H·CUP HEALTHCARE COST AND UTILIZATION PROJECT

AHRQ Agency for Healthcare Research and Quality

Overview of Hospital Stays Among Children and Adolescents, 2019

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Introduction

Children are hospitalized for a variety of reasons, including birth, appendicitis, and respiratory conditions such as asthma and pneumonia.[1,2] Pediatric hospitalizations have been declining in recent years.[2] Between 2004 and 2019, the number and rate of inpatient stays for children aged 0–17 years decreased by 20 percent.[3] Factors such as a shift to outpatient services as well as increased pediatric care coordination (e.g., through accountable care organizations and patient-centered medical homes) may be changing the nature of pediatric hospitalizations.[4,5] Bucholz et al.[6] found that both pediatric admissions involving complex chronic conditions and pediatric readmissions increased between 2010 and 2016. Given these changes, understanding the current characteristics of and reasons for inpatient hospitalizations among children is important to inform pediatric clinical practice as well as health policy initiatives aimed at improving children's health.

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics on hospital stays among children and adolescents, aged 0–17 years, using weighted national estimates from the 2019 National Inpatient Sample (NIS) and State-level estimates from the 2019 State Inpatient Databases (SID). The distribution of hospital stays and aggregate costs by pediatric age group is provided. Characteristics of children's hospital stays are presented by pediatric age group and primary expected payer. The most common principal diagnoses are provided by pediatric age group. Finally, characteristics of pediatric hospitalizations are presented for 48 States and the District of Columbia. Because of the large sample size of the NIS and SID data, small differences can be statistically significant. Thus, only differences greater than or equal to 10 percent are discussed in the text.

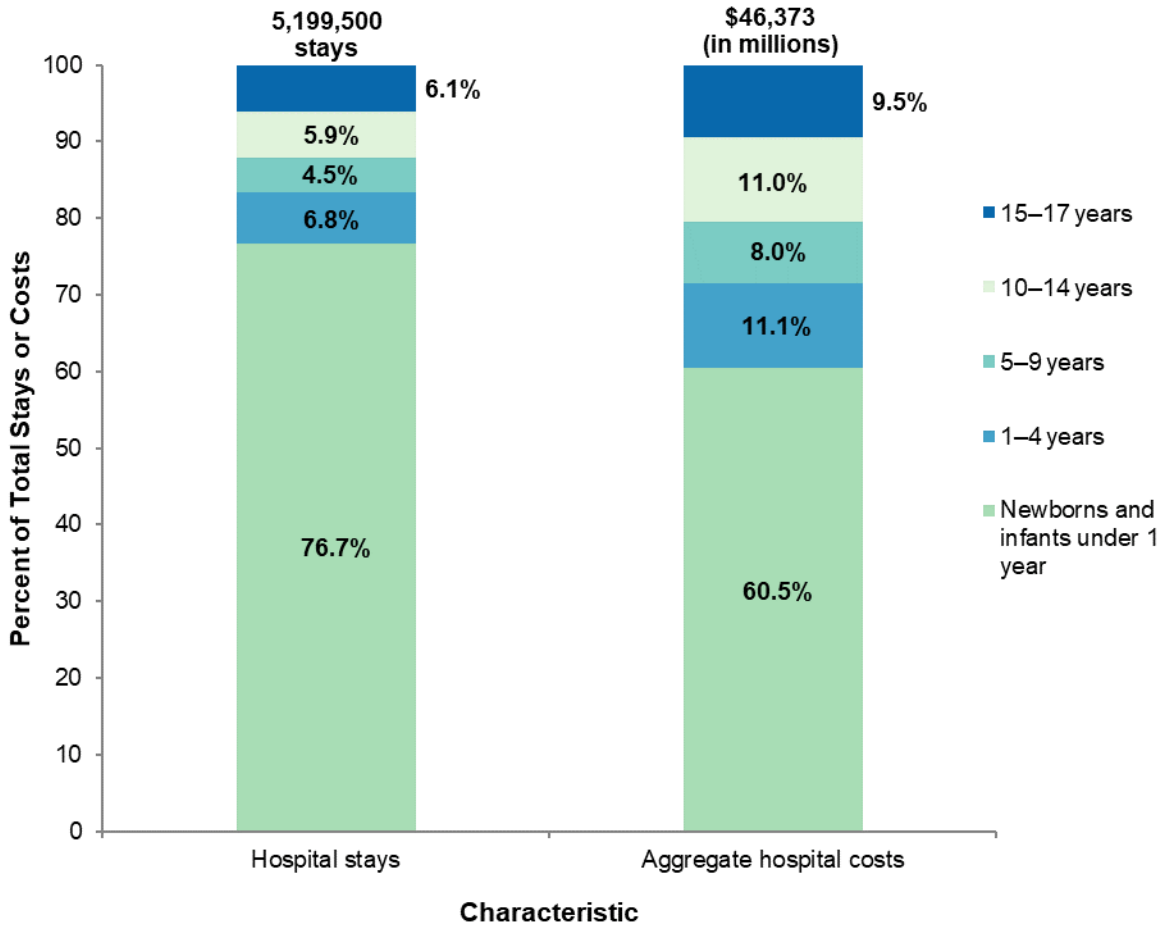
Highlights

- Among 5.2 million pediatric hospitalizations in 2019, most (76.7 percent) were for newborns and infants under 1 year of age. This age group accounted for 60.5 percent of aggregate pediatric hospital costs.
- The average length of stay (LOS) and average cost of pediatric hospitalizations varied by patient age group, primary expected payer, and State:
  - By age, costs were lowest for neonates ($5,700) and highest for infants under 1 year of age ($24,100).
  - By expected payer, among neonatal stays, LOS and costs were lowest for self-pay/no charge (2.6 days and $2,700) and highest for Medicaid (4.3 days and $6,500).
  - By State, LOS and costs were lowest for Wyoming (2.1 days and $3,100) and highest for the District of Columbia (5.3 days and $18,600).
- Respiratory conditions were common reasons for hospitalization among younger children, whereas mental disorders were common reasons among older children.
  - Acute bronchitis was the most common principal diagnosis for children under 5 years of age (excluding liveborns).
  - Depressive disorders were the most common principal diagnoses among children aged 10 years and older.

Findings

Characteristics of pediatric hospitalizations, 2019
Figure 1 shows total hospital stays and aggregate hospital costs among children in 2019.

Figure 1. Hospital inpatient stays and aggregate hospital costs among children aged 0–17 years by age group, 2019



Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **The majority of pediatric hospital stays and associated aggregate hospital costs were for newborns and infants.**

  Newborns and infants under 1 year of age constituted the largest proportion of the 5.2 million total pediatric hospitalizations (76.7 percent) and $46.4 billion aggregate pediatric hospital costs (60.5 percent) in 2019. For other pediatric age groups, the proportion of aggregate hospital costs was higher than the proportion of hospital stays.

Table 1 presents characteristics of inpatient hospitalizations among children in 2019.

Table 1. Characteristics of hospital stays among children aged 0–17 years by age group, 2019

Age group	Total number of stays	Female, %	Length of stay, days (mean)	Costs, $ (mean)	Aggregate costs, $ millions
All, 0–17 years	5,199,500	48.8	4.1	8,900	46,373
< 1 year	3,987,700	48.2	4.0	7,000	28,045
Neonates	3,707,100	48.6	3.8	5,700	21,295
Infants	280,600	42.5	6.3	24,100	6,750
1–4 years	351,400	44.8	3.8	14,600	5,128
5–9 years	234,500	43.9	4.1	15,800	3,709
10–14 years	308,800	52.5	5.1	16,500	5,099
15–17 years	317,100	60.2	4.8	13,900	4,392

Age group	Admitted through the ED, %	Primary expected payer, %		
		Private insurance	Medicaid	Self-pay/ No charge*
All, 0–17 years	17.2	44.4	47.6	4.7
< 1 year	5.5	45.9	45.8	5.2
Neonates	1.4	46.9	44.7	5.4
Infants	59.3	33.2	60.6	2.5
1–4 years	62.9	35.6	57.0	3.0
5–9 years	58.7	38.4	54.2	3.0
10–14 years	52.2	41.5	51.6	2.7
15–17 years	48.4	42.1	50.6	3.3

Abbreviation: ED, emergency department

Notes: Total number of stays is reported to the nearest 100. Mean costs are reported to the nearest $100. Neonatal stays were identified using Major Diagnostic Category 15, Newborns and Other Neonates (Perinatal Period). Neonates are newborns within the first 4 weeks following birth.

* Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **Infants under 1 year of age had the highest length of stay and mean hospital costs.**

  The length of pediatric stays was highest among infants under 1 year of age (6.3 days) and lowest among neonates and children under 10 years of age (3.8–4.1 days). Mean hospital costs also were highest among infants under 1 year of age ($24,100) but lowest among neonates ($5,700).

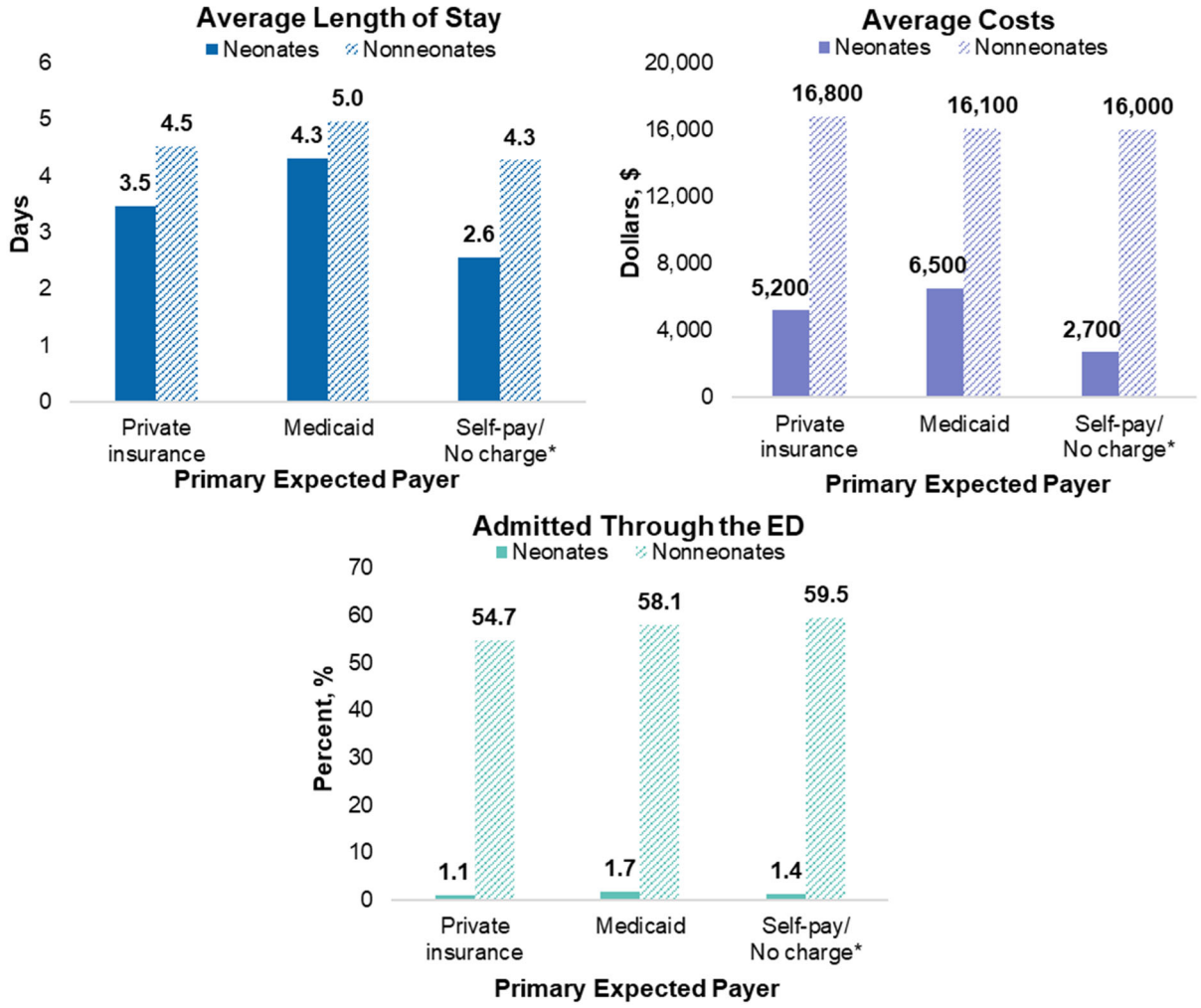
  The percentage of stays with a primary expected payer of Medicaid decreased with children's age, from 60.6 percent among infants to 50.6 percent among adolescents aged 15–17 years, but the percentage was lowest for neonates (44.7 percent). Conversely, the percentage of stays with private insurance increased with children's age, from 33.2 percent among infants to 42.1 percent among adolescents aged 15–17 years, but the percentage was highest for neonates (46.9 percent). Neonates also had the highest percentage of stays that were expected to be self-pay/no charge (5.4 percent vs. 2.5–3.3 percent for other age groups).

  The percentage of pediatric stays for females ranged from 42.5 percent among infants under 1 year of age to 60.2 percent among adolescents aged 15–17 years.

  Except for neonates, approximately half or more of pediatric stays were admitted through the emergency department (ED), ranging from 48.4 percent for adolescents aged 15–17 years to 62.9 percent for children aged 1–4 years. Very few pediatric stays for neonates (1.4 percent) originated in the ED.

Figure 2 shows characteristics of children's hospital stays by primary expected payer for neonates and nonneonates in 2019.

Figure 2. Characteristics of hospital stays among children aged 0–17 years, reported separately for neonates versus nonneonates, by primary expected payer, 2019



Abbreviation: ED, emergency department

Note: Neonatal stays were identified using Major Diagnostic Category 15, Newborns and Other Neonates (Perinatal Period). Neonates are newborns within the first 4 weeks following birth.

* Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **For neonates, the average length of stay, average costs, and percentage of stays admitted through the ED were highest for stays with Medicaid as the primary expected payer.**

  For neonatal stays, the average length of stay ranged from 2.6 days for self-pay/no charge to 4.3 days for stays expected to be paid by Medicaid. Similarly, average costs ranged from $2,700 for self-pay/no charge to $6,500 for Medicaid. Finally, the percentage of neonatal stays admitted through the ED was highest for Medicaid (1.7 percent) and lowest for private insurance (1.1 percent).

  For nonneonatal stays, the average length of stay also was highest for Medicaid (5.0 days) compared with private insurance (4.5 days) and self-pay/no charge (4.3 days). However, average costs and percentage of stays admitted through the ED did not differ as a function of primary expected payer among nonneonatal stays.

Most common reasons for pediatric hospitalizations, 2019
Table 2 presents the 10 most common principal diagnoses for hospital stays among children in 2019.

Table 2. Most common principal diagnoses for hospital stays among children aged 0–17 years by age group, 2019

Principal diagnosis	Children's age group									
	< 1 year		1–4 years		5–9 years		10–14 years		15–17 years	
	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%
Liveborn	1	89.5								
Acute bronchitis	2	1.7	1	9.8						
Hemolytic jaundice and perinatal jaundice	3	1.0								
Other specified and unspecified perinatal conditions	4	0.6								
Respiratory failure; insufficiency; arrest	5	0.6	4	6.1	7	2.6				
Short gestation; low birth weight; and fetal growth retardation	6	0.4								
Perinatal infections	7	0.4								
Cardiac and circulatory congenital anomalies	8	0.3								
Respiratory distress syndrome	9	0.3								
Respiratory perinatal condition	10	0.3								
Pneumonia (except that caused by tuberculosis)			2	8.1	3	5.7	9	2.2		
Asthma			3	7.8	1	9.1	7	3.5		
Epilepsy; convulsions			5	5.7	2	5.9	5	3.9	6	2.5
Fluid and electrolyte disorders			6	3.8						
Other specified upper respiratory infections			7	3.7						
Skin and subcutaneous tissue infections			8	3.5	6	2.7				
Encounter for antineoplastic therapies			9	2.6	5	3.4	6	3.6	8	2.3
Intestinal infection			10	2.4						
Appendicitis and other appendiceal conditions					4	5.2	2	5.3	5	2.6
Diabetes mellitus with complication					8	2.3	3	4.2	4	2.9
Influenza					9	2.0				
Septicemia					10	1.9				
Depressive disorders							1	13.4	1	15.6
Other specified and unspecified mood disorders							4	4.0	7	2.3
Trauma- and stressor-related disorders							8	2.2	9	2.0
Suicidal ideation/attempt/intentional self-harm							10	2.1	2	3.4
Complications specified during childbirth									3	3.3
Bipolar and related disorders									10	1.9
Total for top 10 diagnoses	**-**	**95.1**	**-**	**53.5**	**-**	**40.9**	**-**	**44.1**	**-**	**38.8**

Notes: Diagnoses are grouped using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses. Principal diagnosis is assigned to a single default CCSR category (see Definitions section below).

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2019

- **Respiratory conditions were among the most common diagnoses for stays by younger children.**

  Acute bronchitis was the most common reason for inpatient stays among children under 5 years of age, excluding liveborns. Respiratory failure also was among the five most common diagnoses for children under 5 years of age. Pneumonia and asthma were among the top three diagnoses for children aged 1–9 years.

- **Mental disorders were among the most common diagnoses for stays by children aged 10 years and older.**

  The most common reason for inpatient stays among children aged 10 years and older was depressive disorders. Trauma- and stressor-related disorders, suicidal ideation/attempt/intentional self-harm, and other specified and unspecified mood disorders also were among the 10 most common diagnoses for children aged 10 years and older.

State-level characteristics of pediatric hospitalizations, 2019

Table 3 presents the mean length of stay, mean costs, and percentage admitted through the ED among hospital stays for children by the hospital State in 2019. States are ranked from the highest to lowest value on each characteristic.

Table 3. State-level characteristics of hospital stays among children aged 0–17 years, 2019

State	Number of stays	Length of stay, days (mean)		Costs, $ (mean)		Admitted through the ED,* %	
		Value	Rank	Value	Rank	Value	Rank
United States	**5,199,500**	**4.1**	**-**	**8,900**	**-**	**17.2**	**-**
Alaska	11,700	4.8	3	11,800	6	14.8	30
Arizona	109,500	3.8	40	7,300	30	18.3	11
Arkansas	50,800	4.2	23	8,900	15	17.8	14
California	622,600	3.6	43	12,300	5	14.8	29
Colorado	74,800	4.4	10	10,100	12	20.5	6
Connecticut	51,200	4.2	18	9,600	14	16.9	19
Delaware	19,300	5.0	2	17,800	2	-	-
District of Columbia	28,200	5.3	1	18,600	1	38.6	1
Florida	323,400	4.1	26	7,100	31	21.5	5
Georgia	164,500	4.3	13	6,800	34	15.5	24
Hawaii	18,400	4.4	9	13,200	3	12.2	41
Illinois	186,300	4.1	29	8,500	19	17.8	15
Indiana	104,700	4.3	17	6,500	38	11.0	46
Iowa	53,000	3.9	36	5,500	45	17.7	16
Kansas	50,900	3.6	44	4,600	48	11.8	45
Kentucky	68,300	4.2	25	8,400	21	18.9	9
Louisiana	78,900	4.4	11	7,300	29	16.1	22
Maine	15,400	3.9	37	6,700	36	12.2	42
Maryland	79,900	4.3	12	7,500	25	13.2	38
Massachusetts	100,300	4.6	5	11,300	8	18.4	10
Michigan	152,700	3.8	39	7,400	26	13.9	36
Minnesota	96,000	4.0	34	11,300	9	17.6	17
Mississippi	47,800	4.0	31	4,800	47	15.5	25
Missouri	122,000	4.7	4	11,500	7	18.1	12
Montana	14,800	3.5	47	5,400	46	16.2	21
Nebraska	34,000	4.2	22	8,600	18	13.1	39
Nevada	48,500	4.0	35	5,700	44	24.3	3
New Hampshire	14,000	3.5	48	6,300	41	-	-
New Jersey	126,600	3.8	38	6,400	40	15.9	23
New Mexico	32,700	4.2	21	7,000	33	16.6	20
New York	313,200	4.0	33	9,900	13	24.2	4
North Carolina	156,500	4.2	20	5,900	43	14.2	32
North Dakota	15,800	4.0	32	6,400	39	10.1	47
Ohio	205,500	4.5	8	11,200	10	20.2	7
Oklahoma	66,800	4.3	16	6,200	42	15.3	27
Oregon	56,600	3.6	45	8,400	20	12.1	43
Pennsylvania	189,400	4.5	7	10,800	11	18.1	13
Rhode Island	15,600	4.2	19	7,400	27	25.5	2
South Carolina	70,700	4.3	14	6,600	37	13.3	37
South Dakota	19,000	4.1	28	6,700	35	13.9	35

State	Number of stays	Length of stay, days (mean)		Costs, $ (mean)		Admitted through the ED,* %	
		Value	Rank	Value	Rank	Value	Rank
Tennessee	119,200	4.6	6	8,100	22	19.1	8
Texas	514,600	4.1	27	8,600	17	17.2	18
Utah	67,500	4.2	24	8,700	16	14.1	33
Vermont	6,600	3.6	46	7,700	24	12.7	40
Virginia	122,700	4.1	30	7,400	28	14.9	28
Washington	102,700	3.7	42	12,800	4	14.0	34
West Virginia	25,400	4.3	15	7,100	32	14.8	31
Wisconsin	82,100	3.8	41	8,000	23	12.0	44
Wyoming	6,400	2.1	49	3,100	49	15.4	26

Abbreviation: ED, emergency department

Notes: Statistics are not reported for Alabama and Idaho, which are currently not HCUP Partners. State is based on the location of the hospital. Total number of stays is reported to the nearest 100. Mean costs are reported to the nearest $100.

* Identification of inpatient stays admitted through the ED is determined by State reporting of revenue center codes, a flag for ED admissions, or Current Procedural Terminology (CPT®) procedure codes that identify ED professional services. In data year 2019, the State Inpatient Databases (SID) for Delaware and New Hampshire included limited information to identify ED admissions. Therefore, the ED admission rates for these two States may be artificially low and are not provided.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2019

- **The mean length of stay and mean cost of pediatric stays was highest in the District of Columbia and lowest in Wyoming**

  The District of Columbia had the highest mean length of pediatric inpatient stays in 2019 (5.3 days), whereas Wyoming had the lowest mean length of stay (2.1 days). Similarly, the District of Columbia had the highest mean cost of pediatric stays ($18,600), and Wyoming had the lowest mean cost ($3,100).

  States were generally ranked similarly on mean length of stay and mean costs, but there were some exceptions. For example, Washington and California both ranked among the States with the lowest mean length of stay (3.7 and 3.6 days, ranked 42nd and 43rd, respectively), but they ranked among the States with the highest mean costs ($12,800 and $12,300, ranked 4th and 5th, respectively).

  The District of Columbia had the highest percentage of pediatric stays admitted through the ED (38.6 percent), and North Dakota had the lowest percentage admitted through the ED (10.1 percent).

References

[1] McDermott KW, Roemer M. Most Frequent Principal Diagnoses for Inpatient Stays in U.S. Hospitals, 2018. HCUP Statistical Brief #277. July 2021. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb277-Top-Reasons-Hospital-Stays-2018.pdf. Accessed August 25, 2022.
[2] McDermott KW, Elixhauser A, Sun R. Trends in Hospital Inpatient Stays in the United States, 2005–2014. HCUP Statistical Brief #225. June 2017. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb225-Inpatient-US-Stays-Trends.pdf. Accessed August 25, 2022.
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[4] American Hospital Association. TrendWatch Chartbook, 2020. Appendix 1: Supplementary Data Tables, Trends in the Overall Health Care Market. Table 3.4: Outpatient Utilization in Community Hospitals, 1995–2018. www.aha.org/system/files/media/file/2020/10/TrendwatchChartbook-2020-Appendix.pdf. Accessed August 24, 2022.
[5] Perrin JM, Zimmerman E, Hertz A, Johnson T, Merrill T, Smith D. Pediatric accountable care organizations: insight from early adopters. Pediatrics. 2017;139(2):e20161840.
[6] Bucholz EM, Toomey SL, Schuster MA. Trends in pediatric hospitalizations and readmissions: 2010–2016. Pediatrics. 2019;143(2):e20181958.

About Statistical Briefs

Healthcare Cost and Utilization Project (HCUP) Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative healthcare data. Topics include hospital inpatient, ambulatory surgery, and emergency department use and costs, quality of care, access to care, medical conditions, procedures, and patient populations, among other topics. The reports are intended to generate hypotheses that can be further explored in other research; the reports are not designed to answer in-depth research questions using multivariate methods.

Data Source

The estimates in this Statistical Brief are based on data from the HCUP 2019 National Inpatient Sample (NIS) and 2019 State Inpatient Databases (SID). Following the series of reports on children's healthcare in the United States using Agency for Healthcare Research and Quality (AHRQ) databases (available at www.academicpedsjnl.net/content/acap-childrens-health), this Statistical Brief presents national statistics on pediatric hospitalizations by various patient and visit characteristics using data from the NIS and State-level statistics based on data from the SID. Although it was not used for the children's healthcare reports or this Statistical Brief, AHRQ also produces a Kids' Inpatient Database (KID) every 3 years. The KID includes a sample of discharges for patients aged 20 years or younger at admission. The KID is intended for national estimates only and enables analyses of rare conditions (such as congenital anomalies) and uncommon treatments (such as organ transplantation).

Definitions

Diagnoses, ICD-10-CM, Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses, and Major Diagnostic Categories (MDCs)
The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are conditions that coexist at the time of admission that require or affect patient care treatment received or management, or that develop during the inpatient stay. *All-listed diagnoses* include the principal diagnosis plus the secondary conditions.

ICD-10-CM is the International Classification of Diseases, Tenth Revision, Clinical Modification. There are over 70,000 ICD-10-CM diagnosis codes.

The CCSR aggregates ICD-10-CM diagnosis codes into a manageable number of clinically meaningful categories.[a] The CCSR is intended to be used analytically to examine patterns of healthcare in terms of cost, utilization, and outcomes; rank utilization by diagnoses; and risk-adjust by clinical condition. The CCSR capitalizes on the specificity of the ICD-10-CM coding scheme and allows ICD-10-CM codes to be classified in more than one category. Approximately 10 percent of diagnosis codes are associated with more than one CCSR category because the diagnosis code documents either multiple conditions or a condition along with a common symptom or manifestation. For this Statistical Brief, the principal diagnosis code is assigned to a single default CCSR based on clinical coding guidelines, etiology and pathology of diseases, and standards set by other Federal agencies. The assignment of the default CCSR for the principal diagnosis is available starting with version v2020.2 of the software tool. ICD-10-CM coding definitions for each CCSR category presented in this Statistical Brief can be found in the *CCSR reference file*, available at www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp#download. For this Statistical Brief, v2021.2 of the CCSR was used.

MDCs assign ICD-10-CM principal diagnosis codes to 1 of 25 general diagnosis categories. Neonatal stays were defined as those with MDC 15, Newborns and Other Neonates (Perinatal Period).

Types of hospitals included in the HCUP National (Nationwide) Inpatient Sample
The National (Nationwide) 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 center 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.

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 center 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.

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).[b] *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, costs are reported to the nearest hundred dollars.

[a] Agency for Healthcare Research and Quality. Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated February 2022. www.hcup-us.ahrq.gov/toolssoftware/ccsr/dxccsr.jsp. Accessed March 9, 2022.
[b] Agency for Healthcare Research and Quality. Cost-to-Charge Ratio Files. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated November 2021. www.hcup-us.ahrq.gov/db/state/costtocharge.jsp. Accessed March 9, 2022.

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.[c] 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 (EDs) 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, 2018 outpatient gross revenues (or charges) were about 49 percent of total hospital gross revenues.[d]

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 Service, 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 includes profit for for-profit hospitals or surpluses for nonprofit hospitals.

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

- Medicare: includes fee-for-service and managed care Medicare
- Medicaid: includes fee-for-service and managed care Medicaid
- Private insurance: includes commercial nongovernmental payers, regardless of the type of plan (e.g., private health maintenance organizations [HMOs], preferred provider organizations [PPOs])
- Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment
- Other payers: includes other Federal and local government programs (e.g., TRICARE, CHAMPVA, Indian Health Service, Black Lung, Title V) and Workers' Compensation

Hospital stays that were expected to be billed to the State Children's Health Insurance Program (SCHIP) are included under Medicaid.

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

Admissions through the ED
Inpatient stays admitted through the ED are identified by the HCUP data element HCUP_ED > 0, which indicates evidence of ED services at the same hospital as the inpatient stay. The assignment of HCUP_ED depends on the reporting of revenue center codes, a Partner-provided flag for ED admissions, or Current Procedural Terminology (CPT®) procedure codes that identify ED professional services. In data year 2019, the SID for Delaware and New Hampshire include limited information that is needed to identify ED admissions, and therefore, the ED admission rates for these two States may be artificially low.

[c] For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS website. Updated December 1, 2021. www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/. Accessed March 9, 2022.
[d] American Hospital Association. TrendWatch Chartbook, 2020. Appendix 1: Supplementary Data Tables, Trends in the Overall Health Care Market. Table 4.2: Distribution of Inpatient vs. Outpatient Revenues, 1995–2018. www.aha.org/system/files/media/file/2020/10/TrendwatchChartbook-2020-Appendix.pdf. Accessed March 9, 2022.

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of healthcare 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 healthcare 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 healthcare 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 Department of Health
Alaska Hospital and Healthcare Association
Arizona Department of Health Services
Arkansas Department of Health
California Department of Health Care Access and Information
Colorado Hospital Association
Connecticut Hospital Association
Delaware Division of Public Health
District of Columbia Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Laulima Data Alliance
Hawaii University of Hawai'i at Hilo
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
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 State Department of Health
Missouri Hospital Industry Data Institute
Montana Hospital Association
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 Department of Health and Human Resources, West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the NIS

The HCUP National (Nationwide) Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS includes all payers. It is drawn from a sampling frame that contains hospitals comprising more than 96 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 unweighted sample size for the 2019 NIS is 7,083,805 (weighted, this represents 35,419,023 inpatient stays).

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 pediatric hospital stays in the United States, refer to the pediatric HCUP Statistical Briefs topic area located at www.hcup-us.ahrq.gov/reports/statbriefs/sbtopic.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at https://datatools.ahrq.gov/hcup-fast-stats for easy access to the latest HCUP-based statistics for healthcare information topics
- HCUPnet, HCUP's interactive query system, at https://datatools.ahrq.gov/hcupnet
- HCUP Summary Trend Tables at www.hcup-us.ahrq.gov/reports/trendtables/summarytrendtables.jsp for monthly information on hospital utilization

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

For a detailed description of HCUP and more information on the design of the National Inpatient Sample (NIS) and State Inpatient Databases (SID), 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 September 2021. www.hcup-us.ahrq.gov/nisoverview.jsp. Accessed March 9, 2022.

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 September 2021. www.hcup-us.ahrq.gov/sidoverview.jsp. Accessed March 9, 2022.

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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 healthcare 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 email us at hcup@ahrq.gov or send a letter to the address below:

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