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Serving the Uninsured: Safety-Net Hospitals, 2003




Agency for Healthcare Research and Quality

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Serving the Uninsured: Safety-Net Hospitals, 2003



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FACTS ON:

- LOCATION
- OWNERSHIP
- SIZE
- TEACHING STATUS
- FINANCIAL STATUS
- TYPES OF PATIENTS SERVED

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Executive Summary

According to recent AHRQ research, about 25 percent of Americans under age 65 lack health insurance at some point during the year. The hospitals in a community collectively serve as an important element of the safety net to treat people who are uninsured and cannot afford to pay the full cost. In a 2000 report, the Institute of Medicine (IOM) stated that the safety net was “intact but endangered” and cautioned that many of the institutions caring for the uninsured, Medicaid patients, and other vulnerable populations face uncertain financial futures. Therefore the IOM recommended improved monitoring of the structure, capacity, and financial stability of the safety net.

Although all hospitals supply services to the uninsured, wide variation exists among hospitals in the proportion of services provided to the uninsured. For this Fact Book, hospitals were separated into three groups by the degree of their commitment of inpatient stays (hospital discharges) for the uninsured:

- **Safety-net hospitals.** The 10 percent of hospitals with the highest proportion of hospital stays for the uninsured are termed “safety-net hospitals” in this report. In these hospitals, between 9 and 50 percent of the hospital stays are for the uninsured.
- **Secondary safety-net hospitals.** Another 20 percent of hospitals have a smaller, but still substantial percentage of stays that are uninsured, and thus provide an important “secondary” safety-net. In these hospitals, between 5 and 9 percent of the hospital stays are for the uninsured.
- **Non-safety-net hospitals.** The remaining 70 percent of hospitals are non-safety-net hospitals. Between 0 and 5 percent of their hospital stays are for the uninsured.

This Fact Book provides a profile of safety-net hospitals, as defined by the proportion of their hospital stays that are for the uninsured. What do we know about these safety-net hospitals, and what is the impact of their effort on patients and on the hospitals themselves? An analysis of data from the 2003 Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS), combined with information from the American Hospital Association Annual Survey Database and Medicare Hospital Cost Reports, provides a telling profile:

SAFETY-NET HOSPITALS PROVIDE A CRITICAL POINT OF ACCESS FOR THE UNINSURED

- Although they represent only a tenth of all hospitals, safety-net hospitals care for almost one-third of the hospital stays for the uninsured.
- Secondary safety-net hospitals care for another 24 percent of hospital stays for the uninsured.

SAFETY-NET HOSPITALS SPAN ALL LOCATIONS, SIZES, AND OWNERSHIP GROUPS

- About 56 percent are in urban areas and 44 percent are in rural areas.
- Most (66 percent) are in the South.
- One in 5 is a teaching hospital.
- Over half are small hospitals, maintaining fewer than 100 beds.
- They include all types of ownership: 43 percent are publicly owned, 45 percent are non-profit, and 12 percent are investor-owned, for-profit.

Summary

SAFETY-NET HOSPITALS ARE MORE LIKELY TO BE PUBLIC HOSPITALS

- Publicly owned hospitals represent 43 percent of the safety-net hospitals, but only 19 percent of non-safety-net hospitals.
- Non-profit hospitals make up 45 percent of safety-net hospitals and 66 percent of non-safety-net hospitals.
- Investor-owned hospitals make up 12 percent of the safety-net hospitals and 16 percent of the non-safety-net hospitals.
- While safety-net hospitals in both rural and urban areas are more likely than non-safety-net hospitals to be publicly owned, safety-net hospitals in rural areas are more likely than safety-net hospitals in urban areas to be publicly owned. In rural areas, 58 percent of safety-net hospitals are public hospitals, whereas in urban areas, the percentage drops to 31.

SAFETY-NET HOSPITALS ARE FINANCIALLY VULNERABLE

- Compared with non-safety-net hospitals, safety-net hospitals have substantially more Medicaid patients and fewer privately insured and Medicare patients. This patient mix makes it more difficult for the safety-net hospitals to cross-subsidize care for the uninsured.
- Safety-net hospitals have a –3.0 percent median patient revenue margin, compared with –1.1 percent for non-safety-net hospitals and –1.5 percent for secondary safety-net hospitals.
- After subsidies and government budget allocations are added to net patient revenue, safety-net hospitals have a median total income margin of about 2.4 percent. This is slightly more than the median total income margin of secondary safety-net hospitals (2.1 percent), but still lower than non-safety-net hospitals (3.0 percent).

- Over a third (36 percent) of safety-net hospitals experienced negative total income margins, despite a *median* total income margin of 2.4 percent. This was more than the percentage for non-safety-net hospitals (28 percent) and slightly more than that for secondary safety-net hospitals (32 percent).

PUBLIC SAFETY-NET HOSPITALS FARE WORSE FINANCIALLY THAN OTHER SAFETY-NET HOSPITALS

- In terms of patient revenue margin, public safety-net hospitals fared much worse than other hospitals; they had a –6.7 percent margin compared to –0.8 percent for non-profits and 2.2 percent for investor-owned safety-net hospitals.
- Public safety-net hospitals had a lower median total income margin (1.7 percent) than non-profit (2.6 percent) and investor-owned (2.5 percent) safety-net hospitals.
- One third (34 percent) of the public safety-net hospitals experienced a negative total income margin, which was similar to the proportion for the non-profit (37 percent) and investor-owned (36 percent) safety-net hospitals.
- Public safety-net hospitals have a greater proportion (81 percent) of their uninsured patients who are seen for non-obstetrical reasons, as compared to non-profit (75 percent) and investor-owned (61 percent) safety-net hospitals. Non-obstetrical treatment tends to be more costly than other categories of treatment.

RURAL SAFETY-NET HOSPITALS ARE ESPECIALLY VULNERABLE

- After subsidies and government budget allocations are added to net patient revenue, rural safety-net hospitals have a median total income margin five times lower than urban safety-net hospitals: 0.5 percent compared to 2.5 percent.

FINANCIAL STATUS OF TEACHING SAFETY-NET HOSPITALS IS MIXED

- Teaching safety-net hospitals have a lower total income margin than non-teaching safety-net hospitals: 1.2 percent versus 2.5 percent.
- The percent of hospitals with negative total income margins was similar for teaching and non-teaching hospitals.

SAFETY-NET HOSPITALS ADMIT FEWER PATIENTS FOR SPECIALIZED SURGERY AND MORE FOR ALCOHOL AND MENTAL HEALTH SERVICES

- Patients of safety-net hospitals have the same types of medical and surgical conditions as patients of non-safety-net hospitals in four out of five broad categories of conditions (based on groupings of diagnosis related groups). However, safety-net hospitals are somewhat less likely to see patients for special surgical needs.
- The top 10 most common reasons for admission (principal diagnoses) to safety-net hospitals and secondary safety-net hospitals include 1 mental health condition (depression or bipolar disorder) and 1 respiratory condition (asthma) not included in the top 10 for non-safety-net hospitals.
- Alcohol abuse is among the top 10 coexisting conditions (comorbidities) for patients seen in safety-net hospitals. In contrast, it is not among the top 10 comorbidities for secondary safety-net or non-safety-net hospitals.

SAFETY-NET HOSPITALS HAVE PATIENTS WITH RESOURCE NEEDS SIMILAR TO THOSE OF PATIENTS IN NON-SAFETY-NET HOSPITALS

- A hospital's casemix index is a measure of the average expected resources (costs) needed to care for the mix of patients that it treats. There are no sizable differences between safety-net and non-safety-net hospitals in average casemix.
- The average length of stay for safety-net hospitals is similar to that of non-safety-net hospitals.





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Foreword

The mission of the Agency for Healthcare Research and Quality (AHRQ) is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. To help fulfill this mission, AHRQ develops a number of databases, including the powerful Healthcare Cost and Utilization Project (HCUP). HCUP is a Federal-State-Industry partnership designed to build a standardized, multi-State health data system; HCUP features databases, software tools, and statistical reports to inform policymakers, health system leaders, and researchers.

For data to be useful, they must be disseminated in a timely, accessible manner. To meet this objective, AHRQ launched HCUPnet, an interactive, Internet-based tool for identifying, tracking, analyzing, and comparing statistics on hospital utilization, outcomes, and charges (<http://www.hcupnet.ahrq.gov/>). Menu-driven HCUPnet guides users in tailoring specific queries about hospital care online; with a click of a button, users receive answers within seconds.

To make HCUP data even more accessible, AHRQ disseminates HCUP Statistical Briefs, an online publication series that presents simple, descriptive statistics on a variety of specific, focused topics (<http://www.hcup-us.ahrq.gov/reports/statbriefs.jsp>). Statistical Briefs are made available online regularly throughout the year and have covered topics such as hospitalizations among the uninsured, the national bill for hospital care by payer, and hospitalizations related to childbirth.

In addition, AHRQ produces the HCUP Fact Books to highlight statistics about hospital care in the United States in an easy-to-use, readily accessible format. Each Fact Book provides national information about specific aspects of hospital care—the single largest component of our health care dollar. These national estimates are benchmarks against which States could compare their own data. Previous Fact Books provided overviews on hospital stays and procedures; care for women, children, and adolescents; and preventable hospitalizations.



This Fact Book presents a detailed examination of hospitals that treat a disproportionate share of uninsured patients. We refer to these hospitals as “safety-net” hospitals because they typically are the only source of health care for millions of Americans who lack health insurance. The Fact Book includes an in-depth look at the patients being served by these hospitals and the financial status of safety-net hospitals. Other recent AHRQ initiatives related to the safety-net are described in the Appendix.

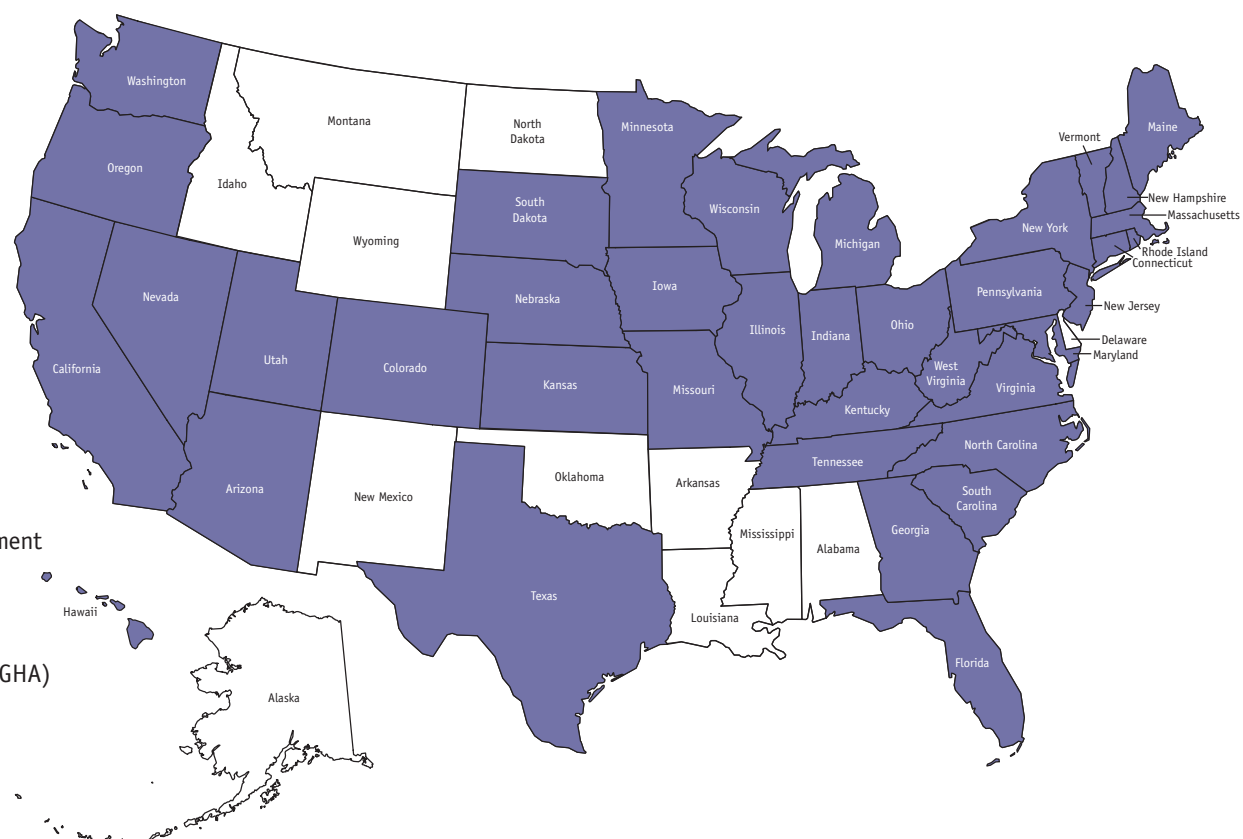
We invite you to tell us how you are using this Fact Book or other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below.

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HCUP is based on data collected by individual State Partners (including State government agencies, hospital associations, and private organizations). These organizations provide the data to AHRQ where the data are converted to uniform data products. Without the following State Partner organizations, the Healthcare Cost and Utilization Project and this Fact Book would not be possible:

Arizona Department of Health Services
California Office of Statewide Health Planning & Development
Colorado Health & Hospital Association
Connecticut Hospital Association (Chime, Inc.)
Florida Agency for Health Care Administration
Georgia An Association of Hospitals and Health Systems (GHA)
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital & Health Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Department for Public Health
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
New Hampshire Department of Health & Human Services
New Jersey Department of Health & Senior Services
New York State Department of Health
North Carolina Department of Health and Human Services
Nevada Department of Human Resources
Ohio Hospital Association



Oregon Association of Hospitals & Health Systems and Office for Oregon Health Policy & Research
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 & Family Services

Introduction

Recently published AHRQ research has shown that about 25 percent of Americans under age 65 lack health insurance at some point during the year.¹ Even though most uninsured people are in working families, low incomes put timely access to many health care services beyond their means.² Compared to individuals with insurance, people without health insurance are more likely to lack a usual source of care, more likely to use emergency departments, and less likely to use primary care services.² They also tend to be sicker when admitted for care.^{3,4} Because most uninsured patients have limited ability to pay, the institutions that care for them are also vulnerable.² Traditionally, a patchwork of hospitals, community health centers, local health departments, and other providers willing to provide free or reduced-fee services have provided a “safety net” for the uninsured.^{2, 5-7}

As the number of uninsured grows, the availability of a strong safety net becomes both more vital and more difficult. In 2000, the Institute of Medicine (IOM) reported that the U.S. health care safety net is “intact but endangered.” The report cautioned that many of the institutions providing care to the uninsured, to those with Medicaid, and to other at-risk patients face uncertain financial futures, especially because of ever-changing financial, economic, and social environments. The IOM called for improved monitoring of the structure, capacity, and financial stability of the safety net to meet the health care needs of the uninsured and other vulnerable populations.² AHRQ has responded to this challenge through developing this Fact Book and several initiatives (see Appendix).

This Fact Book focuses on hospitals, one vital part of the health care safety net. In 2004 alone, hospitals provided \$27.4 billion in uncompensated care (i.e., care that is not directly reimbursed).⁸ For reasons of geography, mission, or a mix of factors, some hospitals have few uninsured patients. At the other extreme are hospitals that care for a high proportion of uninsured patients.

Although many definitions of “safety net” have been applied to hospitals, this analysis focuses only on care for the uninsured (rather than uninsured plus Medicaid) and the uninsured proportion of patients cared for by hospitals. Discharges for which the expected primary payer was “self-pay” or “no charge” are categorized as “uninsured.” Detailed definitions can be found in the Methods section.

Nearly one-third of all uninsured patients are cared for by 10 percent of hospitals. Some of these hospitals are large, others are small, but all treat a disproportionately high share of the uninsured; therefore, these institutions are the core of the hospital “safety net.” This Fact Book provides a profile of these core safety-net hospitals: where and what they are, the kind of care they provide, and their financial status. The



information is based on discharge-level data from the 2003 Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample, supplemented with data from the 2003 American Hospital Association Annual Survey Database. This combination of data—data from nearly 8 million discharges from nearly 1,000 hospitals—yields a unique and comprehensive picture of safety-net hospitals in the United States. In addition, information from Medicare Hospital Cost Reports is used for financial comparisons of facilities.

This Fact Book examines safety-net hospitals in three unique ways by analyzing (1) hospital structural and geographic characteristics, (2) hospital financial status, and (3) patient clinical characteristics.

The following definitions are used in this report:

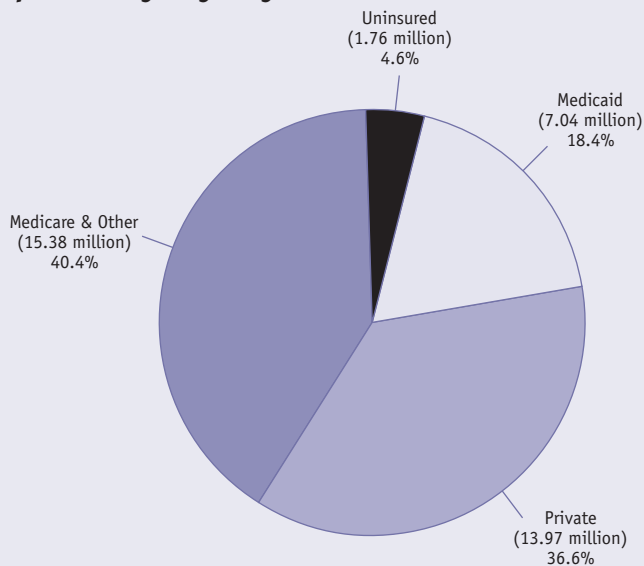
- **Safety-net hospitals.** The 10 percent of hospitals with the highest proportion of hospital stays (discharges) for the uninsured are “safety-net hospitals” in this report. In these hospitals, between 8.7 and 49.6 percent of the hospital stays are for the uninsured. This definition differs from other research that utilized only financial data on uncompensated care levels to define safety-net hospitals. This definition is discussed further in the Methods section.
- **Secondary safety-net hospitals.** Another 20 percent of hospitals have a smaller, but still substantial percentage of stays that are uninsured, and thus provide an important “secondary” safety net. In these hospitals, between 5.2 and 8.7 percent of the hospital stays are for the uninsured.
- **Non-safety-net hospitals.** The remaining 70 percent of hospitals are non-safety-net hospitals. Between 0.0 and 5.2 percent of their hospital stays are for the uninsured.



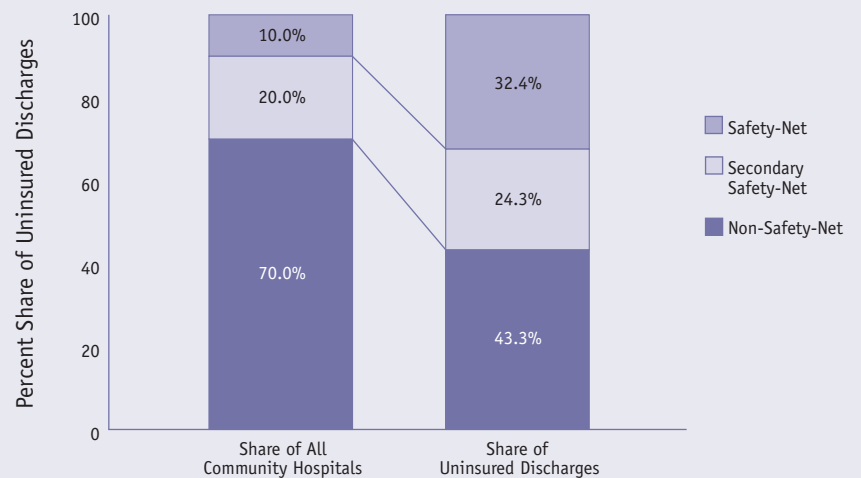
Safety-net hospitals provide a critical point of access for the uninsured

- The uninsured represented 5 percent (1.8 million) of 38 million discharges from hospitals in the United States in 2003.
- Even though safety-net hospitals represent only 10 percent of all U.S. community hospitals, they were responsible for nearly one-third of the uninsured discharges in 2003.
- The secondary safety-net hospitals care for another 24 percent of hospital stays for the uninsured.

Hospital Stays by Payer Mix



Type of Hospital and Proportion of All Community Hospitals, and Share of Uninsured Discharges

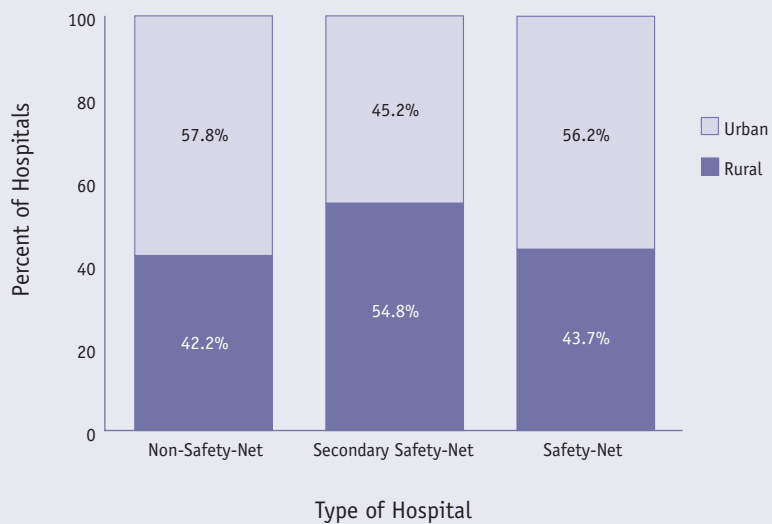


PART I:
**Hospital Structural
and Geographic
Characteristics**

Safety-net hospitals span all locations, sizes, and ownership groups

- About 56 percent of safety-net hospitals are in urban areas, and 44 percent are in rural areas.
- By far, the South has the largest share of the Nation’s safety-net hospitals—about 66 percent.
- The concentration of safety-net hospitals in the South may be somewhat related to the large proportion (nearly 50 percent) of the Nation’s uninsured discharges that are in the South.

Urban/Rural Hospital Location



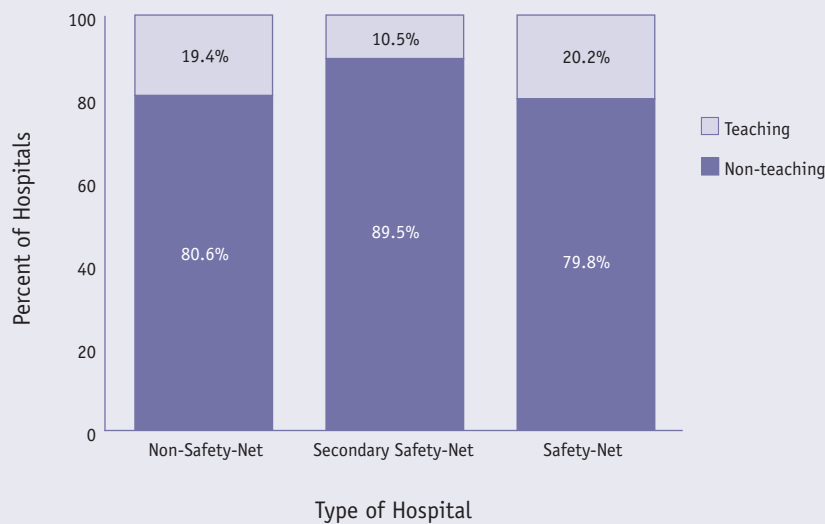
REGIONAL DISTRIBUTION OF ALL HOSPITALS, SAFETY-NET HOSPITALS, AND UNINSURED DISCHARGES

	Midwest	Northeast	South	West
Percent of U.S. Safety-Net Hospitals	10.2	13.2	65.8	10.9
Percent of U.S. Community Hospitals	29.0	13.6	38.8	18.5
Percent of U.S. Uninsured Discharges	18.8	18.9	48.3	14.0

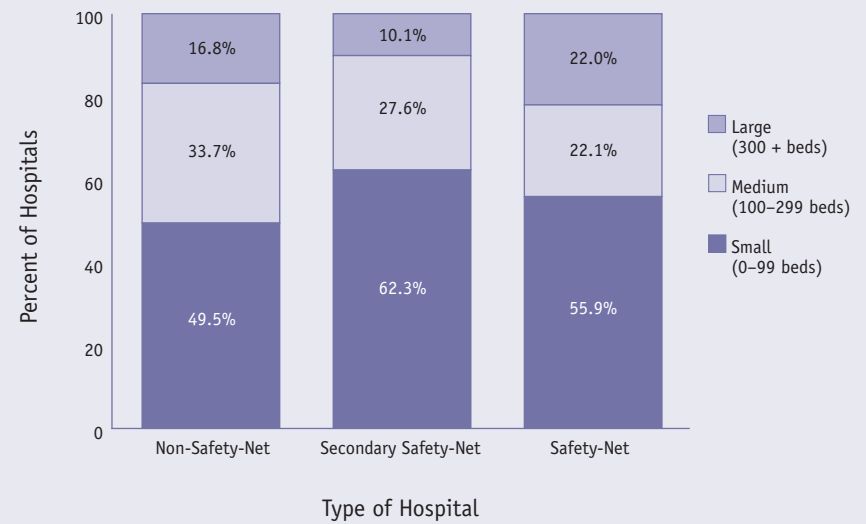


- One in 5 (20 percent) safety-net hospitals is a teaching hospital. Non-safety-net hospitals have about the same proportion of teaching hospitals.
- Over half of safety-net hospitals are small hospitals with fewer than 100 beds.

Hospital Teaching Status



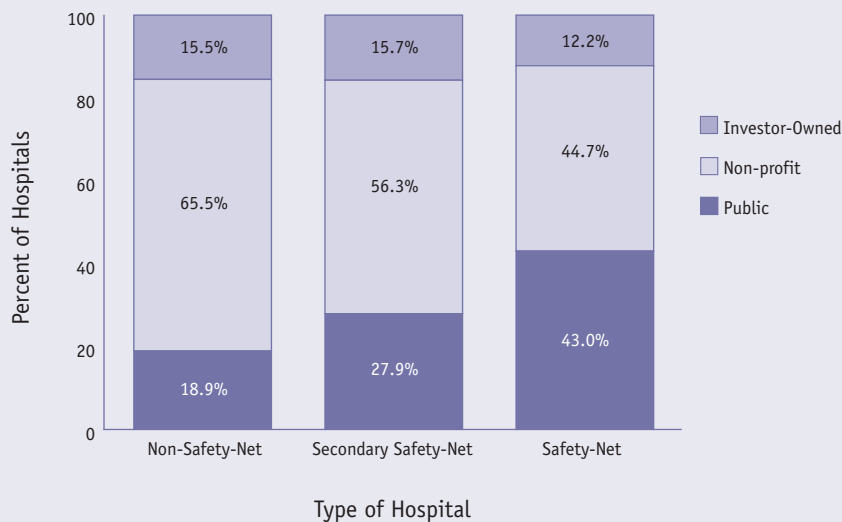
Hospital Bed Capacity



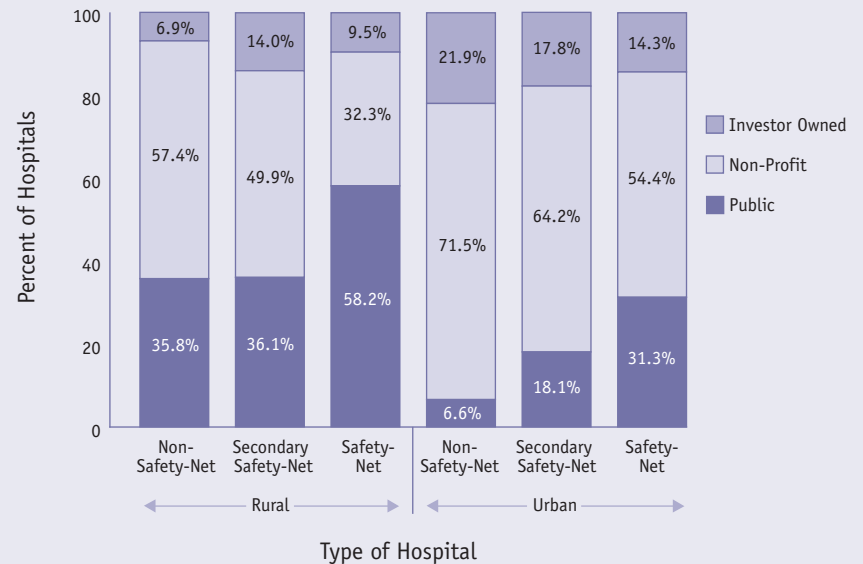
Safety-net hospitals are more likely to be public hospitals

- Safety-net hospitals include all types of ownership: 43 percent are publicly owned, 45 percent are non-profit, and 12 percent are investor-owned, for-profit.
- Publicly owned hospitals represent 43 percent of the safety-net hospitals but only 19 percent of non-safety-net hospitals.
- Non-profit hospitals make up 45 percent of safety-net hospitals and 66 percent of non-safety-net hospitals.
- Investor-owned hospitals make up 12 percent of the safety net hospitals and 16 percent of the non-safety-net hospitals.
- Safety-net hospitals in rural areas are much more likely to be public hospitals than safety-net hospitals in urban areas. In rural areas, 58.2 percent of safety-net hospitals are public hospitals, whereas in urban areas, the percentage drops to 31.3.

Hospital Ownership



Ownership by Urban/Rural Location



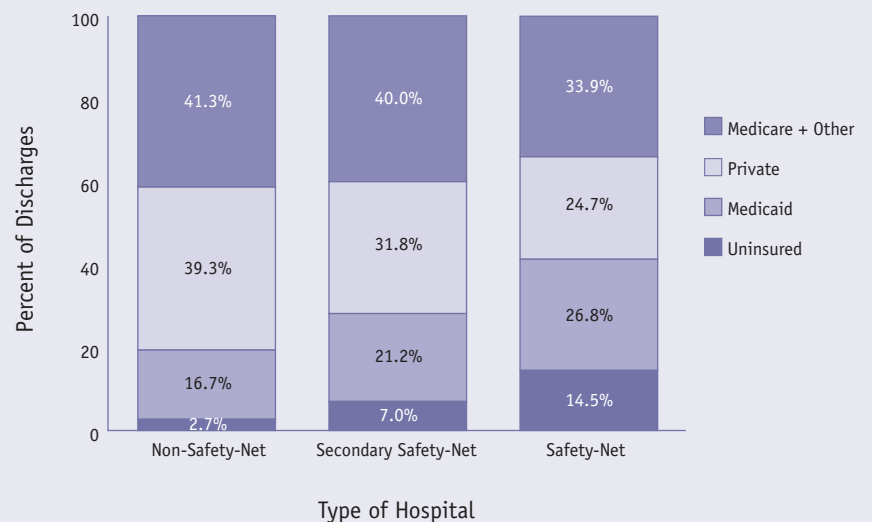
PART II:
Hospital Financial Status

Safety-net hospitals are financially vulnerable

- Compared with non-safety-net hospitals, safety-net hospitals have substantially more Medicaid discharges—27 percent versus 17 percent.
- Safety-net hospitals have fewer discharges covered by private insurance (25 percent) or Medicare (34 percent) than non-safety-net hospitals.
- This payment mix makes it more difficult for the safety-net hospitals to cross subsidize care for the uninsured.
- The *patient revenue margin* is equal to net patient revenue (i.e., patient revenue minus operating costs) divided by the operating cost of a hospital. When only patient revenues are considered, safety-net hospitals have a median patient revenue margin of -3.0 percent, compared to a median patient revenue margin of -1.5 percent for secondary safety-net hospitals and -1.1 percent for non-safety-net hospitals.

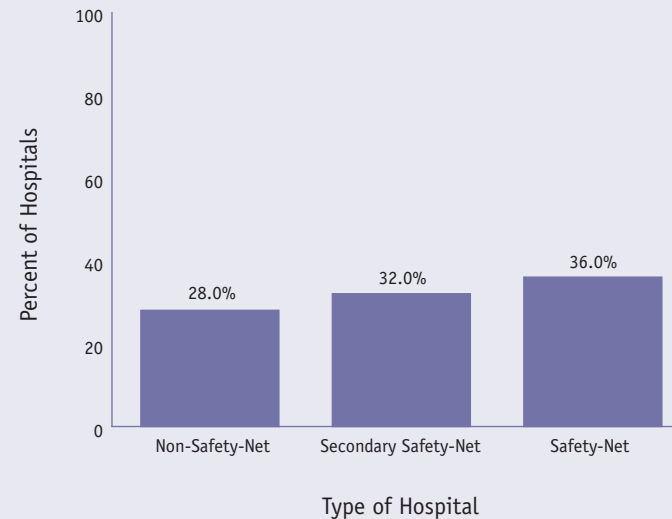


Patient Health Insurance Coverage

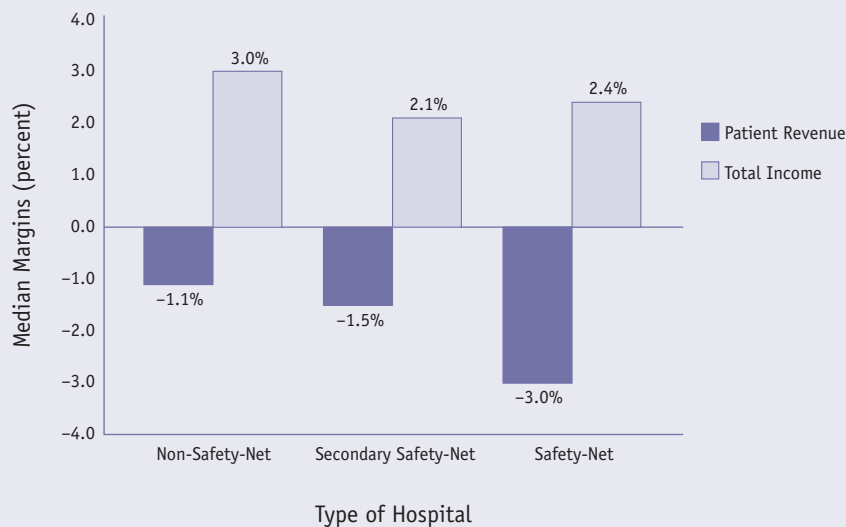


- The *total income margin* is the total income for a hospital (i.e., net patient revenue plus contributions, government appropriations, and other income), divided by the total expenses (i.e., operating costs and other expenses). After subsidies and government budget allocations are added to net patient revenue, safety-net hospitals have a median total income margin of 2.4 percent. This is slightly more than the median total income margin of secondary safety-net hospitals (2.1 percent), but still lower than non-safety-net hospitals (3.0 percent).
- Over one-third of safety-net hospitals (36 percent) experienced negative total income margins, despite their median total income margins of 2.4 percent. This was more than the percentage for non-safety-net hospitals (28 percent) and slightly more than that for secondary safety-net hospitals (32 percent).

Hospitals With Negative Total Income Margin



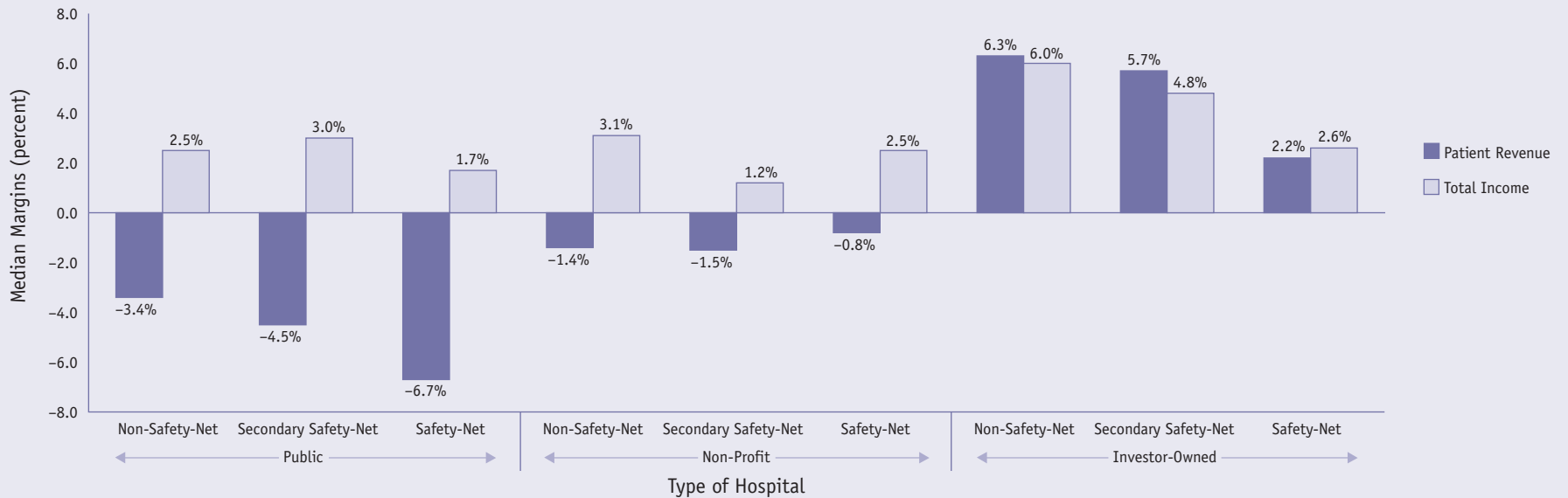
Median Margins



Public safety-net hospitals fare worse financially than other safety-net hospitals

- In terms of patient revenue margin, public safety-net hospitals fared much worse than other hospitals with -6.7 percent compared to -0.8 percent for non-profit safety-net hospitals and 2.2 percent for investor-owned safety-net hospitals.
- Public safety-net hospitals had a lower median total income margin (1.7 percent) than non-profit (2.5 percent) and investor-owned (2.6 percent) safety-net hospitals.

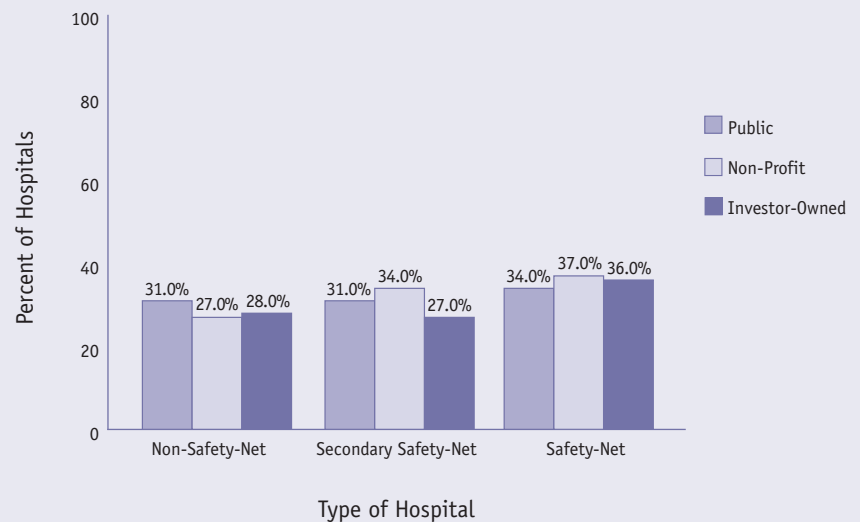
Median Margins of Hospitals by Hospital Ownership





- Thirty-four percent of public safety-net hospitals experienced a negative total income margin, which was similar to the proportion for the non-profit (37 percent) and of investor-owned (36 percent) safety-net hospitals.

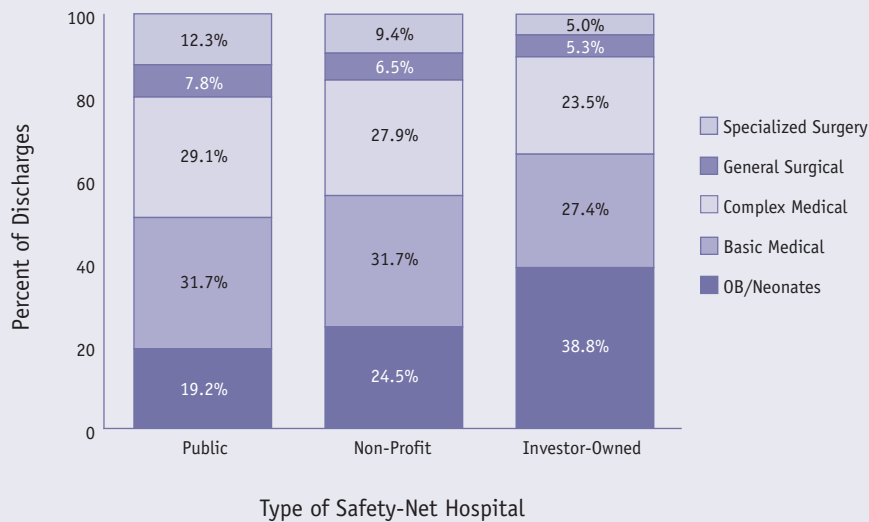
Hospitals With Negative Total Income Margin by Hospital Ownership



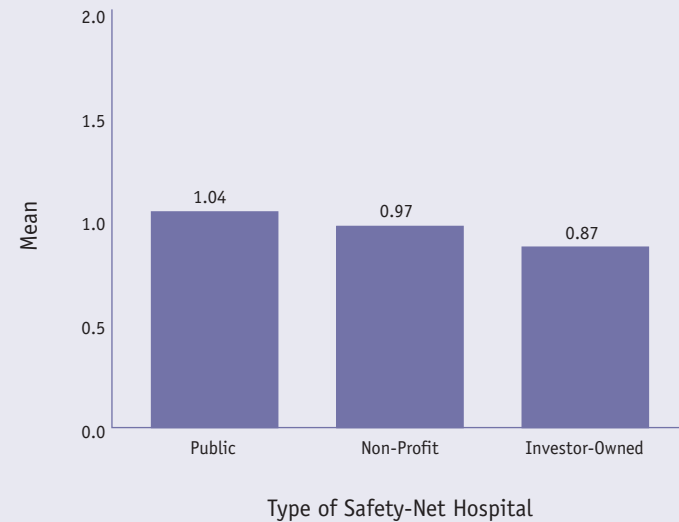
Uninsured patients in public safety-net hospitals have greater resource needs

- Public safety-net hospitals have a higher proportion (81 percent) of their uninsured patients who are seen for non-obstetrical reasons, as compared to non-profit (75 percent) and investor-owned (61 percent) safety-net hospitals. Non-obstetrical treatment tends to be more costly than other categories of treatment.
- The uninsured in public safety-net hospitals have a higher casemix index (DRG weight) when compared to the uninsured in non-profit and investor-owned safety-net hospitals, 1.04, 0.97, and 0.87, respectively. This means that, on average, the uninsured in public safety-net hospitals tend to have conditions that are more costly to treat.

Type of Conditions Seen in Uninsured Patients in Safety-Net Hospitals



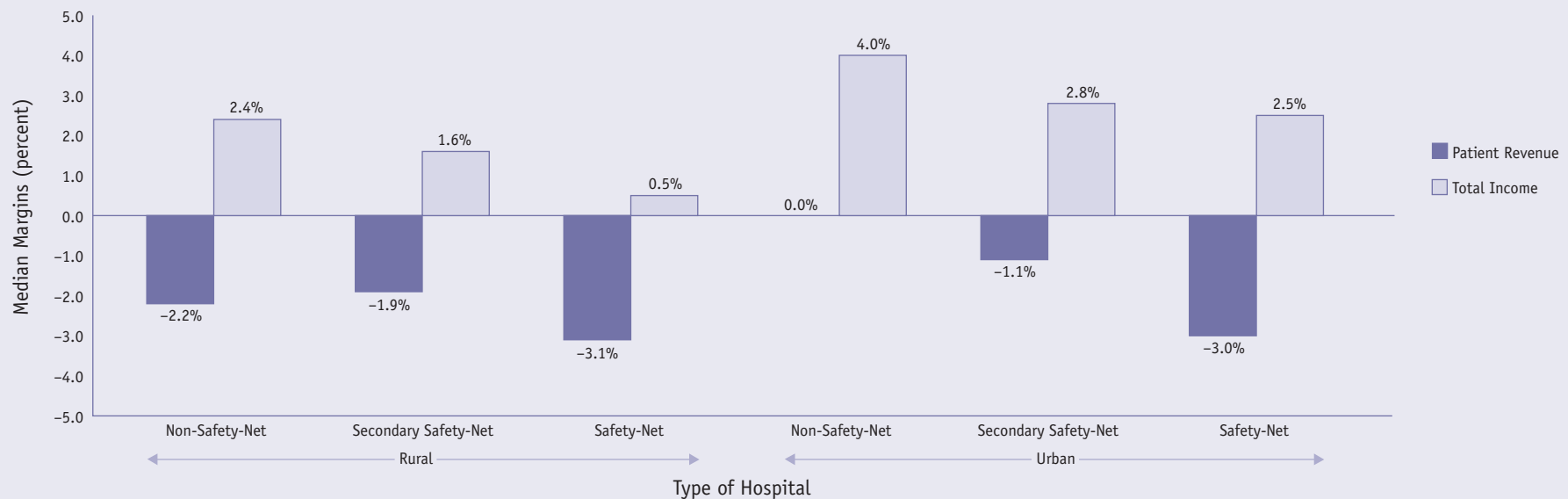
Casemix Index for Uninsured Patients in Safety-Net Hospitals



Rural safety-net hospitals are especially vulnerable

- Rural and urban safety-net hospitals have similar median patient revenue margins of about -3 percent.
- After subsidies and government budget allocations are added to net patient revenue, rural safety-net hospitals have a median income margin five times lower than urban safety-net hospitals: 0.5 percent compared to 2.5 percent.

Median Margins of Hospitals by Urban/Rural Location

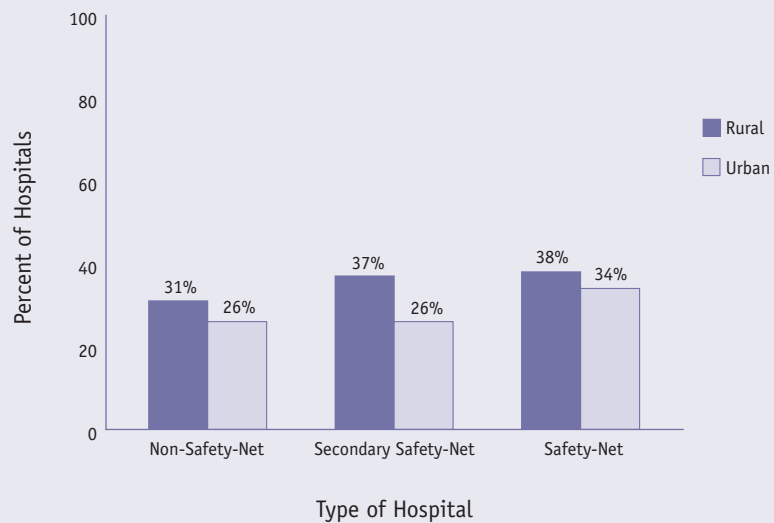


Hospital Financial Status

- Thirty-eight percent of rural safety-net hospitals have negative total income margins, compared to 34 percent of urban safety-net hospitals.
- For secondary safety-net hospitals, the disparity between rural and urban hospitals is larger. Thirty-seven percent of rural secondary safety-net hospitals have negative total income margin, compared to 26 percent of urban secondary safety-net hospitals.



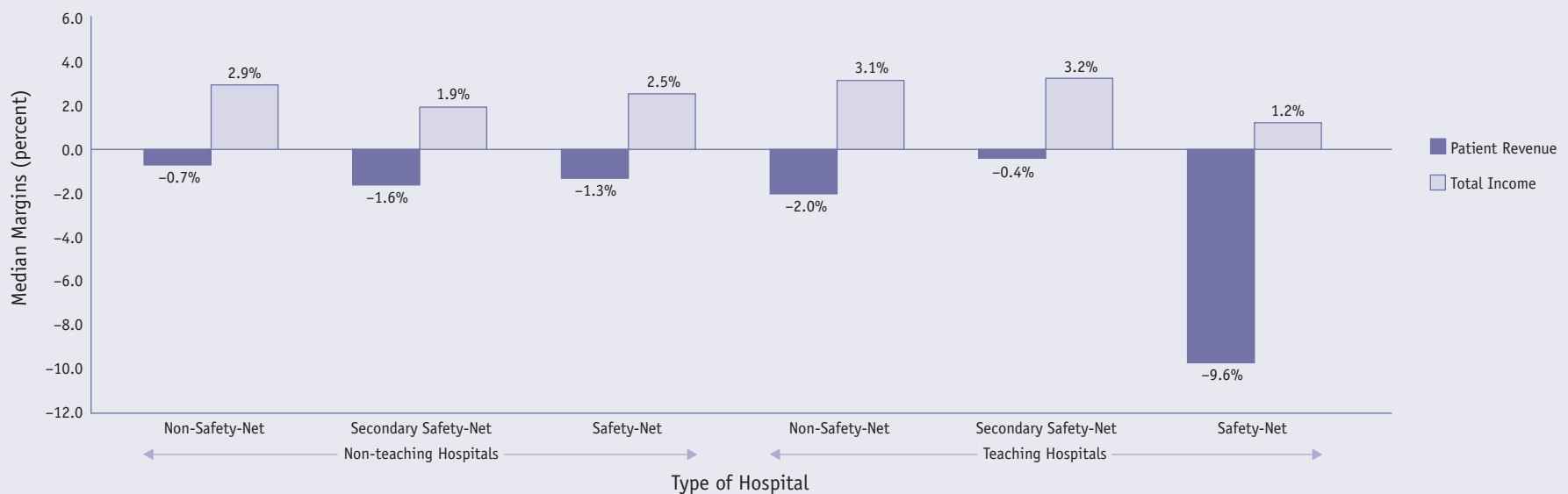
Hospitals With Negative Total Income Margins by Urban/Rural Location



Financial status of teaching safety-net hospitals is mixed

- Safety-net hospitals that were also teaching hospitals had a relatively high negative median patient revenue margin (−9.6 percent).
- Teaching safety-net hospitals were quite successful in obtaining subsidies, government allocations, and other revenue to achieve their total income margin of 1.2 percent. This was lower, however, than the median total income of non-teaching safety-net hospitals (2.5 percent).

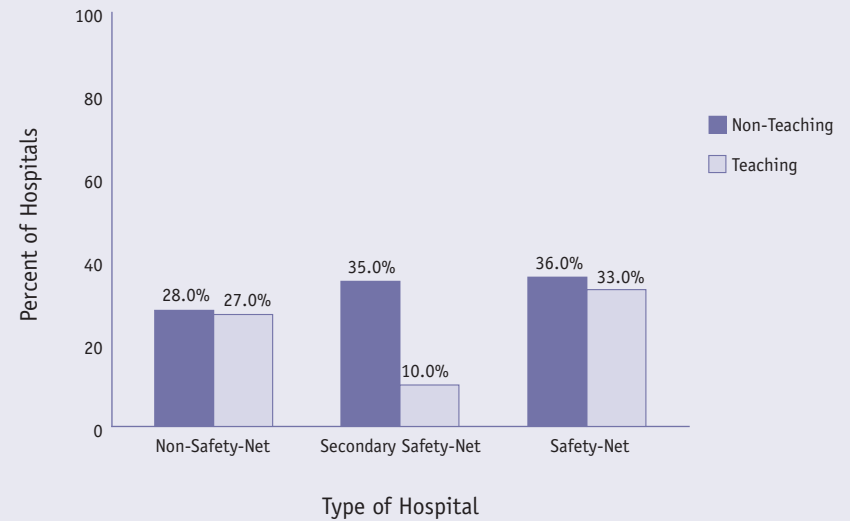
Median Margins of Hospitals by Teaching Status



Hospital Financial Status

- The percent of hospitals with negative total income margins was similar for teaching and non-teaching safety-net hospitals (33 and 36 percent, respectively).
- However, among secondary safety-net hospitals, teaching hospitals were much less likely than non-teaching hospitals to have negative total income margins (10 and 35 percent, respectively).

Percent of Hospitals With Negative Total Income Margin by Teaching Status



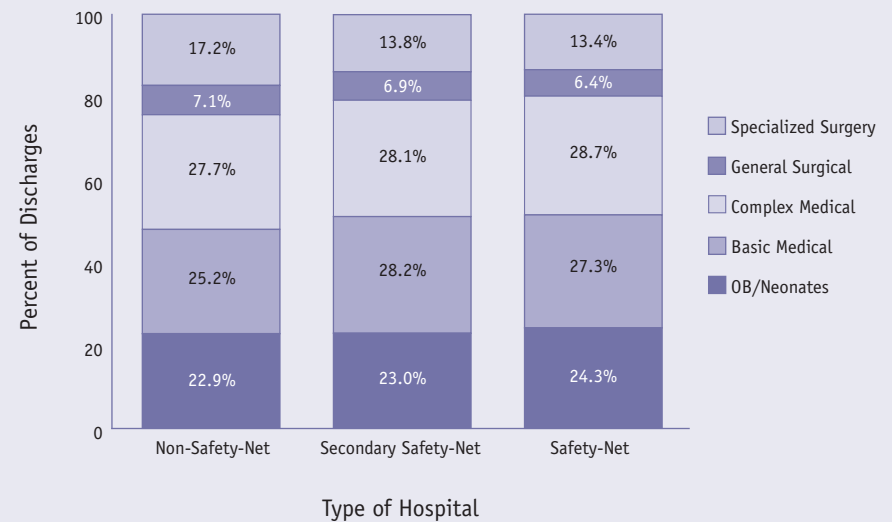
PART III:
Patient Clinical
Characteristics

Safety-net hospitals admit fewer patients for specialized surgery and more for alcohol and mental health services



- Patients of safety-net hospitals have the same types of medical and surgical conditions as patients of non-safety-net hospitals in four out of five broad categories of conditions (based on groupings of diagnosis related groups).
- Safety-net hospitals and secondary safety-net hospitals are somewhat less likely than non-safety-net hospitals to see patients for special surgical needs.

Clinical Conditions by Type of Hospital





- The 10 most common reasons for admission (principal diagnoses) are generally similar for the three types of hospitals.
- The top 10 diagnoses in safety-net hospitals include 1 mental health condition (affective or mood disorders, rank 6) and 1 respiratory condition (asthma, rank 8) not included in the top 10 diagnoses for non-safety-net hospitals.
- Hospitalizations for two conditions are less prominent in safety-net hospitals than in non-safety-net hospitals. Irregular heart beat (cardiac dysrhythmias) and back and spinal disc disorders are in the top 10 diagnoses for non-safety-net hospitals but do not appear in the top 10 for safety-net hospitals.

TEN MOST COMMON PRINCIPAL DIAGNOSES	NON-SAFETY-NET			SECONDARY SAFETY-NET			SAFETY-NET		
	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank
<i>*Excludes newborn infant-related diagnoses</i>									
Normal pregnancy and/or delivery	3,013	10.7	1	644	10.6	1	431	11.0	1
Hardening of the heart arteries and other heart disease (coronary arteriosclerosis)	971	3.4	2	166	2.7	4	120	3.0	3
Pneumonia	953	3.4	3	236	3.9	2	126	3.2	2
Congestive heart failure	834	3.0	4	182	3.0	3	104	2.7	4
Chest pain	619	2.2	5	153	2.5	5	90	2.3	5
Heart attack (acute myocardial infarction)	580	2.1	6	107	1.8	10	63	1.6	10
Trauma to vulva (external female genitals) and perineum (area between anus and vagina)	565	2.0	7	117	1.9	7	67	1.7	9
Cardiac dysrhythmias (irregular heart beat)	544	1.9	8						
Spondylosis, intervertebral disc disorders (back problems, disorders of intervertebral discs and bones in spinal column)	531	1.9	9						
Other maternal complications of birth and puerperium (period after childbirth)	529	1.9	10	110	1.8	8	73	1.9	7
Chronic obstructive lung disease				120	2.0	6			
Affective or mood disorders (depression and bipolar disorder)				107	1.8	9	86	2.2	6
Asthma							67	1.7	8

Patient Clinical Characteristics

- Alcohol abuse is among the top 10 comorbidities (coexisting medical problems listed as secondary diagnoses) for patients seen in safety-net hospitals. In contrast, it is not among the top 10 comorbidities for secondary safety-net or non-safety-net hospitals.



TEN MOST COMMON COMORBIDITIES	PERCENT OF DISCHARGES WITH COMORBIDITY					
	NON-SAFETY-NET		SECONDARY SAFETY-NET		SAFETY-NET	
	Percent	Rank	Percent	Rank	Percent	Rank
Hypertension (high blood pressure)	31.5	1	29.7	1	27.4	1
Chronic pulmonary disease	12.8	2	12.9	3	10.9	4
Fluid and electrolyte disorders	12.5	3	13.1	2	11.2	3
Diabetes without complications	12.4	4	12.2	4	11.6	2
Deficiency anemias	8.6	5	8.4	5	8.0	5
Hypothyroidism	6.2	6	5.3	7	4.1	8
Congestive heart failure	6.0	7	6.0	6	4.8	6
Depression	5.4	8	4.9	8	4.0	9
Other neurological disorders	4.3	9	4.4	9	4.1	7
Obesity	4.0	10	3.9	10		
Alcohol abuse					3.6	10

- The top 10 procedures are generally similar, regardless of the type of hospital.
- Safety-net hospitals have alcohol rehabilitation and detoxification (rank 9) as one of the top 10 principal procedures, while non-safety-net and secondary safety-net hospitals do not.
- In contrast to non-safety-net hospitals, safety-net hospitals do not have angioplasties or hysterectomies in their top 10 procedures.



TEN MOST COMMON PRINCIPAL PROCEDURES

	NON-SAFETY-NET			SECONDARY SAFETY-NET			SAFETY-NET		
	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank	Total Number of Hospital Stays (in thousands)	Percent of Discharges	Rank
Other procedures to assist delivery	940	5.4	1	227	6.4	1	167	7.0	1
Cesarean section (C-section)	856	4.9	2	184	5.2	2	128	5.3	2
Circumcision	852	4.9	3	172	4.9	3	70	2.9	6
Percutaneous transluminal coronary angioplasty (PTCA)	551	3.2	4						
Repair of current obstetric laceration	536	3.1	5	108	3.1	6			
Diagnostic cardiac catheterization, coronary arteriography	535	3.1	6	108	3.1	5	63	2.6	8
Upper gastrointestinal (GI) endoscopy	524	3.0	7	122	3.5	4	66	2.8	7
Hysterectomy (removal of the uterus)	452	2.6	8	91	2.6	10			
Respiratory intubation and mechanical ventilation	443	2.5	9	103	2.9	8	71	3.0	5
Other therapeutic procedures	384	2.2	10				84	3.5	3
Vaccinations				107	3.0	7	77	3.2	4
Blood transfusion				92	2.6	9	53	2.2	10
Alcohol and drug rehabilitation/ detoxification							63	2.6	9

Safety-net hospitals have patients with resource needs similar to those of patients in non-safety-net hospitals

- A hospital's casemix index is a measure of the average expected resources (costs) needed to care for the mix of patients that it treats. There are no sizable differences between safety-net and non-safety-net hospitals in average casemix.
- The average length of stay for safety-net hospitals is similar to that of non-safety-net hospitals.



	NON-SAFETY-NET HOSPITAL	SECONDARY SAFETY-NET HOSPITAL	SAFETY-NET HOSPITAL
Average Casemix	1.2	1.1	1.1
Average Length of Stay	4.6	4.5	5.0

Source of Data for This Report

The results presented in this report are drawn from the Healthcare Cost and Utilization Project (HCUP), a Federal-State-Industry partnership to build a multi-State health care data system. This partnership is sponsored by the Agency for Healthcare Research and Quality (AHRQ) and is managed by staff in AHRQ's Center for Delivery, Organization, and Markets (CDOM). HCUP is based on data collected by individual State Partner organizations (including State government agencies, hospital associations, and private agencies), which then provide data to AHRQ. HCUP would not be possible without Statewide data collection projects and their partnership with AHRQ.

Statewide data organizations contribute their data to AHRQ where all data are edited and transformed into a uniform format. The uniform data in HCUP databases make possible comparative studies of health care services and the use, cost, and quality of hospital care, including:

- The effects of market forces on hospitals and the care they provide.
- Variations in medical practice.
- The effectiveness of medical technology and treatments.
- Use of services by special populations.

This report is based on data from the 2003 HCUP Nationwide Inpatient Sample (NIS) which includes non-rehabilitation community hospitals (short-term, non Federal, general and specialty hospitals such as pediatric, obstetrics-gynecology, and oncology hospitals). Long-term care and psychiatric hospitals are excluded from the NIS, as are substance abuse treatment facilities. The 2003 NIS contains all discharge data from 994 hospitals located in 37 States, approximating a 20-percent stratified sample of U.S. community hospitals. The 2003 NIS includes information on nearly 8 million discharges that, when weighted,



represent over 38 million inpatient hospital discharges in the United States. More information about the NIS is available on the HCUP User Support Web site at www.hcup-us.ahrq.gov/nisoverview.jsp. The 2001 and 2002 HCUP State Inpatient Databases (SID) were used to obtain prior year data on the percentage of uninsured treated by each of the hospitals in the 2003 NIS. The SID contain discharge data for all hospitals in each of the states and is the source of data for the NIS (the NIS is a sample of the hospitals in the SID).

The analyses for this report include data from two other sources of information on hospitals. The NIS was linked to data from the American Hospital Association's Annual Survey Database to obtain hospital characteristics and to the Medicare Hospital Cost Reports for 2002 and 2003 to allow for financial comparisons of hospitals.

Methods

Many definitions of safety-net hospitals exist. For example, the Institute of Medicine defines safety-net hospitals as “those providers that organize and deliver a significant level of health care and other related services to uninsured, Medicaid, and other vulnerable patients.”² Similarly, Baxter and Mechanic define safety-net hospitals as “the institutions, programs, and professionals devoting substantial resources to serving the uninsured or socially disadvantaged.”³ Other researchers have defined safety-net hospitals as those hospitals in which at least 10 percent of the costs of care provided is uncompensated.

One feature that consistently defines safety-net hospitals is that they provide care to a relatively large proportion of uninsured or socially disadvantaged individuals. The definition used in this Fact Book incorporates the IOM definition, with two key modifications:

(1) a focus only on the care provided to uninsured patients; and
 (2) a sensitivity to the reality that most hospitals provide care to some portion of uninsured patients. As Bazzoli and colleagues note, creating these “hard and fast boundaries” between safety-net hospitals and non-safety-net hospitals may not reflect the reality and diversity of hospitals’ care for the uninsured.⁹ The operational definition of safety-net hospitals used in this Fact Book takes into account the actual care provision experiences of hospitals relative to one another in terms of the proportion of hospital stays for the uninsured.

Primary Payer

Since each hospital discharge has an expected primary payer associated with it, calculating the proportion of a hospital’s discharges that is uninsured is straightforward. The main HCUP categories of primary payer are Medicare; Medicaid; private insurance, including HMO; self-pay; no charge, and other. Discharges in which the primary payer was self-pay or no charge were categorized as “uninsured.”

Proportion of Uninsured

The hospitals in the 2003 NIS were divided into 10 equal-sized groups (deciles) based on the proportion of their discharges that were uninsured over a period of up to 3 years covering 2001 to 2003. Hospitals in the top decile had the highest proportion of uninsured and were classified as safety-net hospitals. Hospitals in the two deciles below the top decile were classified as secondary safety-net hospitals. To calculate the proportion of uninsured for each hospital over the 3-year period, the hospitals sampled for the 2003 NIS were matched to their records in the 2001 and 2002 State Inpatient Databases. For each hospital, the number of uninsured discharges over the 3-year period was calculated and divided by the total number of discharges over that period. For some hospitals, data were not available for all 3 years, in which case data for the available years was used. Data were available for only 2 years (2002 and 2003) for 105 hospitals (6 percent) and 1 year (2003) for 41 hospitals (4 percent).

Patient Clinical Characteristics

For the analyses of clinical characteristics of patients, five broad categories that describe a patient’s condition were created based on patient diagnosis-related group (DRG) in the NIS: obstetric/neonatal care, basic medical care, complex medical care, general surgery, and special surgery. This approach was an adaptation of the method developed by Stensland and colleagues¹⁰ for analyses of rural hospital care. The Stensland et al. classification was updated to incorporate recent changes to DRGs and clinically reviewed and slightly modified for applicability to general studies of community hospitals. The obstetric/neonates grouping includes DRGs related to births and newborns, including cesarean and vaginal births. The DRG system distinguishes medical from surgical DRGs. Basic medical admissions are those medical DRGs (excluding the obstetric/neonate DRGs) that would be appropriate for treatment by primary care physicians. The remaining medical DRGs (excluding obstetric/neonate DRGs) are classified as complex medical. The general surgery conditions are those surgical DRGs (excluding obstetric/neonate DRGs) that would generally be performed by a general surgeon. The remaining surgical DRGs are classified as special surgery.

Methods

Casemix

Casemix index is based on the relative DRG weights provided by the Centers for Medicare and Medicaid Services (CMS). The DRG weights are a measure of the relative costliness of each DRG across all hospitals. A hospital's casemix index represents the average DRG relative weight for that hospital. It is calculated by summing the DRG weights for all discharges during the year for each hospital using DRG information in the NIS and dividing by the number of discharges for each hospital. The higher the average weight, the more resources are needed, on average, to provide care for a hospital's patients.

Hospital Characteristics

Several other important variables were used in these analyses. Most of these were derived from the American Hospital Association's Annual Survey Database. For example:

- **Location.** A hospital's location is defined as urban if the hospital is in a metropolitan statistical area (MSA) or rural, if it is located outside an MSA, as defined by the U.S. Office of Management and Budget and the U.S. Bureau of the Census.
- **Ownership.** The hospital's ownership/control category includes categories for government non-Federal (public), private not-for-profit, and private investor-owned hospitals. These types of hospitals tend to have different missions and different responses to government regulations and policies.
- **Teaching status.** A hospital is considered to be a teaching hospital if it has residency training approval by the Accreditation Council for Graduate Medical Education, is a member of the Council of Teaching Hospitals (COH), or has a ratio of full-time equivalent interns and residents to beds of 0.25 or higher. The missions of teaching hospitals differ from non-teaching hospitals. In addition, financial considerations differ between these two hospital groups. Currently, the Medicare DRG payments are uniformly higher to teaching hospitals than to non-teaching hospitals.

Revenue and Expenses

Selected data elements from the Medicare Cost Reports for 2002 and 2003 were added to each hospital's record and used for this report. Specifically, data on patient revenue, other revenues, operating expenses and other expenses for each hospital were added to the data file. For each year, 2002 and 2003, these values were missing for about one-third of the hospitals. Consequently, to maximize the information available for each hospital, the 2002 value for hospitals that have missing values in 2003 were used. The 2003 values for hospitals that have missing values in 2002 were used, and the 2002 and 2003 values for hospitals that have non-missing values in both years were averaged. Patient revenue margin represents the net patient revenue (i.e., patient revenue minus operating costs) divided by the operating cost of a hospital. Total income margin for a hospital is equal to the total income (i.e., net patient revenue plus contributions, government appropriations, and other income) divided by the total expenses (i.e., operating costs and other expenses).

Differences that are described in the text exhibit at least a 10-percent difference and are statistically different from zero at the 5 percent significance level ($p < .05$).

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For More Information

More information regarding HCUP data, software tools, and reports can be found at www.ahrq.gov/data/hcup, as well as on the HCUP User Support Web site at www.hcup-us.ahrq.gov.

Additional descriptive statistics can be viewed through HCUPnet (<http://hcup.hcupnet.ahrq.gov>), a free, online query system based on HCUP data.

NIS data are available for the following data years:

- 2004
- 2003
- 2002
- 2001
- 2000
- 1999 (PB 2002-500020)
- 1998 (PB 2001-500092)
- Release 6, 1997 (PB 2000-500006)
- Release 5, 1996 (PB 99-500480)
- Release 4, 1995 (PB 98-500440)
- Release 3, 1994 (PB 97-500433)
- Release 2, 1993 (PB 96-501325)
- Release 1, 1988-1992 (PB 95-503710)

NIS data for years 1988 through 2004 can be purchased for research through the HCUP Central Distributor sponsored by AHRQ: Social & Scientific Systems, Inc., telephone: 866-556-4287 (toll-free), fax: 301-628-3201 or e-mail: hcup@s-3.com.

Price of the NIS data is \$322 for Release 1; \$160 per year for 1993 to 1999; and \$200 per year for 2000 to 2004. All prices may be higher for customers outside the United States, Canada, and Mexico.



AHRQ is always looking for ways in which AHRQ-funded research, products, and tools have changed people's lives, influenced clinical practice, improved policies, and affected patient outcomes. Impact case studies describe AHRQ research findings in action. These case studies have been used in testimony, budget documents, and speeches. If you are aware of any impact AHRQ-funded research or products, such as HCUP, has had on health care policy, clinical practice, or patient outcomes, please let us know using the contact information below:

Healthcare Cost and Utilization Project (HCUP)
Center for Delivery, Organization, and Markets
Agency for Healthcare Research and Quality
Phone: 866-290-HCUP (866-290-4287)
E-mail: hcup@ahrq.gov

Appendix: AHRQ Safety-Net Initiatives

- **Safety-Net Monitoring Initiative.** Jointly led by the Agency for Healthcare Research and Quality (AHRQ) and the Health Resources and Services Administration, the key products of this initiative are a tool kit and two data books (with information at the county and metropolitan levels) designed to help policy analysts and planners at State and local levels assess the performance and needs of their local safety nets. Another publication, *Developing Data-Driven Capabilities to Support Policymaking*, provides guidance for using data to support the process of developing policy options for the health care safety net. (www.ahrq.gov/data/safetynet/netfact.htm)
- **Improving Efficiency through Hospital Redesign.** A large integrated safety-net health care system used process flow analyses, employee focus groups, and patient and family surveys to reorganize hospital care (e.g., food service, phlebotomy, radiology, pediatrics, obstetrics) to increase efficiency. The resulting publication, *A Toolkit for Redesign in Health Care*, provides a roadmap and tools for redesign and improvement by other health care organizations. (www.ahrq.gov/qual/toolkit/)
- **Health Care Market and Vulnerable Populations.** Researchers discovered that changes in the healthcare market have not eroded the safety net in the 1990s, but that an economic downturn and pressures on state budgets could mean that safety-net providers may not be able to continue to care for vulnerable populations. (www.ahrq.gov/research/aug04/0804RA25.htm)
- **Hospital Industry Restructuring: Impact On Safety Net.** Investigators found that safety-net hospitals' participation in networks and systems was more common when hospitals faced less market pressure and where only a limited number of unaffiliated hospitals remained. (www.ahrq.gov/research/oct03/1003RA36.htm)
- **Child Health Insurance Research Initiative (CHIRI™).** CHIRI™ consists of nine studies of public child health insurance programs and health care delivery systems that include analysis of uninsured children's access to health care for low-income children. One CHIRI™ study, *Impact of Publicly Funded Programs on Child Safety Nets*, found a shift in centers' clients from uninsured to Medicaid in markets with high enrollment in the State Children's Health Insurance Program, providing evidence that outreach programs for the State have a spill-over effect of enrolling previously uninsured community health center clients into Medicaid. (www.ahrq.gov/chiri/)
- **Managed Care and Community Health Centers.** Researchers found that community health centers involved in managed care served a significantly smaller proportion of uninsured patients than centers not involved in managed care, and as non-managed care centers became involved in managed care, the proportion of uninsured patients they treated declined. (<http://www.ahrq.gov/research/apr01/401RA17.htm>)
- **Community Health Center Network.** This practice-based research network of community health centers serves 60,000 uninsured and Medicaid managed care patients integrated computerized clinical data from different sources, created disease registries, and planned intervention research to use the diabetes registry. (www.gold.ahrq.gov/GrantDetails.cfm?GrantNumber=R21%20HS13543)
- **Evaluations of Health Disparities Collaboratives.** These groups of community health centers, supported by the Health Resources and Services Administration, are engaged in rapid quality improvement of chronic care to reduce health disparities. Two evaluations are investigating the effectiveness, cost-effectiveness, and sustainability of the Health Disparities Collaboratives, as well as identifying characteristics of successful collaboratives. (www.gold.ahrq.gov/GrantDetails.cfm?GrantNumber=U01%20HS13635)





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