Mental Health & Substance Use related Emergency Room Visits

Data from the Vermont Hospital Uniform Discharge Dataset (VHUDDS)

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Outline

• Goal: Summarize characteristics of hospital emergency room (ER) visits to potentially inform prevention efforts
  • ER visits with a mental health (MH) related diagnosis
  • ER visits with a substance use disorder (SUD) related diagnosis
  • ER visits with a suicide-related diagnosis
• Time periods: calendar years 2016 & 2017
• Questions to answer for each type of ER visit...
  • How many ER visits?
  • What is the unadjusted rate of ER visits per 1,000 total ER visits?
  • How does the number/rate of visits change from 2016-2017?
  • How does the number of ER visits vary by age and gender?
  • Within the broader categories, what types of ER visits are most common?
Methods

• Data Source/Categorization: VUHDDS calendar years 2016/2017 combined
  • Green Mountain Care Board has statutory authority to collect the data and provides de-identified public use files via the Vermont Department of Health

• Metrics:
  • Total number of visits
  • Unadjusted rate per 1,000 ER visits, by hospital: (# of ER visits for a condition/total number ER visits)*1000
  • Percent change = (value 1 – value 2/ value 1) x 100
  • Differences by age group (<17, 18-24, 25-39, 40-49, 50+) and gender (male/female)
  • Differences by diagnosis type:
    • Primary admission diagnosis =‘admit’, admit + 20 additional fields=‘any’ diagnosis
    • 21 fields for codes in each hospital discharge record, admission diagnosis & 20 additional diagnosis fields*

• Important Limitations: ICD-10 coding practice differences when comparing hospitals; unit of analysis is visit not person; 2016/2017 is two years ago (2018 data will be available in December 2019); Rates are provided unadjusted; Idea-generating analysis; not designed to answer in-depth research questions that would involve multi-variate modeling

*AHRQ reviewed the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the ICD-10-CM system, and the Clinical Classification Software (CCS)ICD-10 codes and categorized the ICD-10 codes: https://www.hcup-us.ahrq.gov/reports/statbriefs/sb249-appendix.pdf. Important notes about categorization: “…the opioid definition used here includes only codes for initial encounters (active treatment) and not codes for subsequent encounters (not in active treatment, routine follow-up care) or sequela (a secondary code used to attach a causal condition to another code). Additionally, substance-related self-harm codes were included in the category for suicidal ideation or attempt instead of the substance-related category.”
How many ER visits?

What is the unadjusted rate per 1,000 total ER visits?
How many SUD ER visits? *any diagnosis field*
What is the unadjusted rate of SUD ER visits per 1,000 total ER visits? *any diagnosis field*
How many SUD ER visits? *primary admission diagnosis field*
What is the unadjusted rate of SUD ER visits per 1,000 total ER visits? *primary admission diagnosis field*
How many MH ER visits?

any diagnosis field
What is the unadjusted rate of MH ER visits per 1,000 total ER visits? *any diagnosis field*
What is the unadjusted rate of MH ER visits per 1,000 total ER visits? *primary admission diagnosis field*
How many suicide ER visits? *any diagnosis field*

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Number of Suicide Visits 2016</th>
<th>Number of Suicide Visits 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grace Cottage Hospital</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Gifford Memorial Hospital</td>
<td>66</td>
<td>69</td>
</tr>
<tr>
<td>Porter Medical Center</td>
<td>72</td>
<td>69</td>
</tr>
<tr>
<td>Mount Ascutney Hospital And Health</td>
<td>67</td>
<td>77</td>
</tr>
<tr>
<td>Copley Hospital</td>
<td>95</td>
<td>108</td>
</tr>
<tr>
<td>North Country Hospital And Health</td>
<td>141</td>
<td>141</td>
</tr>
<tr>
<td>Springfield Hospital</td>
<td>84</td>
<td>179</td>
</tr>
<tr>
<td>Northeastern Vermont Regional Ho</td>
<td>107</td>
<td>224</td>
</tr>
<tr>
<td>Southwestern Vermont Medical Cen</td>
<td>231</td>
<td>361</td>
</tr>
<tr>
<td>Northwestern Medical Center</td>
<td>231</td>
<td>361</td>
</tr>
<tr>
<td>Brattleboro Memorial Hospital</td>
<td>231</td>
<td>361</td>
</tr>
<tr>
<td>Central Vermont Hospital</td>
<td>254</td>
<td>381</td>
</tr>
<tr>
<td>Rutland Regional Medical Center</td>
<td>308</td>
<td>478</td>
</tr>
<tr>
<td>University of VT Medical Center</td>
<td>478</td>
<td>954</td>
</tr>
<tr>
<td>Southwestern Vermont Medical Cen</td>
<td>954</td>
<td>1238</td>
</tr>
</tbody>
</table>

% Change 2016 to 2017:
- Southwestern Vermont Medical Cen: -19.9%
- Grace Cottage Hospital: -19.9%
- Porter Medical Center: -19.9%
- Rutland Regional Medical Center: -19.9%
- Brattleboro Memorial Hospital: -19.9%
- University of VT Medical Center: -19.9%
- Central Vermont Hospital: -19.9%
- North Country Hospital And Health: -19.9%
- Northwestern Medical Center: -19.9%
- Gifford Memorial Hospital: -19.9%
- Mount Ascutney Hospital And Health: -19.9%
- Springfield Hospital: -19.9%
What is the unadjusted rate of suicide ER visits per 1,000 total ER visits? *any diagnosis field*
How many suicide ER visits?

- Primary admission diagnosis field

Bar chart showing the number of primary admit suicide visits at various hospitals.

- Grace Cottage Hospital
- Porter Medical Center
- Gifford Memorial Hospital
- Mount Ascutney Hospital And Health
- Copley Hospital
- Springfield Hospital
- North Country Hospital And Health
- Southwestern Vermont Medical Cen
- Northeastern Vermont Regional Ho
- Brattleboro Memorial Hospital
- Northwestern Medical Center
- Central Vermont Hospital
- Rutland Regional Medical Center
- University of VT Medical Center

Graph showing the percentage change in suicide visits from 2016 to 2017.
- Porter Medical Center
- Southwestern Vermont Medical Cen
- Brattleboro Memorial Hospital
- Rutland Regional Medical Center
- Grace Cottage Hospital
- Copley Hospital
- North Country Hospital And Health
- University of VT Medical Center
- Northeastern Vermont Regional Ho
- Northwestern Medical Center
- Central Vermont Hospital
- Gifford Memorial Hospital
- Mount Ascutney Hospital And Health
- Springfield Hospital
What is the unadjusted rate of suicide ER visits per 1,000 total ER visits? *primary admission diagnosis field*
How does the number of ER visits differ by age at Copley?

How does the number of ER visits differ by gender at Copley?
How does the number of SUD ER visits differ by age and sex? *primary admission diagnosis field*

**Copley**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=17</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>18-24</td>
<td>11</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>25-39</td>
<td>40</td>
<td>25</td>
<td>65</td>
</tr>
<tr>
<td>40-49</td>
<td>41</td>
<td>28</td>
<td>69</td>
</tr>
<tr>
<td>50+</td>
<td>18</td>
<td>14</td>
<td>32</td>
</tr>
</tbody>
</table>

**Statewide**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=17</td>
<td>85</td>
<td>67</td>
<td>152</td>
</tr>
<tr>
<td>18-24</td>
<td>548</td>
<td>538</td>
<td>1086</td>
</tr>
<tr>
<td>25-39</td>
<td>1285</td>
<td>464</td>
<td>1749</td>
</tr>
<tr>
<td>40-49</td>
<td>747</td>
<td>464</td>
<td>1211</td>
</tr>
<tr>
<td>50+</td>
<td>1472</td>
<td>623</td>
<td>2095</td>
</tr>
</tbody>
</table>
How does the number of MH ER visits differ by age and sex? *primary admission diagnosis field*

### Copley

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=17</td>
<td>35</td>
<td>54</td>
</tr>
<tr>
<td>18-24</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>25-39</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>50+</td>
<td>44</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>69</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>51</td>
</tr>
</tbody>
</table>

### Statewide

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=17</td>
<td>762</td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>1125</td>
<td></td>
</tr>
<tr>
<td>25-39</td>
<td>1006</td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>1460</td>
<td></td>
</tr>
<tr>
<td>50+</td>
<td>1297</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1543</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2126</td>
<td>2126</td>
</tr>
<tr>
<td></td>
<td>1814</td>
<td>2126</td>
</tr>
</tbody>
</table>
How does the number of suicide ER visits differ by age and sex?

**Copley**

- <=17: Male 6, Female 11
- 18-24: Male 14, Female 13
- 25-39: Male 18, Female 11
- 40-49: Male 11, Female 8

**Statewide**

- <=17: Male 317, Female 871
- 18-24: Male 471, Female 374
- 25-39: Male 508, Female 771
- 40-49: Male 748, Female 674
- 50+: Male 467, Female 564
Within the broader categories, what types of ER visits are most common?
What types of SUD ER visits are most common?

*primary admission diagnosis of SUD*

**Copley**

- Alcohol: 80%
- Opioids: 20%
- THC: 0%
- Misc.: 0%
- Stimulants: 0%
- Sedatives: 0%

**Statewide**

- Alcohol: 80%
- Opioids: 20%
- THC: 0%
- Misc.: 0%
- Stimulants: 0%
- Sedatives: 0%
What types of MH ER visits are most common?

*primary admission diagnosis of MH*

**Copley**
- Conduct/Impulse
- Anxiety
- Suicide
- Depression
- Trauma/Stress
- Misc.
- Bipolar
- Somatic
- Personality
- OCD
- Eating

**Statewide**
- Suicide
- Anxiety
- Depression
- Trauma/Stress
- Misc.
- Bipolar
- Somatic
- Personality
- OCD
- Eating
What types of Suicide ER visits are most common at Copley?

*primary admission diagnosis of MH*
Key Findings: # of visits and change from 2016 to 2017

• # of ER visits at Copley by category
  • Between 300-350 SUD visits a year of any SUD diagnosis, between 90-100 admission SUD diagnoses
  • Between 1400-1600 MH visits a year of any MH diagnosis, between 225-245 admission MH diagnoses
  • Between 95-108 Suicide visits a year of any suicide diagnosis, between 66-81 admission suicide diagnoses

• Change from 2016 to 2017
  • The number of any diagnosis SUD visits is decreasing, # of primary SUD is increasing slightly.
  • The number of MH visits of any and primary type are decreasing slightly.
  • The number of suicide visits is increasing, this is true in most hospitals statewide.
Key Findings: Number of visits by age and gender

• SUD primary admission visits are disproportionally men and older individuals.
• MH primary admission visits are disproportionally women and the proportion of 18-24 year olds is higher than statewide.
• Suicide primary admission visits are disproportionally women and female 18-24 year olds are a higher proportion at Copley than Statewide.
Key Findings: Type of ER visit

- The most common primary SUD visits are alcohol and opioids.
- The most common primary MH visits are suicide and anxiety. Copley has more conduct/impulse disorder primary admission visits than statewide.
- The most common primary suicide admissions visits were for suicidal ideation, suicide attempt and poisoning.
Thank you!

Questions?
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