

The Costs of Caring: Sources of Growth in Spending for Hospital Care

Executive Summary

Over the past century, the average life expectancy in the United States has increased from 48.7 years to over 77.3 years of age.¹ This is in large part due to recent advances in modern medicine. We can now see inside the body and have made enormous breakthroughs in both the diagnosis and treatment of many diseases.

Alongside these improvements, spending on health care has increased, reaching \$1.7 trillion in 2003. Understanding the factors driving this growth is critical to shaping future health care policy. This report examines the sources of growth in spending on health and hospital care.

Of the increase in spending on hospital care from 1998 to 2003:

- **52 percent is due to rising costs for the goods and services hospitals purchase to provide care.** Rising wages and salaries account for three quarters of this increase as hospitals face a growing workforce shortage.
- **43 percent is due to higher demand for care.** The population is growing and aging and on average, each person is using more hospital services. The burden of chronic disease is rising both due to an aging population and to public health issues like obesity. People with chronic diseases consume about 83% of spending on health care.

- **5 percent is due to increased intensity of care provided.** Hospital care is more complex due to both changes in demographics (older, frailer patients) and changes in technology (more sophisticated treatment options).

Advances in medicine are a major driver of all of the above: new drugs, imaging equipment, surgical techniques, and devices are often more expensive than those they replace and at the same time open new treatment options for individuals with disease. A single new technology like the drug-eluting stent or implantable cardiac defibrillator can add billions to the cost of hospital care.

In addition, in order to meet rising patient demand, hospitals and health systems are investing in capital to update facilities as well as clinical and information technology (IT) to improve care.

In summary, much of the increase in spending on hospital care reflects advances in medicine that ultimately result in improved outcomes, longer life expectancy, and a better quality of life. However, alternative measures of what we are getting for our health care dollar could help us develop better tools to contain spending growth. At the same time, understanding the impact of factors like the workforce shortage and the rising burden of chronic disease may lead policy makers towards places where more investment now could lead to savings over the long term.

Advances in medicine are leading to longer and better lives...

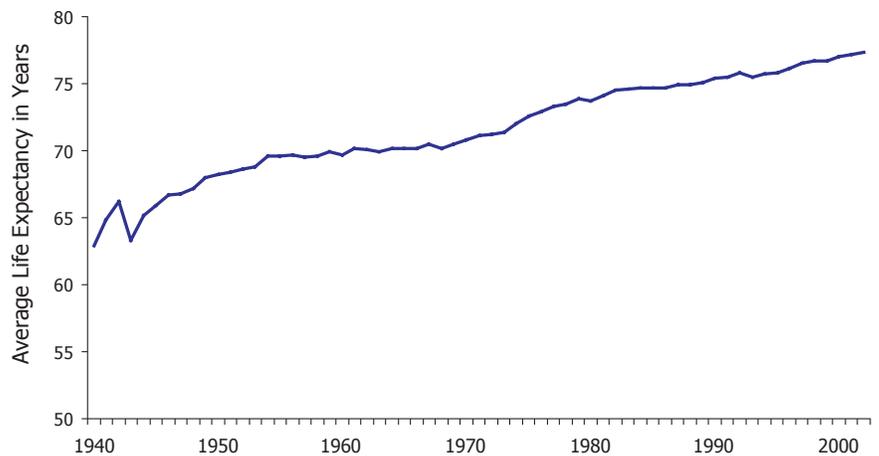
Medical advances have greatly improved the health and longevity of Americans. A person born in 2000 can expect to live 3.3 years longer than a person born in 1980.¹ New treatments have led to sharp reductions in mortality for heart disease, cancer, stroke and many other diseases.

Against this backdrop, however, the rising costs of health care are of great concern to the public and policy-makers.

In 2003, America spent \$1.7 trillion dollars on health care. Representing over 15 percent of the Gross Domestic Product, health care is now the largest sector of the U.S. economy. Spending on health care has increased by 46 percent since 1998. Currently, health care coverage is out of reach for over 44 million uninsured Americans — a group that continues to grow.

Medical breakthroughs have contributed to longer lives...

Chart 1: Average Life Expectancy in the United States, 1940 – 2002

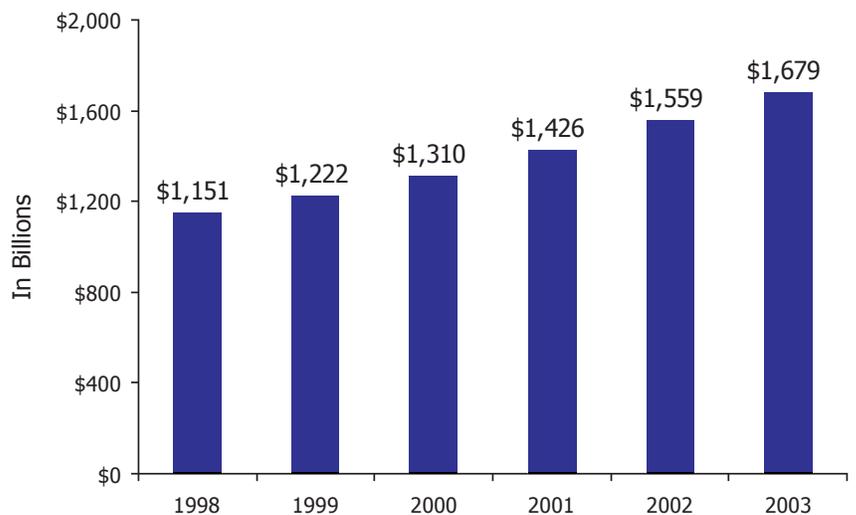


“The cost of treating a heart attack patient has gone up dramatically. On the other hand, mortality rates are down and five-year survival rates have improved substantially. There’s a situation where the benefits we received outweigh the additional spending.”

Kenneth E. Thorpe, Health Policy Professor at Emory University

...but rising national health expenditures have raised concerns.

Chart 2: National Health Expenditures (in Billions of Dollars), 1998 – 2003



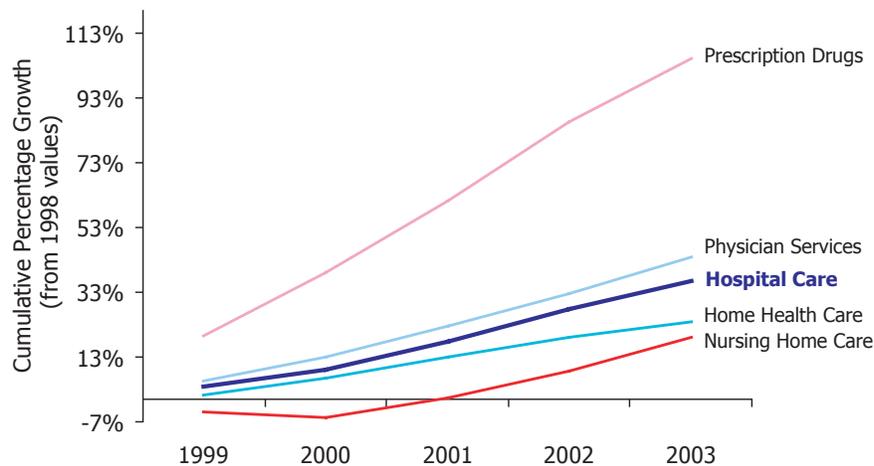
...but rising costs of care raise concerns about future affordability.

As the place where the most complex care is provided for ill and injured patients, hospitals account for the largest share (32 percent) of the health care dollar. Although spending on hospital care has grown more slowly than spending on other health care services, increased spending on hospital care is still the most significant driver of overall growth in spending on health care.¹

Understanding the factors driving this growth is critical to the debates about health care cost containment. This report examines key cost drivers both within and outside the hospital setting, including rising salaries and wages, major demographic trends, severity of illness, technology, and other factors.

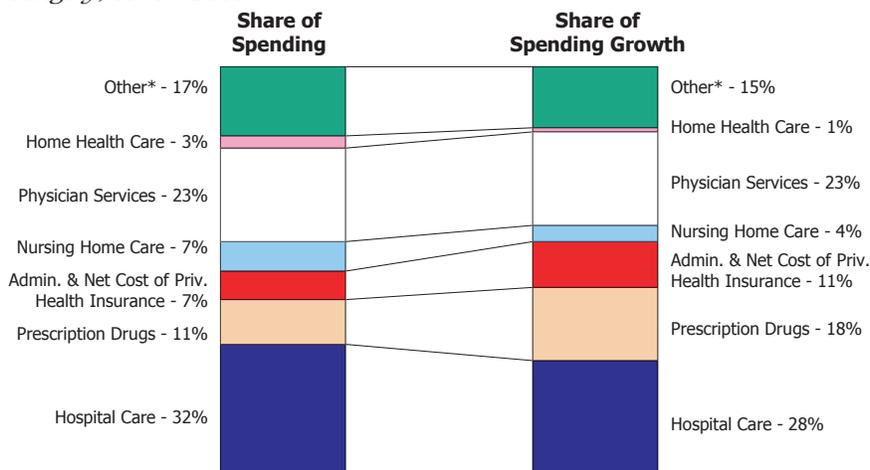
Spending on hospital care has lagged in growth compared to other health services...

Chart 3: Cumulative Percentage Growth in National Health Expenditures, by Category, 1999 – 2003



...but still represents the largest component of total growth in health care spending.

Chart 4: Share of Spending by Category, 2003 vs. Share of Spending Growth by Category, 1998 – 2003

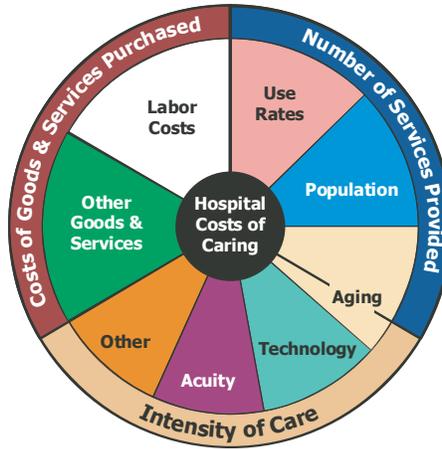


*"Other" includes dental and other non-physician professional services, other medical durables and non-durables, government public health activities, and other personal health care

Many factors influence the growth in spending on hospital care...

Volume, intensity, and the rising costs of purchased goods and services contribute to increases in spending for hospital care.

Chart 5: Key Components of Hospital Costs of Care

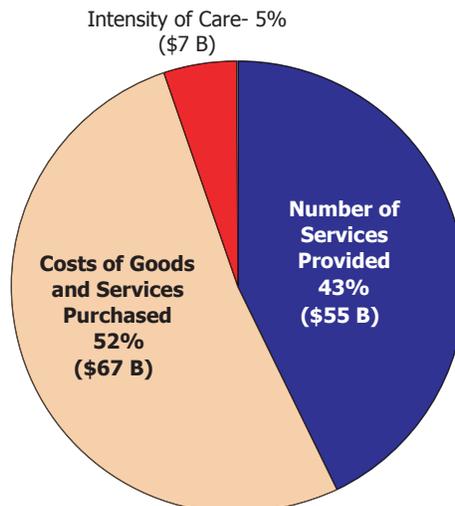


From 1998 to 2003, growth in spending on hospital care can be attributed to three factors:

- First, slightly more than half of the total increase is due to hospitals' rising costs for the goods and services purchased to provide care. These include employee wages and benefits, drugs, medical devices, food, linen, and other supplies. Since 1998, the "Hospital Market Basket" — an index that measures price inflation for the goods and services purchased by hospitals — has been growing significantly faster than the Consumer Price Index, a more general measure of inflation.¹
- Second, hospitals are providing more services due to a growing and aging population and medical advances that expand treatment options. Rising service volumes accounted for just over 40 percent of hospital growth during this period.
- Finally, the remainder of the growth — about 5 percent — is due to increased intensity of hospital care, i.e., hospitals are using more resources to care for each patient. Increased intensity can be attributed to a variety of factors, including sicker, more complex patients as well as technological change.

The most important current driver is the rising costs to hospitals of the goods and services purchased to provide care.

Chart 6: Share of Hospital Cost Growth Explained by Number of Services Provided, Costs of Goods and Services Purchased, and Intensity of Care, 1998 – 2003

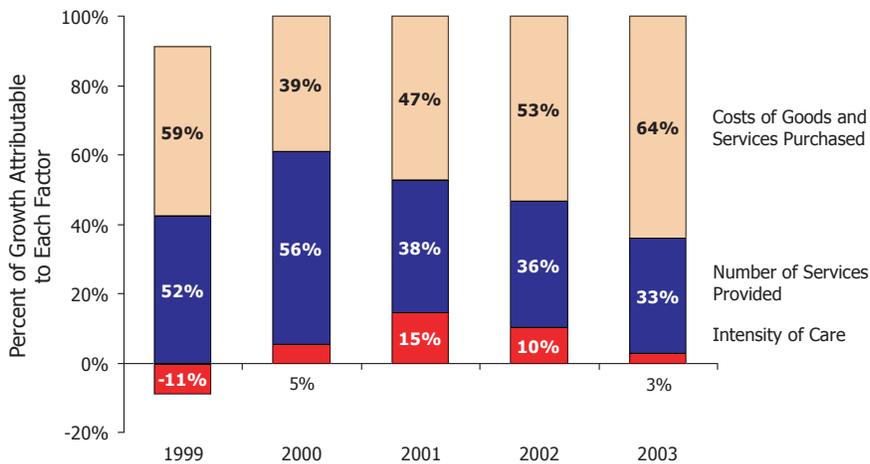


...particularly the rising costs of the goods and services hospitals purchase to support care delivery.

During this period the rising costs of purchased goods and services became an increasingly important driver of spending growth, accounting for 59 percent of growth in 1998, 39 percent in 1999 but rising to 64 percent by 2003.¹

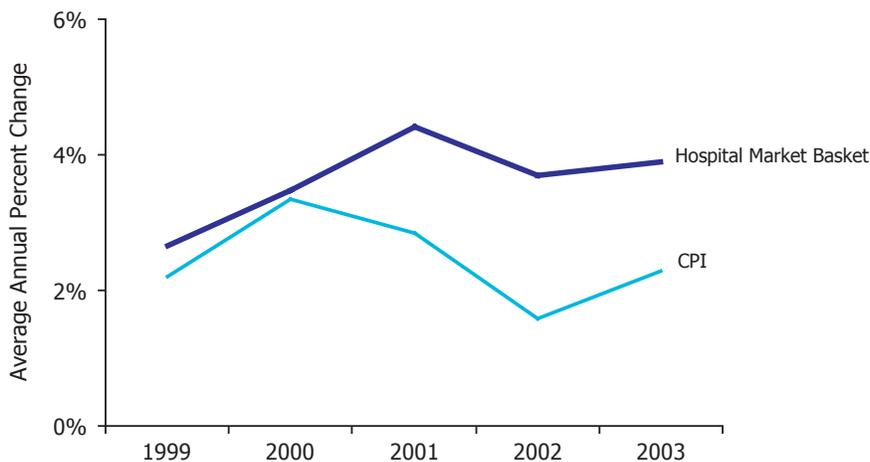
In past years, the increase in the demand for care has played a larger role.

Chart 7: Trends in Share of Cost Growth: Costs of Goods and Services Purchased, Number of Services Provided, and Intensity of Care, 1999 – 2003



The prices of goods and services purchased by hospitals have risen faster than more general measures of inflation.

Chart 8: Average Annual Percent Change in the Consumer Price Index (CPI) and Hospital Market Basket, 1999 – 2003



Wages and salaries account for the majority of growth in the costs of goods and services purchased by hospitals.

About 64 cents of every dollar spent by hospitals goes to the wages and benefits of caregivers and other staff.¹ Not surprisingly, the increase in labor costs is the most important driver of spending growth for hospitals, accounting for about 38 percent of overall growth and almost three-quarters of the growth in the costs of purchased goods and services. The cost of prescription drugs and professional fees paid by hospitals also have increased, though these make up smaller shares of total hospital costs than employee compensation.

Between 1998 and 2003, growth in hospital salaries and benefits was the greatest single factor driving up the cost of hospital care.

Chart 9: Share of Cost Growth Explained by Key Components of Hospital Costs, 1998 – 2003



Hospitals face continuing shortages of registered nurses, pharmacists, medical technicians and other clinical workers. High vacancy rates for registered and licensed practical nurses are largely a result of a declining number of students seeking careers in nursing during the 1990's and competition with non-hospital employers.²

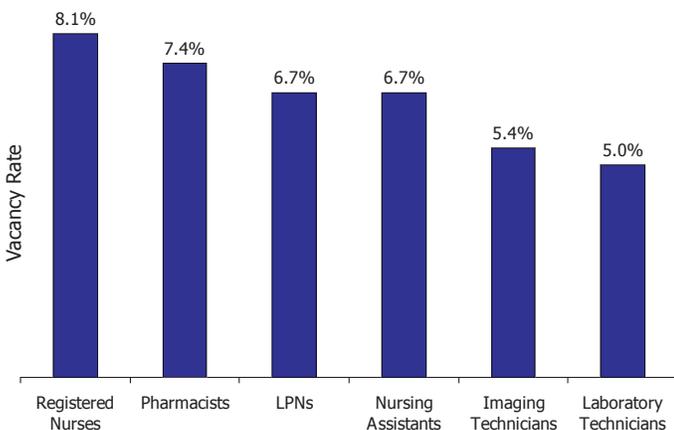
In an effort to attract and retain a highly skilled workforce, annual increases in compensation per full-time equivalent employee have grown steadily, from 4.4 percent in 2000 to a high of over 7 percent in 2003.³

Continued workforce shortages during a period of rising service demand likely will put further cost pressure on hospitals.

"High Point Regional has seen a 35 percent increase in wage and benefit costs during the past five years. And it isn't the only hospital raising wages."
Eric Fletcher, spokesman for High Point Regional Health System

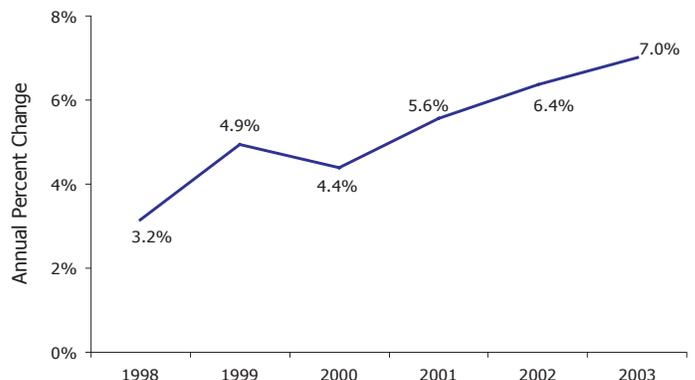
Hospitals continue to face workforce shortages in key clinical professions...

Chart 10: Vacancy Rates for Hospital Personnel, 2004



... resulting in rising wages and benefits for caregivers and others.

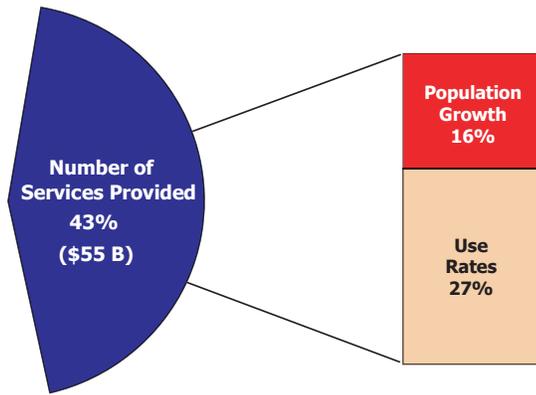
Chart 11: Average Annual Rate of Change in Total Cost Per Hospital FTE, 1998 – 2003



A growing and aging population fuels increased costs and a rising demand for hospital services.

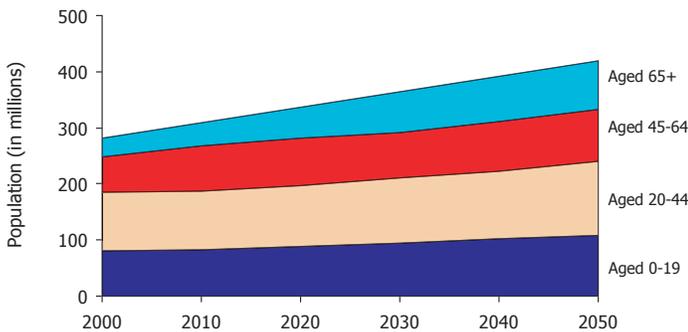
Both a growing population and more hospital use per person have contributed to higher service volume.

Chart 12: Factors Influencing the Number of Services Provided, 1998 – 2003



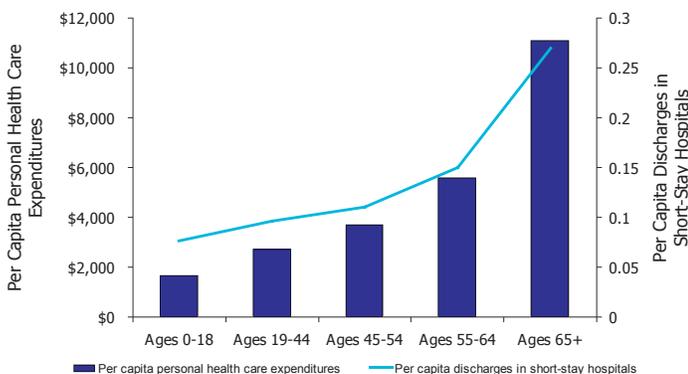
Our growing and aging population...

Chart 13: Projected Population Growth, by Age Cohort, 2000 – 2050



...is contributing to increased per capita hospital use, higher health care expenditures,...

Chart 14: Per Capita Personal Health Care Expenditures and Per Capita Discharges in Short-Stay Hospitals*, by Age Cohort, 1999



* Data on Discharges in Short Stay Hospitals is for ages 0-17, 18-44, 45-54, 55-64, and 65+

The demand for hospital care is rising due to both a growing population and increased hospital use per person.

Nationwide, between 1998 and 2003, growth in the number of services provided accounted for about 43 percent of the total increase in spending on hospital care. Population growth accounted for about 16 percent of the overall increase and over one-third of the increase in the number of services provided. Per person use of hospital services accounted for 27 percent of the overall increase and almost two-thirds of the increase in the number of services provided.¹

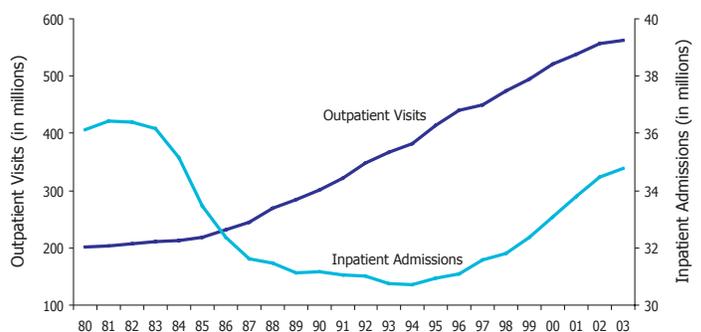
Increases in demand for hospital services also reflect underlying changes in the demographics and health status of America's population. Between 2000 and 2050, the population is projected to grow by 49 percent. At the same time, the proportion of the population aged 65 and older is expected to grow from 12 to 21 percent, as the "baby boomer" population ages and life expectancy continues to rise.

As people age, they use more health care resources. Thus, the aging trend will lead to further increases in overall per-capita hospital use and higher consumption of health care dollars.

Together, these forces have increased the demand for both the inpatient and outpatient services provided by hospitals. Although hospital outpatient visits have been rising steadily since the mid-1980's, demand for inpatient care fell from the 1980's into the mid-1990's. Since then, however, inpatient volume has been steadily growing. The consistent increase in population-based demand for care, particularly outpatient services, has been the leading contributor to volume-driven increases in hospital costs.²

...and rising demand for hospital services.

Chart 15: Inpatient Admissions and Outpatient Visits in Community Hospitals, 1980 – 2003



Many Americans suffer from high-cost chronic illnesses...

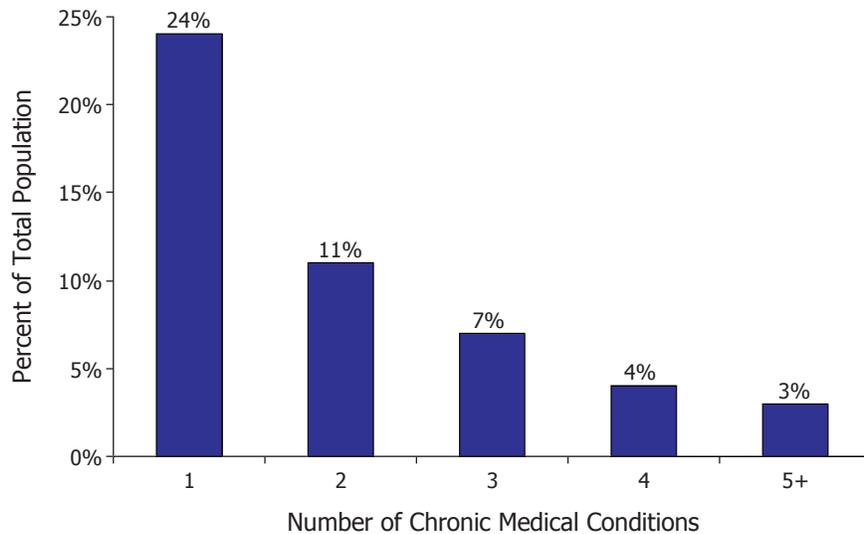
The rising number of Americans with chronic health care conditions is intensifying the demand for health care services. Advances in modern medicine have contributed to increased life expectancy, helping Americans live longer than ever.¹ However, with increased life expectancy, the number of Americans with chronic health conditions has increased. Today, almost half of all Americans suffer from at least one chronic illness.² One in four Americans have multiple chronic conditions, and the likelihood of having

a chronic condition increases with age. Only 5 percent of children have more than one chronic condition, compared to two-thirds of people aged 65 and older.³

By definition a chronic medical condition persists for a year or more — a longer period of time than acute illness — and requires continuous medical care.⁴ Individuals living with chronic medical conditions account for about 83 percent of all U.S. health care spending.⁵

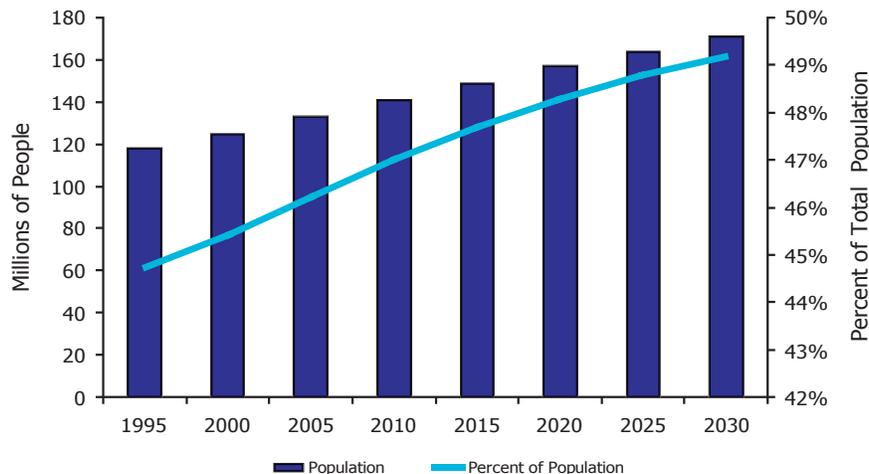
One in four Americans have multiple chronic conditions...

Chart 16: Percent of the Population with One or More Chronic Medical Conditions, 2001



...and the number of people affected is projected to increase.

Chart 17: Number and Percent of Americans with Chronic Medical Conditions, * 1995 – 2030

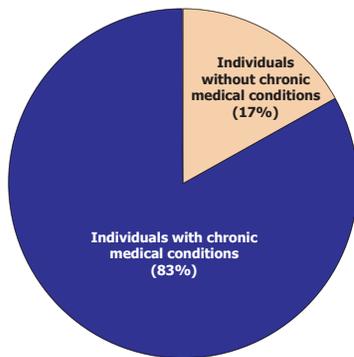


*Values for 2005 to 2030 are projections.

...and this population is projected to grow in the future.

Individuals with chronic conditions account for most health care spending...

Chart 18: Health Care Spending on Individuals with and without Chronic Medical Conditions, 2001

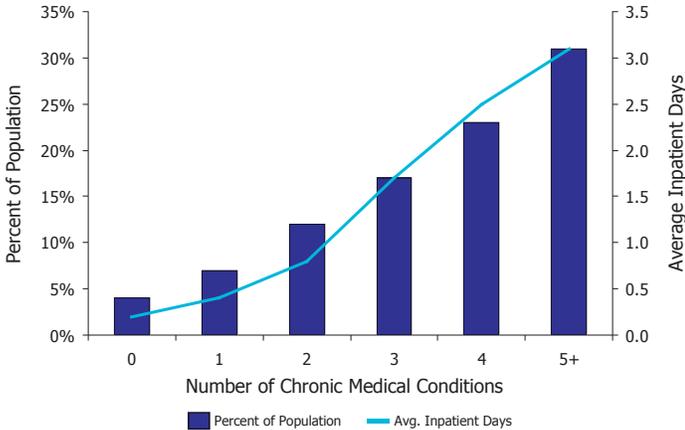


Individuals with multiple chronic medical conditions are more likely to be hospitalized and stay longer than individuals without chronic conditions.¹ Consequently, annual inpatient hospital spending on persons with chronic conditions can be up to 20 times higher than the rest of the population.² These individuals also consume a disproportionate share of Medicare expenditures.³

By 2030, as the population grows and ages, the number of individuals with chronic medical conditions is forecast to grow to over 160 million, with potentially wide-reaching effects on both health care and hospital costs.

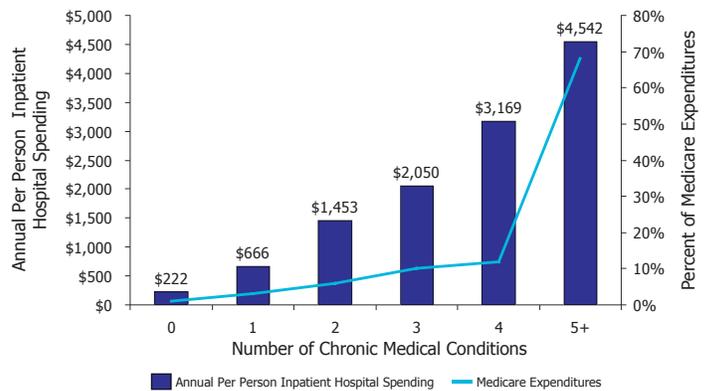
...and are more likely to be hospitalized, for longer periods of time,...

Chart 19: Percent of the Population with Inpatient Hospital Stays, by Number of Chronic Medical Conditions, 2001



...at higher costs than the rest of the population.

Chart 20: Average Annual Inpatient Spending per Person and Percent of Medicare Expenditures, by Number of Chronic Medical Conditions, 2001



“The nature of illness is changing in this country, and millions of Baby Boomers in an aging workforce will be grappling with the burden of diabetes, cancer, heart disease and other chronic medical conditions in the near future.” — Gerard F. Anderson, PhD, National Program Director of Partnership for Solutions and Professor at The Johns Hopkins Bloomberg School of Public Health and School of Medicine

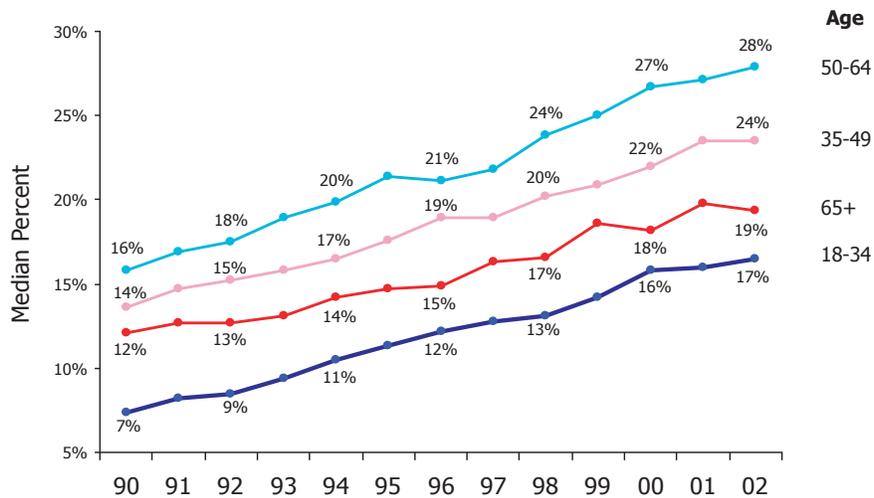
Levels of obesity are rising...

Obesity in America has dramatically increased in recent years and become an urgent health concern.¹ Approximately 22 percent of adult Americans are obese — defined as having a body mass index (BMI) of 30 or more.² Among children, 13 percent are considered overweight — defined as having a BMI of 25 or more.³

Obesity has been strongly associated with numerous chronic medical conditions, including, but not limited to, hypertension, coronary heart disease, type 2 diabetes, stroke, and breast, colon, and endometrial cancers.⁴ Each year approximately 300,000 deaths are attributed to these diseases.⁵

The growing percentage of Americans with obesity has raised concerns...

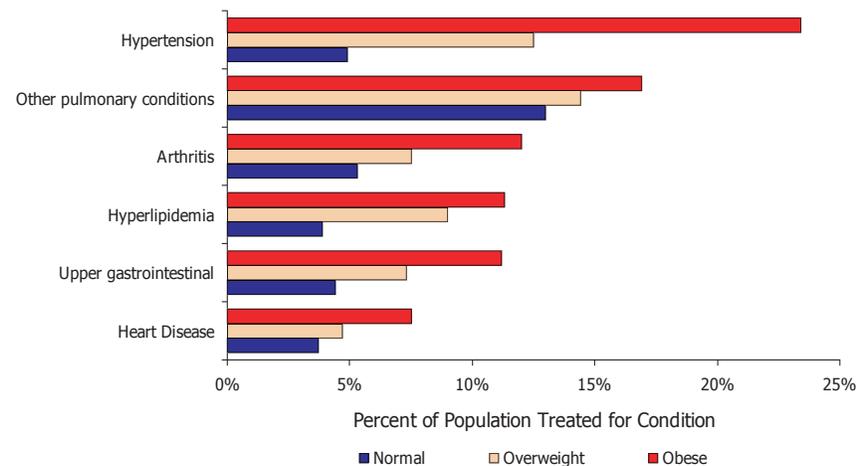
Chart 21: Median Percent of the Population that is Obese*, by Age Cohort, 1990 – 2002



*All respondents 18 and older who report that their Body Mass Index (BMI) is 30.0 or more.

...because obesity is linked to higher levels of chronic disease...

Chart 22: Treated Disease Prevalence by Obese, Overweight and Normal Weight, 2002



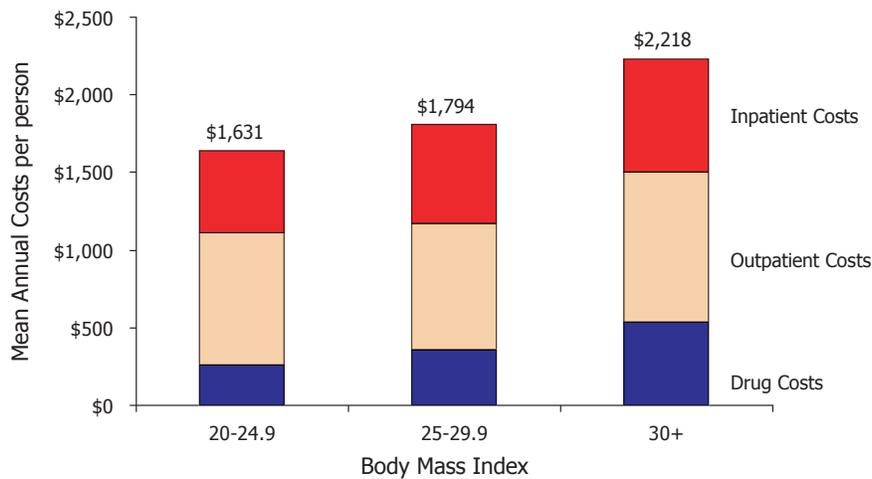
...contributing to higher health care costs.

Overweight and obesity, and their associated health problems, have a considerable economic impact on hospitals and the health care system. An estimated \$177 billion is spent annually as a result of overweight and obesity.¹ Recent estimates suggest that obesity accounts for about 5.7 percent of total U.S. direct health care costs, excluding costs related to increased mortality among

obese and overweight individuals. Recent research also suggests that compared to patients who are obese, patients with a BMI of 20-24.9 have approximately 51 percent lower prescription drug costs, 28 percent lower hospital inpatient costs, and 12 percent lower hospital outpatient costs.²

...more use of health care resources...

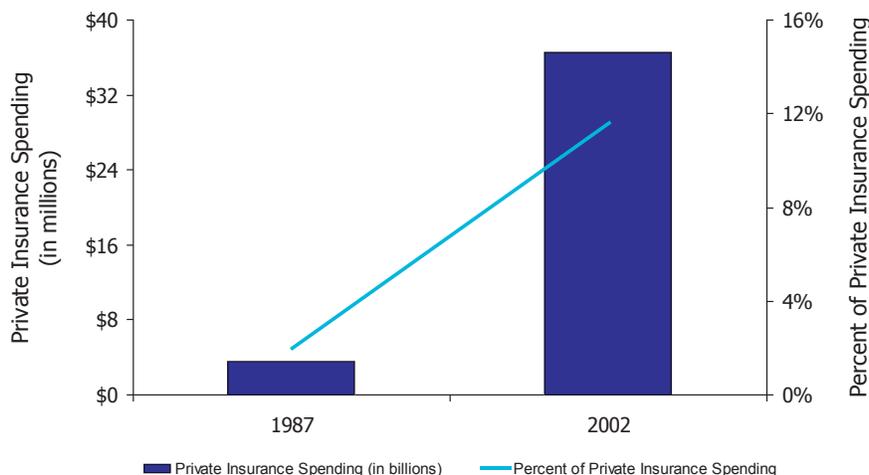
Chart 23: Body Mass Index as a Predictor of Hospital Inpatient, Outpatient, and Drug Costs, 1998



* Obese, by definition, is a body mass index (BMI) of greater than or equal to 30. Overweight is a BMI of greater than or equal to 25.

...and increased spending on health care.

Chart 24: Additional Private Health Insurance Spending Attributable to Obesity*, 1987 and 2002



* Calculations based upon additional expenditures (per person) on obese adults with private health insurance, relative to normal-weight adults with private health insurance.

Hospital patients are sicker than in past years, raising costs further.

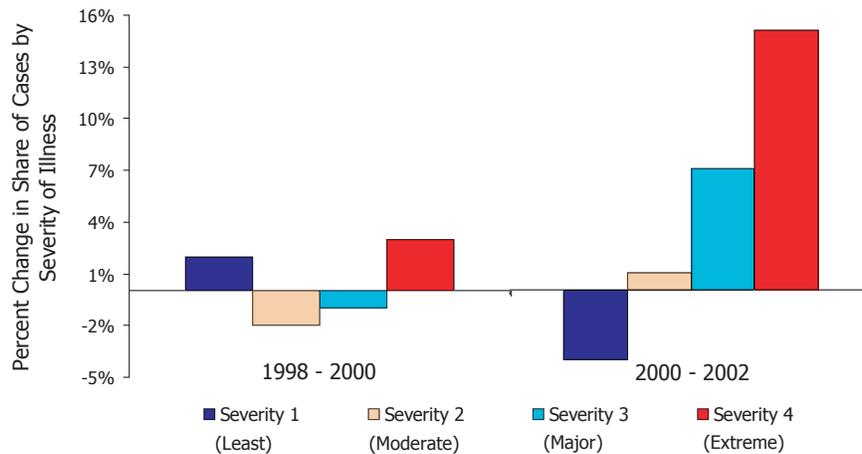
Increases in the intensity or complexity of care accounted for about 5 percent of hospital cost growth between 1998 and 2003. Factors directly influencing complexity of care include rising patient acuity — patients have more severe medical conditions — and diffusion of new and more expensive medical technologies.

Though more and more care has shifted to other settings such as physician offices and free-standing centers, the most complex care still takes place in the hospital.¹

Rising acuity is reflected by a greater presence of complicating co-morbidities, or coexisting but unrelated diseases and medical conditions. Although they represent a small portion of patients, the share of patients with the highest severity level (e.g., patients with multiple chronic conditions) increased by 15 percent between 2000 and 2002. At the same time, the share of patients considered the healthiest (severity level 1) decreased by 4 percent. Once admitted to the hospital, reimbursement levels are lowest relative to costs for the most resource intensive diagnoses (severity level 4), including respiratory infections and renal failure.

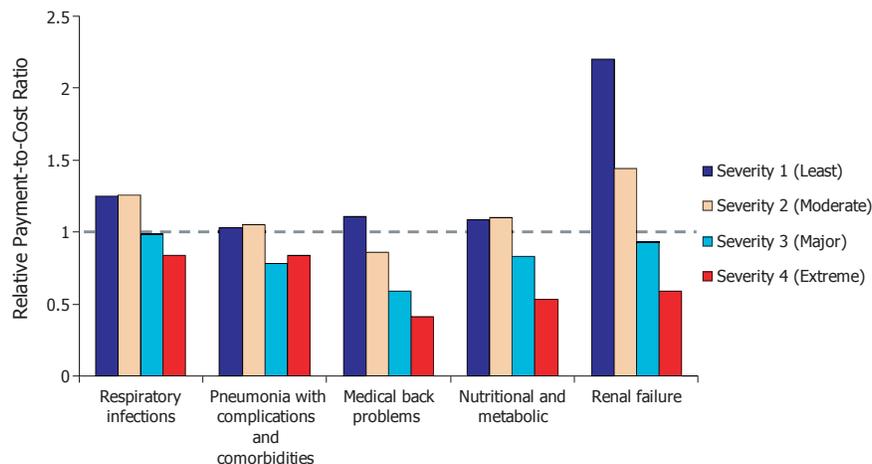
Hospitals are treating sicker patients...

Chart 25. Percent Change in Share of Cases, by Severity of Illness, within Diagnostic Related Groups (DRGs), 1998 – 2000 and 2000 – 2002



...but the more resource intensive diagnoses are not adequately reimbursed.

Chart 26. National Average Relative Payment-to-Cost Ratios Across and Within Selected All-Patient Refined Diagnostic Related Groups (APR-DRGs), FY 2000 – 2002

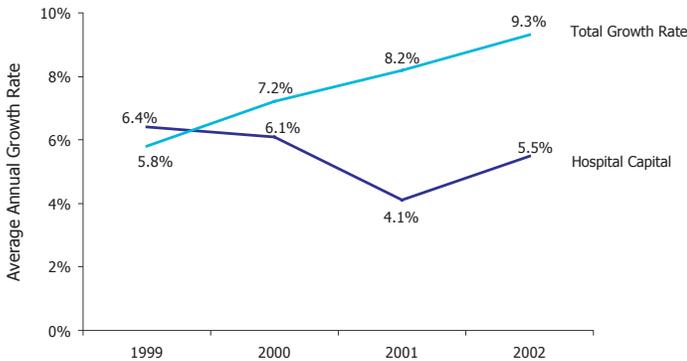


Note: Levels represent APR-DRG severity levels for selected APR-DRGs. Severity level 1 is least severely ill.

Investment in capital is crucial to meet the current rising demand for services.

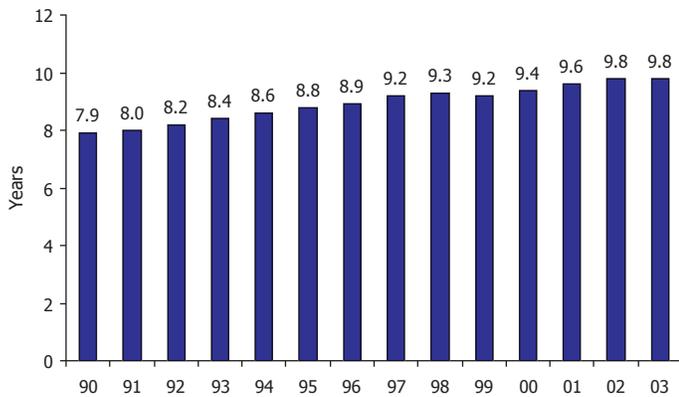
Growth in capital spending has lagged relative to overall hospital cost growth...

Chart 27: Average Annual Growth Rate of Hospital Capital vs. Total Growth Rate Across All Hospital Departments, 1999 – 2002



...as reflected by the nation's aging hospitals...

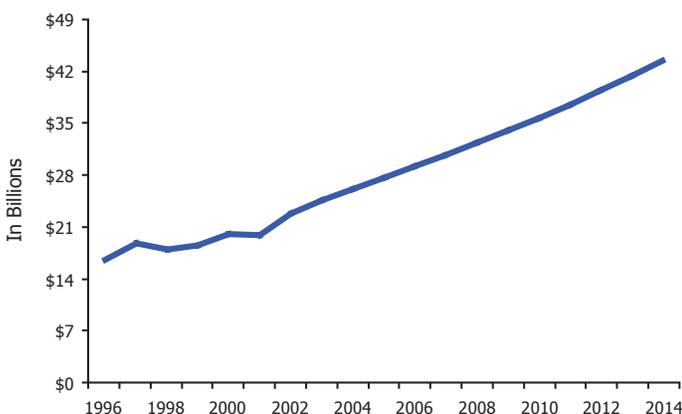
Chart 28: Median Average Age of Plant, * 1990 – 2003



* Average age of plant: The financial age of the fixed assets of the hospital, calculated by dividing accumulated depreciation by the current year depreciation expense.

... but expenditures on health care construction are projected to increase significantly over the next decade.

Chart 29: National Health Expenditures on Construction, 1996 – 2014*



* Calendar years 2004-2014 are projected data. The health spending projections were based on the 2003 version of the NHE released in January 2005.

Hospitals have a wide range of capital investment needs from bricks and mortar, to keeping pace with advances in medicine, to updating information technology. However, spending on capital has not kept pace with overall growth in hospital costs as many hospitals have had difficulty accessing needed capital. Between 2001-2002, capital spending grew about 41 percent slower than the rate of total growth across all other hospital departments. This trend is reflected in the rising age of hospital facilities. If this trend continues, the long-run implications could include slower adoption of newer and improved technologies and a depreciated capital infrastructure.

Yet there is some recent evidence to suggest that hospitals are dedicating more resources to new construction. An estimated \$200 billion will be spent on new hospital construction in the next 10 years.¹

Factors driving this trend include:

- a growing demand for services;
- the need to replace aging facilities;
- increased consumer demand for privacy and family-centered care;
- a focus on technological innovation and diffusion;
- efficiency and cost effectiveness; and
- regulatory compliance.²

New construction also is heavily influenced by research linking the physical hospital environment to patient outcomes, satisfaction, and patient and staff safety. Often referred to as “evidence-based design,” hospitals are placing a greater emphasis on building facilities that support clinical advances in the field.³

Hospitals are increasingly adopting information technology...

Information technology (IT) has been identified as an essential tool in improving the quality of clinical care and reducing health care costs.¹ Hospitals and health systems currently leading the field in IT adoption report that they generally begin by improving the safety of medication administration, both by automating the ordering process and matching medications electronically to patients at the time of administration.² Hospitals are also implementing IT systems to maintain health records, improve work flows, and increase efficiency.

Despite these advances in some hospitals, the U.S. health care system has not achieved widespread use of IT to support the clinical process. Current barriers to clinical IT adoption include:

- high initial investments and ongoing maintenance costs;
- the lack of a demonstrated return on investment since much of financial benefit goes to payers rather than providers;
- changing work processes to ensure successful implementation;
- working with vendors to ensure products meet the needs of providers and work with existing applications;
- finding and training talented IT staff;
- competing demands for capital investment (e.g., clinical technologies, bricks and mortar, etc.); and
- lack of data standards and interoperability.

Hospitals are implementing numerous innovations in information technology...

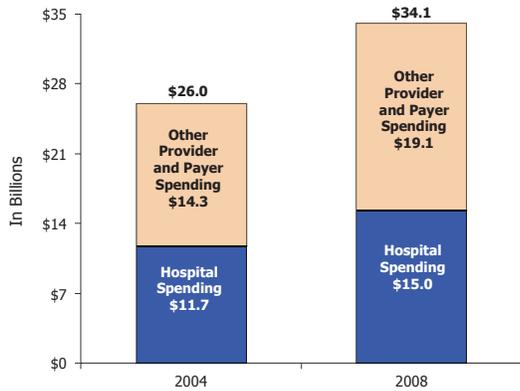
Chart 30: Examples of Information Technology Adopted by Hospitals and Health Systems

Hospital	Technology	Impact
Ohio State University Health System Hospitals	Computerized Physician Order Entry & Electronic Medication Administration Record	<ul style="list-style-type: none"> • Average medication turn-around time decreased by 64% • Average laboratory order time decreased by 25%
170 Hospitals in U.S. Veterans Health Administration	Electronic Health Record System	<ul style="list-style-type: none"> • Medication errors decreased by an estimated 70%, on average.
Valley Hospital in Ridgewood, NJ	Medication Bar Coding System	<ul style="list-style-type: none"> • Medication errors decreased to nearly 0%, with • Lowered costs and • Increased efficiency

...and health care spending on information technology is projected to grow rapidly.

...and their spending in this area is projected to increase.

Chart 31: Spending on US Health Care Information and Communications Technology, * 2004 and 2008



* Forecasted data using a Compound Annual Growth Rate (CAGR) of 7 percent

Until recently, many hospitals felt that they could not make a case for major IT investments, such as electronic health records, computerized physician order entry (CPOE), and clinical information systems, because the costs were too high.

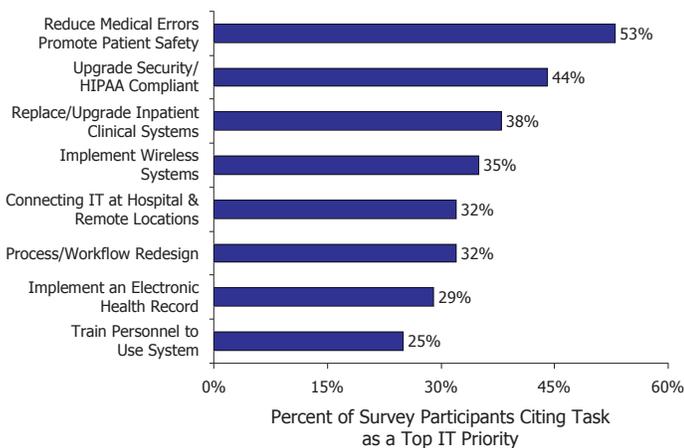
However, hospital IT directors predict that spending will grow rapidly during the next few years to aggressively address patient safety and improve quality.

By 2008, hospital spending on health care information and communication technology is predicted to increase by 28 percent to \$15.0 billion and overall health care spending in this area will reach \$34.1 billion.¹

New emphasis on clinical systems, telemedicine and the convergence of information and medical technologies with informatics (i.e., the collection, classification, storage, and dissemination of recorded information and knowledge) are likely to spur growth in IT spending.

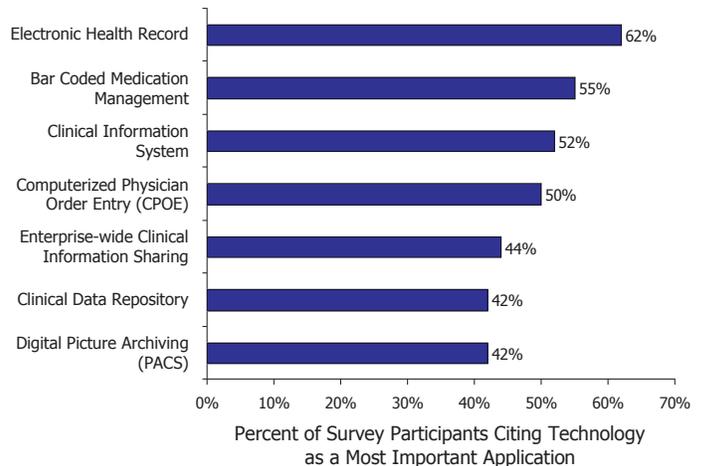
Patient safety and compliance are top IT priorities for hospitals, over the next 12 months...

Chart 32: Current IT Priorities, Within Next 12 Months (2005)



...and hospitals plan to invest heavily in electronic health records and bar coding applications over the next 2 years.

Chart 33: Most Important Applications, Over Next Two Years (2005)



Medical technology is rapidly evolving...

Rapid biomedical and technological advances have contributed to longer and better lives. Medical technology encompasses a broad range of innovations. Recent examples include new non-puncture glucose monitoring devices for patients to easily and non-invasively manage diabetic conditions, minimally invasive optical technologies (e.g., laparoscopic laser techniques), and magnetic resonance imaging (MRI) equipment.

While some advances may ultimately decrease health care expenditures (e.g., the polio vaccine), many medical innovations increase health care costs. Research and development is costly and leads to increased treatment options for many conditions — some of which were untreatable in the past. Finally, patient demand increases as technologies become less invasive, less risky, and/or more effective. For example, as cataract surgery has im-

proved with the use of phacoemulsification, a technique for cataract extraction requiring smaller incisions where an ultrasound or laser probe is used to break the lens apart without harming the capsule, demand for this procedure has increased.

Some recent, yet costly innovations include computed tomography (CT) functional imaging with positron emission tomography (PET). This can be used to evaluate a variety of medical conditions (e.g., cancer, coronary artery disease, brain tumors, myocardial infarction) but costs as much \$2.3 million dollars per machine. Drug eluting stents, coated wire mesh devices to prop open arteries, are projected to add \$2-4 billion to annual Medicare expenditures.¹ These and other technologies represent dramatic improvements in care, but together add billions to the cost of caring.

A single new technology can add billions to the cost of caring.

Chart 34: Projected Annual Costs of Recent Technology Related Medicare Coverage Expansions

Technology	Medicare Costs
Drug-eluting coronary stents	\$2 – 4 B
ICD for sudden death prophylaxis	\$1 – 3 B
PET for Alzheimer’s disease	\$1 B
Verteporfin for macular degeneration	\$750 M
Left-ventricular assist devices	\$1 – 7 B

“One technology that appears very promising and is receiving a lot of attention is PET — or positron emission tomography — which is a noninvasive diagnostic technology that can assess changes in the metabolic activity at the cellular level, critical in many oncologic, neurological or cardiac diseases. It has the potential to be an important diagnostic tool while also saving health care dollars. If I had cancer today, it would be one of the primary tools I’d want used on me.” — Randy Weatherhead, Siemens Medical Systems, Inc.

...and, although it can be costly, overall it has significant benefits.

Cost growth has been fastest for the most expensive technologies, such as diagnostic imaging. In 2000, nearly \$20 billion was invested in newer imaging equipment, such as MRIs. Between 2000 and 2008, the growth in spending on this technology is expected to increase by 133 percent.¹

Despite its cost, physicians rank imaging as the top medical innovation of the last 30 years. Advances in imaging technologies have enhanced all stages of care, including screening, diagnosis, risk stratification, monitoring, and treatment of many clinical conditions. Imaging of tissues now can be done at increasingly finer levels of detail, reducing the need for many invasive exploratory surgeries and surgical biopsies. As a result, hospitals and other providers are rapidly acquiring more

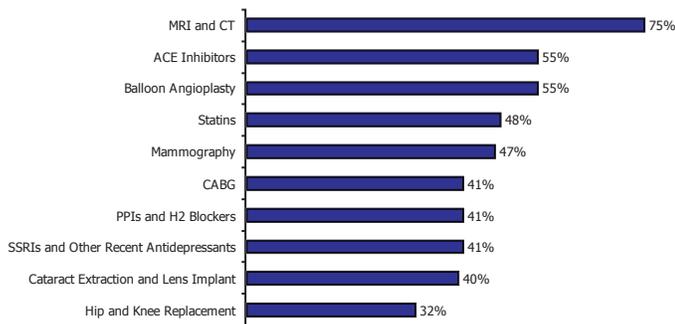
advanced imaging technology to enhance medical practice and quality of care.

Research indicates advances in medical care are contributing to longer, healthier lives. Disability and mortality rates have consistently declined since the 1970s.²

For example, improvements in thrombolytic therapy — the use of intravenous drugs to dissolve blood clots in an artery — and minimally invasive procedures have significantly improved survival rates for heart attacks. According to recent research, for every additional dollar spent on treatment for heart attacks, there is a health gain valued at \$1.10.³ Likewise, there is a return rate of about \$4.80, \$1.55, and \$1.49 for treatment for breast cancer, stroke, and type 2 diabetes, respectively.⁴

Despite its cost, physicians rank imaging as the top medical innovation of the last three decades...

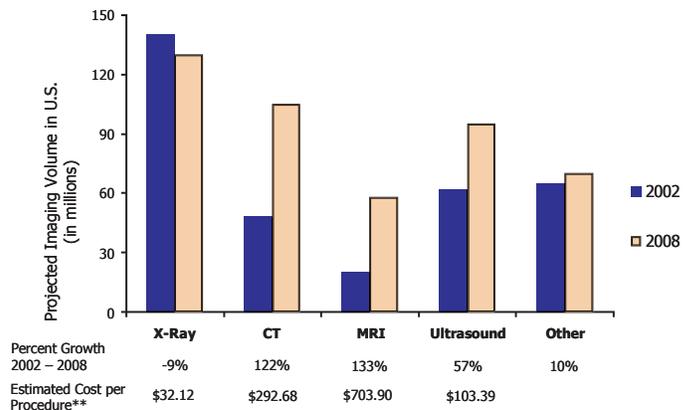
Chart 35: Percentage of Internists Stating Loss of the Innovation Would Most* Adversely Affect Their Patients



*Respondents were instructed to choose 5 to 7 medical innovations (from a list of 30) whose loss would have the most adverse effects; PPI = Proton Pump Inhibitor

...which is reflected in the expected volume growth of more advanced imaging technology.

Chart 36: Actual and Projected Hospital-Based Inpatient, Outpatient and Freestanding Facility Imaging Volume in the U.S., * 2002 and 2008



*Estimates do not include imaging services provided within physician offices
** Cost estimates are calculated from the top 5 CPT codes for each technology, weighed by volume

Overall, medical technology has significant economic and societal benefits.

Chart 37: The Value of Changes in Medical Technology

Condition	Year	Change in Treatment Costs	Outcome		
			Change	Value	Net Benefit
Heart Attack	1984-98	\$10,000	One year increase in life expectancy	\$70,000	\$60,000
Low-Birthweight Infants	1950-90	\$40,000	Twelve year increase in life expectancy	\$240,000	\$200,000
Depression	1991-96	\$0 < \$0*	Higher remission probability at some cost for those already treated Most people treated, with benefits exceeding costs		
Cataracts	1969-98	\$0 < \$0*	Substantial improvements in quality at no cost increase for those already treated Most people treated, with benefits exceeding costs		
Breast Cancer	1985-96	\$20,000	Four month increase in life expectancy	\$20,000	\$0

*No significant change in treatment cost or minimal cost savings.

Conclusion

Rising health care expenditures concern policy-makers and the public, but an appreciation of the factors driving increased spending often is missing from the debate. Much of the increase in spending on hospital care reflects advances in medicine that ultimately result in improved outcomes, longer life expectancy and a better quality of life. These advances translate into increased costs to hospitals for drugs, medical devices, imaging equipment, and other clinical supplies. At the same time improved treatment options contribute to rising demand for care. Supported by better medical care, the population is aging and more people are living longer periods of time with chronic diseases that require continuous treatment.

As the demand for care has increased, the supply of caregivers has not kept pace. Hospitals have faced critical shortages for registered nurses, pharmacists, technicians, and others. As hospitals have worked to attract highly skilled staff from a limited pool of qualified personnel, compensation rates have increased.

These factors are not likely to abate in the near future. Technology will continue to claim a larger share of hospital costs, as newer and better pharmaceuticals, devices and diagnostics are introduced and hospitals increase investment in information systems (e.g., CPOE, electronic health records). Demand will continue to rise — a factor both of the aging population and of the health care's system's ability each year to do more things for more people. Finally, the workforce shortage will continue — new projections now predict a shortfall of over a million RNs by 2020.¹ The Centers for Medicare and Medicaid Services (CMS) projects that health care expenditures, as a share of GDP, will increase from 15.3 percent in 2003 to 18.7 percent by 2014. Over the same time period, CMS projects that hospital spending will increase an average of 6.2 percent per year.²

Improving health care for society as a whole while at the same time addressing issues of affordability will require a greater understanding of the drivers of increased spending and better measures of what we are getting for our health care dollar.

Quotes from the Field

“Hospitals throughout the United States have been impacted by reduced reimbursements (Medicare and Medicaid) for many years. They are being asked to do more with less as they continue with new challenges, including an aging population, soaring medical liability insurance costs, regulatory compliance costs, and shortages of key health care professionals, to name just a few.” — Anthony M. Lombardi, Health Care Advocate, Former President and CEO of Monongahela Valley Hospital

“People want to say we’re seeing all these increases in health-care costs and not getting much for it, but there’s increasing evidence showing we’re getting

more for it. We’re getting increased quality of care and life for it.” — Tim McBride, a Health Management and Policy Professor at St. Louis University

Endnotes:

- Page 1: ¹ Centers for Disease Control and Prevention, National Vital Statistics Reports, vol. 53, no. 6, November 10, 2004
- Page 2: ¹ Centers for Disease Control and Prevention. National Vital Statistics Reports, 2004; 53(6)
- Page 3: ¹ Centers for Medicare and Medicaid Services, Office of the Actuary
- Page 4: ¹ Consumer Price Index data from U.S. Department Of Labor, Bureau of Labor Statistics, *Consumer Price Index, All Urban Consumers – (CPI-U), U.S. City Average*; Hospital Market Basket data from Centers for Medicare and Medicaid Services, Office of the Actuary
- Page 5: ¹ The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals; Centers for Medicare and Medicaid Services, Office of the Actuary; Medical Expenditure Panel Survey
- Page 6: ¹ The Lewin Group analysis of the Medical Expenditure Panel Survey, Centers for Medicare and Medicaid Services, Office of the Actuary
² Heller B, Sweeney D, *Maryland's Nursing Shortage: A Workforce Crisis*, The Nursing Workforce Project, Center for Health Workforce Development, University of Maryland, March 2003
³ The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals
- Page 7: ¹ The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals; Centers for Medicare and Medicaid Services, Office of the Actuary; Medical Expenditure Panel Survey
² Kaiser Family Foundation, *Prescription Drug Trends- A Chartbook Update*, November 2001
- Page 8: ¹ Partnership for Solutions, Medicare Expenditure Panel Survey, 2001, *Chronic Conditions: Making the Case for Ongoing Care*, September 2004
² Ibid
³ Ibid
⁴ Ibid
⁵ Ibid
- Page 9: ¹ Partnership for Solutions, Medicare Expenditure Panel Survey, 2001, *Chronic Conditions: Making the Case for Ongoing Care*, September 2004
² Ibid
³ Ibid
- Page 10: ¹ Grantmakers in Health, *Weighing in on Obesity: America's Growing Health Epidemic*, Issue Brief No. 11, Washington, D.C., 2002
² Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System, 2002
³ Grantmakers in Health, *Weighing in on Obesity: America's Growing Health Epidemic*, Issue Brief No. 11, Washington, D.C., 2002
⁴ Ibid
⁵ Ibid
- Page 11: ¹ Grantmakers in Health, *Weighing in on Obesity: America's Growing Health Epidemic*, Issue Brief No. 11, Washington, D.C., 2002
² Thompson D, et al, *Body Mass Index and Future Health Care Costs: A Retrospective Cohort Study*, Kaiser Permanente NW Division, 1999
- Page 12: ¹ Medicare Payment Advisory Commission, *Report to the Congress: Physician-Owned Specialty Hospitals*, March 2005
- Page 13: ¹ The Robert Wood Johnson Foundation and The Center for Health Design (co-sponsors), *Designing the 21st Century Hospital*, Washington, D.C., June 2004
² Carpenter D, "A Good, Old-Fashioned Building Boom," *Hospitals & Health Networks*, 2004; Carpenter D, "Behind the Boom: What's Driving Hospital Construction?" *Health Facilities Management*, 2004
³ Hamilton K, "The Four Levels of Evidence-based Practice," *Healthcare Design*, 2003; 3: 18-26
- Page 14: ¹ Institute of Medicine, *Crossing the Quality Chasm*, National Academy Press, Washington, D.C., 2001
² "The 100 Most Wired Vroom!" *Hospitals & Health Networks*, July 2004
- Page 15: ¹ Datamonitor Market Research Report, *US Health Care IT Spending Opportunities*, August 2004
- Page 16: ¹ Newman PJ, *Medicare National Coverage Decisions: How is CMS Doing?* Presented at National Health Policy Conference, February 2005
- Page 17: ¹ Blue Cross and Blue Shield Association, *Medical Cost Reference Guide*, October 2004
² MEDTAP International, *The Value of Investment in Health Care: Better Care, Better Lives*, 2004
³ Ibid
⁴ Ibid
- Page 18: ¹ Biviano M, Dall TM, Fritz MS, and Spencer W, *What is Behind HRSA's Projected Supply, Demand, and Shortage of Registered Nurses*, Rockville, MD: National Center for Workforce Analysis, Bureau of Health Professions, Health Resources and Services Administration, September 2004
² Centers for Medicare and Medicaid Services, Office of the Actuary

Sources:

- Chart 1: Centers for Disease Control and Prevention, National Vital Statistics Reports, vol. 53, no. 6, November 10, 2004
- Chart 2: Centers for Medicare and Medicaid Services, Office of the Actuary
- Chart 3: Ibid
- Chart 4: Ibid
- Chart 6: The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals; Centers for Medicare and Medicaid Services, Office of the Actuary; Medical Expenditure Panel Survey
- Chart 7: Ibid
- Chart 8: CPI Data from Department of Labor, Bureau of Labor Statistics, *Consumer Price Index, All Urban Consumers - (CPI-U), U.S. City Average*; Hospital Market Basket data from Centers for Medicare and Medicaid Services, Office of the Actuary
- Chart 9: The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals; Centers for Medicare and Medicaid Services, Office of the Actuary; Medical Expenditure Panel Survey
- Chart 10: American Hospital Association 2005 Survey of Hospital Leaders
- Chart 11: The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals
- Chart 12: The Lewin Group analysis of American Hospital Association Annual Survey data, 1998 – 2003, for community hospitals; Centers for Medicare and Medicaid Services, Office of the Actuary; Medical Expenditure Panel Survey
- Chart 13: U.S. Census Bureau, Population Division, Population Projections Branch, *Projected Population of the United States, by Age and Sex: 2000-2050*
- Chart 14: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Accounts data, 1999, December 2004; National Center for Health Statistics, Centers for Disease Control and Prevention, *Health, United States, 2004*
- Chart 15: The Lewin Group analysis of American Hospital Association Annual Survey data, 1980 – 2003, for community hospitals
- Chart 16: Adapted from Partnership for Solutions, Medicare Expenditure Panel Survey, 2001, *Chronic Conditions: Making the Case for Ongoing Care*, September 2004
- Chart 17: Adapted from Partnership for Solutions, Johns Hopkins University, *Chronic Conditions: Making the Case for Ongoing Care*, December 2002
- Chart 18: Adapted from Partnership for Solutions, Medicare Expenditure Panel Survey, 2001, *Chronic Conditions: Making the Case for Ongoing Care*, September 2004
- Chart 19: Ibid
- Chart 20: Ibid
- Chart 21: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention & Health Promotion, *Behavioral Risk Factor Surveillance System, 1990-2002*
- Chart 22: Thorpe KE, Curtis SF, Howard DH, Joski P, "The Rising Prevalence of Treated Disease: Effect on Private Health Insurance Spending," *Health Affairs - Web Exclusive*, June 27, 2005; Analysis based upon authors' evaluation of National Medical Expenditure Survey (NMES), 1987, Medical Expenditure Panel Survey (MEPS), 2002
- Chart 23: Thompson D, et al, *Body Mass Index and Future Healthcare Costs: A Retrospective Cohort Study*, Kaiser Permanente NW Division, 1999
- Chart 24: Thorpe KE, Curtis SF, Howard DH, Joski P, "The Rising Prevalence of Treated Disease: Effect on Private Health Insurance Spending," *Health Affairs - Web Exclusive*, June 27, 2005; Analysis based upon authors' evaluation of National Medical Expenditure Survey (NMES), 1987, Medical Expenditure Panel Survey (MEPS), 2002
- Chart 25: The Lewin Group analysis of the National Inpatient Samples for 1998, 2000, and 2002 using APR-DRGs
- Chart 26: MedPAC analysis of Medicare hospital inpatient claims and cost reports from CMS, fiscal year 2000-2002
- Chart 27: The Lewin Group analysis of hospital cost report data - Consistent panel of hospitals reporting each year (N=4644 short-stay hospitals)
- Chart 28: *The 1994 Almanac of Hospital Financial and Operating Indicators, The 1996-7 Almanac of Hospital Financial and Operating Indicators, and The 2005 Almanac of Hospital Financial and Operating Indicators*
- Chart 29: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Accounts data
- Chart 30: Mekhjian HS, Kumar RR, Kuehn L, et al, "Immediate Benefits Realized Following Implementation of Physician Order Entry at an Academic Medical Center," *Journal of the American Informatics Association*, Sept-Oct 2002; Rhonda L. Rundle, *WSJ*, December 10, 2001; Campbell, *Newark Star-Ledger*, April 14, 2004
- Chart 31: Datamonitor Market Research Report, *US Healthcare ICT Spending Opportunities*, August 2004
- Chart 32: Adapted from Healthcare Information and Management Systems Society, 16th Annual HIMSS Leadership Survey sponsored by Superior Consultant Company, February 14, 2005
- Chart 33: Ibid
- Chart 34: Adapted from Neumann PJ, *Medicare National Coverage Decisions: How is CMS Doing?* Presented at National Health Policy Conference, February 2005
- Chart 35: Adapted from Blue Cross and Blue Shield Association, *Medical Cost Reference Guide*, October 2004
- Chart 36: Ibid
- Chart 37: Adapted from Cutler DM, McClellan M, "Is Technological Change in Medicine Worth It?" *Health Affairs*, 20(5):11-29, 2001



American Hospital Association
Liberty Place, Suite 700
325 Seventh Street, NW
Washington, DC 20004-2802
(202) 638-1100
www.aha.org



The Lewin Group
3130 Fairview Park Drive, Suite 800
Falls Church, VA 22042
(703) 269-5500
www.lewin.com