

Most Frequent Reasons for Emergency Department Visits, 2018

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Introduction

Each year, one in five Americans visits the emergency department (ED) at least once.^{1,2} Patients with serious conditions are stabilized in the ED and then admitted to the hospital. However, most patients seen in the ED are treated and then discharged without hospital admission.³ Many of these individuals seek ED care for urgent symptoms, but other treat-and-release ED visits are for nonurgent conditions that may reflect problems with community access to and availability of primary and preventive care, lack of a regular healthcare provider, or limited health insurance coverage.⁴ These types of ED visits, which either are potentially preventable or could be handled in other ambulatory care settings, are concerning because they may result in ED crowding and longer wait times for those who require emergency care.⁴ ED visits also are more costly than other types of outpatient visits.⁵ Understanding the specific diagnoses among patients treated in the ED may be useful for ED resource planning and to inform efforts aimed at optimizing the use of ED services and other types of outpatient care.

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics on the most common reasons for ED visits using weighted estimates from the 2018 Nationwide Emergency Department Sample (NEDS). The most common first-listed or principal diagnoses, organized by body system or condition, are presented for visits that result in discharge from the ED without hospital admission (treat-and-release) and for ED visits that result in admission to the hospital. The most frequent specific first-listed diagnoses among treat-and-release ED visits also are provided overall and by patient sex, age group, and primary expected payer.^a Note that these data reflect a time period prior to the COVID-19 pandemic.

^a For ED visits that are treated and released, the *first-listed diagnosis* represents the condition, symptom, or problem identified in the medical record to be chiefly responsible for the ED services provided. In cases where the first-listed diagnosis is a symptom or problem, a diagnosis has not been established (confirmed) by the provider. Information on the most common diagnoses in 2018 among hospital inpatient stays, which include those that originated in the ED, is provided in HCUP Statistical Brief #277 (www.hcup-us.ahrq.gov/reports/statbriefs/sb277-Top-Reasons-Hospital-Stays-2018.pdf).

Highlights

- In 2018, there were 143.5 million emergency department (ED) visits, representing 439 visits per 1,000 population.
- Fourteen percent of ED visits resulted in hospital admission (61 per 1,000 population). Circulatory and digestive system conditions were the most common reasons for these visits.
- The majority of ED visits (86 percent) resulted in treatment and release (378 per 1,000 population). The two most common general reasons for these visits were (1) injuries and poisonings and (2) symptoms, signs, and abnormal findings.
- The most common specific reasons for treat-and-release ED visits were abdominal pain, acute upper respiratory infection, and nonspecific chest pain.
- Other common specific reasons for treat-and-release ED visits among patient groups included:
 - Open wounds to limbs and to head and neck for males
 - Urinary tract infections, headache, and pregnancy-related nausea and vomiting for females
 - Otitis media, viral infection, and fever for children
 - Dizziness/hallucinations and syncope (fainting) for older adults
 - Teeth and gingiva disorders for patients whose expected payment source was self-pay/no charge.

Findings

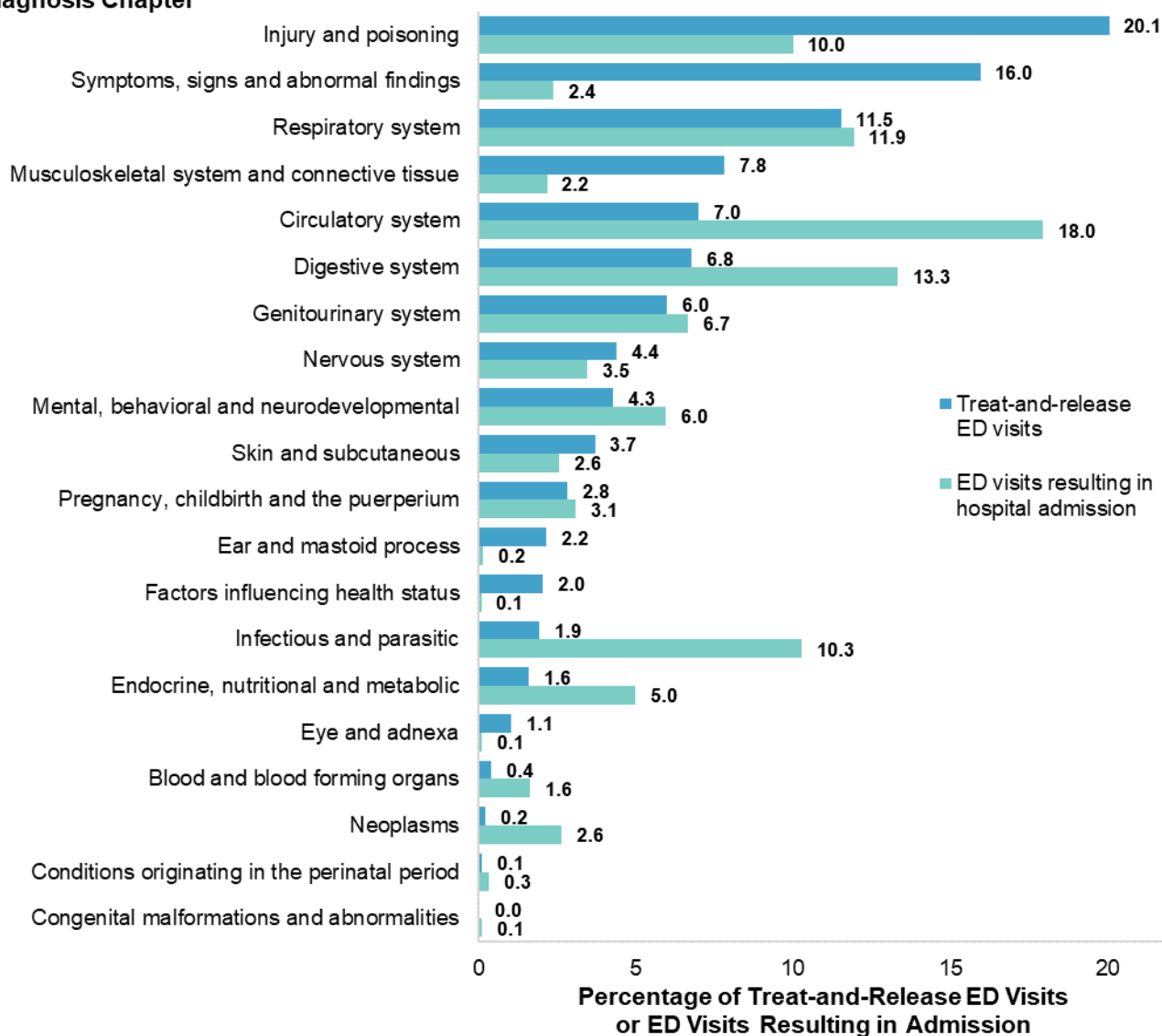
Most frequent reasons for ED visits, 2018

Figure 1 presents the most common general reasons for ED visits by ED visit type in 2018. In particular, the percentage of treat-and-release ED visits with each first-listed diagnosis is presented out of all treat-and-release ED visits (123.4 million visits), and the percentage of ED visits resulting in hospital admission with each principal diagnosis is presented out of all ED visits resulting in hospital admission (20.1 million visits). Diagnoses are classified by body system or condition using chapters from the International Classification of Diseases, Tenth Revision, Clinical Modification. Statistics in the figure are sorted by the most common diagnoses among treat-and-release ED visits.

Figure 1. Percentage of first-listed or principal diagnoses by body system or condition and ED visit type, 2018

ICD-10-CM

Diagnosis Chapter



Abbreviations: ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

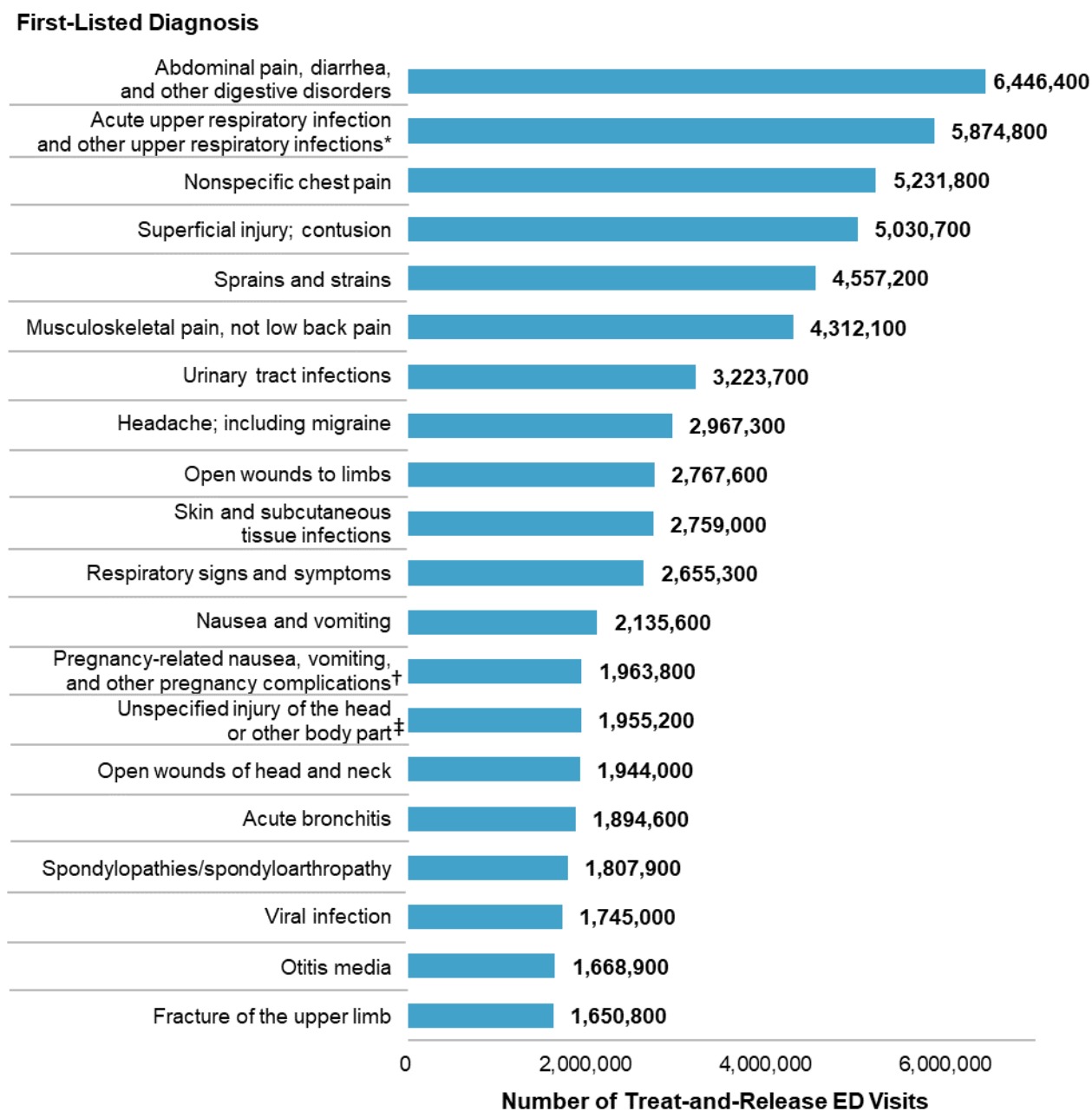
Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

- **Injury- and poisoning-related conditions were the most common among treat-and-release ED visits; circulatory system conditions constituted the most common reason for ED visits resulting in hospital admission.**

The most common diagnoses classified by body system or condition for treat-and-release ED visits were injury- and poisoning-related conditions (20.1 percent); symptoms, signs, and abnormal findings (16.0 percent); and respiratory system conditions (11.5 percent). Among ED visits resulting in hospital admission, the most common diagnoses included conditions related to the circulatory system, digestive system, and respiratory system (18.0, 13.3, and 11.9 percent, respectively).

Figure 2 presents the 20 most common specific first-listed diagnoses among the 123.4 million treat-and-release ED visits in 2018.

Figure 2. Top 20 first-listed diagnoses with the highest number of treat-and-release ED visits, 2018



Abbreviations: ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Diagnoses are grouped using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses (www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp). First-listed diagnosis is assigned to a single default CCSR category. Number of ED visits is rounded to the nearest 100.

* This primarily includes acute upper respiratory infection, acute pharyngitis, and streptococcal pharyngitis as well as other select specified upper respiratory infections.

† This includes mild hyperemesis gravidarum, vomiting of pregnancy, and other select complications in pregnancy.

‡ This primarily includes unspecified injury of the head as well as unspecified injury of other body parts.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

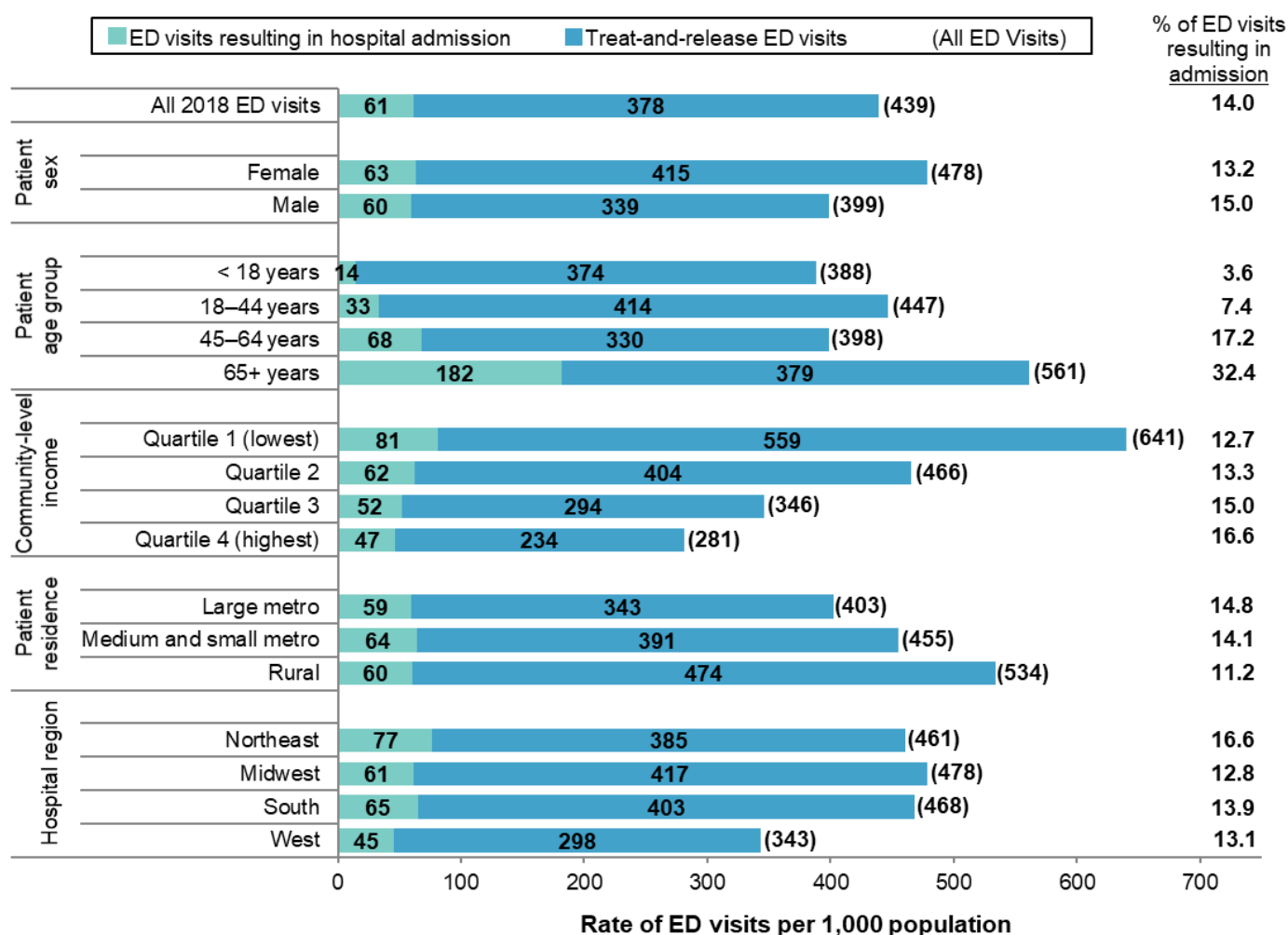
■ **Abdominal pain, diarrhea, and other digestive conditions and acute upper respiratory infections were the most common specific reasons for treat-and-release ED visits.**

The most common specific reasons for treat-and-release ED visits in 2018 were abdominal pain, diarrhea, and other digestive symptoms; acute upper respiratory infections; nonspecific chest pain; and superficial injuries. Six of the 20 most common conditions involved injury—superficial injuries, sprains and strains, open wounds to limbs, unspecified injuries, open wounds of head and neck, and fracture of the upper limb.

Most frequent reasons for treat-and-release ED visits by patient characteristics, 2018

Figure 3 presents the rate of ED visits per 1,000 population in 2018 by select patient characteristics for all ED visits (143.5 million) and subset by treat-and-release ED visits (123.4 million) and ED visits resulting in hospital admission (20.1 million).

Figure 3. Rate per 1,000 population of ED visits by patient characteristics and ED visit type, 2018



Abbreviations: ED, emergency department; metro, metropolitan

Notes: Rate is per 1,000 population with the select patient characteristic. Age, sex, and location of patient residence were each missing for less than 1% of ED visits, and community-level income was missing for less than 2% of ED visits.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

- **The rate of ED visits was more than 400 per 1,000 population; over 85 percent of ED visits involved patients who were treated and released from the ED.**

In 2018, the overall rate of ED visits was 439 per 1,000 population. The rate was more than six times higher for treat-and-release ED visits than for ED visits resulting in hospital admission (378 vs. 61 per 1,000).

- **The highest rates of ED visits were among females, those aged 65 years and older, individuals residing in the lowest income communities or rural areas, and hospitals in regions other than the West.**

Females had a higher rate of ED visits than males (478 vs. 399 per 1,000 population), with the greatest disparity for treat-and-release ED visits (415 vs. 339 per 1,000).

Individuals aged 65 years and older had a higher rate of ED visits than younger age groups (561 vs. 447 or less per 1,000 population), with the greatest disparity for ED visits resulting in hospital admission (182 vs. 68 or less per 1,000).

The rate of ED visits decreased as community-level income increased, from 641 per 1,000 population in the lowest income communities to 281 per 1,000 in the highest income communities. This disparity existed for both treat-and-release ED visits (559 vs. 234 per 1,000 in the lowest vs. highest income communities) and ED visits resulting in hospital admission (81 vs. 47 per 1,000 in the lowest vs. highest income communities).

The rate of ED visits was higher in rural areas than in large metropolitan areas (534 vs. 403 per 1,000 population), with the greatest disparity for treat-and-release ED visits (474 vs. 343 per 1,000).

Hospitals in the West had a lower rate of ED visits than hospitals in other regions (343 vs. 461 or higher per 1,000 population). This disparity existed for both treat-and-release ED visits (298 vs. 385 or higher per 1,000) and ED visits resulting in hospital admission (45 vs. 61 or higher per 1,000).

- **ED visits resulting in hospital admission represented a higher proportion of ED visits among individuals who were older and who resided in higher income or metropolitan areas and among EDs located in the Northeast.**

The rate of treat-and-release ED visits was higher than the rate of ED visits resulting in hospital admission overall and for all subgroups, but ED visits resulting in admission represented a higher proportion of ED visits for:

- Males versus females (15.0 vs. 13.2 percent)
- Older versus younger individuals (32.4 percent for ages 65+ years vs. 3.6 percent for ages 0–17 years)
- Residents of higher versus lower income communities (16.6 percent for the highest income communities vs. 12.7 percent for the lowest income communities)
- Residents in metropolitan versus rural areas (14.8 percent for large metropolitan areas vs. 11.2 percent for rural areas)
- Hospitals located in the Northeast versus other regions (16.6 vs. 13.9 percent or lower)

Table 1 presents the 10 most common specific first-listed diagnoses among treat-and-release ED visits by patient sex in 2018.

Table 1. Top 10 first-listed diagnoses among treat-and-release ED visits by patient sex, 2018

First-listed diagnosis	Males		Females	
	Number	Rank	Number	Rank
Total treat-and-release ED visits	54,546,900	-	68,838,800	-
Acute upper respiratory infection and other upper respiratory infections*	2,640,400	1	3,234,100	2
Superficial injury; contusion	2,383,300	2	2,647,100	5
Nonspecific chest pain	2,324,500	3	2,907,200	3
Abdominal pain, diarrhea, and other digestive symptoms	2,271,800	4	4,174,300	1
Sprains and strains	2,018,100	5	2,538,900	6
Musculoskeletal pain, not low back pain	1,840,700	6	2,471,200	7
Open wounds to limbs	1,684,800	7		
Skin and subcutaneous tissue infections	1,437,500	8		
Respiratory signs and symptoms	1,247,800	9	1,407,400	10
Open wounds of head and neck	1,213,600	10		
Urinary tract infections			2,664,100	4
Headache; including migraine			2,103,200	8
Pregnancy-related nausea, vomiting, and other pregnancy complications†			1,963,800	9

Abbreviations: ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Diagnoses are grouped using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses (www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp). First-listed diagnosis is assigned to a single default CCSR category. Number of ED visits is shown only for the top 10 diagnoses for each sex, and values are rounded to the nearest 100.

* This primarily includes acute upper respiratory infection, acute pharyngitis, and streptococcal pharyngitis as well as other select specified upper respiratory infections.

† This includes mild hyperemesis gravidarum, vomiting of pregnancy, and other select complications in pregnancy.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

- **Acute upper respiratory infection was the most common reason for treat-and-release ED visits among males; abdominal pain, diarrhea, and other digestive symptoms was the most common reason for females.**

Of all treat-and-release ED visits by patient sex, the top 10 reasons accounted for 34.9 percent of visits among males and 37.9 percent of visits among females. Acute upper respiratory infections and nonspecific chest pain were two of the top three reasons for treat-and-release ED visits for both males and females. Superficial injury was also in the top three conditions for males, and abdominal pain was among the top three conditions for females. Three conditions—open wounds to limbs, skin and subcutaneous tissue infections, and open wounds of head and neck—were among the top 10 reasons for treat-and-release ED visits for males but not females, and three conditions—urinary tract infections, headache, and pregnancy-related nausea and vomiting—were among the top 10 reasons for females but not males.

Table 2 presents the 10 most common specific first-listed diagnoses among treat-and-release ED visits by patient age group in 2018.

Table 2. Top 10 first-listed diagnoses among treat-and-release ED visits by patient age group, 2018

First-listed diagnosis	0–17 years		18–64 years		65+ years	
	Number	Rank	Number	Rank	Number	Rank
Total treat-and-release ED visits	27,592,500	-	76,154,000	-	19,644,500	-
Acute upper respiratory infection and other upper respiratory infections*	3,491,100	1	2,188,400	7		
Superficial injury; contusion	1,402,200	2	2,706,400	5	922,000	2
Otitis media	1,320,000	3				
Abdominal pain, diarrhea, and other digestive symptoms	1,076,400	4	4,606,200	1	763,800	5
Viral infection	972,000	5				
Fever	964,300	6				
Open wounds of head and neck	877,000	7				
Sprains and strains	821,600	8	3,298,800	3	436,800	7
Influenza	799,700	9				
Nausea and vomiting	777,200	10				
Nonspecific chest pain			3,912,600	2	1,087,000	1
Musculoskeletal pain, not low back pain			3,036,500	4	791,700	3
Headache; including migraine			2,348,300	6		
Urinary tract infections			2,060,800	8	764,900	4
Skin and subcutaneous tissue infections			1,968,200	9		
Pregnancy-related nausea, vomiting, and other pregnancy complications†			1,907,600	10		
Respiratory signs and symptoms					635,400	6
Open wounds to limbs					407,400	8
Dizziness and hallucinations					393,800	9
Syncope (fainting)					388,000	10

Abbreviations: ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Diagnoses are grouped using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses (www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp). First-listed diagnosis is assigned to a single default CCSR category. Number of ED visits is shown only for the top 10 diagnoses for each age group, and values are rounded to the nearest 100.

* This primarily includes acute upper respiratory infection, acute pharyngitis, and streptococcal pharyngitis as well as other select specified upper respiratory infections.

† This includes mild hyperemesis gravidarum, vomiting of pregnancy, and other select complications in pregnancy.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

■ **The most frequent reason for treat-and-release ED visits varied by patient age: acute upper respiratory infections (ages 0–17 years); abdominal pain, diarrhea, and other digestive symptoms (ages 18–64 years); and nonspecific chest pain (ages 65+ years).**

Of all treat-and-release ED visits by patient age group, the top 10 reasons accounted for 45.3 percent of visits among patients aged 0–17 years, 36.8 percent of visits among patients aged 18–64 years, and 33.6 percent of visits among patients aged 65 years and older. The most common reasons for treat-and-release ED visits differed by age group. Only three conditions—superficial injuries; abdominal pain, diarrhea, and other digestive symptoms; and sprains and strains—were among the top 10 diagnoses for all three age groups. Among children, the three most common conditions were acute upper respiratory infections, superficial injuries, and otitis media (middle ear infection). Among adults aged 18–64 years, the three most common conditions were abdominal pain, diarrhea, and

other digestive symptoms; nonspecific chest pain; and sprains and strains. Among adults aged 65+ years, the three most common conditions were nonspecific chest pain, superficial injuries, and musculoskeletal pain (excluding low back pain).

Several conditions were among the top 10 reasons for only one age group, including otitis media, viral infections, and fever for ages 0–17 years; headache, skin and subcutaneous tissue infections, and pregnancy-related nausea and vomiting for ages 18–64 years; and respiratory signs and symptoms, dizziness and hallucinations, and syncope (fainting) for ages 65+ years.

Table 3 presents the 10 most common specific first-listed diagnoses among treat-and-release ED visits by primary expected payer in 2018.

Table 3. Top 10 first-listed diagnoses among treat-and-release ED visits by primary expected payer, 2018

First-listed diagnosis	Medicare		Private insurance		Medicaid		Self-pay/No charge*	
	Number	Rank	Number	Rank	Number	Rank	Number	Rank
Total treat-and-release ED visits	24,073,000	-	35,544,500	-	42,701,500	-	16,168,800	-
Nonspecific chest pain	1,371,900	1	1,841,700	2	1,228,200	6	622,500	5
Abdominal pain, diarrhea, and other digestive symptoms	1,081,700	2	2,137,400	1	2,219,700	2	823,300	1
Superficial injury; contusion	1,026,600	3	1,433,900	4	1,601,800	3	629,800	4
Musculoskeletal pain, not low back pain	1,025,800	4	1,158,300	6	1,334,200	4	590,600	6
Urinary tract infections	858,100	5	794,600	9	1,025,700	9	463,300	8
Respiratory signs and symptoms	717,100	6	683,200	10				
Sprains and strains	546,900	7	1,637,900	3	1,318,800	5	671,700	3
Skin and subcutaneous tissue infections	458,100	8			1,014,100	10	522,800	7
Open wounds to limbs	447,800	9	901,900	8			426,000	10
Chronic obstructive pulmonary disease and bronchiectasis	442,100	10						
Acute upper respiratory infection and other upper respiratory infections†			1,398,900	5	3,286,000	1	737,600	2
Pregnancy-related nausea, vomiting, and other pregnancy complications‡					1,158,200	7		
Otitis media					1,062,700	8		
Headache; including migraine			1,034,900	7				
Disorders of teeth and gingiva							433,200	9

Abbreviations: ED, emergency department; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification

Notes: Diagnoses are grouped using the Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses (www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccs_refined.jsp). First-listed diagnosis is assigned to a single default CCSR category. Number of ED visits is shown only for the top 10 diagnoses for each payer, and values are rounded to the nearest 100.

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

† This primarily includes acute upper respiratory infection, acute pharyngitis, and streptococcal pharyngitis as well as other select specified upper respiratory infections.

‡ This includes mild hyperemesis gravidarum, vomiting of pregnancy, and other select complications in pregnancy.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2018

- **Abdominal pain, diarrhea, and other digestive symptoms was one of the two most common reasons for treat-and-release ED visits for every primary expected payer.**

Of all treat-and-release ED visits by primary expected payer, the top 10 reasons accounted for 33.1 percent of visits with Medicare, 36.6 percent of visits with private insurance, 35.7 percent of visits with Medicaid, and 36.6 percent of visits expected to be self-pay/no charge. Six conditions were in the top 10 reasons for treat-and-release ED visits for all primary expected payers: nonspecific chest pain; abdominal pain, diarrhea, and other digestive symptoms; superficial injuries; musculoskeletal pain; urinary tract infections; and sprains and strains. Abdominal pain was either the first (for private insurance and self-pay/no charge) or the second (for Medicare and Medicaid) most common condition. Five conditions were among the top 10 reasons for only one payer: chronic obstructive pulmonary disease (Medicare), headache (private insurance), pregnancy-related nausea and vomiting and otitis media (Medicaid), and disorders of teeth and gingiva (self-pay/no charge).

References

¹ National Center for Health Statistics. Table 36: Emergency department visits within the past 12 months among children under age 18, by selected characteristics: United States, selected years 1997–2018. Health, United States, 2019. www.cdc.gov/nchs/data/hus/2019/036-508.pdf. Accessed September 14, 2021.

² National Center for Health Statistics. Table 37: Emergency department visits within the past 12 months among adults aged 18 and over, by selected characteristics: United States, selected years 1997–2018. Health, United States, 2019. www.cdc.gov/nchs/data/hus/2019/037-508.pdf. Accessed September 14, 2021.

³ Sun R, Karaca Z, Wong HS. Trends in Hospital Emergency Department Visits by Age and Payer, 2006–2015. HCUP Statistical Brief #238. March 2018. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb238-Emergency-Department-Age-Payer-2006-2015.pdf. Accessed September 15, 2021.

⁴ Office of the Assistant Secretary for Planning and Evaluation. Report to Congress: Trends in the Utilization of Emergency Department Services, 2009–2018. March 2, 2021. www.aspe.hhs.gov/sites/default/files/private/pdf/265086/ED-report-to-Congress.pdf. Accessed September 15, 2021.

⁵ Ho V, Metcalfe L, Dark C, Vu L, Weber E, Shelton Jr E, et al. Comparing utilization and costs of care in freestanding emergency departments, hospital emergency departments, and urgent care centers. *Annals of Emergency Medicine*. 2017;70(6):846–57.

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 2018 Nationwide Emergency Department Sample (NEDS). Supplemental sources included population denominator data from Claritas, a vendor that produces population estimates and projections based on data from the U.S. Census Bureau.^b

Definitions

Diagnoses, ICD-10-CM, and Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses For emergency department (ED) visits that are treated and released, the *first-listed diagnosis* represents the condition, symptom, or problem identified in the medical record to be chiefly responsible for the ED services provided. In cases where the first-listed diagnosis is a symptom or problem, a diagnosis has not been established (confirmed) by the provider. For ED visits that result in an inpatient admission, the first-listed diagnosis is the *principal diagnosis*, the 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 the ED visit or inpatient admission, that require or affect patient care treatment received or management, or that develop during the inpatient stay. *All-listed diagnoses* include the first-listed (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.

^b Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed January 22, 2021.

The CCSR aggregates ICD-10-CM diagnosis codes into a manageable number of clinically meaningful categories.^c 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 first-listed 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 first-listed diagnosis for outpatient data is available starting with version v2021.1 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/toolsoftware/ccsr/ccs_refined.jsp#download. For this Statistical Brief, v2021.1 of the CCSR was used.

A complete list of the frequencies of treat-and-release ED visits and ED visits resulting in hospital admission by first-listed or principal diagnosis and by CCSR category for the first-listed or principal diagnosis is available in the *Frequencies by Diagnosis and Procedure Codes, NEDS 2016–2019* file, available at www.hcup-us.ahrq.gov/db/nation/neds/nedsdbdocumentation.jsp.

Types of hospitals included in the HCUP Nationwide Emergency Department Sample

The Nationwide Emergency Department Sample (NEDS) is based on 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.

ED visits

ED visits include information on all visits to hospital-owned EDs regardless of whether the patient was treated and released from that ED or admitted to the same hospital from the ED.

Treat-and-release ED visits

Treat-and-release ED visits were defined as those ED visits in which patients were treated and then released from the ED; that is, patients were not admitted to the specific hospital associated with the ED. In 2018, although the vast majority of patients discharged from the ED were discharged home (94.2 percent), a small proportion of patients were transferred to another acute care facility (1.9 percent), were discharged to another type of long-term or intermediate care facility (nursing home or psychiatric treatment facility; 1.7 percent), left against medical advice (1.7 percent), were referred to home healthcare (0.3 percent), died (0.2 percent), or were discharged alive but the destination was unknown (0.1 percent).

ED visits resulting in admission to the same hospital

ED visits resulting in admission to the same hospital included those ED visits in which patients initially seen in the ED were then admitted to the specific hospital associated with that ED.

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.

Population rates

Rates of ED visits per 1,000 population were calculated using 2018 ED visit totals in the numerator and Claritas^d estimates of the 2018 U.S. population in the denominator. Individuals seen in the ED multiple times are counted more than once in the numerator.

^c Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software Refined (CCSR) for ICD-10-CM Diagnoses. Healthcare Cost and Utilization Project (HCUP). Agency for Healthcare Research and Quality. Updated March 2021. www.hcup-us.ahrq.gov/toolsoftware/ccsr/dxcsr.jsp. Accessed June 14, 2021.

^d Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed January 22, 2021.

$$\text{Population rate of ED visits} = \left(\frac{\text{number of ED visits}}{\text{number of U.S. residents}} \right) \times 1,000$$

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:

- 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
- Medium Metropolitan: Counties in a metropolitan area of 250,000–999,999 residents
- Small Metropolitan: Counties in a metropolitan area of 50,000–249,999 residents
- Micropolitan: Counties in a nonmetropolitan area of 10,000–49,999 residents
- Noncore: Counties in a nonmetropolitan and nonmicropolitan area

For this Statistical Brief, we combined the large central and large fringe metropolitan categories (*large metro*), the medium and small metropolitan categories (*medium and small metro*), and the micropolitan and noncore categories (*rural*).

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.

For this Statistical Brief, when more than one payer is listed for an ED visit, the first-listed payer is used.

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

^e Claritas. Claritas Demographic Profile by ZIP Code. <https://claritas360.claritas.com/mybestsegments/>. Accessed January 22, 2021.

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	Nevada Department of Health and Human Services
Alaska State Hospital and Nursing Home Association	New Hampshire Department of Health & Human Services
Arizona Department of Health Services	New Jersey Department of Health
Arkansas Department of Health	New Mexico Department of Health
California Office of Statewide Health Planning and Development	New York State Department of Health
Colorado Hospital Association	North Carolina Department of Health and Human Services
Connecticut Hospital Association	North Dakota (data provided by the Minnesota Hospital Association)
Delaware Division of Public Health	Ohio Hospital Association
District of Columbia Hospital Association	Oklahoma State Department of Health
Florida Agency for Health Care Administration	Oregon Association of Hospitals and Health Systems
Georgia Hospital Association	Oregon Office of Health Analytics
Hawaii Lauima Data Alliance	Pennsylvania Health Care Cost Containment Council
Hawaii University of Hawai'i at Hilo	Rhode Island Department of Health
Illinois Department of Public Health	South Carolina Revenue and Fiscal Affairs Office
Indiana Hospital Association	South Dakota Association of Healthcare Organizations
Iowa Hospital Association	Tennessee Hospital Association
Kansas Hospital Association	Texas Department of State Health Services
Kentucky Cabinet for Health and Family Services	Utah Department of Health
Louisiana Department of Health	Vermont Association of Hospitals and Health Systems
Maine Health Data Organization	Virginia Health Information
Maryland Health Services Cost Review Commission	Washington State Department of Health
Massachusetts Center for Health Information and Analysis	West Virginia Department of Health and Human Resources, West Virginia Health Care Authority
Michigan Health & Hospital Association	Wisconsin Department of Health Services
Minnesota Hospital Association	Wyoming Hospital Association
Mississippi State Department of Health	
Missouri Hospital Industry Data Institute	
Montana Hospital Association	
Nebraska 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 2018 NEDS is 35,807,950 (weighted, this represents 143,454,430 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/
- 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 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 November 2020. www.hcup-us.ahrq.gov/nedsoverview.jsp. Accessed January 22, 2021.

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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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