Mental health and substance use during COVID-19

Presenters:
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Steffie Goodman
Kristen Daly
Introduction and Context
Colorado and national mental health context

- Significant unmet mental health needs existed prior to the pandemic
- Colorado: 40th for Adults and 48th for youth in 2018
- COVID-19 Impacts on Mental Health
COVID has complex impacts on mental health

• Isolation, economic challenges, grief
• Young Adults
• First Responders, Medical staff, Frontline workers
• Those who have contracted COVID-19
Our data sources for today

• Syndromic surveillance emergency department visit data for Boulder County (SyS)
• Vital statistics (i.e., death certificates)
Emergency department visits
(ESSENCE/SyS)

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)
National Syndromic Surveillance Platform (NSSP)
Emergency Department Visits

- Suicide Attempt
- Alcohol Overdose
- Opioid Overdose
- Sexual Violence

- Age (0-9, 10-17, 18-24, 25-29, 30-39, 40-49, 50-59, 60-69, 70+)
- Gender
- Race/Ethnicity
Cumulative ED visits to Boulder County hospitals by year

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)
ED visits to Boulder County Hospitals by year

ED visits

MMWR Weeks

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

Stay at home order

1st Boulder County COVID case

Stay at home order lifted

Yellow to Orange on the dial

Orange to Red on the dial

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)
Trend in two-week incidence of new COVID-19 cases among Boulder County residents, by age group (1/4/21)
Suicide Attempt

2017-2020
Cumulative ED visits for suicide attempt in Boulder County hospitals by year

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)
Cumulative emergency department visits to Boulder County Hospitals for suicidal attempt by year, age 18-24

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent increase of cumulative emergency department visits to Boulder County hospitals for suicide attempt by age group, 2017-2020

<table>
<thead>
<tr>
<th></th>
<th>Average 2017-2019</th>
<th>2020</th>
<th>% increase in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>5.33</td>
<td>17</td>
<td>219%</td>
</tr>
<tr>
<td>10-17</td>
<td>112</td>
<td>127</td>
<td>13%</td>
</tr>
<tr>
<td>18-24</td>
<td>84</td>
<td>129</td>
<td>53%</td>
</tr>
<tr>
<td>25-29</td>
<td>40</td>
<td>85</td>
<td>113%</td>
</tr>
<tr>
<td>30-39</td>
<td>67.67</td>
<td>97</td>
<td>43%</td>
</tr>
<tr>
<td>40-49</td>
<td>51.67</td>
<td>92</td>
<td>77%</td>
</tr>
<tr>
<td>50-59</td>
<td>45.67</td>
<td>72</td>
<td>57%</td>
</tr>
<tr>
<td>60-69</td>
<td>26</td>
<td>66</td>
<td>150%</td>
</tr>
<tr>
<td>70+</td>
<td>18</td>
<td>61</td>
<td>239%</td>
</tr>
</tbody>
</table>
Gender comparison of emergency department visits for suicidal attempt to Boulder County Hospitals by year

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent by race/ethnicity of emergency department visits for suicide attempt to Boulder County Hospitals, (average years 2017-2019, 2020) compared to overall percent by race/ethnicity Boulder County population.

- % of Boulder County Population: 77% White non-Hispanic, 14% Hispanic any race, 9% Any race (non-White) non-Hispanic.
- Average 2017-2019: 77% White non-Hispanic, 13% Hispanic any race, 10% Any race (non-White) non-Hispanic.
- 2020: 80% White non-Hispanic, 13% Hispanic any race, 7% Any race (non-White) non-Hispanic.

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Cumulative emergency department visits for alcohol overdose in Boulder County, by year

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (AKA Syndromic Surveillance)
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Average 2017-2019</th>
<th>2020</th>
<th>% increase in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-29</td>
<td>180</td>
<td>230</td>
<td>28%</td>
</tr>
<tr>
<td>30-39</td>
<td>264</td>
<td>404</td>
<td>53%</td>
</tr>
<tr>
<td>40-49</td>
<td>283</td>
<td>373</td>
<td>32%</td>
</tr>
<tr>
<td>50-59</td>
<td>352</td>
<td>509</td>
<td>45%</td>
</tr>
<tr>
<td>60-69</td>
<td>241</td>
<td>379</td>
<td>6%</td>
</tr>
</tbody>
</table>
Gender comparison of emergency department visits for alcohol overdose to Boulder County Hospitals by year

Year

2017

2018

2019

2020

Percent Female

38%

36%

37%

33%

Percent Male

62%

64%

63%

67%

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent by race/ethnicity of emergency department visits for alcohol overdose to Boulder County Hospitals, (average years 2017-2019, 2020) compared to overall percent by race/ethnicity Boulder County population.
Opioid Overdose

2017-2020
Cumulative emergency department visits for opioid overdose in Boulder County, by year

Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)
Cumulative emergency department visits to Boulder County Hospitals for opioid overdose by year, age 25-29

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent increase of cumulative emergency department visits to Boulder County hospitals for opioid overdose by age group, 2017-2020

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Average 2017-2019</th>
<th>2020</th>
<th>% increase in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-29</td>
<td>14</td>
<td>34</td>
<td>143%</td>
</tr>
<tr>
<td>40-49</td>
<td>9</td>
<td>15</td>
<td>67%</td>
</tr>
<tr>
<td>50-59</td>
<td>6</td>
<td>22</td>
<td>267%</td>
</tr>
<tr>
<td>70+</td>
<td>7</td>
<td>14</td>
<td>100%</td>
</tr>
</tbody>
</table>
Gender comparison of emergency department visits for opioid overdose to Boulder County Hospitals by year

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent by race/ethnicity of emergency department visits for opioid overdose to Boulder County Hospitals, (average years 2017-2019, 2020) compared to overall percent by race/ethnicity Boulder County population

<table>
<thead>
<tr>
<th>Category</th>
<th>2017-2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Boulder County Population</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>Average 2017-2019</td>
<td>85%</td>
<td>83%</td>
</tr>
<tr>
<td>White non-Hispanic</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>Hispanic any race</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Any race (non-White) non-Hispanic</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Sexual Violence

2017-2020
Cumulative emergency department visits for sexual violence in Boulder County, by year

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (AKA Syndromic Surveillance)
Percent increase of cumulative emergency department visits to Boulder County hospitals for sexual violence by age group, 2017-2020

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Average 2017-2019</th>
<th>2020</th>
<th>% increase in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-17</td>
<td>12</td>
<td>18</td>
<td>50%</td>
</tr>
<tr>
<td>18-24</td>
<td>28</td>
<td>50</td>
<td>79%</td>
</tr>
<tr>
<td>30-39</td>
<td>16</td>
<td>47</td>
<td>194%</td>
</tr>
<tr>
<td>40-49</td>
<td>6</td>
<td>16</td>
<td>167%</td>
</tr>
<tr>
<td>60-69</td>
<td>1</td>
<td>9</td>
<td>800%</td>
</tr>
</tbody>
</table>
Gender comparison of emergency department visits to Boulder County hospitals for sexual violence by year

<table>
<thead>
<tr>
<th>Year</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>91%</td>
<td>9%</td>
</tr>
<tr>
<td>2018</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>2019</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>2020</td>
<td>86%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Percent by race/ethnicity of emergency department visits for sexual violence to Boulder County Hospitals, (average years 2017-2019, 2020) compared to overall percent by race/ethnicity Boulder County population

Source: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (AKA Syndromic Surveillance)
Summary of findings

- Indicators most concerning
  - Suicide attempt
    - 9/9 age groups affected (13-239% increase in 2020)
    - F>M
  - Alcohol overdose
    - 5/9 age groups affected (6-53% increase in 2020)
    - M>F
  - Opioid overdose
    - 4/9 age groups affected (67-267% increase in 2020)
    - M>F
  - Sexual violence
    - 5/9 age groups affected (50-800% increase in 2020)
    - F>M
- Race/ethnicity does not seem to be a driving force
- Limitations of data
  - ED data only
  - Gender binary only
Death data from Vital Statistics

https://www.cdc.gov/nchs/nvss/about_nvss.htm
Number of Suicide Deaths in Colorado by Month 2018-2020

Please note that 4th Quarter 2020 data is not yet complete.

Suicide Deaths as a Percent of Total Deaths by Age Group in Colorado and Boulder County 2018-2020

* indicates fewer than three events in category.


Please note that 4th Quarter 2020 data is not yet complete.
Number of Drug Poisoning Deaths in Colorado by Month 2018-2020


Please note that 4th Quarter 2020 data is not yet complete.
### Number of Poisoning Deaths from Methamphetamine, Heroin, and Any Opioid Analgesic from 2018-2020

#### Colorado

<table>
<thead>
<tr>
<th>Year</th>
<th>Methamphetamine</th>
<th>Heroin</th>
<th>Any opioid analgesic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>318</td>
<td>229</td>
<td>349</td>
</tr>
<tr>
<td>2019</td>
<td>347</td>
<td>211</td>
<td>433</td>
</tr>
<tr>
<td>2020</td>
<td>430</td>
<td>174</td>
<td>642</td>
</tr>
</tbody>
</table>

#### Boulder County

<table>
<thead>
<tr>
<th>Year</th>
<th>Methamphetamine</th>
<th>Heroin</th>
<th>Any opioid analgesic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>14</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>2019</td>
<td>20</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>2020</td>
<td>18</td>
<td>9</td>
<td>25</td>
</tr>
</tbody>
</table>


Please note that 4th Quarter 2020 data is not yet complete.
Number of Fentanyl Deaths in Colorado and Boulder County 2018-2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Fentanyl deaths CO</th>
<th>Fentanyl deaths Boulder</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>102</td>
<td>0</td>
</tr>
<tr>
<td>2019</td>
<td>214</td>
<td>8</td>
</tr>
<tr>
<td>2020</td>
<td>445</td>
<td>12</td>
</tr>
</tbody>
</table>


Please note that 4th Quarter 2020 data is not yet complete.
National Trends

Find more information at CoHID Colorado Health Information Dataset
Conclusion and implications
Strengths & limitations

Strengths: observe severe outcomes related to MH and SU and analyze by demographics

Limitations: SyS is ED only and gender binary; Vital Statistics- 2020 is incomplete and small local numbers

General limitations: Only capture most severe outcomes
Implications- what can we do?

• Communication around this data
• Looking upstream before severe outcome
• Policy and Funding implications
• Access- Telehealth
• Other?
Discussion question

What other questions do you need answered by mental health and substance use data, both quantitative and qualitative?