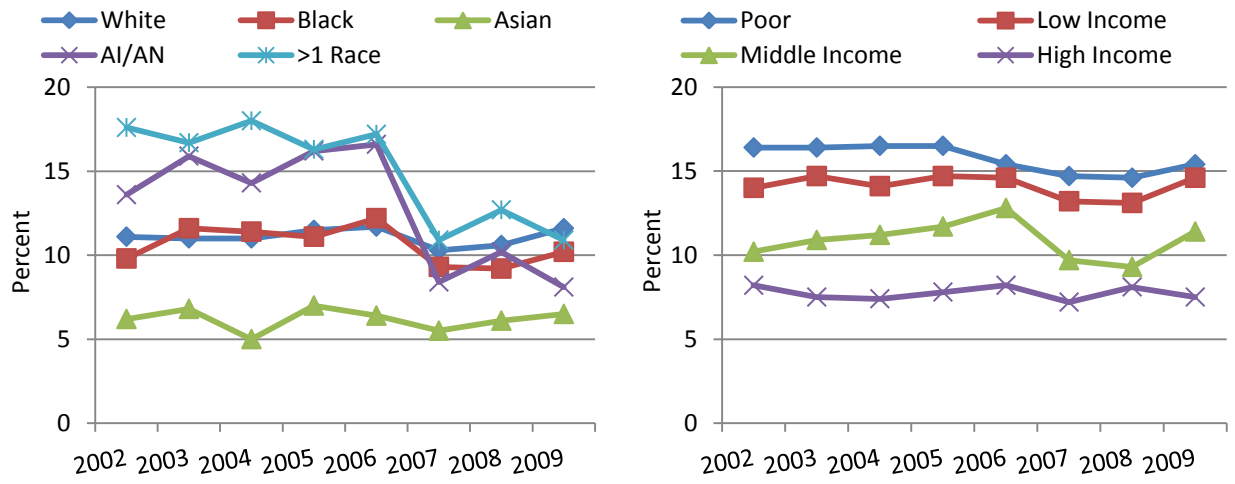
Also, in the NHQR:

- From 2002 to 2009, people ages 18-44 were least likely to have a usual primary care provider.
- In all years, uninsured people ages 0-64 were much less likely to have a usual primary care provider than people with private or public insurance.

Patient Perceptions of Need

Patient perceptions of need include perceived difficulties or delays in obtaining care and problems getting care as soon as wanted. Although patients may not always be able to assess their need for care, problems getting care when patients perceive that they are ill or injured likely reflect significant barriers to care.

Figure 9.8. People who were unable to get or delayed in getting needed medical care, dental care, or prescription medicines in the last 12 months, by race and income, 2002-2009



Key: AI/AN = American Indian or Alaska Native.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2009.
Denominator: Civilian noninstitutionalized population of all ages.
Note: For this measure, lower rates are better.

- In 2009, 11.1% of people were unable to get or delayed in getting needed medical care, dental care, or prescription medicines (data not shown).

- In 2009, Asians (6.5%) and AI/ANs (8.1%) were less likely than Whites (11.6%) to report that they were unable to get or delayed in getting medical care, dental care, or prescription medicines (Figure 9.8).
- In all years, Hispanics were less likely than non-Hispanic Whites to report that they were unable to get or delayed in getting medical care, dental care, or prescription medicines (data not shown).
- In all years, the percentage of people who were unable to get or delayed in getting needed medical care, dental care, or prescription medicines was significantly higher for poor, low-income, and middle-income people than for high-income people.
- In all years, people with less than a high school education and people with a high school education were more likely than those with any college education to report they were unable to get or delayed in getting needed care (data not shown).

Also, in the NHQR:

- In all years, people ages 18-44 were more likely than people age 65 and over and, in 7 of 8 years, people ages 0-17 to be unable to get or delayed in getting needed medical care, dental care, or prescription medicines.
- Uninsured people and people with public insurance were more likely than people with private insurance to be unable to get or delayed in getting needed medical care, dental care, or prescription medicines.

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Chapter 10. Priority Populations

To examine the issue of disparities in health care, Congress directed the Agency for Healthcare Research and Quality (AHRQ) to produce an annual report to track disparities related to "racial factors and socioeconomic factors in priority populations."[i] Although the emphasis is on disparities related to race, ethnicity, and socioeconomic status, this directive includes a charge to examine disparities in "priority populations," which are groups with unique health care needs or issues that require special attention.

Integrated throughout the Highlights in both the *National Healthcare Disparities Report* (NHDR) and the *National Healthcare Quality Report* (NHQR) and Chapters 2 through 9 of this report are racial, ethnic, socioeconomic, gender, geographic location, and age differences in quality of and access to health care in the general U.S. population. Subpopulation data for Asians and Hispanics are also integrated into these chapters where data are available.

Chapter 10 of the NHDR addresses the congressional directive on priority populations in addition to what is presented throughout the NHDR and in the NHQR this year.[ii] This chapter summarizes findings from data available on differences for racial, ethnic, and low-income populations, as well as for residents of rural areas and people with disabilities (activity limitations).

This year, the NHDR continues to feature health care data on lesbian, gay, bisexual, and transgender (LGBT) populations using data from the Medical Expenditure Panel Survey (MEPS). This section is intended to be an evolving part of the reports as the Department of Health and Human Services (HHS) and other organizations develop health care measures and data relevant to LGBT populations.

The approach taken in this chapter may help policymakers understand the impact of racial, ethnic, and socioeconomic differences on specific populations and target quality improvement programs toward groups in greatest need. The Data Tables appendix includes detailed tables that allow examination of racial, ethnic, and socioeconomic disparities both in the general population and across priority populations for most measures.

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[i] For statutory requirements, refer to 42 U.S.C. 299a-1(a)(6).

[ii] Populations of inner-city areas are also identified as one of AHRQ's priority populations pursuant to 42 U.S.C. 299(c)(1)(A). However, no data are available to support findings for this population.

AHRQ's Priority Populations

AHRQ's priority populations, specified by Congress in the Healthcare Research and Quality Act of 1999 (Public Law 106-129), are:

- Racial and ethnic minority groups.[iii]
- Low-income groups.[iv]
- Women.
- Children (under age 18).
- Older adults (age 65 and over).
- Residents of rural areas.[v]
- Individuals with special health care needs,[vi] including individuals with disabilities and individuals who need chronic care or end-of-life care.

Other populations, such as LGBT, are also included.

How This Chapter Is Organized

This chapter provides the most recent information available on racial, ethnic, and income differences in quality and access for priority populations. It is presented in the following order:

- Racial and ethnic minorities.
- Low-income groups.
- Residents of rural areas.
- Individuals with disabilities or special health care needs.
- LGBT individuals.

Measures related to women, children, and older adults are integrated into other chapters of this report and the Data Tables appendix and include comparisons by sex and age. A list of where this information for these populations can be found in the reports is provided at the end of this chapter in the Priority Populations Appendix. We also include a list of figures that provide comparisons by income, education, insurance, and residence location.

This chapter does not provide a comprehensive assessment of health care differences in each priority population. In general, most of the measures tracked in the NHQR and NHDR were

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[iii] Racial groups are White, Black, Asian, Native Hawaiian or Other Pacific Islander (NHOPI), American Indian or Alaska Native (AI/AN), and more than one race. Ethnic groups are Hispanic or Latino, non-Hispanic White, and non-Hispanic Black.

[iv] Thresholds for income categories—poor, low income, middle income, and high income—vary by family size and composition and are updated annually by the U.S. Bureau of the Census. For example, in 2012, the Federal poverty threshold for a family of two adults and two children was $23,050.

[v] Rural areas can be defined differently depending on the data source. The NHDR uses Office of Management and Budget revised definitions of metropolitan and micropolitan statistical areas. Noncore areas are rural areas.

[vi] Individuals with special health care needs include children who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.

selected to be applicable across many population groups to fulfill the purpose of these reports, which is to track quality and disparities at the national level.

These general measures overlook some important health care problems specific to particular populations. For example, people with disabilities may face barriers in getting access to care and experience differences in quality of care that are not captured by data because of the limitations in the survey instruments and other data collection instruments.

Racial and Ethnic Minorities

In 2010, more than one-third of the U.S. population identified themselves as members of racial or ethnic minority groups (U.S. Census Bureau, 2011a). By 2050, it is projected that these groups will account for almost half of the U.S. population. The U.S. Census Bureau estimated that the United States had about 39 million Blacks or African Americans in 2010 (12.6% of the U.S. population) (U.S. Census Bureau, 2011a); more than 50.5 million Hispanics or Latinos (16%) (Ennis, et al., 2010); almost 14.8 million Asians (4.8%); about 6.2 million NHOPIs (0.2%); and nearly 3 million AI/ANs (0.9%) (U.S. Census Bureau, 2011a), of whom 57% reside on Federal trust lands (Smedley, et al., 2003).

Racial and ethnic minorities are more likely than non-Hispanic Whites to be poor or near poor (Lillie-Blanton, et al., 2003). In addition, Hispanics, Blacks, and some Asian subgroups are less likely than non-Hispanic Whites to have a high school education (Collins, et al., 2002).

Previous chapters of the NHDR describe health care differences by racial and ethnic categories as defined by the Office of Management and Budget (OMB) and used by the U.S. Census Bureau (Executive Office of the President, 1997). In this section, quality of and access to health care for each minority group are summarized to the extent that statistically reliable data are available for each group.

Criteria for importance are that the difference be statistically significant at the alpha ≤ 0.05 level (two-tailed test) and that the relative difference from the reference group be at least 10% when framed positively as a favorable outcome or negatively as an adverse outcome. Access measures focus on facilitators and barriers to health care and exclude health care utilization measures.

Changes Over Time

This section also examines changes over time in differences related to race and ethnicity. For each measure, racial, ethnic, and socioeconomic groups are compared with a designated comparison group. The time periods range from 2000-2003 to 2005-2011 depending on the data source. Consistent with Healthy People 2020, disparities are measured in relative terms as the percentage difference between each group and a comparison group. New this year is the use of a linear regression model to estimate the difference in the annual rate of change for the comparison group relative to the reference group.

The difference in annual rate of change for the comparison group relative to the reference group was estimated. Determinations of whether subgroup differences have grown, narrowed, or remained the same were based on estimated differences in annual rate of change as specified below:

- Subgroup differences are deemed to be narrowing if the change in disparities is less than −1 and $p < 0.10$.
- Subgroup differences are deemed to be growing if the change in disparities is greater than 1 and $p < 0.10$.
- Subgroup differences are deemed to have remained the same if the change in disparities is between −1 and 1, or $p > 0.10$.

Only those measures with 4 or more years of data were included in the trending analysis. Due to methodological changes in trending analysis, it is not appropriate to compare the annual change or rates of change for measure groups discussed in this year's report with those from prior years. More information regarding the methodology can be found in Chapter 1, Introduction and Methods.

Blacks or African Americans

Previous NHDRs showed that Blacks had poorer quality of care and worse access to care than Whites for many measures tracked in the reports. Among all measures of health care quality and access that are tracked in the reports and support trends over time, Blacks had worse care than Whites in the most recent year for 73 measures.

Most of these measures showed no significant change in disparities over time. These include preventive care measures for cancer, children's dental care, and flu vaccinations for adults over age 65; hospital admissions for diabetes complications; hospital admissions for asthma; hospital care for pneumonia; hospital care for heart attack; HIV infection deaths; infant mortality; patient safety events; patient-centered care; and access to care.

For 11 measures, the gap between Blacks and Whites grew smaller, indicating improvement:

- Prostate cancer deaths per 100,000 male population per year.
- Cancer deaths per 100,000 population per year.
- Hospital admissions for congestive heart failure per 100,000 population.
- Incidence of end stage renal disease (ESRD) due to diabetes per million population.
- Hospital admissions for uncontrolled diabetes per 100,000 population age 18 and over.
- New AIDS cases per 100,000 population age 13 and over.
- Hospital patients with pneumonia who received influenza screening or vaccination.
- Hospital patients with pneumonia who received pneumococcal screening or vaccination.
- Long-stay nursing home residents who were assessed for pneumococcal vaccination.
- Short-stay nursing home residents who were assessed for pneumococcal vaccination.
- Short-stay nursing home residents who received influenza vaccination during the flu season.

For 2 measures, the gap grew larger, indicating worsening disparities:

- 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.
- Maternal deaths per 100,000 live births.

Asians

Previous NHDRs showed that Asians had similar or better quality of care than Whites but worse access to care than Whites for many measures that the report tracks. Among all measures of health care quality and access that are tracked in the reports and support trends over time, Asians or Asians and Pacific Islanders in aggregate had worse care than Whites in the most recent year for 37 measures.

Most of these measures showed no significant change in disparities over time. These include measures on preventive care for breast cancer, cervical cancer, and colorectal cancer; obstetric trauma; hospice care; timeliness of care; patient-centered care; and access to care.

For 4 measures, the gap between Asians and Whites grew smaller, indicating improvement:

- Hospital patients with pneumonia who received influenza screening or vaccination.
- Hospital patients with pneumonia who received pneumococcal screening or vaccination.
- Adults age 65 and over who ever received pneumococcal vaccination.
- Hospital admissions for asthma per 100,000 population, age 65 and over.

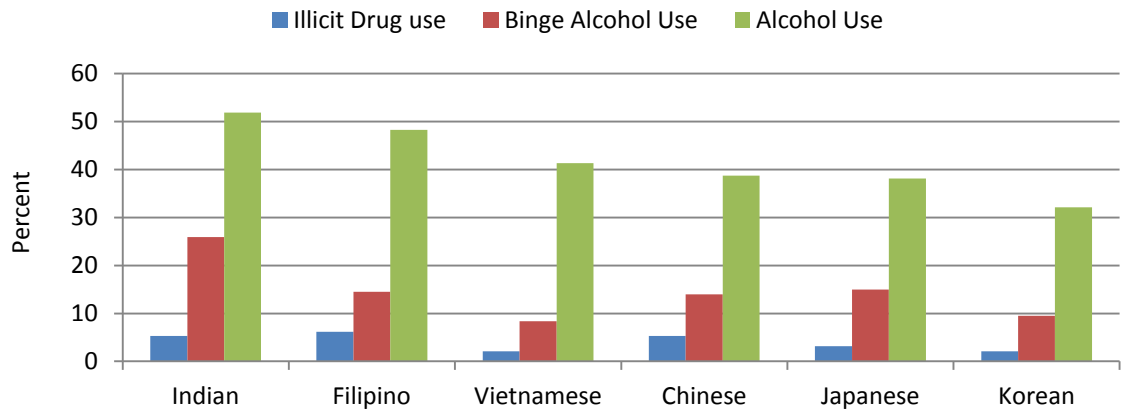
For 3 measures, the gap grew larger, indicating worsening disparities:

- ESRD due to diabetes per million population.
- Adults ages 18-64 at high risk (e.g., chronic obstructive pulmonary disease [COPD]) who ever received pneumococcal vaccination.
- Hospice patients who received the right amount of help for feelings of anxiety or sadness.

On October 31, 2011, HHS published final standards for data collection on race, ethnicity, sex, primary language, and disability status, as required by Section 4302 of the Affordable Care Act. The law requires that data collection standards for these measures be used, to the extent practicable, in all national population health surveys. They will apply to self-reported information only.

The categories for HHS data standards for race and ethnicity are based on the disaggregation of the OMB standard used in the American Community Survey (ACS) and the 2000 and 2010 Decennial Census. Figure 10.1 is an example of how these final data standards can be used to report data on Asian subpopulations based on data from the National Survey on Drug Use and Health (NSDUH). Future national reports will include such disaggregated racial and ethnic categories from other data sources when data are available.

Figure 10.1. Past month substance use among Asians age 18 and over, by Asian subgroup, 2004-2008



Source: Reprinted from Office of Applied Studies. The NSDUH report: substance use among Asian adults. Rockville, MD: Substance Abuse and Mental Health Services Administration; May 20, 2010.
Denominator: Asian adults age 18 and over with substance use in the past month.

Substance use varied greatly among Asian subgroups:

- Past month alcohol use ranged from 51.9% among Indian adults to 32.1% among Korean adults (Figure 10.1).
- Past month binge alcohol use ranged from a high of 25.9% among Indian adults to a low of 8.4% among Vietnamese adults.
- Illicit drug use ranged from 6.2% among Filipino adults to 2.1% among Vietnamese and Korean adults.

Native Hawaiians and Other Pacific Islanders

NHOPIs (alone or in combination with other races) are 0.4% of the U.S. population. From 2000 to 2010, the NHOPI population increased more than three times as fast as the total U.S. population (35% compared with 9.7% for the total U.S. population). More than half of the NHOPI population reported being of multiple race (56%). While three-fourths of the NHOPI population lived in the West, the South experienced the fastest growth in the NHOPI population (66%) (Hixson, et al., 2012).

The ability to assess disparities among NHOPIs for the NHDR has been a challenge for two main reasons. First, the NHOPI racial category is relatively new to Federal data collection. Before 1997, NHOPIs were classified as part of the Asian and Pacific Islander racial category and could not be identified separately in most Federal data.

In 1997, OMB promulgated new standards for Federal data on race and ethnicity and mandated that information about NHOPIs be collected separately from information about Asians (Executive Office of the President, 1997). However, these standards have not yet been incorporated into all databases. Second, when information about this population was collected, databases often included insufficient numbers of NHOPIs to allow reliable estimates to be made.

Due to these challenges, in previous NHDRs, estimates for the NHOPI population could be generated for only a handful of measures. A lack of quality data on this population prevents the NHDR from detailing disparities for this group. HHS is working to implement new data standards for analyzing data for minority populations, including NHOPIs.

Currently in the NHDR, some data on NHOPIs are available for some measures throughout the report, such as measures related to cancer treatment, heart disease, home health care, access to care, workforce diversity, patient centeredness, and timeliness. Data sources such as the Medical Expenditure Panel Survey, National Health Interview Survey, and Behavioral Risk Factor Surveillance System may have larger samples of NHOPIs due to efforts to improve sample sizes. However, these data are not necessarily a comprehensive survey of health and health care. Other surveys and data collection efforts, such as vital statistics and hospital administrative data, include more topics but do not identify NHOPIs or have large enough sample sizes to provide data for these populations.

For all national data sources, the relatively small population sizes of many Pacific Islander groups can cause these populations to be overlooked when categorized as NHOPIs. In addition, identifying individuals with chronic conditions or other health conditions within such small populations further reduces the sample sizes. However, as data become available, this information will be included in future reports.

American Indians and Alaska Natives

Previous NHDRs showed that AI/ANs had poorer quality of care and worse access to care than Whites for many measures tracked in the reports. Among all measures of health care quality and access that are tracked in the reports and support trends over time, AI/ANs had worse care than Whites in the most recent year for 36 measures.

Most of these measures showed no significant change in disparities over time. Such measures include measures for HIV/AIDS, preventive care for children, care for residents in nursing homes, home health care, hospice care, and access to care.

For one measure, the gap between AI/ANs and Whites grew smaller, indicating improvement:

- Incidence of ESRD due to diabetes per million population.

For 3 measures, the gap grew larger, indicating worsening disparities:

- Adults age 50 and over who ever received a colonoscopy, sigmoidoscopy, or proctoscopy.
- People with difficulty contacting their usual source of care over the telephone.
- Hospital patients with heart failure and left ventricular systolic dysfunction who were prescribed angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) at discharge.

Hispanics or Latinos

Previous NHDRs showed that Hispanics had poorer quality of care and worse access to care than non-Hispanic Whites for many measures that the reports track. Among all measures of health care quality and access that are tracked in the reports and support trends over time, Hispanics had worse care than non-Hispanic Whites in the most recent year for 76 measures.

Most of these measures showed no significant change in disparities over time. Such measures include measures on preventive care for cervical cancer and colorectal cancer; diabetes care; HIV/AIDS; hospital admissions for asthma; quality of care for residents of nursing homes; home health care; timeliness of care; patient-centered care; and access to care.

For 4 measures, the gap between Hispanics and non-Hispanic Whites grew smaller, indicating improvement:

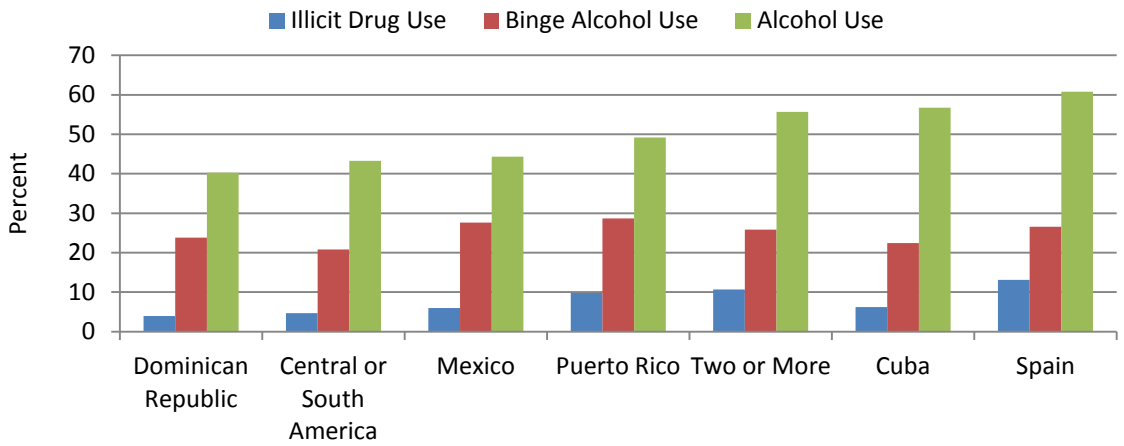
- Hospital admissions for uncontrolled diabetes per 100,000 population age 18 and over.
- Children ages 2-17 who had a dental visit in the calendar year.
- Hospital patients with pneumonia who received influenza screening or vaccination.
- Hospital patients with pneumonia who received pneumococcal screening or vaccination.

For 5 measures, the gap between Hispanics and non-Hispanic Whites grew larger, indicating worsening disparities:

- Adults age 40 and over with diagnosed diabetes who received at least two hemoglobin A1c measurements in the calendar year.
- Adult home health care patients whose ability to walk or move around improved.
- Adult home health care patients whose shortness of breath decreased.
- Hospital patients with heart attack who received fibrinolytic medication within 30 minutes of arrival.
- People without a usual source of care who indicated a financial or insurance reason for not having a source of care.

Figure 10.2 is an example of how the final data standards described earlier can be used to report data for Hispanic subpopulations based on data from the NSDUH. Future national reports will include such disaggregated racial and ethnic categories from other data sources when data are available.

Figure 10.2. Past month substance use among Hispanic adults, by origin of Hispanic subgroup, 2004-2008



Source: Office of Applied Studies. The NSDUH report: substance use among Hispanic adults. Rockville, MD: Substance Abuse and Mental Health Services Administration; May 27, 2010.
Denominator: Hispanic adults age 18 and over with substance use in the past month.

- Among Hispanic adults, substance use varied greatly by subgroup. Past month alcohol use ranged from 60.8% among adults of Spanish origin to 40.3% among adults of Dominican origin (Figure 10.2).
- Past month binge alcohol use ranged from 28.7% among adults of Puerto Rican origin to 20.8% among those of Central or South American origin.
- Illicit drug use ranged from 13.1% percent among adults of Spanish origin to 3.9% among those of Dominican origin.

Low-Income Groups

In this report, poor populations are defined as people living in families whose household income falls below specific poverty thresholds. These thresholds vary by family size and composition and are updated annually by the U.S. Bureau of the Census (U.S. Census Bureau, 2011b). After falling for a decade (1990-2000), the number of poor people in America rose from 31.6 million in 2000 to 42.9 million in 2009. In 2009, 14.3% of the U.S. population had incomes below their respective poverty thresholds (Bishaw & Macartney, 2010).

Poverty varies by race and ethnicity. In 2010, 14% of Whites, 36% of Blacks, 35% of Hispanics, and 23% of other races had incomes below the poverty level (Urban Institute and Kaiser Commission, 2010). People with low incomes often experience worse health and are more likely to die prematurely (Adler & Newman, 2002). In general, poor populations have reduced access to high-quality care. While people with low incomes are more likely to be uninsured, income-related differences in quality of care that are independent of health insurance coverage have also been demonstrated (Brown, et al., 2003).

Previous chapters of this report describe health care differences by income. Among all measures of health care quality and access that are tracked in the reports and support trends over time,

poor[vii] individuals had worse care than high-income[viii] individuals in the most recent year for 69 measures. Most of these measures showed no significant change in disparities over time. These measures include measures for preventive care for children, diabetes care, asthma care, obesity prevention, patient safety, and access to care.

For 2 measures, the gap between poor and high-income individuals grew smaller, indicating improvement:

- Hospital admissions for congestive heart failure per 100,000 population.
- Children ages 2-17 who had a dental visit in the calendar year.

For 3 measures, the gap grew larger, indicating worsening disparities:

- Adults age 50 and over who ever received a colonoscopy, sigmoidoscopy, or proctoscopy.
- Hospital admissions for short-term complications of diabetes per 100,000 population age 18 and over.
- People without a usual source of care who indicated a financial or insurance reason for not having a source of care.

Residents of Rural Areas

About one in five Americans lives in a nonmetropolitan area (IOM, 2005). Compared with their urban counterparts, rural residents are more likely to be older, be poor (Ziller, et al., 2003), be in fair or poor health, and have chronic conditions (IOM, 2005). Rural residents are less likely than their urban counterparts to receive recommended preventive services and on average report fewer visits to health care providers (Larson & Fleishman, 2003).

Although about 19% of Americans live in rural areas, only 11% of physicians in America practice in those settings (Rosenblatt, et al., 2010). Other important providers of health care in those settings include nurse practitioners, nurse midwives, and physician assistants. A variety of programs deliver needed services in rural areas, such as the National Health Service Corps Scholarship Program, Indian Health Service, State offices of rural health, rural health clinics, and community health centers.

Many rural residents depend on small rural hospitals for their care. There are approximately 2,000 rural hospitals throughout the country (AHA, 2011). Most of these hospitals are critical access hospitals that have 25 or fewer beds. Rural hospitals face unique challenges due to their size and case mix. During the 1980s, many were forced to close due to financial losses (AHRQ, 1996). More recently, finances of small rural hospitals have improved and few closures have occurred since 2003.

Language barriers are often greater in rural areas. To support rural hospitals in their provision of language assistance services to individuals with limited English proficiency, the HHS Office for

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[vii] Household income less than Federal poverty thresholds.
[viii] Household income 400% of Federal poverty thresholds and higher.

Civil Rights (OCR) has established a national initiative, "Advancing Effective Communication in Critical Access Hospitals." OCR initially piloted a 10-State, onsite examination of critical access hospitals to determine their compliance with Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d *et seq*. Each hospital in the pilot developed a comprehensive language assistance services program, including:

1. A needs assessment of its service area;
2. Oral language assistance services;
3. Written translation services;
4. Written policies and procedures, including grievance and nondiscrimination policies;
5. Notification of the availability of language assistance at no cost;
6. Staff training;
7. An assessment of access and quality;
8. Stakeholder consultations;
9. Information management; and
10. Compliance with Title VI.

Under this ongoing Initiative, OCR will conduct language assistance compliance reviews in each of the 45 States served by the critical access hospital program.

Similarly, transportation needs are pronounced among rural residents, who must travel longer distances to reach health care delivery sites. Of the nearly 1,000 "frontier counties"[ix] in the Nation, most have limited health care services and many do not have any (Frontier Education Center, 2000).

Geographic areas are classified in different ways depending on the data source. Chapter 1, Introduction and Methods, provides more information on the classifications used. In this chapter, we compare residents of noncore[x] (rural) areas with residents of large fringe metropolitan (suburban) areas because residents of suburban areas tend to have higher quality health care and better outcomes.

Among all measures of health care quality and access that are tracked in the reports and support trends over time, residents of noncore areas had worse care than residents of large fringe metropolitan areas in the most recent year for 33 measures. Most of these measures showed no significant change in disparities over time. These include measures for cancer mortality, obesity prevention, patient-centered care, and access to care.

For one measure, the gap between residents of noncore and large fringe metropolitan areas grew smaller, indicating improvement:

- Hospital admissions for uncontrolled diabetes per 100,000 population age 18 and over.

[ix] "Frontier counties" have a population density of less than 7 people per square mile; thus, residents may have to travel long distances for care.

[x] Noncore areas are outside of metropolitan or micropolitan statistical areas. Micropolitan and noncore areas are typically regarded as "rural."

For 4 measures, the gap grew larger, indicating worsening disparities:

- Cancer deaths per 100,000 population per year.
- Deaths per 1,000 adult hospital admissions with pneumonia.
- Adults with obesity who ever received advice from a health provider about eating fewer high-fat or high-cholesterol foods.
- Adult current smokers with a checkup in the last 12 months who received advice to quit smoking.

Individuals With Disabilities or Special Health Care Needs

The NHDR tracks many measures of relevance to individuals with disabilities or special health care needs. Data are often limited, and AHRQ has worked with Federal partners to improve reporting on health care quality for individuals with disabilities.

In 2007, AHRQ convened a disabilities subgroup of the NHQR/NHDR Interagency Work Group. This subgroup received assistance from the Interagency Subcommittee on Disability Statistics of the Interagency Committee on Disability Research. The charge to the disabilities subgroup was to advise AHRQ on measures of disabilities from existing data that could track disparities for disabled individuals in quality of and access to care and that would be comparable across national surveys. For this initial effort, the subgroup focused on measures for adults, a population for which the most survey data are available.

For the 2012 NHDR, AHRQ is again using a broad, inclusive measure of disability for adults. This definition is intended to be consistent with statutory definitions of disability, such as the first criterion of the 1990 Americans With Disabilities Act (ADA) (i.e., having a physical or mental impairment that substantially limits one or more major life activities [HHS, 2005; LaPlante, 1991]) and Federal program definitions of disability based on the ADA.

For the purpose of the NHDR, adults with disabilities are those with physical, sensory, and/or mental health conditions that can be associated with a decrease in functioning in such day-to-day activities as bathing, walking, doing everyday chores, and engaging in work or social activities. In displaying the data on disability, paired measures are shown to preserve the qualitative aspects of the data:

- Limitations in *basic* activities represent problems with mobility and other basic functioning at the person level.
- Limitations in *complex* activities represent limitations encountered when the person, in interaction with the environment, attempts to participate in community life.

Limitations in basic activities include problems with mobility, self-care (activities of daily living), domestic life (instrumental activities of daily living), and activities that depend on sensory functioning (limited to people who are blind or deaf). Limitations in complex activities include limitations experienced in work and in community, social, and civic life. The use of the subgroup's recommendation of these paired measures of basic and complex activity limitations is conceptually similar to the way others have divided disability and is consistent with the

International Classification of Functioning, Disability, and Health separation of activities and participation domains (WHO, 2001).

These two categories are not mutually exclusive; people may have limitations in basic activities and complex activities. The residual category *Neither* includes adults with neither basic nor complex activity limitations.

In this year's reports, analyses by activity limitations for adults are presented for selected measures in the Effectiveness, Lifestyle Modification section and in the Care Coordination chapter of the NHDR and in the Patient Centeredness and Access chapters of the NHQR. In addition, the Data Tables appendix includes activity limitations as a stub variable for all National Health Interview Survey and Medical Expenditure Panel Survey tables.

Among all measures of health care quality and access that are tracked in the reports and support trends over time, individuals with basic activity limitations had worse care than individuals with neither basic nor complex activity limitations in the most recent year for 18 measures. Most of these measures showed no significant change in disparities over time. Such measures included measures for patient-centered care and access to care.

For one measure, the gap between individuals with basic activity limitations and individuals with neither basic nor complex activity limitations narrowed, indicating improvement:

- People under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income.

Individuals with complex activity limitations had worse care than individuals with neither basic nor complex activity limitations in the most recent year for 18 measures. Most of these measures showed no significant change in disparities over time. Such measures included measures for patient-centered care and access to care.

For 2 measures, the gap between individuals with complex activity limitations and individuals with neither basic nor complex activity limitations narrowed, indicating improvement:

- People under age 65 whose family's health insurance premium and out-of-pocket medical expenditures were more than 10% of total family income.
- People under age 65 with private insurance whose family's out-of-pocket medical expenditures were more than 10% of total family income.

Lesbian, Gay, Bisexual, and Transgender Populations

LGBT individuals encompass all races and ethnicities, religions, and social classes. Sexual orientation and gender identity questions are not asked on most national or State surveys, making it difficult to estimate the number of LGBT individuals and their health needs. There is emerging evidence suggesting that LGBT people face a variety of personal and structural barriers to obtaining high-quality medical care.

Personal barriers may include disrespectful behavior from staff and providers, perceived threatening environment, and stigma associated with being a sexual minority (IOM, 2011).

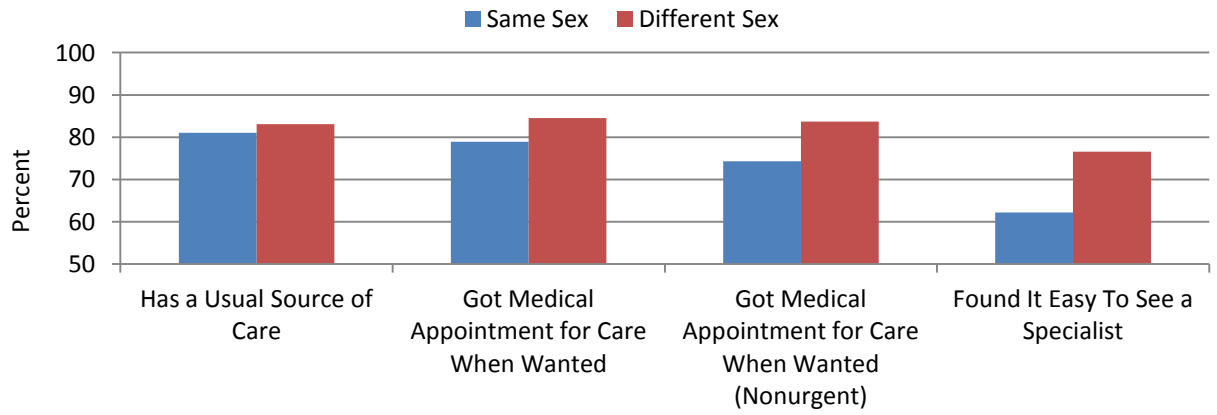
Discrimination against LGBT persons has been associated with high rates of psychiatric disorders (McLaughlin, et al., 2010), substance abuse (Ibanez, et al., 2005; Herek & Garnets, 2007), and suicidal behavior (Remafedi, et al., 1998; Haas, et al., 2011).

Structural barriers include difficulty obtaining health insurance, since many employer-sponsored insurance plans do not recognize same-sex unions, and the dearth of culturally competent providers (Ash & Badgett, 2006; Heck, et al., 2006). Improving the health, safety, and well-being of LGBT individuals is one of the goals of Healthy People 2020.

In looking at health care quality, a study shows that same-sex couples are more likely to face barriers to care and that individuals in same-sex couples have less positive perceptions of their provider's interactions with them (Clift & Kirby, 2012). The study used pooled data from the Medical Expenditure Panel Survey from 1996 to 2007 and is not necessarily representative of current differences between these types of couples but rather average differences over the 12 years.

The sample consisted of 696 individuals in same-sex couples and 136,676 individuals in different-sex married couples. While sexual orientation is not a question on the survey, researchers identified same-sex couples through the relationship of household members to a reference person. Individuals were identified as being in a same-sex couple if they reported being the spouse or partner of the reference person who was of the same sex. Also, MEPS data do not distinguish transgendered individuals, so they may or may not be included in the data. The following findings show comparisons between same-sex and different-sex couples from this study.

Figure 10.3. Differences between individuals in same-sex couples and different-sex couples in access to care, 1996-2007

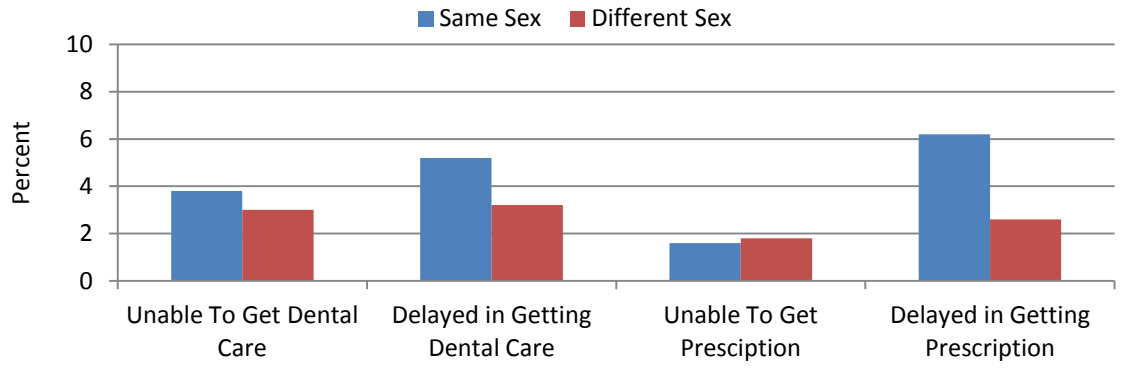


Source: Clift JB, Kirby J. Health care access and perceptions of provider care among individuals in same-sex couples: findings from the Medical Expenditure Panel Survey (MEPS). J Homosexual 2012;59:839-50.
Note; Transgender data are not included in MEPS. Data represent couples and should not be used to infer differences between LGBT and heterosexual individuals.

- Individuals in same-sex couples were less likely than individuals in different-sex couples to report getting medical care when wanted for nonurgent care in the last 12 months (74.3% compared with 83.7%; Figure 10.3).

- Individuals in same-sex couples were less likely than individuals in different-sex couples to report that it was easy to see a specialist in the last 12 months (62.2% compared with 76.6%).

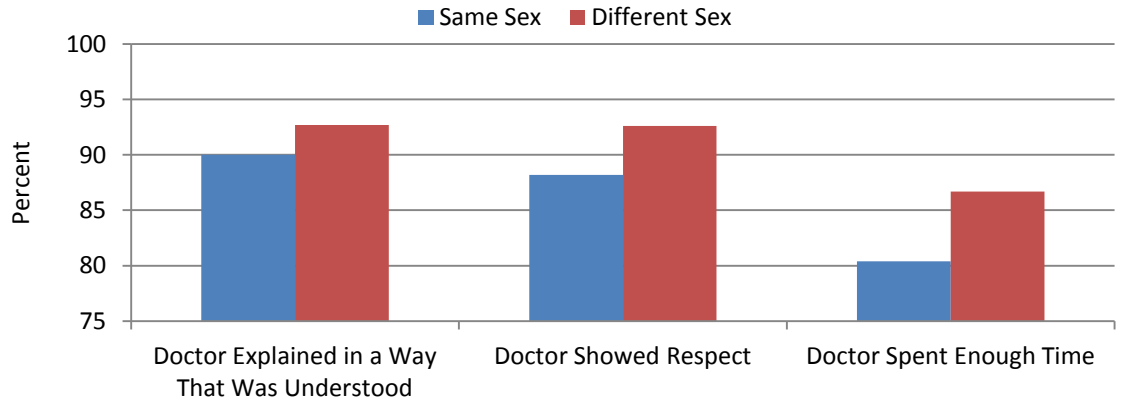
Figure 10.4. Differences between individuals in same-sex couples and different-sex couples in difficulty getting access to care, 1996-2007



Source: Clift JB, Kirby J. Health care access and perceptions of provider care among individuals in same-sex couples: findings from the Medical Expenditure Panel Survey (MEPS). J Homosexual 2012;59:839-50.

- Individuals in same-sex couples were more likely than individuals in different-sex couples to report a delay in getting necessary prescriptions (6.2% compared with 2.6%; Figure 10.4).

Figure 10.5. Differences between individuals in same-sex couples and different-sex couples in patient-provider interaction, 1996-2007



Source: Clift JB, Kirby J. Health care access and perceptions of provider care among individuals in same-sex couples: Findings from the Medical Expenditure Panel Survey (MEPS). J Homosexual 2012;59:839-50.

- Individuals in same-sex couples were less likely than individuals in different-sex couples to report that their doctor spent enough time with them (80.4% compared with 86.7%; Figure 10.5).

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Priority Populations Appendix

For each population listed below, chapters with relevant figures are listed, along with the figure numbers and topics. If a chapter is not listed, no figures in that chapter relate to the group of interest.

Women

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- Figure 2.3 - Adults age 50 and over who have advanced stage colorectal cancer per 100,000 population
- Figure 2.5 - Age-adjusted colorectal cancer deaths per 100,000 population
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- Figure 2.7 - Adults with hypertension whose blood pressure is under control
- Figure 2.8 - Inpatient deaths per 1,000 adult hospital admissions with heart attack
- Figure 2.9 - Hospital patients with heart failure and left ventricular systolic dysfunction prescribed ACE inhibitor or ARB at discharge
- Figure 2.10 - Adult admissions for congestive heart failure per 100,000 population
- Figure 2.11 - New adult end stage renal disease patients beginning nephrology care more than 12 months before start of dialysis
- Figure 2.12 - Incident adult hemodialysis patients who used an arteriovenous fistula at first outpatient dialysis
- Figure 2.14 - Dialysis patients who were registered on a waiting list for transplantation
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- Figure 2.19 - New AIDS cases per 100,000 population age 13 and over
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- Figure 2.31 - Adults with doctor-diagnosed arthritis who reported they had effective, evidence-based arthritis education as an integral part of the management of their condition
- Figure 2.32 - Adults with doctor-diagnosed arthritis who reported they received health care provider counseling about physical activity or exercise
- Figure 2.33 - Overweight adults with doctor-diagnosed arthritis who reported they received health care provider counseling about weight reduction
- Figure 2.36 - Hospital patients with pneumonia who received recommended hospital care
- Figure 2.37 - Patients with tuberculosis who completed a curative course of treatment within 1 year of initiation of treatment
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- Figure 2.41 - Adults with obesity age 20 and over who reported being told by a doctor they were overweight
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- Figure 2.53 - Short-stay and high-risk long-stay nursing home residents with pressure sores

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- Figure 2.19 - Adjusted percentages of adults ages 40-64 with diagnosed diabetes who received four recommended services for diabetes in the calendar year
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- Figure 3.2 - Adult surgery patients with postoperative catheter-associated urinary tract infection
- Figure 3.4. - Mechanical adverse events associated with central venous catheter placement

Quality Report—Chapter 6: Care Coordination

- Figure 6.1 - Hospitalized adult patients with heart failure who were given complete written discharge instructions

Quality Report—Chapter 7: Efficiency

- Figure 7.9 - Perforated appendixes per 1,000 admissions for appendicitis

Disparities Report—Chapter 7: Efficiency

- Figure 7.1 - Adults age 65 and over who received potentially inappropriate prescription medications in the calendar year

- Figure 7.3 - Potentially avoidable emergency department rates
- Figure 7.4 - Rate of emergency department visits with a principal diagnosis related to mental health and alcohol or substance abuse, per 100,000 population
- Figure 7.5 - Rate of emergency department visits with a principal diagnosis related to dental issues, per 100,000 population
- Figure 7.9 - Perforated appendixes per 1,000 admissions for appendicitis, age 18 and over, in IHS, Tribal, and contract hospitals

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- Figure 8.6 - Characteristics of HSHC patients

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- Figure 8.6 - Trauma center utilization for severe injuries in the United States

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Disparities Report—Chapter 6: Care Coordination

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