HEALTHCARE COST AND UTILIZATION PROJECT

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Trends in Uninsured Hospital Stays, 1998–2007

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Introduction

From 1998 to 2007, the number of uninsured individuals in the United States increased by about 11 million people, to more than 53 million.[1] Trends in health insurance coverage can be driven by several factors including changes in employer-sponsored health benefits, the incomes of working families, the costs of health insurance premiums, and the accessibility of public insurance programs.[2]

Lack of health insurance impacts the low-income population disproportionately, with four in ten low-income Americans being uninsured.[3] When there is no insurance coverage, hospitals bill patients directly. The resulting burden of payment for uninsured individuals and their families can be substantial, particularly during an economic downturn. Likewise, when these bills remain unpaid, the costs of uncompensated care represent a financial burden to hospitals and, ultimately, contribute to increases in health care costs to society overall.

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on a 10-year trend in uninsured hospital stays from 1998 to 2007. Characteristics of uninsured hospitalizations, such as changes in utilization, cost, patient populations, and geographic locations, are compared to the overall picture of hospital care. All differences between estimates noted in the text are statistically significant at the 0.05 level or better.

Findings

General findings

The number of uninsured hospitalizations in America grew steadily from 1998 to 2007 (table 1). In 1998, there were 1.8 million uninsured stays compared to more than 2.3 million uninsured stays in 2007—a 31 percent increase in 10 years (figure 1). During the same time period, hospitalizations billed to Medicaid (the public

Highlights

- From 1998 to 2007, the number of uninsured hospitalizations increased by 31 percent which far exceeded the 13 percent overall increase in hospital stays.
- Hospital charges for uninsured stays grew by 88 percent, from an average of $11,400 to $21,400 per stay (after adjusting for inflation). Total hospital charges for uninsured stays in 2007 were about $50 billion.
- Uninsured patients were nearly 4 times more likely to leave the hospital against medical advice compared to all patients (3.5 percent versus 0.9 percent).
- The most common reason for uninsured stays remained newborn birth throughout the 10-year period, accounting for more than 252,000 uninsured stays in 2007 (10.9 percent of uninsured stays).
- Uninsured hospitalizations principally for skin infections increased sharply from about 31,000 stays to about 73,000 stays.
- Stays principally for alcohol and substance abuse were four times more common in uninsured stays relative to all hospital stays.
- The proportion of uninsured hospitalizations grew in the South (by 29.2 percent), Northeast (by 17.2 percent), and West (by 14.3 percent), but decreased in the Midwest (by 13.8 percent).

[1] Medical Expenditure Panel Survey (MEPS), 2007. Agency for Healthcare Research and Quality (AHRQ).
[2] The Kaiser Family Foundation. *Health Coverage & the Uninsured: Trends in Health Coverage*. Retrieved from: http://www.kff.org/uninsured/trends.cfm (November 7, 2008).
[3] The Kaiser Family Foundation. *Medicaid and the Uninsured*, Washington, DC, 2009.

insurance program for low-income individuals) increased by 33 percent, stays billed to Medicare (the public insurance program for the elderly and disabled) increased by 13 percent, and the number of privately insured stays remained relatively stable (figure 2). The overall growth in all hospital stays was about 13 percent.

Hospital charges and costs for uninsured stays, 1998–2007
Hospital charges reflect the amount the hospital billed for the hospital stay. While these charges generally are discounted for insured patients, the uninsured population typically has been billed the full amount. From 1998 to 2007, hospital charges for the uninsured increased substantially with an 88 percent growth in average charges, from $11,400 to $21,400 per stay (after accounting for inflation) (table 1 and figure 3). Total charges for the uninsured in 2007 were about $50 billion. Meanwhile, the estimated hospital costs of providing care (i.e., the amount the hospital incurred to provide services) also increased for uninsured stays, but at a slower rate of about 37 percent, from $5,200 to $7,100 per stay. Total costs for the uninsured in 2007 were $16.5 billion. The increases in hospital charges and costs can not be attributed to patients staying at the hospital longer because the mean length of uninsured stays over the 10-year period remained consistent at about 4 days.

Comparison of uninsured stays to hospital stays overall, 2007
Table 2 provides more detailed information about uninsured hospital stays in 2007 relative to all hospital stays. Comprising almost 6 percent of all hospital stays, uninsured hospitalizations were, on average, shorter and less expensive. Aggregate hospital costs to render uninsured hospital care totaled more than $16.5 billion in 2007—about 5 percent of hospital costs overall. The mean cost of an uninsured hospital stay was about $1,600 less expensive ($7,100 versus $8,700 per hospital stay) and shorter (4.0 versus 4.6 days) than a typical hospital stay.

Uninsured patients were nearly 4 times more likely to leave against medical advice. They were 3.5 times less likely to be discharged to home health care, and slightly less likely to die in the hospital.

Uninsured hospital stays, by patient characteristics, 2007
Among uninsured hospitalizations, stays were about equally divided between men (51.4 percent) and women (48.1 percent); whereas, women accounted for a larger percentage of all hospital stays (58.7 percent) (table 3).

The mean age of uninsured patients was about 12 years younger than for the overall patient population (35 years versus 47 years, respectively). Individuals ages 18 to 44 years comprised about 38 percent of the total U.S. population, but accounted for nearly half of all uninsured stays (table 3).

Uninsured elderly care was rare given the availability of Medicare insurance coverage for the elderly. When elderly hospital stays were excluded, the mean age for uninsured patients was comparable to non-elderly patients overall (35 years compared to 32 years, respectively). Excluding elderly stays also resulted in larger differences between the percentage of uninsured versus insured hospital stays for children (ages less than 1 and 1–17 years) and smaller differences among non-elderly adults (ages 18–44 and 45–64 years).

In 2007, uninsured hospitalization rates were 1.8 times higher among populations living in the poorest areas compared to those living in other communities (10.9 versus 5.9 uninsured stays per 1,000 population, respectively). Among hospital stays overall, the rate of hospital stays in the poorest areas was 1.2 times greater than in communities.

Most common principal diagnoses associated with uninsured hospitalizations, 2007
Table 4 shows that from 1998 to 2007 newborn birth remained the most common reason for uninsured hospitalizations, accounting for more than 252,000 uninsured stays in 2007 (10.9 percent of all uninsured stays). Newborn birth was also the most frequent reason for admission among all hospital stays (11.5 percent of all stays).

The number of hospital stays for skin infections, a potentially preventable event given early intervention, showed a significant change in the uninsured population between 1998 and 2007. Uninsured hospitalizations for skin infections increased sharply from about 31,000 stays in 1998 to 73,300 stays in 2007, representing nearly twice the portion of uninsured stays in 2007 (3.2 percent in 2007 compared to 1.8 percent in 1998). In 2007, skin infections were reported more than twice as frequently in uninsured stays compared to all stays.

Mental health and substance abuse conditions (mood-, alcohol-, and substance-related disorders) remained a common reason for uninsured hospital stays, collectively accounting for 213,300 stays in 2007 (9.3 percent of all uninsured stays). These conditions were more frequently cited as the main reason for hospitalization in

uninsured stays compared to all hospital stays. In fact, in 2007, stays principally for alcohol and substance abuse were about 4 times more common in uninsured stays compared to all hospitalizations and stays for mood disorders were twice as common in uninsured stays.

Two of the other most common reasons for uninsured hospital stays included cardiac conditions, nonspecific chest pain and hardening of the arteries, collectively accounting for 116,100 uninsured stays (5.0 percent of all uninsured stays). While stays for nonspecific chest pain were slightly more common among uninsured hospitalizations compared to overall hospital stays, hospitalizations for hardening of the arteries were less common in uninsured stays.

Stays for pneumonia and diabetes with complications were also commonly cited in uninsured hospital stays. Uninsured stays for pneumonia decreased slightly from 1998 to 2007 and were less common than in overall hospital stays. The percentage of uninsured stays for diabetes with complications remained more common among uninsured stays representing about 2 percent of all uninsured stays over the 10-year period.

Uninsured hospital stays, by region, 1998–2007
From 1998 to 2007, uninsured hospitalization rates increased in every region except the Midwest (figure 4). The proportion of uninsured hospitalizations grew by 29.2 percent in the South, 17.2 percent in the Northeast, and 14.3 percent in the West; meanwhile, the percentage of uninsured stays decreased by 13.8 percent in the Midwest.

The South consistently had the highest proportion of uninsured stays during this 10-year period, ranging from about 6 percent of all Southern hospital stays in 1998 to nearly 8 percent in 2007. In 1998, the rate of uninsured stays was the lowest in the West: 3.9 percent of all hospitalizations. The Midwest replaced the West as the region with the lowest uninsured hospitalization rate in 2007, with 4.0 percent of their hospital stays being uninsured.

Data Source

The estimates in this Statistical Brief are based upon data from the HCUP 1998 to 2007 Nationwide Inpatient Sample (NIS). Most statistics were generated from HCUPnet, a free, online query system that provides users with immediate access to the largest set of publicly available, all-payer national, regional, and State-level hospital care databases from HCUP.

Supplemental sources included data from the U.S. Census Bureau, Population Division (National Population Estimates—Characteristics), Claritas, the Bureau of Labor Statistics (Consumer Price Index Tables), and the HCUP Cost-to-Charge Ratio files.

Definitions

Diagnoses, ICD-9-CM, and Clinical Classifications Software (CCS)
The principal diagnosis is that condition established after study to be chiefly responsible for the patient's admission to the hospital. Secondary diagnoses are concomitant conditions that coexist at the time of admission or that develop during the stay.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses. There are about 13,600 ICD-9-CM diagnosis codes.

CCS categorizes ICD-9-CM diagnoses into a manageable number of clinically meaningful categories. This "clinical grouper" makes it easier to quickly understand patterns of diagnoses and procedures.

Types of hospitals included in HCUP
HCUP is based on data from community hospitals, defined as short-term, non-Federal, general and other hospitals, excluding hospital units of other institutions (e.g., prisons). HCUP data include OB-GYN, ENT, orthopedic, cancer, pediatric, public, and academic medical hospitals. They exclude long-term care, rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals, but these types of discharges are included if they are from community hospitals.

Unit of analysis
The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in one year will be counted each time as a separate "discharge" from the hospital.

Costs and charges
Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare and Medicaid Services (CMS). Costs will tend to reflect the actual costs of production, while charges represent what the hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used because detailed charges are not available across all HCUP States. Hospital charges reflect the amount the hospital charged for the entire hospital stay and does not include professional (physician) fees. For the purposes of this Statistical Brief, costs are reported to the nearest hundred.

For the purposes of this Statistical Brief, all charge and cost data have been presented in 2007 dollars using the Bureau of Labor Statistics Consumer Price Index All Urban Consumers (CPI-U) U.S. city average and reported to the nearest hundred. (Note: Costs for the 1998 data are imputed from the 1997 CCR file.)

Payer
Payer is the expected primary payer for the hospital stay. To make coding uniform across all HCUP data sources, payer combines detailed categories into more general groups:

- Medicare includes fee-for-service and managed care Medicare patients.
- Medicaid includes fee-for-service and managed care Medicaid patients. Patients covered by the State Children's Health Insurance Program (SCHIP) may be included here. Because most state data do not identify SCHIP patients specifically, it is not possible to present this information separately.
- Private insurance includes Blue Cross, commercial carriers, and private HMOs and PPOs.
- Other includes Worker's Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs.
- Uninsured includes an insurance status of "self-pay" and "no charge."

When more than one payer is listed for a hospital discharge, the first-listed payer is used.

Region
Region is one of the four regions defined by the U.S. Census Bureau:

- Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
- Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
- South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
- West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii

Median income of the patient's ZIP Code
Median community-level income is the median household income of the patient's ZIP Code of residence. The cut-offs for the quartile designation are determined using ZIP Code demographic data obtained from Claritas. The income quartile value is missing for homeless and foreign patients. In 2007, the lowest income quartile ranged from $1–$38,999, while the highest income quartile was defined as $63,000 or above.

Discharge status
Discharge status indicates the disposition of the patient at discharge from the hospital, and includes the following six categories: routine (to home), transfer to another short-term hospital, other transfers (including skilled nursing facility, intermediate care, and another type of facility such as a nursing home), home health care, against medical advice (AMA), or died in the hospital.

About HCUP

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient, ambulatory surgery, and emergency department) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health and Hospitals
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Division of Health Care Finance and Policy
Michigan Health & Hospital Association
Minnesota Hospital Association
Missouri Hospital Industry Data Institute
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health and Senior Services
New Mexico Health Policy Comission
New York State Department of Health
North Carolina Department of Health and Human Services
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina State Budget & Control Board
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the NIS

The HCUP Nationwide Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, non-rehabilitation hospitals). The NIS is a sample of hospitals and includes all patients from each hospital, regardless of payer. It is drawn

from a sampling frame that contains hospitals comprising about 90 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at both the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use.

For More Information

For more information about HCUP, visit http://www.hcup-us.ahrq.gov.

For additional HCUP statistics, visit HCUPnet, our interactive query system, at www.hcup-us.ahrq.gov.

For information on other hospitalizations in the U.S., download *HCUP Facts and Figures: Statistics on Hospital-based Care in the United States in 2007*, located at http://www.hcup-us.ahrq.gov/reports.jsp.

For a detailed description of HCUP, more information on the design of the NIS, and methods to calculate estimates, please refer to the following publications:

Steiner, C., Elixhauser, A., Schnaier, J. The Healthcare Cost and Utilization Project: An Overview. *Effective Clinical Practice* 5(3):143–51, 2002.

Introduction to the HCUP Nationwide Inpatient Sample, 2007. Online. June 14, 2009. U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/db/nation/nis/NIS_2007_INTRODUCTION.pdf.

Houchens, R., Elixhauser, A. *Final Report on Calculating Nationwide Inpatient Sample (NIS) Variances, 2001.* HCUP Methods Series Report #2003-2. Online. June 2005 (revised June 6, 2005). U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/reports/CalculatingNISVariances200106092005.pdf .

Houchens, R.L., Elixhauser, A. *Using the HCUP Nationwide Inpatient Sample to Estimate Trends. (Updated for 1988–2004)*. HCUP Methods Series Report #2006-05. Online. August 18, 2006. U.S. Agency for Healthcare Research and Quality. http://www.hcup-us.ahrq.gov/reports/2006_05_NISTrendsReport_1988-2004.pdf.

About HCUPnet

HCUPnet is an online query system that offers instant access to the largest set of all-payer health care databases that are publicly available. HCUPnet has an easy step-by-step query system, allowing for tables and graphs to be generated on national and regional statistics, as well as trends for community hospitals in the U.S. HCUPnet generates statistics using data from HCUP's Nationwide Inpatient Sample (NIS), the Kids' Inpatient Database (KID), the State Inpatient Databases (SID), and the State Emergency Department Databases (SEDD).

Suggested Citation

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below:

Irene Fraser, Ph.D., Director
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Rockville, MD 20850

Table 1. Characteristics of uninsured hospital stays, 1998–2007										
	1998	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Number of hospital stays (percentage of all hospital stays)	1,759,800 5.0%	1,766,700 5.0%	1,777,000 4.9%	1,779,100 4.8%	1,847,900 4.9%	1,757,100 4.6%	2,081,000 5.4%	2,096,000 5.4%	2,243,900 5.7%	2,310,200 5.8%
Mean length of stay, days	3.9	3.9	3.9	3.9	4.0	3.8	3.9	3.9	3.9	4.0
Mean charge per stay, dollars*	$11,400	$12,000	$12,500	$13,500	$15,800	$18,900	$19,068	$19,300	$19,900	$21,400
Mean cost per stay, dollars*	$5,200	$5,800	$5,700	$6,200	$6,900	$7,000	$7,300	$7,300	$7,000	$7,100
*1998–2006 hospital charges and costs were adjusted for inflation and noted in 2007 dollars										
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998–2007										

Table 2. Characteristics of uninsured hospital stays compared to all hospital stays, 2007

	Uninsured stays	All hospital stays
Number of hospital stays	2,310,200	39,541,900
(percent of all stays)	5.8%	100%
Growth in number of stays, 1998–2007	550,400	4,667,900
(percent growth)	31.2%	13.4%
Mean length of stay, days	4.0	4.6
Hospital charges and costs		
Mean charge per stay, dollars	$21,400	$26,100
Aggregate charges (national bill), dollars	$49.8 billion	$1.0 trillion
Mean cost per stay, dollars	$7,100	$8,700
Aggregate costs, dollars	$16.5 billion	$343.9 billion
Admission source and discharge status		
Left against medical advice	3.5%	0.9%
Discharged to home health care	2.6%	9.1%
Died in the hospital	1.3%	1.9%

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2007

Table 3. Characteristics of the uninsured patient population compared to the overall patient population, 2007

	Uninsured hospital stays	All hospital stays
Number of hospital stays (percent of all stays)	2,310,200 5.8%	39,541,900 100%
Gender		
Male	51.4%	41.0%
Female	48.1%	58.7%
Age characteristics—stays for all patients		
Mean patient age	35 years	47 years
Age distribution		
<1 years	11.9%	13.0%
1–17 years	3.4%	4.2%
18–44 years	48.9%	26.2%
45–64 years	32.4%	23.1%
65+ years	3.2%	33.5%
*Age characteristics—stays for non-elderly patients**		
Mean patient age	35 years	32 years
Age distribution		
<1 years	12.3%	19.5%
1–17 years	3.5%	6.3%
18–44 years	50.7%	39.4%
45–64 years	33.5%	34.8%
*Median community-level income**—Rate per 1,000 population*		
Low income (under $39,000)	10.9	145.8
Not low income ($39,000 and above)	5.9	121.5

*Age characteristics are presented for the non-elderly population because the majority of elderly patients (age 65+) qualify for Medicare coverage.

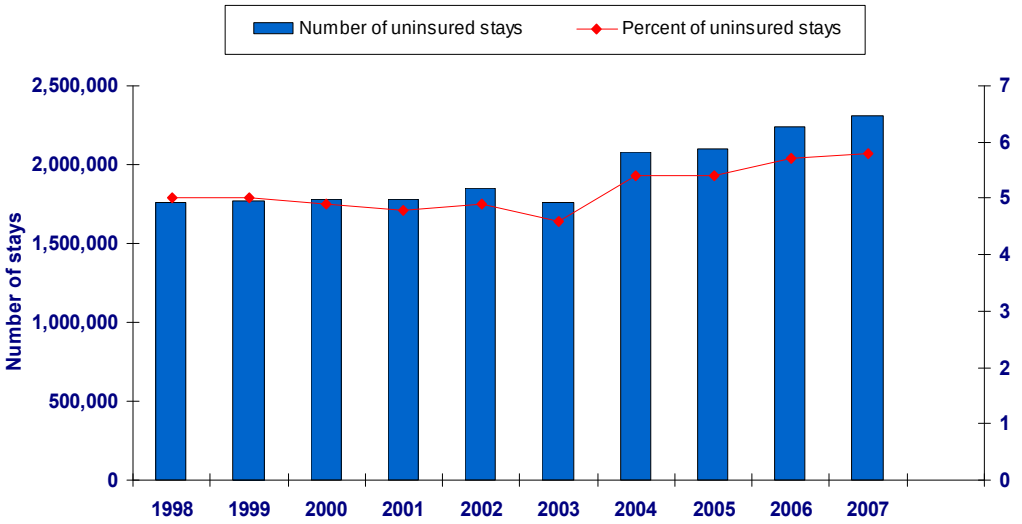
** Note: About 6% of median community-level income data were missing for uninsured hospital stays and about 2.7% missing for all hospital stays.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2007; Denominator data for rates were based on Claritas Population Estimates, 2007.

Table 4. Top 10 reasons for hospital stays among the uninsured, 2007			
	Uninsured hospital stays		All hospital stays
Principal diagnosis	1998	2007	2007
Liveborn *Number of stays* *(percentage of stays)*	201,900 11.5%	252,300 10.9%	4,542,700 11.5%
Mood disorders (Affective Disorder)	64,600 3.7%	94,300 4.1%	774,300 2.0%
Nonspecific chest pain	45,200 2.6%	77,000 3.3%	788,400 2.0%
Skin infections	31,000 1.8%	73,300 3.2%	604,100 1.5%
Alcohol-related disorders	55,100 3.1%	66,600 2.9%	256,800 0.7%
Diabetes mellitus with complications	33,400 1.9%	54,100 2.3%	510,500 1.3%
Substance-related disorders	45,200 2.6%	52,400 2.3%	228,900 0.6%
Pneumonia	53,400 3.0%	51,300 2.2%	1,171,500 3.0%
Biliary tract disease	25,500 1.5%	41,100 1.8%	454,700 1.2%
Coronary atherosclerosis and other heart disease	37,800 2.2%	39,100 1.7%	963,900 2.4%

* Statistics based on estimates with a relative standard error (standard error/weighted estimate) greater than 0.30 or with standard error = 0 in the nationwide statistics (NIS and KID) are not reliable. These statistics are suppressed and are designated with an asterisk (*).
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998 and 2007

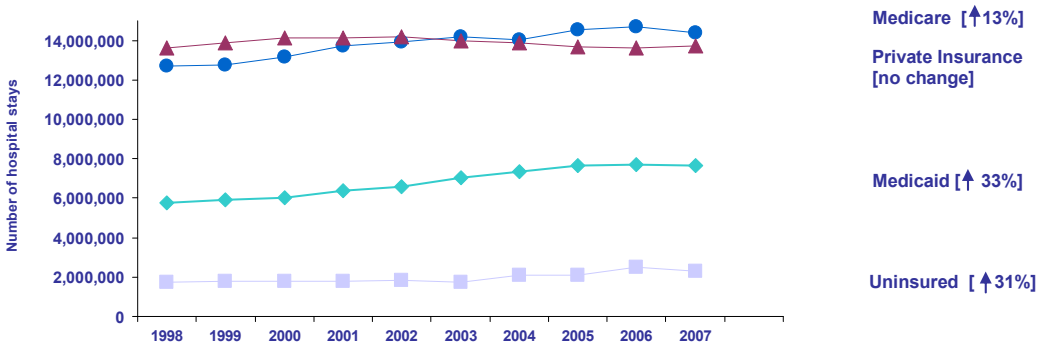
Figure 1. The percentage of uninsured hospital stays increased by 31 percent, 1998–2007*



*Note: The rate of growth of all hospital stays from 1998 to 2007 was 13 percent.

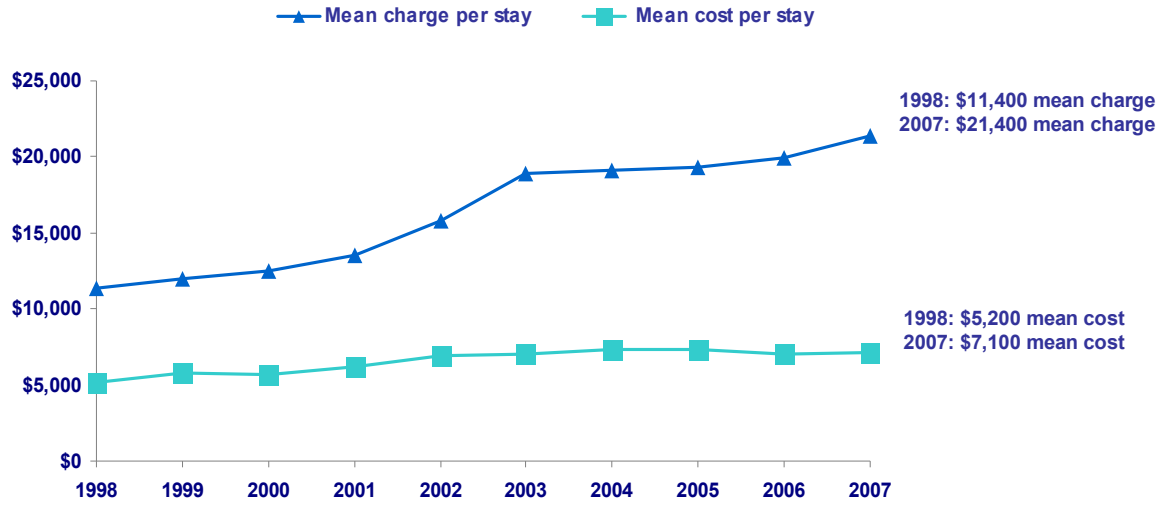
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998–2007

Figure 2. The number of uninsured, Medicaid, and Medicare hospital stays increased while the number of privately-insured stays remained steady, 1998–2007



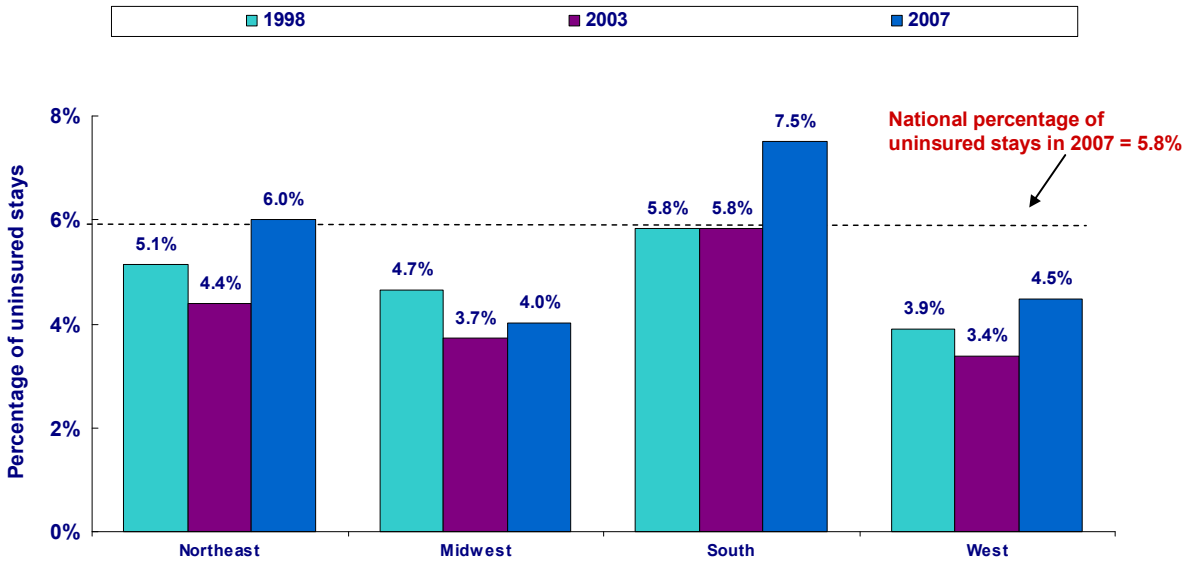
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998–2007

Figure 3. The hospital bill for uninsured stays increased by 88 percent while estimated hospital costs increased by 37 percent, 1998 and 2007



Note: 1998–2006 hospital charges and costs were adjusted for inflation and noted in 2007 dollars.
Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998–2007

Figure 4. The percentage of uninsured hospital stays increased in the South and Northeast, but decreased in the Midwest, 1998, 2003, and 2007



Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 1998, 2003, and 2007