

STATISTICAL BRIEF #220

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Emergency Department Visits Related to Suicidal Ideation, 2006–2013

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If You Know Someone in Crisis

Call the toll-free [National Suicide Prevention Lifeline](tel:1800273TALK)¹ at **1-800-273-TALK (8255)**, 24 hours a day, 7 days a week. The service is available to everyone. All calls are confidential. **You can also visit the Lifeline's website at <http://www.suicidepreventionlifeline.org>**

Introduction

Suicide is a major public health concern that causes immeasurable pain and suffering to individuals, families, and communities nationwide. Suicide is the tenth leading cause of death overall and the second leading cause among Americans aged 10–44 years.² In 2014, the suicide rate reached a 30-year high, accounting for nearly 43,000 deaths.^{3,4}

Suicide is preventable, however. Suicidal thoughts or actions are signs of extreme distress, and require intervention. Emergency departments (EDs) have been identified as an important site of care to identify individuals at risk, to provide timely support and intervention, and to facilitate entry into more intensive treatment, if appropriate.⁵

This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents information on ED visits related to suicidal ideation among adults aged 18 years or older in 2006, 2010, and 2013. Trends in the population-based rate of ED visits related to suicidal ideation are presented overall and by patient and hospital characteristics. Trends in the number of admissions to the same

¹ The service is available to everyone. The National Suicide Prevention Lifeline is funded by the U.S. Department of Health and Human Services Substance Abuse and Mental Health Services Administration (DHHS / SAMHSA).

² Centers for Disease Control and Prevention. 10 Leading Causes of Death by Age Group, United States – 2014. National Center for Injury Prevention and Control. http://www.cdc.gov/injury/images/lc-charts/leading_causes_of_death_age_group_2014_1050w760h.gif. Accessed October 5, 2016.

³ Ibid.

⁴ Tavernise S. U.S. Suicide Rate Surges to a 30-Year High. The New York Times. April 22, 2016.

<http://www.nytimes.com/2016/04/22/health/us-suicide-rate-surges-to-a-30-year-high.html>. Accessed October 16, 2016.

⁵ Office of the Surgeon General (US); National Action Alliance for Suicide Prevention (US). 2012 National Strategy for Suicide Prevention: Goals and Objectives for Action: A Report of the U.S. Surgeon General and of the National Action Alliance for Suicide Prevention. Washington, DC: U.S. Department of Health & Human Services; September 2012.

<http://www.surgeongeneral.gov/library/reports/national-strategy-suicide-prevention/>. Accessed October 31, 2016.

Highlights

- From 2006 to 2013, the rate of ED visits related to suicidal ideation among adults increased by 12 percent on average annually. By 2013, 1 percent of all adult ED visits involved suicidal ideation.
- In 2013, compared with other ED visits, those related to suicidal ideation were more likely to be among patients who were male, aged 18–64 years and uninsured or covered by Medicaid.
- In 2013, most suicidal ideation–related ED visits were admitted to the same hospital or transferred to another facility (72 percent).
- Among admissions to the same hospital, the average length of inpatient stay increased from 5.1 to 5.6 days from 2006 to 2013, and aggregate costs increased four-fold (from \$600 million to \$2.2 billion).
- Among suicidal ideation–related ED visits, 12 percent of patients had a co-occurring injury. Injuries were more common among females than among males.
- Three-quarters of ED visits with suicidal ideation had an associated diagnosis of mood disorders, 43 percent had a substance-related disorder, and 30 percent had an alcohol-related disorder.

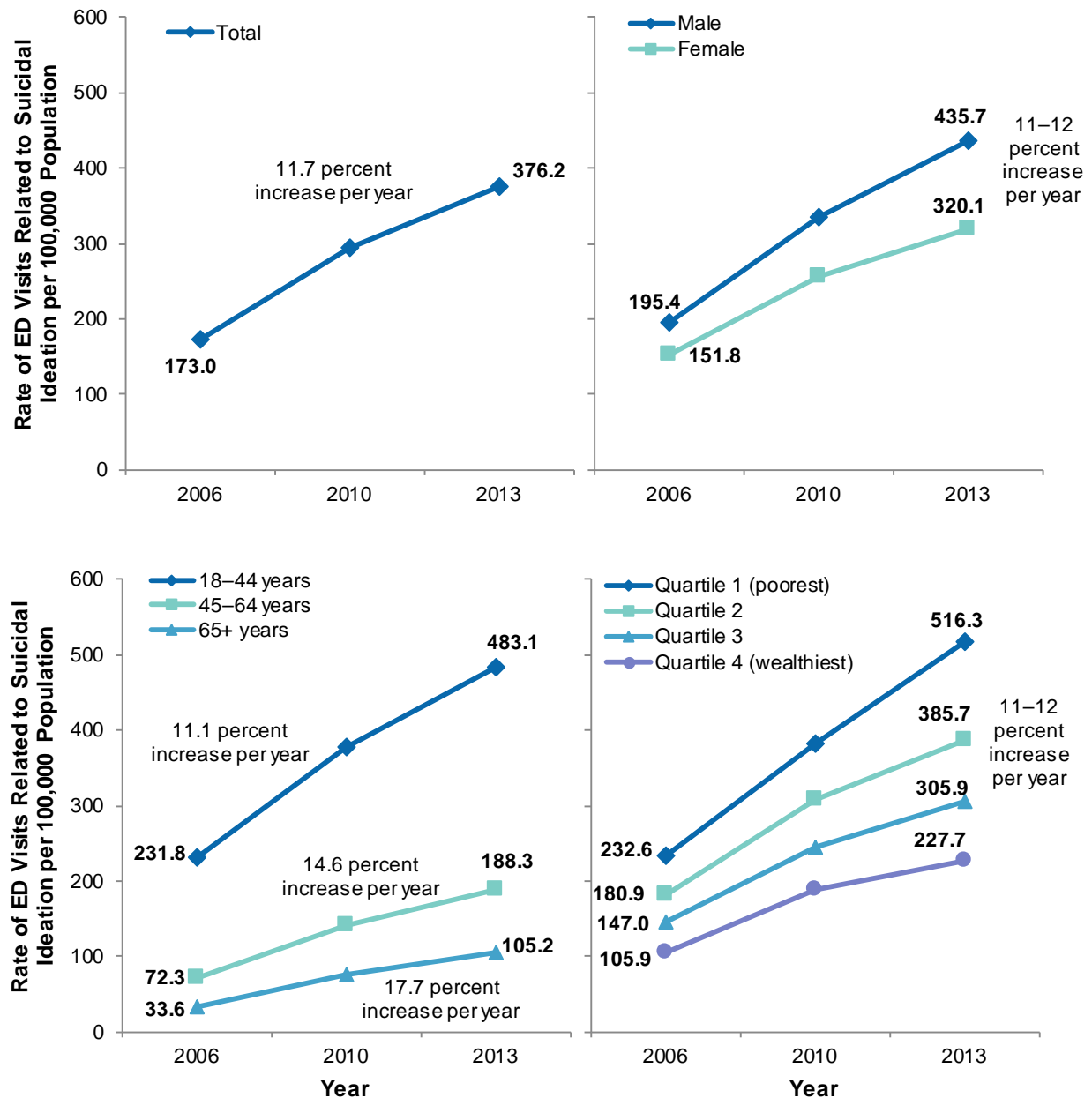
hospital are examined over time, as well as the cost and length of these inpatient stays. ED visits related to suicidal ideation are then compared with all other adult ED visits in 2013, including overall visits, and by patient characteristics, expected payer, and disposition status. Finally, co-occurring injuries and mental and substance use disorders for patients with ED visits related to suicidal ideation in 2013 are presented. Differences greater than 10 percent are noted in the text.

Findings

Trends in ED visits related to suicidal ideation, 2006–2013

Figure 1 presents population-based rates of ED visits related to suicidal ideation by patient characteristics, including sex, age, and community-level income based on the patient's ZIP Code of residence.

Figure 1. Population-based rates of ED visits related to suicidal ideation among adults: overall and by sex, age, and community-level income, 2006–2013



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, 2010, and 2013

- **From 2006 to 2013, the population-based rate of ED visits related to suicidal ideation among adults increased by 12 percent on average annually, more than doubling over the 7-year period. By 2013, these visits constituted nearly 1 percent of all adult ED visits.**

In 2006, adult ED visits related to suicidal ideation were only 0.4 percent of all ED visits among adults (388,100 of 93.6 million visits). By 2013, these visits were nearly 1 percent of all adult ED visits (903,400 of 108.3 million visits). From 2006 to 2013, the rate of ED visits related to suicidal ideation rose from 173.0 to 376.2 visits per 100,000 population aged 18 years or older, an increase of 11.7 percent on average annually—more than doubling over the 7-year period.

The rate of ED visits related to suicidal ideation was higher among males than among females, among younger than among older adults, and among patients residing in the poorest areas than among those residing in higher income areas. From 2006 to 2013, the relative increase in the rate of ED visits related to suicidal ideation was approximately 11–12 percent across sex and community-level income, but the rate of change was faster among adults aged 65 years and older (17.7 percent average annual increase) compared with those aged 45–64 years (14.6 percent average annual increase) and those aged 18–44 years (11.1 percent average annual increase). Other differences across more detailed categories of patient and hospital characteristics are discussed in Table 1.

Table 1 presents the detailed population-based rates of ED visits related to suicidal ideation by patient and hospital characteristics in 2006, 2010, and 2013. The average annual percent change in population-based rates from 2006 to 2013 is also provided.

Table 1. Population-based rates of ED visits related to suicidal ideation among adults by patient and hospital characteristics, 2006–2013

Characteristic	2006	2010	2013	Average annual percent change, 2006–2013
Total ED visits related to suicidal ideation				
N	388,100	690,200	903,400	N/A
% of all ED visits	0.4	0.7	0.8	
Rate per 100,000 population	173.0	294.9	376.2	11.7
Sex age, rate per 100,000 population				
Male	195.4	334.7	435.7	12.1
18–24 years	206.4	383.4	486.5	13.0
25–44 years	266.1	409.7	546.2	10.8
45–64 years	177.2	344.8	451.8	14.3
65–84 years	37.6	84.3	118.5	17.8
85+ years	41.0	91.2	130.7	18.0
Female	151.8	257.1	320.1	11.2
18–24 years	216.2	387.8	485.3	12.2
25–44 years	212.0	340.3	417.6	10.2
45–64 years	131.6	234.4	299.4	12.5
65–84 years	31.7	71.9	96.7	17.3
85+ years	24.3	54.8	79.9	18.5
Community-level income based on ZIP Code, rate per 100,000 population				
Quartile 1 (poorest)	232.6	383.2	516.3	12.1
Quartile 2	180.9	308.2	385.7	11.4
Quartile 3	147.0	243.9	305.9	11.0
Quartile 4 (wealthiest)	105.9	187.8	227.7	11.6
Region (hospital location), rate per 100,000 population				
Northeast	200.9	317.0	364.2	8.9
Midwest	172.1	331.1	451.3	14.8
South	198.0	304.3	393.2	10.3
West	111.0	228.9	289.1	14.7

Abbreviations: ED, emergency department; N/A, not applicable

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, 2010, and 2013

- **Regardless of time period, the population-based rate of ED visits varied by sex and age.**

In 2013, males aged 25–44 years had the highest rate of ED visits related to suicidal ideation (546.2 per 100,000 population), followed by adults aged 18–24 years (approximately 486 per 100,000 among both males and females), males aged 45–64 years (451.8 per 100,000), and females aged 25–44 years (417.6 per 100,000). Females aged 65–84 and 85+ years had the lowest population-based rate of ED visits related to suicidal ideation (96.7 and 79.9 per 100,000, respectively). In 2013, males had a higher rate of ED visits related to suicidal ideation than females in all age categories except 18–24 years.

- **From 2006 to 2013, the population-based rate of ED visits related to suicidal ideation increased among all sex/age subgroups, with the largest increase among older adults.**

Although suicidal ideation–related ED visits were less common among older than among younger adults from 2006 to 2013, the rate of these visits increased by at least 17.3 percent on average annually among adults aged 65 years or older. In contrast, the rate of these visits among younger adults increased 10–14 percent on average over the same period of time.

- **The difference in the population-based rate of ED visits related to suicidal ideation between patients who resided in the poorest areas and those who resided in the wealthiest areas was more than two-fold and increased between 2006 and 2013.**

In 2006, the rate of suicidal ideation–related ED visits was over 2 times higher for patients who resided in the poorest areas (232.6 per 100,000 population in quartile 1) compared with those who resided in the wealthiest areas (105.9 per 100,000 population in quartile 4). In 2013, this two-fold gap continued—the rate in the poorest areas was 516.3, over twice as high as the rate in the wealthiest areas (227.7). Between 2006 and 2013, the rate increased in each income quartile (by 11–12 percent on average annually).

- **From 2006 to 2013, the population-based rate of ED visits related to suicidal ideation increased by nearly 15 percent among hospitals in the Midwest and West.**

In 2006, the rate of suicidal ideation–related ED visits was lower in the Midwest (172.1 per 100,000 population) and the West (111.0), compared with the Northeast and the South (approximately 200 ED visits per 100,000 population). However, the rate of these visits increased by nearly 15 percent on average annually in the Midwest and the West from 2006 to 2013, such that by 2013 the Midwest had a higher rate (451.3) than any other region. Despite the increase, the rate remained lowest in the West (289.1). In contrast, the rate increased by 8.9 percent in the Northeast and 10.3 percent in the South.

Table 2 presents the number and percentage of ED visits related to suicidal ideation that resulted in admission to the same hospital or transfer to another hospital or facility from 2006 to 2013. The average length of the inpatient stay and aggregate and average costs are shown for those visits that resulted in admission to the same hospital. Costs include those incurred in the ED combined with those incurred during inpatient care. The average annual percent change from 2006 to 2013 also is presented. ED visits unrelated to suicidal ideation are presented for comparison.

Table 2. Trends in inpatient admissions and transfers among ED visits related and unrelated to suicidal ideation among adults, 2006–2013

Variable	2006	2010	2013	Average Annual Percentage Change, 2006–2013
ED visits related to suicidal ideation, N	388,100	690,200	903,400	12.8
Transferred to other hospital or facility or admitted to the same hospital				
N	258,900	485,700	649,000	14.0
%	66.7	70.4	71.8	1.1
Transferred to other hospital or facility				
N	128,400	210,200	276,500	11.6
%	33.1	30.5	30.6	-1.1
Admitted to same hospital				
N	130,500	275,500	372,400	16.2
%	33.6	39.9	41.2	3.0
Average length of inpatient stay, days	5.1	5.8	5.6	1.5
ED and inpatient costs combined				
Aggregate cost in millions, \$	600	1,700	2,200	20.4
Average cost per stay, \$	5,000	6,200	6,000	2.6
Average cost per day, \$	1,200	1,300	1,200	0.0
All other ED visits, N	93,218,400	102,760,100	107,363,200	2.0
Transferred to other hospital or facility or admitted to the same hospital				
N	19,555,700	21,028,200	20,797,300	0.9
%	21.0	20.4	19.4	-1.1
Transferred to other hospital or facility				
N	2,309,100	2,584,900	2,858,000	3.1
%	2.5	2.5	2.7	1.0
Admitted to same hospital				
N	17,246,600	18,443,400	17,939,300	0.6
%	18.5	17.9	16.7	-1.4
Average length of inpatient stay, days	5.0	4.9	4.9	-0.5
ED and inpatient costs combined				
Aggregate cost in millions, \$	184,000	195,900	195,800	0.9
Average cost per stay, \$	10,700	10,800	11,100	0.5
Average cost per day, \$	2,400	2,600	2,700	1.7

Abbreviation: ED, emergency department; N, number

Notes: Inflation-adjusted costs are presented in 2013 dollars. Length of stay and cost of the inpatient stay are presented for ED visits resulting in admission to the same hospital and do not include those that were transferred to another hospital or facility.

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, 2010, and 2013

- **In 2013, over 70 percent of ED visits related to suicidal ideation resulted in admission to the same hospital or transfer to another hospital or facility, whereas only 19 percent of all other ED visits resulted in admission or transfer.**

Throughout the 7-year time period, the percentage of ED visits related to suicidal ideation that resulted in admission to the same hospital or transfer to another hospital or facility was 3–4 times greater than the percentage of other ED visits that resulted in admission or transfer. In 2013, 71.8 percent of ED visits related to suicidal ideation resulted in admission or transfer compared with 19.4 percent of all other ED visits.

From 2006 to 2013, the percentage of suicidal ideation–related ED visits that were admitted to the same hospital increased from 33.6 to 41.2 percent (a 3.0 percent average annual increase). In comparison, the percentage of ED visits unrelated to suicidal ideation that were admitted to the same hospital from 2006 to 2013 remained relatively stable at around 17–18 percent.

The percentage of ED visits that resulted in transfer to another hospital or facility remained relatively stable from 2006 to 2013 (for both visits related and unrelated to suicidal ideation).

- **Among suicidal ideation–related ED visits that resulted in inpatient admission, the aggregate cost of ED and inpatient care increased by 20 percent annually on average from 2006 to 2013.**

From 2006 to 2013, aggregate ED plus inpatient costs of ED visits related to suicidal ideation that resulted in admission to the same hospital increased from \$600 million to \$2.2 billion—an average annual increase of 20.4 percent. Aggregate costs of these ED visits rose faster than the actual number of visits, which increased by only 16.2 percent on average annually from 2006 to 2013.

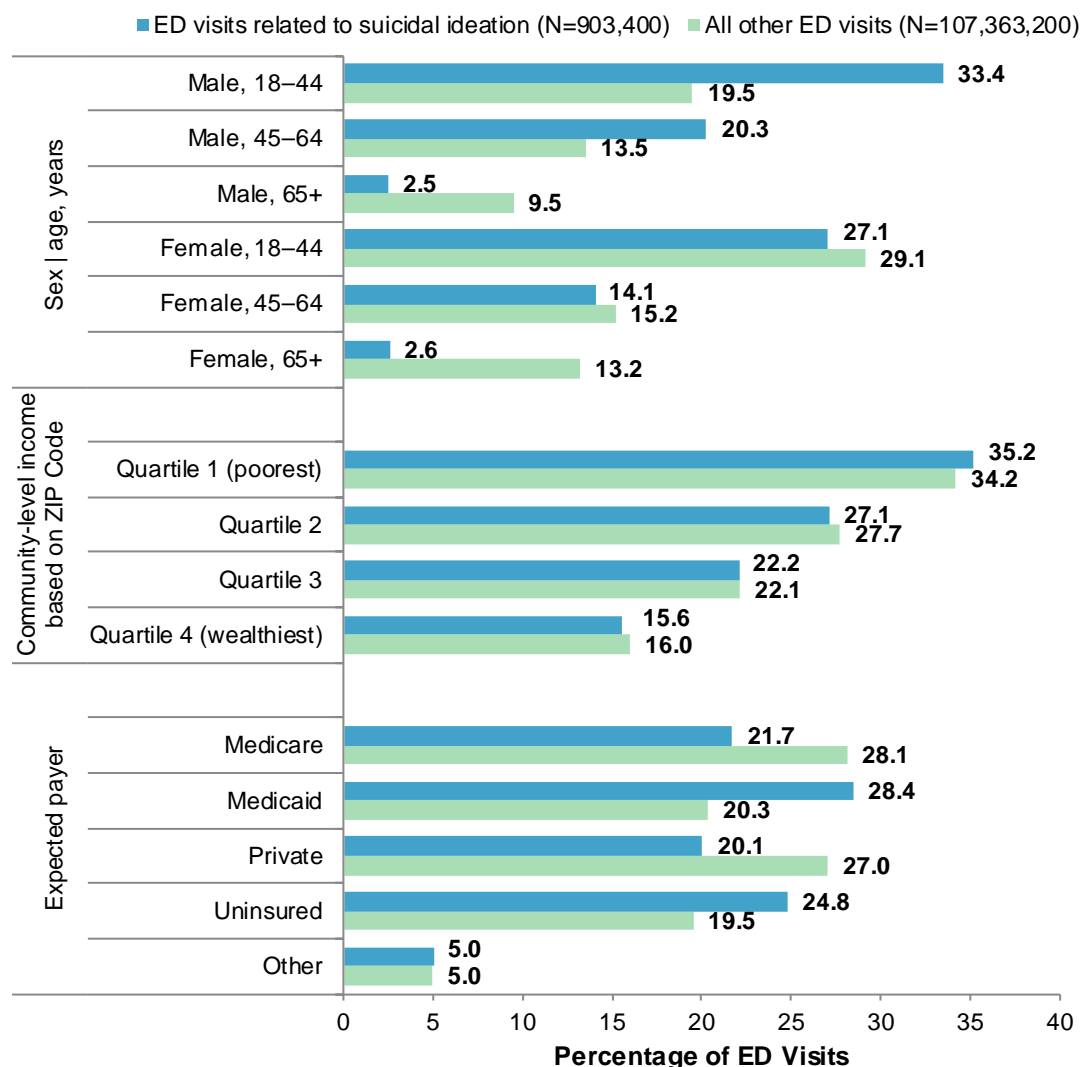
The average ED plus inpatient cost of ED visits related to suicidal ideation that were admitted to the same hospital increased, from \$5,000 to \$6,000 over the same time period (a 2.6 percent average annual increase). At the same time, the average length of stay increased by half a day (from 5.1 to 5.6 days, a 1.5 percent average annual increase).

In comparison, among ED visits unrelated to suicidal ideation that resulted in admission to the same hospital, aggregate and average costs increased only slightly (0.5 to 1.7 percent average annual increase), and the average length of stay decreased slightly (0.5 percent average annual decrease). Further, in 2013, the average cost of ED visits per stay related to suicidal ideation that resulted in admission to the same hospital was nearly 2 times lower than those unrelated to suicidal ideation (\$6,000 vs. \$11,100).

Characteristics and disposition of ED visits related to suicidal ideation, compared with other visits, 2013

Figure 2 displays the percentage of selected patient characteristics among adult ED visits related to suicidal ideation in 2013. Patient characteristics of all other types of ED visits are also presented for comparison.

Figure 2. Characteristics of ED visits related and unrelated to suicidal ideation among adults aged 18 years and older, 2013



Abbreviation: ED, emergency department

Note: Percentages add to 100 percent; ED visits with missing values were excluded.

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), 2013

- **Over one-half of all adult ED visits related to suicidal ideation were among males aged 18–64 years, compared with one-third of all other ED visits.**

Males aged 18–64 years accounted for 53.7 percent of adult ED visits related to suicidal ideation, but only 33.0 percent of all other adult ED visits. Specifically, compared with all other ED visits, ED visits related to suicidal ideation were more likely to be among males aged 18–44 years (33.4 vs. 19.5 percent) and among males aged 45–64 years (20.3 vs. 13.5 percent). Compared with all other ED visits, those related to suicidal ideation were less likely to be among males aged 65 years or older (2.5 vs. 9.5 percent) and among females aged 65 years or older (2.6 vs. 13.2 percent). There was no

difference in the percentage of females aged 64 years and younger by ED visits related and unrelated to suicidal ideation.

- **ED visits related to suicidal ideation were more likely to occur for patients from lower income communities than for patients from higher income communities. This finding is consistent with all other ED visits.**

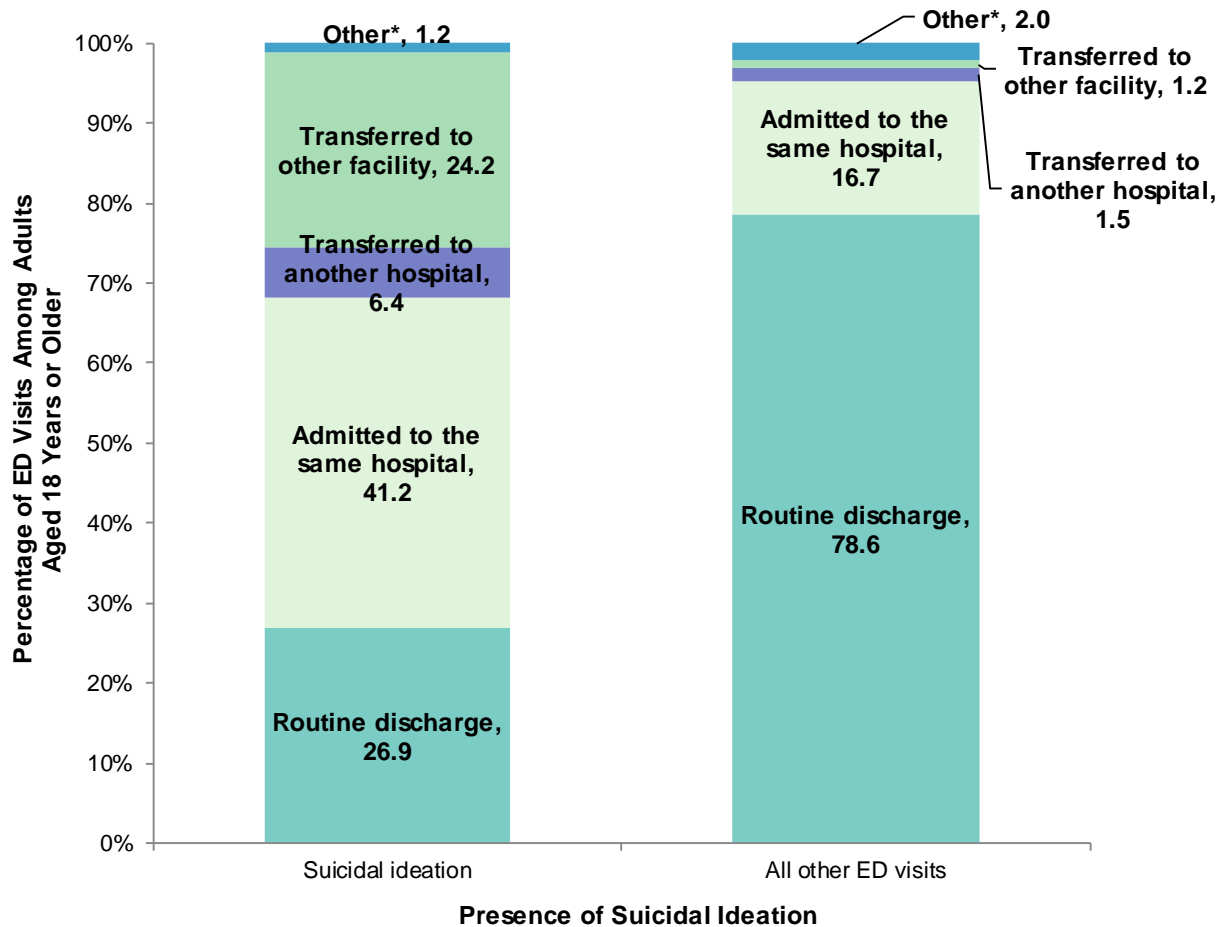
Similar to all other ED visits, ED visits related to suicidal ideation among adults were more likely to occur among patients from lower income communities than among those from higher income communities (35.2, 27.1, 22.2, and 15.6 percent in quartiles 1, 2, 3 and 4, respectively).

- **Compared with all other ED visits among adults, those related to suicidal ideation were more likely to occur among patients with an expected payer of Medicaid or among those who were uninsured.**

Medicaid and uninsured were the most common expected payers of ED visits related to suicidal ideation (28.4 and 24.8 percent, respectively), whereas Medicare followed by private insurance were the most common expected payers among all other ED visits (28.1 and 27.0 percent, respectively).

Figure 3 displays the disposition following ED visits related to suicidal ideation in 2013. The disposition following all other types of ED visits is presented for comparison.

Figure 3. Disposition of ED visits related and unrelated to suicidal ideation among adults, 2013



Abbreviation: ED, emergency department

*Other includes died in the ED; discharged against medical advice; discharged to home health care; and not admitted to this hospital, destination unknown. The percentage of ED visits for which the disposition destination was unknown was 0.5 percent among ED visits related to suicidal ideation and 0.2 percent among all other ED visits.

Note: Patients who died in the same hospital after admission are included in the category *Admitted to the same hospital*.

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), 2013

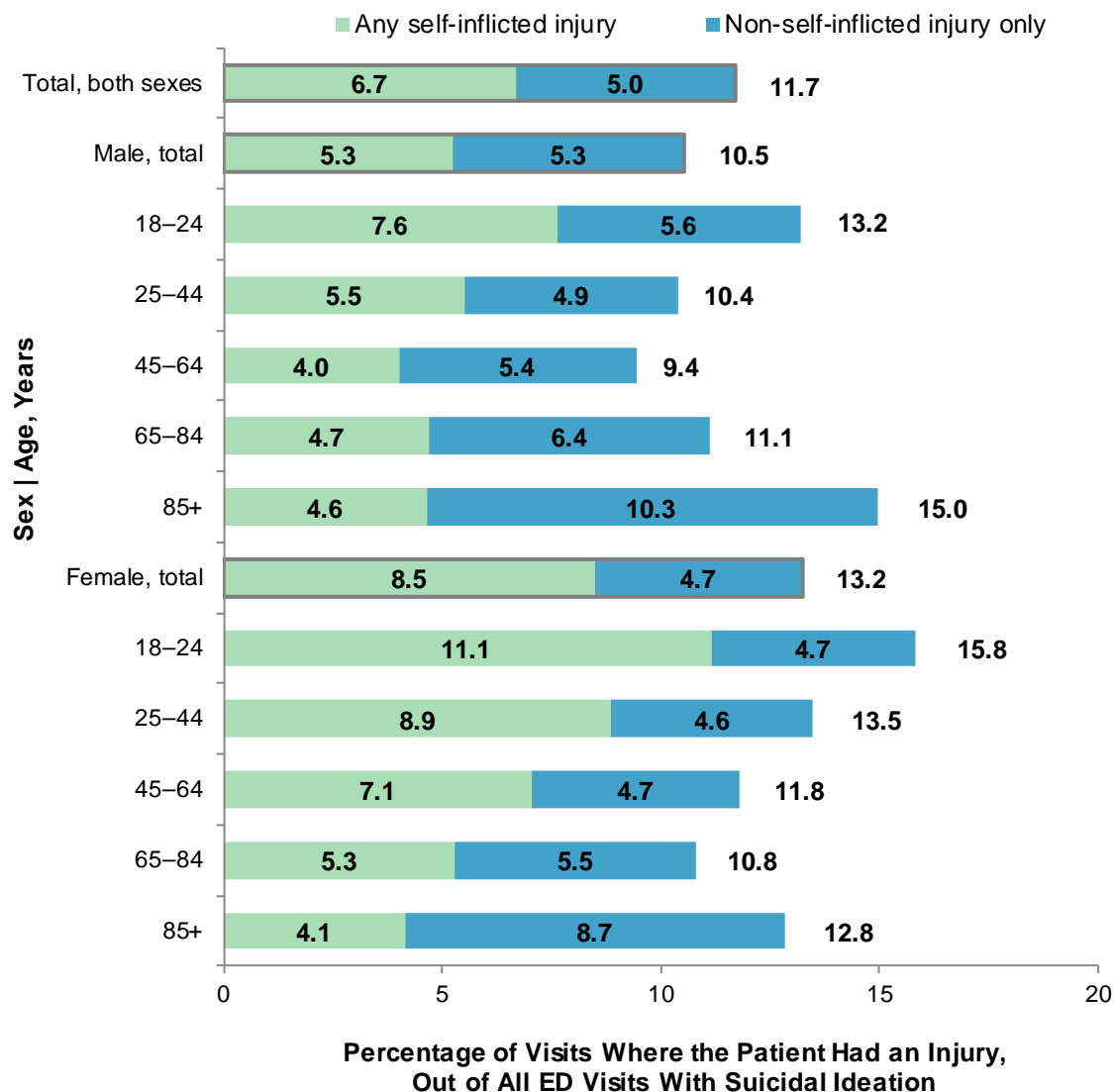
- **The vast majority of ED visits related to suicidal ideation resulted in either admission to the same hospital or transfer to another hospital or facility. One-fourth of ED visits related to suicidal ideation resulted in routine discharge.**

Compared with all other ED visits in 2013, those related to suicidal ideation were 3 times less likely to result in a routine discharge (26.9 vs. 78.6 percent) and 2.5 times more likely to result in admission to the same hospital (41.2 vs. 16.7 percent). ED visits related to suicidal ideation were 4 times more likely than other ED visits to result in a transfer to another hospital (6.4 vs. 1.5 percent) and 20 times more likely than other ED visits to result in transfer to another facility (24.3 vs. 1.2 percent).

Co-occurring conditions associated with suicidal ideation–related ED visits, 2013

Figure 4 displays the percentage of ED visits related to suicidal ideation in which the patient also had a diagnosis for a self-inflicted or non-self-inflicted injury, overall and by patient sex and age, in 2013.

Figure 4. Prevalence of injuries associated with ED visits related to suicidal ideation among adults, overall and by patient sex and age, 2013



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), 2013

- **Overall, 12 percent of all ED visits related to suicidal ideation involved any injury and nearly 7 percent involved a self-inflicted injury.**

Among ED visits related to suicidal ideation, 11.7 percent were related to an injury: 6.7 percent were associated with a self-inflicted injury, and 5.0 percent were associated with a non-self-inflicted injury only (absence of an intentional/self-harm external cause of injury code on the record).

- **Among ED visits related to suicidal ideation, females were more likely than males to have an injury overall and to have a self-inflicted injury.**

Overall, 13.2 percent of ED visits related to suicidal ideation for females were also associated with an injury, compared with 10.5 percent of ED visits for males. Among ED visits related to suicidal ideation, ED visits for females were also more likely to relate to a self-inflicted injury than ED visits for males (8.5 vs. 5.3 percent).

- **Among ED visits related to suicidal ideation, ED visits for 18–64 year-old females were more likely to be associated with an injury compared with ED visits for males of the same age, whereas visits for 85+ year-old males were more likely to be associated with an injury than visits for females of the same age.**

Among ED visits related to suicidal ideation for adults aged 18–64 years, visits for females were more likely to be associated with an injury than visits for males (15.8 vs. 13.2 percent, 13.5 vs. 10.4 percent, and 11.8 vs. 9.4 percent for ages 18–24 years, 25–44 years, and 45–64 years, respectively). Conversely, suicidal ideation–related ED visits for males aged 85+ years were more likely to be associated with an injury than visits for females of the same age (15.0 vs. 12.8 percent).

- **For both male and female ED visits, the prevalence of self-inflicted injuries was highest among younger adults.**

Among ED visits related to suicidal ideation, self-inflicted injuries were most common among adults aged 18–24 years (7.6 percent among males and 11.1 percent among females) and generally decreased with age. In contrast, visits for older adults were more likely than visits for younger adults to have non-self-inflicted injuries only (10.3 percent among males and 8.7 percent among females aged 85 years or older, compared with 5.6 among males and 4.7 percent among females aged 18–24 years).

Table 3 presents the leading co-occurring mental and substance use disorders among patients with an ED visit related to suicidal ideation by patient age, in 2013. Patients may have more than one mental or substance use disorder listed on their record; thus percentages in Table 3 total more than 100.

Table 3. Top five co-occurring mental and substance use disorder diagnoses for ED visits related to suicidal ideation among adults, by patient age, 2013

Any-Listed Diagnoses	Total		18–24 years		25–44 years		45–64 years		65–84 years		85+ years	
	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%
Total, N	903,400		152,300		394,300		310,600		40,500		5,700	
Mood disorders	1	75.9	1	75.0	1	75.6	1	77.0	1	76.4	1	64.5
Substance-related disorders	2	42.8	2	41.4	2	50.7	3	38.2	—	—	—	—
Alcohol-related disorders	3	29.6	4	13.9	3	27.8	2	41.2	3	21.2	—	—
Anxiety disorders	4	26.1	3	25.4	4	27.2	4	25.1	2	26.9	3	18.2
Schizophrenia and other psychotic disorders	5	18.1	5	13.3	5	19.4	5	19.6	5	13.2	4	9.7
Delirium, dementia, amnestic, other cognitive disorders	—	—	—	—	—	—	—	—	4	20.5	2	59.3
Adjustment disorders	—	—	—	—	—	—	—	—	—	—	5	5.0

Note: A dash indicates that the condition did not rank among the top five diagnoses.

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), 2013

- **Mood disorders were the leading co-occurring mental and substance use disorder diagnoses across all adult age groups and were related to three-fourths of all ED visits related to suicidal ideation.**

Among ED visits related to suicidal ideation, 75.9 percent had a co-occurring diagnosis of mood disorders. Mood disorders were the leading mental and substance use disorder diagnoses across all age groups, although the prevalence was lower among adults aged 85 years or older (64.5 percent).

- **Among ED visits related to suicidal ideation, alcohol- and substance-related disorders were among the leading co-occurring mental and substance use disorder diagnoses for younger adults, whereas dementia was among the leading co-occurring diagnoses for older adults.**

Among ED visits related to suicidal ideation, substance-related disorders were associated with 41.4 percent of visits among adults aged 18–24 years, 50.7 percent of visits among adults aged 25–44 years, and 38.2 percent of visits among adults aged 45–64 years. Alcohol-related disorders were also present for 13.9 percent of visits among adults aged 18–24 years, 27.8 percent of visits among adults aged 25–44 years, 41.2 percent of visits among adults aged 45–64 years, and 21.2 percent of visits among adults aged 65–84 years. In comparison, substance-related disorders did not rank in the top five co-occurring mental and substance use disorder diagnoses among adults aged 65 years or older, and alcohol-related disorders did not rank in the top five co-occurring diagnoses among adults aged 85 years or older.

Delirium, dementia, and amnesic and other cognitive disorders were associated with 20.5 percent of suicidal ideation–related ED visits among adults aged 65–84 years and 59.3 percent of visits among adults aged 85 years or older. This diagnosis was not among the top five co-occurring mental and substance use disorder diagnoses in the other age groups.

- **Among ED visits related to suicidal ideation, anxiety disorders were among the top five co-occurring mental and substance use disorder diagnoses for all age groups.**

Anxiety disorders were associated with more than one-fourth of all ED visits related to suicidal ideation. Anxiety disorders were related to 25.4 percent of visits among adults aged 18–24 years, 27.2 percent of visits among adults aged 25–44 years, 25.1 percent of visits among adults aged 45–64 years, 26.9 percent of visits among adults aged 65–84 years, and 18.2 percent of visits among adults aged 85 years or older.

- **Schizophrenia and other psychotic disorders were among the top five co-occurring mental and substance use disorder diagnoses across all age groups, accounting for one-tenth to one-fifth of ED visits related to suicidal ideation.**

Among ED visits related to suicidal ideation, 18.1 percent had a co-occurring diagnosis of schizophrenia and/or other psychotic disorders. The percentage of ED visits related to suicidal ideation and co-occurring schizophrenia and/or other psychotic disorders varied by patient age, from 9.7 percent of visits for 85+ year olds to approximately 19–20 percent of visits for 25–44 and 45–64 year olds.

Data Source

The estimates in this Statistical Brief are based upon data from the Healthcare Cost and Utilization Project (HCUP) 2006, 2010, and 2013 Nationwide Emergency Department Sample (NEDS). Supplemental sources included population denominator demographic data provided by the Nielsen Company, a vendor that compiles and adds value to the U.S. Bureau of Census data. Nielsen uses intracensus methods to estimate household and demographic statistics by ZIP Code.⁶

Definitions

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

The *principal diagnosis* is that condition established after study to be chiefly responsible for the patient's admission to the hospital. *Secondary diagnoses* are concomitant conditions that coexist at the time of admission or develop during the stay. *All-listed diagnoses* include the principal diagnosis plus these additional secondary conditions.

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.⁷ This clinical grouper makes it easier to quickly understand patterns of diagnoses use. CCS categories identified as Other and Screening and history of mental health and substance abuse typically are not reported; these categories include miscellaneous, otherwise unclassifiable diagnoses that may be difficult to interpret as a group.

Case definition

Suicidal ideation was defined using all-listed diagnoses and the ICD-9-CM code V62.84.

Diagnoses related to mental and substance use disorders were defined according to the CCS categories listed in Table 4.

Table 4. Codes used to define mental and substance use disorders

CCS	Description
650	Adjustment disorders
651	Anxiety disorders
652	Attention-deficit, conduct, and disruptive behavior disorders
653	Delirium, dementia, and amnestic and other cognitive disorders
655	Disorders usually diagnosed in infancy, childhood, or adolescence
656	Impulse control disorders, NEC
657	Mood disorders
658	Personality disorders
659	Schizophrenia and other psychotic disorders
660	Alcohol-related disorders
661	Substance-related disorders
670	Miscellaneous mental health disorders

⁶ The Nielsen Company. Nielsen Demographics Data. <http://www.tetrad.com/demographics/usa/nielsen/>. Accessed January 5, 2017.

⁷ Agency for Healthcare Research and Quality. HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: Agency for Healthcare Research and Quality. Updated October 2016. <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>. Accessed January 5, 2017.

Self-inflicted injuries were defined using all-listed diagnoses in which a self-inflicted external cause of injury code (E code) was specified.⁸ Non-self-inflicted injuries were defined using all-listed diagnoses in which either an E code for another injury intent (e.g., unintentional injury) or an ICD-9-CM diagnosis code for an injury was specified. ED visits were categorized according to a hierarchy as having any self-inflicted injury or another type of injury without evidence of self-inflicted injury. Injury E codes and descriptions are listed in Table 5.

Table 5. Codes used to define injuries

ICD-9 E code	Description
E950–E959	Self-inflicted injury
E800–E869, E880–E929	Unintentional injury
E960–E969, E979, E999.1	Assault-related injury
E980–E989	Injury of undetermined intent
E970–E978, E990–E999.0	Injury of other intent
ICD-9 Diagnosis Code	Description
800–829	Fracture
830–839	Dislocation
840–848	Sprain/strain
850–854, 860–869, 952, 995.55	Internal injury
870–884, 890–894	Open wound
885–887, 895v897	Amputation
900–904	Blood vessels
910–924	Contusion/superficial
925–929	Crush
940–949	Burns
950–951, 953–957	Nerves
959	Unspecified

Sources: E codes were obtained from the Centers for Disease Control and Prevention, Matrix of E-code Groupings, available at http://www.cdc.gov/injury/wisqars/ecode_matrix.html. ICD-9-CM diagnosis codes were obtained from Chapter 17: *Injury and Poisoning* (800–999) of the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM).

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 emergency departments (EDs) and no more than 90 percent of their ED visits resulting in admission.

Unit of analysis

The unit of analysis is the emergency department (ED) encounter, not a person or patient. This means that a person who is seen in the same ED multiple times in 1 year will be counted each time as a separate encounter in the ED.

Average annual percent change

Average annual percent change was calculated using the following formula:

$$\text{Average annual percent change} = \left[\left(\frac{\text{End value}}{\text{Beginning value}} \right)^{\frac{1}{\text{change in years}}} - 1 \right] \times 100$$

⁸ Center for Disease Control and Prevention. Matrix of E-code Groupings, Table 1. Recommended Framework of E-code Groupings for Presenting Injury Mortality and Morbidity Data (August 10, 2011). http://www.cdc.gov/injury/wisqars/ecode_matrix.html. Accessed August 15, 2016.

Costs and charges

Total hospital charges were converted to costs using HCUP Cost-to-Charge Ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS).⁹ Costs reflect the actual expenses incurred in the production of hospital services, such as wages, supplies, and utility costs; charges represent the amount a hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used. Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) fees. For the purposes of this Statistical Brief, costs are reported to the nearest hundred.

Annual costs were inflation adjusted using the Gross Domestic Product (GDP) Price Index from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), with 2013 as the index base.¹⁰ That is, all costs are expressed in 2013 dollars.

Mean cost per day is calculated as the mean cost per stay divided by the mean length of stay.

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.¹¹ The largest source of difference comes from the HCUP coverage of inpatient treatment only in contrast to the NHEA inclusion of outpatient costs associated with emergency departments and other hospital-based outpatient clinics and departments as well. The outpatient portion of hospitals' activities has been growing steadily and may exceed half of all hospital revenue in recent years. On the basis of the American Hospital Association Annual Survey, 2012 outpatient gross revenues (or charges) were about 44 percent of total hospital gross revenues.¹²

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 include profit for for-profit hospitals or surpluses for nonprofit hospitals.

Median community-level income

Median community-level income is the median household income of the patient's ZIP Code of residence. Income levels are separated into population-based quartiles with cut-offs determined using ZIP Code demographic data obtained from the Nielsen Company. The income quartile is missing for patients who are homeless or foreign.

⁹ Agency for Healthcare Research and Quality. HCUP Cost-to-Charge Ratio (CCR) Files. Healthcare Cost and Utilization Project (HCUP). 2001–2014. Rockville, MD: Agency for Healthcare Research and Quality. Updated November 2016. <http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp>. Accessed January 5, 2017.

¹⁰ U.S. Bureau of Economic Analysis. National Income and Product Account Tables, Table 1.1.4 Price Indexes for Gross Domestic Product. <http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=1&isuri=1>. Accessed January 5, 2017.

¹¹ For additional information about the NHEA, see Centers for Medicare & Medicaid Services (CMS). National Health Expenditure Data. CMS Web site May 2014. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/index.html?redirect=/NationalHealthExpendData/>. Accessed January 5, 2017.

¹² American Hospital Association. TrendWatch Chartbook, 2014. Table 4.2. Distribution of Inpatient vs. Outpatient Revenues, 1992–2012. <http://www.aha.org/research/reports/tw/chartbook/2014/table4-2.pdf>. Accessed January 5, 2017.

Payer

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

- 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 a hospital discharge, the first-listed payer is used.

Hospital 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 hospital and includes the following six categories: routine (to home); transfer to another short-term hospital; other transfers (including skilled nursing facility, intermediate care, and another type of facility such as a nursing home); home health care; against medical advice (AMA); or died in the hospital.

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 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 and Hospitals
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 Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers
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 Statistical Briefs

HCUP Statistical Briefs are descriptive summary reports presenting statistics on hospital inpatient and emergency department use and costs, quality of care, access to care, medical conditions, procedures, patient populations, and other topics. The reports use HCUP administrative health care data.

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 to return home, 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 mental health and substance abuse refer to the HCUP Statistical Briefs located at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb_mhsa.jsp.

For additional HCUP statistics, visit:

- HCUP Fast Stats at <http://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 <http://hcupnet.ahrq.gov/>

For more information about HCUP, visit <http://www.hcup-us.ahrq.gov/>.

For a detailed description of HCUP and more information on the design of the Nationwide State Emergency Databases (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. <http://www.hcup-us.ahrq.gov/nedsoverview.jsp>. Accessed January 5, 2017.

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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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