

Over the past two decades the nature of hospital volume has changed dramatically. Since the advent of Medicare's DRG payment methodology in the public sector and managed care in the private sector, inpatient volume at community hospitals has declined dramatically. As new technology allowed more care to shift to the outpatient setting and pressures from payers pushed down both the rate of admission and the length of stay, hospital days dropped by more than 30 percent. At the same time outpatient visits increased by more than 150 percent. By 1999, outpatient surgeries represented 50 percent of all hospital based surgeries, up from 16 percent in 1980. Despite pressures from managed care organizations to keep people out of emergency departments (EDs), ED volume has increased as well.

Hospitals responded to the changes in demand for hospital services by shifting resources. Community hospitals took more than 150,000 inpatient beds out of service through down-sizings, consolidations and closures between 1980 and 2000. At the same time, hospitals invested in new outpatient facilities and shifted staff resources accordingly.

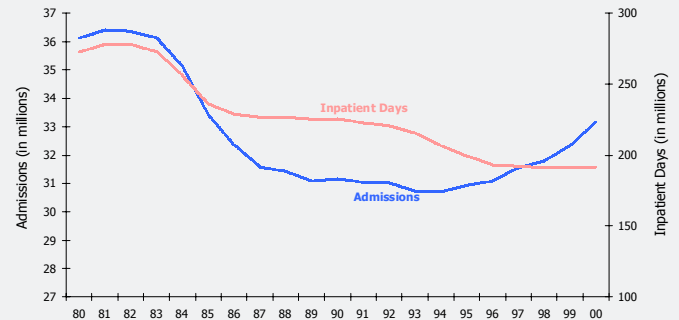
While the upward trend in outpatient volume has not subsided, the downward trend in inpatient use rates and volume began moderating in the mid-nineties as managed care backlash reduced payer pressures. In 1999 hospital days actually went up slightly—after more than two decades of decline—and the trend continued into 2000. This change comes at a time when hospitals are facing widespread workforce shortages.

The growth trend between 1998 and 1999 was similar for rural and urban hospitals but varied by region with six regions experiencing increases and three showing declines. Growth was highest in New England and Mountain states.

This issue of TrendWatch explores the recent trends in hospital inpatient volume and the forces that may be driving them. Was the directional change in days in 1999 and 2000 an anomaly or the beginning of a trend? If so what does that mean for the health care system, its capacity, and the role hospitals play?

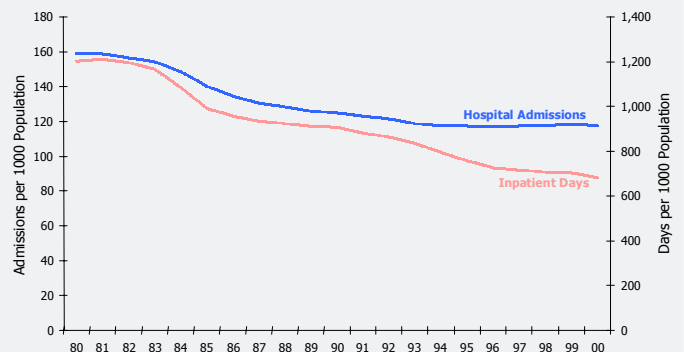
## Admissions began rising in 1995; days went up in 1999...

Chart 1: Inpatient Days and Admissions, 1980 - 2000



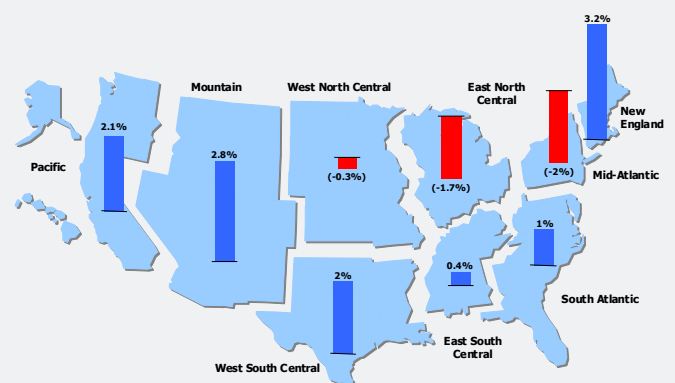
## ...as the rapid decline in use rates in the eighties and early nineties leveled off.

Chart 2: Hospital Admissions and Days per 1000, 1980-2000



## Growth in inpatient days varied by region.

Chart 3: Percent Growth in Inpatient Days, 1998 vs 1999



**“We’re definitely gearing up. We’re seeing all the indicators that over the next two or three years, medical facilities are going to be playing catch up.”**

— Bart Eberwein, Hoffman Construction in Portland, Oregon

# Many Forces Affect Hospital Inpatient Volume

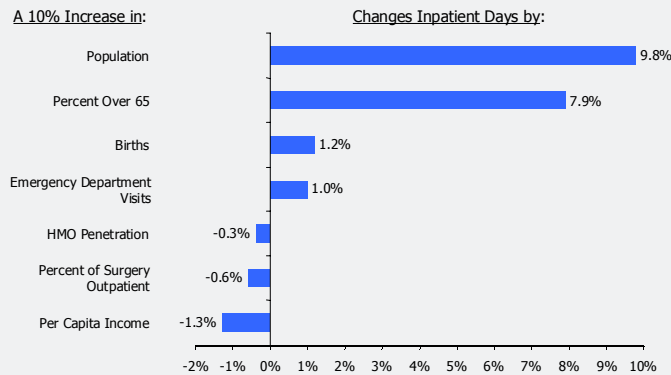
Many forces affect hospital inpatient volume. Demographic forces, like the growing and aging population, increase hospital volume as does increased coverage. Better diagnostic techniques are finding more people with illnesses and new procedures are increasing the range of treatment options. While these forces are acting to drive up all types of hospital volume, other factors have been at work to push down the inpatient component of hospital volume. Payers have pressured providers to keep people out of the hospital and discharge them more rapidly when they do need inpatient care. New drugs and advances in technology have facilitated the shift of many procedures to the outpatient setting as well as provided an expanded range of non-surgical options

to treat diseases. Home health and skilled nursing agencies now provide alternative settings for care that once would have been provided on an inpatient basis.

Below are the results of an analysis to quantify the relative importance of some of the factors that affect hospital volume. The analysis looked at changes in hospital volume by metropolitan area from 1994 to 1999 against a number of explanatory factors. The contribution of a given factor to growth in hospital days reflects both its strength and annual change. For example, a hypothetical 10% increase in population would lead to a 9.8% increase in days. And a hypothetical 10% increase in HMO penetration correlates to a 0.3% decrease in days.

## Population increases and aging have the greatest direct impact on inpatient days.

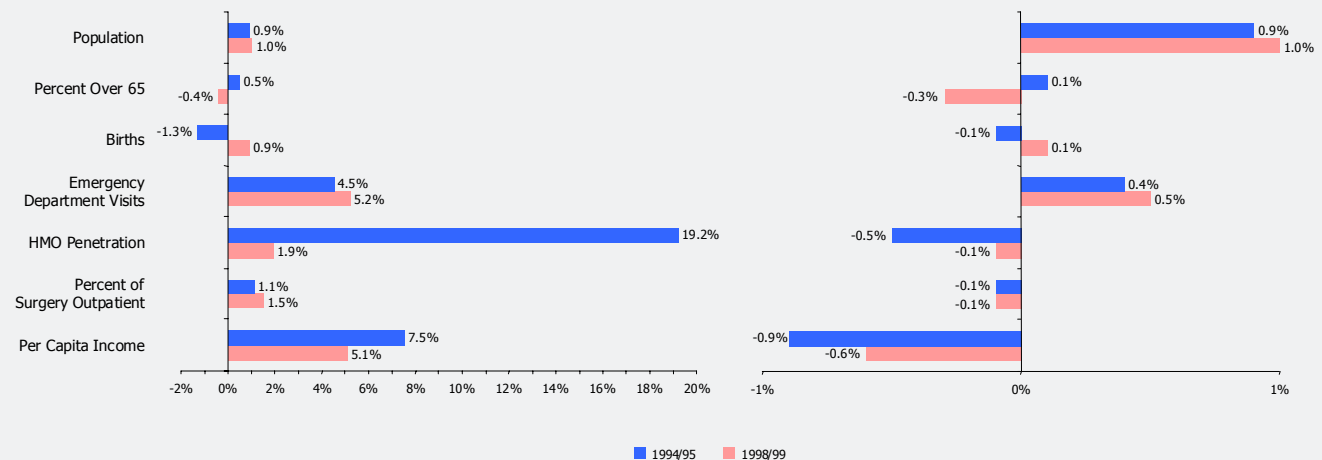
Chart 4: Relative Strength of Forces Affecting Hospital Volume



## Quote from the Field

*"The dominant force exerting itself on the medical profession ... derives from the conflicting pressures between expenditure-increasing technological change, on the one hand, and revenue-constraining resistance by taxpayers, employers, and individual purchasers on the other."* — James C. Robinson, Professor of Health Economics, University of California, Berkeley, School of Public Health

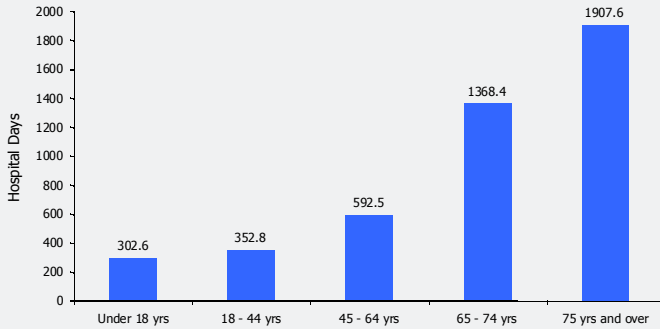
**In the early 1990s large increases in managed care penetration and per capita income drove volume declines. By 1999 as managed care backlash took hold population growth became the dominant force.**



# Demographic Changes Place Strong Upward Pressure on Inpatient Volume

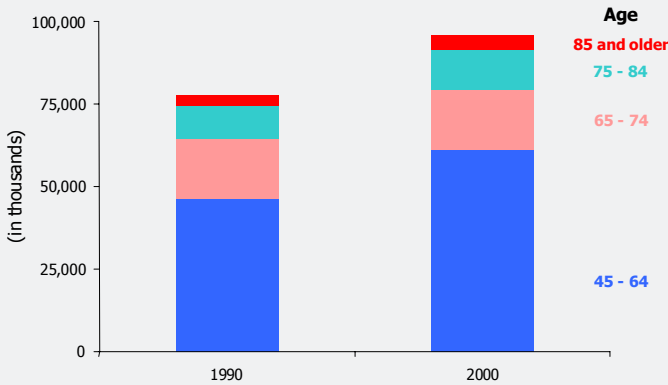
**Overall hospital use rates are heavily influenced by the composition of the population...**

Chart 7: Hospital Days per 1000 by Age Group, 1999



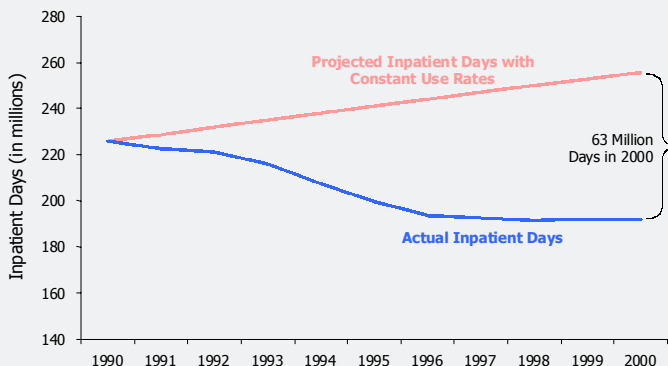
**...which is rapidly aging.**

Chart 8: Population by Age Group, 1990-2000



**Had use rates not fallen since 1990, hospital days would have been 63 million higher due to population growth and aging.**

Chart 9: Projected Inpatient Days Given 1990 Use Rates and 2000 Population, 1990-2000



The growing and aging population is placing upward pressure on inpatient demand. Between 1990 and 2000, the United States population grew by 13.1 percent. During the same period, the percent of the population over 75 increased by 27 percent.

As people age, they tend to use more hospital services. In 1999, people over the age of 65 experienced nearly 3 times as many hospital days per thousand than the general population. This ratio goes up to nearly 4 times for people over the age of 75. Additionally, as technology improves physicians are becoming more willing to use aggressive treatments on older people.

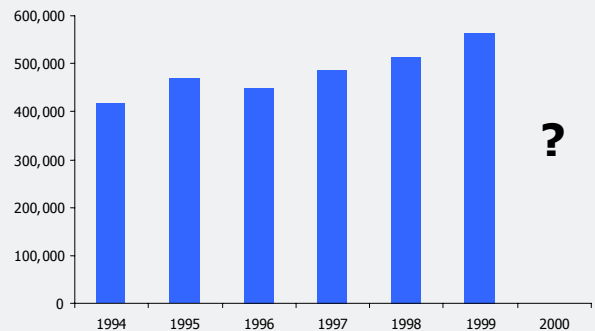
Had overall use rates not been dropping during this period—due to managed care, the shift to outpatient, and other factors—the growing and aging of the population over the last ten years would have resulted in an estimated 63 million more hospital days.

As the declines in use rates moderate over time—length of stay can only go down so far—the upward force of our aging and growing population will become the dominant force affecting hospital volume. Whether we are seeing the beginning of this trend remains to be seen.

## Disease Outbreaks Cause Fluctuations in Volume

Worse than normal flu seasons from 1997 to 1999 caused large increases in hospitalizations, especially among elderly Medicare patients. There were 146,000 more Medicare pneumonia hospitalizations in 1999 than in 1994. In contrast, the 2000/2001 flu season was “one of the lightest in recent memory” according to Keiji Fukuda, the Centers for Disease Control’s chief of influenza epidemiology. As a result, hospital volume pressures may have eased in the early part of 2001.

## Medicare Pneumonia Admissions

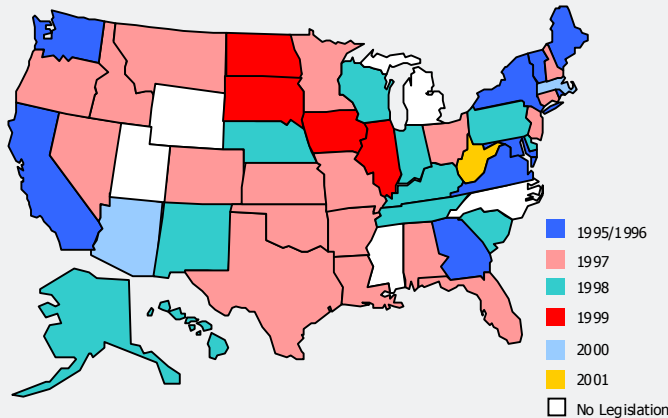


Source: The Lewin Group analysis of MEDPAR file

# Managed Care Backlash: Impact on Volume?

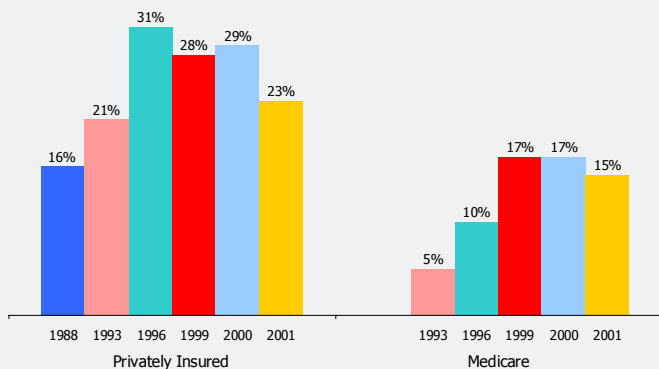
**By 2001 nearly every state had passed consumer protection legislation.**

Chart 10: State Enactment of Comprehensive Managed Care Consumer Rights Laws



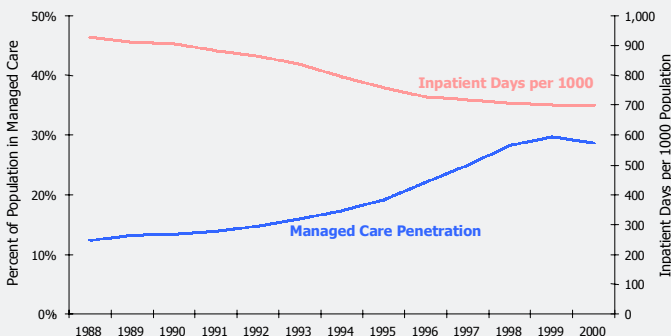
**As backlash took hold, HMO growth stagnated or fell.**

Chart 11: Percent of Population Enrolled in HMOs, 1988-2001



**As growth in managed care penetration slowed so did the decline in use rates.**

Chart 12: Managed Care Penetration vs. Use Rates in Days per 1000, 1988-2000



Providers, employers, patients, and policy-makers have shown mixed support for managed care. On the one hand, managed care has been largely credited with bringing the double-digit health care inflation of the 1980's under control. As managed care penetration grew from 16 percent in 1988 to a high of 31 percent in 1996, days per 1000 population dropped by 21 percent. On the other hand, providers and consumers have bristled at the perceived interference of managed care practices in the doctor-patient relationship.

By the mid 1990s, however, several trends converged to turn the tide on managed care: low premium growth (a mere 0.8 percent in 1996), a strong economy, and a very tight labor market. These conditions allowed the underlying consumer and provider dissatisfaction with managed care practices to rise to the surface as economic forces dampened the counter-pressure favoring managed care to control costs. The so-called "managed care backlash" emerged.

This dynamic affected the health care market place in three primary ways. First, employers and payers expanded the range of product options available to employees, and employees began choosing less managed product types like PPO and POS plans. Growth in Medicare managed care also stagnated then reversed. Second, plans responded by broadening their networks and reducing controls on utilization within product types. In 1999, United Healthcare, the nation's second largest insurer, announced it would end most prior authorization requirements for its enrollees. Third, consumers and providers gained strength in the policy debate around consumer protections, and today all but five states have passed some form of comprehensive consumer rights legislation.

The impact of these changes on hospital volume is difficult to quantify or even document given the myriad of forces at work. At a minimum, however, the managed care backlash likely dampened the downward pressure on hospital use rates by slowing HMO growth across both the private and public sectors.

## Quote from the Field

*"You know, we fluctuate among being concerned about access, being concerned about quality and being concerned about costs, and I think right now we are very concerned about quality measured by, 'I have the ability to get whatever I want whenever I want it.'" — Robert Walter Goodman, Managing Director, Merrill Lynch*



# Other Factors Affect Inpatient Hospital Demand

While payer pressures and demographic forces are the most often cited drivers of length of stay and admissions, other factors come into play as well.

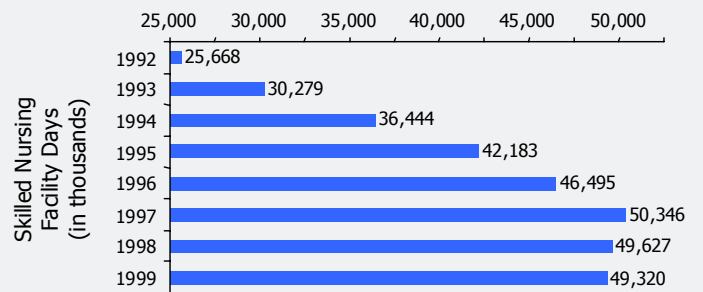
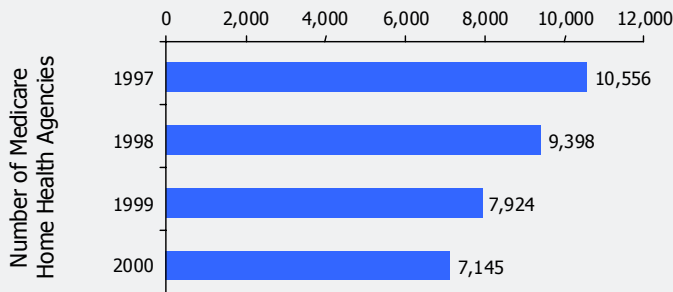
Changes in Medicare reimbursement for home health and skilled nursing facilities may influence hospital volume. Because of Balanced Budget Act cuts in home health services, the number of Medicare home health agencies shrunk 32 percent between 1997 and 2000.<sup>1</sup> One in four hospital discharge planners report having difficulty placing Medicare patients who need care in skilled nursing facilities.<sup>2</sup> Particular difficulty was noted for patients requiring expensive drug treatment, infusion therapy, ventilator care, or other special needs. While no data are yet available, delays in securing home health or nurs-

ing care keep patients in hospitals who would otherwise be ready for discharge. Hospitals are forced to continue caring for these patients who have no medically appropriate place to go.

A growing number of insured individuals also may influence hospital volume. The expanding economy over the last decade and new public programs for the uninsured brought the number of Americans without health insurance down by 1.7 million between 1998 and 1999. It was the first decrease in 12 years. Insured persons typically use more health services than the uninsured, because the uninsured are more likely to defer and delay care. On the other hand, increased per capita income is related to better health status and lower hospital use.

## Since the BBA, home health capacity and SNF utilization have dropped.

Chart 13: Number of Medicare Home Health Agencies, 1997-2000 and Skilled Nursing Facility Days, 1997-1999



## Technology: Mixed Effect on Hospital Volume

Technology moves inpatient care to outpatient settings and reduces length of stay by making interventions safer and less invasive, easing recovery time. At the same time, advances in screening technology allow earlier identification of disease and trigger more interventions that require hospitalization.

Newer and safer therapies also lower the threshold for intervention and make surgery possible even for people who would have been "inoperable" in the past. The following examples illustrate the upward and downward effect of technology on hospital volume.

- ▼ The number of Medicare inpatients for chemotherapy has dropped in half as more cancer patients receive care in outpatient settings.
- ▼ The implantation of radioactive seeds to treat cancer offers a less invasive option to tumor removal.
- ▼ The introduction of the laparoscopic cholecystectomy reduced length of stay and moved many surgeries to the outpatient setting.

- ▲ Overall demand for cholecystectomies rose by 20 percent because of the introduction of a safer, less invasive option.
- ▲ Stent implants have made surgical intervention possible for patients who in the past would have been too frail for surgical intervention.
- ▲ Transplants are becoming more and more common. The success of the artificial heart represents a new frontier.

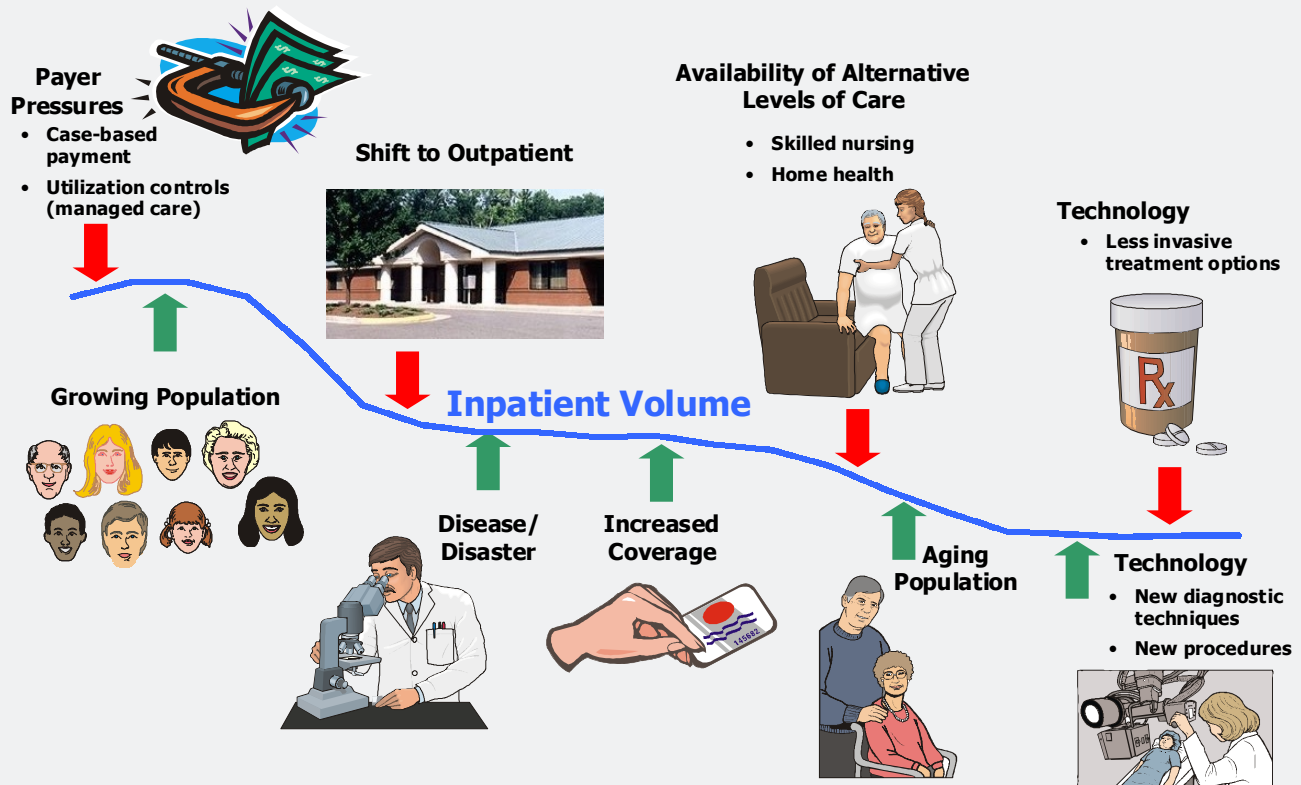
*"Technology is helping physicians find illness at a very early stage. Mammograms alone have led to a huge number of operative interventions... And we thought we would see a significant reduction in inpatient surgical costs. My sense is that's not what's happened over time."* — Dr. Robert Neirman, Medical Director of Surgical Services, Tufts Health Plan

# Increasing Hospital Inpatient Volume: Implications?

For two decades, economists and health policy experts claimed that the nation had excess hospital capacity. Now, evidence is growing that the need for hospital services is rising and hospitals are under pressure to keep pace. Emergency departments and hospital outpatient centers are busier than ever, intensive care units are routinely filled to capacity, and the longstanding decline in hospital days reversed in 1999. Whether this was a short-term phenomena or the beginning of a long-term trend is unclear. In the near future, the managed care backlash will likely be tempered by rising premiums and an economy in recession. Even so, the health care system will eventually come to a point when further reductions in length-of-stays and inpatient use cannot offset the impact of the growing and aging population. When that point is reached—now or in the future—the approach to health policy and planning will need to adapt.

- How does the workforce shortage impact hospitals' abilities to meet potentially rising demand for care?
- Do policies that encourage reductions in inpatient hospital capacity need to be changed to meet the health needs of a growing and aging population?
- How should communities plan for their populations' increasing need for hospital care?
- If the health care system can no longer look to falling inpatient use rates as a major source of savings, how will payers keep premium growth in check?
- Is the managed care backlash permanent? Will strict utilization controls remain anathema in the market? Will restrictions on choice and access as a way to manage costs be replaced with better approaches to prevention and disease management?
- The events of September 11, 2001 heightened awareness of the important role that hospitals play in times of crisis. How should society balance the need for "surge capacity" to be ready for disasters and epidemics against cost concerns?

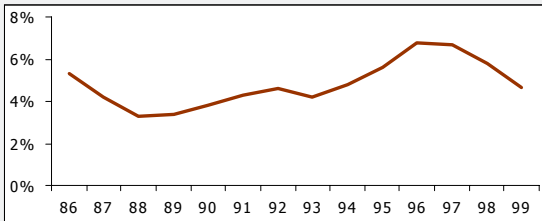
**Whether hospital volume increases or decreases depends on the net impact of the many forces at work.**



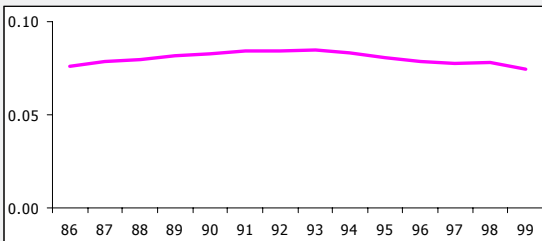
# Stats to know

## Hospital Sector

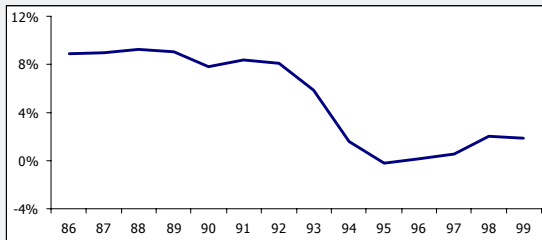
<b>Total Margin:</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>86 to 99 Trend</b>	6.7%	5.8%	4.7%



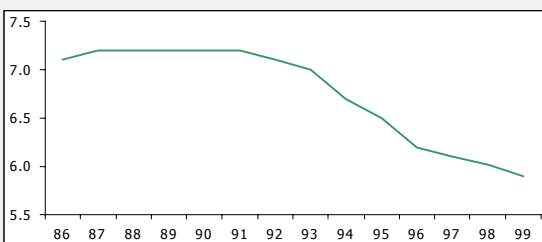
<b>FTEs per Adjusted Admission:</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>86 to 99 Trend</b>	0.08	0.08	0.07



<b>Percent Change in Expense per Adj. Admission: 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	0.6%	2.0%	1.9%

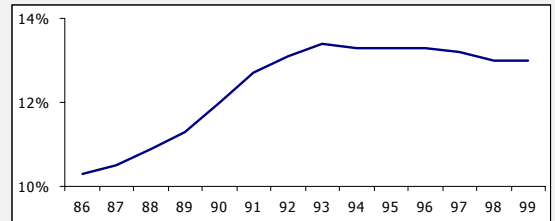


<b>Average Length of Stay (in Days): 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	6.1	6.0	5.9

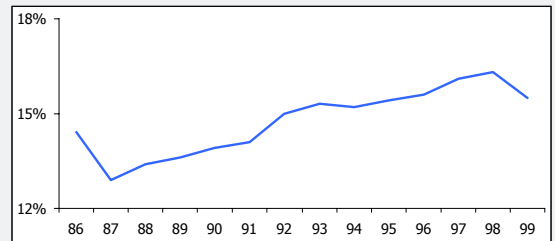


## Healthcare Industry

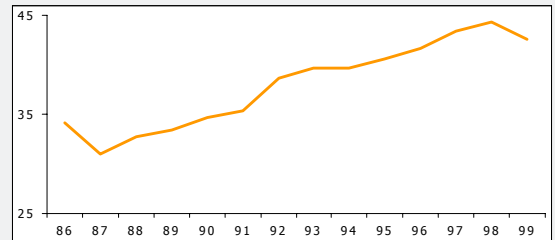
<b>National Health Expenditures as a % of GDP: 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	13.2%	13.0%	13.0%



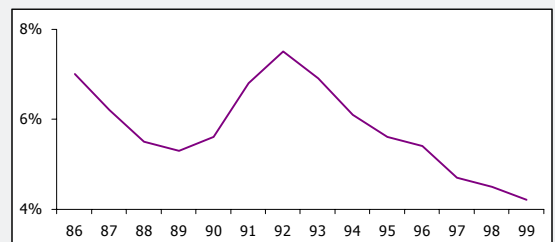
<b>Percent Uninsured: 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	16.1%	16.3%	15.5%



<b>Number Uninsured (in Millions): 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	43.4	44.3	42.6



<b>Percent Unemployed: 86 to 99 Trend</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
	4.9%	4.5%	4.2%



### Endnotes:

Page 5: <sup>1</sup> Office of the Inspector General, Department of Health and Human Services, *Access to Home Health Care After Hospital Discharge 2001*, (OEI-02-01-00180) July 2001.

<sup>2</sup> Office of the Inspector General, Department of Health and Human Services, *Medicare Beneficiary Access to Skilled Nursing Facilities 2001*, (OEI-02-01-00160) July 2001.

### Sources:

Chart 1: The Lewin Group analysis of American Hospital Association Annual Survey, 1980-1999, Hospital Statistics 2002

Chart 2: The Lewin Group analysis of American Hospital Association Annual Survey, 1980-1999 for community hospitals and U.S. Census Bureau data, Hospital Statistics 2002

Chart 3: The Lewin Group analysis of American Hospital Association Annual Survey, 1998-1999

Chart 4: The Lewin Group

Chart 5: The Lewin Group

Chart 6: The Lewin Group

Chart 7: National Center for Health Statistics, *Health United States, 2001*

Chart 8: U.S. Census Bureau data

Chart 9: National Center for Health Statistics, *Health United States, 2001*, U.S. Census Bureau data, and American Hospital Association Annual Survey, 1990-1999, Hospital Statistics 2002

Chart 10: National Conference of State Legislatures, Health Policy Tracking Service

Chart 11: The Kaiser Family Foundation and Health Research and Educational Trust, Employer Health Benefits 2001 Annual Survey and Center for Medicare and Medicaid Office of the Actuary

Chart 12: The Lewin Group Analysis of American Hospital Association Annual Survey, Hospital Statistics 2002, The InterStudy HMO Trend Report 1987-97, The InterStudy Competitive Edge Part II: HMO Industry Report 10.2, and U.S. Census Bureau

Chart 13: Office of the Inspector General, Department of Health and Human Services and Medicare Provider of Services File

### Sources for "Stats to Know":

*Total Margin*: Lewin Group analysis of American Hospital Association Annual Survey, 1986-1999

*FTE/Adjusted Admission*: Lewin Group analysis of American Hospital Association Annual Survey, 1986-1999

*Percent Change in Total Expense per Adjusted Admission*: Lewin Group analysis of American Hospital Association Annual Survey, 1986-1999

*Average Length of Stay*: Lewin Group analysis of American Hospital Association Annual Survey, 1986-1999

*National Health Expenditures as a Percent of GDP*: Compiled by HCFA, Office of the Actuary on [www.hcfa.gov/stats/nhe-oact/](http://www.hcfa.gov/stats/nhe-oact/)

*Percent Uninsured*: Compiled by Bureau of the Census on [www.census.gov/hhes/www/hlthins.html](http://www.census.gov/hhes/www/hlthins.html)

*Number Uninsured*: Compiled by Bureau of the Census on [www.census.gov/hhes/www/hlthins.html](http://www.census.gov/hhes/www/hlthins.html)

*Percent Unemployed*: Compiled by Bureau of Labor Statistics on <http://stats.bls.gov/cpsaatab.htm#empstat>

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*TrendWatch is a series of reports produced by the American Hospital Association and The Lewin Group highlighting important and emerging trends in the hospital and health care field.*

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