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, ample evidence indicates that some Americans do not receive the full benefits of high-quality care.

This chapter is organized around eight clinical areas (cancer, diabetes, end stage renal disease [ESRD], heart disease, HIV and AIDS, maternal and child health, mental health and substance abuse, 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). The 11 sections of this chapter highlight a small number of core and supporting measures.

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 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.

Effectiveness of Care

Cancer

Importance

Mortality

Number of deaths (2007).....562,875[1]

Cause of death rank (2007).....2nd[1]

Prevalence

Number of living Americans who have been diagnosed with cancer (2007).....11,713,736[2]

Incidence

New cases of cancer (2010).....1,529,560[3]

New cases of colorectal cancer (2010).....209,060[3]

Cost

Total cost[i] (2010 est.).....$263.8 billion[4]

Direct costs[ii] (2010 est.).....$102.8 billion[4]

Indirect costs (2010 est.).....$161.0 billion[4]

Cost-effectiveness[iii] of colorectal cancer screening.....$35,000-$165,000/QALY[5]

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 report. The 2009 National Healthcare Quality Report (NHQR) highlighted breast cancer; this year's focus is on colorectal cancer. The core report measures are:

- Colorectal cancer screening.
- Colorectal cancer first diagnosed at advanced stage.
- Colorectal cancer deaths.

As in previous reports, the 2010 NHQR includes one supporting measure for colorectal cancer care from the National Cancer Data Base that has been endorsed by the National Quality Forum:

- Surgical resection of colon cancer that includes at least 12 lymph nodes.

[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."[4]

[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.

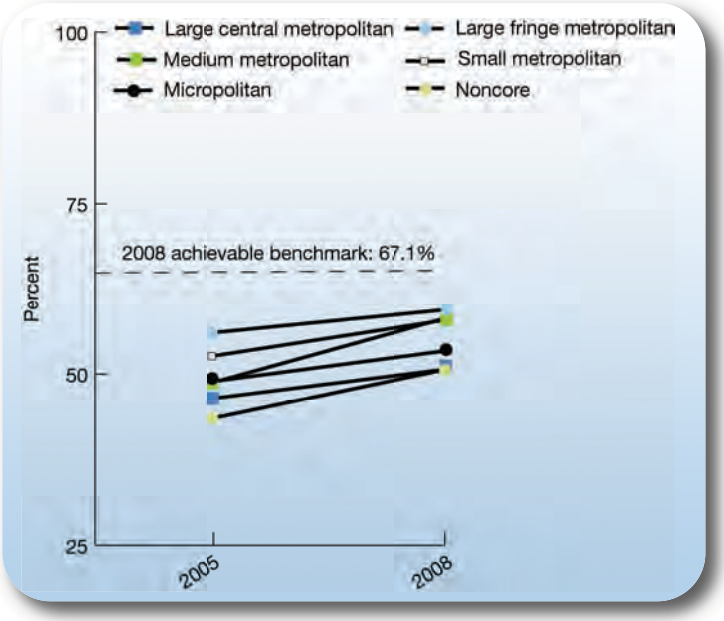
Findings

Prevention: Colorectal Cancer Screening

Colorectal cancer is the third most common cancer in adults.[3] 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 is important because early stages of colorectal cancer may not present any symptoms, and screening can detect abnormal growths before they develop into cancer.[3, 6]

Early detection increases treatment options and the chances for survival. The U.S. Preventive Services Task Force recommends colorectal cancer screening for men and women age 50 and over. The screening measured in the NHDR includes having a fecal occult blood test in the past 2 years or ever having received flexible sigmoidoscopy, colonoscopy, or proctoscopy.

Figure 2.1. Adults age 50 and over who reported having received colorectal cancer screening (received fecal occult blood test in past 2 years or ever received colonoscopy, sigmoidoscopy, or proctoscopy), by residence location, 2005 and 2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2005 and 2008.
Denominator: Adults age 50 and over in the civilian noninstitutionalized population.
Note: Estimates are age adjusted to the standard population except where indicated. Benchmark is derived from the Behavioral Risk Factor Surveillance System (BRFSS); see Introduction and Methods for details.

- The overall percentage of adults age 50 and over who reported having received colorectal cancer screening significantly increased from 51.9% in 2005 to 56.3% in 2008 (data not shown).
- In 2005 and 2008, the percentage of adults age 50 and over residing in large fringe metropolitan areas who reported having received colorectal cancer screening was significantly higher than it was for adults residing in large central metropolitan and noncore[iv] areas (Figure 2.1).

[iv] Noncore areas are outside of metropolitan or micropolitan statistical areas. Micropolitan and noncore areas are typically regarded as "rural."

Effectiveness of Care

- Between 2005 and 2008, the percentage of adults age 50 and over who reported they ever received colorectal cancer screening increased significantly for residents of large central and medium metropolitan areas.
- The top 5 State achievable benchmark was 67.1%.[v] The available data are not sufficient to calculate time to benchmark.

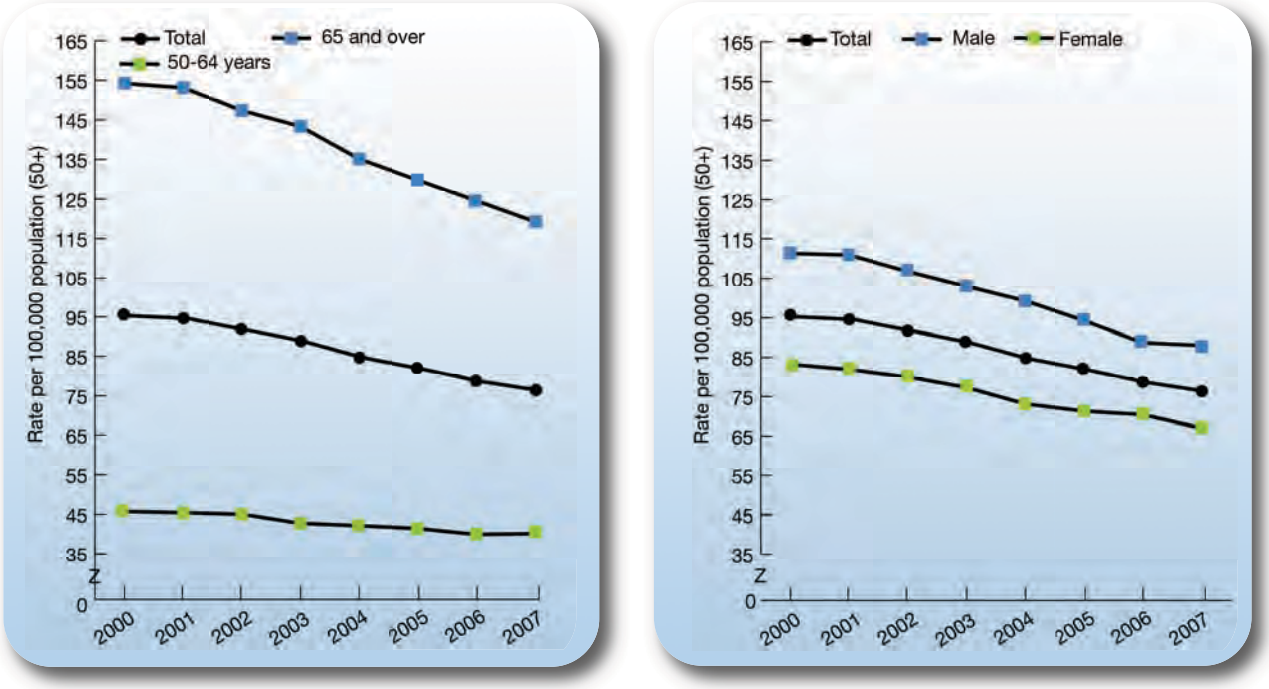
Also, in the NHDR:

- In all years, the percentage of high-income individuals who reported having received colorectal cancer screening was significantly higher than the percentage for poor, low-income, and middle-income individuals.

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 diagnosed at 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 2.2. Colorectal cancer diagnosed at advanced stage (tumors diagnosed at regional or distant stage) per 100,000 population age 50 and over, by age and gender, 2000-2007



Source: National Cancer Institute, Surveillance, Epidemiology, and End Results Program, 2000-2007.
Denominator: Adults age 50 and over in the civilian noninstitutionalized population.
Note: Age adjusted to the 2000 U.S. standard population. Advanced stage colorectal cancer is defined as local stage with tumor size greater than 2 cm diameter, regional stage or distant stage.

[v] The top 5 States that contributed to the benchmark are Delaware, Maine, Maryland, Massachusetts, and New Hampshire.

- Between 2000 and 2007, the overall rate of advanced stage colorectal cancer diagnosis in adults age 50 and over significantly decreased, from 95.3 to 76.3 per 100,000 population (Figure 2.2).
- From 2000 to 2007, the rate of advanced stage colorectal cancer in adults ages 50-64 significantly decreased, from 45.7 to 40.1 per 100,000 population. During the same period, adults age 65 and over also saw a significant decrease, from 154.2 to 119.2 per 100,000 population. In all years, adults age 65 and over had significantly higher rates of advanced stage colorectal cancer than adults ages 50-64.
- From 2000 to 2007, the rate of advanced stage colorectal cancer in males age 50 and over decreased significantly from 111.4 to 88.0. During the same period, rates for females age 50 and over also showed a significant decrease, from 83.2 to 67.0. In all years, males had significantly higher rates of advanced stage colorectal cancer compared with females.

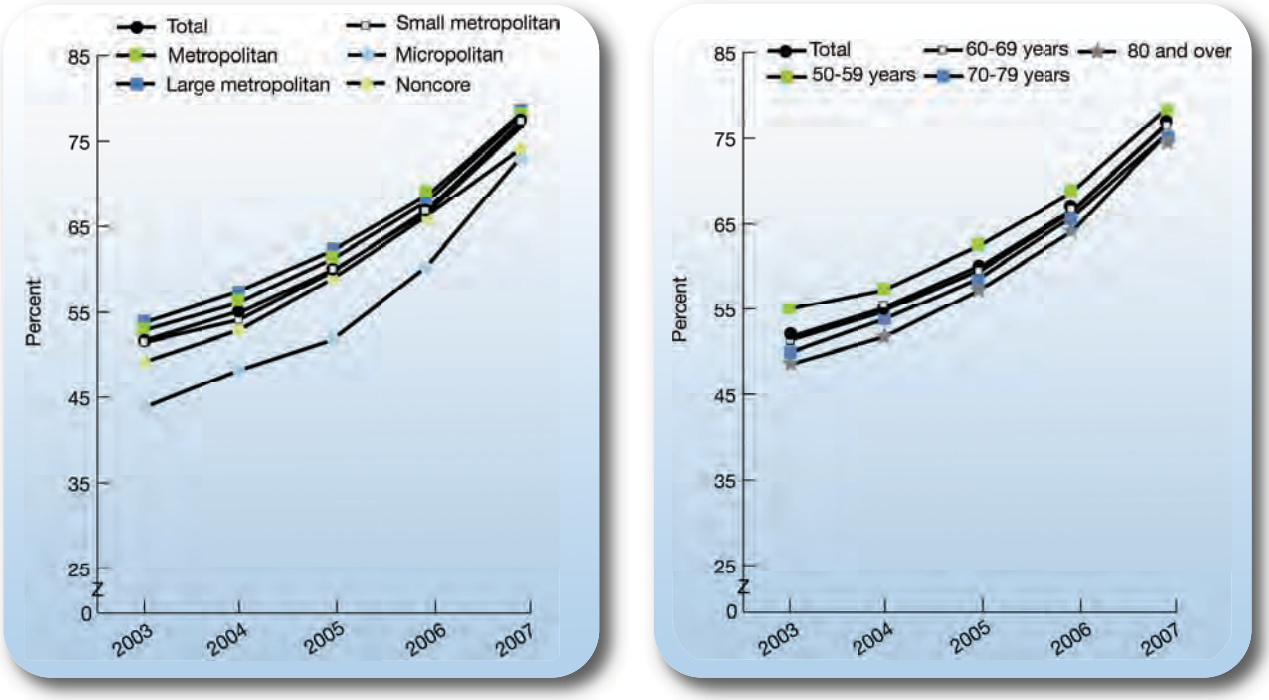
Also, in the NHDR:

- From 2000 to 2007, the rate of advanced stage colorectal cancer was significantly lower for Asians and Pacific Islanders (APIs) and American Indians and Alaska Natives (AI/ANs) than for Whites.

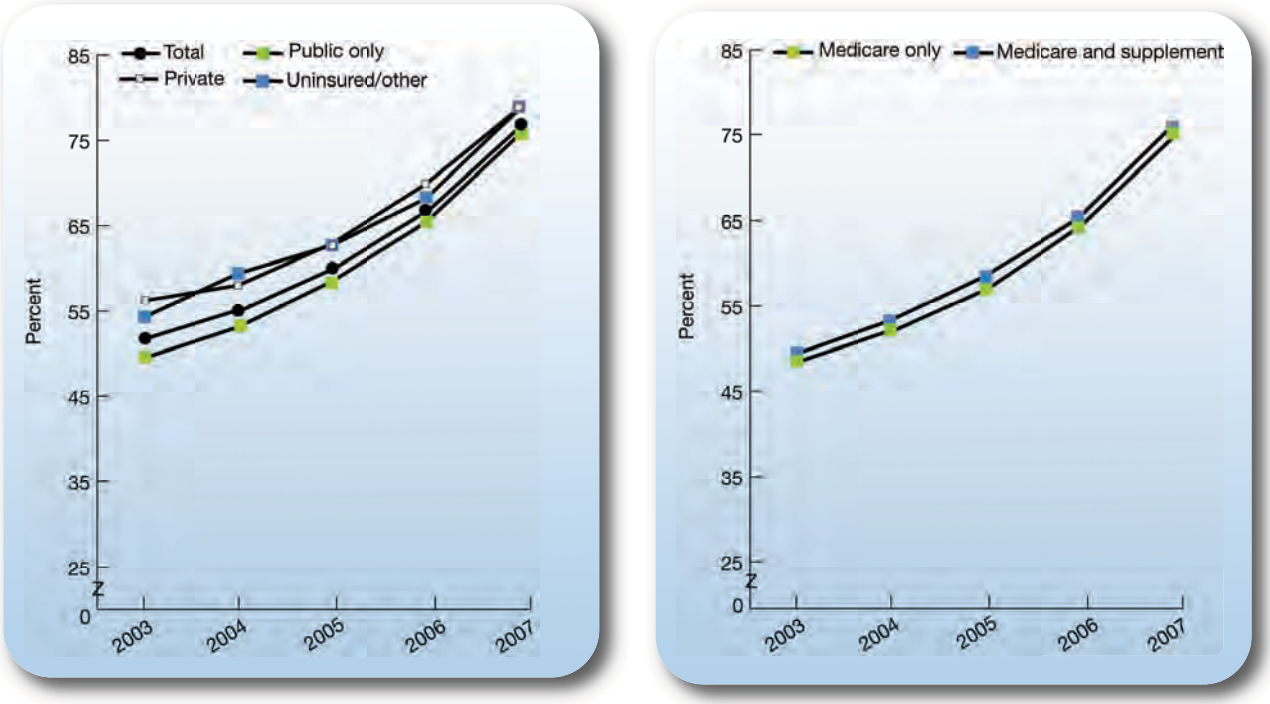
Treatment: Recommended Care for Colorectal Cancer

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 (e.g., to remove colon cancer) is performed.

Figure 2.3. Patients who received surgical resection of colon cancer that included at least 12 lymph nodes pathologically examined, by residence location, age, and insurance status, 2003-2007



Effectiveness of Care



Source: Commission on Cancer, American College of Surgeons and American Cancer Society, National Cancer Data Base, 2003-2007.
Denominator: U.S. population age 50 and over.

- The overall percentage of adults diagnosed with colorectal cancer who received recommended care significantly increased, from 51.7% in 2003 to 77.0% in 2007 (Figure 2.3). Significant improvement was observed among all insurance groups during this period.
- From 2003 to 2007, the percentage of colorectal cancer patients who received recommended care significantly increased in all residence locations. The percentage of colorectal cancer patients in large metropolitan areas who received recommended care was significantly higher in all years than that of patients in micropolitan and noncore areas and significantly higher than the percentage of patients in small metropolitan areas in 4 of 5 years.
- Between 2003 and 2007, the percentage of colorectal cancer patients who received recommended care increased significantly for all age groups.
- In all years, patients age 65 and over with Medicare only and with Medicare and supplemental insurance had similar rates of recommended treatment.

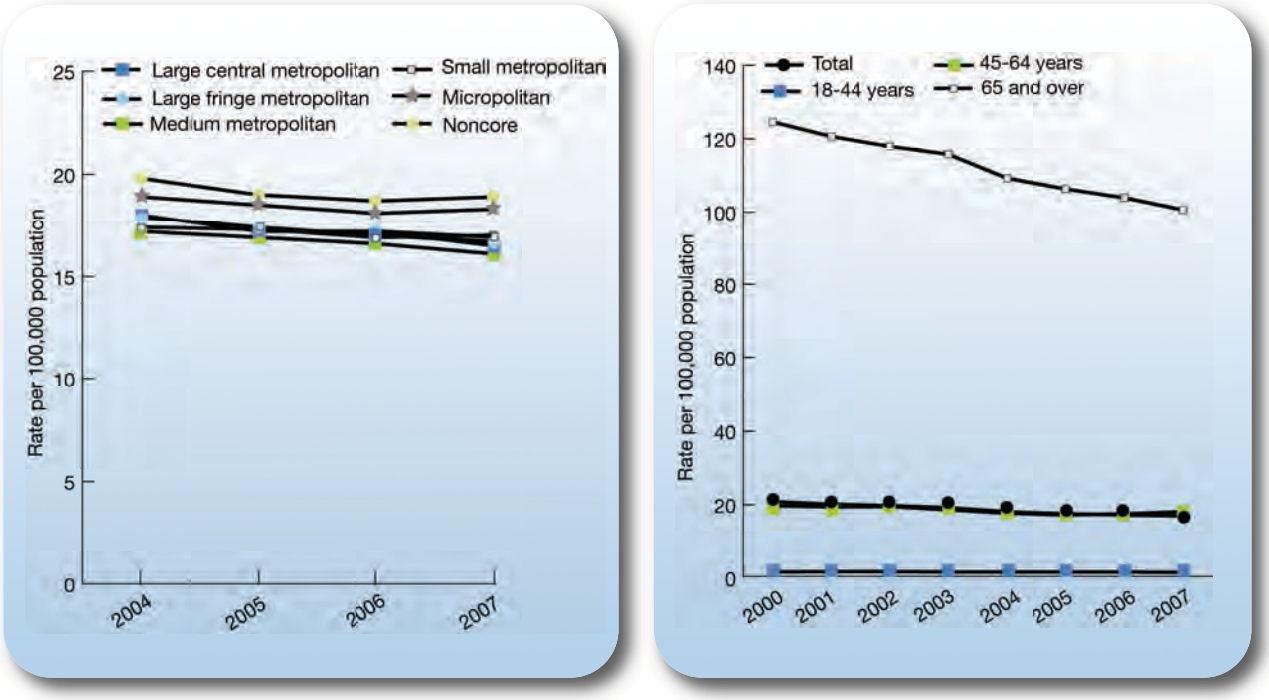
Also, in the NHDR:

- Between 2003 and 2007, all racial and ethnic groups showed significant improvement in the percentage of patients diagnosed with colorectal cancer who received recommended care.

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 the 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 2.4. Age-adjusted colorectal cancer deaths per 100,000 population, by residence location, 2004-2007, and age, 2000-2007



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 2000-2007.
Denominator: U.S. population.
Note: Total rate is age adjusted to the 2000 U.S. standard population.

- Between 2004 and 2007, the rate of colorectal cancer deaths significantly decreased, from 18.0 to 16.9 per 100,000 population (Figure 2.4).
- In all years, residents of noncore and micropolitan areas had significantly higher rates of colorectal cancer deaths compared with residents of large fringe metropolitan areas.
- From 2004 to 2007, the rate of colorectal cancer deaths for adults ages 65 and over significantly decreased, from 109.2 to 100.6 per 100,000 population.

Effectiveness of Care

Diabetes

Importance

Mortality

Number of deaths (2007) ..... 71,382[1]

Cause of death rank (2007) ..... 7th[1]

Prevalence

Total number of people with diabetes (2007) ..... 23.6 million[7]

Number of people with diagnosed diabetes (2007) ..... 17.9 million[7]

Number of people with undiagnosed diabetes (2007) ..... 5.7 million[7]

Incidence

New cases (age 20 and over, 2007) ..... 1.6 million[7]

Cost

Total cost (2007 est.) ..... $174 billion[8]

Direct medical costs (2007 est.) ..... $116 billion[8]

Measures

Routine monitoring of blood glucose levels with hemoglobin A1c (HbA1c) tests and dilated eye and foot examinations[vi] have been shown to help prevent or mitigate complications of diabetes, such as diabetic neuropathy, retinopathy, and vascular and kidney disease.[9] With more than half a million discharges in 2006, diabetes is one of the leading causes of hospitalization in the United States.[10] However, with appropriate and timely ambulatory care, it may be possible to prevent many hospitalizations for diabetes and related complications.

The core measure reported in this section examines the extent to which individuals with diabetes receive care needed to prevent complications or slow the disease's progression:

- Receipt of three recommended diabetes services.

In addition, three supporting outcome measures are presented. Two of these measures are included as part of AHRQ's Prevention Quality Indicators (PQIs).[vii] PQIs may be used to estimate rates of potentially avoidable hospitalizations among ambulatory care-sensitive conditions. These are hospitalizations that may have been prevented with high-quality ambulatory care and treatment.

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

[vii] More information on the PQIs is available at: www.qualityindicators.ahrq.gov/downloads/pqi/word/pqi_guide_v31.doc.

The supporting measures from the PQIs are:

- Hospitalization for short-term diabetes complications (PQI 1).
- Hospitalization for lower extremity amputation (PQI 16).

The final supporting measure also offers insight into the adequacy of diabetes management:

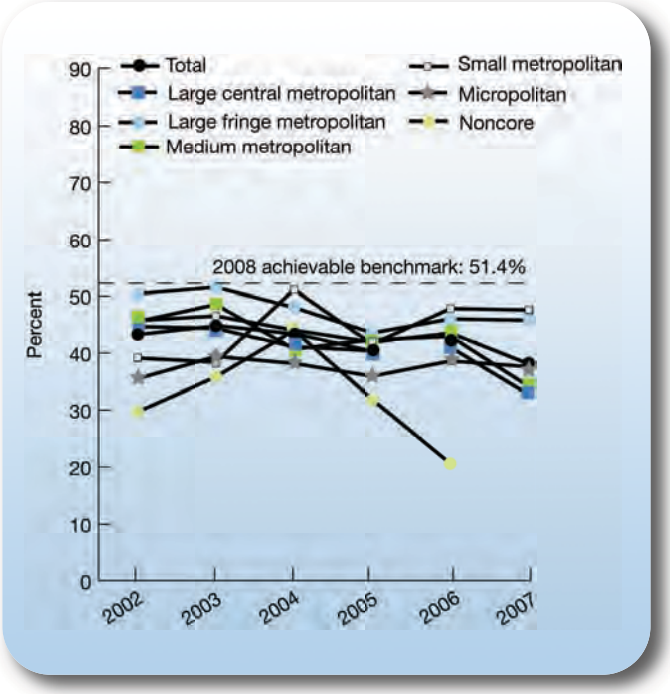
- Control of HbA1c, cholesterol, and blood pressure.

Findings

Management: Receipt of Three Recommended Diabetes Services

The NHQR uses a composite measure to track the national rate of receipt of all three recommended annual diabetes interventions: an HbA1c test, an eye examination, and a foot examination. These are basic process measures that provide an assessment of the quality of diabetes management.

Figure 2.5. Composite measure: Adults age 40 and over with diagnosed diabetes who received three recommended services for diabetes in the calendar year (hemoglobin A1c test, dilated eye examination, and foot examination), by residence location, 2002-2007



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
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. Data were statistically unreliable for the noncore population in 2007. Benchmark is derived from the Behavioral Risk Factor Surveillance Survey (BRFSS); see Introduction and Methods for details.

Effectiveness of Care

- The percentage of adults age 40 and over with diagnosed diabetes who received three recommended services showed a significant decrease, from 43.2% in 2002 to 37.5% in 2007 (Figure 2.5).
- Between 2002 and 2007, residents of large central metropolitan and medium metropolitan areas all showed a significant decrease in the percentage of adults diagnosed with diabetes who received recommended care.
- With the exception of 2004 and 2007, adults age 40 and over living in large fringe metropolitan areas were significantly more likely than those in noncore areas to receive recommended services.
- The 2008 top 4 State achievable benchmark was 51.4%.[viii] At the current overall rate of decrease of 1.2%, there is no indication of progress toward the benchmark. The benchmark was achieved by residents of large fringe metropolitan areas in 2003 but since then, the percentage of residents receiving recommended care has decreased and is therefore moving away from the benchmark. A similar trend is shown for large central and medium metropolitan areas, micropolitan areas, and noncore areas. Small metropolitan areas, with an annual rate of increase of 1.7%, could achieve the benchmark in 2 years.
- In 2007, 88% of adults diagnosed with diabetes had HbA1c measurement in the calendar year, 61% had dilated eye examination, and 66.5% their feet checked. HbA1c measurement and foot examination have significantly decreased since 2002.

Also, in the NHDR:

- In 5 of 6 years, the percentage of adults age 40 and over with diabetes who received recommended services was significantly lower for Hispanics than for non-Hispanic Whites.

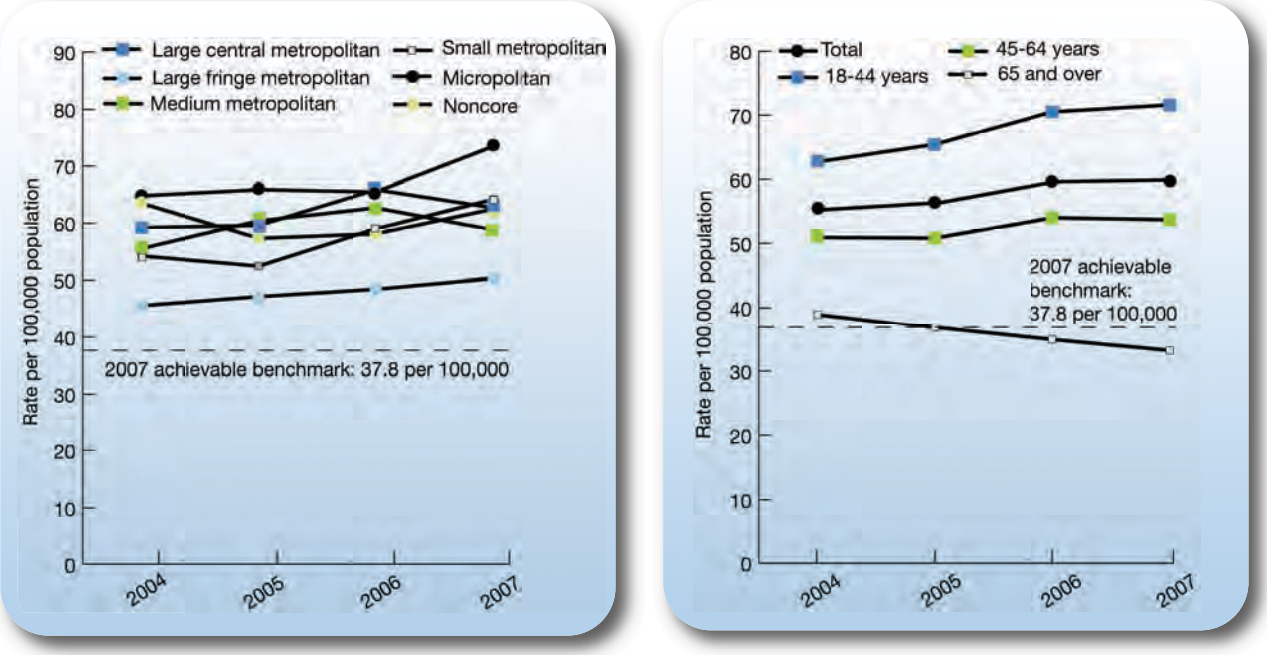
Outcome: Admissions for Short-Term Diabetes Complications

Individuals who do not achieve good control of their diabetes are more prone to short-term complications that can reduce quality of life, increase chances of death, and increase health care costs both directly and indirectly. The acute metabolic complications of diabetes consist of diabetic ketoacidosis (DKA), hyperosmolar nonketotic coma (HNC), lactic acidosis (LA), and hypoglycemia.[11]

Patients with DKA, HNC, and LA require hospitalization for treatment and therefore result in the use of significant health care resources with increased health care costs. Patients with hypoglycemia often do not require hospitalization but can still incur costs for treatment in an ambulatory setting, as well as loss of productivity. Prevention is an important component in reducing health care costs for these disorders[11] and helping people with diabetes maintain optimal function.

[viii] The top 4 States contributing to the achievable benchmark are Alaska, New Hampshire, Vermont, and the District of Columbia (treated as a State for comparison purposes).

Figure 2.6. Hospital admissions for diabetes with short-term complications per 100,000 population age 18 and over, by residence location and age, 2004-2007



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample and AHRQ Quality Indicators, version 3.1.
Denominator: U.S. resident population age 18 and over.
Note: Short-term complications include ketoacidosis, hyperosmolarity, or coma and exclude obstetric admissions and transfers from other institutions.

- In all years, residents of large fringe metropolitan areas had significantly lower hospital admissions for short-term complications than residents of micropolitan areas (Figure 2.6). Residents of large fringe metropolitan areas also had significantly lower hospital admissions than residents of large central metropolitan areas in 3 of 4 years.
- Between 2004 and 2007, the overall rates of admission for adults who experienced short-term complications significantly increased, from 55.2 to 59.9.
- Between 2004 and 2007, adults ages 18-44 had a significant increase in the rates of admission for short-term complications while adults age 65 and over had a significant decrease in admission rates.
- In all years, adults age 65 and over had significantly lower rates of admission for short-term complications than adults ages 18-64.
- The 2008 top 4 State achievable benchmark was 37.8 per 100,000 population.[ix] At the current annual rate of increase of 1.7%, there is no indication of progress toward the benchmark by residents of any location. Adults age 65 and over have already achieved the benchmark but adults ages 18-64 show no progress toward the benchmark.

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

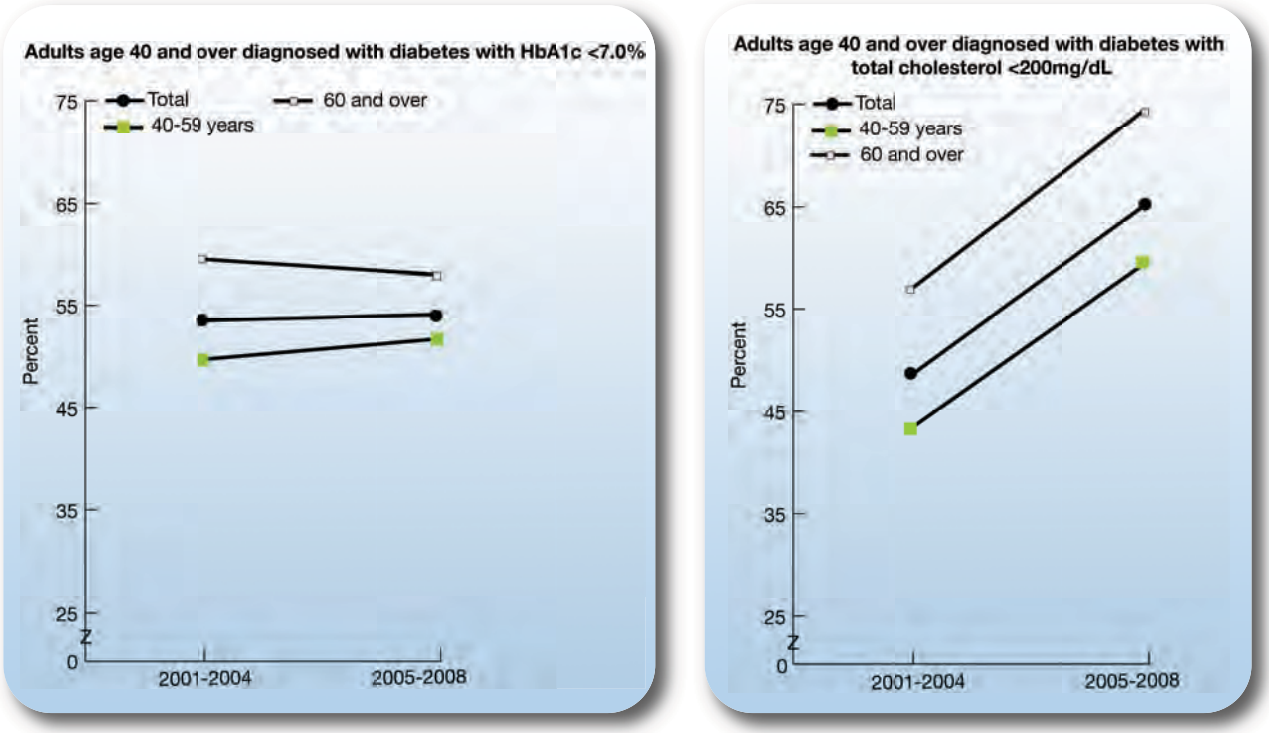
Also, in the NHDR:

- In all years, the rate of hospital admissions for short-term complications was significantly higher for adults living in communities with median household incomes in the first quartile (lowest) than it was for people living in communities with median household incomes in the fourth quartile (highest).
- In all years, the rates of admission were 2.5 times as high for adults living in communities with median household incomes in the first quartile compared with adults living in communities with median household incomes in the fourth quartile.

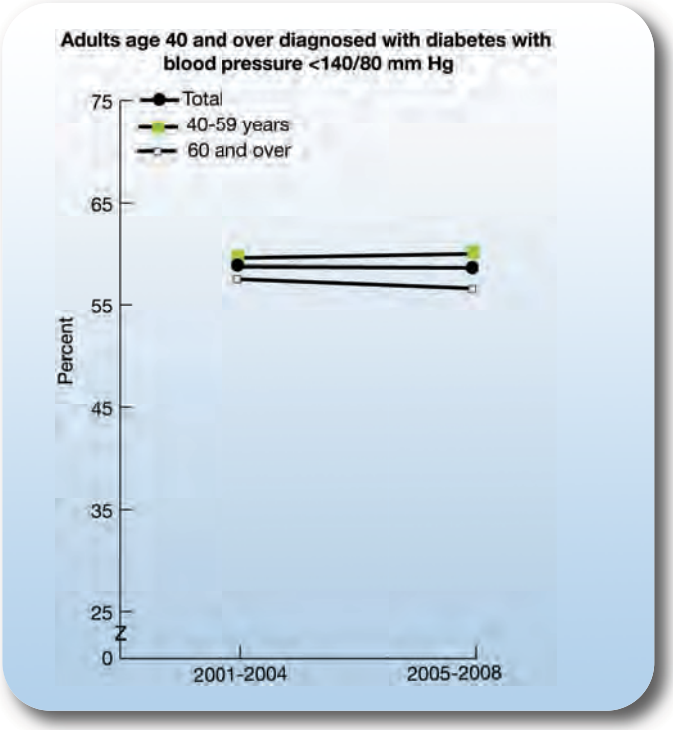
Outcome: Controlled Hemoglobin, Cholesterol, and Blood Pressure

People diagnosed with diabetes often have 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 diabetes and maintain an HbA1c level of <7%, total cholesterol of <200 mg/dL, and blood pressure of <140/80 mm Hg[x] can decrease these risks.

Figure 2.7. Adults age 40 and over with diagnosed diabetes with hemoglobin A1c, total cholesterol, and blood pressure under control, by age, 2001-2004 and 2005-2008



[x] Blood pressure control guidelines were updated in 2005. Previously, having a blood pressure reading of <140/90 mm Hg was considered under control. For this measure, the new threshold of <140/80 mm Hg has been applied to historic data for the sake of consistency and comparability.



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.
Denominator: Civilian noninstitutionalized population with diagnosed diabetes, age 40 and over.
Note: Age adjusted to the 2000 standard population using two age groups: 40-59 and 60 and over.

- In 2005-2008, only 54.1% of adults age 40 and over with diabetes had achieved control of their HbA1c level, 65.2% had their cholesterol under control, and 58.6% had their blood pressure under control (Figure 2.7). Although the percentage of adults with controlled HbA1c and blood pressure does not differ markedly from that in the 2001-2004 period, a significant increase in the percentage who had their cholesterol under control was observed over time, from 48.5% in 2001-2004 to 65.2% in 2005-2008.
- In 2001-2004, 56.9% of adults age 60 and over diagnosed with diabetes had cholesterol at optimal levels; this is significantly higher than the 43.3% of adults ages 40-59. In 2005-2008, the percentage of adults age 60 and over diagnosed with diabetes who had optimal cholesterol levels increased to 74.5% while adults ages 40-59 saw an increase to only 59.5%. Adults age 60 and over continued to have significantly higher percentages of people with optimal cholesterol levels compared with adults ages 40-59.

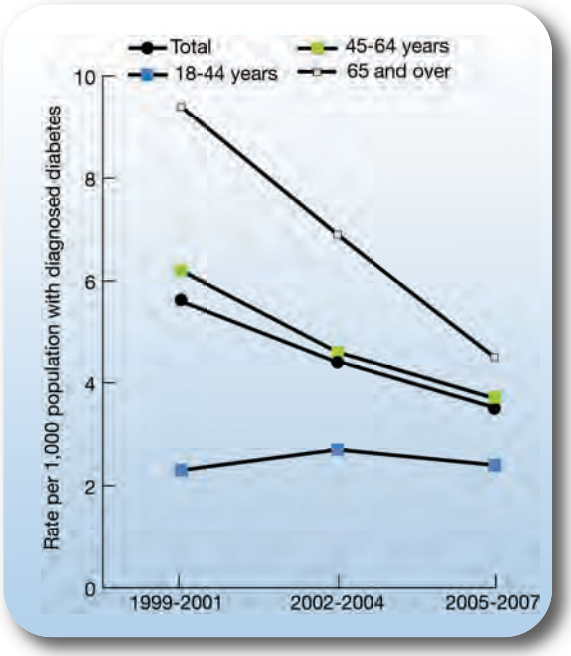
Also, in the NHDR:

- In 2001-2004, the percentage of non-Hispanic Whites with their blood pressure under optimal control was significantly higher than the percentage of non-Hispanic Blacks. However, in 2005-2008, the percentage of non-Hispanic Whites age 40 years and over who had their blood pressure under optimal control had decreased and the percentage of non-Hispanic Blacks with optimal control had increased. There was no statistically significant difference between the two groups.

Prevention: Lower Extremity Amputations

People living with diabetes represent more than 60% of nontraumatic lower extremity amputations[12] even though amputations can be avoided through proper care on the part of patients and providers. Hospital admissions for lower extremity amputations for patients with diagnosed diabetes reflect poorly controlled diabetes. Better management of diabetes would prevent the need for lower extremity amputations.

Figure 2.8. Hospital admissions for lower extremity amputations per 1,000 adult patients with diagnosed diabetes, by age, 1999-2007



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey and National Health Interview Survey.
Denominator: Civilian noninstitutionalized population 18 years and over who report they have ever been told they have diabetes.

- From 1999-2001 to 2005-2007, the overall rate of hospital admissions for lower extremity amputations significantly decreased, from 5.6 per 1,000 population to 3.5 per 1,000 population (Figure 2.8).
- From 1999-2001 to 2005-2007, rates significantly decreased for adults ages 45-64, from 6.2 per 1,000 population to 3.7 per 1,000 population. Adults age 65 and over diagnosed with diabetes also had admissions significantly decrease, from 9.4 per 1,000 population to 4.5 per 1,000 population.
- In all years, adults ages 18-44 had significantly lower rates of hospital admissions for lower extremity amputation than the overall population and adults age 45 and over. The rate of admission for adults age 65 and over was more than twice the rate of adults ages 18-44 in the first 2 data years and almost twice the rate in the third data year.

Also, in the NHDR:

- In 2002-2004 and 2005-2007, Blacks had significantly higher rates of hospitalization for lower extremity amputations compared with White adults.
- Males had similarly higher rates of admissions, twice the rate of females.

End Stage Renal Disease

Importance

Mortality

Total end stage renal disease (ESRD) deaths (2007).....87,812[13]

Prevalence

Total cases (2007).....514,642[14]

Incidence

Number of new cases (2007).....110,996[13]

Cost

Total ESRD Medicare program expenditures (2007 est.).....$23.9 billion[13]

Measures

The NHQR tracks several measures of ESRD management to assess the quality of care provided to renal dialysis patients. The two core report measures and one supporting measure highlighted here are:

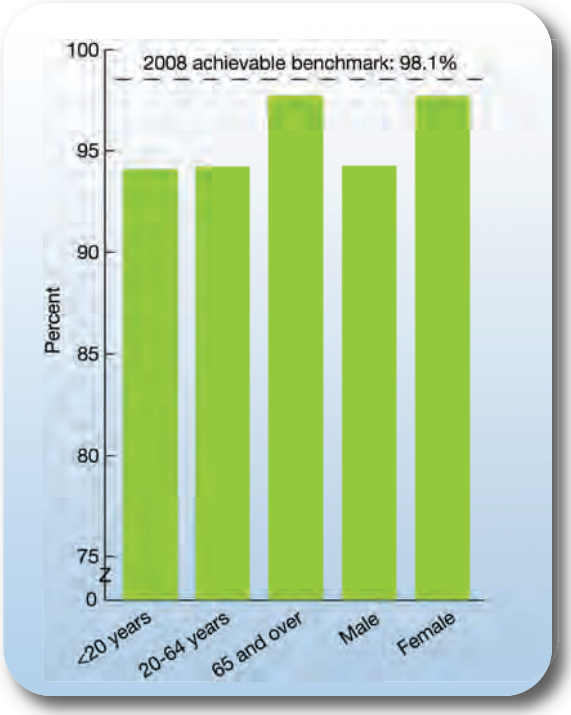
- Adequacy of hemodialysis (core).
- Registration for transplantation (core).
- Use of arteriovenous fistula (AVF) at first outpatient dialysis (supporting).

Findings

Outcome: Adequate Hemodialysis

Dialysis removes harmful waste and excess fluid buildup in the blood that occurs when kidneys fail to function. Hemodialysis is the most common method used to treat advanced and permanent kidney failure. The adequacy of dialysis is measured by the percentage of hemodialysis patients with a urea reduction ratio equal to or greater than 65%; this measure indicates how well urea, a waste product, is eliminated by the dialysis machine.

Figure 2.9. Adult hemodialysis patients with adequate dialysis (urea reduction ratio 65% or greater), by age and gender, 2008



Source: University of Michigan Kidney Epidemiology and Cost Center, 2009 Dialysis Facility Report.
Denominator: End stage renal disease hemodialysis patients age 20 and over.

- In 2008, the overall percentage of adult hemodialysis patients receiving adequate dialysis was 95.8% (data not shown). The percentage of male adult hemodialysis patients receiving adequate dialysis was lower than that of females (94.1% compared with 97.8%; Figure 2.9).
- In addition, the percentage of adult hemodialysis patients receiving adequate dialysis was higher for those age 65 years and over than for those ages 20-64 years (97.7% compared with 94.2%).
- In 2008, the Top 5 State achievable benchmark was 98.1%.[xi] The available data were not sufficient to calculate time to benchmark.

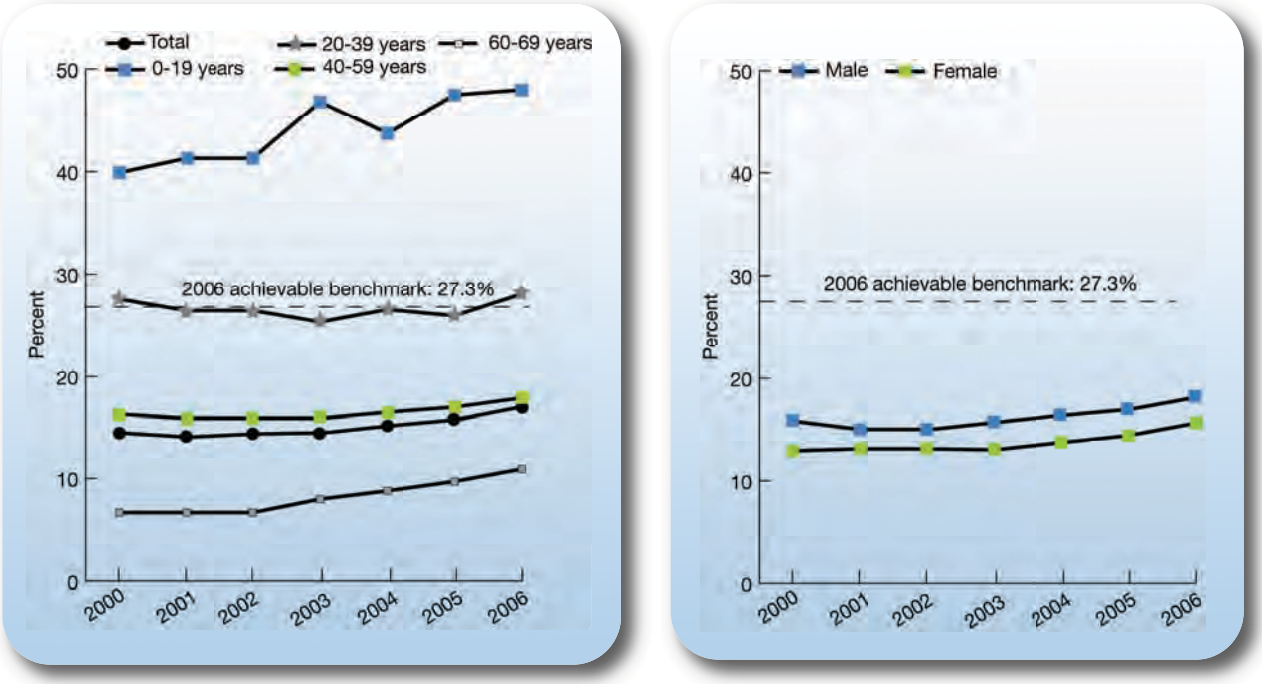
Management: Registration for Transplantation

Kidney transplantation is a procedure that replaces a failing kidney with a healthy kidney. If a patient is deemed a good candidate for transplant, he or she is placed on the transplant program's waiting list. Dialysis patients wait for transplant centers to match them with the most suitable donor. Registration for transplantation is an initial step toward patients receiving the option of kidney transplantation.

[xi] The top 5 States that contributed to the achievable benchmark are Colorado, Connecticut, Hawaii, Rhode Island, and Texas.

Early transplantation that decreases or eliminates the need for dialysis can also lessen the occurrence of acute rejection and patient mortality. In 2006, 70,778 patients were on the Organ Procurement and Transplantation Network's deceased donor kidney transplant waiting list in the United States. Only 10,212 deceased donor kidney transplants were performed.[15] In 2007, the number of kidney transplants from deceased donors decreased by 1.3%, and kidney transplants from living donors dropped by 6.1%.[16]

Figure 2.10. Dialysis patients who were registered on a waiting list for transplantation, by age and gender, 2000-2006



Source: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Renal Data System, 2000-2006.
Denominator: End stage renal disease hemodialysis patients and peritoneal dialysis patients under age 70.

- From 2000 to 2006, the percentage of dialysis patients who were registered on a waiting list for transplantation increased from 14.5% to 17.1% (Figure 2.10). Improvements were observed among all age groups except patients ages 20-39.
- In all years, patients ages 20-69 were less likely than patients ages 0-19 to be registered on a waiting list.
- In 2006, females were less likely than males to be registered on a waiting list (15.6% compared to 18.2%).
- The 2006 top 5 State achievable benchmark was 27.3%.[xii] At the current rate of improvement, the benchmark would not be attained overall for almost 24 years.

[xii] The top 5 States that contributed to the achievable benchmark are California, Minnesota, New Hampshire, Pennsylvania, and South Dakota.

- At their current rates of improvement, male patients could attain the benchmark in about 20 years, whereas female patients could not attain the benchmark for more than 29 years.

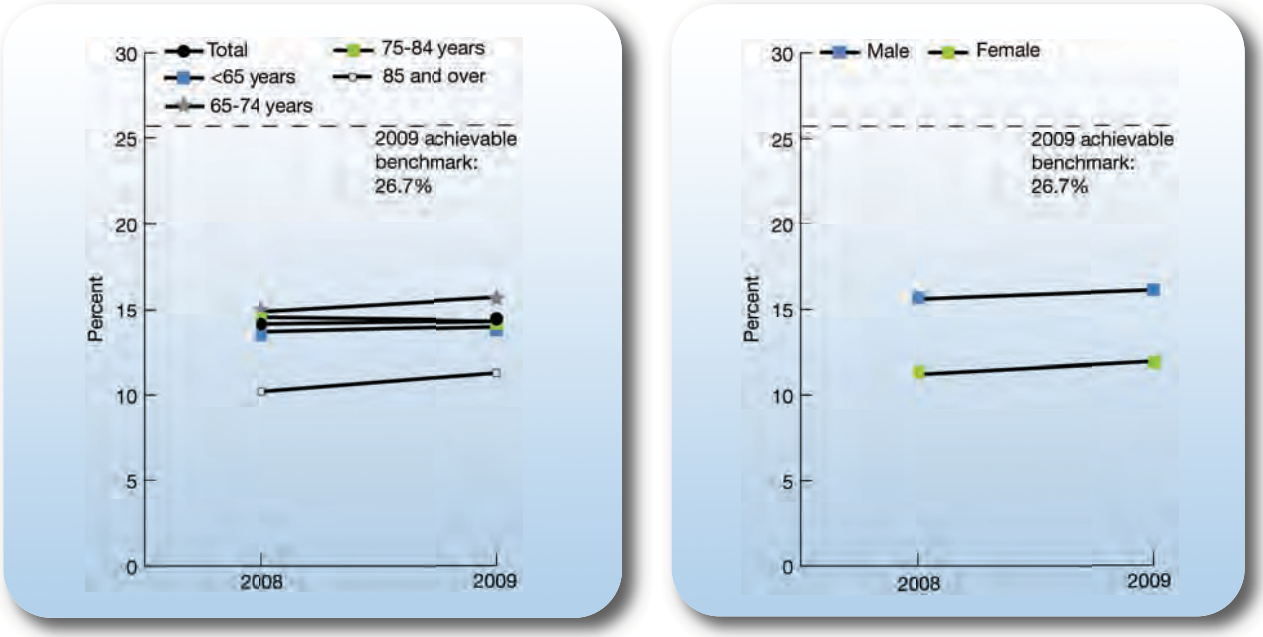
Also, in the NHDR:

- In 2006, Blacks and American Indians and Alaska Natives were less likely to be registered on a waiting list than Whites (10.8% and 9.8%, respectively, compared with 16.3%). However, Asians (27.5%) were more likely to be registered on a waiting list than Whites.

Management: Use of Arteriovenous Fistula for Vascular Access

For people with ESRD, vascular access is a way to reach the blood vessels so that harmful urea can be removed from the blood. An AVF is the preferred type of access for most hemodialysis patients for three reasons: (1) it provides adequate blood flow for dialysis, (2) it lasts a long time, and (3) it has a low complication rate compared with other methods. Although there is consensus that AVF should be the primary method of vascular access, the incidence rates of AVF have historically been very low. Therefore, the Centers for Medicare & Medicaid Services (CMS) has sought to increase rates of AVF for primary access across the country by forming a nationwide initiative and collaborative effort to increase overall use of AVF. In 2005, this effort, the Fistula First Breakthrough Initiative, set the goal for national prevalence at 66%.

Figure 2.11. Incident adult hemodialysis patients who used an arteriovenous fistula at first outpatient dialysis, by age and gender, 2008-2009



Source: Centers for Medicare & Medicaid Services, Fistula First Incident AVF Dataset, 2008-2009.
Denominator: New end stage renal disease hemodialysis patients.

Effectiveness of Care

- From 2008 to 2009, the percentage of dialysis patients who used an AVF at first dialysis increased from 13.7% to 14.3% (Figure 2.11). Significant improvements were observed only among the 85 and over age group (10.2% to 11.3%).
- Those ages 65-74 had higher rates of AVF at first dialysis than those younger than 65 (15.7% compared with 14%), but for dialysis patients age 85 years and over, the use of AVF at first dialysis was lower (11.3%).
- In 2009, female dialysis patients had significantly lower rates of AVF at first dialysis than males (12.0% compared with 16.1%).
- The 2009 top 5 State achievable benchmark was 26.7%.[xiii] The available data were insufficient to calculate time to benchmark.

Also, in the NHDR:

- In 2009, a higher percentage of Asians than Whites used AVF at first dialysis, but a lower percentage of of Blacks than Whites used AVF at first dialysis (17.6%, 14.7%, and 13.1%, respectively).

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

Effectiveness of Care

Heart Disease

Importance

Mortality

Number of deaths (2007).....616,067[1]

Cause of death rank (2007).....1st[1]

Prevalence

Number of cases of coronary heart disease (2006).....17.6 million[4]

Number of cases of heart failure (2006).....5.8 million[4]

Number of cases of high blood pressure (2006).....74.5 million[4]

Number of heart attacks (2006).....8.5 million[17]

Incidence

Number of new cases of heart failure (2004).....550,000[18]

Cost

Total cost of cardiovascular disease (2010 est.).....$503.2 billion[4]

Total cost of heart failure (2010 est.).....$39.2 billion[17]

Direct costs of cardiovascular disease (2010 est.).....$324.1 billion[4]

Cost-effectiveness of hypertension screening.....$14,000-$35,000/QALY[5]

Measures

The NHQR tracks several quality measures for preventing and treating heart disease, including the following three core report measures:

- Receipt of angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) for heart attack.
- Inpatient deaths following heart attack.
- Receipt of recommended care for 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, and receipt of complete written discharge instructions by patients with heart failure is tracked in Chapter 6, Care Coordination.

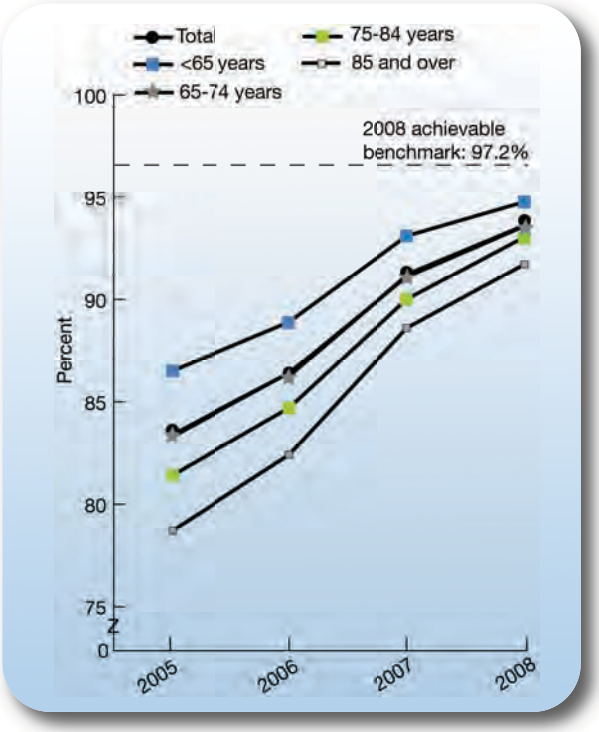
Findings

Treatment: Receipt of Angiotensin-Converting Enzyme Inhibitor or Angiotensin Receptor Blocker for 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 a number of measures of quality of care for heart attack have occurred in recent years. Four measures that have been tracked in past NHQRs (administration of aspirin within 24 hours and at discharge, administration of beta blocker at discharge, and counseling to quit smoking) have attained overall performance levels exceeding 95%. These measures were included in the composite measure of care for heart attack in past NHQRs. However, the success of these measures creates a ceiling effect that limits the report's ability to track improvement over time. Moreover, administration of beta blocker within 24 hours as recommended practice has been discontinued. Hence, this NHQR focuses on one measure of heart attack care, ACE inhibitor or ARB treatment among patients with left ventricular systolic dysfunction.

Figure 2.12. Hospital patients with heart attack and left ventricular systolic dysfunction who received angiotensin-converting enzyme inhibitor or angiotensin receptor blocker, by age, 2005-2008



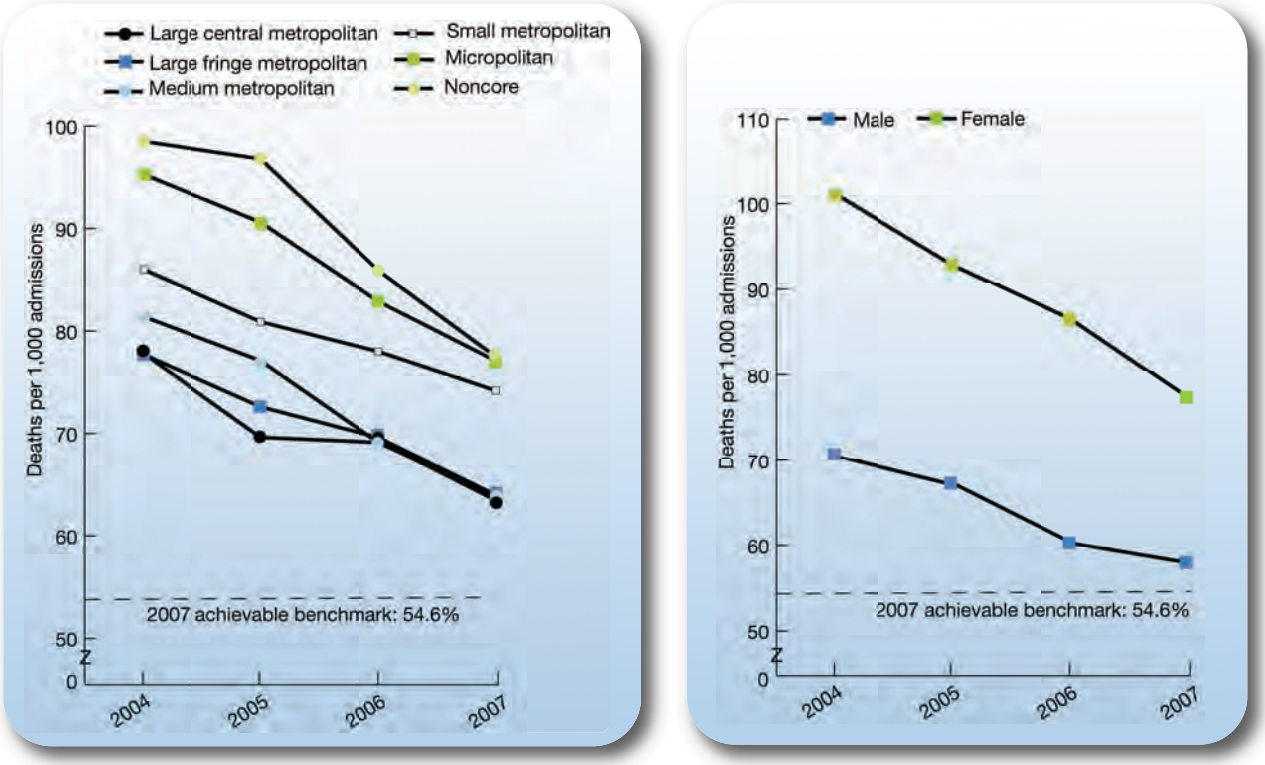
Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2005-2008.
Denominator: Patients hospitalized with a principal diagnosis of acute myocardial infarction and left ventricular systolic dysfunction.

- From 2005 to 2008, the percentage of heart attack patients with left ventricular systolic dysfunction who received an ACE inhibitor or ARB increased from 83.4% to 93.7% (Figure 2.12). Improvements were observed among all age groups during the same period.
- The 2008 top 5 State achievable benchmark was 97.2%.[xiv] At the current rate, the 2008 achievable benchmark could be achieved in 1 year. At their current rates of improvement, the achievable benchmark could be reached by all age groups in 1 year. Additionally, all racial and ethnic groups could reach the benchmark in about 1 year, with the exception of AI/ANs, who would reach the benchmark in a little over a year and a half.

Outcome: Inpatient Deaths Following Heart Attack

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 2.13. Deaths per 1,000 adult hospital admissions with heart attack, by geographic location and gender, 2004-2007



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2004-2007.
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: Rates are adjusted by age, gender, age-gender interactions, and all payer refined-diagnosis related group scoring of risk of mortality.

[xiv] The top 5 States that contributed to the achievable benchmark are Alaska, Minnesota, New Hampshire, North Dakota, and Oregon.

- From 2004 to 2007, the overall inpatient mortality rate decreased significantly overall and for each geographic location and gender group (Figure 2.13).
- In 2007, the overall rate of inpatient mortality was 67.3 per 1,000 admissions for heart attack (data not shown). Small metropolitan, micropolitan, and noncore groups had higher rates of inpatient heart attack mortality than large fringe metropolitan areas.
- Also in 2007, females had higher rates of inpatient heart attack mortality than males.
- The 2007 top 4 State achievable benchmark for inpatient heart attack mortality was 54.6 per 1,000 admissions.[xv] At the current rate, the achievable benchmark could be attained in about 2.5 years. Males could attain the benchmark in less than 1 year; however, females could not attain the benchmark for almost 3 years.
- Although most geographic areas could attain the benchmark in 1 to 2 years, small metropolitan areas, micropolitan, and noncore areas could not attain the benchmark until later (about 5 years, 3.6 years, and 3 years, respectively).

Also, in the NHDR:

- At their current rates of improvement, Blacks could attain the achievable benchmark in less than 1 year, but Asians could not attain the benchmark for more than 6 years.

Treatment: Receipt of Recommended Care for Heart Failure

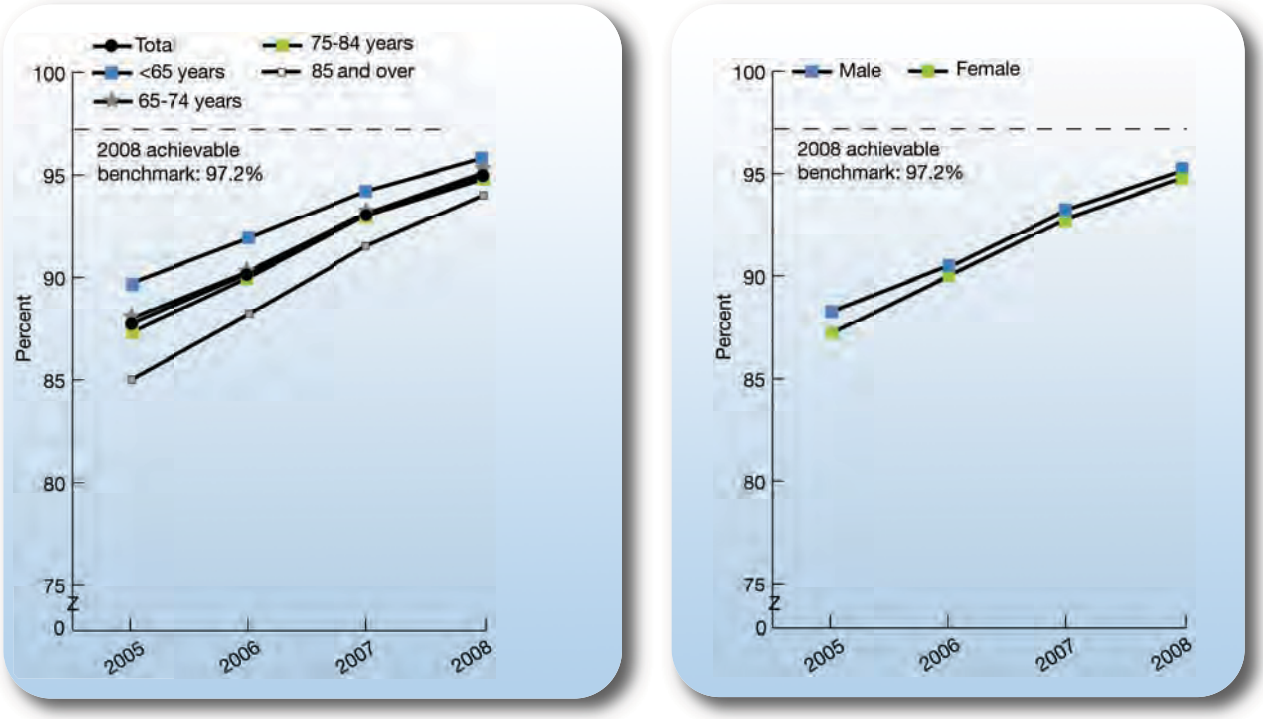
The NHQR tracks the national percentages of receipt of the following services:

- Recommended test for heart functioning (heart failure patients having evaluation of left ventricular ejection fraction).
- Recommended medication treatment (patients with left ventricular systolic dysfunction prescribed ACE inhibitor or ARB at discharge).

In addition, an overall composite measure describes the percentage of all episodes in which heart failure patients receive recommended care.

[xv] The top 4 States that contributed to the achievable benchmark are Arizona, Florida, Maryland, and Michigan.

Figure 2.14. Hospital patients with heart failure who received recommended hospital care: Overall composite, by age and gender, 2005-2008



Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2005-2008.
Denominator: Patients hospitalized with a principal diagnosis of acute heart failure.

- From 2005 to 2008, the overall percentage of patients with heart failure who received recommended care increased from 87.7% to 95% (Figure 2.14). The percentage also increased for those age 85 years and over (from 85% to 94%).
- During the same period, the gap decreased between the best performing age group (those under age 65) and the worst performing age group (those age 85 and over).
- The 2008 top 5 State achievable benchmark for patients with heart failure who received recommended hospital care was 97.2%.[xvi] At the current rate, the achievable benchmark could be attained in less than 1 year.
- At their current rates of improvement, all age and gender groups could attain the benchmark in about 1 year.

Also, in the NHDR:

- From 2005 to 2008, the percentage of Asian patients who received recommended care for heart failure increased (from 86.6% to 96.6%).
- Although the other racial and ethnic groups could attain the achievable benchmark in less than 1 year, AI/ANs and Hispanics could not attain the benchmark until later (about 3 years and 1.5 years, respectively).

[xvi] The top 5 States that contributed to the achievable benchmark are Connecticut, Maine, New Hampshire, New Jersey, and South Carolina.

HIV and AIDS

Importance

Mortality

Number of deaths of people with AIDS (2007) ..... 18,089[19]

Prevalence

Number of people living with HIV infection ..... 599,819[19]

Number of people living with AIDS (2007) ..... 470,902[19]

Incidence

Number of new HIV infections (2008) ..... 42,439[19]

Number of new AIDS cases (2008) ..... 37,991[19]

Cost

Federal spending on HIV/AIDS care, cash and housing assistance, and prevention and research (fiscal year 2011 est.) ..... $20.5 billion[20]

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 is spread through unprotected sex with an infected person, by sharing drug needles, or through contact with the blood of an infected person. Also, women with HIV can transmit it 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.[21]

According to the Centers for Disease Control and Prevention, HIV and AIDS disproportionately affect African Americans in the United States. In 2008, African Americans accounted for 52% of all diagnoses of HIV infection and had a rate of 73.7 per 100,000 population compared with 8.2 per 100,000 for Whites.[22] 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.[23]

The HIV/AIDS epidemic is also a serious threat to the Hispanic community. Hispanics accounted for 15% of the population but had an estimated 17% of the new HIV infections in 2006, which was 2.5 times the rate of Whites.[24] In addition to being seriously affected by HIV, Hispanics continue to face challenges in accessing

health care, preventive services, and HIV treatment. Undocumented Hispanics 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.[25] In 2006, HIV/AIDS was the fourth leading cause of death among Hispanic men and women ages 35-44.[26] 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 African Americans.[27]

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 will serve 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, five supporting measures are presented on the prevention of opportunistic infections in HIV and AIDS patients and one on HIV infection deaths:

- Eligible patients receiving prophylaxis for *Pneumocystis* pneumonia (PCP).
- Eligible patients receiving prophylaxis for *Mycobacterium avium* complex (MAC).
- 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).

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 used to monitor 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, performance can be measured for various HIV prevention and treatment services. Services needed by patients with HIV include:

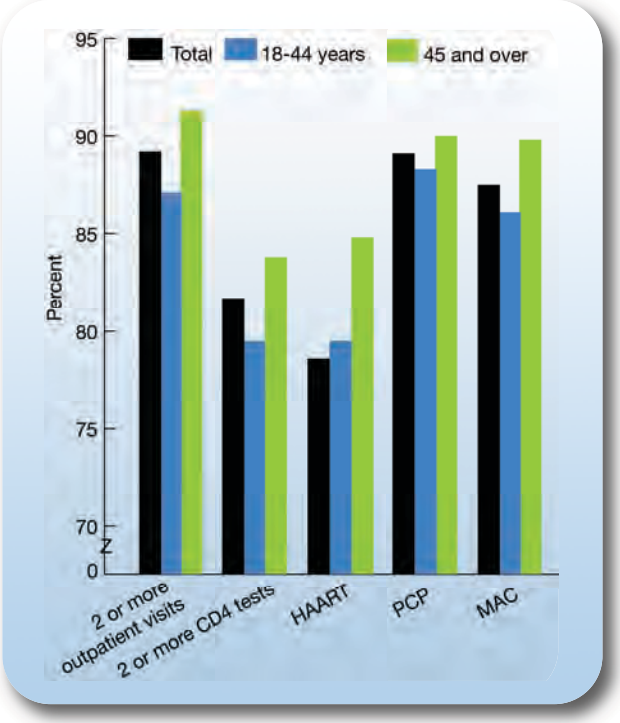
- Two or more CD4 T-cell counts performed in the measurement year.
- HAART for patients with AIDS.
- Two or more medical visits in an HIV care setting in the measurement year.[28]
- PCP prophylaxis for patients with CD4 T-cell count below 200.

Effectiveness of Care

Currently, national data on HIV care are not routinely collected. HIV measures tracked in the NHQR and 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 all Americans living with HIV. HIV Network data represent only patients who are actually receiving care (about 14,000 HIV 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 best 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, and we track this measure as well.[29]

Figure 2.15. Adult patients with HIV who received care, by age, 2007



Key: HAART = highly active antiretroviral therapy; PCP = *Pneumocystis* pneumonia; MAC = *Mycobacterium avium* complex.
Source: Agency for Healthcare Research and Quality, HIV Research Network, 2007.
Note: For HAART measure, adult HIV patients had to be enrolled in an HIV network clinic and 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 2007, about 89.2% of patients with HIV had two or more outpatient visits during the year, and 81.7% of patients with HIV had two or more CD4 tests during the year. In addition, 78.6% of HIV patients in care received HAART, 89.1% of HIV patients with CD4 count less than 200 received PCP prophylaxis, and 87.5% of HIV patients with CD4 count less than 200 received MAC prophylaxis (Figure 2.15).
- Adult HIV patients age 45 and over were more likely to receive recommended care than HIV patients ages 18-44.

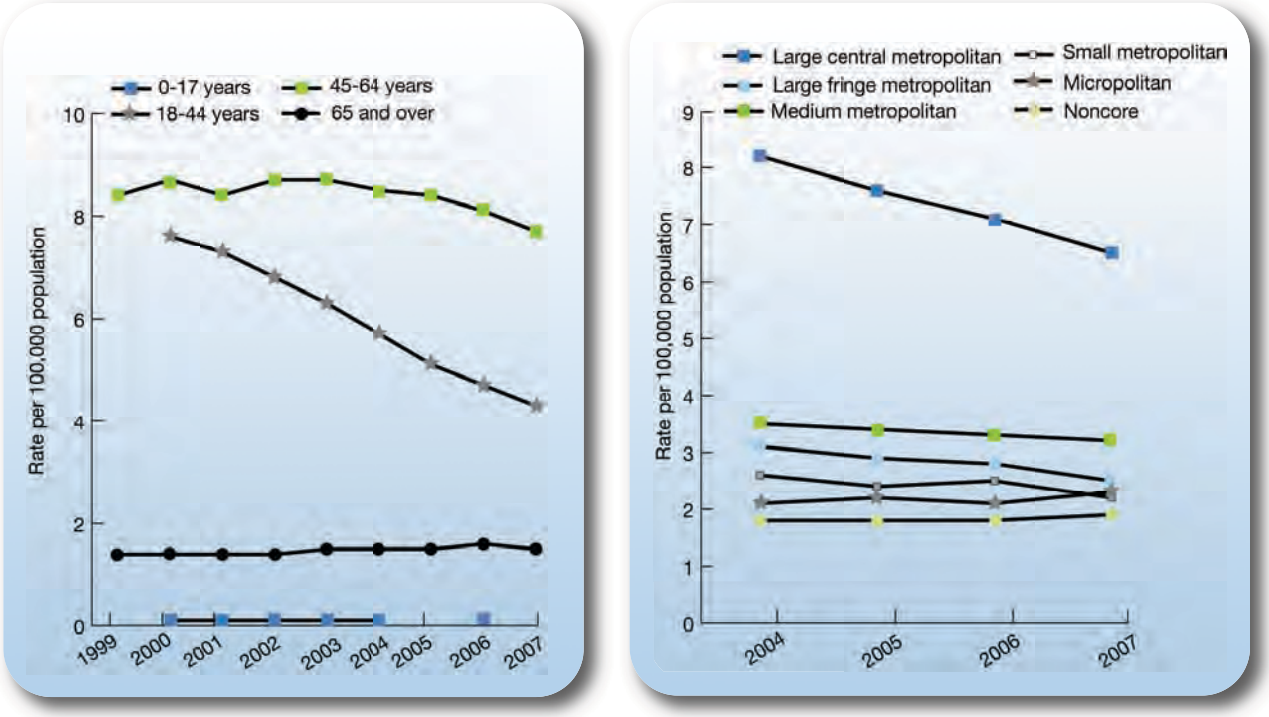
Also, in the NHDR:

- Black patients with HIV were less likely than White patients to receive the minimum care for HIV, except in the receipt of MAC and PCP prophylaxis.
- Female patients with HIV were more likely to have had two or more outpatient visits than male patients but were less likely to receive HAART and MAC prophylaxis.

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.[30] 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 2.16. HIV infection deaths per 100,000 population, by age, 1999-2007, and residence location, 2004-2007



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 1999-2007.
Denominator: Civilian noninstitutionalized population.
Note: Rates are age adjusted to the 2000 standard population, except for age group data. Data for county residence location were not available for years 1999-2003. Data did not meet criteria for statistical reliability, data quality, or confidentiality for ages 0-17 in 1999 and 2005, and for ages 18-44 in 1999.

Effectiveness of Care

- Overall, from 1999 to 2007, the rate of HIV infection deaths decreased from 5.3 per 100,000 population to 3.7 per 100,000 population (data not shown).
- From 1999 to 2007, the rate of HIV infection deaths decreased for adults ages 45-64 (from 8.4 per 100,000 population to 7.7 per 100,000 population) but was still highest among all age groups (7.7 compared with 4.3 for ages 18-44 and 1.5 for age 65 and over; Figure 2.16).
- In 2007, the rates of HIV infection deaths were highest for residents in large central metropolitan areas and lowest in noncore areas (6.5 per 100,000 population and 1.9 per 100,000 population, respectively).

Also in the NHDR:

- The HIV infection death rate decreased for Blacks but remains significantly higher than the rate for Whites.
- The HIV infection death rate decreased for Hispanics (from 6.9 per 100,000 to 4.1 per 100,000) but remains more than twice as high as the rate for non-Hispanic Whites.
- In 2007, the HIV infection death rate for males was more than twice that of females.

Effectiveness of Care

Maternal and Child Health

Importance

Mortality

Number of maternal deaths (2007) ..... 548[1]

Number of infant deaths (2007) ..... 29,138[1]

Demographics

Number of children[xvii] (2007) ..... 73,590,243[31]

Number of babies born in United States (2007) ..... 4,316,233[32]

Cost

Total cost of health care for children (2002 est.) ..... $79 billion[33]

Cost-effectiveness of vision screening for children ..... $0-$14,000/QALY[5]

Cost-effectiveness of childhood immunization series[xviii] ..... Cost saving[5]

Measures

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

- Receipt of recommended immunizations by young children.
- Vision checks for children.
- Counseling of children or parents about physical activity.
- Counseling of children or parents about healthy eating.

In addition, two supporting measures are presented:

- Obstetric trauma.
- Weight monitoring of overweight children.

[xvii] In this report, children are defined as individuals under age 18.

[xviii] The childhood immunization series includes vaccinations for diphtheria-tetanus-pertussis, measles-mumps-rubella, inactivated polio virus, *Haemophilus influenzae* type B, hepatitis B, and varicella. "Cost saving" indicates that childhood immunizations are one of very few services that save more money than they cost.

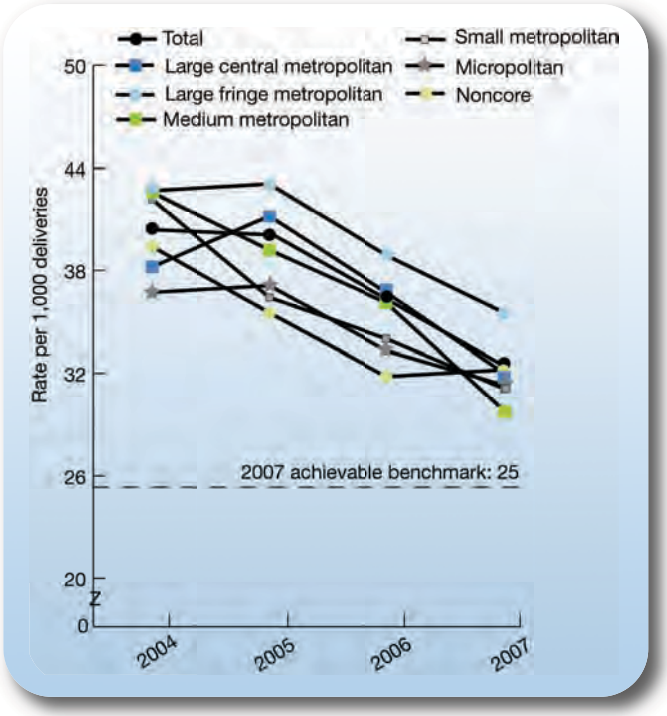
Findings

Outcome: Obstetric Trauma

Childbirth and reproductive care are the most common reasons for women of childbearing age to use health care services. With nearly 12,000 births each day in the United States,[32] childbirth is the most common reason for hospital admission.

Obstetric trauma involving a severe tear to the vagina or surrounding tissues during delivery is a common complication of childbirth. The higher risk of severe perineal laceration may be related to the degree of fetal-maternal size disproportion. API women, with the smallest body size, are most likely to experience obstetric trauma.[34] In addition, although any delivery can result in trauma, existing evidence shows that severe perineal trauma can be reduced by restricted use of episiotomy and forceps.[35]

Figure 2.17. Obstetric trauma with 3rd or 4th degree laceration per 1,000 vaginal deliveries without instrument assistance, by urban-rural location, 2004-2007



Source: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2004-2007.
Denominator: All patients hospitalized for vaginal delivery without indication of instrument assistance.
Note: Rates are adjusted by age and comorbidities.

- From 2004 to 2007, rates of obstetric trauma with 3rd or 4th degree laceration decreased from 40 to 32 per 1,000 vaginal deliveries without instrument assistance (Figure 2.17).
- Declines were observed in all urban-rural locations.
- In most years, residents of small metropolitan, micropolitan, and noncore areas had lower rates of obstetric trauma than residents of large fringe metropolitan areas.
- The 2007 top 3 State achievable benchmark was 25 per 1,000 deliveries.[xix] At the current 8% annual rate of decrease, this benchmark could be attained overall and in most urban-rural locations in about 3 years. Residents of large fringe metropolitan areas would need about 4 years to attain the benchmark.

Also, in the NHDR:

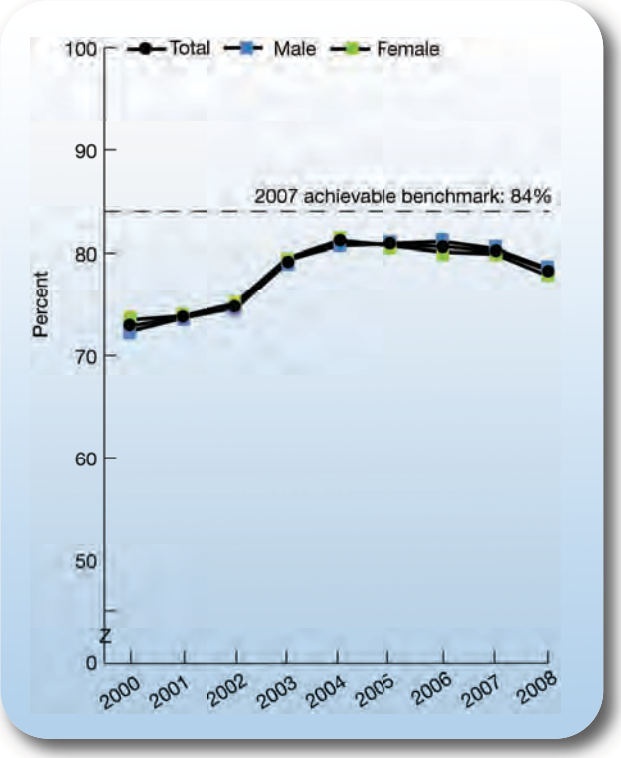
- In all years, Blacks and Hispanics had lower rates than Whites and residents of the lower two area income quartiles had lower rates than residents of the highest area income quartile.
- In all years, APIs had higher rates than Whites.
- The achievable benchmark could be attained by most racial/ethnic and income groups in about 3 years. Whites and residents of the highest area income quartile would take about 4 years, and APIs would take more than 23 years.

Prevention: Receipt of Recommended Immunizations by Young Children

Immunizations are important in reducing mortality and morbidity. They protect recipients from illness and disability and protect others in the community who cannot be vaccinated. In 2008, recommended vaccines for children that should have been completed by ages 19-35 months included four doses of diphtheria-tetanus-pertussis vaccine, three doses of polio vaccine, one dose of measles-mumps-rubella vaccine, three doses of *Haemophilus influenzae* type B vaccine, and three doses of hepatitis B vaccine. These vaccines constitute the 4:3:1:3:3 vaccine series tracked in Healthy People 2010. This series does not include varicella vaccine or vaccines added to the recommended schedule after 1998.

[xix] The 3 top States contributing to the achievable benchmark are Massachusetts, Utah, and Wyoming.

Figure 2.18. Composite measure: Children ages 19-35 months who received the 4:3:1:3:3 vaccine series, by gender, 2000-2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics and National Center for Immunization and Respiratory Diseases, National Immunization Survey, 2000-2008.
Denominator: U.S. civilian noninstitutionalized population ages 19-35 months.
Note: The vaccines included in this measure are based on the corresponding Healthy People 2010 objective, which does not include varicella vaccine or vaccines added to the recommended schedule after 1998 for children up to 35 months of age.

- From 2000 to 2004, the percentage of children ages 19-35 months who received the 4:3:1:3:3 vaccine series increased from 72.8% to 80.9% (Figure 2.18). From 2004 to 2008, the percentage of children with these vaccines fell to 78.2%.
- This rise and fall was observed among both boys and girls.
- The 2008 top 5 State achievable benchmark was 84%.[xx] Since 2004, the overall rate and rates for boys and girls have been moving away from this benchmark.

Also in the NHDR:

- A pattern of rising and then falling rates was observed among all racial, ethnic, and income groups, although the peak year and statistical significance varied.
- In almost all years, Black children were less likely than White children, and poor, low-income, and middle-income children were less likely than high-income children to receive the 4:3:1:3:3 vaccine series.

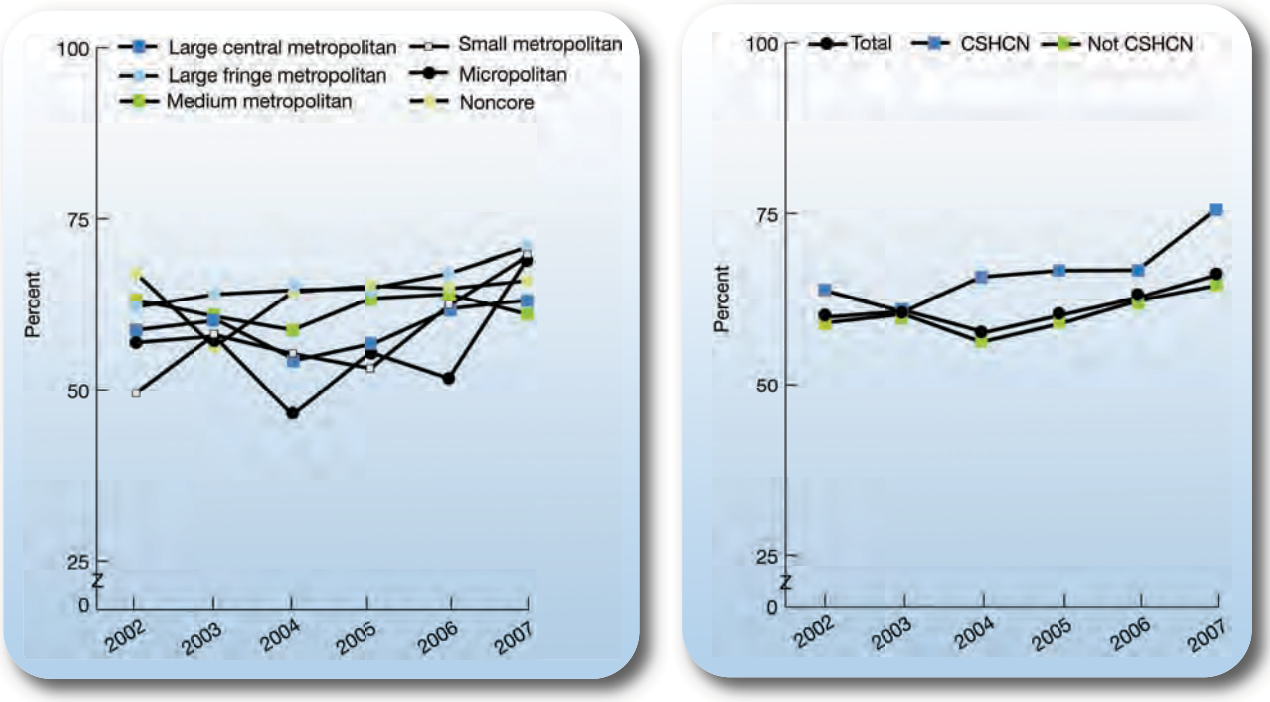
[xx] The top 5 States that contributed to the achievable benchmark are Louisiana, Massachusetts, New Hampshire, Tennessee, and Wisconsin.

- From 2002 to 2006, Hispanic children were less likely than non-Hispanic White children to receive these vaccines. In 2007, rates were comparable, and in 2008, Hispanic children had achieved a higher rate.
- All racial, ethnic, and income groups are moving away from the achievable benchmark, although rates among Asians and high-income children are still above the benchmark.

Prevention: Children's Vision Care

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 2.19. Children ages 3-6 who ever had their vision checked by a health provider, by urban-rural location and special health care needs, 2002-2007



Key: CSHCN = children with special health care needs.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: U.S. civilian noninstitutionalized population ages 3-6.

- From 2002 to 2007, the percentage of children ages 3-6 who ever had their vision checked by a health provider increased from 59.8% to 66.0% (Figure 2.19).
- Significant improvements were observed in large fringe metropolitan, small metropolitan, and micropolitan areas and among children with and without special health care needs.
- Children living in large central metropolitan areas tended to be less likely to receive vision checks than those living in large fringe metropolitan areas, but this difference was statistically significant in only 3 of 6 years.
- Children with special health care needs tended to be more likely to receive vision checks than those without such needs, but again, this difference was statistically significant in only 3 of 6 years.

Also, in the NHDR:

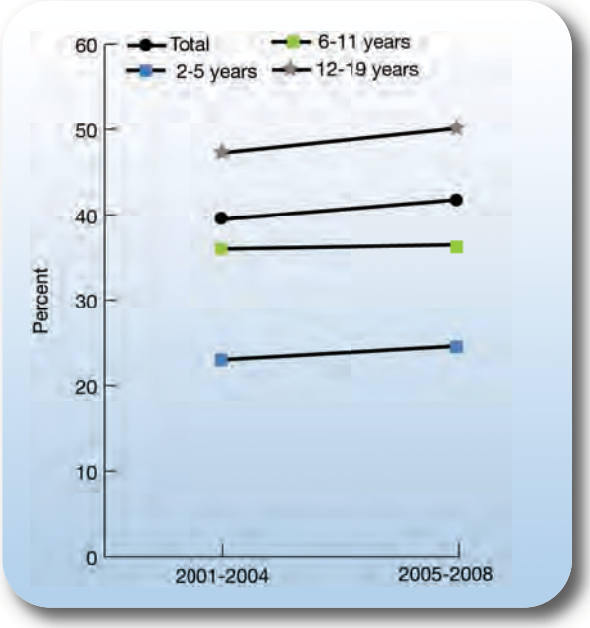
- Hispanic children tended to be less likely to receive vision checks than non-Hispanic White children.
- Poor, low-income, and middle-income children tended to be less likely to receive vision checks than high-income children.

Prevention: Weight Monitoring of Overweight Children

American children are getting heavier. Overweight children are identified using growth charts that show body mass index (BMI) for age. These growth charts are based on national data collected between 1963 and 1994. Children with BMI values at or above the 95th percentile are considered overweight. From 1976-1980 to 2003-2006, the proportion of children classified as overweight increased from 6.5% to 17% among children ages 6 to 11 and from 5% to 17.6% among adolescents ages 12 to 19.[36, 37]

Pediatricians are advised to monitor BMI and excessive weight gain in children to recognize and address cases of overweight and obesity.[38] When providers alert young patients and their parents about their overweight status, a new opportunity is created to encourage the development of healthy diet and exercise habits that may be carried into adulthood.[39]

Figure 2.20. People ages 2-19 who were overweight and who reported being told[xxi] by a health provider they were overweight, by age, 2001-2004 and 2005-2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 2001-2004 and 2005-2008.
Denominator: U.S. civilian noninstitutionalized population ages 2-19 who were overweight.
Note: Overweight 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 overweight.

[xxi] For children ages 2-15, a parent or guardian reported this information.

- The percentage of people ages 2-19 who were overweight based on height and weight measurement and who reported being told by a health provider they were overweight did not change significantly between 2001-2004 and 2005-2008 overall or for any age group (Figure 2.20).
- In both time periods, overweight children ages 2-5 and 6-11 were less likely than overweight youths ages 12-19 to report being told by a health provider that they were overweight.

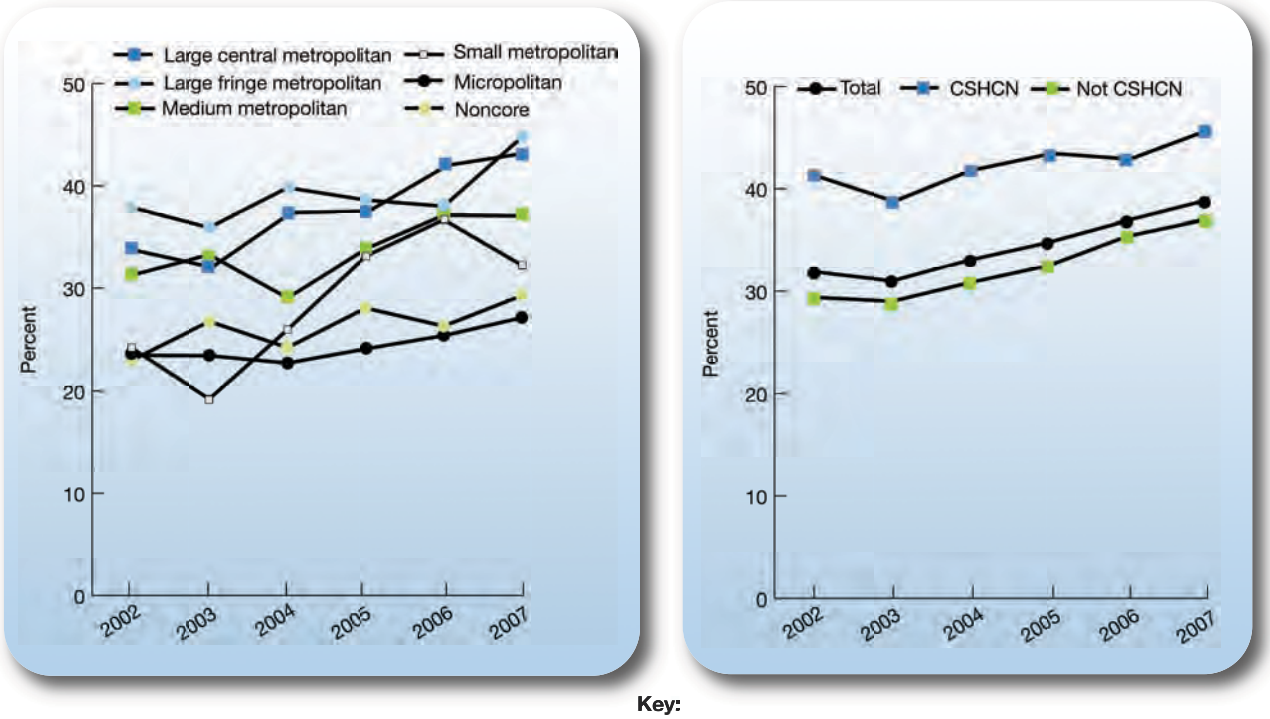
Also, in the NHDR:

- Non-Hispanic Blacks experienced an improvement between the two time periods. In 2005-2008, they were more likely than Non-Hispanic Whites to report being told by a health provider that they were overweight.

Prevention: Counseling for Children About Physical Activity

Childhood represents a period when healthy lifelong habits are often formed. Physicians can play an important role in encouraging healthy behaviors, such as regular exercise, in children.

Figure 2.21. Children ages 2-17 for whom a health provider ever gave advice about the amount and kind of exercise, sports, or physically active hobbies they should have, by geographic location and special health care needs, 2002-2007



Key:

CSHCN = children with special health care needs.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: U.S. civilian noninstitutionalized population ages 2-17.

- From 2002 to 2007, the percentage of children for whom a health provider ever gave advice about the amount and kind of exercise, sports, or physically active hobbies they should have increased from 31.9% to 38.8% (Figure 2.21), about 4% per year.

- Significant improvements were observed among children in large central metropolitan, large fringe metropolitan, and small metropolitan areas and among children without special health care needs.
- In all years, children in micropolitan and noncore areas were less likely than children in large fringe metropolitan areas to receive advice about exercise.
- In all years, children with special health care needs were more likely than children without such needs to receive advice about exercise.

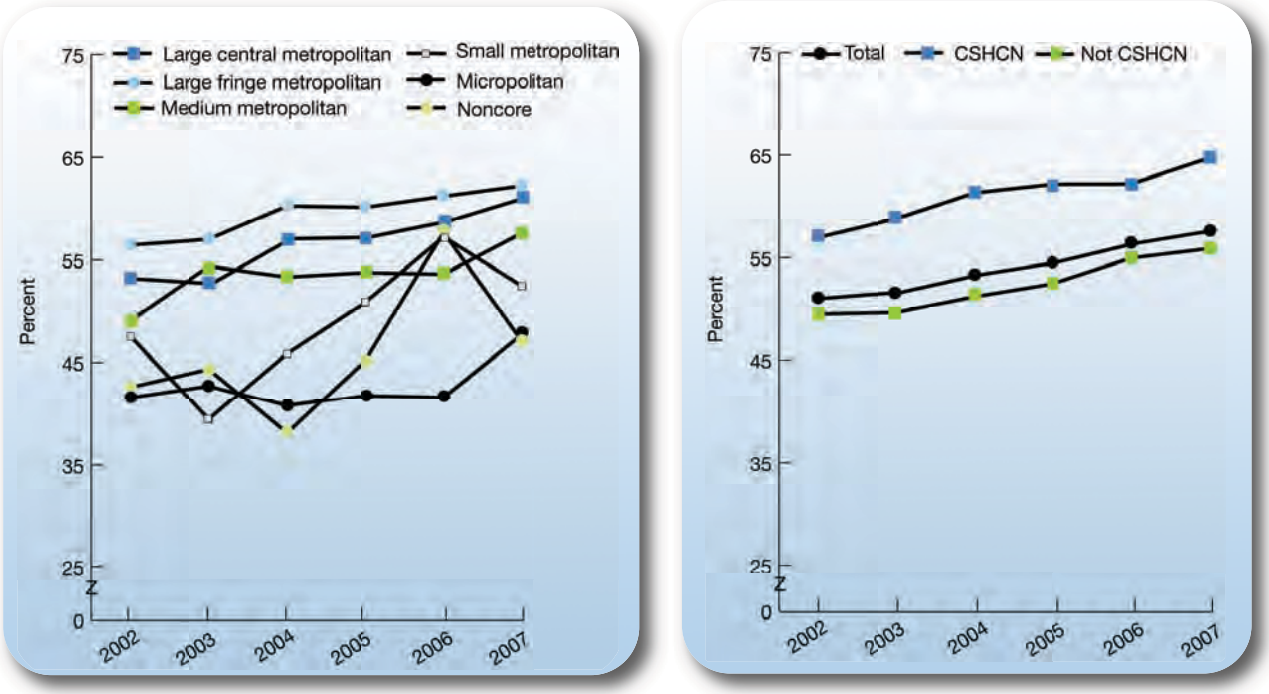
Also, in the NHDR:

- In all years, poor, low-income, and middle-income children were less likely than high-income children and uninsured children were less likely than privately insured children to receive advice about exercise.

Prevention: Counseling for Children About Healthy Eating

Physicians play an important role in encouraging children's healthy eating. Overweight and obesity during childhood often persist into adulthood, with consequences that are numerous and costly. Unfortunately, overweight and obesity among children under age 18 have risen dramatically in the past two decades.[38] The American Academy of Pediatrics recommends that pediatricians discuss and promote healthy diets with all children and their parents or guardians, both those who are overweight and those who are not.[38]

Figure 2.22. Children ages 2-17 for whom a health provider ever gave advice about healthy eating, by geographic location and special health care needs, 2002-2007



Key: CSHCN = children with special health care needs.
Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: U.S. civilian noninstitutionalized population ages 2-17.

Effectiveness of Care

- From 2002 to 2007, the percentage of children for whom a health provider ever gave advice about healthy eating increased from 51.0% to 57.6% (Figure 2.22), about 3% per year.
- Significant improvements were observed among children in all metropolitan areas and among children without special health care needs.
- In almost all years, children in small metropolitan areas, micropolitan areas, and noncore areas were less likely than children in large fringe metropolitan areas to receive advice about healthy eating.
- Children with special health care needs were more likely than children without such needs to receive advice about healthy eating.

Also, in the NHDR:

- In all years, poor, low-income, and middle-income children were less likely than high-income children to receive advice about healthy eating.
- Uninsured children were less likely than privately insured children to receive advice about healthy eating.

Mental Health and Substance Abuse

Importance

Mortality

Number of deaths due to suicide (2007) ..... 34,598[1]

Rank among causes of death in the United States—suicide (2007) ..... 11th[1]

Alcohol-impaired driving fatalities (2007) ..... 12,998[40]

Prevalence

People age 12 and over with alcohol and/or illicit drug dependence or abuse in the past year (2008) ..... 22.2 million (9.0%)[41]

Adults age 18 and over with serious psychological distress in the past 30 days (2008) ..... 10.2 million (4.5%)[41]

Youths ages 12-17 with a major depressive episode during the past year (2008) ..... 2.0 million (8.3%)[41]

Adults age 18 and over with a major depressive episode during the past year (2008) ..... 14.3 million (6.4%)[41]

Adults with at least one major depressive episode in their lifetime (2006) ..... 30.4 million (13.9%)[42]

Cost

National expenditures for treatment of mental health and substance abuse disorders (2003 est.) ..... $121 billion[43]

Cost-effectiveness of screening and brief counseling for problem drinking ..... $0-$14,000/QALY[5]

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 three core measures of mental health and substance abuse treatment:

- Receipt of treatment for depression.
- Suicide deaths.
- Receipt of needed treatment for illicit drug use or alcohol problem.

In addition, one supporting measure is discussed:

- Completion of substance abuse treatment.

Effectiveness of Care

According to data from the Healthcare Cost and Utilization Project, in 2007, 12.5% of emergency department visits (12 million visits) were related to mental health and substance abuse.[44] About 40% of these emergency department visits resulted in hospital admission (4.8 million visits). In 2006, approximately 1.4 million hospitalizations were specifically for mental health conditions[45] and 1 in 5 hospital stays included some mention of a mental health condition as either a principal or secondary diagnosis. Mood disorders were the most common principal diagnosis for all nonelderly people. For individuals age 65 and over, dementia and associated cognitive disorders were the most common cause of mental health hospitalizations.

Social and cultural factors may dramatically affect mental health. Culturally and linguistically appropriate services can decrease the prevalence, incidence, severity, and duration of certain mental disorders. However, many factors adversely affect the mental health of racial and ethnic groups, such as discrimination[xxii] and racism. Some factors also present significant barriers to treatment. These include cost of care, lack of sufficient insurance for mental health services, social stigma, fragmented organization of services,[46] and mistrust.

In addition, economic factors can have a significant effect on mental health. For example, poverty can be a risk factor for poor mental health and a result of poor mental health. Nevertheless, low-income individuals may be more likely to receive needed substance abuse treatment due to linkages in service delivery between substance abuse and public assistance services in many States.

In rural and remote areas, many people with mental illnesses have less adequate access to care, more limited availability of skilled care providers, lower family incomes, and greater societal stigma for seeking mental health treatment than their urban counterparts. In addition, rural Americans are less likely to have private health insurance benefits for mental health care. Lack of coverage often occurs because small employers and individual purchasers dominate the rural health insurance marketplace. Therefore, insurance policies are more likely to have limited or no mental health coverage.

For racial and ethnic populations in rural areas, these problems are compounded by the lack of culturally and linguistically competent providers. As of September 2009, the number of federally designated mental health professional shortage areas reached 3,291.[47]

Findings

Treatment: Receipt of Treatment for Depression

It has been estimated that about 1 out of 7 individuals in the United States will have a major depressive episode in their lifetime.[42] Treatment can be very effective in reducing symptoms and associated illnesses and returning individuals to a productive lifestyle.

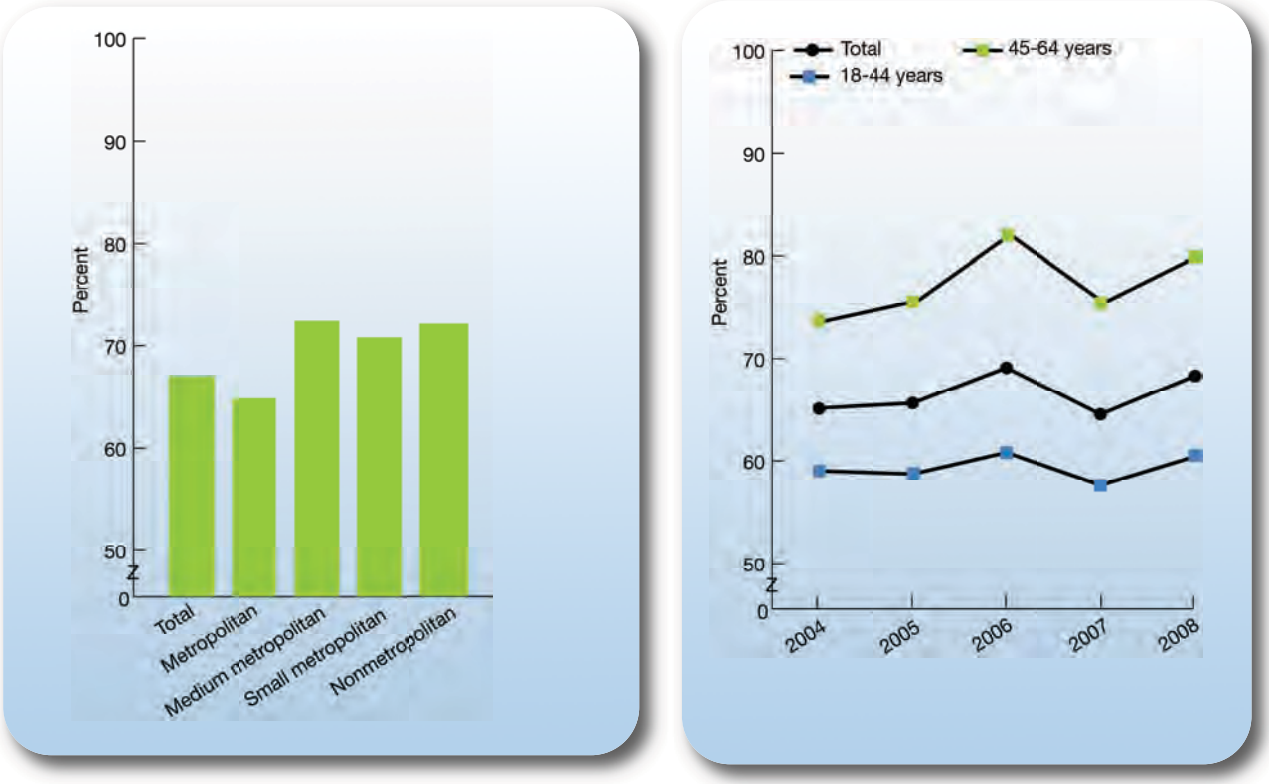
For example, the Sequenced Treatment Alternatives to Relieve Depression study, funded by the National Institute of Mental Health, was the largest clinical trial ever conducted to help determine the most effective treatment strategies for major depressive disorder. It involved both primary care and specialty care settings. Participants included people with complex health conditions, such as multiple concurrent medical and

[xxii] The Office for Civil Rights (OCR) (http://www.hhs.gov/ocr/) is the sole Department of Health and Human Services agency with the authority to enforce Title VI of the Civil Rights Act of 1964, 42 U.S.C. 2000d, which prohibits discrimination based on race, color, or national origin in programs and activities that receive Federal financial assistance, including most health care providers and human service agencies. Individuals and advocacy groups may file complaints with OCR to remedy such discrimination.

psychiatric conditions.[48] This study found that between 28% and 33% of participants achieved a symptom-free state after the first round of medication, and most of those that continued in the trial had to try multiple different treatment options, including psychotherapy, to receive symptom relief. Nearly 70% of those who remained did achieve remission after 12 months.[49, 50]

Strategies for treating depression in primary care settings such as the collaborative care model have been shown to generate positive net social benefits in cost-benefit analyses compared with usual care. This is true under a wide range of assumptions regarding the monetary value of a quality adjusted life year (QALY).[51-53] Recent demonstration efforts are also showing promising results for the effectiveness of implementing the collaborative care model in everyday practices.[54]

Figure 2.23. Adults with a major depressive episode in the past year who received treatment for depression in the past year, by geographic location, 2008, and by age, 2004-2008



Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2004-2008.
Denominator: Adults age 18 and over with a major depressive episode in the last 12 months.
Note: Total includes adults age 65 and over, but sample sizes are too small to allow separate estimates for this age group. 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.

- In 2008, 68.3% of adults under age 65 with a major depressive episode received treatment for depression (Figure 2.23). There was no statistically significant improvement in this measure compared with 2004.
- In all years, adults ages 18-44 were less likely to receive treatment for depression than those ages 45-64.
- In 2008, there were no statistically significant differences overall between metropolitan areas and nonmetropolitan areas. However, among metropolitan areas, residents of medium metropolitan areas with depression were more likely than residents of large metropolitan areas to receive treatment for depression in the past year (72.4% compared with 64.9%).

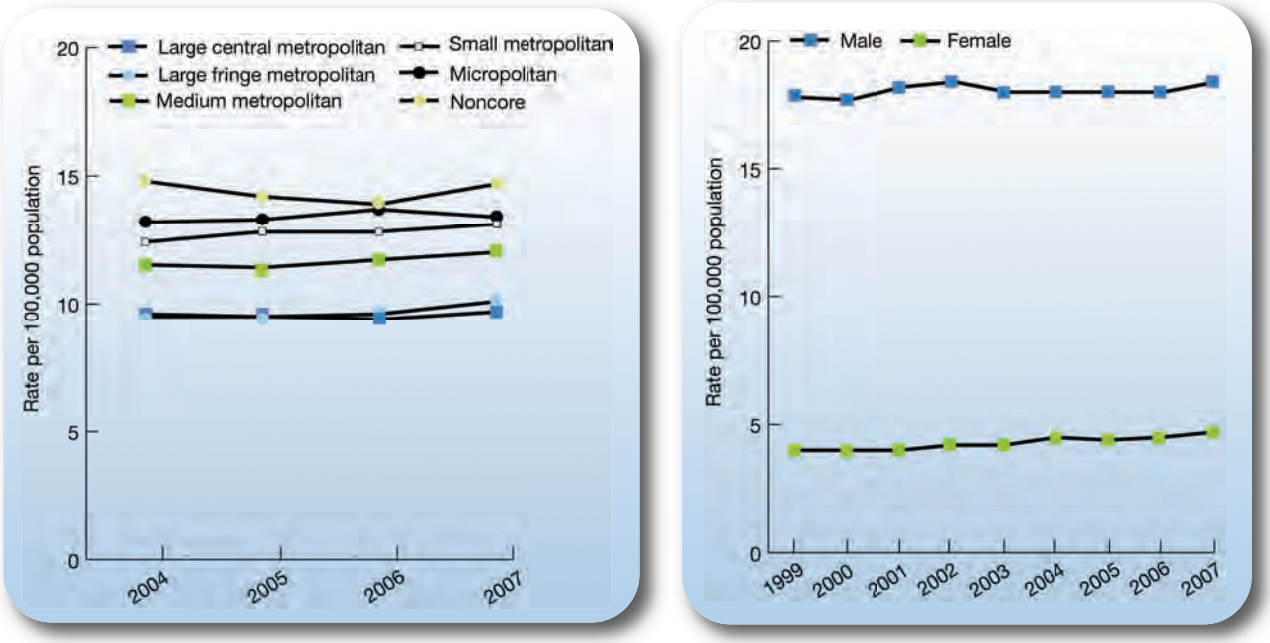
Also, in the NHDR:

- In 2008, Blacks and Hispanics were less likely to receive treatment for depression than Whites and non-Hispanic Whites.
- Females were more likely than males to receive treatment for depression.

Outcome: Suicides

More than 90% of patients who die by suicide have mental illnesses, such as depression, schizophrenia, or substance abuse.[55] 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.[56] Cognitive therapy has been shown to reduce suicide attempts by half during a year of followup.[57]

Figure 2.24. Suicide deaths per 100,000 population, by residence location, 2004-2007, and gender, 1999-2007



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System—Mortality, 1999-2007.
Denominator: Civilian noninstitutionalized population.
Note: Estimates are age adjusted to the 2000 standard population. Data for residence location were not available for years 1999-2003.

- Overall, from 1999 to 2007, the suicide rate increased from 10.5 per 100,000 to 11.3 per 100,000 population (data not shown).
- In 2007, noncore areas had the highest suicide rates (14.7 per 100,000) while large central metropolitan areas had the lowest suicide rates (9.7 per 100,000; Figure 2.24). Large central metropolitan areas had lower suicide rates compared with large fringe metropolitan areas (9.7 per 100,000 compared with 10.1 per 100,000).
- From 1999 to 2007, males had suicide rates almost four times as high as females (in 2007, 18.4 per 100,000 compared with 4.7 per 100,000).

Also, in the NHDR:

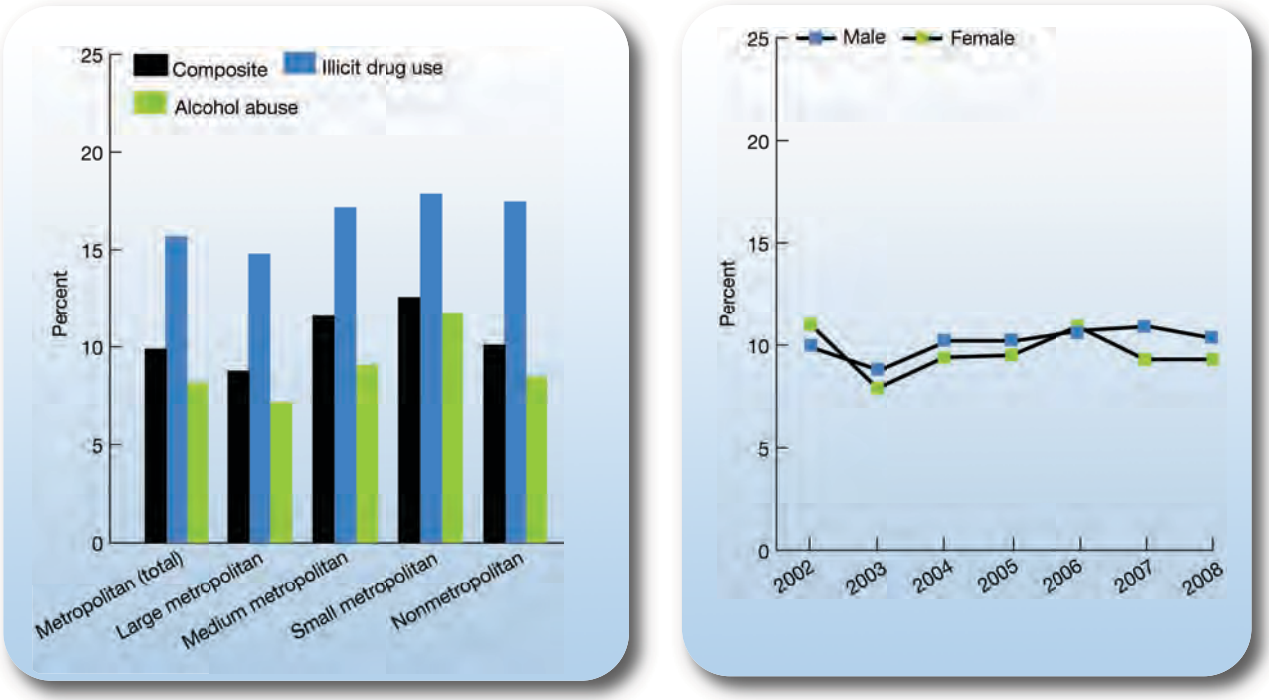
- Whites and non-Hispanic Whites had the highest suicide rates compared with other racial and ethnic groups.

Treatment: Receipt of Needed 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.[58] In addition, alcohol can cause birth defects, including fetal alcohol syndrome.[59, 60] Alcoholism increases the risk of death from car crashes and other injuries.[61] Treatment for illicit drug use or an alcohol problem at a specialty facility is an effective way to reduce the chances of future illicit drug use or alcohol problems.

[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).

Figure 2.25. 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, overall composite and two components, by geographic location, 2008, and composite by gender, 2002-2008



Source: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health, 2002-2008.
Denominator: Civilian noninstitutionalized population age 12 and over who needed treatment for any illicit drug use or alcohol problem.
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. Data for county type categories have changed for 2008 and are not comparable to historical data previously used in the reports.

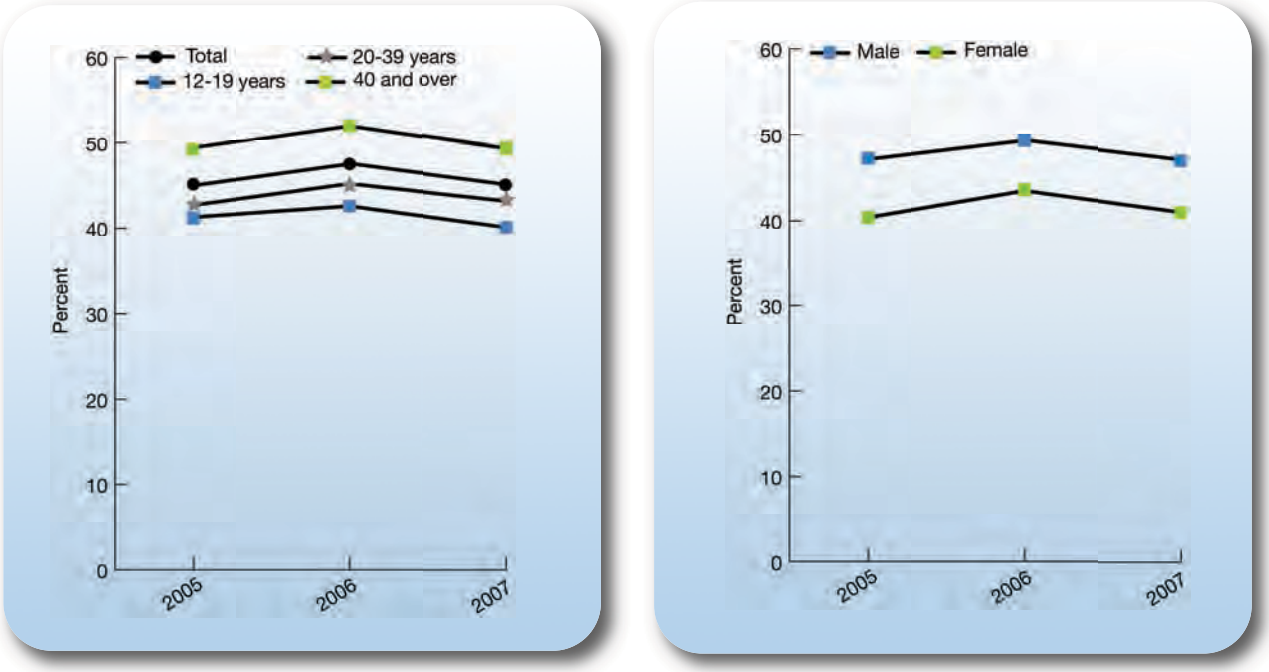
- There were no significant differences by location in the percentage of people age 12 and over who needed treatment for illicit drug use or an alcohol problem and received it at a specialty facility in the last 12 months (Figure 2.25).
- From 2002 to 2008, there was no significant change for males and females who needed and received treatment for illicit drug use or alcohol treatment. There was no statistically significant difference between males and females.

Also, in the NHDR:

- In 2008, there were no statistically significant differences between racial or ethnic groups in the percentage of people age 12 and over who needed treatment for illicit drug use or an alcohol problem and received it at a specialty facility in the last 12 months.
- In 2008, poor and near-poor people who needed treatment were more likely than high-income people who needed treatment to have received treatment for illicit drug use or an alcohol problem.
- Adults with less than a high school education who needed treatment were more likely than adults with at least some college who needed treatment to have received treatment.

Treatment: Completion of Substance Abuse Treatment

Figure 2.26. People age 12 and over treated for substance abuse who completed treatment course, by age and gender, 2005-2007



Source: Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set, Discharge Data Set, 2005-2007.
Denominator: Discharges age 12 and over from publicly funded substance abuse treatment facilities.

- From 2005 to 2007, the overall percentage of people age 12 and over treated for substance abuse who completed the treatment course did not change significantly (Figure 2.26). In 2007, people ages 12-19 were less likely to complete substance abuse treatment compared with those age 20 and over.
- Females who were treated for substance abuse were significantly less likely than males to complete treatment (41.0% compared with 47.1%).

Also, in the NHDR:

- People with less than a college education were significantly less likely than people with a college education to complete treatment.

Respiratory Diseases

Importance

Mortality

Number of deaths due to chronic lower respiratory diseases[xxiv] (2007).....127,924[1]

Number of deaths, influenza and pneumonia combined (2007).....52,717[1]

Cause of death rank, chronic lower respiratory diseases (2007).....4th[1]

Cause of death rank for influenza and pneumonia combined (2007).....8th[1]

Prevalence

Adults age 18 and over with current asthma (2009) .....17.5 million[62]

Children under age 18 with current asthma (2009).....7.1 million[63]

People under age 18 with an asthma attack in the last 12 months (2007).....3.8 million[64]

Annual number of cases of the common cold .....>1 billion[65]

Number of discharges attributable to pneumonia (2007) .....1.2 million[66]

Incidence

Annual number of pneumonia cases due to *Streptococcus pneumoniae* .....500,000[67]

New cases of tuberculosis (2008).....12,898[68]

Cost

Total cost of lung diseases (2009 est.).....$177.4 billion[69]

Direct medical costs of lung diseases (2009 est.) .....$113.6 billion[69]

Total cost of upper respiratory infections (annual est.) .....$40 billion[70]

Total cost of asthma (2007 est.).....$19.7 billion[71]

Direct medical costs of asthma (2007 est.) .....$14.7 billion[71]

Cost-effectiveness of influenza immunization .....$0-$14,000/QALY[5]

[xxiv] Chronic lower respiratory diseases include emphysema and chronic bronchitis.

Effectiveness of Care

Measures

The NHQR tracks several quality measures for prevention and treatment of this broad category of illnesses that includes influenza, pneumonia, asthma, upper respiratory infection, and tuberculosis. The four core report measures highlighted in this section are:

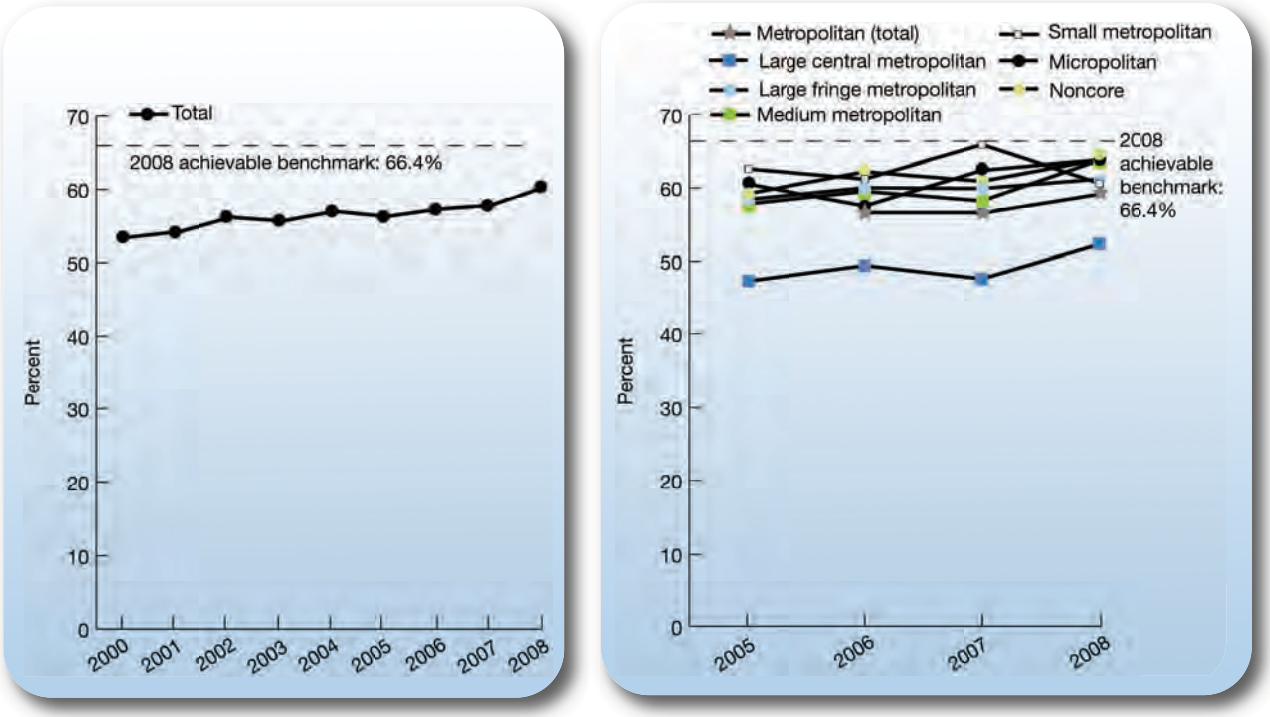
- Pneumococcal vaccination.
- Receipt of recommended care for pneumonia.
- Completion of tuberculosis therapy.
- Daily asthma medication.

Findings

Prevention: Pneumococcal Vaccination

Vaccination is a cost-effective strategy for reducing illness and death associated with pneumonia and influenza.[72, 73]

Figure 2.27. Adults age 65 and over who reported having ever received pneumococcal vaccination, 2000-2008, and by residence location, 2005-2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey, 2000-2008.
Denominator: Civilian noninstitutionalized population age 65 and over.
Note: Age adjusted to the 2000 U.S. standard population. Data for residence location were not available from 2000-2004. Benchmark is derived from the Behavioral Risk Factor Surveillance System (BRFSS); see Introduction and Methods for details.

- Overall, the percentage of adults age 65 and over who reported having ever received pneumococcal vaccination increased from 53.4% in 2000 to 60.3% in 2008 (Figure 2.27).
- In 2008, among residents of metropolitan areas, adults age 65 and over in large central metropolitan areas (52.3%) were least likely to report having received pneumococcal vaccination while adults age 65 and over in medium metropolitan areas (63.8%) were most likely to report having received pneumococcal vaccination. There were no statistically significant differences between nonmetropolitan areas.
- The 2008 top 5 State achievable benchmark was 66.4%.[xxv] At the current 1.2% annual rate of increase, this benchmark could be attained overall in about 9 years.

Also, in the NHDR:

- In 2008, the percentage of adults age 65 and over who reported having ever received pneumococcal vaccination was significantly lower for Blacks and Asians than for Whites; for Hispanics compared with non-Hispanic Whites; and for poor people compared with high-income people.
- Whites could attain the achievable benchmark in about 6 years, while Blacks and Asians would not attain the benchmark for 14 years and 25 years, respectively. Hispanics would not attain the benchmark for about 54 years.

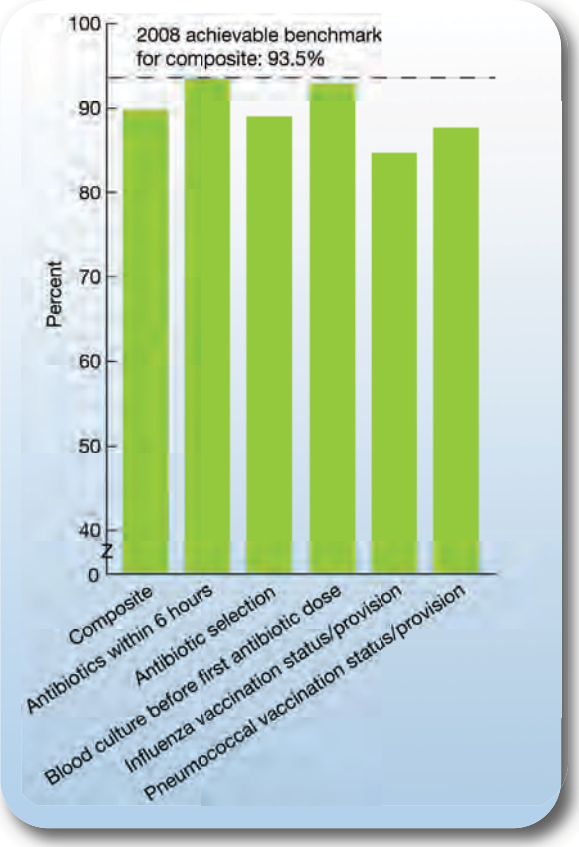
Treatment: Receipt of Recommended Care for Pneumonia

Older adults are at high risk for pneumonia. The highest rate of hospitalizations for pneumonia occurs in the population age 65 and over—220.4 per 10,000 population for this group in 2004, compared with 45.5 per 10,000 for the overall population.[74]

CMS tracks a set of measures for quality of pneumonia care for hospitalized patients from the CMS Quality Improvement Organization Program. This set of measures has been adopted by the Hospital Quality Alliance. Recommended care for patients with pneumonia includes 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/vaccine provision, and (5) pneumococcal vaccination status assessment/vaccine provision. The NHQR tracks receipt of each process measure as well as an overall composite.

[xxv] The top 5 States that contributed to the achievable benchmark are Colorado, Delaware, Maine, New Hampshire, and Oklahoma.

Figure 2.28. Hospital patients with pneumonia who received recommended hospital care: Overall composite and five components, 2008



Source: Centers for Medicare & Medicaid Services, Medicare Quality Improvement Organization Program, 2008.
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.

- Among the five components of the composite measure, patients were most likely to receive antibiotics within 6 hours (93.5%) and least likely to have their influenza vaccination status assessed (84.7%) (Figure 2.28).
- In 2008, the top 5 State achievable benchmark was 93.5%.[xxvi] The available data were not sufficient to calculate time to benchmark.

Also, in the NHDR:

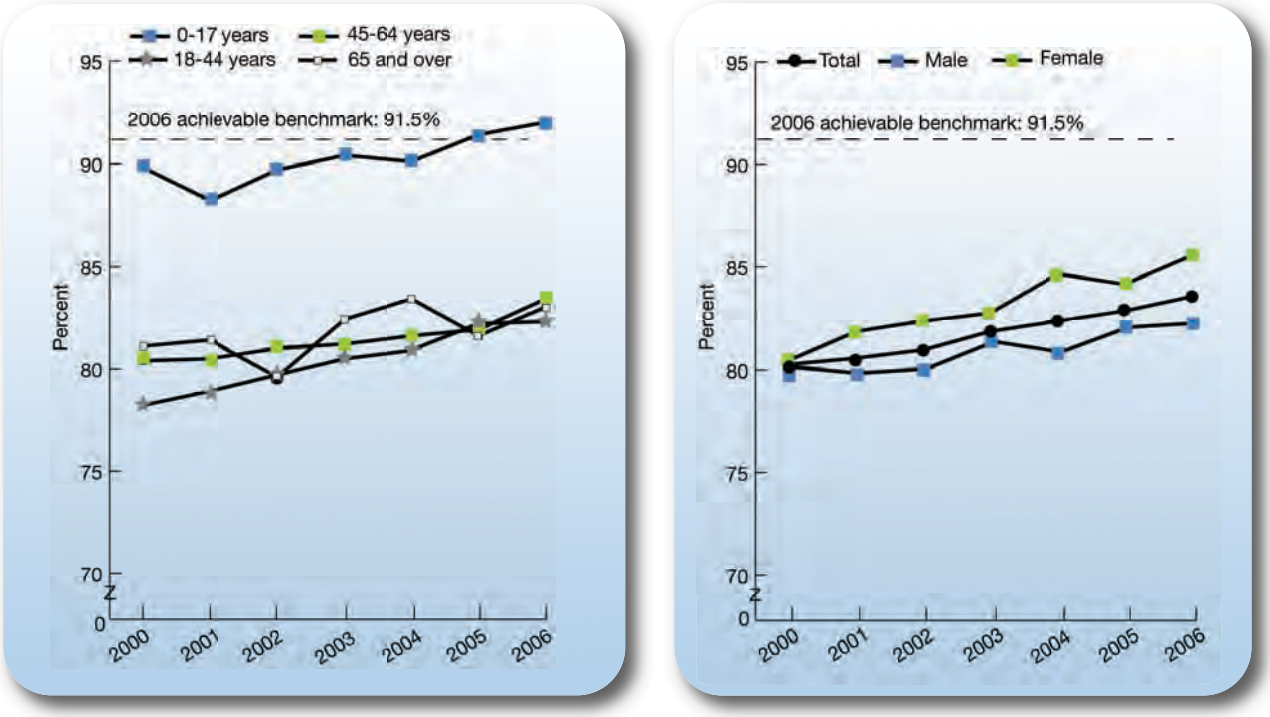
- In 2008, the percentage of patients with pneumonia who received recommended hospital care was significantly lower for Blacks, Asians, AI/ANs, and Hispanics compared with Whites.

Outcome: Completion of Tuberculosis Therapy

To be effective for individuals as well as the public, tuberculosis therapy must be taken to its completion. Failure to complete tuberculosis therapy puts patients at increased risk for treatment failure and for spreading the disease to others. Even worse, it may result in the development of drug-resistant strains of the disease.[75]

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

Figure 2.29. Patients with tuberculosis who completed a curative course of treatment within 1 year of initiation of treatment, by age, and gender, 2000-2006.



Source: Centers for Disease Control and Prevention, National Tuberculosis Surveillance System, 1999-2006.
Denominator: U.S. civilian noninstitutionalized population treated for tuberculosis.

- The percentage of adults ages 18-44 who completed tuberculosis therapy within 1 year increased from 78.2% in 2000 to 82.3% in 2006 (Figure 2.29).
- In all years, children ages 0-17 with tuberculosis were more likely than adults age 18 and over to complete a curative course of treatment within 1 year of initiation of treatment.
- The percentage of adults who completed tuberculosis therapy within 1 year improved for both males and females from 1999 to 2006. However, in 2006, females were more likely to complete treatment than males (85.5% compared with 82.2%).
- The 2006 top 5 State achievable benchmark was 91.5%.[xxvii] At the current 0.7% annual rate of increase, this benchmark could be attained overall in about 14 years.

Also, in the NHDR:

- In the general population, there were no significant differences by race but Hispanics were less likely than non-Hispanic Whites to complete tuberculosis therapy within 1 year.

[xxvii] The top 5 States contributing to the achievable benchmark are Alaska (tied), Indiana (tied), Kansas, Maryland, and Oregon.

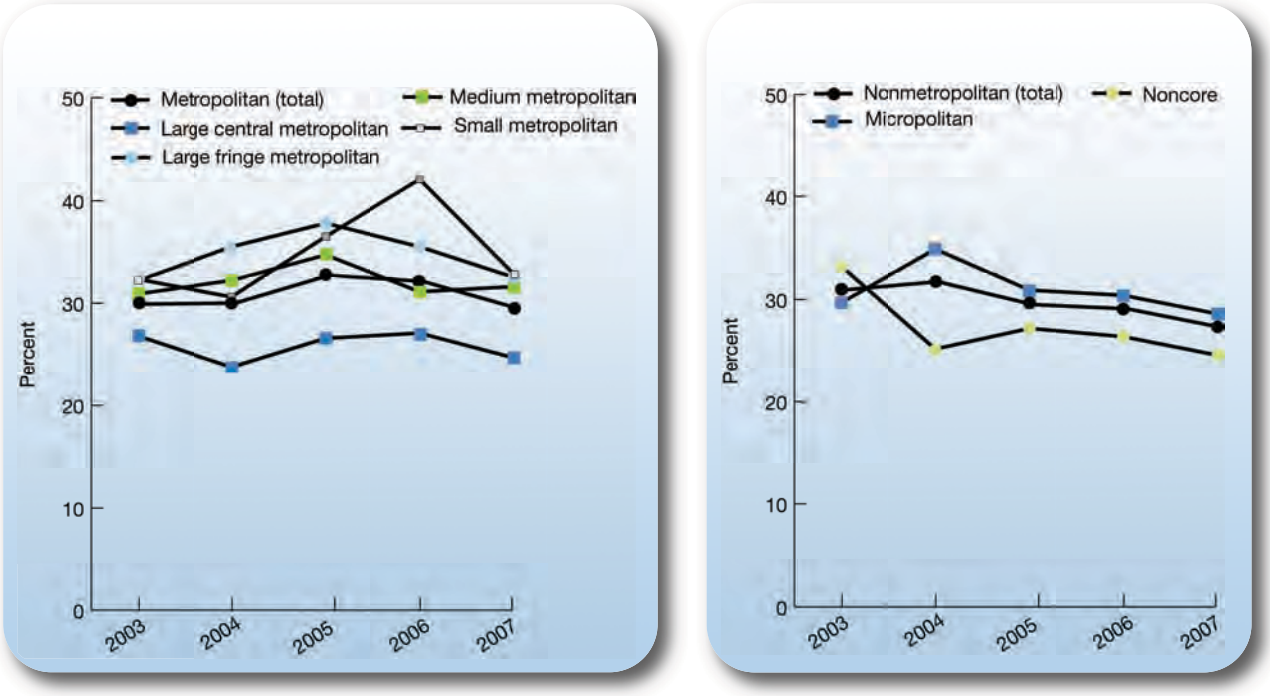
- Among the foreign-born population, Blacks and Asians were more likely than foreign-born Whites to complete tuberculosis therapy within 1 year.
- Among the foreign born population, Whites would not attain the achievable benchmark for about 31 years, while Blacks and Asians would not attain the benchmark for 13 years and 19 years, respectively. Hispanics would not achieve the benchmark for 28 years.

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.[76] 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.[77]

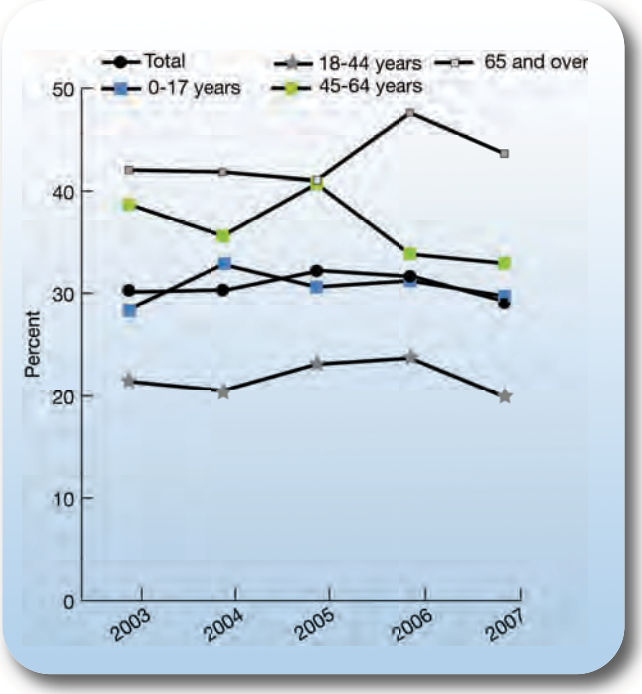
Daily long-term controller medication is necessary to prevent exacerbations and chronic symptoms for all patients with persistent asthma. Appropriate controller medications for people with mild persistent asthma[78, xxviii] include inhaled corticosteroids, cromolyn, nedocromil, theophylline, and leukotriene modifiers.[79]

Figure 2.30. People with current asthma who are now taking preventive medicine daily or almost daily (either oral or inhaler), by geographic location and age, 2003-2007



xxviii "Mild persistent asthma" refers to cases in which people experience asthma symptoms more than 2 days per week and more than 2 nights per month, as well as other clinical indicators.

Effectiveness of Care



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2003-2007.
Denominator: Civilian noninstitutionalized population with asthma, as defined below.
Note: People with current asthma report that they still have asthma or had an asthma attack in the last 12 months.

- Of those with current asthma in 2007, 29.1% reported taking preventive medicine daily or almost daily (Figure 2.30).
- In 2007, people living in large central metropolitan areas were less likely than people living in large fringe metropolitan areas to take daily preventive medication (24.7% compared with 32.5%).
- There were no statistically significant differences among nonmetropolitan areas. Nor were there any statistically significant differences between metropolitan areas (total) and nonmetropolitan areas (total).

Also, in the NHDR:

- In 2007, poor people with current asthma were less likely than high-income people to take daily preventive medicine for asthma.
- In 2007, there were no statistically significant differences between people who spoke English at home and people who spoke another language at home.

Lifestyle Modification

Importance

Mortality

Number of deaths per year attributable to smoking (2000-2004) ----------443,000[80]

Prevalence

Number of adult current cigarette smokers (2007) ----------46.6 million[81]

Number of obese adults (2005-2006) ----------≥72 million[82]

Number of adults with no leisure-time physical activity (2007) ----------84.8 million[81]

Cost

Total cost of smoking (2000-2004 est.)----------$193 billion[80]

Total health care cost related to obesity (2008 est.) ----------$147 billion[83]

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.[84] A recent study examined the effects on incidence of coronary heart disease, 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%.[85] Unfortunately, healthy lifestyle practices have declined over the past two decades.[85]

Helping patients choose and maintain healthy lifestyles is a critical role of health care. The NHQR tracks several quality measures for modifying unhealthy lifestyles, including the following three core report measures:

- Counseling smokers to quit smoking.
- Counseling obese adults about exercise.
- Counseling obese adults about healthy eating.

In addition, one supporting measure is presented:

- Counseling obese adults about overweight.

Effectiveness of Care

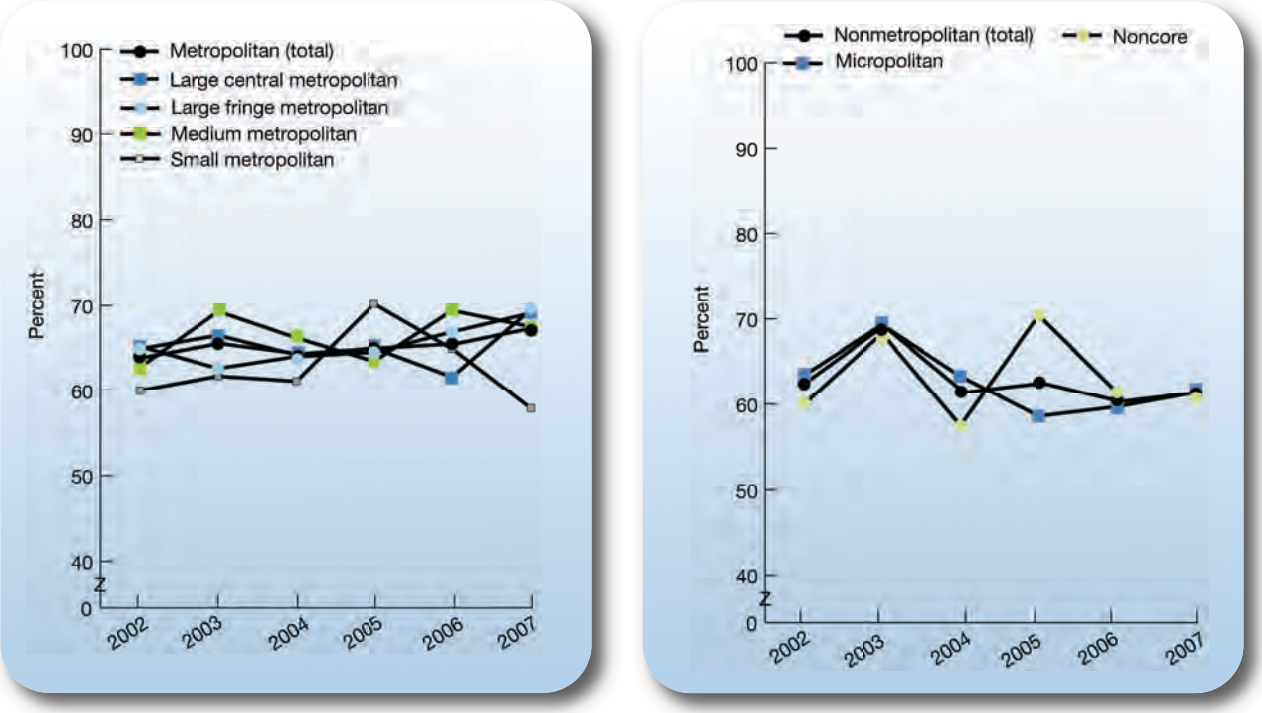
Findings

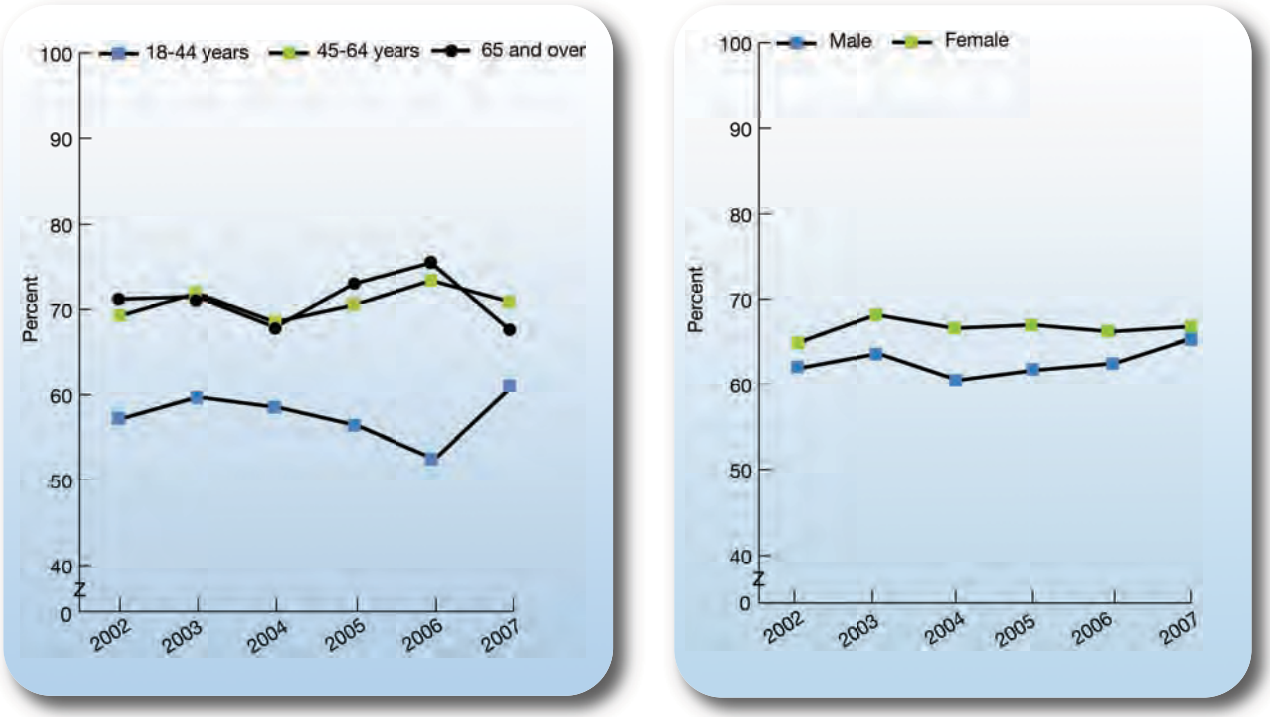
Prevention: Counseling Smokers To Quit Smoking

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.86 Heart disease is the leading cause of death in the United States for both men and women,87 with approximately 135,000 deaths due to smoking.[88] Cigarette smoking increases the risk of dying from coronary heart disease (CHD) two- to threefold.[88]

Quitting smoking has immediate and long-term health benefits. The risk of developing CHD attributed to smoking can be decreased by 50% after 1 year of cessation.[89] Smoking is a modifiable risk factor, and health care providers can help encourage patients to change their behavior and quit smoking.

Figure 2.31. Adult current smokers with a checkup in the last 12 months who received advice to quit smoking, by geographic, age, and gender, 2002-2007





Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: Civilian noninstitutionalized adult current smokers who had a checkup in the last 12 months.
Note: Data for 2007 for noncore residents did not meet criteria for statistical reliability.

- In 2007, only 66.2% of current adult smokers overall who had a checkup in the last 12 months were advised to quit smoking (data not shown).
- There were no statistically significant differences between adult current smokers living in metropolitan areas and those living in nonmetropolitan areas in the percentage with a checkup in the last 12 months who received advice to quit smoking (Figure 2.31). Among metropolitan areas, residents of small metropolitan areas who were current smokers were least likely to receive advice to quit smoking (57.9%).
- From 2002 to 2007, female current adult smokers continued to be more likely than males to receive advice to quit smoking.

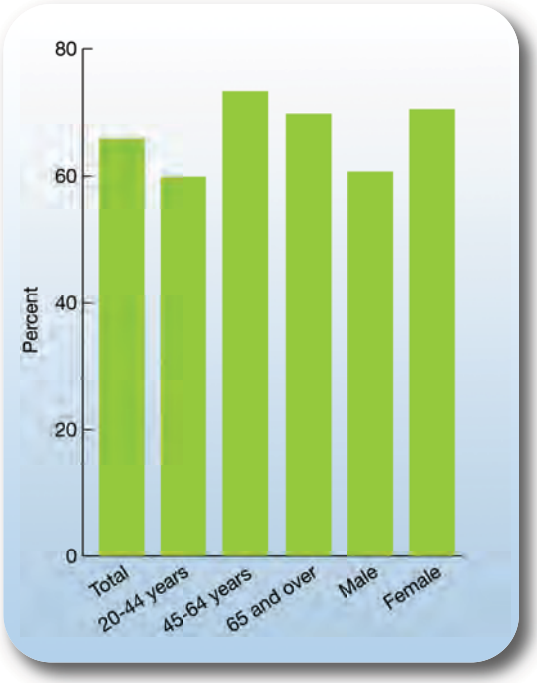
Also, in the NHDR:

- There was improvement for poor patients from 2002 to 2007 (from 57.9% to 67.9%). However, in 2007 near-poor current adult smokers were significantly less likely than high-income current adult smokers to receive advice to quit smoking.

Prevention: Counseling Obese Adults About Overweight

More than 34% of adults age 20 and over in the United States are obese (defined as having a BMI of 30 or higher),[82] putting them at increased risk for many chronic, often deadly conditions, such as hypertension, cancer, diabetes, and CHD.[90] Although physician guidelines recommend that health care providers screen all adult patients for obesity,[91] obesity remains underdiagnosed among U.S. adults.[92]

Figure 2.32. Adults with obesity who reported being told by a doctor they were overweight, by age and gender 2005-2008



Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey, 2005-2008.
Denominator: Civilian noninstitutionalized obese adults age 20 and over.
Note: Estimates are age adjusted to the 2000 standard population for total and gender using three age groups: 20-44, 45-64, and 65 and over.

- Overall in 2005-2008, 65.9% of obese adults age 20 and over reported being told by a doctor or health professional that they were overweight (Figure 2.32).
- Obese adults ages 45-64 and age 65 and over were more likely than obese adults ages 20-44 to report being told by a doctor that they were overweight (73.4% and 69.9%, respectively, compared with 59.9%).
- Female obese adults age 20 and over were more likely than males to report being told by a doctor that they were overweight (70.6% compared with 60.7%).

Also, in the NHDR:

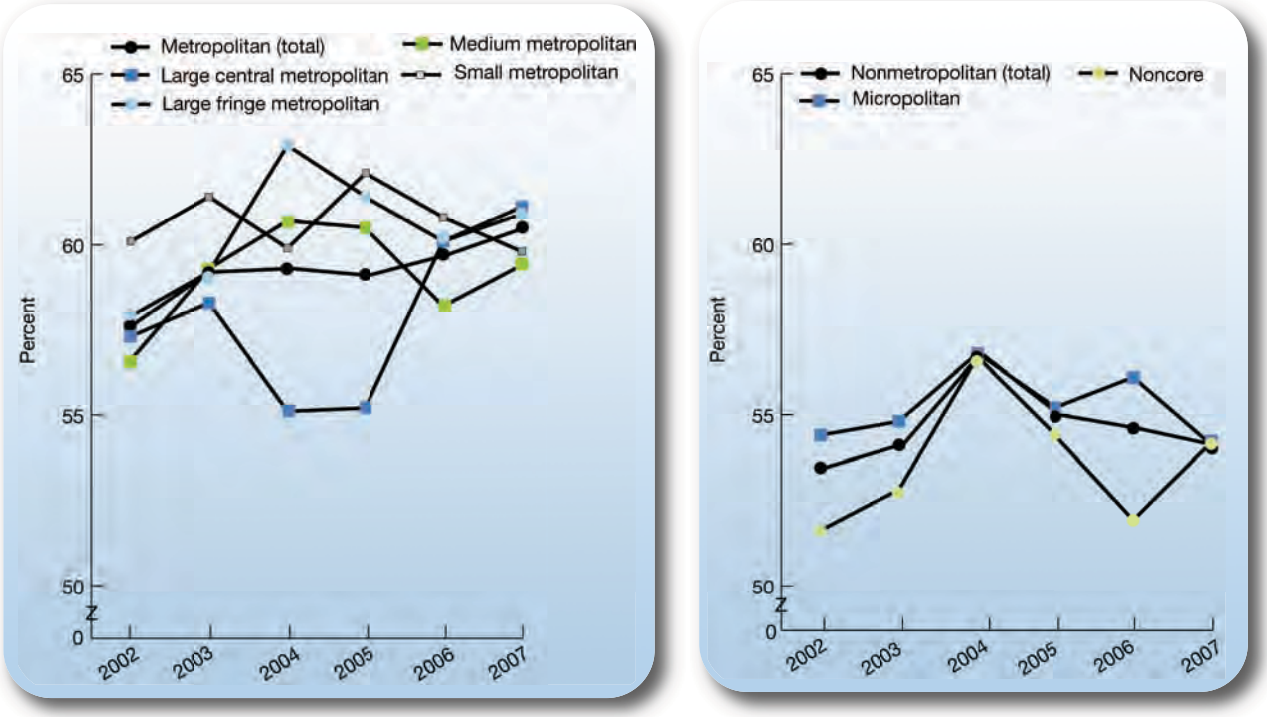
- Black and Mexican-American obese adults were more likely than non-Hispanic White obese adults to report being told by a doctor that they were overweight.
- Poor, near-poor, and middle-income obese adults were less likely than high-income obese adults to report being told by a doctor they were overweight.
- Obese adults with less than a high school education and those with a high school education were less likely than obese adults with at least some college education to report being told by a doctor they were overweight.

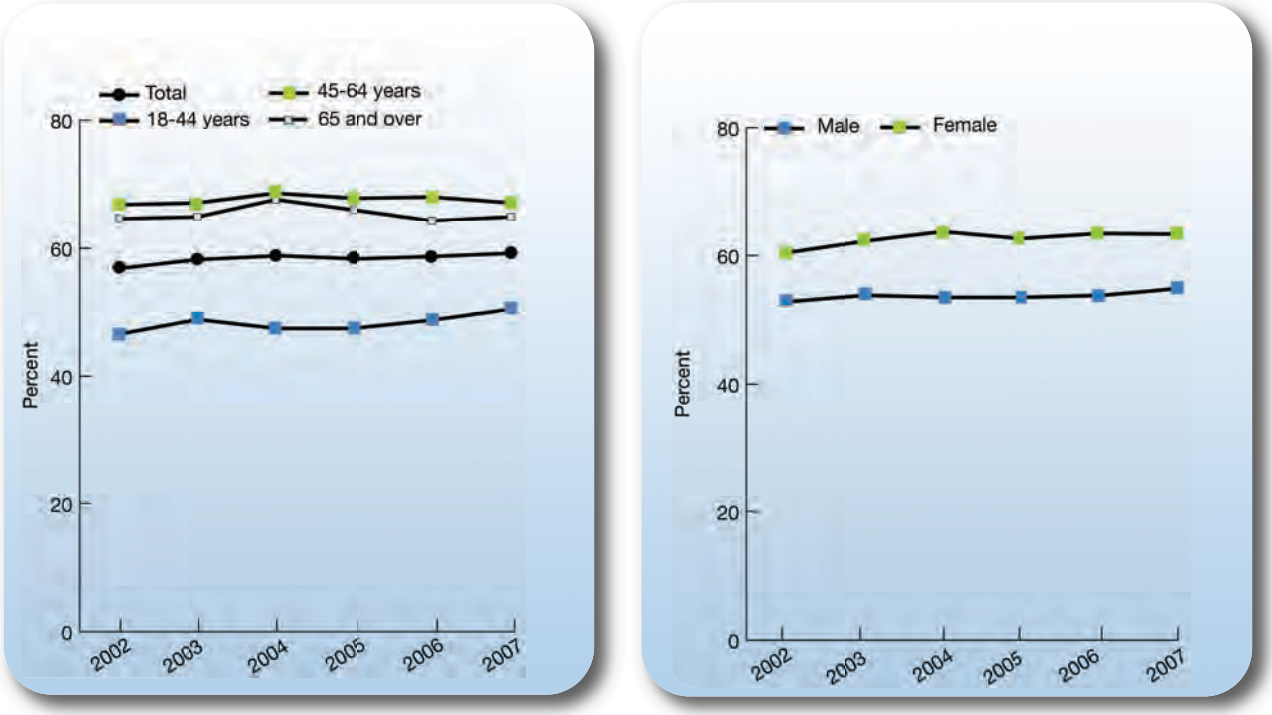
Prevention: Counseling Obese Adults About Exercise and Diet

Counseling Obese Adults About Exercise

Physician-based exercise and diet counseling is an important component of effective weight loss interventions,[91] and it has been shown to produce increased levels of physical activity among sedentary patients.[93] 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.

Figure 2.33. Adults with obesity who ever received advice from a health provider to exercise more, by residence location, age, and gender, 2002-2007





Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: Civilian noninstitutionalized adults age 18 and over with obesity.
Note: Obesity is defined as a body mass index of 30 or higher.

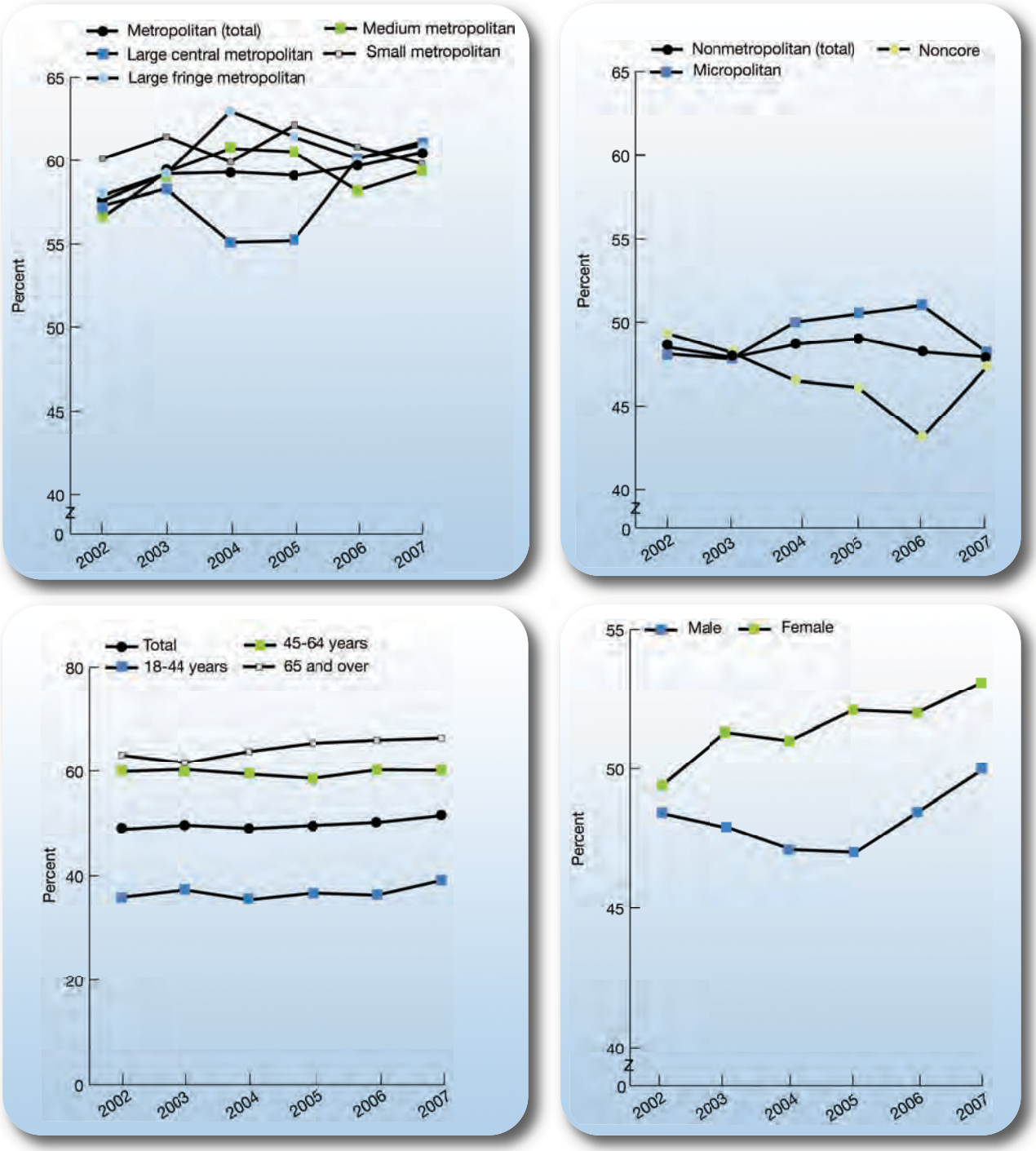
- Overall, in 2007, 59.2% of adults with obesity had ever received advice from a health provider to exercise more (Figure 2.33).
- In 2007, adults with obesity who resided in nonmetropolitan areas were less likely to receive advice to exercise than those who resided in metropolitan areas (54.1% compared with 60.5%).
- In 2007, adults with obesity ages 18-44 were least likely to ever receive advice to exercise more.
- In 2007, female adults with obesity were more likely than males to ever receive advice to exercise more (63.3% compared with 54.9%).

Also, in the NHDR:

- From 2002 to 2007, the percentage of Hispanic adults with obesity who ever received advice to exercise more increased, but Hispanics were less likely than non-Hispanic Whites to ever receive advice to exercise more.
- In 2007, the percentage of obese adults who had ever received advice to exercise more was lower for poor people, low-income people, and middle-income people than for high-income people.
- In 2007, the percentage of obese adults who had ever received advice to exercise more was lower for people with less than a high school education and people with a high school education than for people with at least some college.
- In 2007, adults with obesity who spoke a language other than English at home were less likely to ever receive advice from a health provider about exercise than adults with obesity who spoke English at home.

Counseling Obese Adults About Healthy Eating

Figure 2.34. Adults with obesity who ever received advice from a health provider about eating fewer high-fat or high-cholesterol foods, by residence location, age, and gender, 2002-2007



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: Obesity is defined as a body mass index of 30 or higher.

Effectiveness of Care

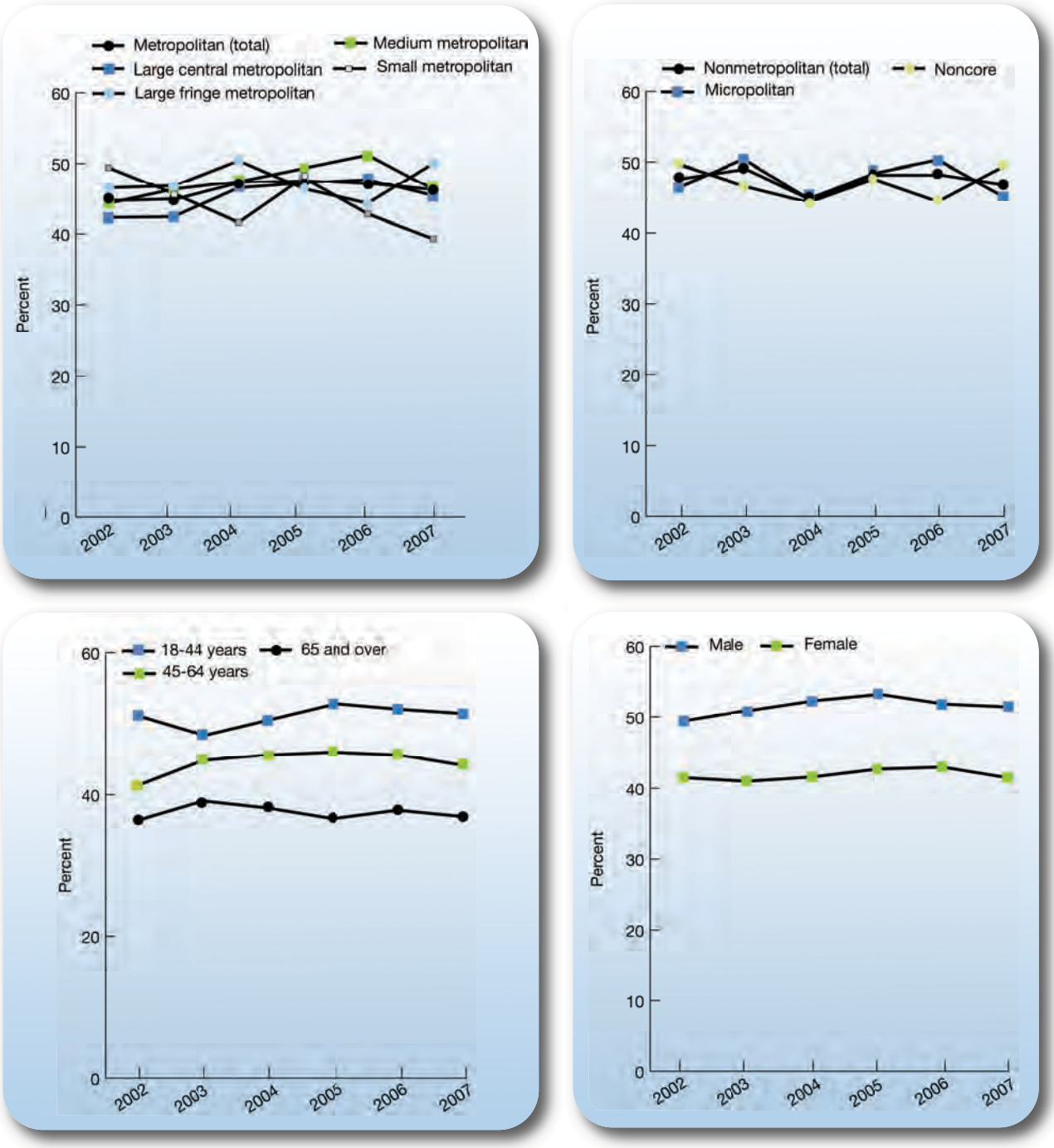
- Overall, in 2007, about 51.6% of adults with obesity received advice from a health provider about healthy eating (Figure 2.34). This improved from 2002 when 48.9% said they received this advice.
- In 2007, the percentage of adults with obesity who received advice from a health provider about healthy eating was lower for people who lived in nonmetropolitan areas than for people who lived in metropolitan areas (47.9% compared with 60.5%). There were no significant differences within metropolitan areas or nonmetropolitan areas.
- Adults with obesity ages 18-44 were least likely to receive advice about healthy eating.
- From 2002 to 2007, the percentage of adults with obesity who received advice about healthy eating improved for females. In 2007, there was no significant difference between males and females.

Also, in the NHDR:

- From 2002 to 2007, the percentage of Hispanic adults with obesity who received advice from a health provider about healthy eating decreased, and Hispanics were less likely to receive this advice than non-Hispanic Whites.
- In 2007, the percentage of obese adults who received advice about eating fewer high-fat or high-cholesterol foods was significantly lower for poor, near-poor, and middle-income adults than for high-income adults.
- In 2007, the percentage of obese adults who were given advice about eating fewer high-fat or high-cholesterol foods was significantly lower for people with less than a high school education and people with a high school education than for people with some college education.
- In 2007, the percentage of adults with obesity who spoke another language at home who received advice about healthy eating was lower than it was for adults with obesity who spoke English at home.

Outcome: Obese Adults Who Exercise

Figure 2.35. Adults with obesity who spend half an hour or more in moderate or vigorous physical activity at least 3 times a week, by geographic location, age, and gender, 2002-2007



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey, 2002-2007.
Denominator: Civilian noninstitutionalized population age 18 and over.
Note: Obesity is defined as a body mass index of 30 or higher.

- Overall, about 46.3% of adults with obesity spent half an hour or more in moderate or vigorous activity at least 3 times a week (data not shown).
- In 2007, there were no statistically significant differences between adults with obesity living in metropolitan areas and nonmetropolitan areas overall in the percentage who exercised (Figure 2.35). However, adults with obesity in large central metropolitan areas and small metropolitan areas were less likely to exercise at least 3 times a week compared with adults with obesity in large fringe metropolitan areas (45.4% and 39.3%, respectively, compared with 50.0%).
- From 2002 to 2007, adults age 65 and over with obesity were least likely to exercise at least 3 times a week; next lowest were adults ages 45-64 with obesity (for 2007, 36.9% and 44.1%, respectively).
- From 2002 to 2007, female adults with obesity were less likely than males to exercise at least 3 times a week (for 2007, 41.5% compared with 51.4%).

Also, in the NHDR:

- From 2002 to 2007, the percentage of adults with obesity who exercised at least 3 times a week improved for non-Hispanic Blacks and Hispanics.
- Poor adults, low-income adults, and adults with less than a high school education with obesity were less likely than high-income adults to exercise as least 3 times a week.
- Adults with obesity who spoke a language other than English at home were less likely than adults who spoke English at home to exercise at least 3 times a week.

Functional Status Preservation and Rehabilitation

Importance

Demographics

Noninstitutionalized adults needing help of another person with activities of daily living (ADLs)[xxix] (2009) ..... 4.4 million[94]

Noninstitutionalized adults age 75 and over needing help of another person with ADLs (2009) ..... 10%[94]

Noninstitutionalized adults needing help with instrumental activities of daily living (IADLs)[xxx] (2009) ..... 9.2 million[94]

Noninstitutionalized adults age 75 and over needing help with IADLs (2009) ..... 20%[94]

Nursing home residents needing help with ADLs (2004) ..... 1.5 million[95]

Costs

Medicare payments for outpatient physical therapy (2006 est.) ..... $3.1 billion[96]

Medicare payments for outpatient occupational therapy (2006 est.) ..... $747 million[96]

Medicare payments for outpatient speech-language pathology services (2006 est.) ..... $270 million[96]

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 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 tracks several measures related to functional status preservation and rehabilitation. Three core report measures are highlighted in this section:

- Osteoporosis screening among older women.
- Improvement in ambulation among home health care patients.
- Nursing home residents needing more help with daily activities.

[xxix] ADLs consist of basic self-care tasks, such as bathing, dressing, eating, transferring, using the toilet, and walking.

[xxx] 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.

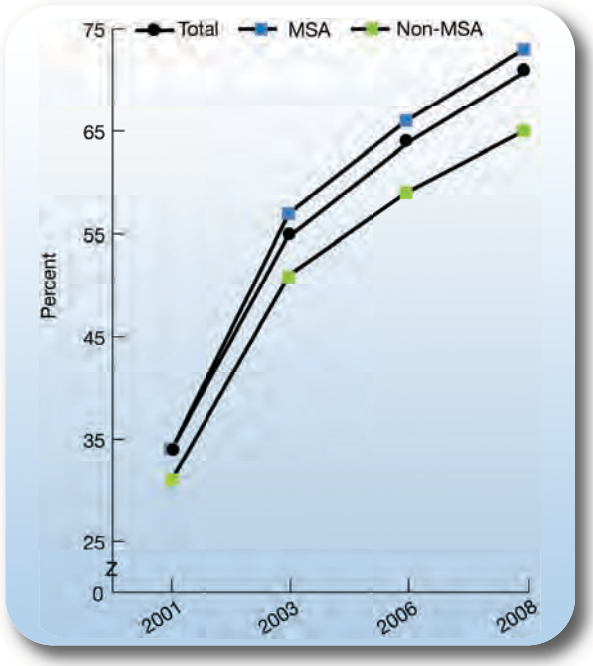
Findings

Prevention: Osteoporosis Screening in Women

Osteoporosis is a disease characterized by loss of bone tissue. About 10 million people in the United States have osteoporosis, and another 34 million with low bone mass are at risk for developing the disease. Osteoporosis increases the risk of fractures of the hip, spine, and wrist, and about half of all postmenopausal women will experience an osteoporotic fracture. Osteoporotic fractures cost the U.S. health care system $17 billion each year and cause considerable morbidity and mortality. For example, of patients with hip fractures, one-fifth will die during the first year, one-third will require nursing home care, and only one-third will return to the functional status they had before the fracture. The remaining 13 percent have other outcomes.[97]

Because older women are at highest risk for osteoporosis, the U.S. Preventive Services Task Force recommends routine osteoporosis screening of women age 65 and over. Women with low bone density can reduce their risk of fracture and subsequent functional impairment by taking appropriate medications.[98]

Figure 2.36. Female Medicare beneficiaries age 65 and over who reported ever being screened for osteoporosis with a bone mass or bone density measurement, by geographic location, 2001, 2003, 2006, and 2008



Key: MSA = metropolitan statistical area.
Source: Medicare Current Beneficiary Survey, 2001, 2003, 2006, and 2008.
Denominator: Female Medicare beneficiaries age 65 and over living in the community.

- From 2001 to 2008, the percentage of female Medicare beneficiaries age 65 and over who reported ever being screened for osteoporosis with a bone mass or bone density measurement increased about 10% per year overall and among women living inside and outside metropolitan areas (Figure 2.36).
- In 2003, 2006, and 2008, the percentage of older female Medicare beneficiaries who reported ever being screened for osteoporosis was lower among those living in nonmetropolitan areas compared with those living in metropolitan areas.

Also, in the NHDR:

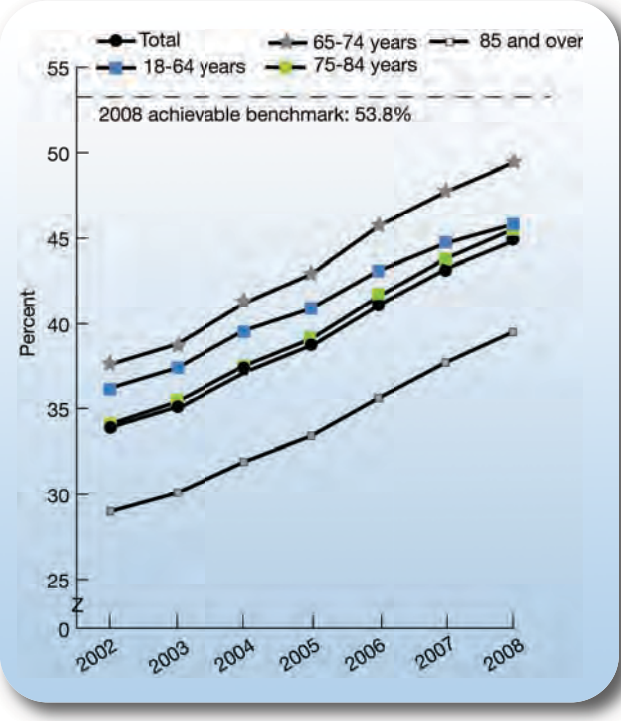
- In all years, the percentage of female Medicare beneficiaries age 65 and over who reported ever being screened for osteoporosis was significantly lower among Blacks and APIs compared with Whites and among Hispanics compared with non-Hispanic Whites.
- The percentage of female Medicare beneficiaries screened for osteoporosis was lower for poor, near-poor, and middle-income women than for high-income women.
- The percentage screened for osteoporosis also was lower for beneficiaries with three or more activity limitations than for beneficiaries with no functional limitations.

Outcome: Improvement in Ambulation 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, many experience improvements in walking and moving with a wheelchair, which can be facilitated by physical therapy. 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 2.37. Adult home health care patients whose ability to walk or move around improved, by age, 2002-2008



Source: Centers for Medicare & Medicaid Services, Outcome and Assessment Information Set (OASIS), 2002-2008.
Denominator: Adult nonmaternity patients completing an episode of skilled home health care and not already performing at the highest level according to the OASIS question on ambulation at the start of the episode.

- From 2002 to 2008, the percentage of home health care patients who got better at walking or moving around increased for the total population (from 33.9% to 44.9%), as well as for every age group (Figure 2.37).
- In all years, patients age 85 and over were less likely to show improvement compared with patients ages 65-74. These patients may have higher levels of disability or infirmity than younger patients that make improvements in mobility harder to achieve.
- The 2008 top 5 State achievable benchmark was 53.8%.[xxxi] At the current 5% annual rate of increase, this benchmark could be attained overall in about 5 years.
- Rates of improvement varied by age. Patients ages 65-74 and 75-84 could attain the benchmark sooner than 5 years while patients age 85 and over would not attain the benchmark for 8 years.

Also, in the NHDR:

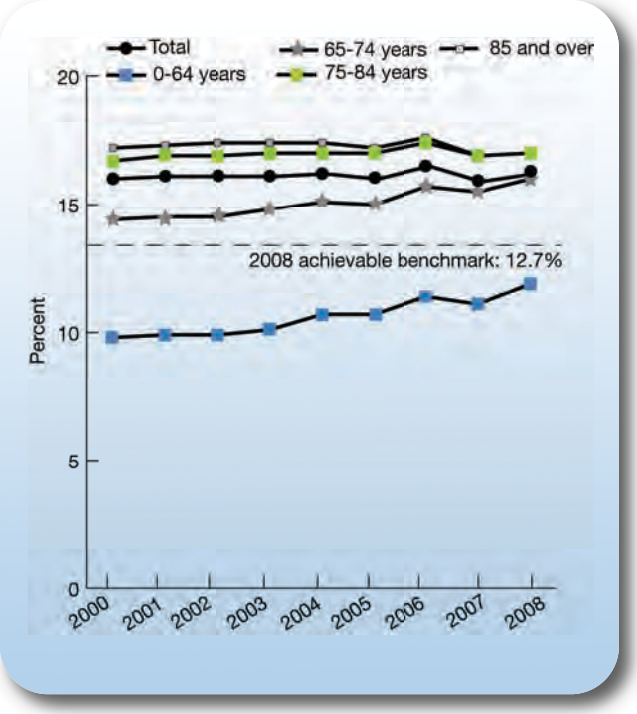
- Although the percentage of home health care patients who got better at walking or moving around improved for each racial and ethnic group from 2002 to 2008, rates of improvement varied. Populations with lower rates of improvement include Blacks, AI/ANs, multiple-race patients, and Hispanics.

Outcome: Nursing Home Residents Needing More Help With Daily Activities

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. While almost all long-stay nursing home residents have limitations in their ADLs, nursing home staff help residents stay as independent as possible. 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.

[xxxi] The top 5 States contributing to the achievable benchmark are District of Columbia, Hawaii, Kansas, South Carolina, and Utah.

Figure 2.38. Long-stay nursing home residents whose need for help with daily activities increased, by age, 2000-2008



Source: Centers for Medicare & Medicaid Services, Minimum Data Set, 2000-2008. Data are from the third quarter of each calendar year.
Denominator: All long-stay residents in Medicare or Medicaid certified nursing home facilities.

- In 2008, 16.2% of long-stay nursing home residents had increased need for help with daily activities (Figure 2.38). The overall percentage of long-stay nursing home residents who needed help with daily activities did not change between 2000 and 2008. The rate increased among residents ages 0-64 and ages 65-74.
- In all years, residents ages 0-64 were less likely to need increasing help with daily activities compared with residents ages 65-74. Before 2007, residents ages 75-84 and age 85 and over were significantly more likely to need increasing help with daily activities compared with residents ages 65-74.
- The 2008 top 5 State achievable benchmark was 12.7%.[xxxii] In 2008, residents ages 0-64 had rates better (lower) than the benchmark; however, their rates were increasing over time. There was no evidence that the overall rate or rates for other age groups were getting closer to the benchmark.

Also, in the NHDR:

- API, AI/AN, and Hispanic residents were less likely to need increasing help with daily activities compared with Whites.

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

Supportive and Palliative Care

Importance

Demographics

Number of nursing home residents ever admitted during the calendar year (2007) .....3,196,310[99]

Number of Medicare fee-for-service (FFS) home health patients[xxxiii] (2006) .....3,031,814[100]

Number of Medicare FFS beneficiaries using Medicare hospice services (2006) .....935,565[101]

Cost

Total costs of nursing home care[xxxiv] (2007 est.) .....$131.3 billion[102]

Total costs of home health care[xxxiv] (2007 est.) .....$59.0 billion[102]

Medicare FFS payments for hospice services (2008 est.) .....$11.2 billion[103]

Measures

Disease cannot always be cured, and disability 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.[104]

The National Priorities Partnership (NPP) identified palliative and end-of-life care as one of six national priorities.[105] The vision is health care "capable of promising dignity, comfort, companionship, and spiritual support to patients and families facing advanced illness or dying." Key goals include relief of suffering, help with emotional and spiritual needs, effective communication about options for care, and high-quality hospice services.

The NHQR tracks several measures of supportive and palliative care delivered by home health agencies, nursing homes, and hospices. The 6 supporting measures, which are organized around the NPP goals, include:

[xxxiii] Medicare FFS patients represent only a portion of all home health patients.

[xxxiv] 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.

Effectiveness of Care

- 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
- Effective communication
  - Enough information about what to expect among hospice family caregivers
- High-quality palliative services
  - Care consistent with patient's wishes among hospice patients
  - Availability of nonhospice palliative care

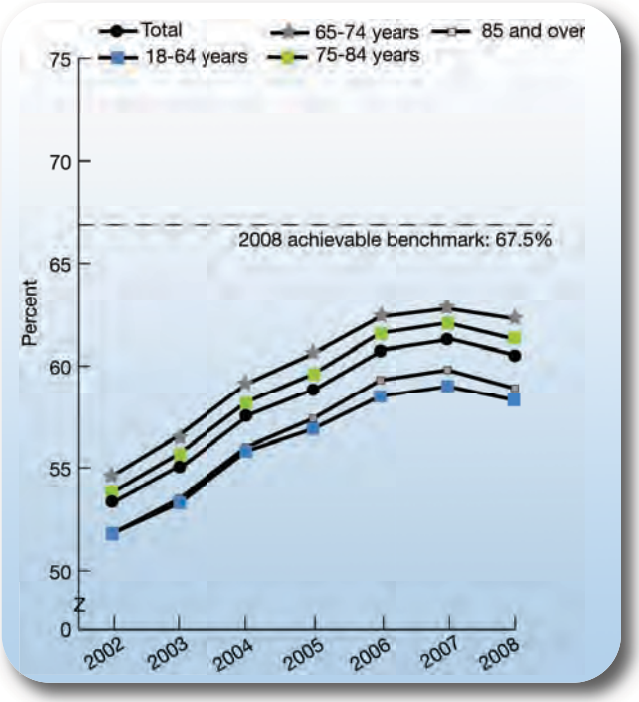
Findings

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 2.39. Adult home health care patients who had less shortness of breath between the start and end of a home health care episode, by age, 2002-2008



Source: Centers for Medicare & Medicaid Services, Outcome and Assessment Information Set, 2002-2008.
Denominator: Adult nonmaternity patients completing an episode of skilled home health care.

- Between 2002 and 2008, the percentage of adult home health care patients overall who had less shortness of breath increased from 53.3% to 60.5% (Figure 2.39), as well as for every age group.
- From 2006 to 2008, patients ages 18-64 years were significantly less likely than patients ages 65-74 to have experienced less shortness of breath. Medicare patients under age 65 are usually disabled or have ESRD.
- The 2008 top 5 State achievable benchmark was 67.5%.[xxxv] At the current 2% annual rate of increase, this benchmark could be attained overall in about 5 years. Patients ages 65-74 and 75-84 could attain the benchmark sooner than 5 years while patients ages 18-64 and age 85 and over would not attain the benchmark for between 6 and 8 years.

Also, in the NHDR:

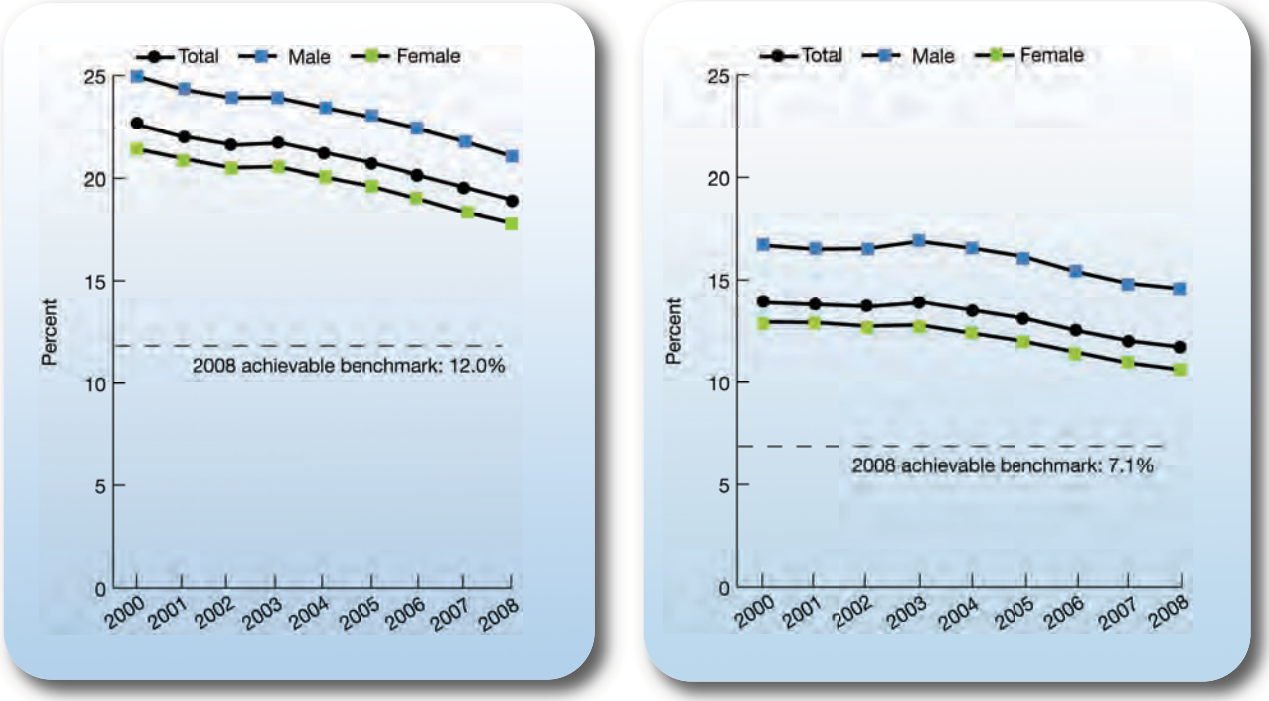
- Between 2002 and 2008, the percentage of adult home health care patients who had less shortness of breath increased for each racial and ethnic group.
- Populations with lower rates of improvement include Blacks, AI/ANs, and Hispanics.

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.

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

Figure 2.40. Short-stay (left) and high-risk long-stay (right) nursing home residents with pressure sores, by gender, 2000-2008



Source: Centers for Medicare & Medicaid Services, Minimum Data Set, 2000-2008. 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.

- From 2000 to 2008, the rate of short-stay residents with pressure sores fell from 22.6% to 18.9% (Figure 2.40).[xxxvi] For high-risk long-stay residents, the rate fell from 13.9% to 11.7%.[xxxvii] Improvements included rates for both males and females.
- Short-stay residents have higher rates of pressure sores. Some of these patients may be admitted to nursing homes because of sores acquired during an acute care hospitalization.
- In all years, males were more likely than females to have pressure sores.
- The 2008 top 5 State achievable benchmark for short-stay residents was 12.0%.[xxxviii] At the current 2% annual rate of decrease, this benchmark could be attained overall in about 16 years. Females could attain this rate in 13 years while males would need 20 years.

[xxxvi] Short-stay residents stay fewer than 30 days in a nursing home, typically following an acute care hospitalization.

[xxxvii] 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.

[xxxviii] The top 5 States that contributed to the achievable benchmark are Colorado, Iowa, Minnesota, Nebraska, and Utah.

- The 2008 top 5 State achievable benchmark for high-risk long-stay residents was 7.1%.[xxxix] At the current 2% annual rate of decrease, this benchmark could be attained overall in about 16 years. Females could attain this rate in 11 years; males would need 27 years.

Also, in the NHDR:

- Groups with slow rates of improvement include APIs, AI/ANs, and Hispanics.

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."[106]

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.[107, xl]

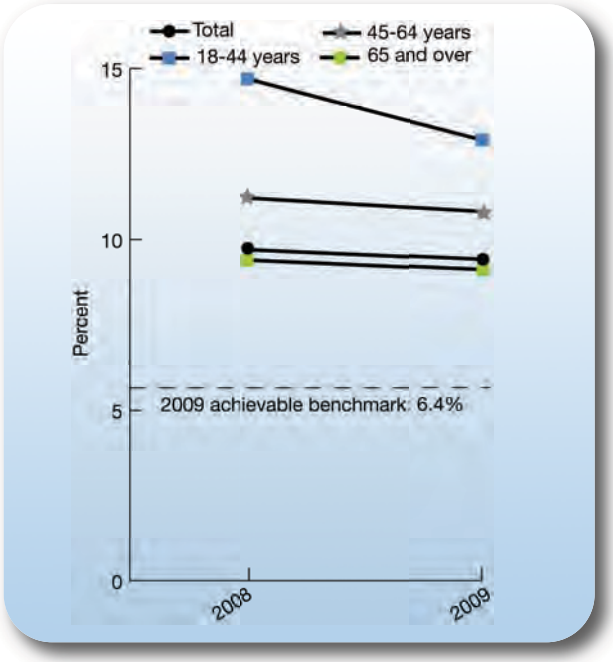
Management: Right Amount of Emotional Support

Dying is a stressful process. 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.

[xxxix] The top 5 States that contributed to the achievable benchmark are Hawaii, Minnesota, Nebraska, New Hampshire, and North Dakota.

[xl] 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.

Figure 2.41. Hospice patients age 18 and over who did NOT receive the right amount of help for feelings of anxiety or sadness, by age, 2008-2009



Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2008-2009.
Denominator: Adult hospice patients.

- 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 9.4% in 2009 (Figure 2.41).
- In all years, hospice patients ages 18-44 and ages 45-64 were less likely than patients age 65 and over to receive the right amount of emotional support.
- The 2009 top 5 State achievable benchmark was 6.4%.[xli] Data are insufficient to assess progress toward this goal.

Also, in the NHDR:

- In all years, Blacks, APIs, AI/ANs, and Hispanics were less likely than Whites to receive the right amount of emotional support.

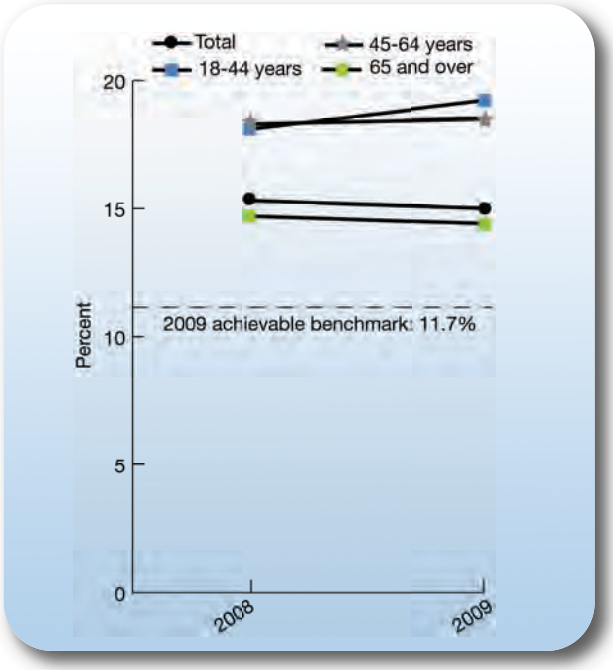
Effective Communication

Management: Enough Information About What To Expect

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 patients' values and preferences, accepting of different cultural and religious choices, and committed to continuing care regardless of patient treatment decisions.

[xli] The top 5 States that contributed to the achievable benchmark are Alabama, Arkansas, Kansas, Rhode Island, and South Carolina.

Figure 2.42. Hospice patients age 18 and over whose family caregivers wanted more information about what to expect while the patient was dying, by age, 2008-2009



Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2008-2009.
Denominator: Adult hospice patients.

- The percentage of hospice patient family caregivers who reported that they wanted more information about what to expect while the patient was dying was 15% in 2009 (Figure 2.42).
- In all years, family caregivers of hospice patients ages 18-44 and ages 45-64 were more likely than family caregivers of patients age 65 and over to want more information about dying.
- The 2009 top 5 State achievable benchmark was 11.7%.[xlii] Data are insufficient to assess progress toward this goal.

Also, in the NHDR:

- In all years, family caregivers of API, AI/AN, and Hispanic patients were more likely than family caregivers of White patients to want more information about dying.
- Family caregivers of male hospice patients were more likely than family caregivers of female patients to want more information about dying.

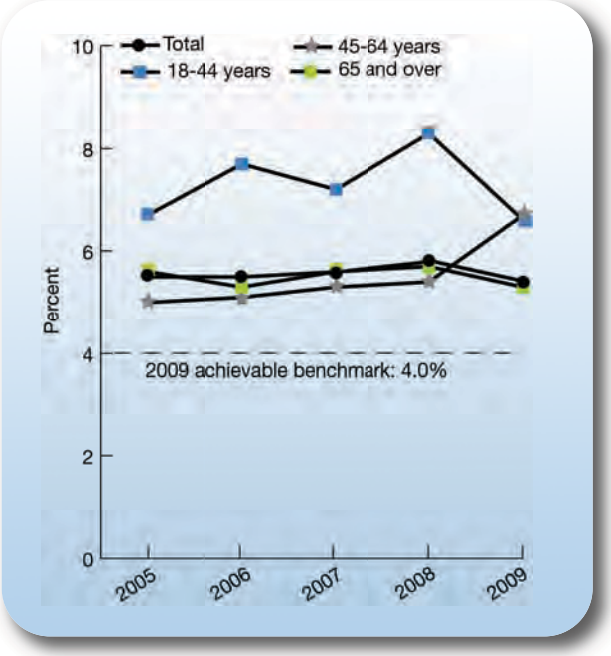
[xlii] The top 5 States contributing to the achievable benchmark are Iowa, Kansas, Kentucky, Nebraska, and West Virginia.

High-Quality Palliative Services

Management: Care Consistent With Patient's Wishes

Hospice care should respect patients' stated goals for care. This includes shared communication and decisionmaking between providers and hospice patients and their family members and respect for cultural and religious beliefs.

Figure 2.43. Hospice patients age 18 and over who did NOT receive care consistent with their stated end-of-life wishes, by age, 2005-2009



Source: National Hospice and Palliative Care Organization, Family Evaluation of Hospice Care, 2005-2009.
Denominator: Adult hospice patients.

- 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 2009 (Figure 2.43).
- In 2009, there were no significant differences for hospice patients among age groups in receiving end-of-life care consistent with their wishes.

Structure: Availability of Palliative and Hospice Care

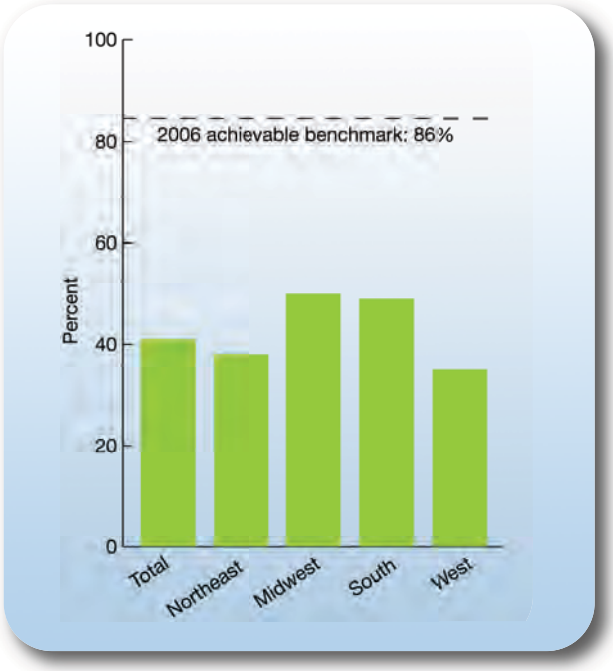
Use of hospice care services varies widely across the Nation. For example, among Medicare beneficiaries age 65 and over who died in 2002, the percentage who had received hospice care in the year prior to death varied from 8% in Alaska and 14% in Maine to 45% in Colorado and 49% in Arizona.[108]

Rates of disenrollment from hospice prior to death also vary geographically. Among hospices serving Medicare patients with terminal cancer, the average hospice disenrollment rate was 15% and rates varied

from 11% in the East North Central region of the country to 21% in the East South Central region.[109] Patients who disenroll from hospice are more likely to be admitted to an emergency room, hospital, or intensive care unit and to die in the hospital. They incur expenditures between hospice enrollment and death that average $30,848 per person compared with $6,537 for patients that stay with hospice.[110]

Use of palliative care services independent of hospice or use of nonhospice palliative care services is affected by the availability of palliative care providers. Hospitals are critical providers of palliative care. The Center to Advance Palliative Care and the National Palliative Care Research Center have developed a methodology to measure the availability of hospital-based palliative care. This method tracks the percentage of mid-size and large hospitals (50 or more beds) that reported having a palliative care program in the American Hospital Association Annual Survey. Results from their 2008 report on geographic variation in availability of hospital palliative care are presented below.[111]

Figure 2.44. Mid-size and large hospitals with palliative care program, by region, 2006



Source: Center to Advance Palliative Care analyses of 2006 American Hospital Association Annual Survey.
Denominator: Mid-size and large hospitals (50 or more beds).

- The percentage of mid-size and large hospitals who report palliative care programs in 2006 ranged from 35% in the West to 50% in the Midwest.
- The 2006 top 5 State achievable benchmark was 86%.[xlii]

[xliii] The top 5 States that contributed to the achievable benchmark are Montana, New Hampshire, South Dakota, Vermont, and the District of Columbia.

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