

STATISTICAL BRIEF #227

September 2017

Trends in Emergency Department Visits, 2006–2014

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Introduction

Over half of the 35.4 million annual inpatient admissions in the United States begin in the emergency department (ED),¹ yet more than 5 times as many ED visits are treated and released² from the ED as are admitted to the same hospital.³ ED visits have outpaced population growth since at least 1993,⁴ but the trend has not been uniform across conditions or patient characteristics.⁵

The ED is a health care setting where patients receive care for a variety of circumstances, including life-threatening emergencies, acute illness and injury, and complications associated with chronic conditions.⁶ EDs also provide care for nonurgent situations, serving as an alternative to primary care. The diversity of clinical reasons for presenting to the ED—and their associated urgency—results in variation in the mix of ED visits based on factors such as geographic location and community socioeconomic characteristics.⁷ ED utilization may also vary over time because of rapid changes in the health care system, insurance coverage, and access to care, although evidence has been mixed.^{8,9}

¹ Calculated from HCUPnet. Healthcare Cost and Utilization Project (HCUP). 2014. Rockville, MD: Agency for Healthcare Research and Quality. www.hcupnet.ahrq.gov/ Accessed March 24, 2017.

² Includes ED visits in which patients were not admitted to the hospital associated with the ED. Patients may have been discharged home, transferred to another acute care facility, left against medical advice, went to another long-term or immediate care facility (nursing home or psychiatric treatment facility), discharged to home health, or died.

³ Weiss AJ, Wier LM, Stocks C, Blanchard J. Overview of Emergency Department Visits in the United States, 2011. HCUP Statistical Brief #174. June 2014. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb174-Emergency-Department-Visits-Overview.pdf.

⁴ National Academies of Sciences, Engineering, and Medicine. 2007. Hospital-Based Emergency Care: At a Breaking Point. Washington, DC: The National Academies Press.

⁵ Skinner HG, Blanchard J, Elixhauser A. Trends in Emergency Department Visits, 2006–2011. HCUP Statistical Brief #179. September 2014. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/reports/statbriefs/sb179-Emergency-Department-Trends.pdf.

⁶ National Academies of Sciences, Engineering, and Medicine, 2007. Op. cit.

⁷ Ibid.

⁸ Miller S. The effect of insurance on emergency room visits: an analysis of the 2006 Massachusetts health reform. *Journal of Public Economics*. December 2012;96(11–12):893–908.

⁹ Ginde AA, Lowe RA, Wiler JL. Health insurance status change and emergency department use among US adults. *Archives of Internal Medicine*. 2012;172(8):642–647.

Highlights

- There were 137.8 million emergency department (ED) visits in 2014, with a rate of 432 per 1,000 population.
- The number of ED visits increased 14.8 percent from 2006 to 2014. Comparing the 2 years, the U.S. population grew 6.9 percent.
- The number of ED visits covered by Medicaid and Medicare increased between 2006 and 2014 (66.4 percent and 28.5 percent, respectively), whereas the number of ED visits covered by private insurance decreased (10.1 percent).
- The rate of ED visits for medical conditions increased 11.7 percent from 2006 to 2014. Diagnoses involving abdominal pain were the most frequent medical diagnoses for ED visits in 2014 (6.0 million visits).
- The rate of injury-related ED visits decreased 12.9 percent from 2006 to 2014. Among injury-related ED visits, sprains and strains were the most frequent first-listed diagnoses in 2014 (5.8 million visits).
- The rate of mental health/substance abuse-related ED visits increased 44.1 percent from 2006 to 2014, with suicidal ideation growing the most (414.6 percent increase in number of visits). Among mental health/substance abuse-related ED visits, alcohol-related disorders were the most frequent diagnoses in 2014 (1.5 million visits).

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents information on ED visits between 2006 and 2014. Population-based ED visit rates in 2006 and 2014 are provided by patient characteristics, whether the ED visit resulted in admission to the same hospital or resulted in the patient being treated and released, and the type of first-listed diagnosis for the ED visit. The first-listed diagnosis for ED visits was grouped into four categories—injury, medical, mental health/substance abuse, and maternal/neonatal. Trends in ED visits by expected payer from 2006 to 2014 are presented along with changes in the distribution of expected payer by type of first-listed diagnosis of the visit. The number of ED visits for the most frequent first-listed diagnoses seen in the ED and the diagnoses with the greatest percent change between 2006 and 2014 are compared. Relative differences in estimates of 10 percent or greater are noted in the text.

Findings

Characteristics of ED visits, 2006 and 2014

Table 1 presents the distribution and rate of ED visits in 2006 and 2014, overall and by select characteristics.

Table 1. ED visits by patient and visit characteristics, 2006 and 2014

Characteristic	All ED visits, %			ED visit rate per 1,000 population		
	2006	2014	Percent change	2006	2014	Percent change
Total ED visits^a	100.0	100.0	n/a	402.3	432.2	7.4
ED visits resulting in admission to the same hospital	15.4	14.1	-8.7	62.1	61.0	-1.9
Treat-and-release ED visits	84.6	85.9	1.6	340.1	371.2	9.1
Age group, years						
0-17	22.0	19.1	-13.4	358.2	357.0	-0.3
18-44	40.4	39.4	-2.7	432.5	469.6	8.6
45-64	20.7	23.5	13.6	330.4	387.9	17.4
65+	16.8	18.1	7.3	543.7	538.3	-1.0
Sex						
Male	45.6	44.5	-2.4	373.2	390.7	4.7
Female	54.4	55.5	2.0	430.3	472.3	9.8
Median income for patient's ZIP Code						
Low (first quartile)	30.5	34.4	13.1	493.5	607.1	23.0
Not low (upper three quartiles)	67.3	63.5	-5.6	360.8	366.1	1.5
Patient residence						
Large central metro	23.5	27.8	18.5	318.9	393.4	23.3
Large fringe metro (suburbs)	24.4	20.2	-17.2	406.4	356.7	-12.2
Medium and small metro	31.8	34.2	7.3	436.4	493.7	13.1
Micropolitan and noncore (rural)	19.7	17.2	-12.6	472.7	512.5	8.4
Region						
Northeast	19.6	18.6	-5.3	431.9	456.1	5.6
Midwest	23.2	22.7	-2.3	421.6	460.8	9.3
South	39.1	40.1	2.7	429.9	461.4	7.3
West	18.1	18.7	2.9	316.5	342.0	8.1

Abbreviations: ED, emergency department; metro, metropolitan

Notes: Percent change is reported based on unrounded values. Population-specific denominators are used to calculate the ED visit rate per 100,000 population (i.e., population rates are specific to the year and subcategory of interest).

^a N=120.0 million in 2006, and N=137.8 million in 2014.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **Overall, the number of ED visits in the United States increased 14.8 percent from 2006 to 2014.**

In 2006, there were 120.0 million ED visits in the United States. By 2014, there were 137.8 million ED visits, an increase of 14.8 percent. During that time period, the U.S. population grew 6.9 percent.¹⁰ The percentage of ED visits resulting in admission to the same hospital was similar in 2006 and 2014 (15.4 and 14.1 percent, respectively).

- **Comparing 2006 and 2014, the percentage of ED visits increased among the following patient subgroups: those aged 45–64 years, those with low income, and those residing in large central metropolitan areas.**

The distribution of ED visits changed for certain patient demographic groups between 2006 and 2014. The percentage of all ED visits for patients aged 45–64 years increased from 20.7 to 23.5 percent. The percentage of all ED visits for patients from low-income areas increased from 30.5 to 34.4 percent. Finally, the percentage of ED visits for patients residing in large central metropolitan areas increased from 23.5 to 27.8 percent.

- **The population rate of ED visits in the United States was 432 visits per 1,000 population in 2014.**

In 2014, the treat-and-release ED visit rate was 371.2 visits per 1,000 population; the ED visit rate for those admitted to the same hospital was 61.0 visits per 1,000 population in 2014. Altogether, the population rate of ED visits in the United States was 432.2 per 1,000 population in 2014.

- **The rate of ED visits was highest for patients aged 65 years and older, but the rate increased the most between 2006 and 2014 for patients aged 45–64 years.**

In both 2006 and 2014, patients aged 65 years and older had the highest rate of ED visits (543.7 and 538.3 per 1,000 population, respectively). However, patients aged 45–64 years had the largest increase in rate of ED visits, from 330.4 visits per 1,000 population in 2006 to 387.9 visits per 1,000 population in 2014—an increase of 17.4 percent.

- **The ED visit rate was higher for females than for males in both 2006 and 2014.**

The ED visit rate for females was 430.3 visits per 1,000 population in 2006 and 472.3 visits per 1,000 population in 2014. The ED visit rate for males was lower than for females in both years: 373.2 visits per 1,000 population in 2006 and 390.7 visits per 1,000 population in 2014.

- **The rate of ED visits for patients living in low-income areas increased from 2006 to 2014 but showed little change for patients living in higher-income areas.**

Among patients living in low-income ZIP Codes (i.e., the lowest quartile), the ED visit rate increased 23.0 percent—from 493.5 visits per 1,000 population in 2006 to 607.1 visits per 1,000 population in 2014. The ED visit rate for patients living in higher-median-income ZIP Codes was 366.1 visits per 1,000 population in 2014, virtually unchanged from 360.8 visits per 1,000 population in 2006.

- **Comparing 2006 and 2014, the ED visit rate increased in large central metropolitan areas and in medium and small metropolitan areas, whereas the rate decreased in suburban areas. ED visit rates were the lowest in the West region.**

The ED visit rate increased 23.3 percent for patients living in large central metropolitan areas and 13.1 percent for patients living in medium and small metropolitan areas between 2006 and 2014. The ED visit rate for patients living in large fringe metropolitan areas (i.e., suburbs) decreased 12.2

¹⁰ Barrett M, McCarty J, Coffey R, Levit K. Population Denominator Data for Use With the HCUP Databases (Updated with 2015 Population Data). HCUP Methods Series Report #2016-04. September 29, 2016. Rockville, MD: Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/reports/methods/2016-04.pdf. Accessed January 31, 2017.

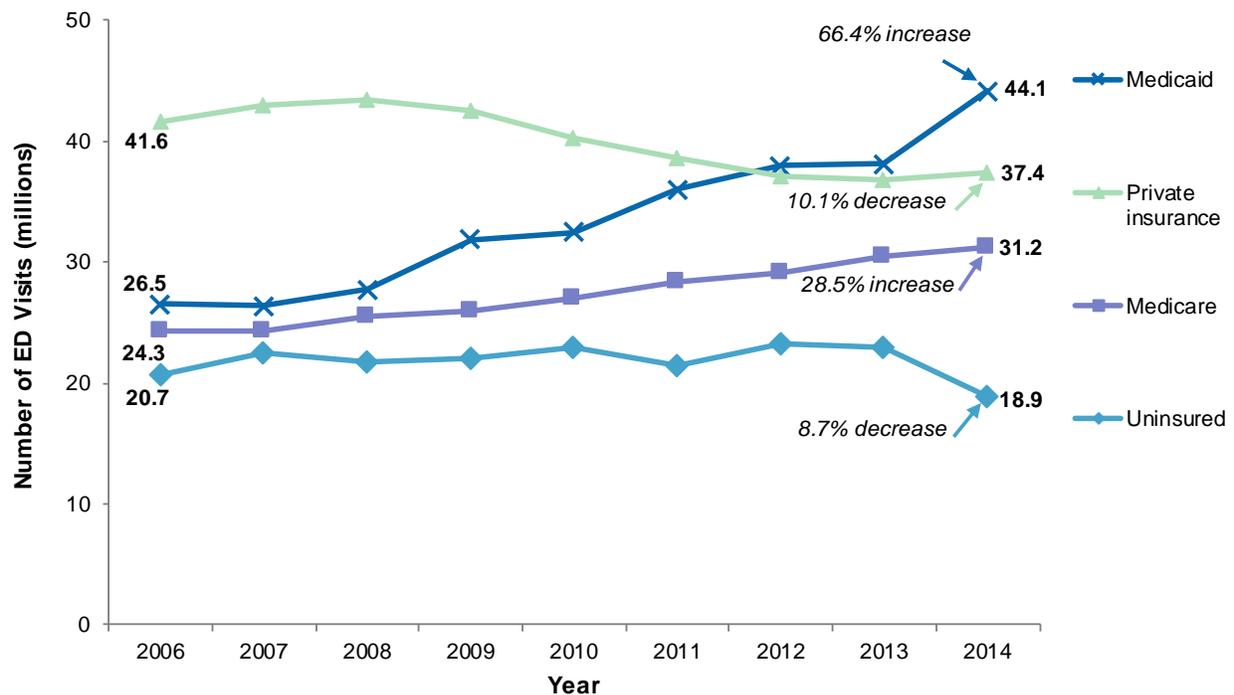
percent from 2006 to 2014. The ED visit rate in both 2006 and 2014 was highest among patients living in micropolitan and noncore areas (i.e., rural areas) (472.7 and 512.5 visits per 1,000 population, respectively).

Although the ED visit rate did not change by 10 percent in any regions between 2006 and 2014, the ED visit rate in the West was lower than in all other regions in both years (West: 316.5 and 342.0 per 1,000 population in 2006 and 2014 versus other regions: 421.6 to 431.9 per 1,000 population in 2006 and 456.1 to 461.4 per 1,000 population in 2014).

ED visits by expected primary payer, 2006–2014

Figure 1 presents the number of ED visits by expected primary payer from 2006 through 2014.

Figure 1. Trends in ED visits by expected primary payer, 2006–2014



Abbreviation: ED, emergency department

Notes: Percent change is reported based on unrounded visit counts. ED visits with an expected primary payer of other or missing are not shown.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006–2014

- **Between 2006 and 2014, the number of ED visits covered by Medicaid and Medicare increased and the number of ED visits covered by private insurance decreased.**

The number of ED visits with an expected primary payer of Medicaid increased 66.4 percent between 2006 and 2014, from 26.5 to 44.1 million visits. During this same time, the number of ED visits with an expected primary payer of Medicare increased 28.5 percent, from 24.3 to 31.2 million visits. In contrast, the number of ED visits with an expected primary payer of private insurance decreased 10.1 percent from 41.6 to 37.4 million visits.

- **In 2006, private insurance was the most frequent payer for ED visits in the United States, but by 2014 Medicaid was the most frequent payer for ED visits.**

In 2006, private insurance was the most frequent expected primary payer of ED visits, with 41.6 million visits—accounting for 35 percent of all ED visits (not shown). By 2014, Medicaid was the

leading expected payer for ED visits, with 44.1 million visits—accounting for 32 percent of all ED visits (not shown).

ED visits by type of first-listed diagnosis, 2006 and 2014

Table 2 presents ED visit rates by type of first-listed diagnosis for ED visits overall and separately for ED visits that resulted in an admission to the same hospital and ED visits that were treated and released in 2006 and 2014.

Table 2. ED visit rates by type of first-listed diagnosis, 2006 and 2014

Type of first-listed diagnosis	Rate of ED visits overall per 1,000 population			Rate of ED visits resulting in an admission per 1,000 population			Rate of ED visits that were treated and released per 1,000 population		
	2006	2014	Percent change	2006	2014	Percent change	2006	2014	Percent change
Injury	93.9	81.8	-12.9	5.3	4.8	-10.1	88.6	77.0	-13.1
Medical	284.2	317.5	11.7	52.0	49.9	-4.0	232.2	267.5	15.2
Mental health/substance abuse	14.1	20.3	44.1	3.4	4.5	31.8	10.6	15.8	48.1
Maternal/neonatal	10.1	12.7	25.3	1.4	1.7	23.4	8.7	11.0	25.6

Abbreviation: ED, emergency department

Note: Percent change is reported based on unrounded rates.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **The overall ED visit rate for injuries decreased from 2006 to 2014, whereas the rate for medical, mental health/substance abuse, and maternal/neonatal visits increased.**

The overall ED visit rate for injuries decreased 12.9 percent between 2006 and 2014, from 93.9 to 81.8 visits per 1,000 population. The ED visit rate for medical diagnoses increased 11.7 percent from 284.2 to 317.5 visits per 1,000 population, the ED visit rate for mental health/substance abuse diagnoses increased 44.1 percent from 14.1 to 20.3 visits per 1,000 population, and the ED visit rate for maternal/neonatal diagnoses increased 25.3 percent from 10.1 to 12.7 visits per 1,000 population.

- **The rate of ED visits resulting in an inpatient admission increased from 2006 to 2014 for mental health/substance abuse and maternal/neonatal visits.**

The ED visit rate among mental health/substance abuse visits that resulted in an admission to the same hospital increased 31.8 percent between 2006 and 2014, from 3.4 to 4.5 visits per 1,000 population. The ED visit rate among maternal/neonatal visits that resulted in an admission increased 23.4 percent from 1.4 to 1.7 visits per 1,000 population.

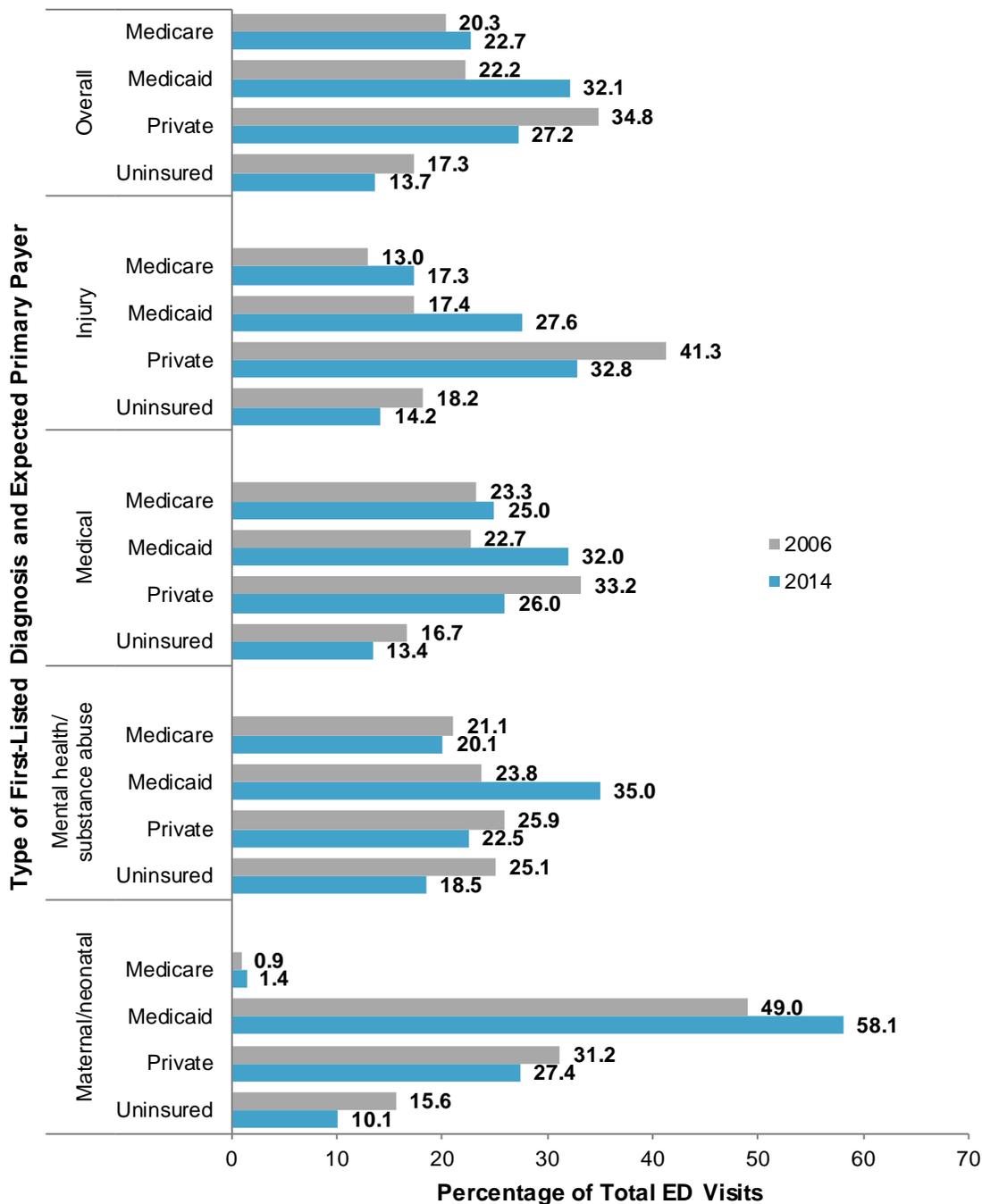
- **The rate of treat-and-release ED visits for injuries decreased from 2006 to 2014, whereas the rate for medical, mental health/substance abuse, and maternal/neonatal treat-and-release ED visits increased.**

The treat-and-release ED visit rate for injuries decreased 13.1 percent between 2006 and 2014, from 88.6 to 77.0 visits per 1,000 population. The treat-and-release ED visit rate increased for medical (15.2 percent), mental health/substance abuse (48.1 percent), and maternal/neonatal (25.6 percent) diagnoses.

ED visits by type of first-listed diagnosis and expected payer, 2006 and 2014

Figure 2 presents the distribution of expected primary payer for ED visits by type of first-listed diagnosis (injury, medical, mental health/substance abuse, and maternal/neonatal) comparing 2006 and 2014.

Figure 2. Distribution of expected primary payer for ED visits by type of first-listed diagnosis, 2006 and 2014



Abbreviation: ED, emergency department

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **For all types of first-listed diagnoses, the percentage of ED visits billed to Medicaid increased and the percentage of visits billed to private insurance and visits for the uninsured decreased between 2006 and 2014.**

Compared with the overall changes in the payer distribution from 2006 to 2014, there was—

- A disproportionate increase in injury-related ED visits billed to Medicare (13.0 to 17.3 percent of injury-related ED visits in 2006 and 2014, respectively) and Medicaid (17.4 to 27.6 percent of injury-related ED visits).
- A disproportionate decrease in the mental health/substance abuse-related ED visits for the uninsured (25.1 to 18.5 percent of mental health/substance abuse-related ED visits in 2006 and 2014, respectively).
- A disproportionate decrease in maternal/neonatal-related ED visits billed to private insurance (31.2 to 27.4 percent of maternal/neonatal-related ED visits in 2006 and 2014, respectively) and for the uninsured (15.6 to 10.1 percent of maternal/neonatal ED visits). There was a smaller increase in maternal/neonatal ED visits billed to Medicaid (49.0 to 58.1 percent of maternal/neonatal ED visits).

Table 3 presents changes in the diagnoses most frequently seen in the ED in 2014 by type of first-listed diagnosis, comparing 2006 and 2014. Values represent national estimates of the number of ED visits in each year.

Table 3. Most frequent first-listed diagnoses for ED visits, 2006 and 2014

Rank	Type of first-listed diagnosis (CCS category)	2006	2014	Percent change
Injury				
1	Sprains and strains	6,363,400	5,755,500	-9.6
2	Superficial injury; contusion	6,134,000	5,495,200	-10.4
3	Open wounds of extremities	3,692,200	2,906,900	-21.3
4	Open wounds of head; neck; and trunk	2,725,300	2,223,300	-18.4
5	Fracture of upper limb	1,977,200	1,757,000	-11.1
Medical				
1	Abdominal pain	4,515,300	5,960,100	32.0
2	Nonspecific chest pain	3,736,500	4,703,000	25.9
3	Spondylosis; intervertebral disc disorders; other back problems	3,331,600	4,158,800	24.8
4	Urinary tract infections	2,672,400	3,455,200	29.3
5	Skin and subcutaneous tissue infections	3,024,900	3,318,300	9.7
Mental health/substance abuse				
1	Alcohol-related disorders	827,100	1,458,100	76.3
2	Mood disorders	1,083,900	1,447,200	33.5
3	Anxiety disorders	769,500	1,055,400	37.2
4	Schizophrenia and other psychotic disorders	497,500	767,100	54.2
5	Substance-related disorders	404,600	702,700	73.7
Maternal/neonatal				
1	Hemorrhage during pregnancy; abruptio placentae; placenta previa	570,000	657,100	15.3
2	Spontaneous abortion	176,900	169,400	-4.2
3	Early or threatened labor	102,500	167,500	63.4
4	Normal pregnancy and/or delivery	66,400	104,100	56.8
5	Hypertension complicating pregnancy; childbirth and the puerperium	31,700	61,700	94.9

Abbreviations: CCS, Clinical Classifications Software; ED, emergency department

Note: Selection of most frequent first-listed diagnoses was based on 2014 estimates.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **Sprains and strains, superficial injury (contusions), and open wounds of extremities were the most frequent first-listed diagnoses for injury-related ED visits in 2014.**

The most common injury-related diagnoses for ED visits in 2014 were sprains and strains, superficial injuries (contusions), and open wounds of extremities. All of the five most frequent injury-related diagnoses for ED visits decreased between 2006 and 2014, ranging from a 9.6 percent decrease for sprains and strains to a 21.3 percent decrease for open wounds of extremities.

- **Abdominal pain, nonspecific chest pain, and spondylosis (back problems) were the most frequent first-listed diagnoses for medical-related ED visits in 2014.**

The most frequent medical diagnoses for ED visits in 2014 were abdominal pain, nonspecific chest pain, and spondylosis (back problems). All of the five most frequent medical diagnoses for ED visits were more frequent in 2014 than in 2006, ranging from a 9.7 percent increase for skin and subcutaneous tissue infections to a 32.0 percent increase for abdominal pain.

- **Alcohol-related disorders, mood disorders, and anxiety disorders were the most frequent first-listed diagnoses for mental health/substance abuse-related ED visits in 2014.**

The most frequent mental health/substance abuse diagnoses for ED visits in 2014 were alcohol-related disorders, mood disorders, and anxiety disorders. All of the five most frequent mental health/substance abuse diagnoses for ED visits increased between 2006 and 2014, ranging from a 33.5 percent increase for mood disorders to a 76.3 percent increase for alcohol-related disorders.

- **Hemorrhage during pregnancy was the most frequent first-listed diagnosis for maternal/neonatal-related ED visits in 2014.**

The most frequent first-listed diagnoses in the maternal/neonatal ED visit category all were related to maternal conditions in 2014. Hemorrhage during pregnancy was the most frequent first-listed diagnosis and was the diagnosis on more ED visits than the remaining four diagnoses combined. Four of the five most frequent maternal/neonatal diagnoses for ED visits increased in frequency between 2006 and 2014, ranging from a 15.3 percent increase for hemorrhage during pregnancy to a 94.9 percent increase for hypertension complicating pregnancy.

Table 4 presents the diagnoses seen in the ED with the greatest percentage increase in frequency between 2006 and 2014.

Table 4. First-listed ED diagnoses with the greatest percentage increase in frequency, 2006 to 2014

Rank	Type of first-listed diagnosis (CCS category)	2006	2014	Percent change
Injury^a				
1	Intracranial injury	572,800	795,000	38.8
2	Poisoning by psychotropic agents	166,900	177,100	6.1
3	Skull and face fractures	292,300	307,500	5.2
4	Fracture of neck of femur (hip)	311,200	321,400	3.3
Medical				
1	Acute post-hemorrhagic anemia	11,100	46,100	314.5
2	Influenza	223,200	782,700	250.7
3	Septicemia (except in labor)	538,000	1,405,500	161.3
4	Lung disease due to external agents	13,700	27,100	98.3
5	Benign neoplasm of uterus	30,200	56,700	87.7
Mental health/substance abuse				
1	Suicidal ideation and intentional self-inflicted injury	43,800	225,600	414.6
2	Personality disorders	14,000	29,700	112.3
3	Disorders usually diagnosed in infancy, childhood, or adolescence (e.g., infantile autism)	10,400	21,800	111.0
4	Alcohol-related disorders	827,100	1,458,100	76.3
5	Substance-related disorders	404,600	702,700	73.7
Maternal/neonatal				
1	Prolonged pregnancy	11,300	30,800	172.6
2	Polyhydramnios and other problems of amniotic cavity	16,800	45,700	172.0
3	Previous C-section	11,900	31,400	163.9
4	Fetal distress and abnormal forces of labor	14,400	29,900	107.6
5	Hypertension complicating pregnancy; childbirth and the puerperium	31,700	61,700	94.6

Abbreviations: CCS, Clinical Classifications Software; C-section, caesarean section; ED, emergency department

Note: Diagnoses without at least 10,000 ED visits in either 2006 or 2014 were excluded.

^a Only four injury diagnoses had increasing visit counts in 2014 compared with 2006.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **From 2006 to 2014, ED visits for intracranial injury (injury-related ED visits), acute post-hemorrhagic anemia (medical-related ED visits), suicidal ideation (mental health/substance abuse-related ED visits), and prolonged pregnancy (maternal/neonatal-related ED visits) increased in frequency more than other conditions.**

Among injury-related ED visits, those for intracranial injuries increased more than any other injury-related condition (38.8 percent) between 2006 and 2014.

Among medically-related ED visits, those for acute post-hemorrhagic anemia increased the most (314.5 percent) between 2006 and 2014, followed by influenza (250.7 percent) and septicemia (161.3 percent).

Comparing 2006 to 2014, ED visits associated with suicidal ideation increased more than any other condition (414.6 percent) across all types of diagnoses. Among other mental health/substance abuse-related ED visits, those for personality disorders and disorders diagnosed in childhood increased more than ED visits for other conditions (112.3 percent and 111.0 percent, respectively).

Among maternal/neonatal-related ED visits, those for prolonged pregnancy increased the most (172.6 percent), followed by polyhydramnios (172.0 percent) and previous C-section (163.9 percent).

Table 5 presents the diagnoses seen in the ED with the greatest percentage decrease in frequency from 2006 to 2014.

Table 5. First-listed ED diagnoses with the greatest percentage decrease in frequency, 2006 to 2014

Rank	Type of first-listed diagnosis (CCS category)	2006	2014	Percent change
Injury				
1	Open wounds of extremities	3,692,200	2,906,900	-21.3
2	Poisoning by other medications and drugs	416,300	339,200	-18.5
3	Open wounds of head; neck; and trunk	2,725,300	2,223,300	-18.4
4	Fracture of upper limb	1,977,200	1,757,000	-11.1
5	Superficial injury; contusion	6,134,000	5,495,200	-10.4
Medical				
1	Coronary atherosclerosis and other heart disease	594,300	392,000	-34.0
2	Coma; stupor; and brain damage	117,500	77,500	-34.0
3	Meningitis (except that caused by tuberculosis or sexually transmitted disease)	49,000	33,500	-31.7
4	HIV infection	75,900	53,100	-30.0
5	Otitis media and related conditions	2,067,700	1,593,000	-23.0
Mental health/substance abuse				
No diagnoses in this category decreased in 2014 compared with 2006				
Maternal/neonatal^a				
1	Contraceptive and procreative management	20,600	4,400	-78.6
2	Spontaneous abortion	176,900	169,400	-4.2

Abbreviations: CCS, Clinical Classifications Software; ED, emergency department; HIV, human immunodeficiency virus

Note: Diagnoses without at least 10,000 ED visits in either 2006 or 2014 were excluded.

^a Only two maternal/neonatal diagnoses had decreasing visit counts in 2014 compared with 2006.

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), Nationwide Emergency Department Sample (NEDS), 2006 and 2014

- **From 2006 to 2014, ED visits for open wound of extremities (injury-related ED visits), several medically-related conditions including coronary atherosclerosis and coma, and contraceptive and procreative management (maternal/neonatal ED visits) decreased by over 20 percent. There were no decreases in ED visits for mental health/substance abuse diagnosis categories.**

Among injury-related ED visits, those for open wound of extremities decreased the most (21.3 percent) between 2006 and 2014, followed by poisoning by other medications and drugs (18.5 percent) and open wounds of head, neck, and trunk (18.4 percent).

Among medically-related ED visits, those for coronary atherosclerosis and coma decreased the most (both 34.0 percent), followed by meningitis (31.7 percent).

There are 15 first-listed diagnoses included in the mental health/substance abuse ED visit category definition. None of them decreased in frequency from 2006 to 2014.

ED visits for contraceptive and procreative management decreased the most among maternal/neonatal-related ED visits (78.6 percent).

About Statistical Briefs

HCUP Statistical Briefs provide basic descriptive statistics on a variety of topics using HCUP administrative health care 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 Healthcare Cost and Utilization Project (HCUP) 2014 Nationwide Emergency Department Sample (NEDS). Historical data were drawn from the 2006–2013 Nationwide Emergency Department Sample (NEDS). Supplemental sources included population denominator data for use with HCUP databases, derived from information available from the U.S. Census Bureau.¹¹ Population denominator data from Claritas, a vendor that compiles and adds value to data from the U.S. Census Bureau, was used for the calculation of rates based on location of patients' residence and community-level income, as no denominator was available from the U.S. Census Bureau for these characteristics.¹²

Definitions

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

The *first-listed diagnosis* is the condition, symptom, or problem identified in the medical record to be chiefly responsible for the emergency department (ED) services provided. For ED visits that result in an inpatient admission to the same hospital, 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.

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

CCS categorizes ICD-9-CM diagnosis codes into a manageable number of clinically meaningful categories.¹³ This clinical grouper makes it easier to quickly understand patterns of diagnoses. CCS categories identified as Other typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses that may be difficult to interpret as a group.

Type of first-listed ED diagnosis

First-listed diagnoses were classified into four types based on ICD-9-CM and CCS categories in Table 6.¹⁴ Each first-listed diagnosis was assigned to a single category, sequentially, in the following order: maternal/neonatal, mental health/substance abuse, injury, and medical.

¹¹ Barrett M, McCarty J, Coffey R, Levit K. Population Denominator Data for Use with the HCUP Databases (Updated with 2015 Population Data). HCUP Methods Series Report #2016-04. September 29, 2016. Rockville, MD: Agency for Healthcare Research and Quality. www.hcup-us.ahrq.gov/reports/methods/2016-04.pdf. Accessed January 31, 2017.

¹² Claritas. Claritas Demographic Profile. www.claritas.com. Accessed February 14, 2017.

¹³ Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software (CCS) for ICD-9-CM. Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated October 2016. www.hcup-us.ahrq.gov/toolsoftware/ccs/ccs.jsp. Accessed February 14, 2017.

¹⁴ ED visit types were adapted from the hospital service line variable used in the HCUP State Inpatient Databases (SID). Diagnosis-related groups (DRGs), which are used to distinguish surgical and medical stays with inpatient data, are not available with ED visit data; all ED visits that did not fall into one of the other ED visit types (maternal/neonatal, mental health/substance abuse, or injury) were categorized as medical. Agency for Healthcare Research and Quality. Central Distributor SID: Description of Data Elements—SERVICELINE. Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated August 2008. www.hcup-us.ahrq.gov/db/vars/siddistnote.jsp?var=service. Accessed February 14, 2017.

Table 6. ICD-9-CM and CCS diagnosis codes for defining type of first-listed diagnosis for ED visits

Type	Definition (defined by CCS or ICD-9-CM codes)
Maternal/ neonatal	CCS 176: Contraceptive and procreative management
	CCS 177: Spontaneous abortion
	CCS 178: Induced abortion
	CCS 179: Postabortion complications
	CCS 180: Ectopic pregnancy
	CCS 181: Other complications of pregnancy
	CCS 182: Hemorrhage during pregnancy; abruptio placenta; placenta previa
	CCS 183: Hypertension complicating pregnancy; childbirth and the puerperium
	CCS 184: Early or threatened labor
	CCS 185: Prolonged pregnancy
	CCS 186: Diabetes or abnormal glucose tolerance complicating pregnancy; childbirth; or the puerperium
	CCS 187: Malposition; malpresentation
	CCS 188: Fetopelvic disproportion; obstruction
	CCS 189: Previous C-section
	CCS 190: Fetal distress and abnormal forces of labor
	CCS 191: Polyhydramnios and other problems of amniotic cavity
	CCS 192: Umbilical cord complication
	CCS 193: OB-related trauma to perineum and vulva
	CCS 194: Forceps delivery
	CCS 195: Other complications of birth; puerperium affecting management of mother
	CCS 196: Normal pregnancy and/or deliver
	CCS 218: Liveborn
	CCS 219: Short gestation; low birth weight; and fetal growth retardation
	CCS 220: Intrauterine hypoxia and birth asphyxia
CCS 221: Respiratory distress syndrome	
CCS 222: Hemolytic jaundice and perinatal jaundice	
CCS 223: Birth trauma	
CCS 224: Other perinatal conditions	

Type	Definition (defined by CCS or ICD-9-CM codes)
Mental health/ substance abuse	CCS 650: Adjustment disorders
	CCS 651: Anxiety disorders
	CCS 652: Attention-deficit, conduct, and disruptive behavior disorders
	CCS 653: Delirium, dementia, and amnesic and other cognitive disorders
	CCS 654: Developmental disorders
	CCS 655: Disorders usually diagnoses in infancy, childhood, or adolescence
	CCS 656: Impulse control disorders, NEC
	CCS 657: Mood disorders
	CCS 658: Personality disorders
	CCS 659: Schizophrenia and other psychotic disorders
	CCS 660: Alcohol-related disorders
	CCS 661: Substance-related disorders
	CCS 662: Suicidal ideation and intentional self-inflicted injury
	CCS 663: Screening and history of mental health and substance abuse codes
	CCS 670: Miscellaneous disorders
Injury	Any ICD-9-CM diagnosis code in the range 800–999 used to identify injuries by Safe States Alliance:
	<i>Included diagnoses:</i>
	800–909.2, 909.4, 909.9: Fractures; dislocations; sprains and strains; intracranial injury; internal injury of thorax, abdomen, and pelvis; open wound of the head, neck, trunk, upper limb, and lower limb; injury to blood vessels; late effects of injury, poisoning, toxic effects, and other external causes, excluding those of complications of surgical and medical care and drugs, medicinal or biological substances
	910–994.9: Superficial injury; contusion; crushing injury; effects of foreign body entering through orifice; burns; injury to nerves and spinal cord; traumatic complications and unspecified injuries; poisoning and toxic effects of substances; other and unspecified effects of external causes
	995.5–995.59: Child maltreatment syndrome.
	995.80–995.85: Adult maltreatment, unspecified; adult physical abuse; adult emotional/psychological abuse; adult sexual abuse; adult neglect (nutritional); other adult abuse and neglect
	<i>Excluded diagnoses:</i>
	909.3, 909.5: Late effect of complications of surgical and medical care and late effects of adverse effects of drug, medicinal, or biological substance
	995.0–995.4, 995.6–995.7, 995.86, 995.89: Other anaphylactic shock; angioneurotic edema; unspecified adverse effect of drug, medicinal and biological substance; allergy, unspecified; shock due to anesthesia; anaphylactic shock due to adverse food reaction; malignant hyperpyrexia or hypothermia due to anesthesia
	996–999: Complications of surgical and medical care, not elsewhere classified
Medical	Any diagnosis not defined as maternal/neonatal, mental health/substance abuse, or injury

Abbreviations: CCS, Clinical Classifications Software; ED, emergency department; ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; NEC, not elsewhere classified; OB, obstetric

Note: The definition of injury includes five diagnosis codes that are also included under two CCS diagnosis categories used for the definition of the mental health/substance abuse category—diagnosis 980.0: toxic effect of ethyl alcohol (CCS 660: Alcohol-related disorders) and diagnoses 965.00: poisoning by opium, 965.01: poisoning by heroin, 965.02: poisoning by methadone, and 965.09: poisoning by other opiate (CCS 661: Substance-related disorders). Because of the hierarchical ordering used to assign ED visits to type of first-listed diagnosis categories, discharges with one of these five principal ICD-9-CM diagnosis codes were assigned to the mental health/substance abuse category and not the injury category.

Types of hospitals included in the HCUP Nationwide Emergency Department Sample

The Nationwide Emergency Department Sample (NEDS) is based on data from community hospitals, which are defined as short-term, non-Federal, general, and other hospitals, excluding hospital units of other institutions (e.g., prisons). The NEDS includes specialty, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Hospitals included in the NEDS have hospital-owned EDs and no more than 90 percent of their ED visits resulting 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 2014, although the majority of patients discharged from the ED were discharged home (94.5 percent), some patients were transferred to another acute care facility (1.7 percent), left against medical advice (1.8 percent), were discharged to another type of long-term or intermediate care facility (nursing home or psychiatric treatment facility; 1.5 percent), were referred to home health care (0.2 percent), died (0.2 percent), or were discharged alive but the destination was unknown (< 0.1 percent).¹⁵

ED visits resulting in admission to the same hospital

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

Unit of analysis

The unit of analysis is the ED encounter, 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 encounter in the ED.

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). For this Statistical Brief, we collapsed the NCHS categories into the following categories:

- Large Central Metropolitan: includes metropolitan areas with 1 million or more residents
- Large Fringe Metropolitan: includes counties of metropolitan areas with 1 million or more residents
- Medium and Small Metropolitan: includes areas with 50,000 to 999,999 residents
- Micropolitan and Noncore: includes nonmetropolitan counties (i.e., counties with no town greater than 50,000 residents).

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 adds value to data from the U.S. Census Bureau.¹⁶ The value ranges for the income quartiles vary by year. Patients in the first quartile are designated as having *low* income, and patients in the upper three quartiles are designated as having *not low* income. The income quartile is missing for patients who are homeless or foreign.

Payer

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

¹⁵ Statistics were obtained from an HCUPnet (www.hcupnet.ahrq.gov) query of discharge status in the 2014 Nationwide Emergency Department Sample (NEDS) among all discharges. Accessed August 31, 2017.

¹⁶ Claritas. Claritas Demographic Profile. www.claritas.com. Accessed February 14, 2017.

- Medicare: includes patients covered by fee-for-service and managed care Medicare
- Medicaid: includes patients covered by fee-for-service and managed care Medicaid
- Private Insurance: includes Blue Cross, commercial carriers, and private health maintenance organizations (HMOs) and preferred provider organizations (PPOs)
- Uninsured: includes an insurance status of *self-pay* and *no charge*
- Other: includes Workers' Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs

Hospital stays billed to the State Children's Health Insurance Program (SCHIP) may be classified as Medicaid, Private Insurance, or Other, depending on the structure of the State program. Because most State data do not identify patients in SCHIP specifically, it is not possible to present this information separately.

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

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

Comparisons

The majority of comparisons are based on 2 years of data, 2006 and 2014. Trends in the number of ED visits by expected primary payer from 2006 through 2014 are presented with the estimates provided for the intervening years.

Percentage change

Percentage change was calculated using the following formula:

$$\text{Percentage change} = \left[\left(\frac{\text{End value}}{\text{Beginning value}} \right) - 1 \right] \times 100.$$

About HCUP

The Healthcare Cost and Utilization Project (HCUP, pronounced "H-Cup") is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP databases bring together the data collection efforts of State data organizations, hospital associations, and private data organizations (HCUP Partners) and the Federal government to create a national information resource of encounter-level health care data. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. These databases enable research on a broad range of health policy issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels.

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

Alaska Department of Health and Social Services
Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services

Arkansas Department of Health
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
District of Columbia Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Louisiana Department of Health
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Center for Health Information and Analysis
Michigan Health & Hospital Association
Minnesota Hospital Association
Mississippi State Department of Health
Missouri Hospital Industry Data Institute
Montana Hospital Association
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health
New Mexico Department of Health
New York State Department of Health
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Oregon Office of Health Analytics
Pennsylvania Health Care Cost Containment Council
Rhode Island Department of Health
South Carolina Revenue and Fiscal Affairs Office
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information
Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health Services
Wyoming Hospital Association

About the NEDS

The HCUP Nationwide Emergency Department Database (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 decisionmaking 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.

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 health 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 2016. www.hcup-us.ahrq.gov/nedsoverview.jsp. Accessed January 5, 2017.

Suggested Citation

Moore BJ (IBM Watson Health), Stocks C (AHRQ), Owens PL (AHRQ). 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

Acknowledgments

The authors would like to acknowledge the contributions of Minya Sheng of IBM Watson Health.

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AHRQ welcomes questions and comments from readers of this publication who are interested in obtaining more information about access, cost, use, financing, and quality of health care in the United States. We also invite you to tell us how you are using this Statistical Brief and other HCUP data and tools, and to share suggestions on how HCUP products might be enhanced to further meet your needs. Please e-mail us at hcup@ahrq.gov or send a letter to the address below:

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This Statistical Brief was posted online on September 12, 2017.