Costs of Emergency Department Visits in the United States, 2017

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Introduction

Emergency department (ED) visits have grown in the United States, with the rate of increase from 1996 to 2013 exceeding that for hospital inpatient care.[1] In 2017, 13.3 percent of the U.S. population incurred at least one expense for an ED visit.[2] Furthermore, more than 50 percent of hospital inpatient stays in 2017 included evidence of ED services prior to admission.[3] Trends in ED volume vary significantly by patient and hospital characteristics, but an examination of nationwide costs by these characteristics has not yet been explored in the literature.[4]

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics on the cost of ED visits in the United States using the 2017 Nationwide Emergency Department Sample (NEDS). Total ED charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS). ED visits include patients treated and released from the ED, as well as those admitted to the same hospital through the ED. Aggregate costs, average costs, and number of ED visits are presented by patient and hospital characteristics. Because of the large sample size of the NEDS data, small differences can be statistically significant. Thus, only percentage differences greater than or equal to 10 percent are discussed in the text.

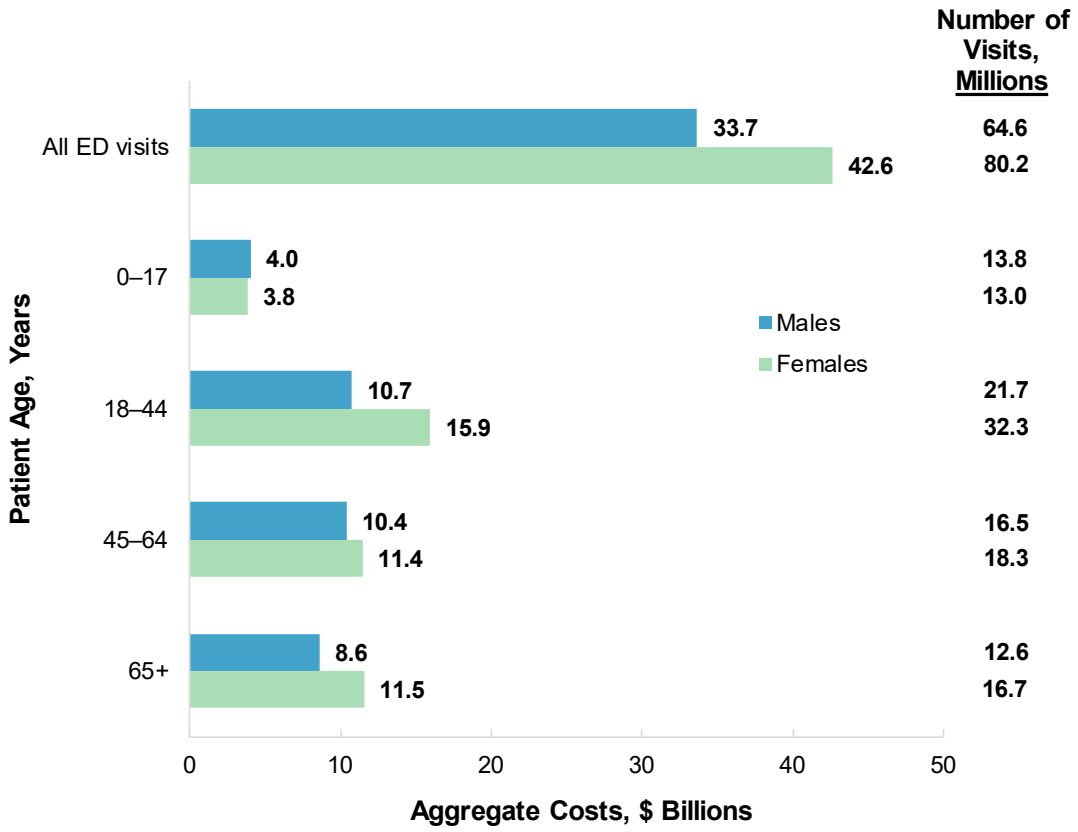
Highlights

- There were 144.8 million total emergency department (ED) visits in 2017 with aggregate ED costs totaling $76.3 billion (B).
- Aggregate ED costs were higher for females ($42.6B, 56 percent) than males ($33.7B, 44 percent); 55 percent of total ED visits were for females.
- Average cost per ED visit increased with age, from $290 for patients aged 17 years and younger to $690 for patients aged 65 years and older.
- As community-level income increased, shares of aggregate ED costs decreased and average cost per visit increased.
- In rural areas, one half of ED visit costs were for patients from the lowest income communities.
- The expected payer with the largest share of aggregate costs was private insurance in large metropolitan areas (31.4 percent of $39.5B) and Medicare in micropolitan (34.0 percent of $7.6B) and rural (37.3 percent of $5.5B) areas.
- Patients aged 18–44 years represented the largest share of aggregate ED costs in large metropolitan, small metropolitan, and micropolitan areas (36.4, 34.2, 32.5 percent, respectively). Patients aged 65 years and older represented the largest share of aggregate ED costs in rural areas (32.5 percent).

Findings

Aggregate costs for emergency department (ED) visits by patient sex and age group, 2017
Figure 1 presents aggregate ED visit costs by patient sex and age group in 2017 as well as number of ED visits. Estimates of aggregate cost use the product of the number of cases and the average estimated cost per visit to account for records with missing ED charge information. Aggregate cost decompositions among different descriptive statistics or using multiple levels of aggregation in a single computation could lead to slightly different total cost estimates due to the use of slightly different and more specific estimates of the missing information.

Figure 1. Aggregate ED visit costs by patient sex and age, 2017



Abbreviation: ED, emergency department

Notes: Statistics for ED visits with missing or invalid patient characteristics are not presented. Patient age and sex were each missing for <0.1% of ED visits. About 13% of all ED visits (weighted) in the 2017 NEDS are missing information about ED charges, from which costs are estimated.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2017

- **Aggregate ED visit costs in 2017 were higher overall for females than for males.**

  Of the $76.3 billion in aggregate ED visit costs in 2017, females accounted for $42.6 billion (55.9 percent) and males accounted for $33.7 billion (44.1 percent). This cost differential was largely driven by a difference in ED visit volume, with females having a larger number of ED visits than males (80.2 vs. 64.6 million visits, or 55.4 vs. 44.6 percent of visits). Females had higher aggregate ED visit costs and more ED visits for all age groups except children. The discrepancy was highest for patients aged 18–44 years, with aggregate ED visit costs for females approximately 50 percent higher than costs for males ($15.9 vs. $10.7 billion), followed by patients aged 65 years and older, for which aggregate ED visit costs were approximately one-third higher for females than for males ($11.5 vs. $8.6 billion).

Costs of ED visits by patient characteristics, 2017

Table 1 presents the aggregate and average costs for ED visits, the number of ED visits, and the distributions of costs and visits, by select patient characteristics in 2017.

Table 1. Aggregate costs, average costs, and number of ED visits by patient characteristics, 2017

Patient characteristic	Aggregate costs		Average cost per visit, $	ED visits	
	$, billion	%		N, million	%
Total	**76.3**	**100.0**	**530**	**144.8**	**100.0**
Age group, years					
0–17	7.9	10.3	290	26.8	18.5
18–44	26.7	35.0	490	54.1	37.3
45–64	21.8	28.6	630	34.7	24.0
65+	20.2	26.4	690	29.2	20.2
Sex					
Female	42.6	55.9	530	80.2	55.4
Male	33.7	44.1	520	64.6	44.6
Primary expected payer					
Medicare	23.0	30.1	660	34.9	24.1
Medicaid	19.1	25.0	420	45.6	31.5
Private insurance	23.1	30.3	560	41.0	28.3
Self-pay/No charge*	8.1	10.6	460	17.5	12.1
Other	2.8	3.7	510	5.5	3.8
Community-level income					
Quartile 1 (lowest)	24.0	31.4	480	49.6	34.3
Quartile 2	20.2	26.5	520	38.8	26.8
Quartile 3	17.2	22.6	560	30.8	21.2
Quartile 4 (highest)	13.8	18.1	600	23.2	16.0
Location of patient's residence					
Large metropolitan	39.5	51.8	540	73.1	50.4
Small metropolitan	23.3	30.6	500	46.2	31.9
Micropolitan	7.6	9.9	510	15.0	10.3
Rural	5.5	7.2	560	9.8	6.8
ED discharge disposition					
Routine discharge	61.6	80.8	530	117.2	80.9
Inpatient admission	7.2	9.4	360	20.2	14.0
Transfer†	4.7	6.2	1,100	4.3	3.0
All other dispositions‡	2.3	3.0	740	3.1	2.1

Abbreviation: ED, emergency department

Notes: Statistics for ED visits with missing or invalid patient characteristics are not presented. Patient age, sex, expected payer, community-level income, and patient location were missing for <0.1%, <0.1%, 0.3%, 1.7%, and 0.5% of ED visits, respectively. About 13% of all ED visits (weighted) in the 2017 NEDS are missing information about ED charges, from which costs are estimated.

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

† Transfers include both transfer to a different short-term hospital and transfer to other facilities such as skilled nursing facilities, intermediate care facilities, and other types of facilities.

‡ All other dispositions include home healthcare, against medical advice, died in the ED, and destination unknown.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2017

- **In 2017, aggregate ED visit costs totaled $76.3 billion across 144.8 million ED visits, with an average cost per visit of $530.**

  Aggregate ED visit costs totaled $76.3 billion in the United States in 2017, encompassing 144.8 million ED visits with an average cost per visit of $530.

  Routine discharge was the most frequent disposition from the ED, representing 80.8 percent of aggregate ED costs and a similar share of ED visits. Transfers represented 6.2 percent of aggregate ED costs but just 3.0 percent of ED visit volume because they had the highest average cost of any discharge disposition at $1,100 per ED visit. In contrast, ED visits resulting in an inpatient admission to the same hospital had the lowest average cost of any discharge disposition at $360 per ED visit and represented 9.4 percent of aggregate ED costs and 14.0 percent of ED visits.

- **The share of aggregate ED visit costs attributed to patients aged 65 years and older was higher than the share of ED visits for this group, and the average cost per visit was highest among patients aged 65 years and older.**

  Aggregate ED visit costs among patients aged 65 years and older totaled $20.2 billion (26.4 percent of the $76.3 billion total for the entire United States in 2017) despite just 29.2 million ED visits from patients in this age group (20.2 percent of the 144.8 million total). Conversely, the share of aggregate ED costs attributed to patients aged 17 years and younger was substantially lower than this group's corresponding share of ED visits (10.3 percent of ED costs vs.18.5 percent of ED visits). This differential is due in part to the difference in average cost per visit, which increased with age. The average cost per visit among patients aged 65 years and older was more than twice as high as average costs among patients aged 17 years and younger ($690 vs. $290 per visit).

- **Medicaid as the primary expected payer had the lowest average cost per ED visit, more than 50 percent lower than average costs for Medicare and one-third lower than for private insurance.**

  Medicaid as the primary expected payer had an average cost per ED visit that was more than 50 percent lower than average costs per visit for Medicare ($420 vs. $660 per visit) and one-third lower than average costs for private insurance ($420 vs. $560 per visit). Due in part to these differences in average costs by expected payer, Medicare represented 30.1 percent of aggregate ED visit costs but 24.1 percent of total ED visits. In contrast, Medicaid represented 25.0 percent of ED costs but 31.5 percent of ED visits.

- **As community-level income increased, the share of aggregate ED visit costs decreased and average cost per ED visit increased.**

  The share of ED visit costs and ED visits decreased as community-level income increased. Patients residing in communities with the lowest income (quartile 1) represented roughly one-third of aggregate ED visit costs and ED visits (31.4 and 34.3 percent, respectively). Patients residing in quartiles 2 and 3 represented approximately one-fourth and one-fifth of aggregate ED visit costs and ED visits, respectively. Patients residing in communities with the highest income (quartile 4) represented less than one-fifth of aggregate ED costs and ED visits (18.1 and 16.0 percent, respectively).

  In contrast, average cost per ED visit increased as community-level income increased, ranging from $480 in communities with the lowest income (quartile 1) to $600 in communities with the highest income (quartile 4).

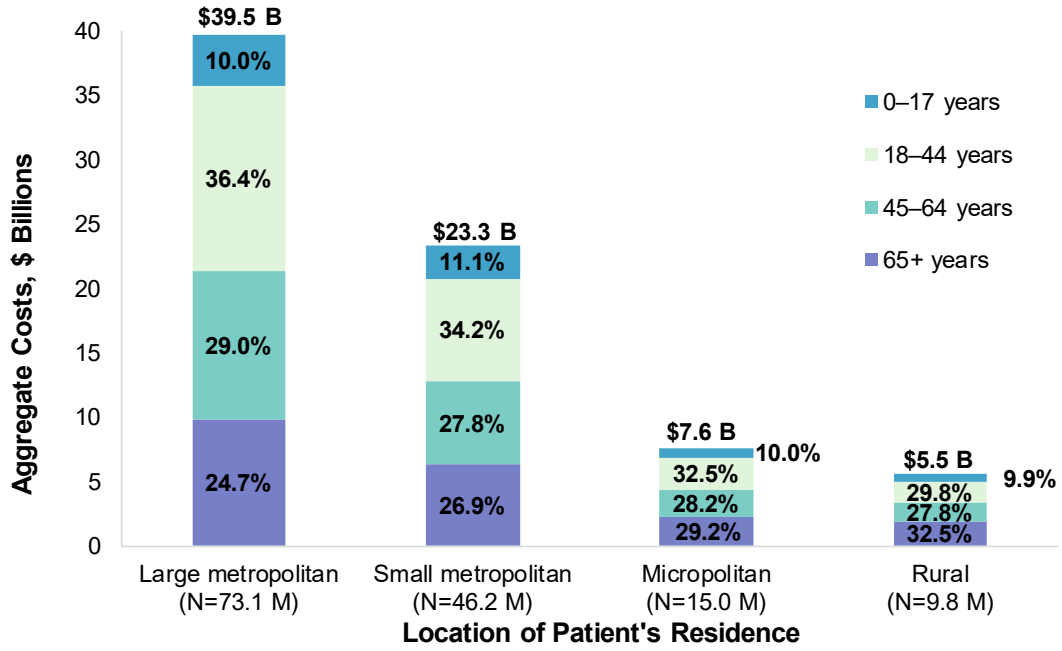
- **The share of aggregate ED visit costs was highest among patients residing in large metropolitan areas.**

  Aggregate ED visit costs for large metropolitan areas totaled $39.5 billion in 2017, more than half of the $76.3 billion in ED costs for the entire United States. The share of aggregate ED costs in large metropolitan areas was analogous to the overall distribution of ED visits in these areas: 51.8 percent of aggregate ED costs and 50.4 percent of ED visits.

Distribution of aggregate ED visit costs for location of patient residence by patient characteristics, 2017
Figures 2–4 present the distribution of aggregate costs for ED visits based on the location of the patient's residence by age (Figure 2), community-level income (Figure 3), and primary expected payer (Figure 4).

Figure 2 presents the distribution of aggregate costs for ED visits by patient age based on the location of the patient's residence in 2017.

Figure 2. Aggregate ED visit costs by age and patient location, 2017



Abbreviations: B, billion; ED, emergency department; M, million

Notes: Statistics for ED visits with missing or invalid patient characteristics are not presented. Patient age and patient location were missing for <0.1% and 0.5% of ED visits, respectively.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2017

- **Patients aged 18–44 years represented the largest share of aggregate ED visit costs in all locations except rural areas where patients aged 65 years and older represented the largest share.**

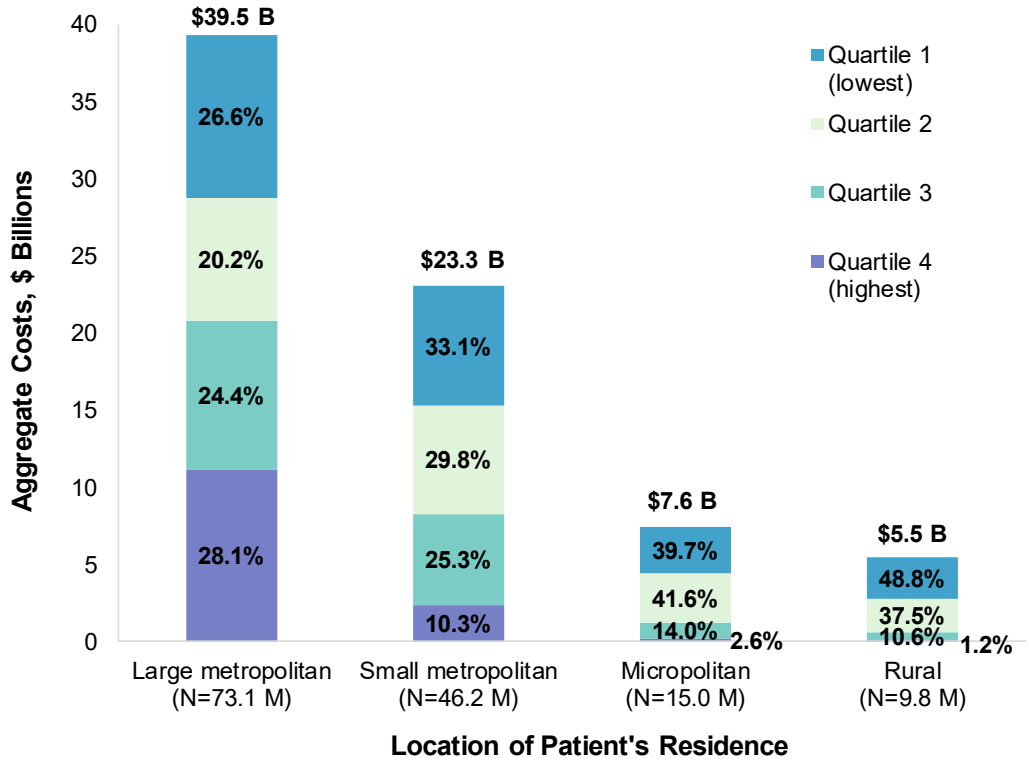
  Compared with other age groups, patients aged 18–44 years represented the largest share of aggregate ED visit costs in large metropolitan areas in 2017 (36.4 percent). The share of ED costs attributed to patients aged 18–44 years also was larger than for other age groups in small metropolitan and micropolitan areas (34.2 and 32.5 percent, respectively). Overall, the share of ED costs attributed to patients aged 18–44 years decreased as urbanization decreased, from 36.4 percent in large metropolitan areas to 29.8 percent in rural areas.

  In rural areas, patients aged 65 years and older accounted for the largest share of aggregate ED visit costs (32.5 percent) compared with other age groups. The share of ED costs attributed to patients aged 65 years and older increased as urbanization decreased, from 24.7 percent in large metropolitan areas to 32.5 percent in rural areas.

  The share of aggregate ED visit costs attributed to patients aged 45–64 years and those aged 17 years and younger were similar across all patient locations (approximately 28 and 10 percent, respectively).

Figure 3 presents the distribution of aggregate costs for ED visits by quartile of community-level household income in the patient's ZIP Code based on the location of the patient's residence in 2017.

Figure 3. Aggregate ED visit costs by community-level income and location of patient's residence, 2017



Abbreviations: B, billion; ED, emergency department; M, million

Notes: Statistics for ED visits with missing or invalid patient characteristics are not presented. Community-level income and patient location were missing for 1.7% and 0.5% of ED visits, respectively. Household income quartiles are defined by the ZIP Code of the patient's residence.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2017

- **In large metropolitan areas, patients residing in communities with the highest and lowest incomes represented the largest shares of aggregate ED visit costs. For other locations, patients in communities with lower incomes represented the largest share of ED costs.**

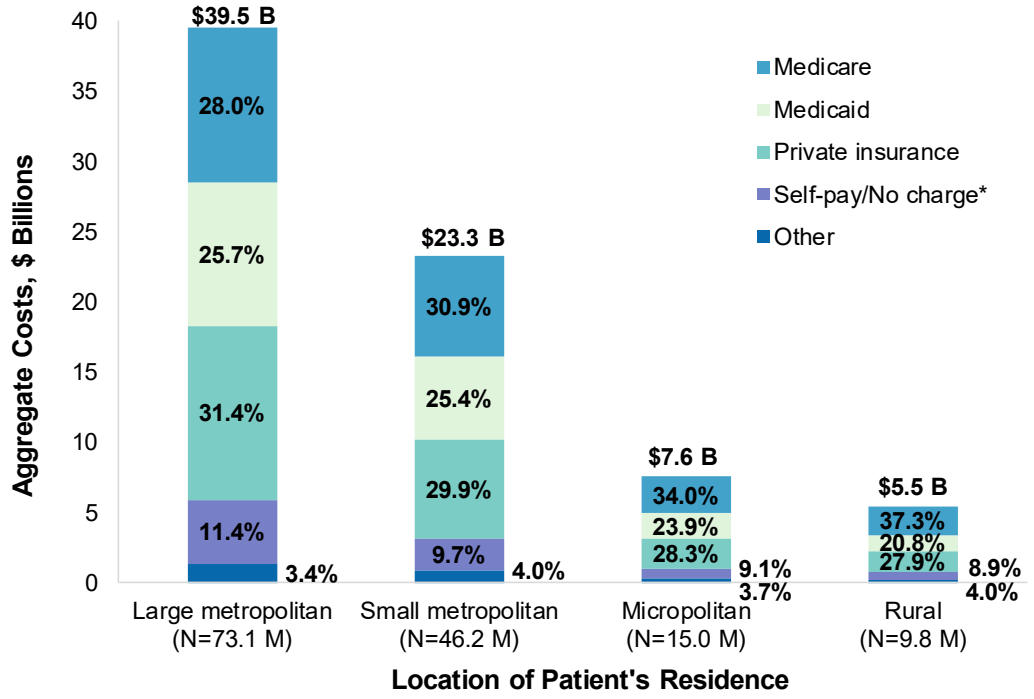
  Patients residing in communities with the highest and lowest incomes (quartiles 4 and 1) accounted for 28.1 and 26.6 percent, respectively, of the $39.5 billion in aggregate ED visit costs in large metropolitan areas in 2017. In contrast, patients residing in communities with the two lowest income quartiles represented the largest share of ED costs for other patient locations (small metropolitan, micropolitan, and rural).

- **As urbanization decreased, the share of aggregate ED visit costs for patients in the lowest income quartile increased and the share for those in the highest income quartile decreased.**

  The share of aggregate ED visit costs attributed to patients residing in communities in the lowest income quartile (quartile 1) increased as urbanization decreased, from 26.6 percent in large metropolitan areas to 48.8 percent in rural areas. In contrast, the share of ED visit costs attributed to patients residing in communities in the highest income quartile (quartile 4) decreased as urbanization decreased, from 28.1 percent in large metropolitan areas to 1.2 percent in rural areas.

Figure 4 presents the distribution of aggregate costs for ED visits by primary expected payer based on the location of the patient's residence in 2017.

Figure 4. Aggregate ED visit costs by primary expected payer and patient location, 2017



Abbreviations: B, billion; ED, emergency department; M, million

Notes: Statistics for ED visits with missing or invalid patient characteristics are not presented. Expected payer and patient location were missing for 0.3% and 0.5% of ED visits, respectively.

* 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), Nationwide Emergency Department Sample (NEDS), 2017

- **Private insurance as the primary expected payer accounted for the largest share of aggregate ED visit costs among patients living in large metropolitan areas. Medicare represented the largest share of ED costs in micropolitan and rural areas.**

  Compared with other primary expected payers, private insurance represented the largest share of aggregate ED visit costs among those living in large metropolitan areas in 2017 (31.4 percent). The share of ED costs attributed to private insurance decreased as urbanization decreased, from 31.4 percent in large metropolitan areas to 27.9 percent in rural areas.

  More than one-third of ED visit costs were attributed to Medicare as the primary expected payer in micropolitan and rural areas. The share of ED costs attributed to Medicare increased as urbanization decreased, from 28.0 percent in large metropolitan areas to 37.3 percent in rural areas.

Costs of ED visits by hospital characteristics, 2017
Table 2 presents the aggregate and average costs for ED visits, the number of ED visits, and the distributions of costs and visits, by select hospital characteristics in 2017.

Table 2. Aggregate costs, average costs, and number of ED visits by hospital characteristics, 2017

Hospital characteristic	Aggregate costs		Average cost per visit, $	ED visits	
	$, billion	%		N, million	%
Total	**76.3**	**100.0**	**530**	**144.8**	**100.0**
Region					
Northeast	14.4	18.8	550	26.2	18.1
Midwest	18.5	24.3	560	33.2	22.9
South	27.5	36.1	480	57.9	40.0
West*	18.0	23.5	650	27.6	19.0
Ownership					
Private, for-profit	8.8	11.5	420	21.2	14.6
Private, nonprofit	55.0	72.0	540	100.9	69.6
Public	12.5	16.4	550	22.8	15.7
Teaching status					
Nonteaching	27.4	36.0	510	54.2	37.4
Teaching	48.9	64.1	540	90.6	62.6
Trauma level designation					
Trauma center level I	13.9	18.3	600	23.2	16.0
Trauma center level II	12.0	15.7	520	23.2	16.0
Trauma center level III	10.2	13.4	530	19.3	13.3
Not a trauma center	40.0	52.5	510	79.2	54.7

Abbreviation: ED, emergency department

* In 2017, about 13% of all ED visits (weighted) in the NEDS are missing information about ED charges; therefore, ED cost cannot be estimated. The missing information is concentrated in the West, where 58.9% of ED visits (weighted) are missing ED charges.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2017

- **Aggregate ED visit costs were highest for hospitals located in the South in 2017.**

  Aggregate ED visit costs in the South were $27.5 billion in 2017 (36.1 percent of the total $76.3 billion for the United States). The share of ED visit volume for the South was even larger (40.0 percent of the 144.8 million total visits).

  The distribution of aggregate ED visit costs across other hospital characteristics largely followed the pattern of the number of ED visits. Aggregate ED costs were highest in private, nonprofit hospitals; teaching hospitals; and hospitals not designated as a trauma center (72.0, 64.1, and 52.5 percent of ED costs, respectively).

  ED visits at private, for-profit hospitals had lower average costs per visit than did visits at either private, nonprofit or public hospitals ($420 vs. $540 and $550 per visit).

References

[1] Dieleman JL, Squires E, Bui AL, Campbell M, Chapin A, Hamavid H, et al. Factors associated with increases in US health care spending, 1996-2013. JAMA. 2017;318(17):1668–78.
[2] Agency for Healthcare Research and Quality. Percent of Population With an Expense by Event Type, United States, 2017. Medical Expenditure Panel Survey. Generated interactively. www.meps.ahrq.gov/mepstrends/hc_use/. Accessed September 11, 2020.
[3] NIS Summary Statistics. HCUP Weighted Summary Statistics Report: NIS 2017 Core File. Healthcare Cost and Utilization Project (HCUP). December 2019. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/db/nation/nis/nissummstats.jsp. Accessed September 4, 2020.
[4] Moore BJ, Stocks C, Owens PL. Trends in Emergency Department Visits, 2006–2014. HCUP Statistical Brief #227. September 2017. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb227-Emergency-Department-Visit-Trends.pdf. Accessed September 4, 2020.

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 upon data from the HCUP 2017 Nationwide Emergency Department Sample (NEDS).

Definitions

Types of hospitals included in the HCUP Nationwide Emergency Department Sample
The Nationwide Emergency Department Sample (NEDS) is based on emergency department (ED) data from community acute care hospitals, which are defined as short-term, non-Federal, general, and other specialty hospitals available to the public. Included among community hospitals are pediatric institutions and hospitals that are part of academic medical centers. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Hospitals included in the NEDS have EDs, and no more than 90 percent of their ED visits result in admission.

Unit of analysis
The unit of analysis is the ED visit, not a person or patient. This means that a person who is seen in the ED multiple times in 1 year will be counted each time as a separate visit in the ED.

Costs and charges
Total ED charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS).[a] *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 cost-to-charge ratio constructed specifically for the hospital ED is used. Hospital charges reflect the amount the hospital billed for the entire ED visit and do not include professional (physician) fees.

Total charges were not available on all NEDS records. About 13 percent of all ED visits (weighted) in the 2017 NEDS were missing information about ED charges, and therefore, ED cost could not be estimated. For ED visits that resulted in admission, 24 percent of records were missing ED charges. For ED visits

[a] The HCUP Cost-to-Charge Ratios (CCRs) for NEDS Files were not publicly available at the time of publication, so an internal version was used in this Statistical Brief.

that did not result in admission, 11 percent of records were missing ED charges. The missing information was concentrated in the West (59 percent of records missing ED charges). For this Statistical Brief, the methodology used for aggregate cost estimation was analogous to what is recommended for the estimation of aggregate charges in the Introduction to the HCUP NEDS documentation.[b] Aggregate costs were estimated as the product of number of visits and average cost per visit in each reporting category. If a stay was missing total charges, average cost was imputed using the average cost for other stays with the same combination of payer characteristics. Therefore, a comparison of aggregate cost estimates across different tables, figures, or characteristics may result in slight discrepancies.

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 ED treatment only in contrast to the NHEA inclusion of inpatient and other outpatient costs associated with 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, 2017 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 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 includes profit for for-profit hospitals or surpluses for nonprofit hospitals.

Location of patients' residence
Place of residence is based on the urban-rural classification scheme for U.S. counties developed by the National Center for Health Statistics (NCHS) and based on the Office of Management and Budget (OMB) definition of a metropolitan service area as including a city and a population of at least 50,000 residents. For this Statistical Brief, we collapsed the NCHS categories into four groups according to the following:

Large Metropolitan:

- Large Central Metropolitan: Counties in a metropolitan area with 1 million or more residents that satisfy at least one of the following criteria: (1) containing the entire population of the largest principal city of the metropolitan statistical area (MSA), (2) having their entire population contained within the largest principal city of the MSA, or (3) containing at least 250,000 residents of any principal city in the MSA
- Large Fringe Metropolitan: Counties in a metropolitan area with 1 million or more residents that do not qualify as large central metropolitan counties

Small Metropolitan:

- Medium Metropolitan: Counties in a metropolitan area of 250,000–999,999 residents

[b] Agency for Healthcare Research and Quality. HCUP Nationwide Emergency Department Sample (NEDS) Database Documentation. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated April 27, 2020. www.hcup-us.ahrq.gov/db/nation/neds/nedsdbdocumentation.jsp. Accessed October 27, 2020.
[c] For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS website. Updated December 17, 2019. www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/. Accessed February 3, 2020.
[d] American Hospital Association. TrendWatch Chartbook, 2019. Table 4.2. Distribution of Inpatient vs. Outpatient Revenues, 1995–2017. www.aha.org/system/files/media/file/2019/11/TrendwatchChartbook-2019-Appendices.pdf. Accessed March 19, 2020.

- Small Metropolitan: Counties in a metropolitan area of 50,000–249,999 residents

Micropolitan:

- Micropolitan: Counties in a nonmetropolitan area of 10,000–49,999 residents

Rural:

- Noncore: Counties in a nonmetropolitan and nonmicropolitan area

Community-level income
Community-level income is based on the median household income of the patient's ZIP Code of residence. Quartiles are defined so that the total U.S. population is evenly distributed. Cut-offs for the quartiles are determined annually using ZIP Code demographic data obtained from Claritas, a vendor that produces population estimates and projections based on data from the U.S. Census Bureau.[e] The value ranges for the income quartiles vary by year. The income quartile is missing for patients who are homeless or foreign.

Expected payer
To make coding uniform across all HCUP data sources, the primary expected payer for the ED visit 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

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

Region
Region is one of the four regions defined by the U.S. Census Bureau:

- Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
- Midwest: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas
- South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas
- West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii

Discharge status
Discharge status reflects the disposition of the patient at discharge from the ED and includes the following categories reported in this Statistical Brief: routine (to home); admitted as an inpatient to the same hospital; transfers (transfer to another short-term hospital; other transfers including skilled nursing facility, intermediate care, and another type of facility such as a nursing home); and all other dispositions (home healthcare; against medical advice [AMA]; died in the ED; or destination unknown).

[e] Claritas. Claritas Demographic Profile by ZIP Code. https://claritas360.claritas.com/mybestsegments/. Accessed February 3, 2020.

Hospital characteristics
Data on hospital ownership and status as a teaching hospital was obtained from the American Hospital Association (AHA) Annual Survey of Hospitals. Hospital ownership/control includes categories for government nonfederal (public), private not-for-profit (voluntary), and private investor-owned (proprietary). Teaching hospital is defined as having a residency program approved by the American Medical Association, being a member of the Council of Teaching Hospitals, or having a ratio of full-time equivalent interns and residents to beds of 0.25 or higher.

Hospital trauma level
Trauma designation for trauma centers treating adults and children were identified through the Trauma Information Exchange Program (TIEP) database, a national inventory of trauma centers in the United States.[f] A trauma center is a hospital that is equipped to provide comprehensive emergency medical services 24 hours a day, 365 days per year to patients with traumatic injuries. In 1976, the American College of Surgeons Committee on Trauma (ACS/COT) defined five levels of trauma centers[g]:

- Level I centers have comprehensive resources, are able to care for the most severely injured, and provide leadership in education and research.
- Level II centers have comprehensive resources and are able to care for the most severely injured, but do not provide leadership in education and research.
- Level III centers provide prompt assessment and resuscitation, emergency surgery, and, if needed, transfer to a level I or II center.
- Level IV/V centers provide trauma support in remote areas in which no higher level of care is available. These centers resuscitate and stabilize patients and arrange transfer to an appropriate trauma facility.

For this Statistical Brief, trauma hospitals were defined as those classified by the ASC/COT as a level I, II, or III trauma center. This is consistent with the classification of trauma centers used in the NEDS. The ACS/COT has a program that verifies hospitals as trauma level I, II, or III.[h] It is important to note that although all level I, II, and III trauma centers offer a high level of trauma care, there may be differences in the specific services and resources offered by hospitals of different levels. Trauma levels IV and V are designated at the State level (and not by ACS/COT) with varying criteria applied across States.

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 and Social Services
Alaska State Hospital and Nursing Home Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human

[f] American Trauma Society. Trauma Information Exchange Program (TIEP). www.amtrauma.org/page/TIEP. Accessed June 11, 2020.
[g] MacKenzie EJ, Hoyt DB, Sacra JC, Jurkovich GJ, Carlini AR, Teitelbaum SD, et al. National inventory of hospital trauma centers. JAMA. 2003;289(12):1515–22.
[h] American College of Surgeons Committee on Trauma, Verification, Review, and Consultation Program for Hospitals. Additional details are available at www.facs.org/quality-programs/trauma/vrc. Accessed July 17, 2020.

Arizona Department of Health Services
Arkansas Department of Health
California Office of Statewide Health Planning and Development
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
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 NEDS

The HCUP Nationwide Emergency Department Sample (NEDS) is a unique and powerful database that yields national estimates of emergency department (ED) visits. The NEDS was constructed using records from both the HCUP State Emergency Department Databases (SEDD) and the State Inpatient Databases (SID). The SEDD capture information on ED visits that do not result in an admission (i.e., patients who were treated in the ED and then released from the ED, or patients who were transferred to another hospital); the SID contain information on patients initially seen in the ED and then admitted to the same hospital. The NEDS was created to enable analyses of ED utilization patterns and support public health professionals, administrators, policymakers, and clinicians in their decision making regarding this critical source of care. The NEDS is produced annually beginning in 2006. Over time, the sampling frame for the NEDS has changed; thus, the number of States contributing to the NEDS varies from year to year. The NEDS is intended for national estimates only; no State-level estimates can be produced. The unweighted sample size for the 2017 NEDS is 33,506,645 (weighted, this represents 144,814,803 ED visits).

For More Information

For other information on emergency department visits, refer to the HCUP Statistical Briefs located at www.hcup-us.ahrq.gov/reports/statbriefs/sb_ed.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at www.hcup-us.ahrq.gov/faststats/landing.jsp for easy access to the latest HCUP-based statistics for healthcare information topics

- HCUPnet, HCUP's interactive query system, at www.hcupnet.ahrq.gov/

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 Nationwide Emergency Department Sample (NEDS), please refer to the following database documentation:

Agency for Healthcare Research and Quality. Overview of the Nationwide Emergency Department Sample (NEDS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated December 2019. www.hcup-us.ahrq.gov/nedsoverview.jsp. Accessed February 3, 2020.

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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 e-mail us at hcup@ahrq.gov or send a letter to the address below:

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