Agency for Healthcare Research and Quality
H·CUP HEALTHCARE COST AND UTILIZATION PROJECT

National Inpatient Hospital Costs: The Most Expensive Conditions by Payer, 2022

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Introduction

Hospital care represents the largest share of healthcare spending in the United States, accounting for approximately 31.2 percent of total national health expenditures in 2023.[a] Hospital care is more costly to provide than other types of healthcare due to its high labor demand, advanced technology, complex patient needs, and stringent regulatory requirements. Certain medical conditions are particularly costly to treat because they require prolonged hospital stays, complex and specialized procedures, intensive care, expensive medications, and frequent readmissions or follow-up care, especially when complications or chronic management are involved.

This HCUP Statistical Brief presents data from the Agency for Healthcare Research and Quality's (AHRQ) Healthcare Cost and Utilization Project (HCUP) on hospital costs of inpatient stays in nonfederal acute care hospitals in the United States. Using the 2022 HCUP National Inpatient Sample (NIS), the brief describes the distribution of costs by primary expected payer and illustrates the conditions accounting for the largest percentage of each payer's hospital costs. Hospital charges were converted to costs using HCUP Cost-to-Charge Ratios.[b] The expected payers include Medicare, Medicaid, private insurance, and self-pay/no charge. Hospital costs in this brief represent the hospital's costs to produce the services—not the amount paid for services by payers—and they do not include separately billed physician fees associated with the hospitalization.

Because of the large sample size of the NIS, small differences can be statistically significant. Differences greater than 10 percent are noted in the text.

Highlights

- In 2022, aggregate hospital costs for 32.9 million hospital stays totaled $548.5 billion.
- The five most expensive inpatient conditions were septicemia, liveborn (newborn) infants, heart failure, acute myocardial infarction, and Covid-19. The 20 most expensive conditions accounted for 47 percent of the aggregate hospital costs.
- Septicemia is the most costly condition in the hospital for all four expected payer groups.
- Circulatory system conditions are the most frequently represented among the top 20 diagnoses in payer groups where Medicare, private insurance, or self-pay/no charge is the expected payer.
- Conditions related to pregnancy and childbirth accounted for four of the top 20 most expensive conditions expected to be paid by Medicaid.

[a] Martin AB, Hartman M, Washington B, Catlin A, National Health Expenditure Accounts Team. National Health Expenditures In 2023: Faster Growth As Insurance Coverage And Utilization Increased: Article examines National Health Expenditures in 2023. Health Affairs. 2025 Jan 1;44(1):12-22.

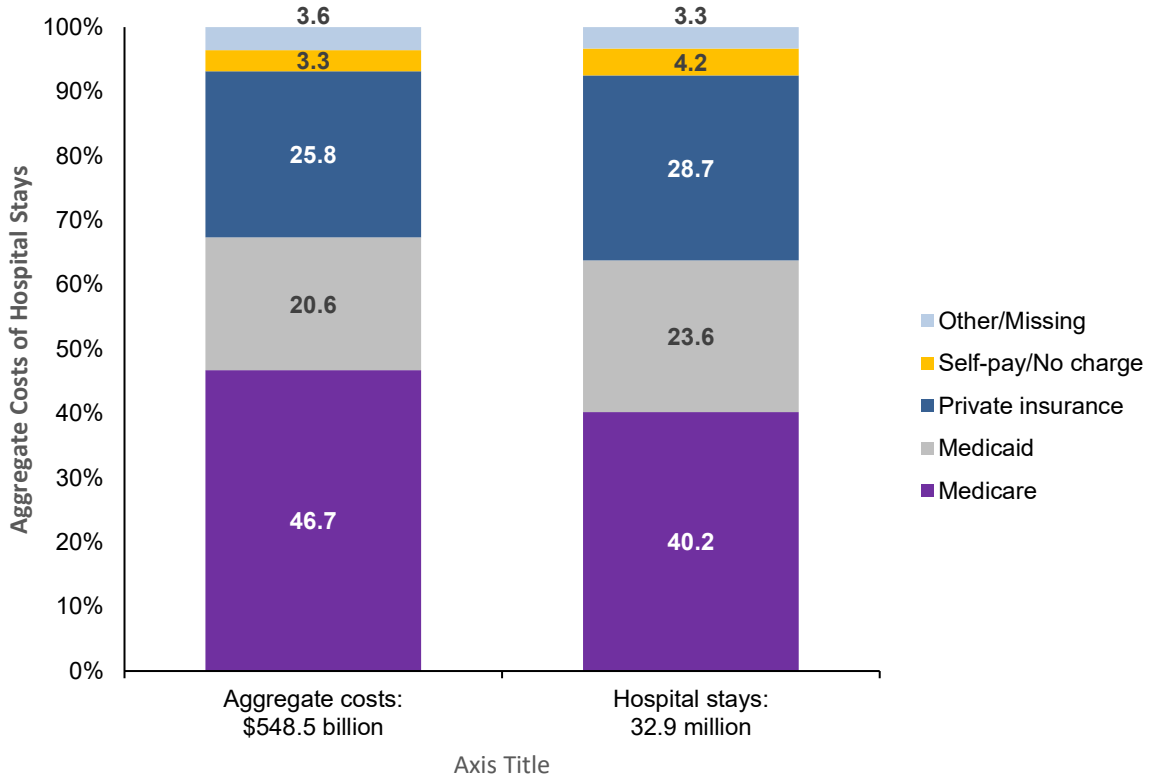
[b] Agency for Healthcare Research and Quality. Cost-to-Charge Ratio for Inpatient Files. Healthcare Cost and Utilization Project (HCUP). April 2025. https://hcup-us.ahrq.gov/db/ccr/ip-ccr/ip-ccr.jsp. Accessed May 30, 2005.

Findings

Aggregate hospital inpatient costs and stays by payer, 2022

Figure 1 presents the distribution by primary expected payer for aggregate hospital costs and total hospital inpatient stays in 2022.

Figure 1. Aggregate hospital costs and hospital stays by primary expected payer, 2022



Notes: Self-pay/No charge: includes self-pay, no charge, charity, and no expected payment. Other expected payer includes Worker's Compensation, CHAMPUS, CHAMPVA, Title V, and other government programs. Expected payer is missing for 0.15% of records.Hospital charges were converted to costs using HCUP Cost-to-Charge Ratios. See Costs and Charges in the Definitions section for additional information.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- In 2022, Medicare and Medicaid combined to account for more than two-thirds (67.3%) of aggregate hospital costs and about 63.8 percent of total hospital stays.
- Private insurance was the second most common expected payer after Medicare, representing 25.8 percent of total costs. Hospital stays with an expected payer of self-pay/no charge accounted for 3.3 percent of total hospital costs.

Most expensive conditions treated in U.S. hospitals, 2022

Table 1 presents the top 20 most expensive conditions treated in U.S. hospitals across all payers in 2022. The conditions are ranked by aggregate hospital costs. Both the dollar amount and percentage of total aggregate costs associated with the condition are shown. The number and percentage of all hospital stays for each condition also are presented.

Table 1. The 20 most expensive conditions treated in U.S. hospitals, all payers, 2022

Rank	CCSR principal diagnosis category	Aggregate hospital costs, $, in millions	National costs, %	Number of hospital stays, in thousands	Hospital stays, %
1	INF002: Septicemia*	60,016	10.9	2,421	7.4
2	PNL001: Liveborn	19,581	3.6	3,488	10.6
3	CIR019: Heart failure	18,236	3.3	1,098	3.3
4	CIR009: Acute myocardial infarction	16,332	3.0	582	1.8
5	INF012: Coronavirus disease 2019 (COVID-19)	16,038	2.9	823	2.5
6	MUS011: Spondylopathies/spondyloarthropathy	14,002	2.6	447	1.4
7	END003: Diabetes mellitus with complication	10,945	2.0	687	2.1
8	CIR020: Cerebral infarction	10,940	2.0	542	1.6
9	CIR017: Cardiac dysrhythmias	9,913	1.8	596	1.8
10	RSP012: Respiratory failure; insufficiency; arrest	9,538	1.7	433	1.3
11	CIR011: Coronary atherosclerosis/oth heart disease	9,300	1.7	294	0.9
12	INJ037: Complic-oth surg/med care, init encounter	7,968	1.5	341	1.0
13	INJ006: Fracture of neck of femur, init encounter	7,656	1.4	338	1.0
14	CIR003: Nonrheumatic and unspecified valve disorders	7,649	1.4	150	0.5
15	RSP002: Pneumonia	7,648	1.4	547	1.7
16	GEN002: Acute and unspecified renal failure	6,573	1.2	497	1.5
17	INJ008: TBI; concussion, init encounter	6,491	1.2	218	0.7
18	INJ005: Fracture of lower limb, init encounter	6,216	1.1	227	0.7
19	INJ033: Complic-cardiovasc device, init encounter	6,022	1.1	170	0.5
20	MUS006: Osteoarthritis	5,618	1.0	277	0.8
	Total for top 20 conditions	256,683	46.8	14,175	43.1
	Total for all stays	548,481	100.0	32,892	100.0

Abbreviations: CCSR, Clinical Classifications Software Refined; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification
Notes: Diagnosis groups are defined using the CCSR for ICD-10-CM Diagnoses. Conditions were identified using the CCSR default category assignment(s) for the principal diagnosis code of the hospital stay. Total number of visits and aggregate costs are rounded to the nearest thousand. Aggregated costs are rounded to the nearest million. *The CCSR for septicemia includes all sepsis infection codes and does not include the criteria of organ dysfunction. Expected payer is missing for 0.15% of records.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- The 20 most expensive conditions accounted for slightly less than half (46.8%) of aggregate hospital costs in 2012.
- Septicemia was the most expensive condition treated, amounting to $60.0 billion, or 10.9 percent of aggregate costs for all hospital stays in 2022. Other high-cost hospital stays were for liveborn (newborn) infants ($19.6 billion, or 3.6 percent), heart failure ($18.2 billion, or 3.3 percent), acute myocardial infarction ($16.3 billion, or 3.0 percent), and Covid-19 ($16.0 billion, or 2.9 percent).
- The 20 most expensive conditions constituted 43.1 percent of all hospital stays.
- One out of every 10 hospital stays was for liveborn (newborn) infants (10.6%) in 2022. Among the 20 most expensive conditions, septicemia was the second most common reason for hospitalization, representing 7.4 percent of all hospital stays, followed by heart failure and Covid-19 (3.3 and 2.5 percent, respectively).

Most expensive conditions by primary expected payer, 2022

Tables 2 through 5 list the 20 most expensive conditions in 2022 for stays expected to be paid by Medicare, Medicaid, or private insurance, or that were expected to be self-pay/no charge.

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

- Seven conditions were among the 20 most expensive conditions for all four expected payer groups.
  - Septicemia
  - Heart failure
  - Acute myocardial infarction
  - Covid-19
  - Diabetes mellitus with complications
  - Cerebral infarction
  - Respiratory failure; insufficiency; arrest
- Several other conditions were ranked among those with the highest aggregate hospital costs across three of the four expected payer groups.
  - Complications of other surgical or medical care, injury and spondylopathies/spondyloarthropathy (including infective) were among the 20 most expensive conditions for stays with an expected payer of Medicare, Medicaid, and private insurance.
  - Cardiac dysrhythmias and coronary atherosclerosis/other heart disease were among the 20 most expensive conditions for stays with an expected payer of Medicare, private insurance, and self-pay/no charge.
  - The diagnosis of liveborn (newborn) infants, traumatic brain injury, concussion, and fracture of lower limb were among the 20 most expensive hospital stays with an expected payer of Medicaid, private insurance, and self-pay/no charge.

Table 2. The 20 most expensive conditions with an expected payer of Medicare, 2022

Rank	CCSR principal diagnosis category	Aggregate hospital costs, $, in millions	National costs, %	Number of hospital stays, in thousands	Hospital stays, %
1	INF002: Septicemia*	34,054	13.3	1,432	10.8
2	CIR019: Heart failure	11,835	4.6	759	5.7
3	INF012: Coronavirus disease 2019 (COVID-19)	9,486	3.7	529	4.0
4	CIR009: Acute myocardial infarction	8,807	3.4	318	2.4
5	MUS011: Spondylopathies/spondyloarthropathy	7,278	2.8	231	1.7
6	CIR017: Cardiac dysrhythmias	6,975	2.7	413	3.1
7	CIR020: Cerebral infarction	6,555	2.6	340	2.6
8	INJ006: Fracture of neck of femur, init encounter	6,028	2.4	274	2.1
9	CIR003: Nonrheumatic and unspecified valve disorders	5,708	2.2	114	0.9
10	CIR011: Coronary atherosclerosis/oth heart disease	5,536	2.2	172	1.3
11	END003: Diabetes mellitus with complication	5,418	2.1	287	2.2
12	RSP002: Pneumonia	4,809	1.9	344	2.6
13	RSP012: Respiratory failure; insufficiency; arrest	4,554	1.8	226	1.7
14	GEN002: Acute and unspecified renal failure	4,337	1.7	331	2.5
15	INJ037: Complic-oth surg/med care, init encounter	3,843	1.5	159	1.2
16	INJ033: Complic-cardiovasc device, init encounter	3,688	1.4	110	0.8
17	MUS006: Osteoarthritis	3,663	1.4	183	1.4
18	GEN004: Urinary tract infections	3,322	1.3	312	2.4
19	INJ035: Complic-orthopedic device, init encounter	3,023	1.2	108	0.8
20	GEN003: Chronic kidney disease	2,861	1.1	121	0.9
	Total for top 20 conditions	141,782	55.3	6,762	51.1
	Total for all stays	256,405	100.0	13,223	100.0

Abbreviations: CCSR, Clinical Classifications Software Refined; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification
Notes: Diagnosis groups are defined using the CCSR for ICD-10-CM Diagnoses. Conditions were identified using the CCSR default category assignment(s) for the principal diagnosis code of the hospital stay. The CCSR includes multiple category assignments for some diagnosis codes. Total number of visits and aggregate costs are rounded to the nearest thousand. Aggregated costs are rounded to the nearest million.
* The CCSR for septicemia includes all sepsis infection codes and does not include the criteria of organ dysfunction.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- The following nine conditions were in the 20 most expensive conditions for stays with an expected payer of Medicare (but not for other payers, as shown in Tables 2–5), ordered by aggregate cost: fracture of the neck of the femur (hip), nonrheumatic and unspecified valve disorders, pneumonia, acute and unspecified renal failure, complication of cardiovascular device, implant or graft, osteopathists, urinary tract infections, complication of internal orthopedic device or implant, and chronic kidney disease.
- Six of the 20 most expensive conditions during hospital stays with Medicare as the expected payer were related to the circulatory system—more than any clinical category. Ordered by aggregate cost, these conditions were: heart failure, acute myocardial infarction, cardiac dysrhythmias, cerebral infarction, nonrheumatic and unspecified valve disorders, and coronary atherosclerosis and other heart disease.

Table 3. The 20 most expensive conditions with an expected payer of Medicaid, 2022

Rank	CCSR principal diagnosis category	Aggregate hospital costs, $, in millions	National costs, %	Number of hospital stays, in thousands	Hospital stays, %
1	INF002: Septicemia*	11,495	10.2	390	5.0
2	PNL001: Liveborn	9,613	8.5	1,544	19.9
3	CIR019: Heart failure	2,604	2.3	139	1.8
4	RSP012: Respiratory failure; insufficiency; arrest	2,574	2.3	99	1.3
5	END003: Diabetes mellitus with complication	2,527	2.2	178	2.3
6	INF012: Coronavirus disease 2019 (COVID-19)	2,308	2.0	102	1.3
7	MBD001: Schizophrenia and oth psychotic disorders	2,047	1.8	160	2.1
8	PRG023: Complications specified during childbirth	2,008	1.8	337	4.3
9	CIR009: Acute myocardial infarction	1,811	1.6	61	0.8
10	INJ037: Complic-oth surg/med care, init encounter	1,652	1.5	65	0.8
11	CIR020: Cerebral infarction	1,510	1.3	58	0.8
12	PRG020: Hypertension complicating pregnancy/birth	1,476	1.3	182	2.3
13	INJ008: TBI; concussion, init encounter	1,443	1.3	31	0.4
14	MAL001: Cardiac and circulatory congenital anomalies	1,432	1.3	13	0.2
15	MBD017: Alcohol-related disorders	1,402	1.2	141	1.8
16	PRG016: Previous C-section	1,364	1.2	185	2.4
17	INJ005: Fracture of lower limb, init encounter	1,251	1.1	40	0.5
18	DIG019: Oth liver disease	1,192	1.1	54	0.7
19	NVS009: Epilepsy; convulsions	1,183	1.0	86	1.1
20	MUS011: Spondylopathies/spondyloarthropathy	1,172	1.0	41	0.5
	Total for top 20 conditions	52,066	46.1	3,906	50.4
	Total for all stays	112,859	100.0	7,756	100.0

Abbreviations: CCSR, Clinical Classifications Software Refined; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification
Notes: Diagnosis groups are defined using the CCSR for ICD-10-CM Diagnoses. Conditions were identified using the CCSR default category assignment(s) for the principal diagnosis code of the hospital stay. Total number of visits and aggregate costs are rounded to the nearest thousand. Aggregated costs are rounded to the nearest million. *The CCSR for septicemia includes all sepsis infection codes and does not include the criteria of organ dysfunction.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- Two conditions were in the 20 most expensive conditions for stays with an expected payer of Medicaid (but not for other payers, as shown in Tables 2–5), ordered by aggregate cost: schizophrenia spectrum and other psychotic disorders, and epilepsy; convulsions.
- Four of the 20 most expensive conditions during hospital stays with Medicaid as the expected payer were related to childbirth and pregnancy—more than any clinical category. Ordered by aggregate cost, these conditions were: liveborn, complications specified during childbirth, hypertension and hypertensive-related conditions complicating pregnancy, and previous c-section.

Table 4. The 20 most expensive conditions with an expected payer of private insurance, 2022

Rank	CCSR principal diagnosis category	Aggregate hospital costs, $, in millions	National costs, %	Number of hospital stays, in thousands	Hospital stays, %
1	INF002: Septicemia*	10,788	7.6	435	4.6
2	PNL001: Liveborn	8,445	6.0	1,641	17.4
3	MUS011: Spondylopathies/spondyloarthropathy	4,458	3.1	140	1.5
4	CIR009: Acute myocardial infarction	4,397	3.1	153	1.6
5	INF012: Coronavirus disease 2019 (COVID-19)	3,342	2.4	147	1.6
6	CIR019: Heart failure	2,773	2.0	134	1.4
7	CIR011: Coronary atherosclerosis/oth heart disease	2,448	1.7	76	0.8
8	PRG023: Complications specified during childbirth	2,204	1.6	373	4.0
9	END003: Diabetes mellitus with complication	2,160	1.5	155	1.6
10	CIR020: Cerebral infarction	2,099	1.5	104	1.1
11	PRG020: Hypertension complicating pregnancy/birth	2,077	1.5	265	2.8
12	INJ037: Complic-oth surg/med care, init encounter	2,018	1.4	95	1.0
13	INJ005: Fracture of lower limb, init encounter	1,825	1.3	62	0.7
14	RSP012: Respiratory failure; insufficiency; arrest	1,808	1.3	80	0.9
15	CIR017: Cardiac dysrhythmias	1,805	1.3	114	1.2
16	NEO073: Benign neoplasms	1,751	1.2	82	0.9
17	END009: Obesity	1,748	1.2	119	1.3
18	MAL001: Cardiac and circulatory congenital anomalies	1,696	1.2	20	0.2
19	INJ008: TBI; concussion, init encounter	1,549	1.1	45	0.5
20	PRG016: Previous C-section	1,500	1.1	211	2.2
	Total for top 20 conditions	60,892	43.0	4,449	47.1
	Total for all stays	141,595	100.0	9,447	100.0

Abbreviations: CCSR, Clinical Classifications Software Refined; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Diagnosis groups are defined using the CCSR for ICD-10-CM Diagnoses. Conditions were identified using the CCSR default category assignment(s) for the principal diagnosis code of the hospital stay. Total number of visits and aggregate costs are rounded to the nearest thousand. Aggregated costs are rounded to the nearest million. *The CCSR for septicemia includes all sepsis infection codes and does not include the criteria of organ dysfunction.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- Two conditions were in the 20 most expensive conditions for stays with an expected payer of private insurance (but not for other payers, as shown in Tables 2–5), ordered by aggregate cost: benign neoplasm and obesity.
- Five of the 20 most expensive conditions during hospital stays with private insurance as the expected payer were related to the circulatory system—more than any clinical category. Ordered by aggregate cost, these conditions were: acute myocardial infarction, heart failure, coronary atherosclerosis and other heart disease, cerebral infarction, and cardiac dysrhythmias.

Table 5. The 20 most expensive conditions with an expected payer of self-pay/no charge, 2022

Rank	CCSR principal diagnosis category	Aggregate hospital costs, $, in millions	National costs, %	Number of hospital stays, in thousands	Hospital stays, %
1	INF002: Septicemia*	1,995	11.1	97	7.1
2	CIR009: Acute myocardial infarction	737	4.1	29	2.1
3	PNL001: Liveborn	604	3.4	195	14.2
4	CIR019: Heart failure	523	2.9	37	2.7
5	END003: Diabetes mellitus with complication	515	2.9	46	3.4
6	CIR020: Cerebral infarction	442	2.5	23	1.7
7	INJ005: Fracture of lower limb, init encounter	401	2.2	15	1.1
8	INJ008: TBI; concussion, init encounter	364	2.0	12	0.9
9	INF012: Coronavirus disease 2019 (COVID-19)	336	1.9	18	1.3
10	MBD017: Alcohol-related disorders	300	1.7	37	2.7
11	DIG017: Biliary tract disease	289	1.6	20	1.5
12	INJ010: Internal organ injury, init encounter	285	1.6	10	0.7
13	CIR021: Acute hemorrhagic cerebrovascular disease	279	1.6	7	0.5
14	RSP012: Respiratory failure; insufficiency; arrest	245	1.4	12	0.9
15	DIG020: Pancreatic disorders (excluding diabetes)	241	1.3	24	1.7
16	DIG019: Oth liver disease	230	1.3	14	1.1
17	SKN001: Skin and subcutaneous tissue infections	227	1.3	27	2.0
18	CIR011: Coronary atherosclerosis/oth heart disease	211	1.2	8	0.6
19	INJ022: Poisoning by drugs, init encounter	191	1.1	17	1.2
20	CIR017: Cardiac dysrhythmias	189	1.1	13	1.0
	Total for top 20 conditions	8,602	47.8	662	48.3
	Total for all stays	17,983	100.0	1,370	100.0

Abbreviations: CCSR, Clinical Classifications Software Refined; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification
Notes: Diagnosis groups are defined using the CCSR for ICD-10-CM Diagnoses. Conditions were identified using the CCSR default category assignment(s) for the principal diagnosis code of the hospital stay. Total number of visits and aggregate costs are rounded to the nearest thousand. Aggregated costs are rounded to the nearest million. *The CCSR for septicemia includes all sepsis infection codes and does not include the criteria of organ dysfunction.
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2022

- Six conditions were in the 20 most expensive conditions for self-pay or no charge stays (but not for other payers, as shown in Tables 2–5), ordered by aggregate cost: biliary track disease, internal organ injury, first encounter, acute hemorrhagic cerebrovascular disease, pancreatic disorder (excluding diabetes), skin and subcutaneous tissue infections, and poisoning by drugs.
- Five of the 20 most expensive conditions during hospital stays with self-pay or no charge as the expected payer were related to the circulatory system—more than any clinical category. Ordered by aggregate cost, these conditions were: acute myocardial infarction, heart failure, cerebral infarction, acute hemorrhagic cerebrovascular disease, coronary atherosclerosis and other heart disease, and cardiac dysrhythmias.

References

[1] Martin AB, Hartman M, Washington B, Catlin A, National Health Expenditure Accounts Team. National Health Expenditures In 2023: Faster Growth As Insurance Coverage And Utilization Increased: Article examines National Health Expenditures in 2023. Health Affairs. 2025 Jan 1;44(1):12-22.
[2] Agency for Healthcare Research and Quality. Cost-to-Charge Ratio for Inpatient Files. Healthcare Cost and Utilization Project (HCUP). April 2025. www.hcup-us.ahrq.gov/db/ccr/ip-ccr/ip-ccr.jsp. Accessed May 30, 2005.

Data Source

This Statistical Brief uses data from the HCUP 2022 National Inpatient Sample (NIS). This NIS is based on inpatient records from nonfederal acute care hospitals. Nonfederal acute care hospitals include short-term, general and other specialty hospitals available to the public such as obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Hospital units of other institutions (e.g., prisons) and long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals are excluded from the NIS. However, if a patient received long-term care, rehabilitation, or treatment for psychiatric or chemical dependency in a non-federal acute care hospital, the discharge record for that stay was included in the analysis.

For additional information about the HCUP NIS, please visit: https://hcup-us.ahrq.gov/db/nation/nis/nisdbdocumentation.jsp

Population Studied

All inpatient stays are included in this 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.

Definitions

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).[c] *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. Further information on the Cost-to-Charge Ratio can be found at: https://hcup-us.ahrq.gov/db/ccr/costtocharge.jsp

The National Inpatient Sample (NIS) is missing information on total hospital charges on less than one percent of records (0.8%) for 2022. The missing charges were imputed using the average total hospital charges for the Diagnosis Related Group calculated using the 2022 NIS. The imputation of total hospital charges occurred before the calculation of total hospital costs. The imputation of missing charges and the calculation of hospital costs were performed per discharge before the calculation of average and aggregate hospital costs.

Primary expected payer

To make coding uniform across all HCUP data sources, the primary expected payer 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])

[c] 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.

- *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.

Diagnoses

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

ICD-10-CM Coding System

ICD-10-CM/PCS is the *International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System*. There are over 70,000 ICD-10-CM diagnosis codes. There are over 75,000 ICD-10-PCS procedure codes.

Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses

The CCSR aggregates over 73,000 ICD-10-CM diagnosis codes into 540 clinically meaningful categories. 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. The CCSR for ICD-10-CM diagnoses includes multiple category assignments for some diagnosis codes. The default CCSR category assignments facilitate analyses requiring a mutually exclusive diagnosis categorization scheme by selecting a single CCSR category for each hospital encounter based on clinical coding guidelines, clinical input on the etiology and pathology of diseases, coding input on the use of and ordering of ICD-10-CM codes on a billing record, and standards set by other Federal agencies. For this brief, the principal diagnosis code is assigned to a single default CCSR. For this Statistical Brief, v2024.1 of the CCSR was used. For more information on the CCSR, see https://hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp

About HCUP

The Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project (HCUP) is a family of databases, software tools, and related products developed through a federal-state-industry partnership with state data organizations, hospital associations, and private data organizations from 48 states and the District of Columbia. HCUP includes the near universe of encounter-level inpatient, emergency department, and ambulatory surgery data, regardless of the patient's age, diagnosis, or expected payer, from all nonfederal acute care hospitals in participating states. Produced annually since 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. For more information about HCUP, see: https://hcup-us.ahrq.gov/

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

Alaska Department of Health
Arizona Department of Health Services
Arkansas Department of Health
California Department of Health Care Access and Information (HCAI)
Colorado Hospital Association
Connecticut Hospital Association
Delaware Department of Health and Social Services
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
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 Health Authority
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health

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 Health Authority
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 Office of Shared Administration
Wisconsin Department of Health Services
Wyoming Hospital Association

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For More Information

The HCUP-US website also offers readily available statistics in the form of reports, downloadable tables or interactive data visualizations. Examples include the following:

- AHRQ HCUP Statistical Briefs present simple, descriptive reports on a variety of specific, healthcare related issues
- AHRQ HCUPnet is a free, online query system that provides statistics and data tables based on AHRQ HCUP data
- AHRQ HCUP Summary Trend Tables provide downloadable tables containing State-specific monthly trends in hospital utilization derived from the AHRQ HCUP State Inpatient Databases (SID) and State Emergency Department Databases (SEDD)
- AHRQ HCUP Fast Stats is an online query tool that uses visual displays to compare national or State statistics on a range of healthcare topics
- AHRQ HCUP Methods Series Reports feature a broad array of methodological information on the HCUP databases and software tools
- AHRQ HCUP Topical Reports provide information on various priority populations
- AHRQ HCUP Infographics provide a visual representation of HCUP Statistical Briefs and other data
- AHRQ HCUP Findings-At-A-Glance provide snapshots covering a broad range of issues related to hospital use and costs

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 HCUP 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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