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Characteristics of Safety-Net Hospitals, 2014

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Introduction

As defined by the Institute of Medicine, the health care safety net comprises hospitals and other providers that organize and deliver a significant level of health care and other health-related services to patients with no insurance or with Medicaid.[1] Often referred to as providers of last resort, safety-net hospitals (SNHs) have historically assumed a major role in the provision of comprehensive services to medically and socially vulnerable populations.[2]

Provisions of the Affordable Care Act such as State Medicaid expansions and health insurance exchanges, which were implemented in January 2014, have effectively extended health care coverage to millions of uninsured individuals in the United States. Despite the reduction in the number of uninsured individuals and additional reductions that may be expected as States continue to consider Medicaid expansion, demand for safety-net providers is expected to remain high. Following passage of health care reform in Massachusetts, substantial reductions in the number of uninsured individuals were accompanied by increased utilization of SNH services.[3]

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief examines the characteristics of SNHs and all inpatient stays at these facilities in 2014 among 40 States that constitute approximately 90 percent of the U.S. population. SNHs are compared with non-safety-net hospitals (non-SNHs). To define safety-net status, the percentage of Medicaid and uninsured inpatient hospitals stays, out of all stays at the hospital, was computed. Hospitals were ranked within States, and SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State, which is consistent

[1] Lewin ME, Altman S, eds. America's Health Care Safety Net: Intact but Endangered. Institute of Medicine Committee on the Changing Market, Managed Care, and the Future Viability of Safety Net Providers. Washington, DC: National Academies Press; 2000.
[2] Lukas C, Holmes S, Harrison M. Can safety net hospital systems redesign themselves to achieve financial viability? Health Affairs Blog. March 16, 2015. http://healthaffairs.org/blog/2015/03/16/can-safety-net-hospital-systems-redesign-themselves-to-achieve-financial-viability/. Accessed August 29, 2016.
[3] Ku L, Jones E, Shin P, Byer F, Long S. Safety net providers after health care reform: lessons from Massachusetts. Archives of Internal Medicine. 2011;171(15):1379–84.

Highlights

- Safety-net hospitals (SNHs) were defined as hospitals with the highest number of inpatient stays that were paid by Medicaid or were uninsured (the top quartile). Although by definition SNHs represented only 25 percent of all hospitals in the 40 States included in this Brief, they accounted for 33 percent of all inpatient stays, about half of all stays that were paid by Medicaid or were uninsured (50 and 45 percent, respectively) and 43 percent of all mental health stays.
- Compared with non-SNHs, SNHs were more likely to be teaching hospitals, to have a large number of inpatient beds, and to be located in large central metropolitan areas.
- Children constituted one in five SNH stays compared with one in seven stays at non-SNHs.
- Maternal and neonatal stays constituted 26 percent of all inpatient stays at SNHs versus 22 percent of stays at non-SNHs. Maternal and neonatal stays at SNHs cost more and were longer than those stays at non-SNHs.
- The mean cost, length of stay, and number of chronic conditions among nonmaternal and nonneonatal stays were lower at SNHs compared with non-SNHs.
- On average, a higher percentage of stays at SNHs were admitted through the emergency department than at non-SNHs (58 vs. 46 percent of nonmaternal and nonneonatal stays).
- Compared with non-SNHs, nonmaternal and nonneonatal stays at SNHs were more likely to be for the mental health-related diagnoses of mood disorders and schizophrenia/other psychotic disorders.

with past research.[4,5,6] In 2014, there were 4,103 total community nonrehabilitation hospitals (i.e., acute care hospitals) across these 40 States, of which the top quartile, or 1,040 hospitals, were defined as SNHs—hospitals with the largest percentage of Medicaid and uninsured discharges. Differences between SNHs and non-SNHs of greater than 10 percent are noted in the text.

Findings

Characteristics of SNHs and non-SNHs, 2014
Table 1 presents institutional hospital characteristics according to safety-net status in 2014.

Table 1. Institutional characteristics by safety net status in 40 States, 2014

Hospital characteristic	SNH		Non-SNH	
	N	%	N	%
Total hospitals	1,040	100.0	3,063	100.0
Ownership				
Public	203	19.7	574	19.1
Private, nonprofit	625	60.7	1,780	59.3
Private, for-profit	201	19.5	649	21.6
Teaching status				
Teaching	332	31.9	501	16.4
Nonteaching	708	68.1	2,562	83.6
Bed size				
Small	340	33.0	1,612	53.7
Medium	322	31.3	700	23.3
Large	367	35.7	691	23.0
Location of hospital				
Large central metropolitan	285	27.4	547	17.9
Large fringe metropolitan	119	11.4	506	16.5
Medium metropolitan	136	13.1	502	16.4
Small metropolitan	85	8.2	332	10.8
Micropolitan	233	22.4	459	15.0
Noncore	182	17.5	717	23.4

Abbreviation: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **SNHs were more likely than non-SNHs to be teaching hospitals, to have a medium or large number of inpatient beds, and to be located in large central metropolitan and micropolitan areas.**

  Across 40 States, this Statistical Brief included 1,040 SNHs and 3,063 non-SNHs that differed on a number of institutional characteristics, including teaching status, bed size, and location. A greater proportion of SNHs (31.9 percent) were teaching hospitals compared with 16.4 percent of non-SNHs.

[4] Reiter KL, Jiang HJ, Wang J. Facing the recession: how did safety-net hospitals fare financially compared with their peers? Health Services Research. 2014;49(6):1747–66.
[5] Andrews RM, Stull DE, Fraser I, Friedman B, Houchens RL. Serving the Uninsured: Safety-Net Hospitals, 2003. HCUP Fact Book No. 8, AHRQ Publication No. 07-0006. Rockville, MD: Agency for Healthcare Research and Quality; 2007. http://archive.ahrq.gov/data/hcup/factbk8/factbk8.pdf. Accessed August 29, 2016.
[6] Cunningham P, Felland L. Environmental Scan to Identify the Major Research Questions and Metrics for Monitoring the Effects of the Affordable Care Act on Safety Net Hospitals. Center for Studying Health System Change, prepared for the U.S. Department of Health and Human Services. June 2013. https://aspe.hhs.gov/sites/default/files/pdf/33811/rpt_ACA_and_Safety_Net_%20EnvScan.pdf. Accessed August 29, 2016.

SNHs were more likely to be categorized as large- or medium-sized hospitals (35.7 and 31.3 percent, respectively), based on their number of inpatient beds, compared with only 23.0 and 23.3 percent of non-SNHs, respectively. Non-SNHs were more likely to be small hospitals based on bed size (53.7 percent) compared with SNHs (33.0 percent).

Just over a quarter (27.4 percent) of SNHs were located in large central metropolitan areas. In comparison, only 17.9 percent of non-SNHs were located in these areas. A greater proportion of SNHs compared with non-SNHs were also located in micropolitan areas (22.4 vs. 15.0 percent). Non-SNHs were more likely to be located in other types of communities, including large fringe, medium, and small metropolitan areas and rural areas (noncore).

Differences in ownership by safety-net status were not greater than 10 percent.

Characteristics of discharges at SNHs and non-SNHs, 2014

Table 2 presents demographic characteristics and the service line of inpatient stays among SNHs and non-SNHs in 2014.

Table 2. Characteristics of inpatient stays by safety net status in 40 States, 2014

Characteristic	SNH		Non-SNH	
	N	%	N	%
Total discharges	10,008,899	100.0	20,628,167	100.0
Age, years				
0–17	2,102,097	21.0	2,749,500	13.3
18–44	2,817,232	28.2	4,748,921	23.0
45–64	2,433,125	24.3	5,100,838	24.7
65–84	2,085,871	20.9	6,117,279	29.7
85+	565,642	5.7	1,903,438	9.2
Sex				
Male	4,317,598	43.1	8,778,364	42.6
Female	5,689,422	56.9	11,845,278	57.4
Location of residence				
Large central metropolitan	3,937,493	39.6	5,721,691	27.8
Large fringe metropolitan	1,808,960	18.2	5,479,722	26.7
Medium metropolitan	1,951,418	19.6	4,120,416	20.0
Small metropolitan	751,046	7.6	2,129,362	10.4
Micropolitan	883,613	8.9	1,736,467	8.4
Rural (noncore)	614,042	6.2	1,363,819	6.6
Median income in ZIP Code of residence				
Quartile 1 (lowest)	3,991,602	41.2	4,836,286	23.9
Quartile 2	2,490,430	25.7	5,410,291	26.7
Quartile 3	1,915,464	19.8	5,224,512	25.8
Quartile 4 (highest)	1,287,954	13.3	4,798,717	23.7
Expected payer				
Medicare	3,130,458	31.3	8,763,895	42.6
Medicaid	3,470,519	34.7	3,466,433	16.8
Private	2,407,460	24.1	6,963,270	33.8
Uninsured	673,009	6.7	810,699	3.9
Other	315,276	3.2	582,513	2.8
Service line				
Maternal and neonatal	2,584,490	25.8	4,424,911	21.5
Mental health	767,521	7.7	1,013,510	4.9
Injury	523,764	5.2	918,130	4.5
Surgical	1,644,195	16.4	4,389,899	21.3
Medical	4,488,929	44.8	9,881,717	47.9

Abbreviation: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **In 2014, SNHs provided patient care for over 10 million discharges in these 40 States.**

  By definition, SNHs accounted for 25 percent of all hospitals, but SNHs provided patient care for nearly a third of all inpatient stays—10,008,899 discharges.

- **Compared with stays at non-SNHs, inpatient stays at SNHs were for patients who were younger and were more likely to reside in large central metropolitan and low-income areas.**

  The mean patient age among inpatient stays at SNHs was 43.0 years compared with 51.4 years among stays at non-SNHs (data not shown). SNHs treated a larger proportion of children and a smaller proportion of older adults than their non-safety-net counterparts. Children under the age of 18 years constituted 21.0 percent of discharges from SNHs compared with only 13.3 percent of discharges from non-SNHs. Conversely, 20.9 percent of discharges at SNHs were patients aged 65–84 years and 5.7 percent were patients aged 85 years and older, whereas 29.7 percent of discharges at non-SNHs were 65–84-year-olds and 9.2 percent were patients aged 85 years and older.

  Inpatient stays at SNHs also differed in location of patient's residence. Nearly 40 percent of discharges from SNHs were among patients who resided in large central metropolitan areas compared with only 27.8 percent of discharges at non-SNHs.

  Moreover, whereas 41.2 percent of discharges from SNHs were among patients who resided in low-income communities (ZIP Codes with median income in the lowest quartile), only 23.9 percent of discharges from non-SNHs were among patients who resided in these lowest-income communities.

  SNHs were defined according to their level of Medicaid and uninsured payer mix. As a result, the distribution of inpatient stays by expected payer differed substantially by type of hospital. In total, over 40 percent of discharges from SNHs had an expected payer of Medicaid (34.7 percent) or uninsured (6.7 percent), compared with 20.7 percent of discharges from non-SNHs (16.8 percent Medicaid and 3.9 uninsured).

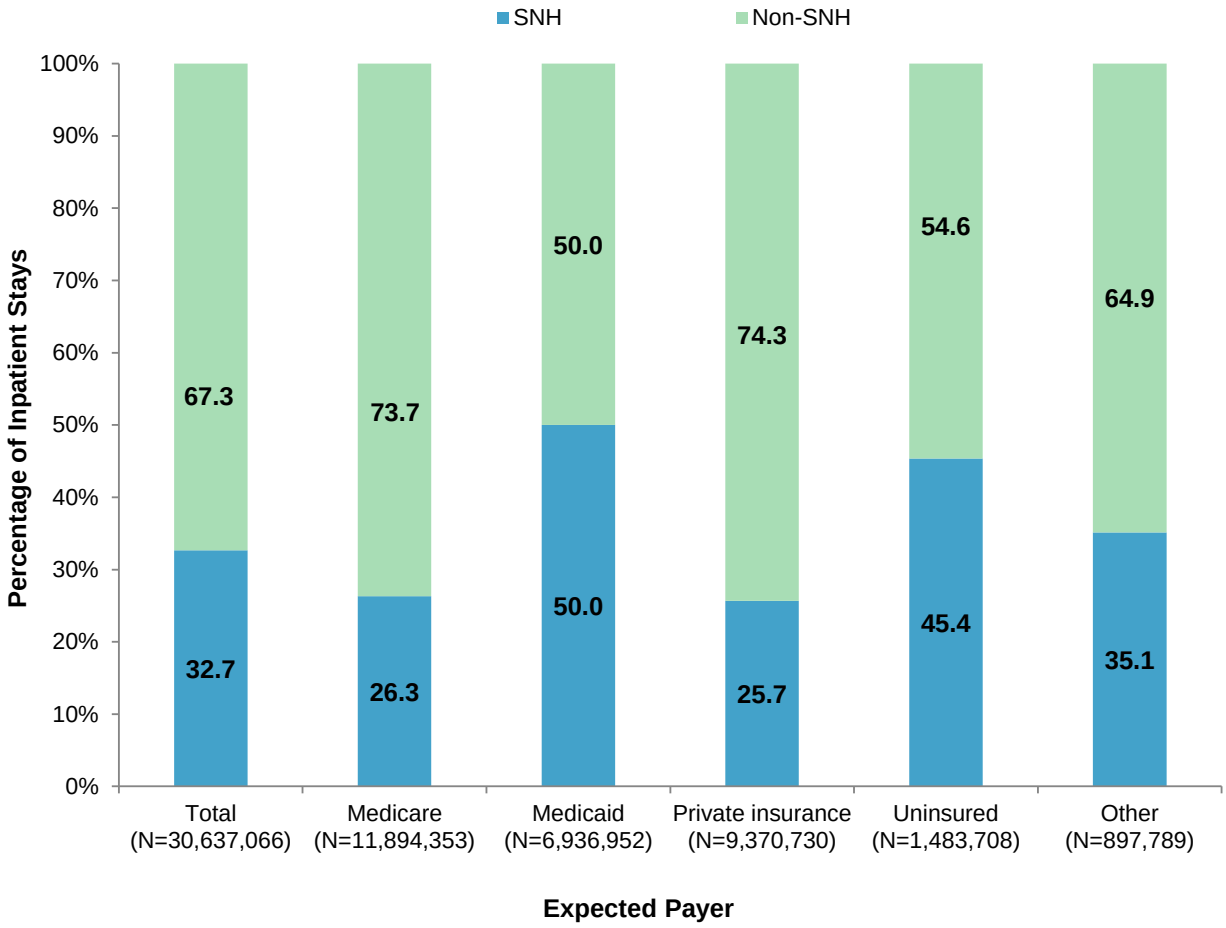
- **Inpatient stays at SNHs were more likely to be related to pregnancy, mental health, and injuries, whereas stays at non-SNHs were more likely to involve surgery.**

  The distribution of inpatient stays by service line differed according to safety-net status, with maternal and neonatal discharges accounting for one in four discharges from SNHs (25.8 percent) compared with one in five discharges from non-SNHs (21.5 percent). A greater proportion of stays at SNHs also fell in the mental health (7.7 percent) and injury (5.2 percent) service lines compared with only 4.9 and 4.5 percent of discharges at non-SNHs, respectively. Discharges from SNHs were less likely to fall in the surgical service line than discharges from non-SNHs (16.4 vs. 21.3 percent).

Share of inpatient hospital stays across SNHs and non-SNHs, 2014

Figure 1 presents the proportion of inpatient hospital stays overall and among each expected payer category that occurred at SNHs and non-SNHs in 2014. Note that these percentages use a denominator of all stays in each payer category. In contrast, Table 2 displays the percentage of discharges in each payer category, using a denominator of all discharges at SNHs or at non-SNHs.

Figure 1. Percentage of inpatient hospital stays at SNHs and non-SNHs overall and by expected payer in 40 States, 2014



Abbreviation: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

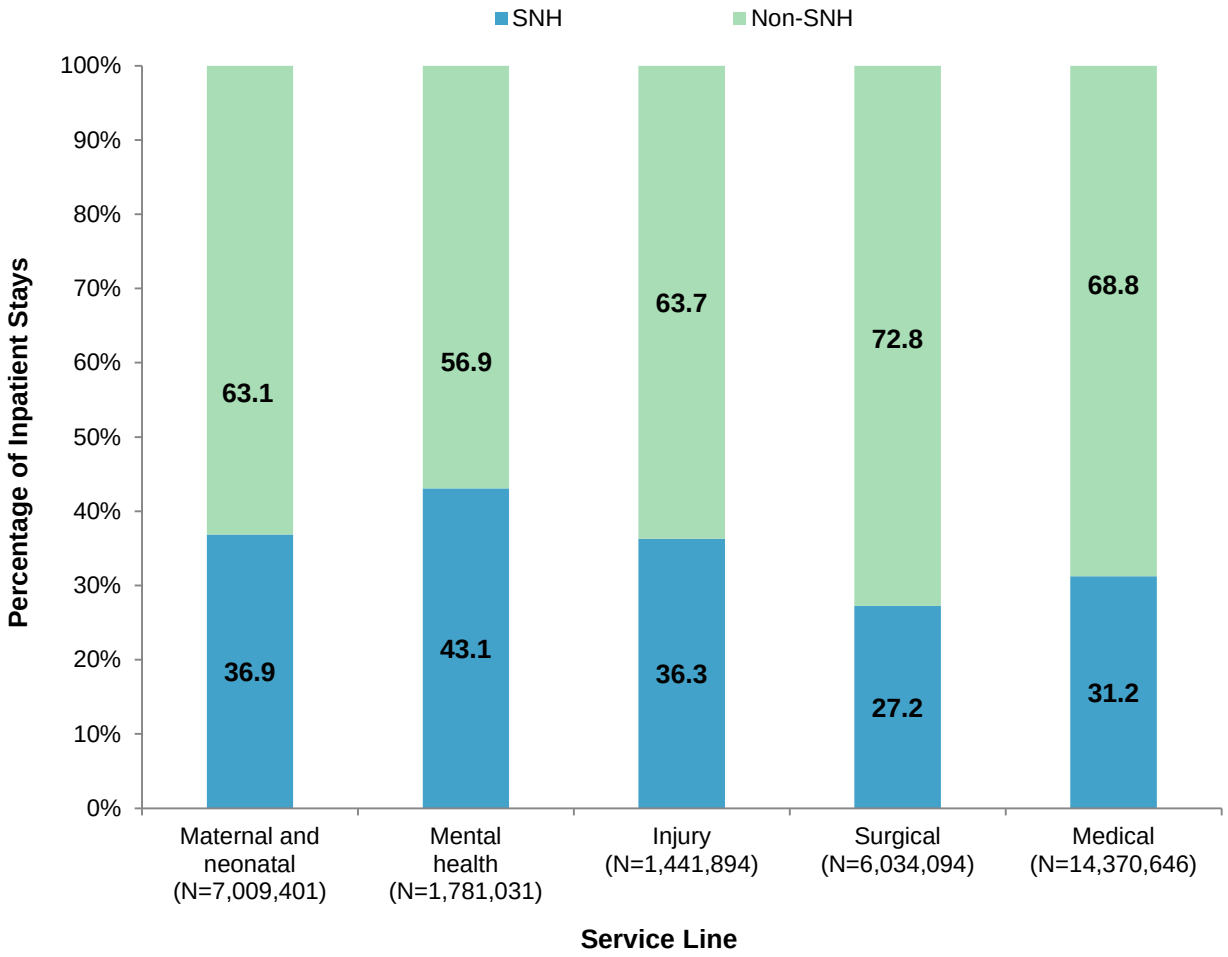
- **SNHs accounted for about one-third of all inpatient stays in 2014 and for nearly 50 percent of stays that were paid by Medicaid or were uninsured.**

  As noted earlier, by definition SNHs accounted for one-quarter of all hospitals. However, they provided patient care for 33 percent of all inpatient stays across these 40 States in 2014, which is consistent with the finding that SNHs tend to be larger hospitals.

  Half of all stays with an expected payer of Medicaid and 45.4 percent of all uninsured stays occurred at SNHs, whereas only 26.3 percent of stays paid by Medicare and 25.7 percent of privately insured stays occurred at SNHs.

Figure 2 presents the proportion of inpatient hospital stays in each service line—maternal and neonatal, mental health, injury, surgical, and medical—that occurred at SNHs and non-SNHs in 2014. Note that these percentages use a denominator of all stays in a service line, whereas Table 2 displays the percentage of discharges in each service line, using a denominator of all discharges at SNHs or at non-SNHs.

Figure 2. Percentage of inpatient hospital stays that occurred at SNHs and non-SNHs by service line in 40 States, 2014



Abbreviation: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

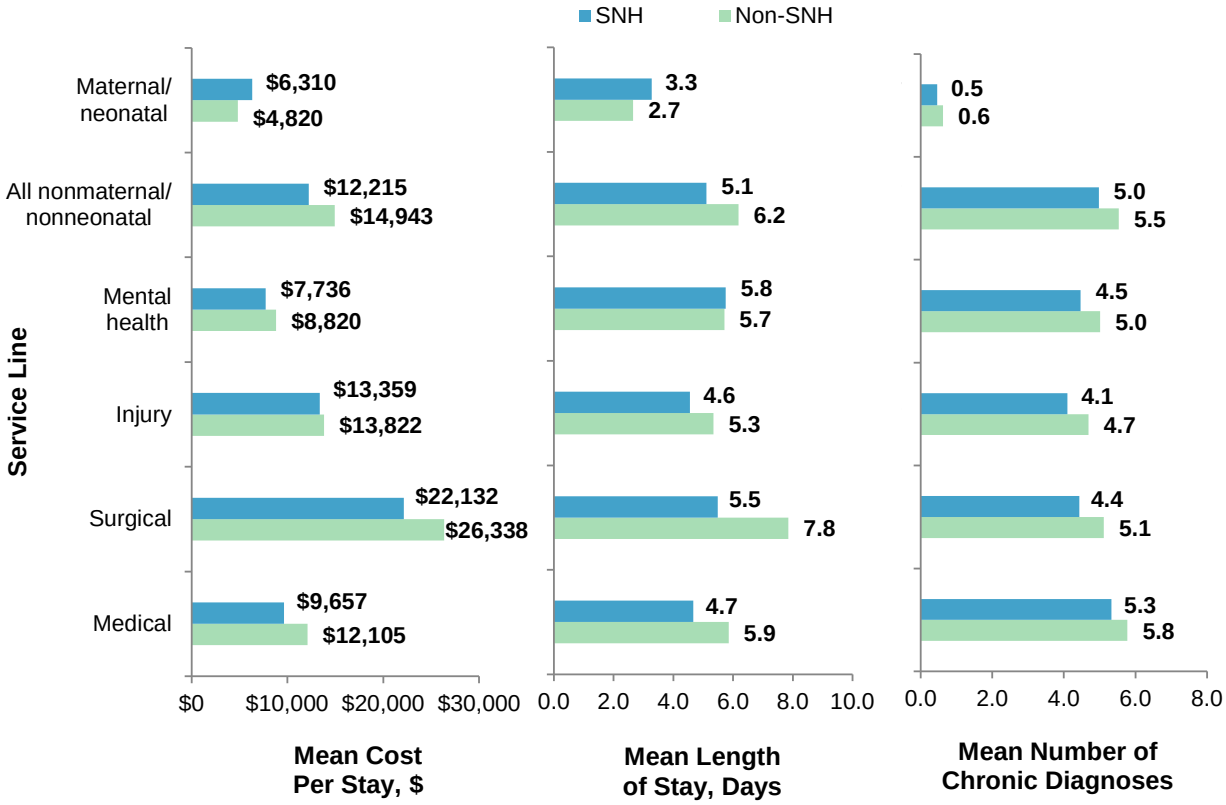
- **Over 40 percent of all inpatient hospital stays for mental health occurred at SNHs in 2014.**

  Even though by definition SNHs comprise one-quarter of all hospitals, they provided care for 43.1 percent of all mental health-related inpatient stays, 36.9 percent of all maternal and neonatal stays, and 36.3 percent of all injury-related stays.

Inpatient hospital utilization according to safety-net status, 2014

Figure 3 presents measures of hospital utilization among SNHs and non-SNHs overall and by service line. The cost per stay, length of stay, and number of chronic condition diagnoses were averaged across inpatient stays at each hospital and then averaged across all hospitals, separately for SNHs and non-SNHs.

Figure 3. Hospital utilization by safety-net status and service line in 40 States, 2014



Abbreviations: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **Among maternal and neonatal inpatient stays, the average cost per stay was higher and the average stay was longer for SNHs than for non-SNHs.**

  The mean cost per maternal and neonatal stay across SNHs was $6,310, and the mean length of stay was 3.3 days—over 20 percent higher than the mean cost ($4,820) and length of stay (2.7 days) of maternal and neonatal stays at non-SNHs.

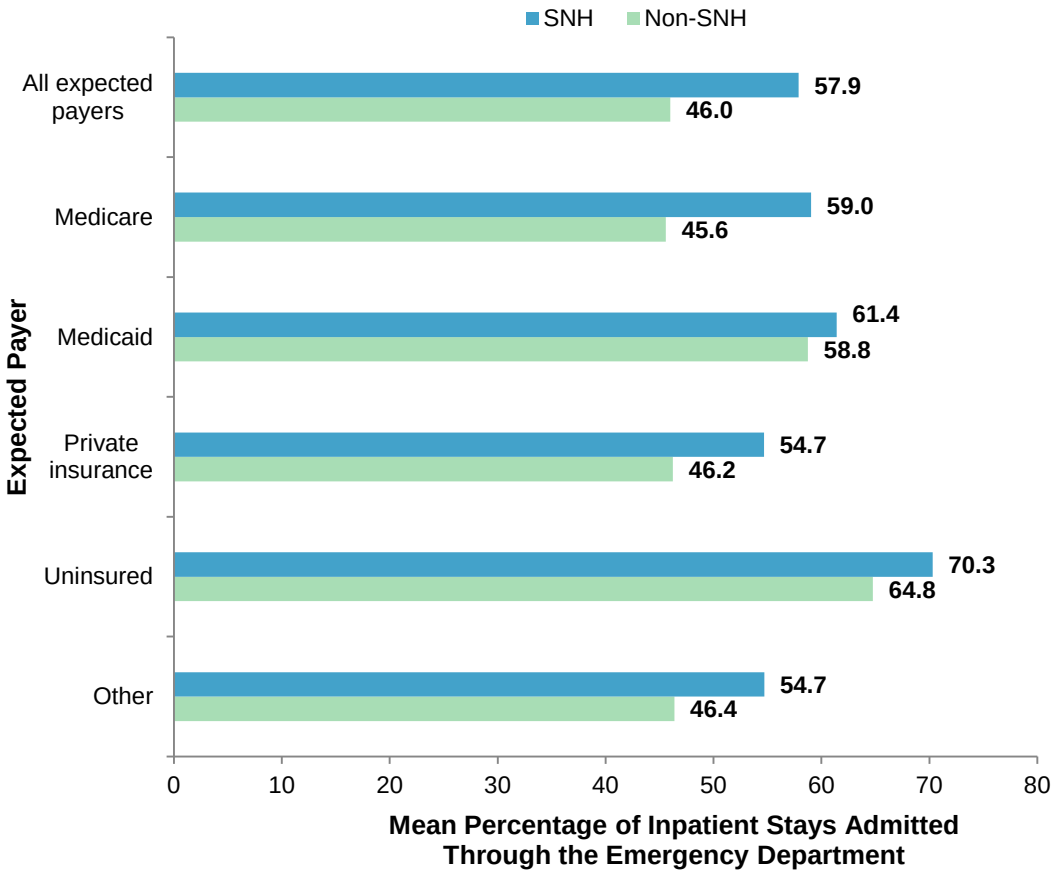
- **Among nonmaternal and nonneonatal inpatient stays, the average cost per stay, length of stay, and number of chronic condition diagnoses were lower for SNHs than for non-SNHs.**

  The mean cost per nonmaternal and nonneonatal stay across SNHs was $12,215 compared with $14,943 among non-SNHs. The mean length of stay and number of chronic condition diagnoses also were lower for nonmaternal and nonneonatal stays at SNHs than those at non-SNHs (5.1 vs. 6.2 days and 5.0 vs. 5.5 chronic condition diagnoses).

  These trends were generally consistent across the individual nonmaternal and nonneonatal service lines—mental health, injury, surgical, and medical.

Figure 4 displays the mean percentage of inpatient stays that were admitted through the emergency department (ED) across SNHs and non-SNHs, by expected payer. The percentage of inpatient stays admitted through the ED was calculated for each hospital and then averaged across all hospitals, separately for SNHs and non-SNHs.

Figure 4. Mean percentage of nonmaternal and nonneonatal inpatient stays with emergency department services by safety-net status and expected payer in 40 States, 2014



Abbreviations: SNH, safety-net hospital

Note: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **With the exception of Medicaid and uninsured stays, SNH stays were more likely than non-SNH stays to include ED services.**

  In general, for all nonmaternal and nonneonatal stays, a greater percentage of inpatient stays at SNHs originated in the ED (57.9 percent of stays at SNHs vs. 46.0 percent of stays at non-SNHs).

  However, when examined by specific expected payer, this was true only for stays with an expected payer of Medicare (59.0 vs. 45.6 percent), private insurance (54.7 vs. 46.2 percent), and Other types of insurance (54.7 vs. 46.4 percent).

  The mean percentage of inpatient stays with ED services did not differ by more than 10 percent across SNHs and non-SNHs for Medicaid-covered stays (61.4 vs. 58.8 percent) and uninsured stays (70.3 vs. 64.8 percent). However, the pattern was in the same direction as for the other payers.

Leading reasons for inpatient hospital stays at SNHs and non-SNHs, 2014
Table 3 presents the leading reasons for nonmaternal and nonneonatal inpatient stays at SNH and non-SNHs in 2014.

Table 3. Top 10 nonmaternal and nonneonatal principal diagnoses by safety-net status in 40 States, 2014

Principal diagnosis	SNH			Non-SNH		
	Rank	Number of stays	Stays, %	Rank	Number of stays	Stays, %
Septicemia (except in labor)	1	385,529	3.9	1	946,887	4.6
Mood disorders	2	308,630	3.1	6	416,011	2.0
Pneumonia	3	223,389	2.2	4	525,443	2.5
Congestive heart failure	4	220,589	2.2	3	550,746	2.7
Schizophrenia, other psychotic disorders	5	182,581	1.8			
Diabetes mellitus with complications	6	167,954	1.7			
Osteoarthritis	7	167,491	1.7	2	732,715	3.6
Skin and subcutaneous tissue infections	8	162,644	1.6			
Complication of device; implant or graft	9	159,791	1.6	7	388,731	1.9
Acute cerebrovascular disease	10	152,549	1.5	9	366,750	1.8
Cardiac dysrhythmias				5	425,076	2.1
Acute myocardial infarction				8	382,329	1.9
Spondylosis; intervertebral disc disorders; other back problems				10	364,659	1.8

Abbreviation: SNH, safety-net hospital

Notes: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State. Principal diagnoses were identified using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software (CCS) diagnosis categories.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **Septicemia was the most common reason for hospitalization at both SNHs and non-SNHs.**

  In 2014, the most frequent principal diagnosis among nonmaternal and nonneonatal inpatient stays at SNHs and non-SNHs was septicemia, which accounted for 3.9 percent of stays at SNHs and 4.6 percent of stays at non-SNHs.

- **Compared with non-SNHs, inpatient stays at SNHs were more likely to be for the mental health-related diagnoses of mood disorders and schizophrenia/other psychotic disorders.**

  The second most common principal diagnosis among nonmaternal and nonneonatal inpatient stays at SNHs was mood disorders, accounting for 3.1 percent of stays. In comparison, mood disorders ranked as the sixth leading principal diagnosis among stays at non-SNHs, accounting for only 2.0 percent of stays. Schizophrenia and other psychotic disorders ranked fifth among nonmaternal and nonneonatal principal diagnoses at SNHs, constituting 1.8 percent of all nonmaternal and nonneonatal stays, but did not rank in the top 10 diagnoses at non-SNHs (constituting less than 1 percent of stays at these hospitals, data not shown).

- **Inpatient stays at SNHs were more likely to be for diabetes and skin infections, whereas stays at non-SNHs were more likely to be for cardiovascular and back problems.**

  Three principal diagnoses that accounted for a substantial proportion of nonmaternal and nonneonatal discharges from SNHs did not appear as leading diagnoses at non-SNHs: schizophrenia and other psychotic disorders; diabetes mellitus with complications; and skin and subcutaneous

tissue infections. The three highest ranked principal diagnoses at non-SNHs that were not among the 10 leading diagnoses at SNHs were cardiac dysrhythmias, acute myocardial infarctions, and spondylosis and other back problems.

Table 4 presents the leading all-listed operating room procedures performed among nonmaternal and nonneonatal inpatient stays at SNHs and non-SNHs in 2014.

Table 4. Top 10 nonmaternal and nonneonatal operating room procedures by safety-net status in 40 States, 2014

All-listed procedures	SNH			Non-SNH		
	Rank	Number of stays	Stays, %	Rank	Number of stays	Stays, %
Arthroplasty knee	1	122,952	1.2	1	509,030	2.5
Percutaneous transluminal coronary angioplasty	2	106,286	1.1	5	296,491	1.4
Cholecystectomy and common duct exploration	3	96,518	1.0	7	227,479	1.1
Spinal fusion	4	91,775	0.9	3	307,336	1.5
Hip replacement; total and partial	5	86,754	0.9	2	357,003	1.7
Partial excision bone	6	83,544	0.8	6	228,634	1.1
Laminectomy; excision intervertebral disc	7	81,610	0.8	4	297,199	1.4
Excision; lysis peritoneal adhesions	8	73,351	0.7	10	175,419	0.9
Appendectomy	9	72,874	0.7			
Treatment; fracture or dislocation of hip and femur	10	71,704	0.7	9	177,057	0.9
Colorectal resection				8	194,256	0.9

Abbreviation: SNH, safety-net hospital

Notes: SNHs were defined as those with a percentage of Medicaid and uninsured discharges in the top quartile within the State. Principal operating room procedures were identified using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software (CCS) procedure categories. Procedures designated as Other are not reported.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 40 States, 2014

- **Inpatient stays at SNHs were more likely to involve appendectomy and less likely to involve colorectal resection than stays at non-SNHs.**

  Appendectomy ranked ninth among the top 10 leading operating room procedures performed among nonmaternal and nonneonatal stays at SNHs, accounting for 0.7 percent of stays. In comparison, this procedure was not among the top 10 leading operating room procedures performed at non-SNHs. Colorectal resection ranked among the 10 leading nonmaternal and nonneonatal operating room procedures for non-SNHs but not for SNHs.

  Otherwise, the leading operating room procedures performed among nonmaternal and nonneonatal stays at SNHs and non-SNHs were similar, with arthroplasty knee being the most common procedure performed at both SNHs and non-SNHs but at different rates. Although arthoplasty of the knee was the first-ranked procedure at both types of hospitals, only 1.2 percent of stays at SNHs involved this procedure compared with 2.5 percent of stays at non-SNHs.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) from 40 States in 2014: Arkansas, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, North Carolina, North Dakota, Nebraska, New Jersey, New Mexico, Nevada, New York, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Vermont, Washington, Wisconsin, West Virginia, Wyoming.

Definitions

Diagnoses, procedures, 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.

All-listed procedures include all procedures performed during the hospital stay, whether for definitive treatment or for diagnostic or exploratory purposes.

ICD-9-CM is the International Classification of Diseases, Ninth Revision, Clinical Modification, which assigns numeric codes to diagnoses and procedures. There are approximately 14,000 ICD-9-CM diagnosis codes. There are approximately 4,000 ICD-9-CM procedure codes.

CCS categorizes ICD-9-CM diagnosis codes and procedure codes into a manageable number of clinically meaningful categories.[7] This clinical grouper makes it easier to quickly understand patterns of diagnoses and procedure use. CCS categories identified as Other typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses and procedures that may be difficult to interpret as a group.

Operating room procedures are defined as major diagnostic and therapeutic procedures, which include all procedures considered valid operating room procedures by the Diagnosis Related Group (DRG) grouper and that are performed for diagnostic or therapeutic reasons.

Safety-net hospitals (SNH)
The percentage of Medicaid and uninsured discharges was calculated out of all discharges at the hospital. Hospitals were ranked within States. Then SNHs were defined as those in which the percentage of Medicaid and uninsured discharges fell in the top quartile for that State. Although SNH definitions have varied,[8] the definition used in this Statistical Brief is consistent with prior research.[9,10]

Types of hospitals included in HCUP State Inpatient Databases
This analysis used State Inpatient Databases (SID) limited to data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). Community hospitals include obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded for this analysis are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. However, if a patient received long-term care, rehabilitation, or treatment for a psychiatric or chemical dependency condition in a community hospital, the discharge record for that stay was included in the analysis.

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[7] Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated June 2015. http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. Accessed February 17, 2016.
[8] Cunningham P, Felland L. Environmental Scan to Identify the Major Research Questions and Metrics for Monitoring the Effects of the Affordable Care Act on Safety Net Hospitals. U.S. Department of Health and Human Services. June 2013. https://aspe.hhs.gov/sites/default/files/pdf/33811/rpt_ACA_and_Safety_Net_%20EnvScan.pdf. Accessed August 29, 2016.
[9] Reiter KL, Jiang HJ, Wang J. Facing the recession: how did safety-net hospitals fare financially compared with their peers? Health Services Research. 2014;49(6):1747–66.
[10] Andrews RM, Stull DE, Fraser I, Friedman B, Houchens RL. Serving the Uninsured: Safety-Net Hospitals, 2003. HCUP Fact Book No. 8, AHRQ Publication No. 07-0006. Rockville, MD: Agency for Healthcare Research and Quality; 2007. http://archive.ahrq.gov/data/hcup/factbk8/factbk8.pdf. Accessed August 29, 2016.

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 1 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 & Medicaid Services (CMS).[11] *Costs* reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs; *charges* represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees.

Location of hospital and patients' residence
Place of residence is based on the urban-rural classification scheme for U.S. counties developed by the National Center for Health Statistics (NCHS):

- Large Central Metropolitan: Central counties of metropolitan areas with 1 million or more residents
- Large Fringe Metropolitan: Fringe counties of counties of metropolitan areas with 1 million or more residents
- Medium Metropolitan: Counties in metropolitan areas of 250,000–999,999 residents
- Small Metropolitan: Counties in metropolitan areas of 50,000–249,999 residents
- Micropolitan: Nonmetropolitan counties areas of 10,000–49,999 residents
- Noncore: Nonmetropolitan and nonmicropolitan counties

Median community-level income
Median community-level income is the median household income of the patient's ZIP Code of residence. Income levels are separated into population-based quartiles with cut-offs determined using ZIP Code demographic data obtained from the Nielsen Company. The income quartile is missing for patients who are homeless or foreign.

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

- Medicare: includes patients covered by fee-for-service and managed care Medicare
- Medicaid: includes patients covered by fee-for-service and managed care Medicaid
- Private Insurance: includes Blue Cross, commercial carriers, and private health maintenance organizations (HMOs) and preferred provider organizations (PPOs)
- Uninsured: includes an insurance status of *self-pay* and *no charge*
- Other: includes Workers' Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs

Hospital stays billed to the State Children's Health Insurance Program (SCHIP) may be classified as Medicaid, Private Insurance, or Other, depending on the structure of the State program. Because most State data do not identify patients in SCHIP specifically, it is not possible to present this information separately.

For this Statistical Brief, when more than one payer is listed for a hospital discharge, the first-listed payer is used.

[11] Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001–2013. Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2015. http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Accessed February 17, 2016.

Admission source or point of origin
Admission source (now known as the patient's point of origin) indicates where the patient was located prior to admission to the hospital. Emergency admission indicates that the patient was admitted to the hospital through the emergency department.

Mean number of chronic conditions per patient: All diagnoses on all records were determined to be either chronic or nonchronic. The definition of chronic conditions was based on the Chronic Condition Indicator, which can be found at http://www.hcup-us.ahrq.gov/toolssoftware/chronic/chronic.jsp.

Hospital service lines
Discharges were categorized into five service lines as defined in Table 5 and based on the following hierarchical order: maternal and neonatal, mental health, injury, surgical, and medical.

Table 5. Coding criteria for the five hospital service lines analyzed in this research

Maternal and neonatal service line
Maternal and neonatal stays are defined using the following CCS principal diagnosis categories: *Maternal* 176: Contraceptive and procreative management 177: Spontaneous abortion 178: Induced abortion 179: Postabortion complications 180: Ectopic pregnancy 181: Other complications of pregnancy 182: Hemorrhage during pregnancy; abruptio placenta; placenta previa 183: Hypertension complicating pregnancy; childbirth and the puerperium 184: Early or threatened labor 185: Prolonged pregnancy 186: Diabetes or abnormal glucose tolerance complicating pregnancy; childbirth; or the puerperium 187: Malposition; malpresentation 188: Fetopelvic disproportion; obstruction 189: Previous C-section 190: Fetal distress and abnormal forces of labor 191: Polyhydramnios and other problems of amniotic cavity 192: Umbilical cord complication 193: OB-related trauma to perineum and vulva 194: Forceps delivery 195: Other complications of birth; puerperium affecting management of mother 196: Normal pregnancy and/or deliver *Neonatal* 218: Liveborn 219: Short gestation; low birth weight; and fetal growth retardation 220: Intrauterine hypoxia and birth asphyxia 221: Respiratory distress syndrome 222: Hemolytic jaundice and perinatal jaundice 223: Birth trauma 224: Other perinatal conditions

Mental health service line
Mental health visits are defined using the following CCS principal diagnosis categories: 650: Adjustment disorders 651: Anxiety disorders 652: Attention-deficit, conduct, and disruptive behavior disorders 653: Delirium, dementia, and amnestic and other cognitive disorders 654: Developmental disorders 655: Disorders usually diagnoses in infancy, childhood, or adolescence 656: Impulse control disorders, NEC 657: Mood disorders 658: Personality disorders 659: Schizophrenia and other psychotic disorders 660: Alcohol-related disorders 661: Substance-related disorders 662: Suicide and intentional self-inflicted injury 663: Screening and history of mental health and substance abuse codes 670: Miscellaneous disorders

Injury service line

Injuries are identified using the principal diagnosis and a scheme recommended by Safe States Alliance, which was previously known as the State and Territorial Injury Prevention Directors Association (STIPDA). The diagnosis codes in the range 800–999 used to identify injuries are listed below.

Included

- **800–909.2, 909.4, 909.9**: Fractures; dislocations; sprains and strains; intracranial injury; internal injury of thorax, abdomen, and pelvis; open wound of the head, neck, trunk, upper limb, and lower limb; injury to blood vessels; late effects of injury, poisoning, toxic effects, and other external causes, excluding those of complications of surgical and medical care and drugs, medicinal or biological substances.
- **910–994.9**: Superficial injury; contusion; crushing injury; effects of foreign body entering through orifice; burns; injury to nerves and spinal cord; traumatic complications and unspecified injuries; poisoning and toxic effects of substances; other and unspecified effects of external causes.
- **995.5–995.59**: Child maltreatment syndrome.
- **995.80–995.85**: Adult maltreatment, unspecified; adult physical abuse; adult emotional/ psychological abuse; adult sexual abuse; adult neglect (nutritional); other adult abuse and neglect.

Excluded

- **909.3, 909.5**: Late effect of complications of surgical and medical care and late effects of adverse effects of drug, medicinal, or biological substance.
- **995.0–995.4, 995.6–995.7, 995.86, 995.89**: Other anaphylactic shock; angioneurotic edema; unspecified adverse effect of drug, medicinal and biological substance; allergy, unspecified; shock due to anesthesia; anaphylactic shock due to adverse food reaction; malignant hyperpyrexia or hypothermia due to anesthesia.
- **996–999**: Complications of surgical and medical care, not elsewhere classified.

It should be noted that the above definition of injury includes five diagnosis codes that are also included under two CCS diagnosis categories used for the definition of the mental health service line:

- CCS = 660 (Alcohol-related disorders): diagnosis 9800 (toxic effect of ethyl alcohol)
- CCS = 661 (Substance-related disorders): diagnoses 96500 (poisoning by opium), 96501 (poisoning by heroin), 96502 (poisoning by methadone), 96509 (poisoning by other opiate).

Because of the hierarchical ordering used to assign discharges to service lines, discharges with one of these five principal diagnosis codes were assigned to the mental health service line and not the injury service line.

Surgical service line

Surgical stays are identified by a surgical Diagnosis Related Group (DRG). The DRG grouper first assigns the discharge to a major diagnostic category (MDC) based on the principal diagnosis. For each MDC, there is a list of procedure codes that qualify as operating room procedures. If the discharge involves an operating room procedure, it is assigned to one of the surgical DRGs within the MDC category; otherwise, it is assigned to a medical DRG.

Medical service line

Medical stays are identified by a medical DRG. The DRG grouper first assigns the discharge to an MDC, based on the principal diagnosis. For each MDC, there is a list of procedure codes that qualify as operating room procedures. If the discharge involves an operating room procedure, it is assigned to one of the surgical DRGs within the MDC category; otherwise, it is assigned to a medical DRG.

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels.

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

Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
District of Columbia 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 Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Office of Health Analytics
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Revenue and Fiscal Affairs Office
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 Statistical Briefs

HCUP Statistical Briefs are descriptive summary reports presenting statistics on hospital inpatient and emergency department use and costs, quality of care, access to care, medical conditions, procedures, patient populations, and other topics. The reports use HCUP administrative health care data.

About the SID

The HCUP State Inpatient Databases (SID) are hospital inpatient databases from data organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multistate comparisons and analyses. Together, the SID encompass more than 95 percent of all U.S. community hospital discharges. The SID can be used to investigate questions unique to one State, to compare data from two or more States, to conduct market-area variation analyses, and to identify State-specific trends in inpatient care utilization, access, charges, and outcomes.

For More Information

For other information on hospital characteristics, refer to the HCUP Statistical Briefs located at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb_hospcharacteristics.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at http://www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for health information topics
- HCUPnet, HCUP's interactive query system, at http://hcupnet.ahrq.gov/

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

For a detailed description of HCUP and more information on the design of the State Inpatient Databases (SID), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated January 2016. http://www.hcup-us.ahrq.gov/sidoverview.jsp. Accessed February 17, 2016.

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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:

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