



# Cost of Caring: Key Drivers of Growth in Spending on Hospital Care

Prepared for the American Hospital Association  
and the Federation of American Hospitals

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## Executive Summary

After a period of relatively low growth in the mid-1990s, health insurance premiums began to accelerate and reached double-digit levels during the past three years. Spending on hospital services followed a similar path although the growth rates were lower in most years. The growth rate in spending on hospital care rose from 2.9% in 1998, the low-point of the 1990s, to 8.3% in 2001. PricewaterhouseCoopers undertook this study in order to examine the sources of higher growth in spending on hospital care and explain them using the best available data.

### Summary of Findings

From 1997 to 2001, spending on hospital care increased \$83.6 billion. The most important source of growth was volume. Volume—which includes population growth and increased utilization per capita—accounts for 55.4% of the increase in spending on hospital care between 1997 and 2001. Of the increase, 34.4% can be attributed to increased utilization and 21.0% to population growth.

Increasing costs for the goods and services needed to provide care accounted for the remaining 44.6% of the increase. Notably, this increase in costs was moderated by efficiencies and other growth factors, resulting in an estimated offset of 18.3 percentage points. Of the total increase in costs, wages and benefits made up the largest category, accounting for 38.8% of the overall increase. Hospital margins declined every year during this period.

The growth in spending on hospital care is moderating. According to the latest forecasts, growth in spending on hospital services declined from 8.3% in 2001 to 7.4% in 2002, and is expected to be 5.5% in 2003. Correspondingly, hospitals' share of national health spending is estimated to decline from 31.7% in 2001 to 30.8% in 2003. Labor costs, pushed up by the nursing shortage, are expected to account for the largest share of the current growth in spending on hospital services.

Finally, the latest government forecasts predict that growth in spending on hospital services will hover around 6% throughout the next decade, more than a percentage point below average growth in national health spending, which is expected to average 7.1%. The downward trend in hospital services as a share of national health spending, which was discussed above, is expected to continue uninterrupted until 2012. From 31.7% observed in 2001, the share is expected to fall to 27.9% in 2012. The 2012 share is expected to be more than one-third less than the peak share of 42.1% in 1982.

### Contents

- Executive Summary ..... 1
- Background ..... 2
- Study Description ..... 4
- Major Findings ..... 5
- Breakdown of Most Recent Growth in Spending on Hospital Services ..... 15
- What Does the Future Hold for Growth in Spending for Hospital Care? ..... 18
- Appendix ..... 19
- Contact Information ..... 20

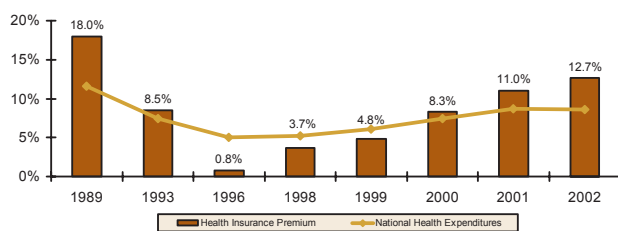
## Background

*The recent acceleration in the growth of healthcare spending and premiums has gained national attention.*

Recent increases in healthcare spending and double-digit premium increases are reminiscent of the late 1980s and early 1990s, when spending increases ushered in an era of cost control and managed care.

After peaking at 18% in 1989, increases in health insurance premiums moderated during the mid-1990s. That period saw financial losses for many health insurers, with some insurers abandoning healthcare while others merged. Then, in 1997, health insurance premiums began rising again, with double-digit increases occurring from 2001 through 2003. Health insurers' bottom lines correspondingly began to recover. The recent double-digit increases in health insurance premiums are a reflection of increases in the underlying costs of healthcare as well as the need to make up for premiums that were below costs in prior years (a reflection of the "underwriting cycle").<sup>i, ii</sup> Chart 1 shows the annual percentage change in health insurance premiums.

**Chart 1**  
**Annual Percentage Change**  
**in Health Insurance Premiums,**  
**1989 to 2002**



Source: Kaiser/HRET Survey of Employer-Sponsored Health Benefits: 2000, 2001, 2002; KPMG Survey of Employer-Sponsored Health Benefits: 1993, 1996; Centers for Medicare and Medicaid Services (CMS), Office of the Actuary, National Health Statistics Group, National Health Accounts.



*Spending on hospital care has grown more slowly than other types of healthcare spending.*

The hospital share of overall healthcare spending has dropped from 36% in 1990 to 32% in 2001, and forecasts indicate that this percentage will continue to drop despite the surge of baby boomers who will use more hospital services as they age.

Even during the most recent two years—2000 and 2001, when overall cost growth began to accelerate—increases in spending on hospital care have been below overall increases. In 2000, overall healthcare spending increased 7.4%, and spending on hospital care increased 5.8%. In 2001, healthcare spending increased 8.7% and spending on hospital care rose 8.3%. Notably, physician services, at 8.6%, and prescription drugs, at 15.7%, logged higher increases than hospitals.

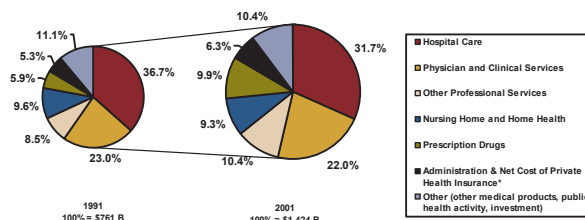
Spending on hospital services over the last 10 years has grown 61%. This is less than the other components of national health spending: 124% for administration and the net cost of private health insurance (a measure of public and private payer overhead and profit), 213% for prescription drugs, 81% for nursing homes, and 80% for professional services. (See Chart 2.)

This research paper focuses on what's driving spending on hospital care by looking at the cost drivers within the hospital setting. This paper is not designed to specifically explore how other segments of the healthcare field, such as the use of new pharmaceuticals or medical technology, have affected overall spending on hospital care. Nor have we attempted to quantify the quality aspects—such as longer life or improved quality of life—of these cost drivers, spending trends or industry influences.

Official government forecasts show that the growth in spending on hospital services, which peaked in 2001, will fall below 6% for the remainder of the next decade.

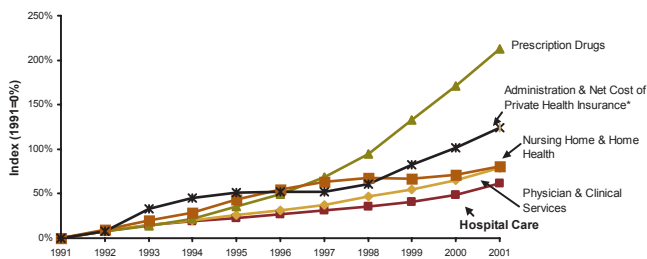
*Spending on hospital services is still the largest component of a quickly growing pie.*

**Chart 3**  
**Percent of Total National Health Expenditures**  
**by Category**  
**1991 versus 2001**



\*Administration for government programs and the net cost of private health insurance (premiums less benefits) which reflects underwriting gains/losses.  
 Source: Centers for Medicare and Medicaid Services (CMS), Office of the Actuary, National Health Statistics Group, National Health Accounts.

**Chart 2**  
**Cumulative Annual Percentage Change**  
**in National Spending for Selected Health Services**  
**1991 to 2001**

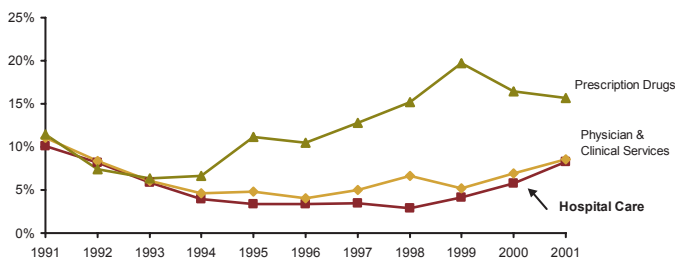


\*Administration for government programs and the net cost of private health insurance (premiums less benefits) which reflects underwriting gains/losses.  
 Source: Centers for Medicare and Medicaid Services (CMS), Office of the Actuary, National Health Statistics Group, National Health Accounts.

*After a period of relatively low growth in the mid-'90s, a recent uptick in spending on hospital care has occurred.*

Beginning in 1999, growth in spending on hospital care began to accelerate. By 2001, hospital spending growth was only slightly less than the average for all healthcare services and supplies—8.3% for hospitals compared to 8.7% overall. (See Chart 4.)

**Chart 4**  
**Annual Percentage Change in National Spending for**  
**Selected Health Services, 1991-2001**



Source: Centers for Medicare and Medicaid Services (CMS), Office of the Actuary, National Health Statistics Group, National Health Accounts.



## Study Description

*We conducted a study based on the best available data.*

The American Hospital Association and the Federation of American Hospitals asked PricewaterhouseCoopers to conduct a study of the recent acceleration in spending on hospital care and the drivers behind it. To calculate the key drivers of spending on hospital services, PricewaterhouseCoopers reviewed the best available data from private and public sources. Those sources included:

- Centers for Medicare and Medicaid Services:
  - National Health Expenditures by category, historical and projected
  - The Market Basket Index, which measures the amount that hospitals pay for the goods and services they must purchase to provide patient care
- U.S. Bureau of the Census data on population, demographics, and healthcare construction
- Bureau of Health Professions data on the nursing shortage
- Bureau of Labor Statistics data on wage rates and employment trends
- National Center for Health Statistics (CDC) data on hospital utilization rates
- American Hospital Association data on hospital volume (admissions, days, outpatient visits) and finances
- Other publicly available surveys, data, literature, and media reports

Analysis of these data sources was supplemented with interviews of hospital executives.

*This study looks in depth at the sources of growth from 1997-2001—when growth began to accelerate—and then looks forward to 2003 and beyond.*

The analysis presented in this study concentrates on three key periods in the past as well as forecasts of the next decade. Specifically, the periods are as follows:

1. Overview: 1991-2001
2. Trough-to-Peak: 1997-2001 includes the low point and high point of overall healthcare spending growth in the most recent cycle according to government estimates.
3. Current Period: 2001-2003 is the current period, which must be analyzed mostly with forecasts.
4. Forecast Period: 2002-2012 is based on the latest forecasts from the actuaries in the Centers for Medicare and Medicaid Services.

*The study breaks down the growth in spending on hospital care into components including growth in costs of goods and services that hospitals purchase, increases in volume due to population growth and changes in use rates, and other factors.*

In addition to breakdowns based on recent and past government and association statistics, this study also estimates for the current period, the impact on spending of factors such as medical technology, regulatory changes, and construction. These estimates, which are not available from official government sources, are based on interviews, economic models, judgment, and professional literature.

Data for the most recent period, 2001-2003, is not available except in the form of forecasts. For that reason, the estimates of national health spending, spending on hospital services, the hospital market basket, and population are based on the best available forecasts from U.S. government agencies. Growth in adjusted admissions was based on the most recent past trends.

# Major Findings

**From 1997 to 2001, the most important source of growth was volume—more people using more hospital services.**

National spending on hospital care increased \$83.6 billion between 1997 and 2001. Of this, the most significant source of growth was volume—more people using more hospital services. The volume of hospital services accounted for 55.4% of the increase in spending on hospital care between 1997 and 2001. Increasing costs in the goods and services used to provide care accounted for the remaining 44.6% of the increase. Notably, this increase in costs was moderated by an estimated 18.3 percentage point reduction attributed to efficiencies and other growth factors. These factors held back spending growth by more than \$15 billion.<sup>iii</sup>

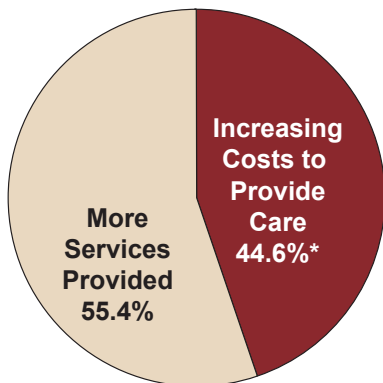
**Increasing volume reflects both population growth and increased use rates (number of services used per capita).**

The volume of services accounted for 55.4% of growth during 1997-2001. Population growth accounted for 21.0% and increased usage of hospital services accounted for the remaining 34.4% of the increase.

“Today, we have 10 people sitting in the emergency department because we don’t have beds for them. In Norfolk, every one of the beds is full. On Thursdays and Fridays, we have people backed up in every one of our emergency departments.”

—Howard Kern, President and Chief Operating Officer, Sentara Healthcare, Norfolk, Va.

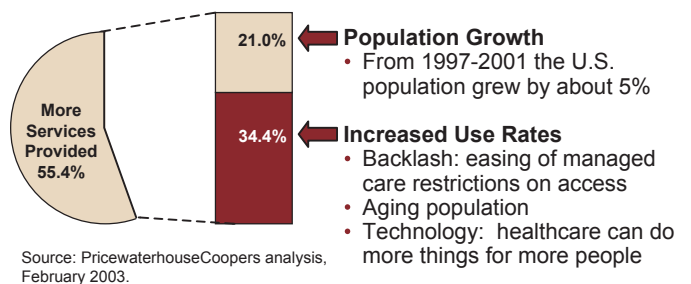
**Chart 5**  
Share of Growth in Spending on Hospital Care 1997 to 2001



\*Net of increases in efficiency.  
Source: PricewaterhouseCoopers calculations, February 2003.

By all measures, the volume of services provided by hospitals is rising. During most of the 1990s, inpatient days declined, with admissions falling between 1990 and 1994. The number of admissions began to rise in 1995, slowly at first and then about 2% a year in 2000 and 2001, according to AHA data.

**Chart 6**  
Share of Growth in Spending on Hospital Care, Volume of Hospital Services Component, 1997 to 2001

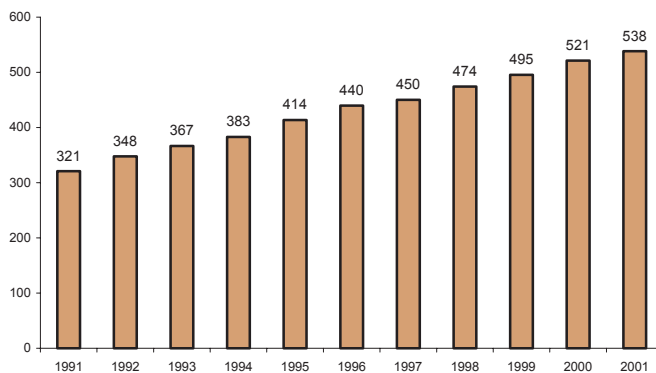


Volume increases have been more pronounced for outpatient care. (See Chart 7.) As care that used to be provided on an inpatient basis has shifted to the outpatient setting, the lines between inpatient and outpatient volume have begun to blur. Today, an outpatient may stay two or sometimes three days in an “observation bed,” often because of payers’ reimbursement schedules. For example, Medicare regulations dictate that certain cardiac and respiratory patients must be placed in observation beds rather than admitted as inpatients. While classified as outpatients, these individuals receive nursing care, antibiotics and, often, intravenous therapy. Some hospitals have created dedicated units of observation beds.



We attribute these utilization increases to the following factors:

**Chart 7**  
**Outpatient Visits in Millions**  
**1991 to 2001**



Source: American Heart Association (AHA), Trendwatch Chartbook 2002.

Adjusted admissions, which blend inpatient and outpatient data, present the best picture of overall hospital utilization. Since 1996, adjusted admissions have increased at least 3% a year—with the exception of a 2% rise in 1998.<sup>iv, v</sup>

- **Aging**

As Americans grow older they use more services. Baby boomers are just entering the 55 to 64 age group, where inpatient days per thousand are 58% higher than in the 45 to 54 age group, and 121% higher than in the 35 to 44 age group.<sup>vi</sup>

- **Lack of effective care management and patient education**

An effective healthcare system should ensure that patients receive the right care, at the right time, in the most appropriate setting. While hospitals are the venue for a significant amount of care, they have less control over how and where it gets provided. The place where problems elsewhere in the system are most apparent is in the hospital emergency department (ED). ED volume has spiraled upward since the mid-1990s because of legislative, business and social changes. A 2002 study commissioned by the AHA reported that 62% of hospitals are at or over operating capacity in their EDs.<sup>vii</sup> Yet, for a variety of reasons, analysts say that as much as one-third of these ED visits are either unnecessary, could have been avoided or could be treated in less expensive settings. Patients often go to

emergency departments because they don't know whether their situation constitutes an emergency, they don't have or can't access their primary care physician, they know they cannot be turned away for financial reasons, or they simply have nowhere else to go. In other cases, patients end up in the ED because of inadequate management of chronic diseases, like asthma and diabetes, in the outpatient setting.

Parkland Memorial Hospital in Dallas built a network of primary care clinics to relieve overcrowding in its emergency department. In 1982, Parkland's emergency department saw 180,000 patients. By 2001, it had dropped to 114,000, showing that the strategy was working. Then, in 2002, the trend reversed. Why?

"Economy, rising uninsured and the regulatory environment," said **Parkland CEO Ronald Anderson, M.D.** "Unless people have access to a primary care physician, they'll utilize the ER. And, with 40 states reporting budget deficits, we'll see more people become uninsured."

"Between 1997 and 1998, we started to see the spike in utilization. Every one of the insurers in our community dramatically reduced their utilization management activities."

—**Greg Poulsen, Vice President of Strategic Planning, Intermountain Health Care, Salt Lake City**

- **Less restrictive benefit plans**

Beginning in 1997, employees started moving from more restrictive plans like HMOs to less restrictive plans, such as PPOs. The low point in premium/spending growth occurred during

the high point in HMO penetration. PPOs are less restrictive health plans than HMOs and as a result, their utilization of hospital services is higher. At the same time, many health insurers relaxed restrictions within their HMO products by both broadening networks and pulling back on utilization control measures such as preauthorization.<sup>viii, ix</sup>

- **New and more expensive technologies**

Healthcare today can do more things for more people, adding to the length and quality of life, but also increasing spending on healthcare. For example, patients with heart disease—the leading killer in the U.S.—are being treated at an earlier age, returning to work faster and living longer. But costs of treating this disease are rising along with advancements in technology. The number of cardiac catheterizations per thousand increased 8%, from about 1,200 in 1997 to more than 1,300 in 2000.<sup>x</sup> Between 1999 and 2001, sales of pacemakers increased 8%; sales of defibrillators were up 45%.<sup>xi</sup>

Newer and less invasive surgical techniques lower the threshold for intervention, allowing patients that are older and frailer to receive treatment that would have been too risky in the past. In some cases, devices such as stents preclude the need for more expensive, invasive surgeries.

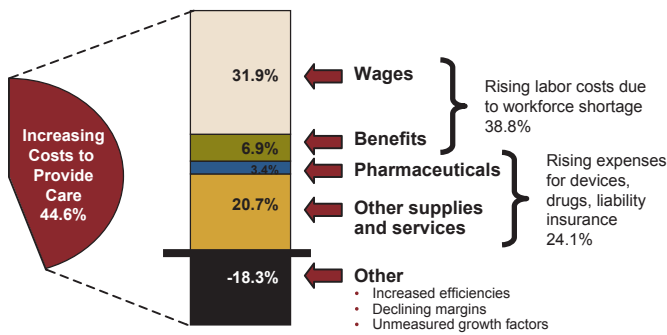
The use of diagnostic imaging is increasing faster than the nation's population growth, indicating higher utilization. For example, 399 million medical imaging procedures were performed in 2000, up 2.6% from 1999.<sup>xii</sup> Better diagnostic techniques are detecting disease earlier and increasing the potential for effective treatment.

**Compensation—wages and benefits—is the most significant driver of the increased costs of goods and services purchased by hospitals.**

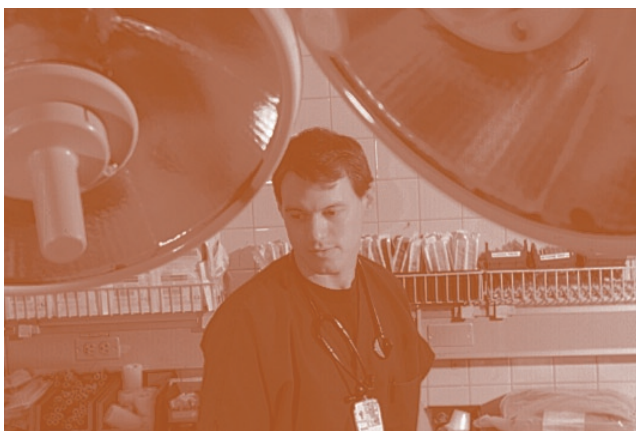
Increases in the costs of goods and services purchased by hospitals accounted for 44.6% of growth during 1997-2001. Wages and benefits accounted for the largest share, or 38.8%. All other goods and services accounted for 24.1%. However, efficiencies and other factors reduced overall cost growth by \$15 billion over the period, an offset of 18.3 percentage points.

**Chart 8**

**Share of Growth in Spending on Hospital Care, Costs of Goods and Services Purchased by Hospitals Component 1997 to 2001**



Source: PricewaterhouseCoopers analysis, February 2003.

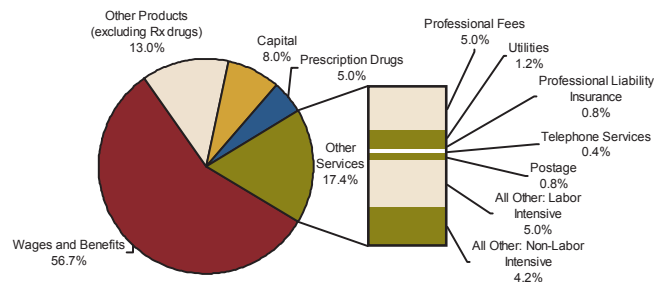


Labor, not surprisingly, is the most important factor. Nearly three-fifths of hospital costs go to the wages and benefits of caregivers and others.

As shown in the chart below, wages and benefits account for 56.7% of all hospital costs.<sup>xiii</sup> Other services, such as professional fees, utilities, and professional liability insurance, account for another 17.3%. Products, including both prescription drugs and other components, account for about 18% (5% drugs; 13% other products). Finally, capital costs (the annualized costs of capital, such as interest and depreciation) account for 8% of spending.

**Chart 9**

**Percent of Total Hospital Costs by Type of Expense\***



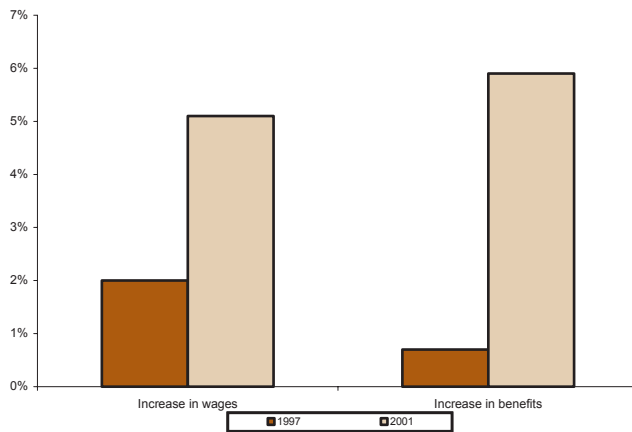
\*Based on CMS Medicare Hospital Market Basket Index weights from 1997. Source: Centers for Medicare and Medicaid Services (CMS), Office of Actuary; Data from the National Health Statistics Group; Federal Register, Medicare Program: Changes to the Hospital Inpatient Prospective Payment Systems and FY 2003 Rates, 67(148), August 1, 2002.

**Labor costs accounted for 38.8% of the increase in spending on hospital care between 1997 and 2001.**

Patient care is labor intensive. Between 1997 and 2001, wage increases nearly tripled for hospitals.<sup>xiv</sup> Chart 10 uses the government’s hospital market basket to show the differences in wage rates and benefits per employee between 1997—the low growth year for national healthcare spending—and 2001.

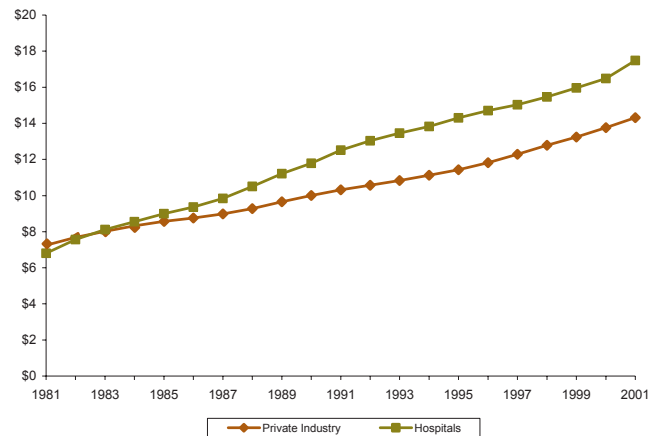


**Chart 10**  
**Percent Change in Wages and Benefits Between**  
**1996-97 and 2000-2001**



Source: Centers for Medicare and Medicaid Services (CMS), Federal Register, Medicare Program: Changes to the Hospital Inpatient Prospective Payment Systems and FY2003 Rates, 67(148), August 1, 2002.

**Chart 11**  
**Hourly Earnings for Private Industry and Hospitals**  
**1981-2001**



Source: Bureau of Labor Statistics (BLS), Employment, Hours, and Earnings from the Current Employment Statistics Survey (National), <http://www.bls.gov/ces/home.htm#data>.

Because hospital workers often require specialized training, their wages are higher than workers in other fields. (See Chart 11.) During much of the 1990s, hospital worker salaries were increasing at or under industry norms. Given that the period between 1995 and 2000 was a period of economic expansion, hospitals were hard-pressed to keep up with the wage increases being offered in private industry. At the same time, hospitals began to see their margins erode.

By 2001, with the shortage of clinical workers growing at the same time that more patients were seeking care, hospitals were forced to increase salaries to cover shifts and ensure that services were available. For the first time in a decade, hospitals increased hourly earnings far above the increases paid by private industry.

“Nurses now have many more employment options. We have a number of industries here in the community that have one or more nurses working for them. Others work for the school system, home healthcare, health departments and managed care companies.”

—**Robert Harman, CEO and Administrator,**  
**Grant Memorial Hospital, Petersburg, W.Va.**

In addition to wage increases, hospitals have been absorbing other non-wage expenses to retain or recruit nurses, including:

- Tuition reimbursement
- Signing, retention or referral bonuses
- Loan forgiveness
- Subsidized child care centers

The overall effect of recent wage increases is multiplied when more workers are added. Between 1996 and 2001, hospitals hired 248,000 more workers.<sup>xv</sup> Even so, vacancy rates remain high; and hospitals at times must ask nurses to cover additional shifts, which raises costs and may lead to burnout and turnover.<sup>xvi</sup>

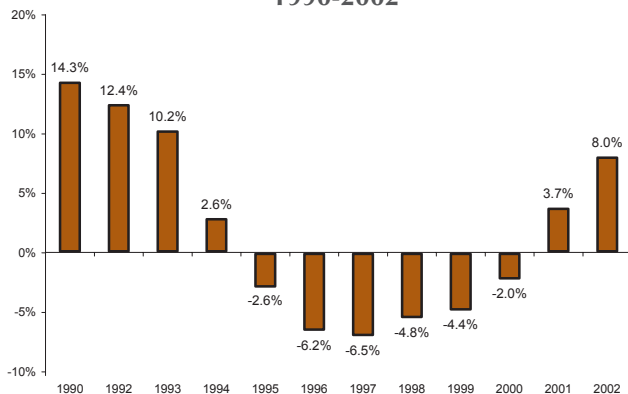
The current shortage of nurses is a result of a decade-long drop in nursing enrollment. Beginning in 1990, fewer students were seeking nursing careers. (See Chart 12.) This had a critical effect on the hiring pool for nurses. By 2001, enrollments were rebounding, but hospitals must wait two to four years for new graduates to enter the workforce.

When those graduates do start looking for work, hospitals must compete with other employers who promise better hours and less stress. About 60% of nurses work in hospitals. Because nurses can work in less stressful venues, hospitals often must pay premiums for these workers, adding to costs. In addition, hospitals must pay shift differentials to nurses who work nights, weekends and overtime.

While nurses account for an estimated 63% of a hospital's labor costs, thus causing the most immediate concern, hospitals also are encountering growing shortages in other areas, including coders, radiology technicians, and pharmacists.

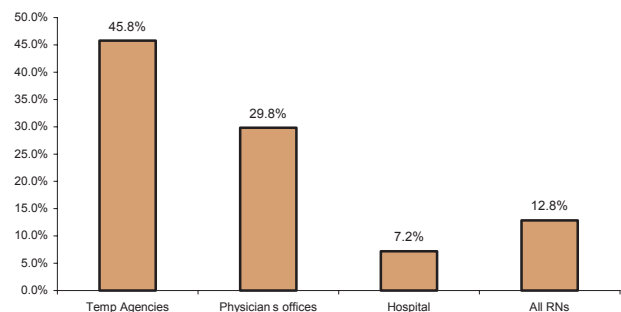
When hospitals can't hire workers, they must pay a premium for temporary workers. Hospitals pay between 2 and 2.5 times as much for an agency nurse as an employed nurse. Hospitals often must utilize agency nurses not only to fill vacancies, but also because of the scheduling flexibility they provide. The growth in agency nurses has been dramatic since 1997, growing 46% compared to 7% for nurses in hospitals. (See Chart 13.)

**Chart 12**  
Annual Percentage Change in  
Entry Level Baccalaureate Nursing Enrollment  
1990-2002



Source: Berlin LE et al. Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing. Washington, DC: American Association of Colleges of Nursing, 1990-1991 - 1996-1997.

**Chart 13**  
Percentage Change in Registered Nurses  
by Employment Setting  
1997 to 2001



Source: Bureau of Labor Statistics (BLS), Employment, Hours, and Earnings from the Current Employment Statistics Survey (National), <http://www.bls.gov/ces/home.htm#dat>.

**Non-labor costs accounted for 24% of the increase in spending on hospital care between 1997 and 2001.**

Non-labor costs include costs of supplies, drugs, devices, medical equipment and technology, and medical liability insurance. This figure reflects increases in the prices of supplies and services used by hospitals. Generally, increases in the usage of drugs or devices will be included in utilization figures. Overall, supply costs increased at a lower rate than labor during this period, but most hospitals report double-digit increases in certain supplies and drugs due to new products and/or increased utilization.

Specifically, drug expenditures increased 13% per hospital in 2001.<sup>xvii</sup> In 2002, hospital pharmacy purchases were expected to increase 15.5% in hospitals and clinics and 18.5% in outpatient settings.<sup>xviii</sup> The rise in spending in outpatient settings is spurred primarily by oncology drugs and vaccines.

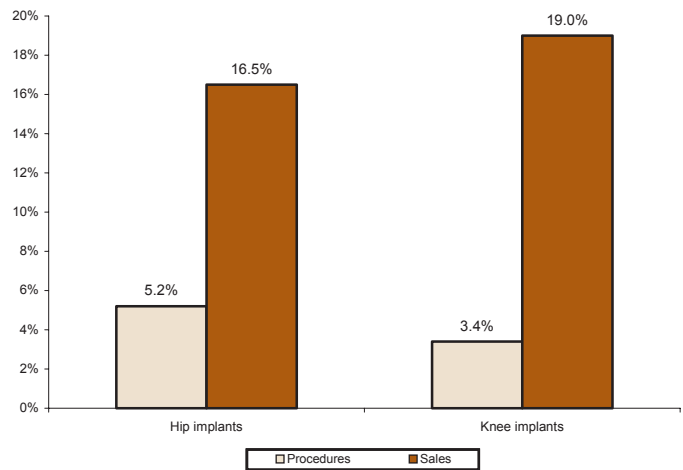
A small number of new products can have a big effect. For example, four products accounted for 25% of the increase in drug expenditures in 2001.<sup>xix</sup>

In addition, hospitals are using more drugs per patient, a trend known as multitherapy.

The same is true of devices. The number of implant procedures, for example, is increasing, but the costs are rising not just because of volume, but also because new, improved, and more expensive devices are being used.<sup>xx</sup> (See Chart 14.) For example, knee implants can range from \$3,700 to \$5,500; hip implants range from \$2,100 to \$5,100.

Chart 14

**Annual Percentage Change for Procedures and Sales of Hip and Knee Implants, 2001**



Source: Orthopedic Network News, 2002 Hip and Knee Implant Review, July 2002.

**Physicians prefer to prescribe the latest and best tests and devices.**

If offered a choice between two pacemakers, with the more expensive one having a longer-life battery and other superior features, physicians understandably prescribe the more expensive one. Physicians are not paid to do cost/benefit analyses; they are paid to provide the best care possible.

In addition, with medical liability premiums rising along with jury awards, physicians may be increasingly practicing “defensive medicine,” ordering more expensive tests to ensure that all bases are covered on a patient’s treatment.

“We’re seeing a significant impact from expensive items like implants, and managed care companies have resolved that they don’t care what implant we put in, they’re going to pay the average price. Physicians do what they believe to be in the best interests of the patients. It is difficult to balance those situations.”

—**Jim Jaacks, Chief Operating Officer,  
Sisters of Mercy Health System**

The drug-eluting stent is an example of a single new “breakthrough” technology that may alone have a measurable impact on spending for healthcare. These stents are expected to cost at least \$3,000, a significant premium to the cost of today’s stents. Seventy-seven percent of interventional cardiologists surveyed recently by JP Morgan said they expected to be using these stents by the end of 2003.<sup>xxi</sup> However, research shows that drug-eluting stents will enable patients to avoid the pain and cost of invasive surgery, which also translates into shorter recovery times. When costs and benefits are weighed together, studies have shown that in many instances—heart attacks, low-birth weight babies, depression and cataracts—the increased costs of technology and higher utilization are outweighed by the benefits to the patient in longer life or improved quality of life.<sup>xxii</sup>

***Medical liability premium costs are usurping hospitals’ thin margins.***

Our research indicates that medical liability premiums increased between 30% and more than 100% in 2002. It is difficult to generalize about these increases because they depend on the litigation climate and state statutes regarding jury awards. For example, California

hospitals reported lower increases because the state caps damage awards.

However, the current cycle of premium increases is creating higher costs for hospitals. For example, in an AHA survey, 35% of hospitals said they increased their deductible to reduce their liability premiums; 17% said they took on less coverage.<sup>xxiii</sup>

The situation is so critical that nearly 30 states are considering tort reform, including caps on non-economic damages and limits on contingency fees.

“We’re in sticker shock; the increases are staggering,” said **Gary Fennessy**, Vice President of Finance for **Northwestern Memorial Hospital** in Chicago. Northwestern’s insurance costs have more than doubled and now represent 5% of total hospital expenses, compared to 2% of expenses from the prior year. The major driver of this increase is medical liability insurance.

Some hospitals are beginning to subsidize premiums for physicians, who also face rising premiums. This, too, is a regionalized issue. Unlike hospitals, physicians can move their practices. So, when they are quoted high medical liability premiums, physicians may choose to move to states where coverage is more affordable. Twenty-seven percent of the hospitals surveyed last year by the AHA said physicians were relocating or retiring because of their inability to obtain affordable liability coverage.<sup>xxiv</sup>

**St. John's Lutheran Hospital** is a vital safety net to the residents of Libby, a mountain town in northwest Montana. Unemployment lingers in the high teens, stemming from a slow-down in the logging industry and closure of the local mines. Young people have left the community in search of better long-term employment. St. John's stands alone to provide needed medical care. The next closest hospital is 90 miles away. The hospital maintains the region's only home healthcare agency, despite continued financial losses. One-third of the community's 15 physicians are employed by the hospital and several of the others are asking the hospital to help pay for their rising medical liability premiums. The hospital's own liability premiums doubled to \$200,000 this year. Since 1992, St. John's bad debt and charity care have increased 10-fold to \$815,000 a year on net revenues of approximately \$10 million. "Until about 18 months ago, our costs were fairly predictable," said **Richard Palagi**, the hospital's CEO. "Then, they became unpredictable," he said noting wage, employee benefit, and liability premium increases.

***The costs of "readiness" are embedded in both labor and supply costs.***

In addition to standing ready to deal with everyday emergencies, hospitals are being asked to prepare for the threat of terrorist action. Since the Sept. 11, 2001 attacks, there has been concern that hospitals need to maintain higher "surge" capacity to handle a disaster or attack.

The costs of preparedness for terrorism or any other public health crisis include communication and notification systems, disease surveillance, disease reporting and laboratory identification, personal protective equipment,

dedicated decontamination facilities, pharmaceutical and medical/surgical supplies, training and drills, and mental health services. Those costs are likely to cost billions nationally.<sup>xxv</sup>

***Hospital efficiency improvements accounted for \$15 billion in savings between 1997 and 2001.***

During the 1990s, hospitals increased efficiency, largely in response to payer pressures. Medicare provided payment updates below the market basket rate of inflation in all but one year, and managed care plans demanded deep discounts. Hospitals responded with various cost-saving initiatives:

- **Length of stay reduction.** This metric, which demonstrates hospitals' ability to treat patients in a reduced amount of time, fell steadily and continues to fall. Length of stay in 2001 was 5.7 days, a 26% drop from 1990.<sup>xxvi</sup>
- **Reduction in inpatient capacity.** As hospital care shifted from the inpatient to the outpatient setting during the 1990s, community hospitals took more than 100,000 beds out of service, which saved on staffing and maintenance. Since 1996, occupancy rates have been rising but the number of beds has continued to fall, although at a slower pace. By 2000, total beds were only 82% of the 1991 level. Total beds increased for the first time in 2001, rising by a modest 0.3%. The growing frequency of emergency department diversions is evidence that some hospitals are running out of staffed bed capacity.

“Productivity has increased by approximately 3.5% per year over the past three years, however, acute industry shortages for certain clinical specialties have resulted in manpower inflation in excess of reimbursement trends.”

—Carl Schindelar, CEO,  
Franklin Square Hospital, Baltimore

- **Productivity increases.** FTEs per adjusted admission dropped 14% between 1990 and 2001, 7% since 1997.
- **Consolidation.** The hospital chain HCA, for example, created 11 regional revenue centers, which eliminated business offices in its hospitals thereby reducing administrative costs.

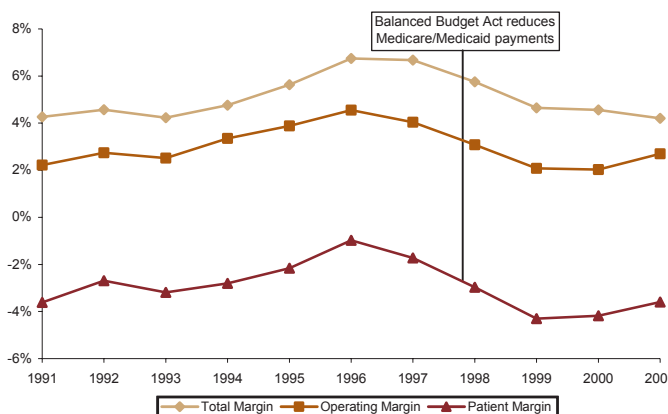
**Payments to hospitals have not kept up with rising costs—hospital margins have fallen.**

As hospitals’ single largest payer, Medicare reimbursement has a dramatic effect on hospitals’ financial status. When Medicare began to implement the payment reductions of the Balanced Budget Act of 1997 in fiscal 1998, it affected hospital margins. (See Chart 15.) As a result, hospitals were forced to look to commercial payers to offset these reductions.

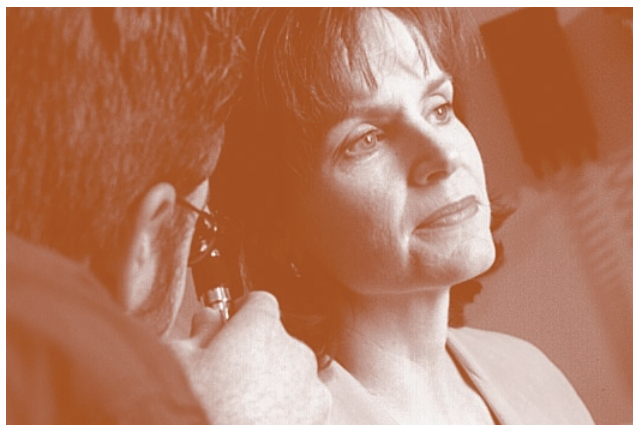
“Margin” is the difference between the amount collected from payers, patients and other sources and the amount hospitals spend to provide care. Some margin is necessary for a hospital to remain viable. A sufficient margin allows hospitals to invest in their facilities and keep up with increasing demand.

Payments from commercial payers also have been affected by other market factors. In the early 1990s, HMOs had narrower networks and could often promise increased volume in exchange for deep discounts. In many cases, they locked in rates during these periods, but experienced increases in the late 1990s. Now that consumers are demanding greater choice and networks are broader, plans can no longer make guarantees of directed volume.

**Chart 15**  
**Hospital Total, Operating and Patient Margins**  
**1991-2001**



Source: American Hospital Association (AHA), Trendwatch Chartbook 2002.



## Breakdown of Most Recent Growth in Spending on Hospital Services

**Current estimates show that growth in spending on hospital services is moderating—from 8.3% in 2001 to 7.4% in 2002, and 5.5% this year.**

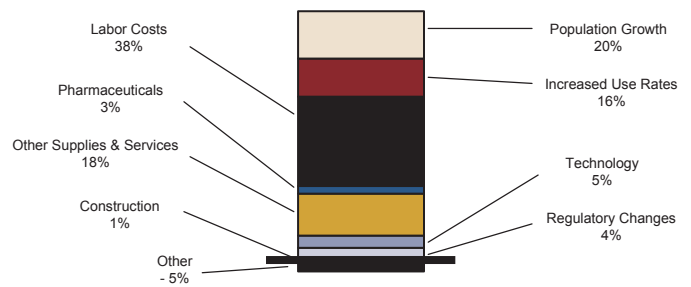
Official forecasts from the Centers for Medicare and Medicaid Services are that the growth in spending on hospital services was about 7.4% in 2002 and will be about 5.5% this year. Chart 16 below breaks down this increase, an aggregate growth of 13.3% over the two-year period, by major components.

**Increasing volume and labor costs remain the most important drivers of increases in spending on hospital care in the most recent period, 2001-2003.**

Based on government estimates and our interviews with hospitals, we estimate that the following components will contribute to increases in spending on hospital care between 2001 and 2003.

- Growth in labor costs accounted for roughly 38% of the total increase.
- Growth in the cost of other goods and services purchased by hospitals accounted for 21%.
- Growth in population accounted for 20%.
- Increases in utilization—over and above population growth—accounted for 16%.
- Advances in medical technology, accounted for 5%.
- Regulatory compliance, such as the costs of complying with the Health Insurance Portability and Accountability Act (HIPAA), accounted for 4%.
- The annualized cost of renovation and new facilities accounted for 1%.

**Chart 16**  
**Share of Growth in Spending on Hospital Care**  
**2001 to 2003 Projected**



Source: PricewaterhouseCoopers analysis, February 2003.

These factors add up to more than 100%. The residual is labeled, “Other/Efficiency,” to indicate a combination of efficiencies such as those witnessed in much of the 1990s perhaps offset by other factors not included in the list above. As shown in the chart, efficiencies are estimated to have yielded an offset of about 5 percentage points.

This efficiency rate is lower than in the 1997-2001 period. We believe the pressure on hospitals to be more efficient during the last decade has put significant stress on the workforce. Much of the productivity gain in the 1990s related to reduced length of stay, which has subsequently flattened. Hospital executives we interviewed question the ability for additional productivity gains as they work to create an environment attractive enough to recruit and retain future healthcare workers. In addition, government and private payers require that staff carefully document care and comply with many other “paperwork” demands, taking caregivers’ time away from patients and decreasing job satisfaction. A 2001 PricewaterhouseCoopers’ study determined that for a typical patient, paperwork adds 30 minutes to an hour to every hour of patient care provided.<sup>xxvii</sup>



*Special factors that impacted spending on hospital care in the most recent period.*

Interviews with hospital leaders revealed other factors that are driving spending on hospital services in the current period. The following areas seemed most important:

***Expensive new medical technologies being used on a broader array of patients.***

For example, patients with heart disease—the leading killer in the U.S.—are being treated at an earlier age, returning to work faster and living longer. The number of cardiac catheterizations per 1,000 increased 8% from about 1,200 in 1997 to more than 1,300 in 2000.<sup>xxviii</sup>

At the same time, newer less invasive surgical techniques lower the threshold for intervention, allowing patients that are older and frailer to receive treatment that would have been too risky in the past. Or in some cases, devices, such as stents, preclude the need for more expensive, invasive surgeries.

Aside from supplies and devices, hospitals are adding new medical technology, particularly in the area of radiology. Our interviews indicate that hospitals are increasingly moving toward digital, or filmless, imaging, replacing older machines with better technology. In addition, hospitals are beginning to use computer-aided diagnosis, which can increase quality and productivity. Yet, the cost

is high for hospitals to move to filmless digital systems and have the picture archiving computer systems (PACS) needed to store the data: The average amount budgeted for PACS is \$2.1 million.<sup>xxix</sup>

***Information technology, both for clinical and business uses, will require larger investments by hospitals.***

Most hospitals spend less than 3% of their budgets on information technology, but in some cases this is beginning to change. While the upfront costs are great, the long-term results will be increased productivity, enhanced patient safety, better knowledge management and dissemination of best practices. Many hospitals are investigating or purchasing bar coding and computerized physician order entry programs, which have been shown to enhance patient safety. The purchase of such systems includes an investment in technology, software, consultants, training, and maintenance.

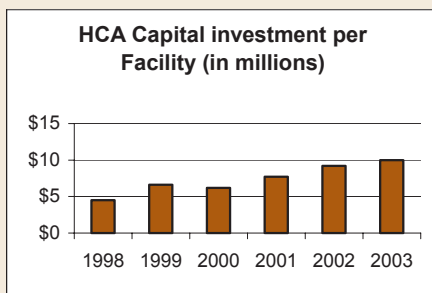
***Hospitals must spend more on construction to meet the changing needs of patients and the demands of an aging society.***

In many areas, hospitals must reinvest in their aged physical plants in order to effectively respond to increasing demand for services as well as the changing nature of this demand. The average age of hospital plants increased from 8.2 years in 1992 to 9.6 years in 2001.<sup>xxx</sup> This is an indication that investment in facilities fell behind in the 1990s. Healthcare construction rose nearly 17% in 2002.<sup>xxxi</sup> Yet, access to capital continues to be a problem in a climate in which hospital bond ratings are falling. During the first nine months of 2002, Standard & Poor's issued 29 downgrades and six upgrades.<sup>xxxii</sup>



Numerous factors are fueling the need for investment in facilities:

- The nature of demand is changing as more and more care is provided in an outpatient setting. Many construction projects are focused on expanding emergency and outpatient capacity or simply making existing space more efficient and consumer friendly. For example, hospitals in Maryland are spending a combined \$638 million on ongoing construction projects. The construction is mainly to expand emergency departments, add capacity, and refurbish hospitals built in the post World War II era.<sup>xxxiii</sup>



“We’re going to be dealing with a progressively older and older population. This is going to be a time when hospitals make significant investments in plants and equipment to meet demand. That’s quite appropriate if we’re going to meet the demand we’re already seeing.”

—**Jack O. Bovender Jr., Chairman and CEO, HCA, Nashville, Tenn.**

- New technology can require redesigned space. Many hospitals were not built for the digital age and must renovate to accommodate both new information and patient care technologies.

- Many hospitals are converting patient rooms from semi-private to private, a trend executives say is driven by consumer preference.
- Changes in safety and environmental requirements can necessitate renovation or rebuilding. For example, California hospitals will spend an estimated \$24 to \$41 billion to comply with new seismic standards. By 2008, all of the state’s 470 hospitals must be able to withstand a magnitude 7.0 earthquake, and by 2030 must be able to maintain uninterrupted operations in such an event.
- The aging baby-boomer population is expected to strain hospital capacity in the future. Given the effects of aging alone, over the next 10 years, hospital days per thousand will rise by 7%. These projections have raised concerns among hospital leaders. For example, a recent Massachusetts Hospital Association study reported that the state could run out of bed capacity by 2007.<sup>xxxiv</sup>

***The costs hospitals bear to comply with new and constantly updated government regulations are mounting.***

Two specific areas have added to hospital costs with no offset—the Ambulatory Patient Classifications and the privacy sections of the HIPAA. Despite their cost, hospitals cannot ignore or delay compliance with government regulations.

**APCs:** The already complex and constantly changing world of Medicare reimbursement became even more complicated with Medicare’s adoption of the Outpatient Prospective Payment System (OPPS) and associated Ambulatory Payment Classification (APC). Originally, Medicare payment for hospital outpatient services was based on hospital-specific costs. Congress mandated replacement of this with a prospective payment system

(PPS) based on APCs for services furnished on or after August 1, 2000.<sup>xxxv</sup>

The APC system requires a much more intensive effort by hospitals because it pays for hospital outpatient services on a rate-per-service basis that varies according to the APC. To further complicate matters, the APC system and related coding and billing requirements have continued to change. Since APCs were first implemented, CMS has distributed hundreds of notices changing coding and billing requirements. In some cases, the CMS notices address retrospective changes to coding and billing requirements. The financial implications of APCs have not been fully studied, but we conclude that they add significantly to the administrative costs associated with the provision of outpatient care to Medicare patients and result in lost revenue for claims denied or not filed.

**HIPAA:** Calculating the true costs of HIPAA is difficult for hospitals. Many combine HIPAA's costs with overall information technology costs, while others have separated the costs of implementing privacy regulations but not the transaction standards. Most have not performed cost/benefit analyses on HIPAA because they lack the personnel to run such an analysis. Regardless of the cost/benefit, hospitals must comply.

There is wide agreement that the HIPAA transaction standards are likely to produce overall savings in the long run for hospitals. However, the new privacy regulations, while adding value for patients, ultimately add new costs in personnel, consulting services, system upgrades, revisions and replacements.

## *What Does the Future Hold for Growth in Spending for Hospital Care?*

***The latest government forecasts predict that growth in spending on hospital services throughout the next decade will be lower than the growth rate in 1991.***

Recently released forecasts from CMS predict that spending on hospital services, after peaking at 8.3%, will fall to 7.4% in 2002 and 5.5% in 2003. The average growth over the current 10-year period (2002-2012) will average only 5.9%, more than a percentage point below average growth in national health spending, which is expected to be 7.1%.

Growth in spending on hospital services will generally be lower, on average, than growth in other major segments of healthcare spending. Spending on prescription drugs, physician services, and administration and the net cost of private health insurance is expected to grow at 10.7%, 7.3%, and 7.2% respectively. Only a few of the lower-level spending items have growth rates less than that of spending on hospital services. For example, spending on nursing home care is expected to grow at 5.6% and spending on non-durable medical products is expected to grow at only 4.7%. Nursing home services account for less than 7% of national health spending and non-durable medical products for less than 2%, compared to the more than 30% share for hospital services.

***Spending on hospital services will continue to decline as a share of national health spending.***

The downward trend in hospital services as a share of national health spending, which was discussed above, is expected to continue uninterrupted until 2012. From 31.7% observed in 2001, the share is expected to fall to 27.9% in 2012. The 2012 share is expected to be more than one-third less than the peak share of 42.1% in 1982.

# Appendix

We appreciate the time provided by the following hospital leaders, who were interviewed for this report:

- Ronald Anderson, M.D., President and CEO, Parkland Memorial Hospital, Dallas
- Jack O. Bovender Jr., Chairman and CEO, HCA, Nashville, Tenn.
- Gary Fennessy, Vice President of Finance, Northwestern Memorial Hospital, Chicago
- Robert Harman, Administrator, Grant Memorial Hospital, Petersburg, W.Va.
- Jim Jaacks Sr., Chief Operating Officer, Sisters of Mercy Health System, St. Louis
- Howard Kern, President and Chief Operating Officer, Sentara Healthcare, Norfolk, Va.
- Richard Palagi, President, St. John's Lutheran Hospital, Libby, Mont.
- Greg Poulsen, Vice President of Strategic Planning, Intermountain Health Care, Salt Lake City
- Carl Schindelar, President, Franklin Square Hospital, Baltimore
- Wayne Smith, CEO, Community Health Systems, Nashville, Tenn.

i	Health Spending Projections for 2002-2012, Health Affairs, Feb 7, 2003.
ii	Ibid.
iii	The breakdown of growth in spending on hospital care into the two major categories--volume and costs--is complicated by the catchall category of "other." Specifically, during 1997-2001, adjusted admissions grew by 12.9% and the hospital Market Basket Index grew by 14.3%. The combined growth of the two factors is 29.1%--well above the total growth spending. The difference between the combined growth in volume and costs is a combination of new efficiencies in hospital operations, falling hospital margins, and other factors related to measurement errors. Since most of these factors appear to be related to the cost side rather than population or adjusted admissions, we combined this unknown factor with the growth in costs to produce the allocation of 55% volume and 45% costs shown the chart on this page. If the "other" category were allocated prorata to the two factors, the division would switch to 47% volume and 53% costs. Although some of the factors associated with the other category may well be related to volume, we felt that assigning all that category to costs was more realistic than allocating the category in a prorata fashion.
iv	An adjusted admission is an aggregate measure of hospital volume reflecting the sum of admissions and outpatient volume, expressed in terms of equivalent admissions. The number of equivalent admissions is derived by multiplying admissions by the ratio of outpatient gross revenue to inpatient gross revenue.
v	The statistics in the preceding section are blurred somewhat by changes in definition over the decade. Specifically, outpatient and inpatient stays are no longer discrete categories. Conventional wisdom has been that an inpatient day is characterized by an overnight stay in a hospital. In the same way, outpatient care is commonly defined as care delivered to patients who do not stay overnight in a hospital. Recently, hospitals have seen a blurring of these lines as an "outpatient" may stay two or sometimes three days. Some of this classification is driven by insurers' reimbursement schedules and Medicare's new APC coding system. In many cases, commercial payers have developed reimbursement methodologies around observation beds. Even though a patient is not admitted as an "inpatient," he or she requires many of the same resources as an inpatient.
vi	National Hospital Discharge Survey, Center for Disease Control and Prevention, 1998
vii	Emergency Department Overload: A Growing Crisis, The Lewin Group, April 2002.
viii	Aventis Pharmaceuticals, Managed Care Digest Series 2002, Integrated Health Systems Digest, 2002
ix	The Changing Face of Managed Care By Debra A. Draper, Robert E. Hurley, Cara S. Lesser, and Bradley Strunk, Health Affairs, January/February 2002.
x	Heart Disease and Stroke Statistics, American Heart Association, 2003 Update
xi	Datamonitor, 2003
xii	Concord Consulting Group data, BBI Newsletter, March 2001.
xiii	Based on CMS hospital Market Basket Index, 1997.
xiv	Centers for Medicare and Medicaid Services, Office of the Actuary.
xv	Bureau of Labor Statistics.
xvi	Salary Survey 2002, Nursing Management magazine, July 1, 2002.
xvii	Projecting future drug expenditures - 2003, American Journal of Health-System Pharmacy, Jan 15, 2003.
xviii	Ibid.
xix	Ibid.
xx	2002 Hip and Knee Implant Review, Orthopedic Network News, July 2002.
xxi	Drug-Eluting Stents - Physician Survey Suggests Rapid US Adoption, JPMorgan, January 2003.
xxii	Is Technological Change in Medicine Worth It? By David Cutler and Mark McClellan, Health Affairs, September/October 2001.
xxiii	AHA TrendWatch, June 2002.
xxiv	Ibid.
xxv	AHA Hospital Resources for Disaster Readiness.
xxvi	AHA Data.
xxvii	Patients or Paperwork? The Regulatory Burden Facing America's Hospitals, PricewaterhouseCoopers and AHA, 2001.
xxviii	Heart Disease and Stroke Statistics, American Heart Association, 2003 Update.
xxix	IMV's Third PACS Census Shows that Budgets for PACS Technologies Tripled from 1999 to 2002, IMV Medical Information Division, Sept. 27, 2002.
xxx	Ingenix, Almanac of Hospital Financial and Operating Indicators, 2003.
xxxi	US Census Bureau construction survey.
xxxii	Standard & Poor's, Healthcare Facilities report, Dec. 19, 2002.
xxxiii	Hospitals Make Room, by David Snyder, Washington Post, Dec. 5, 2002.
xxxiv	Why Care? Massachusetts Health Care on the Brink, Massachusetts Hospital Association, December 2002.
xxxv	67 Federal Register, No, 212, November 1, 2002, p. 66719

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