Inpatient Stays Involving Mental and Substance Use Disorders, 2016

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Introduction

Mental and substance use disorders are common in the United States. In 2016, over 55 million people aged 18 years and over (more than one in five adults) suffered from mental and/or substance use disorders (MSUDs).1 Of these adults, nearly 45 million had a mental disorder alone, 11 million had a substance use disorder alone, and 8 million had both a mental disorder and a substance use disorder.2

Not only do mental and substance use disorders co-occur, they also are linked to other physical conditions such as diabetes, heart disease, and asthma.3,4 Disorders such as depression, anxiety, and substance use disorder are associated with significant distress and impairment, including complications with multiple chronic conditions, disability, inability to function in society, and substantial economic costs.5,6 The treatment costs of mental disorders alone totaled $201 billion in 2013.7 Taking into account additional costs associated with lost work productivity and disability payments, the total cost of mental and substance use disorders to society is estimated to be more than twice that amount.8

2 Ibid.
5 Ibid.
This Healthcare Cost and Utilization Project (HCUP) Statistical Brief presents statistics from the 2016 National Inpatient Sample (NIS) on inpatient stays involving MSUDs at community hospitals among patients aged 5 years or older. First, MSUD-related inpatient stay characteristics, including costs, length of stay, discharge status, patient demographics, primary expected payer, and hospital location are shown. Inpatient stays for MSUDs (i.e., those with a principal MSUD diagnosis) are shown separately from those with a principal diagnosis of a physical condition and a secondary MSUD condition. Stays with no MSUD diagnosis are shown as a point of comparison. Second, the frequency, costs, and length of stay for specific MSUDs are shown. Because of the large sample size of the HCUP NIS, small differences can be statistically significant. Thus, only percentage differences between groups greater than or equal to 10 percent are noted in the text. For further information on the methodology, see the Data Source and Definitions sections at the end of this Statistical Brief.

Findings

**Characteristics of inpatient stays with and without a principal or secondary MSUD diagnosis, 2016**

Table 1 presents utilization and cost statistics for inpatient stays related to MSUDs in 2016. Stays with a principal MSUD diagnosis are shown separately from stays with an MSUD diagnosis that was secondary to other principal physical diagnoses. These stays are compared with those without an MSUD diagnosis.

<table>
<thead>
<tr>
<th>Inpatient stay characteristic</th>
<th>Principal MSUD diagnosis</th>
<th>Secondary MSUD diagnosis</th>
<th>No MSUD diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stays, N</td>
<td>2,169,000</td>
<td>7,726,500</td>
<td>25,779,900</td>
</tr>
<tr>
<td>Stays, %</td>
<td>6.1</td>
<td>21.7</td>
<td>72.3</td>
</tr>
<tr>
<td>Stays, rate per 100,000 population</td>
<td>717</td>
<td>2,555</td>
<td>8,524</td>
</tr>
<tr>
<td>Aggregate costs, $ billions</td>
<td>15.3</td>
<td>110.3</td>
<td>296.4</td>
</tr>
<tr>
<td>Aggregate costs, %</td>
<td>3.6</td>
<td>26.1</td>
<td>70.2</td>
</tr>
<tr>
<td>Mean cost per stay, $</td>
<td>7,100</td>
<td>14,300</td>
<td>11,500</td>
</tr>
<tr>
<td>Mean cost per day, $</td>
<td>1,400</td>
<td>3,400</td>
<td>3,200</td>
</tr>
<tr>
<td>Mean length of stay, days</td>
<td>6.4</td>
<td>5.4</td>
<td>4.2</td>
</tr>
<tr>
<td>Admitted from emergency department, %</td>
<td>60.4</td>
<td>66.3</td>
<td>46.3</td>
</tr>
<tr>
<td>Discharged home or to home health care</td>
<td>82.2</td>
<td>72.7</td>
<td>83.3</td>
</tr>
<tr>
<td>Transferred to short-term hospital</td>
<td>2.0</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Transferred to other type of facility</td>
<td>11.3</td>
<td>20.7</td>
<td>12.1</td>
</tr>
<tr>
<td>Died in hospital</td>
<td>0.5</td>
<td>2.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>3.9</td>
<td>2.5</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Abbreviation: MSUD, mental and/or substance use disorder

Notes: The number of stays and mean cost per stay and per day were rounded to the nearest hundred. Stays with a principal MSUD diagnosis are mutually exclusive from those with a secondary MSUD diagnosis. Population rates are based on population estimates for persons aged 5 years and older. Population data were obtained from Claritas. Other discharge status includes discharged against medical advice and discharged alive, destination unknown.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016

- **In 2016, there were nearly 10 million stays with a principal or secondary MSUD diagnosis, constituting more than 1 in 4 inpatient stays.**

  In 2016, there were 9,895,500 inpatient stays with a principal (2.2 million) or secondary (7.7 million) MSUD. Combined, stays with a principal (6.1 percent) or secondary (21.7 percent) MSUD were 27.8 percent of the 35.7 million total inpatient stays.
Stays with a secondary MSUD diagnosis cost more and were longer than stays without an MSUD diagnosis.

Stays for a principal MSUD accounted for 6.1 percent of all adult stays and 3.6 percent of total hospital costs ($15.3 billion), pointing to the relatively low resource intensity of MSUD care in community hospitals. On average, stays with a principal MSUD cost $7,100 with an average length of stay of 6.4 days.

Care for adults with a physical condition as a principal diagnosis and a coexisting MSUD accounted for roughly 22 percent of hospital stays and 26 percent of hospital costs, whereas care for adults with only physical conditions accounted for 72 percent of all stays and 70 percent of hospital costs. Stays with a coexisting MSUD cost a total of $110.3 billion, with an average cost of $14,300 and an average length of stay of 5.4 days. On average, stays for a physical condition without an MSUD cost $11,500 and were 4.2 days long. This suggests a higher resource intensity when stays for physical conditions coexist with MSUDs.

Inpatient stays involving MSUDs were more likely to be admitted from the emergency department than other stays.

Compared with stays without an MSUD diagnosis, a greater percentage of stays with a principal or secondary MSUD were admitted through the emergency department (46.3 vs. 60.4 and 66.3 percent, respectively).

Inpatient stays with a principal MSUD were less likely to result in in-hospital death than were other stays.

Stays with a principal MSUD were less likely to result in in-hospital death compared with other stays (0.5 vs. 2 percent). In addition, stays with a secondary MSUD were less likely to be discharged routinely to home or to home health care (72.7 vs. 82–83 percent) and more likely to be transferred to a facility other than a short-term hospital, such as a skilled nursing facility or other long-term care facility (20.7 vs. 11–12 percent), compared with stays with a principal or no MSUD diagnosis.

Table 2 presents the percentage and rates of inpatient stays with and without an MSUD diagnosis for select patient sociodemographic characteristics. Stays with a principal MSUD diagnosis are shown separately from stays with a secondary MSUD diagnosis. These stays are compared with those without an MSUD diagnosis.
Table 2. Patient characteristics and hospital location of inpatient stays with and without a principal or secondary MSUD diagnosis, 2016

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Principal MSUD diagnosis (N=2,169,000)</th>
<th>Secondary MSUD diagnosis (N=7,726,500)</th>
<th>No MSUD Diagnosis (N=25,779,900)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stays, %</td>
<td>Rate of stays per 100,000 population</td>
<td>Stays, %</td>
</tr>
<tr>
<td>Overall total</td>
<td>100.0</td>
<td>717</td>
<td>100.0</td>
</tr>
<tr>
<td>Age group, years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5–17</td>
<td>7.9</td>
<td>317</td>
<td>1.2</td>
</tr>
<tr>
<td>18–44</td>
<td>49.2</td>
<td>923</td>
<td>21.2</td>
</tr>
<tr>
<td>45–64</td>
<td>34.6</td>
<td>892</td>
<td>38.1</td>
</tr>
<tr>
<td>65–74</td>
<td>5.7</td>
<td>440</td>
<td>19.6</td>
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<tr>
<td>75+</td>
<td>2.6</td>
<td>272</td>
<td>19.9</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>46.6</td>
<td>656</td>
<td>58.3</td>
</tr>
<tr>
<td>Male</td>
<td>53.4</td>
<td>780</td>
<td>41.7</td>
</tr>
<tr>
<td>Community-level income</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 1 (lowest)</td>
<td>35.1</td>
<td>963</td>
<td>32.0</td>
</tr>
<tr>
<td>Quartile 2</td>
<td>25.4</td>
<td>732</td>
<td>26.2</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>22.2</td>
<td>604</td>
<td>23.7</td>
</tr>
<tr>
<td>Quartile 4 (highest)</td>
<td>17.3</td>
<td>481</td>
<td>18.1</td>
</tr>
<tr>
<td>Primary expected payer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 65 years</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Medicare</td>
<td>17.2</td>
<td>N/A</td>
<td>24.3</td>
</tr>
<tr>
<td>Medicaid</td>
<td>41.2</td>
<td>N/A</td>
<td>32.9</td>
</tr>
<tr>
<td>Private insurance</td>
<td>27.3</td>
<td>N/A</td>
<td>32.1</td>
</tr>
<tr>
<td>Self-pay/no charge</td>
<td>9.7</td>
<td>N/A</td>
<td>7.0</td>
</tr>
<tr>
<td>Other</td>
<td>4.6</td>
<td>N/A</td>
<td>3.7</td>
</tr>
<tr>
<td>65+ years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare</td>
<td>86.0</td>
<td>N/A</td>
<td>90.1</td>
</tr>
<tr>
<td>Non-Medicare</td>
<td>14.0</td>
<td>N/A</td>
<td>9.9</td>
</tr>
<tr>
<td>Patient residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>13.9</td>
<td>683</td>
<td>16.6</td>
</tr>
<tr>
<td>Urban</td>
<td>86.1</td>
<td>709</td>
<td>83.4</td>
</tr>
<tr>
<td>Hospital location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>23.0</td>
<td>938</td>
<td>18.6</td>
</tr>
<tr>
<td>New England</td>
<td>5.9</td>
<td>921</td>
<td>5.5</td>
</tr>
<tr>
<td>Middle Atlantic</td>
<td>17.1</td>
<td>943</td>
<td>13.1</td>
</tr>
<tr>
<td>Midwest</td>
<td>25.3</td>
<td>860</td>
<td>24.1</td>
</tr>
<tr>
<td>East North Central</td>
<td>16.8</td>
<td>826</td>
<td>16.9</td>
</tr>
<tr>
<td>West North Central</td>
<td>8.5</td>
<td>935</td>
<td>7.3</td>
</tr>
<tr>
<td>South</td>
<td>35.5</td>
<td>677</td>
<td>38.0</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>21.1</td>
<td>765</td>
<td>20.8</td>
</tr>
<tr>
<td>East South Central</td>
<td>6.3</td>
<td>769</td>
<td>7.2</td>
</tr>
<tr>
<td>West South Central</td>
<td>8.2</td>
<td>487</td>
<td>10.1</td>
</tr>
<tr>
<td>West</td>
<td>16.1</td>
<td>490</td>
<td>19.3</td>
</tr>
<tr>
<td>Mountain</td>
<td>5.3</td>
<td>521</td>
<td>6.2</td>
</tr>
<tr>
<td>Pacific</td>
<td>10.8</td>
<td>476</td>
<td>13.0</td>
</tr>
</tbody>
</table>

Abbreviations: MSUD, mental and/or substance use disorder; N/A, not available.

Notes: Stays with a principal MSUD diagnosis are mutually exclusive from those with a secondary MSUD diagnosis. Population rates are based on population estimates for individuals aged 5 years and older. Population data were obtained from Claritas.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016
Over 80 percent of stays principally for an MSUD were for adults aged 18–44 years or 45–64 years.

Over four out of five stays (83.8 percent) principally for MSUDs were for 18–44 year olds and 45–64 year olds. In contrast, these age groups accounted for nearly three out of five stays (59.3 percent) with a secondary MSUD and two out of five stays (43.0 percent) without an MSUD.

The majority of stays with a coexisting MSUD were for adults aged 18–44 years (21.2 percent) or 45–64 years (38.1 percent). Nearly one in five stays with a coexisting MSUD were for older adults aged 65–74 years (19.6 percent) or 75 years and older (19.9 percent). Fewer than 2 percent of stays with a coexisting MSUD were for children aged 5–17 years (1.2 percent).

No age group accounted for a disproportionate share of stays with a physical condition without an MSUD: 5–17 years (20.3 percent), 18–44 years (23.3 percent), 45–64 years (19.7 percent), 65–74 years (14.9 percent), 75+ years (21.8 percent).

The rate of inpatient stays principally for MSUDs was highest among adults aged 18–44 and 45–64 years and among males.

The rate of stays with a principal MSUD was at least twice as high among adults aged 18–44 and 45–64 years (923 and 892 per 100,000 population, respectively) compared with all other age groups: (5–17 years: 317; 65–74 years: 440; 75+ years: 272 per 100,000 population). The rate of stays with a secondary MSUD increased steadily with age. The oldest adults had the highest rate of stays with a coexisting MSUD (7,540 per 100,000 population among adults aged 75 years and older).

Among individuals aged 5–17 years, the rate of stays with a principal MSUD was higher than the rate of stays for a secondary MSUD. Among the older age groups, however, the rate of stays with a secondary MSUD was higher than the rate of stays with a principal MSUD and this difference increased with age: 923 versus 1,417 per 100,000 adults aged 18–44 years (1.5 times greater) and 272 versus 7,540 per 100,000 adults aged 75+ years (28 times greater).

The rate of stays with a principal MSUD was higher among males than among females (780 vs. 656 per 100,000 population). By contrast, the rate of stays with a secondary MSUD was higher among females than among males (2,926 vs. 2,167 per 100,000 population).

Nearly 60 percent of stays involving MSUDs among patients less than 65 years old were billed to public payers.

In total, 58.4 percent of stays for patients aged less than 65 years with a principal MSUD were billed to Medicare (17.2 percent) or Medicaid (41.2 percent). Similarly, 57.2 percent of stays for patients aged less than 65 years with a secondary MSUD were billed to Medicare (24.3 percent) or Medicaid (32.9 percent). In contrast, only 43.2 percent of non-MSUD stays for patients aged less than 65 years were billed to public payers. This lower overall public share was mainly due to a much smaller percentage billed to Medicare (8.2 percent).

Nearly 1 in 10 stays with a principal MSUD among patients aged less than 65 years were billed as self-pay or no charge.

Among patients aged less than 65 years, nearly 10 percent of stays with a principal diagnosis for an MSUD were billed as self-pay or no charge, compared with 7.0 percent of stays in this age group with a secondary MSUD and 5.5 percent of stays without an MSUD.
The geographic distribution of rates of stays differed according to whether the MSUD was a principal or secondary diagnosis.

Whereas the rate of stays with a principal MSUD was similar in rural and urban areas (683 and 709 per 100,000 population, respectively), the rate of stays with a secondary MSUD was higher in rural than in urban areas (2,938 vs. 2,474 per 100,000 population).

The rate of stays with a principal MSUD was highest in the Northeast region, with rates in both the New England and the Middle Atlantic census divisions over 900 per 100,000 population. The rate of stays with a secondary MSUD diagnosis was highest in the Midwest region (2,921 per 100,000 population), although specific divisions within the South and the Northeast had higher overall rates (East South Central division: 3,129; New England division: 3,027). Both the rate of stays with a principal and the rate of stays with a secondary MSUD diagnosis were lowest in the West (490 and 2,083 per 100,000 population, respectively).

Figure 1 displays the percentage of all inpatient stays with and without an MSUD diagnosis, by primary expected payer and age group in 2016.

**Figure 1. Percentage of all inpatient stays with and without a principal or secondary MSUD diagnosis, by primary expected payer and age group, 2016**

<table>
<thead>
<tr>
<th>Primary Expected Payer, Age Group (Number of Stays)</th>
<th>Principal MSUD diagnosis</th>
<th>Secondary MSUD diagnosis</th>
<th>No MSUD diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;65 years</td>
<td>47.7 (2,817,300)</td>
<td>70.8 (9,789,000)</td>
<td>76.4 (1,385,400)</td>
</tr>
<tr>
<td>65+ years</td>
<td>12.1 (2,817,300)</td>
<td>10.2 (9,789,000)</td>
<td>74.3 (11,300,400)</td>
</tr>
</tbody>
</table>

Abbreviation: MSUD, mental and/or substance use disorder

Note: Stays with a principal MSUD diagnosis are mutually exclusive from those with a secondary MSUD diagnosis.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016
Over half of all Medicare-billed stays for patients aged less than 65 years involved an MSUD.

In 2016, MSUD-related stays accounted for 52.3 percent of Medicare-billed inpatient stays for patients under 65 years (principal MSUD: 12.1 percent; secondary MSUD: 40.2 percent). MSUD stays for patients under 65 years accounted for 21 to 37 percent of the stays billed to non-Medicare payers (Medicaid: 29.3 percent; private insurance: 20.8 percent; self-pay/no charge: 36.7 percent; other payers: 30.3 percent).

In contrast, only one-fourth of Medicare-billed stays for patients aged 65 years and older involved an MSUD (principal: 1.4 percent; secondary: 24.3 percent).

Among patients aged less than 65 years old, over 10 percent of stays were principally for an MSUD, except for those billed to private insurance.

Only 5.5 percent of stays billed to private insurance were principally for an MSUD, whereas 10–14 percent of stays billed to other expected payers were principally for an MSUD (Medicare, 12.1 percent; Medicaid, 10.2 percent; self-pay/no charge, 13.6 percent; other payers, 10.5 percent).
Frequency, costs, and length of specific MSUD inpatient stays, 2016

Figure 2 displays rates of inpatient stays by specific MSUD disorders in 2016, according to whether the disorder was a principal or secondary diagnosis.

Figure 2. Rates of stays\(^a\) for specific MSUD disorders, by principal and secondary diagnosis, 2016

<table>
<thead>
<tr>
<th>Type of Disorder</th>
<th>Rate of Stays(^a) With a Principal MSUD Diagnosis</th>
<th>Rate of Stays(^a) With a Secondary MSUD Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance use disorders</td>
<td>Alcohol 133</td>
<td>372</td>
</tr>
<tr>
<td></td>
<td>Opioids 48</td>
<td>214</td>
</tr>
<tr>
<td></td>
<td>Stimulants 16</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous 13</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Sedatives 4</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Cannabis 3</td>
<td>147</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>Depressive 187</td>
<td>1,115</td>
</tr>
<tr>
<td></td>
<td>Schizophrenia 131</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>Bipolar 90</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>Suicidal 41</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Trauma 19</td>
<td>110</td>
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<td></td>
<td>Anxiety 9</td>
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<td></td>
<td>Miscellaneous 9</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Conduct 6</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Personality 3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Somatic 3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Eating 2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Obsessive-compulsive 0</td>
<td>9</td>
</tr>
</tbody>
</table>

Abbreviation: MSUD, mental and/or substance use disorder

Notes: Suicidal includes suicidal ideation and attempts. Secondary diagnoses are counted only if the record had a non-MSUD diagnosis listed as the principal diagnosis. Population rates are based on population estimates for persons 5 years and older. Population data are obtained from Claritas.

\(^a\) Rate of stays per 100,000 population.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016
In 2016, the most common type of principal and secondary substance-related diagnosis among inpatient stays was alcohol-related disorders, followed by opioid-related disorders.

The most common type of a substance use disorder stay was alcohol-related disorders, with a rate of 133 stays per 100,000 population as a principal diagnosis and 372 stays per 100,000 population as a coexisting disorder. The second most common type of substance use disorder among stays was opioid-related disorders (principal: 48; secondary: 214 per 100,000 population).

The least common reason for a substance use disorder stay was cannabis-related disorders (3 stays per 100,000 population), but as a secondary diagnosis, cannabis-related disorders was the third most common type of substance use disorder stay (147 per 100,000 population).

Depressive disorders and schizophrenia were the most common reasons for a mental disorder stay, whereas anxiety disorders and depressive disorders were the most common coexisting mental disorders for inpatient stays.

The most common reason for a mental disorder stay was depressive disorders (187 stays per 100,000 population). Along with anxiety disorders (1,132 stays per 100,000 population), depressive disorders was one of the most common secondary diagnoses for inpatient stays with a coexisting mental disorder (1,115 per 100,000 population). Although anxiety disorders was one of the most common coexisting mental disorders, stays principally for these disorders were much less common (9 per 100,000 population) than those for depressive disorders.

The second most common reason for a mental disorder stay and the fourth most common secondary diagnosis for inpatient stays with a coexisting mental disorder was schizophrenia and related disorders (131 and 126 per 100,000 population, respectively).

Suicidal ideation or attempt was more likely to be the reason for a mental disorder stay than a stay with a secondary mental disorder (41 vs. 25 stays per 100,000 population, respectively).
Figure 3 displays the percentage of inpatient stays for each MSUD diagnosis in 2016, out of all stays principally for an MSUD, as indicated by the size of each circle. The average cost and length of each type of stay are shown on the x-axis and y-axis, respectively. The exact estimates of costs and length of stay are included in Appendix A at the end of this Statistical Brief.

**Figure 3. Percentage, cost, and length of inpatient stays principally for an MSUD, by specific disorder, 2016**

In 2016, more than one in four inpatient stays with a principal MSUD were for depressive disorders.

The most common type of disorder among inpatient stays with a principal MSUD in 2016 was depressive disorders, constituting 26.1 percent of these stays. Alcohol-related disorders and schizophrenia and related disorders each accounted for nearly one in five stays principally for an MSUD, followed by bipolar disorders (12.5 percent), opioid-related disorders (6.7 percent), and suicidal ideation or attempt (5.7 percent).
Although uncommon, inpatient stays for eating disorders were the costliest and longest type of stays for MSUDs.

Although inpatient stays with a principal diagnosis of eating disorders constituted only 0.3 percent of all stays with a principal MSUD, on average they cost $19,400 and lasted 13.6 days. Inpatient stays for schizophrenia and related disorders were the second costliest and second longest type of stay for MSUDs, with a mean cost per stay of $8,900 and a mean length of stay of 10.5 days. Stays for alcohol-related disorders were the third costliest ($8,800 per stay), and those for bipolar disorders were the third longest (7.6 days) type of stays with a principal MSUD.

Figure 4 displays types of disorders among inpatient stays with a principal MSUD diagnosis in 2016, by patient sex and age. The five most common principal MSUD diagnoses are shown as distinct categories. These diagnoses include depressive disorders, alcohol-related disorders, schizophrenia and related disorders, bipolar disorders, and opioid-related disorders. All other types of MSUD diagnoses are included in the Other category.

Figure 4. Distribution of stays for specific principal MSUD diagnoses, by patient sex and age, 2016

Abbreviation: MSUD, mental or substance use disorder

Note: Disorders shown are based on the frequency of stays principally for an MSUD. Other includes cannabis-related disorders; miscellaneous substances and addictive disorders; sedative-related disorders; stimulant-related disorders; anxiety disorders; disruptive, impulse-control, and conduct disorders; eating disorders; obsessive-compulsive disorders; miscellaneous mental disorders; personality disorders; somatic symptom disorders; suicidal ideation or attempt; and trauma- and stressor-related disorders.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016
In 2016, the most common reason for MSUD stays among the youngest and oldest age groups among both males and females was depressive disorders.

Over half of MSUD stays for males and females aged 5–17 years (53.2 and 60.7 percent, respectively), and over one-third of those for males and females aged 75 years or older (35.1 and 37.9 percent, respectively) were for depressive disorders (vs. 18.3–28.3 percent of stays for patients in the other age-sex groups). The most common reason for MSUD stays for males aged 5–17 years and 75 years or older, and for females of all ages was depressive disorders.

Among stays for every age group younger than 75 years, depressive disorders constituted a greater percentage of MSUD stays for females than for males (e.g., 28.3 vs. 20.5 percent of stays for patients aged 65–74 years).

Alcohol-related disorders was the most common type of principal MSUD stay for males aged 45–64 years and, at every age, was a more common reason for male hospitalization than for female hospitalization.

Over one-third (37–38 percent) of MSUD stays for males aged 45–74 years were for alcohol-related disorders. Among MSUD stays for females, alcohol-related disorders was a more common reason for a stay among patients aged 45–74 years (12.7–18.6 percent) than for a stay for patients in the other age groups (0.3–8.6 percent).

Among MSUD stays for patients of every age group, alcohol-related disorders constituted a greater percentage of MSUD stays for males than for females (e.g., 37.2 vs. 12.7 percent among stays for patients aged 65–74 years).

Schizophrenia was the most common type of principal MSUD stay for males aged 18–44 years.

The most common type of principal MSUD stay for males aged 18–44 years was schizophrenia and related disorders, constituting 24.7 percent of all stays principally for an MSUD. A principal diagnosis of schizophrenia was more common among stays for males aged 5–17 and 18–44 years than among stays for females in the same age group (5–17 years: 4.8 vs. 1.9 percent, respectively; 18–44 years: 24.7 vs. 14.1 percent, respectively). In contrast, among MSUD stays for older adults, a principal diagnosis of schizophrenia and related disorders was more common among stays for females aged 64–74 and 75+ years than among stays for males in the same age group (64–74 years: 22.5 vs. 17.1 percent, respectively; 75+ years: 21.4 vs. 18.0 percent, respectively).

MSUD stays for adult females were more likely than stays for males to have a principal diagnosis of bipolar disorders.

Except for MSUD stays for patients aged 5–17 years, a principal diagnosis of bipolar disorders was more common for females than for males in each age group (e.g., 15–16 vs. 9 percent of stays for patients aged 45–74 years). The percentage of stays for bipolar disorders ranged from a low of 6.6 percent of stays among males aged 75+ years to a high of 16.3 percent of stays for females aged 18–44 years.

Opioid-related disorders constituted nearly 10 percent of all MSUD stays for males aged 18–44 years and females aged 65 years or older.

Among MSUD stays for males aged 18–44 years, 8.9 percent were for opioids. Among MSUD stays for females, opioid-related disorders were highest among stays for those in the oldest age groups (9 percent of MSUD stays among females older than 64 years). Generally, a higher percentage of MSUD stays for younger than for older patients had a principal diagnosis categorized as Other disorders9 (i.e., disorders that were less common than the top five principal MSUD diagnoses).

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9 Other disorders include cannabis-related disorders; miscellaneous substances and addictive disorders; sedative-related disorders; stimulant-related disorders; anxiety disorders; disruptive, impulse-control, and conduct disorders; eating disorders; obsessive-
### Appendix A. Number, percentage, cost, and length of inpatient stays for a specific MSUD diagnosis, 2016

<table>
<thead>
<tr>
<th>Principal MSUD</th>
<th>Stays, N</th>
<th>All MSUD stays, %</th>
<th>Mean cost per stay, $</th>
<th>Aggregate costs, $ billions</th>
<th>Mean length of stay, days</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any principal MSUD diagnosis</strong></td>
<td>2,169,000</td>
<td>100</td>
<td>7,100</td>
<td>15.3</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>Any principal substance use disorder-related diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol-related disorders</td>
<td>401,300</td>
<td>30.3</td>
<td>7,900</td>
<td>5.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Opioid-related disorders</td>
<td>146,300</td>
<td>6.7</td>
<td>6,400</td>
<td>0.9</td>
<td>4.2</td>
</tr>
<tr>
<td>Stimulant-related disorders</td>
<td>49,400</td>
<td>2.3</td>
<td>7,400</td>
<td>0.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Miscellaneous substances and addictive disorders</td>
<td>38,800</td>
<td>1.8</td>
<td>4,900</td>
<td>0.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Sedative-related disorders</td>
<td>12,100</td>
<td>0.6</td>
<td>5,700</td>
<td>0.1</td>
<td>4.5</td>
</tr>
<tr>
<td>Cannabis-related disorders</td>
<td>9,100</td>
<td>0.4</td>
<td>6,500</td>
<td>0.1</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>Any principal mental disorder-related diagnosis</strong></td>
<td>1,512,100</td>
<td>69.7</td>
<td>6,700</td>
<td>10.1</td>
<td>7.2</td>
</tr>
<tr>
<td>Depressive disorders</td>
<td>566,700</td>
<td>26.1</td>
<td>5,300</td>
<td>3.0</td>
<td>6.1</td>
</tr>
<tr>
<td>Schizophrenia and related disorders</td>
<td>394,800</td>
<td>18.2</td>
<td>8,900</td>
<td>3.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Bipolar disorders</td>
<td>270,900</td>
<td>12.5</td>
<td>6,500</td>
<td>1.8</td>
<td>7.6</td>
</tr>
<tr>
<td>Suicidal ideation or attempt</td>
<td>123,500</td>
<td>5.7</td>
<td>7,900</td>
<td>1.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Trauma- and stressor-related disorders</td>
<td>57,500</td>
<td>2.7</td>
<td>4,200</td>
<td>0.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>27,100</td>
<td>1.2</td>
<td>5,100</td>
<td>0.1</td>
<td>4.2</td>
</tr>
<tr>
<td>Miscellaneous mental disorders</td>
<td>26,600</td>
<td>1.2</td>
<td>5,200</td>
<td>0.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Disruptive, impulse-control, and conduct disorders</td>
<td>16,900</td>
<td>0.8</td>
<td>6,500</td>
<td>0.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Personality disorders</td>
<td>10,500</td>
<td>0.5</td>
<td>6,300</td>
<td>0.1</td>
<td>6.7</td>
</tr>
<tr>
<td>Somatic symptom disorders</td>
<td>10,500</td>
<td>0.5</td>
<td>7,600</td>
<td>0.1</td>
<td>3.4</td>
</tr>
<tr>
<td>Eating disorders</td>
<td>5,800</td>
<td>0.3</td>
<td>19,400</td>
<td>0.1</td>
<td>13.6</td>
</tr>
<tr>
<td>Obsessive-compulsive disorders</td>
<td>1,200</td>
<td>0.1</td>
<td>7,200</td>
<td>0.0(^{a})</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Abbreviation: MSUD, mental or substance use disorder

\(^{a}\) Aggregate costs of stays for obsessive-compulsive disorders totaled 0.0087 billion dollars.

Note: The estimates of costs and length of stay in this table correspond to the conditions displayed in Figure 3.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), National Inpatient Sample (NIS), 2016
About Statistical Briefs

Healthcare Cost and Utilization Project (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 HCUP 2016 National Inpatient Sample (NIS). Supplemental sources included population denominator data for use with HCUP databases, derived from information available from Claritas, a vendor that produces population estimates and projections based on data from the U.S. Census Bureau.10

Definitions

Diagnoses and ICD-10-CM

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.

In this Statistical Brief, we created mutually exclusive categories for stays with a principal MSUD diagnosis (i.e., referred to as MSUD stays or stays principally for an MSUD) and those with one or more MSUD diagnoses secondary to a principal diagnosis of a physical health condition (i.e., referred to as MSUD-related stays, stays with a coexisting MSUD, or stays with a secondary MSUD).

ICD-10-CM is the International Classification of Diseases, Tenth Revision, Clinical Modification coding system. In October 2015, ICD-10-CM replaced the ICD-9-CM diagnosis coding system for most inpatient and outpatient medical encounters. There are over 70,000 ICD-10-CM diagnosis codes.

Case definition

The ICD-10-CM codes defining MSUD can be found in Appendix B, available as a separate supplemental file associated with this Statistical Brief on the HCUP-US website at www.hcup-us.ahrq.gov/reports/statbriefs/sb249-appendix.pdf. After comparing diagnoses across the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the ICD-10-CM system, and the Clinical Classification Software (CCS),11 the codes were grouped into the following categories for this Statistical Brief:

- Substance-related diagnoses
  - Alcohol-related disorders
  - Cannabis-related disorders
  - Opioid-related disorders
  - Sedative-related disorders
  - Stimulant-related disorders
  - Miscellaneous substances and addictive disorders (e.g., hallucinogen- and inhalant-related disorders, other psychoactive substance abuse, drug use complicating pregnancy)

• Mental disorder-related diagnoses
  - Anxiety disorders
  - Bipolar disorders
  - Depressive disorders
  - Disruptive, impulse-control, and conduct disorders
  - Eating disorders
  - Obsessive-compulsive disorders
  - Personality disorders
  - Schizophrenia and related disorders (e.g., schizophrenia, catatonia, psychotic disorders)
  - Somatic symptom disorders
  - Suicidal ideation or attempt
  - Trauma- and stressor-related disorders (e.g., post-traumatic stress disorder)
  - Miscellaneous mental disorders (e.g., homicidal ideations, unspecified nonpsychotic mental disorders, unspecified childhood emotional disorders, unspecified mental disorders complicating pregnancy)

Note that the definition used in this Statistical Brief may differ from that in other Statistical Briefs and statistics published on HCUP-US and HCUPnet. As a result, rates of substance-related inpatient stays may differ somewhat from similar rates reported elsewhere. In particular, the opioid definition used here includes only codes for initial encounters and not codes for subsequent encounters or sequela. Additionally, substance-related self-harm codes were included in the category for suicidal ideation or attempt instead of the substance-related category. The codes included in this Statistical Brief also differ from those in the CCS categories related to MSUDs available for query in other parts of HCUPnet.

Types of hospitals included in the HCUP National Inpatient Sample
The National Inpatient Sample (NIS) 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 NIS includes obstetrics and gynecology, otolaryngology, orthopedic, cancer, pediatric, public, and academic medical hospitals. Excluded are long-term care facilities such as rehabilitation, psychiatric, and alcoholism and chemical dependency hospitals. Beginning in 2012, long-term acute care hospitals are also excluded. However, if a patient received long-term care, rehabilitation, or treatment for a psychiatric or chemical dependency condition in a community hospital, the discharge record for that stay will be included in the NIS.

Unit of analysis
The unit of analysis is the hospital discharge (i.e., the hospital stay), not a person or patient. This means that a person who is admitted to the hospital multiple times in 1 year will be counted each time as a separate discharge from the hospital.

Population rates
Rates of stays per 100,000 population were calculated using 2016 hospital discharge totals in the numerator and Claritas\textsuperscript{12} estimates of the 2016 U.S. population aged 5 years or older in the denominator. Individual patients hospitalized multiple times are counted more than once in the numerator.

Population rate of MSUD stays = \( \frac{\text{number of MSUD stays among patients aged 5+ years}}{\text{number of U.S. residents aged 5+ years}} \times 100,000 \)

Percentage difference
Percentage differences between groups were calculated using the following formula:

\[
\text{Percentage difference} = \left( \frac{\text{Group 1 value} - \text{Group 2 value}}{\text{Group 2 value}} \right) \times 100
\]

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).\(^{13}\) 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.

Mean cost per day is calculated as the cost divided by the length of each stay, averaged across all stays.

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.\(^{14}\) 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, 2014 outpatient gross revenues (or charges) were about 46 percent of total hospital gross revenues.\(^{15}\)

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.

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 either urban or rural according to the following:

Urban:
- 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


Rural:
- 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 produces population estimates and projections based on data from the U.S. Census Bureau. The value ranges for the income quartiles vary by year. The income quartile is missing for patients who are homeless or foreign.

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

- Expected payer for patients aged less than 65 years:
  - Medicare: includes fee-for-service and managed care Medicare
  - Medicaid: includes fee-for-service and managed care Medicaid
  - Private Insurance: includes commercial nongovernmental payers, regardless of the type of plan (e.g., private health maintenance organizations [HMOs], preferred provider organizations [PPOs])
  - Self-pay/no charge: includes self-pay, no charge, charity, Hill Burton Free care, research (e.g., clinical trial or donor), refusal to pay, and no payment
  - Other payers: includes other Federal and local government programs (e.g., TRICARE, CHAMPVA, Indian Health Service, Black Lung, Title V) and Workers’ Compensation

- Expected payer for patients aged 65 years old or older:
  - Medicare: includes fee-for-service and managed care Medicare
  - Non-Medicare: includes all other expected payer categories, as described above (i.e., Medicaid, private insurance, self-pay/no charge, other payers).

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 SCHIP as an expected payer specifically, it is not possible to present this information separately.

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

- 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

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Division
Division corresponds to the location of the hospital and is one of the nine divisions defined by the U.S. Census Bureau:

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

Admission source or point of origin
Admission source (now known as the patient’s point of origin) indicates where the patient was located prior to admission to the hospital. Emergency admission indicates that the patient was admitted to the hospital through the emergency department.

Discharge status
Discharge status reflects the disposition of the patient at discharge from the hospital and includes the following five categories: routine (to home) or home health care; transfer to another short-term hospital; other transfers (including skilled nursing facility, intermediate care, and another type of facility such as a nursing home); died in the hospital; or other (including against medical advice and discharged alive, destination unknown).

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
Delaware Division of Public Health
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 Department of Health and Human Resources, West Virginia Health Care Authority  
Wisconsin Department of Health Services  
Wyoming Hospital Association

About the NIS

The HCUP National Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is nationally representative of all community hospitals (i.e., short-term, non-Federal, nonrehabilitation hospitals). The NIS includes all payers. It is drawn from a sampling frame that contains hospitals comprising more than 95 percent of all discharges in the United States. The vast size of the NIS allows the study of topics at the national and regional levels for specific subgroups of patients. In addition, NIS data are standardized across years to facilitate ease of use. Over time, the sampling frame for the NIS has changed; thus, the number of States contributing to the NIS varies from year to year. The NIS is intended for national estimates only; no State-level estimates can be produced. The unweighted sample size for the 2016 NIS is 7,135,090 (weighted, this represents 35,675,421 inpatient stays).

For More Information

For other information on mental and substance use disorders, refer to the HCUP Statistical Briefs located at www.hcup-us.ahrq.gov/reports/statbriefs/sb_mhsa.jsp.

For additional HCUP statistics, visit:
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 National Inpatient Sample (NIS), please refer to the following database documentation:


Suggested Citation


Acknowledgments

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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:

Joel Cohen, Ph.D., Director
Center for Financing, Access and Cost Trends
Agency for Healthcare Research and Quality
5600 Fishers Lane
Rockville, MD 20857

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