

## STATISTICAL BRIEF #204

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### National Inpatient Hospital Costs: The Most Expensive Conditions by Payer, 2013

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#### Introduction

Health care expenditures have maintained a relatively stable share of the Gross Domestic Product since 2009, reaching 17.5 percent in 2014.<sup>1</sup> Hospital care expenditures in particular, which constitute the largest single component of health care spending, grew 4.1 percent in 2014.<sup>2</sup> Although this is up from 3.5 percent in 2013, annual hospital care expenditure growth averaged 5.5 percent from 2008 through 2012.<sup>3</sup> Policymakers are among those concerned with the burden of medical care expenses to governments, consumers, and insurers. Although only 7.2 percent of the U.S. population had a hospital inpatient stay in 2012, the mean expense per stay associated with those hospitalizations was over \$18,000, making hospitalization one of the most expensive types of health care treatment.<sup>4,5</sup>

This Statistical Brief presents data from the Healthcare Cost and Utilization Project (HCUP) on costs of hospital inpatient stays in the United States in 2013. It describes the distribution of costs by expected primary payer and illustrates the conditions accounting for the largest percentage of each payer's hospital costs. The primary payers examined are Medicare, Medicaid, private insurance, and uninsured. The hospital costs represent the hospital's costs to produce the services—not the amount paid for services by payers—and they do not include the physician fees associated with the hospitalization.

<sup>1</sup> Centers for Medicare & Medicaid Services. Table 01 National Health Expenditures; Aggregate and per Capita Amounts, Annual Percent Change and Percent Distribution: Selected Calendar Years 1960-2014. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Tables.zip>. Accessed March 9, 2016.

<sup>2</sup> Martin AB, Hartman M, Benson J, Caitlin A. National health spending in 2014: faster growth driven by coverage expansion and prescription drug spending. *Health Affairs*. Epub ahead of print 2015; doi: 10.1377/hlthaff.2015.1194.

<sup>3</sup> Ibid.

<sup>4</sup> Carper K, Stagnitti MN. National Health Care Expenses in the U.S. Civilian Noninstitutionalized Population, 2012. Statistical Brief #457. November 2014. Agency for Healthcare Research and Quality, Rockville, MD. [http://meps.ahrq.gov/mepsweb/data\\_files/publications/st457/stat457.shtml](http://meps.ahrq.gov/mepsweb/data_files/publications/st457/stat457.shtml). Accessed February 24, 2016.

<sup>5</sup> Estimates of costs in this Statistical Brief differ from the health care expenses collected in the Medical Expenditure Panel Survey (MEPS) cosponsored by the Agency for Healthcare Research and Quality and the National Center for Health Statistics. The Healthcare Cost and Utilization Project (HCUP) is based on billed charges, which are converted to estimates of the costs of producing hospital services using hospital-wide cost-to-charge ratios, whereas MEPS expenses represent payments to hospitals, physicians, and other health care providers and include amounts paid by individuals, private insurance, Medicare, Medicaid, and other payment sources. For more details, see *Costs and charges* in the Definitions section.

#### Highlights

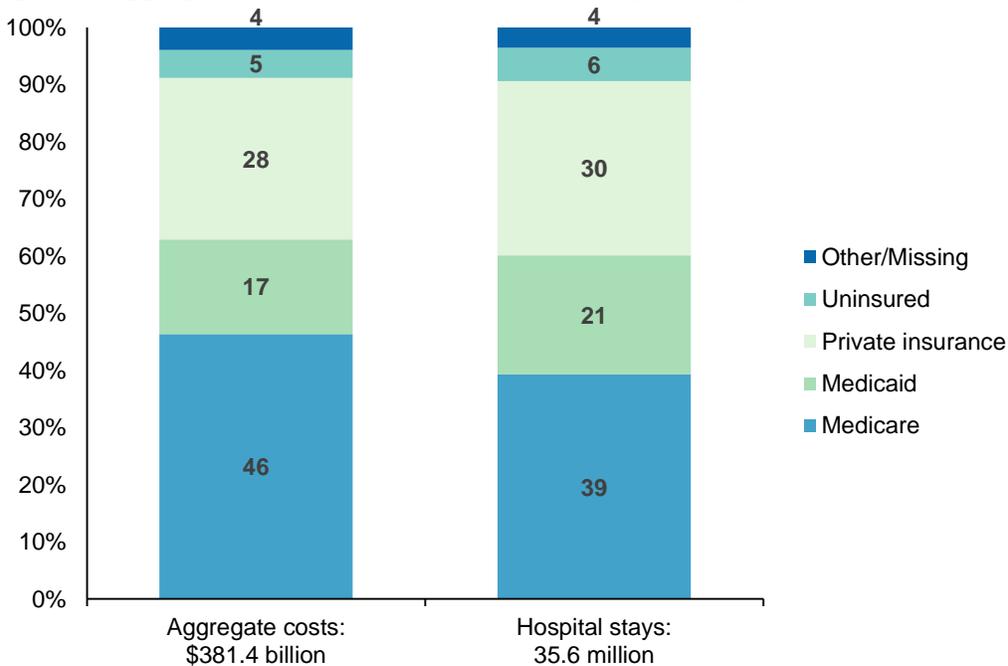
- In 2013, aggregate hospital costs for 35.6 million hospital stays totaled \$381.4 billion.
- The five most expensive conditions—septicemia; osteoarthritis; liveborn (newborn) infants; complication of device, implant or graft; and acute myocardial infarction—accounted for approximately one-fifth of the total aggregate costs for hospitalizations. The top 20 conditions accounted for nearly half of aggregate hospital costs.
- The primary payer shares of aggregate hospital costs were 63 percent for Medicare and Medicaid, 28 percent for private insurance, and 5 percent for uninsured hospitalizations.
- Septicemia ranked among the four most costly conditions in the hospital for all four payer groups.
- Hospitalizations associated with pregnancy and childbirth accounted for 5 of the 20 most expensive conditions for hospital stays covered by Medicaid.
- Mood disorders was a top-ranked condition for stays covered by Medicaid and private insurance and for uninsured stays.

## Findings

### *Aggregate hospital inpatient costs and stays by payer, 2013*

Figure 1 presents the distribution by expected primary payer for aggregate hospital costs and total hospital inpatient stays in 2013.

**Figure 1. Aggregate hospital costs and hospital stays by payer, 2013**



Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **In 2013, Medicare accounted for the largest proportion of aggregate hospital costs (46 percent).**

Patients with primary Medicare coverage accounted for 46 percent of the \$381.4 billion in aggregate hospital costs in 2013. Private insurance was the second most common payer, accounting for 28 percent of total costs, followed by Medicaid with 17 percent of costs. Stays of uninsured patients represented 5 percent of total hospital costs. Government payers (Medicare and Medicaid) accounted for 63 percent of all hospital costs.

Patients covered by Medicare accounted for a larger proportion of aggregate hospital costs (46 percent) than of hospital stays (39 percent). In contrast, patients covered by Medicaid accounted for only 17 percent of hospital costs but 21 percent of hospital stays.

*Most expensive conditions treated in U.S. hospitals, 2013*

Table 1 presents the most expensive conditions treated in U.S. hospitals among all payers in 2013.

**Table 1. The 20 most expensive conditions treated in U.S. hospitals, all payers, 2013**

Rank	CCS principal diagnosis category	Aggregate hospital costs, \$ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
1	Septicemia	23,663	6.2	1,297	3.6
2	Osteoarthritis	16,520	4.3	1,023	2.9
3	Liveborn	13,287	3.5	3,765	10.6
4	Complication of device, implant or graft	12,431	3.3	632	1.8
5	Acute myocardial infarction	12,092	3.2	602	1.7
6	Congestive heart failure	10,218	2.7	882	2.5
7	Spondylosis, intervertebral disc disorders, other back problems	10,198	2.7	555	1.6
8	Pneumonia	9,501	2.5	961	2.7
9	Coronary atherosclerosis	9,003	2.4	458	1.3
10	Acute cerebrovascular disease	8,840	2.3	585	1.6
11	Cardiac dysrhythmias	7,178	1.9	710	2.0
12	Respiratory failure, insufficiency, arrest (adult)	7,077	1.9	387	1.1
13	Complications of surgical procedures or medical care	6,079	1.6	465	1.3
14	Rehabilitation care, fitting of prostheses, and adjustment of devices	5,373	1.4	390	1.1
15	Mood disorders	5,246	1.4	836	2.3
16	Chronic obstructive pulmonary disease and bronchiectasis	5,182	1.4	645	1.8
17	Heart valve disorders	5,151	1.4	123	0.3
18	Diabetes mellitus with complications	5,142	1.3	531	1.5
19	Fracture of neck of femur (hip)	4,861	1.3	303	0.9
20	Biliary tract disease	4,722	1.2	405	1.1
<b>Total for top 20 conditions</b>		181,762	47.7	15,554	43.7
<b>Total for all stays</b>		381,439	100.0	35,598	100.0

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **The 5 most expensive conditions accounted for 20.5 percent of aggregate hospital costs; the 20 most expensive conditions accounted for nearly half (47.7 percent) of aggregate hospital costs.**

Septicemia was the most expensive condition treated, accounting for \$23.7 billion, or 6.2 percent of the aggregate costs for all hospitalizations. Other high-cost hospitalizations were for osteoarthritis (\$16.5 billion, or 4.3 percent), liveborn (newborn) infants (\$13.3 billion, or 3.5 percent), complication of device, implant or graft (\$12.4 billion, or 3.3 percent), and acute myocardial infarction (\$12.1 billion, or 3.2 percent).

Hospital stays with principal diagnoses of complications of device, implant or graft and complications of surgical procedures or medical care accounted for 5 percent of aggregate hospital costs.

- **The 20 most expensive conditions accounted for 43.7 percent of all hospital stays.**

Liveborn infants accounted for 10.6 percent of all hospital stays. Septicemia was the second most common reason for hospitalization, accounting for 3.6 percent of stays, followed by osteoarthritis (2.9 percent), pneumonia (2.7 percent), congestive heart failure (2.5 percent), and mood disorders (2.3 percent).

*Most expensive conditions by primary payer, 2013*

Tables 2 through 5 list the 20 most expensive conditions for stays covered by Medicare, Medicaid, and private insurance and for uninsured stays in 2013.

- **Seven conditions were among the 20 most expensive conditions for all four payer groups.**

There were some commonalities across payers in the conditions that generated high aggregate hospital costs. For all four payer groups, septicemia ranked among the four most expensive conditions.

The following conditions also appeared among the 20 most expensive conditions for all four payer groups:

- Complication of device, implant or graft
- Acute myocardial infarction
- Congestive heart failure
- Pneumonia
- Acute cerebrovascular disease
- Respiratory failure

Several other conditions were ranked among those with the highest aggregate hospital costs across three of the four payer groups:

- Complications of surgical procedures or medical care was top ranked for stays covered by Medicare, Medicaid, and private insurance.
- Diabetes with complications was top ranked for hospitalizations covered by Medicare and Medicaid and those that were uninsured.
- Coronary atherosclerosis and cardiac dysrhythmias were top ranked for stays covered by Medicare and private insurance and for uninsured stays.
- Mood disorders, liveborn infants, and biliary tract disease were top ranked for stays covered by Medicaid and private insurance and for uninsured stays.

- **Among the most expensive conditions during hospital stays for multiple payers were osteoarthritis and back problems for Medicare and private insurance, pregnancy and childbirth for Medicaid and private insurance, and skin infections for Medicaid and uninsured.**

Given payer differences in demographic mix and service coverage, certain conditions were more common for some payer groups than for others. Osteoarthritis and back problems were top ranked among hospital stays covered by Medicare and private insurance.

Hospitalizations associated with pregnancy and childbirth accounted for 5 of the 20 most expensive conditions for hospital stays covered by Medicaid and 3 of the 20 most expensive conditions for hospital stays covered by private insurance. Skin infections were top ranked for hospital stays covered by Medicaid and for uninsured stays.

**Table 2. The 20 most expensive conditions billed to Medicare, 2013**

Rank	CCS principal diagnosis category	Aggregate hospital costs, \$ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
1	Septicemia	14,551	8.2	838	6.0
2	Osteoarthritis	9,090	5.1	568	4.1
3	Congestive heart failure	7,174	4.1	662	4.7
4	Complication of device, implant or graft	7,072	4.0	375	2.7
5	Acute myocardial infarction	6,660	3.8	346	2.5
6	Pneumonia	6,054	3.4	593	4.2
7	Coronary atherosclerosis	5,233	3.0	265	1.9
8	Acute cerebrovascular disease	4,900	2.8	376	2.7
9	Cardiac dysrhythmias	4,859	2.7	476	3.4
10	Spondylosis, intervertebral disc disorders, other back problems	4,315	2.4	237	1.7
11	Respiratory failure, insufficiency, arrest (adult)	4,162	2.4	248	1.8
12	Fracture of neck of femur (hip)	3,976	2.2	251	1.8
13	Chronic obstructive pulmonary disease and bronchiectasis	3,717	2.1	458	3.3
14	Heart valve disorders	3,617	2.0	85	0.6
15	Rehabilitation care, fitting of prostheses, and adjustment of devices	3,469	2.0	269	1.9
16	Acute and unspecified renal failure	3,215	1.8	348	2.5
17	Complications of surgical procedures or medical care	2,939	1.7	217	1.5
18	Diabetes mellitus with complications	2,441	1.4	219	1.6
19	Urinary tract infections	2,422	1.4	348	2.5
20	Gastrointestinal hemorrhage	2,306	1.3	231	1.7
<b>Total for top 20 conditions</b>		102,169	57.8	7,411	53.0
<b>Total for all stays</b>		176,718	100.0	13,987	100.0

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **Seven of the 20 most expensive conditions for hospital stays billed to Medicare did not appear in the top 20 for other payers.**

The following conditions were among the 20 most expensive stays for Medicare but not for other payers:

- Hip fracture
- Chronic obstructive pulmonary disease
- Heart valve disorders
- Rehabilitation care
- Acute and unspecified renal failure
- Urinary tract infections
- Gastrointestinal hemorrhage

- **Cardiovascular and respiratory diseases, orthopedic conditions, and conditions involving medical complications were among the 20 most expensive conditions for Medicare-covered stays.**

Nine of the 20 most expensive conditions for hospital stays billed to Medicare involved the cardiovascular or respiratory system:

- Congestive heart failure
- Acute myocardial infarction
- Pneumonia
- Coronary atherosclerosis
- Acute cerebrovascular disease
- Cardiac dysrhythmias
- Respiratory failure
- Chronic obstructive pulmonary disease
- Heart valve disorders

Three of the 20 most expensive conditions were orthopedic:

- Osteoarthritis
- Spondylosis, intervertebral disc disorders, and other back problems
- Hip fracture

Two of the 20 most expensive conditions involved medical complications:

- Complication of device, implant or graft
- Complications of surgical procedures or medical care

**Table 3. The 20 most expensive conditions billed to Medicaid, 2013**

Rank	CCS principal diagnosis category	Aggregate hospital costs, \$ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
1	Liveborn	6,619	10.5	1,716	23.1
2	Septicemia	3,354	5.3	143	1.9
3	Mood disorders	1,582	2.5	238	3.2
4	Complication of device, implant or graft	1,453	2.3	68	0.9
5	Pneumonia	1,273	2.0	133	1.8
6	Respiratory failure, insufficiency, arrest (adult)	1,249	2.0	51	0.7
7	Schizophrenia and other psychotic disorders	1,220	1.9	132	1.8
8	Previous C-section	1,125	1.8	220	3.0
9	Acute cerebrovascular disease	1,061	1.7	44	0.6
10	Cardiac and circulatory congenital anomalies	1,001	1.6	15	0.2
11	Congestive heart failure	1,001	1.6	71	1.0
12	Diabetes mellitus with complications	978	1.5	110	1.5
13	Acute myocardial infarction	879	1.4	39	0.5
14	Complications of surgical procedures or medical care	824	1.3	59	0.8
15	Trauma to perineum and vulva	770	1.2	225	3.0
16	Skin and subcutaneous tissue infections	718	1.1	110	1.5
17	Short gestation, low birth weight, and fetal growth retardation	695	1.1	11	0.1
18	Hypertension complicating pregnancy, childbirth and the puerperium	675	1.1	109	1.5
19	Biliary tract disease	666	1.1	60	0.8
20	Intracranial injury	637	1.0	23	0.3
<b>Total for top 20 conditions</b>		<b>27,780</b>	<b>43.9</b>	<b>3,578</b>	<b>48.2</b>
<b>Total for all stays</b>		<b>63,297</b>	<b>100.0</b>	<b>7,417</b>	<b>100.0</b>

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **Schizophrenia was the only condition not related to pregnancy and childbirth that appeared in the top 20 for Medicaid but not for any of the other three payers.**

Hospital stays billed to Medicaid with a principal diagnosis of schizophrenia and other psychotic disorders accounted for over \$1.2 billion in aggregate hospital costs in 2013. Another mental health condition—mood disorders—ranked third for Medicaid-covered patients.

- **Cardiovascular and respiratory diseases, conditions involving medical complications, and neonatal complications were among the 20 most expensive conditions for Medicaid-covered stays.**

Seven of the 20 most expensive conditions during hospital stays billed to Medicaid involved the cardiovascular or respiratory system:

- Pneumonia
- Respiratory failure
- Acute cerebrovascular disease
- Cardiac and circulatory congenital anomalies
- Congestive heart failure

- Acute myocardial infarction
- Hypertension complicating pregnancy

Two of the 20 most expensive conditions involved medical complications:

- Complication of device, implant or graft
- Complications of surgical procedures or medical care

Neonatal complications ranked among the 20 most expensive conditions for Medicaid-covered stays:

- Cardiac and circulatory congenital anomalies
- Short gestation, low birth weight, and fetal growth retardation

**Table 4. The 20 most expensive conditions billed to private insurance, 2013**

Rank	CCS principal diagnosis category	Aggregate hospital costs, \$ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
1	Osteoarthritis	6,280	5.8	386	3.6
2	Liveborn	5,797	5.4	1,758	16.2
3	Spondylosis, intervertebral disc disorders, other back problems	4,139	3.8	220	2.0
4	Septicemia	4,028	3.7	218	2.0
5	Acute myocardial infarction	3,230	3.0	153	1.4
6	Complication of device, implant or graft	3,121	2.9	150	1.4
7	Coronary atherosclerosis	2,478	2.3	121	1.1
8	Acute cerebrovascular disease	1,990	1.8	112	1.0
9	Complications of surgical procedures or medical care	1,872	1.7	153	1.4
10	Pneumonia	1,605	1.5	170	1.6
11	Cardiac dysrhythmias	1,524	1.4	154	1.4
12	Congestive heart failure	1,451	1.3	97	0.9
13	Biliary tract disease	1,449	1.3	135	1.2
14	Mood disorders	1,431	1.3	255	2.3
15	Fracture of lower limb	1,300	1.2	78	0.7
16	Previous C-section	1,205	1.1	238	2.2
17	Trauma to perineum and vulva	1,202	1.1	346	3.2
18	Secondary malignancies	1,178	1.1	65	0.6
19	Respiratory failure, insufficiency, arrest (adult)	1,161	1.1	57	0.5
20	Maintenance chemotherapy, radiotherapy	1,129	1.0	72	0.7
<b>Total for top 20 conditions</b>		47,569	44.1	4,939	45.5
<b>Total for all stays</b>		107,798	100.0	10,852	100.0

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **Conditions seen in the 20 most expensive stays for private insurance but not for any of the other three payers included maintenance chemotherapy and secondary malignancies.**

Hospital stays billed to private insurance for secondary malignancies accounted for nearly \$1.2 billion in aggregate hospital costs, and maintenance chemotherapy stays accounted for over \$1.1 billion in aggregate hospital costs in 2013.

- **Osteoarthritis, live births, back problems, and cardiovascular and respiratory diseases were among the 20 most expensive conditions for privately insured stays.**

Osteoarthritis, live births, and back problems were the three most expensive conditions for which privately insured individuals were hospitalized.

Seven of the 20 most expensive conditions during hospital stays billed to private insurance involved the cardiovascular or respiratory system:

- Acute myocardial infarction
- Coronary atherosclerosis
- Acute cerebrovascular disease
- Pneumonia
- Cardiac dysrhythmias

- Congestive heart failure
- Respiratory failure

**Table 5. The 20 most expensive conditions for uninsured individuals, 2013**

Rank	CCS principal diagnosis category	Aggregate hospital costs, \$ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
1	Septicemia	1,054	5.7	62	3.0
2	Acute myocardial infarction	913	4.9	45	2.2
3	Acute cerebrovascular disease	629	3.4	37	1.8
4	Diabetes mellitus with complications	493	2.7	66	3.2
5	Biliary tract disease	472	2.5	46	2.2
6	Skin and subcutaneous tissue infections	471	2.5	76	3.7
7	Mood disorders	407	2.2	98	4.7
8	Coronary atherosclerosis	390	2.1	23	1.1
9	Pancreatic disorders (not diabetes)	376	2.0	45	2.2
10	Fracture of lower limb	375	2.0	23	1.1
11	Intracranial injury	357	1.9	19	0.9
12	Alcohol-related disorders	350	1.9	61	3.0
13	Pneumonia	346	1.9	42	2.0
14	Congestive heart failure	342	1.8	32	1.6
15	Crushing injury or internal injury	340	1.8	17	0.8
16	Liveborn	323	1.7	167	8.0
17	Respiratory failure, insufficiency, arrest (adult)	281	1.5	18	0.9
18	Complication of device, implant or graft	270	1.5	14	0.7
19	Appendicitis	270	1.5	28	1.4
20	Cardiac dysrhythmias	227	1.2	26	1.3
<b>Total for top 20 conditions</b>		8,685	46.8	945	45.7
<b>Total for all stays</b>		18,547	100.0	2,071	100.0

Abbreviation: CCS, Clinical Classifications Software

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2013

- **Injury accounted for 3 of the 20 most expensive conditions for uninsured individuals but only 1 of the 20 most expensive conditions billed to Medicaid or private insurance.**

The following injury-related hospital stays were among the 20 most expensive for uninsured individuals in 2013:

- Fracture of the lower limb, which also was top ranked for privately insured individuals
- Intracranial injury, which also was top ranked for individuals covered by Medicaid
- Crushing or internal injury

- **Three of the 20 most expensive conditions for uninsured stays did not appear in the top 20 for any other payer.**

The following are noninjury-related conditions seen in the 20 most expensive conditions for uninsured stays but not for stays covered by Medicare, Medicaid, or private insurance:

- Pancreatic disorders
- Alcohol-related disorders
- Appendicitis

## Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2013 National Inpatient Sample (NIS). The statistics were generated from HCUPnet, a free, online query system that provides users with *immediate access* to the largest set of publicly available, all-payer national, regional, and State-level hospital care databases from HCUP.<sup>6</sup>

## Definitions

### *Diagnoses, ICD-9-CM, and Clinical Classifications Software (CCS)*

The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital.

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

CCS categorizes ICD-9-CM diagnosis codes into a manageable number of clinically meaningful categories.<sup>7</sup> This clinical grouper makes it easier to quickly understand patterns of diagnoses. CCS categories identified as Other typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses.

### *Types of hospitals included in the HCUP National Inpatient Sample*

The National Inpatient Sample (NIS) is based on 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). The NIS includes obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Beginning in 2012, long-term acute care hospitals are also excluded. 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 will be included in the NIS.

### *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).<sup>8</sup> *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. For the purposes of this Statistical Brief, aggregate costs are reported to the nearest million.

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<sup>6</sup> Agency for Healthcare Research and Quality. HCUPnet Web site. <http://hcupnet.ahrq.gov/>. Accessed March 7, 2016.

<sup>7</sup> 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.

<sup>8</sup> 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.

### *How HCUP estimates of costs differ from National Health Expenditure Accounts*

There are a number of differences between the costs cited in this Statistical Brief and spending as measured in the National Health Expenditure Accounts (NHEA), which are produced annually by CMS.<sup>9</sup> The largest source of difference comes from the HCUP coverage of inpatient treatment only in contrast to the NHEA inclusion of outpatient costs associated with emergency departments and other hospital-based outpatient clinics and departments as well. The outpatient portion of hospitals' activities has been growing steadily and may exceed half of all hospital revenue in recent years. On the basis of the American Hospital Association Annual Survey, 2012 outpatient gross revenues (or charges) were about 44 percent of total hospital gross revenues.<sup>10</sup>

Smaller sources of differences come from the inclusion in the NHEA of hospitals that are excluded from HCUP. These include Federal hospitals (Department of Defense, Veterans Administration, Indian Health Services, and Department of Justice [prison] hospitals) as well as psychiatric, substance abuse, and long-term care hospitals. A third source of difference lies in the HCUP reliance on billed charges from hospitals to payers, adjusted to provide estimates of costs using hospital-wide cost-to-charge ratios, in contrast to the NHEA measurement of spending or revenue. HCUP costs estimate the amount of money required to produce hospital services, including expenses for wages, salaries, and benefits paid to staff as well as utilities, maintenance, and other similar expenses required to run a hospital. NHEA spending or revenue measures the amount of income received by the hospital for treatment and other services provided, including payments by insurers, patients, or government programs. The difference between revenues and costs include profit for for-profit hospitals or surpluses for nonprofit hospitals.

### *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.

## **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

<sup>9</sup> For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS Web site May 2014. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/>. Accessed February 17, 2016.

<sup>10</sup> American Hospital Association. TrendWatch Chartbook, 2014. Table 4.2. Distribution of Inpatient vs. Outpatient Revenues, 1992–2012. <http://www.aha.org/research/reports/tw/chartbook/2014/table4-2.pdf>. Accessed February 17, 2016.

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 NIS

The HCUP National Inpatient Sample (NIS) is a national database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS includes all payers. It is drawn from a sampling frame that contains hospitals comprising more than 95 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use. Over time, the sampling frame for the NIS has changed; thus, the number of States contributing to the NIS varies from year to year. The NIS is intended for national estimates only; no State-level estimates can be produced.

The 2012 NIS was redesigned to optimize national estimates. The redesign incorporates two critical changes:

- Revisions to the sample design—starting with 2012, the NIS is now a *sample of discharge records from all HCUP-participating hospitals*, rather than a sample of hospitals from which all discharges were retained (as is the case for NIS years before 2012).
- Revisions to how hospitals are defined—the NIS now uses the *definition of hospitals and discharges supplied by the statewide data organizations* that contribute to HCUP, rather than the definitions used by the American Hospital Association (AHA) Annual Survey of Hospitals.

The new sampling strategy is expected to result in more precise estimates than those that resulted from the previous NIS design by reducing sampling error: for many estimates, confidence intervals under the new design are about half the length of confidence intervals under the previous design. The change in sample design for 2012 necessitates recomputation of prior years' NIS data to enable analysis of trends that uses the same definitions of discharges and hospitals.

## About HCUPnet

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

## For More Information

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

For additional HCUP statistics, visit HCUP Fast Stats at <https://www.hcup-us.ahrq.gov/faststats/landing.jsp> for easy access to the latest HCUP-based statistics for health information topics, or visit HCUPnet, HCUP's interactive query system, at <http://hcpunet.ahrq.gov/>.

For information on other hospitalizations in the United States, refer to the following HCUP Statistical Briefs located at <http://www.hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp>:

- Statistical Brief #180, Overview of Hospital Stays in the United States, 2012
- Statistical Brief #181, Costs for Hospital Stays in the United States, 2012

- Statistical Brief #186, Most Frequent Operating Room Procedures Performed in U.S. Hospitals, 2003–2012
- Statistical Brief #162, Most Frequent Conditions in U.S. Hospitals, 2011

For a detailed description of HCUP and more information on the design of the National Inpatient Sample (NIS), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the National (Nationwide) Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2015. <http://www.hcup-us.ahrq.gov/nisoverview.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](mailto:hcup@ahrq.gov) or send a letter to the address below:

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