Polysubstance Use:
A broader understanding of substance use during the opioid crisis

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No conflicts of interest to disclose
Opioid Trends
Survey of Key Informants’ Patients (SKIP) Program

• SKIP
  • ~120 nationally distributed opioid treatment programs in each program
  • Variety of public and private non-methadone programs (e.g. community programs, buprenorphine providers, inpatient/residential programs, outpatient counseling)

• Analyses
  • Polyopioid and polysubstance use trends from 2012 to 2018
  • SKIP, n=14,579

• Citation
  • Cicero TJ, Ellis MS, Kasper ZA. Polysubstance Use: A Broader Understanding of Substance Use During the Opioid Crisis. Am J Public Health. 2020 Feb;110(2):244-250.
Opioid Use in SKIP Overall (N=14,579)

National

- Any Rx Opioid (% change = -8%)
- Any Heroin/Non-Rx Fentanyl (% change = +63%)

Percent of SKIP population


Washington University School of Medicine in St. Louis Department Of Psychiatry
Rural

- Any Rx Opioid (% change = -19%)
- Any Heroin/Non-Rx Fentanyl (% change = +96%)

Percent of rural residents in SKIP

Washington University School of Medicine in St. Louis
Urban

Percent of urban residents in SKIP

- Rx Opioids Only: (% change = -56%)
- Heroin/Non-Rx Fentanyl Only: (% change = +268%)
- Rx Opioids & Heroin/Non-Rx Fentanyl: (% change = +36%)
Rural
Opioid-prescription rate fell, but rose in rural areas; CDC study has county-by-county maps

Opioid-prescription rates fell recently, but continued to increase in more than half of U.S. counties, the federal Centers for Disease Control and Prevention says in a report that includes county-by-county maps showing ranges of prescription rates and whether the rates have increased or decreased since 2010. The national rate was still three times as high as it was in 1999.

Rural Areas
- Fewer options for pain mgmt
- Less resources/personnel
- Healthcare provider differences
- Individual barriers
Figure. Waivered providers, by overdose death rate (left) and rurality (right).

Left. Error bars represent 95% CIs. Quintiles represent rate of opioid overdose deaths per 100,000 persons in the previous year. Estimates are based on conditional standardization from regression analysis, with covariates set to median values within respective quintiles. Right. Estimates are based on conditional standardization from regression analysis, with covariates set to median values within respective rurality classifications.
<table>
<thead>
<tr>
<th>Facilitators</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>Negative attitudes toward MAT (e.g., on the part of counselors)</td>
</tr>
<tr>
<td>Policies (e.g., 2017 expansion of buprenorphine prescribing privileges to APRNs)</td>
<td>Certification (e.g., reluctance of prescribers to complete certification tasks)</td>
</tr>
<tr>
<td>Outreach (e.g., marketing campaigns)</td>
<td>Funding (e.g., singular focus on MAT costs)</td>
</tr>
<tr>
<td>Support from local institutions (e.g., criminal justice systems)</td>
<td>Staffing (e.g., unable to recruit MAT-friendly counselors)</td>
</tr>
<tr>
<td>Certification (e.g., ability to increase prescriber slots)</td>
<td></td>
</tr>
<tr>
<td>Funding (e.g., ability to access state grants for MAT provision)</td>
<td></td>
</tr>
<tr>
<td>Staffing (e.g., ability to recruit MAT prescriber)</td>
<td></td>
</tr>
<tr>
<td><strong>Use</strong></td>
<td>Funding (e.g., inability to develop revenue streams to defray MAT costs)</td>
</tr>
<tr>
<td>Funding (e.g., ability to bill private insurance for MAT provision)</td>
<td>Staffing (e.g., inability to fully staff MAT program)</td>
</tr>
<tr>
<td>Outreach (e.g., public education designed to increase awareness of MAT availability)</td>
<td></td>
</tr>
<tr>
<td>Partnerships with local institutions (e.g., establishing referral mechanism with the local emergency department)</td>
<td>Negative attitudes (e.g., the community rejects MAT philosophy)</td>
</tr>
<tr>
<td></td>
<td>Lack of referrals (e.g., highly competitive environment for service providers)</td>
</tr>
<tr>
<td></td>
<td>Patient issues (e.g., high attrition among patients admitted to MAT program)</td>
</tr>
<tr>
<td>Patient limit</td>
<td>Waivered clinicians, No.</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>30</td>
<td>42508</td>
</tr>
<tr>
<td>100</td>
<td>8923</td>
</tr>
<tr>
<td>275</td>
<td>4507</td>
</tr>
<tr>
<td>Total clinicians</td>
<td>55938</td>
</tr>
</tbody>
</table>
Polysubstance Use
Past month use of non-opioid drugs, SKIP 2012/2018

<table>
<thead>
<tr>
<th>Drug</th>
<th>12q1.2 (N=1226)</th>
<th>18q1.2 (N=1149)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 non-opioid drug</td>
<td>96.3%</td>
<td>96.4%</td>
</tr>
<tr>
<td>Nicotine</td>
<td>80.3%</td>
<td>82.0%</td>
</tr>
<tr>
<td>Marijuana</td>
<td>46.3%</td>
<td>51.8%</td>
</tr>
<tr>
<td>Alcohol</td>
<td>34.1%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Anxiolytics</td>
<td>52.6%</td>
<td>52.6%</td>
</tr>
<tr>
<td>Rx stimulants*</td>
<td>18.8%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>23.2%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Muscle relaxants</td>
<td>28.2%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Rx sleep meds</td>
<td>26.1%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Crystal meth</td>
<td>36.4%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Crack/cocaine</td>
<td>33.2%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Hallucinogens</td>
<td>10.0%</td>
<td>6.1%</td>
</tr>
<tr>
<td>MDMA</td>
<td>6.1%</td>
<td>6.1%</td>
</tr>
</tbody>
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* data first made available 15q1.2
Past month use of non-opioid drugs, SKIP 2012/2018

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Past month use of non-opioid drugs, SKIP 2012/2018

- ≥1 non-opioid: 96.3% 96.4%
- Nicotine: 80.3% 82.0%
- Marijuana: 46.3% 51.8%
- Alcohol: 34.1% 33.5%
- Anxiolytics: 52.6%
- Rx stimulants*: 18.8% 14.7%
- Antidepressants: 23.2% 22.9%
- Muscle relaxants: 28.2% 12.9%
- Rx sleep meds: 26.1% 9.1%
- Crystal meth: 22.7%
- Crack/cocaine: 30.3% 33.2%
- Hallucinogens: 10.0% 6.1%
- MDMA: 13.1% 6.1%

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Polysubstance use in pregnant women with OUD
Polysubstance use in pregnant women with OUD
Opioid and Stimulant Trends: The Fourth Wave
Overdose deaths

3 Waves of the Rise in Opioid Overdose Deaths

- **Heroin**: Natural & Semi-Synthetic Opioids and Methadone
- **Commonly Prescribed Opioids**: Natural & Semi-Synthetic Opioids and Methadone
- **Other Synthetic Opioids**: e.g., Tramadol and Fentanyl, prescribed or illicitly manufactured

Wave 1: Rise in Prescription Opioid Overdose Deaths
Wave 2: Rise in Heroin Overdose Deaths
Wave 3: Rise in Synthetic Opioid Overdose Deaths
Introduction

<table>
<thead>
<tr>
<th>Methamphetamine versus Cocaine</th>
<th></th>
</tr>
</thead>
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<tr>
<td><strong>Methamphetamine</strong></td>
<td><strong>Cocaine</strong></td>
</tr>
<tr>
<td>Stimulant</td>
<td>Stimulant and local anesthetic</td>
</tr>
<tr>
<td>Man-made</td>
<td>Plant-derived</td>
</tr>
<tr>
<td>Smoking produces a long-lasting high</td>
<td>Smoking produces a brief high</td>
</tr>
<tr>
<td>50% of the drug is removed from the body in 12 hours</td>
<td>50% of the drug is removed from the body in 1 hour</td>
</tr>
<tr>
<td>Increases dopamine release and blocks dopamine re-uptake</td>
<td>Blocks dopamine re-uptake</td>
</tr>
<tr>
<td>Limited medical use for ADHD, narcolepsy, and weight loss</td>
<td>Limited medical use as a local anesthetic in some surgical procedures</td>
</tr>
</tbody>
</table>

Overdose deaths

Figure 4. Age-adjusted drug overdose death rates involving stimulants, by type of stimulant: United States, 1999–2018

1Significant increasing trend from 1999 through 2006, decreasing trend from 2006 through 2012, and increasing trend from 2012 through 2018 with different rates of change over time, p < 0.05.
2Significant increasing trend from 1999 through 2005, 2006 through 2012, and 2012 through 2018 with different rates of change over time, p < 0.05.

NOTES: Deaths are classified using the International Classification of Diseases, 10th Revision. Drug poisoning (overdose) deaths are identified using underlying cause-of-death codes X40–X44, X80–X84, X60, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple-cause-of-death codes: cocaine, T40.5, and psychostimulants, T43.6. Deaths may involve multiple drugs. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, with ranges of 75%–79% from 1999 through 2013 and 81%–92% from 2014 through 2018. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db356_tables-508.pdf#4.

Overdose deaths

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2018 on CDC WONDER Online Database, released January, 2019
Overdose deaths

Top 15 drugs involved in drug overdose deaths, United States, 2017

Overdose deaths: Regionality

Drug overdose deaths by region
Methamphetamine was the top drug involved in overdose deaths in most of the western half of the U.S. while fentanyl pervaded the eastern half.

NOTE: Data from 2017. Deaths may include additional drugs.
SOURCE: NCHS National Vital Statistics System

Stobbe, Mike. Meth is most common drug in overdose deaths in chunk of US. AP News October 24, 2019. https://apnews.com/f57bbc469d9f47519f373ee932cfa8a2
Overdose deaths: Regionality

Overdose deaths: Urbanicity

Treatment Admissions

Note. AI/AN = American Indian/Alaska Native; NH = non-Hispanic. Percentage of drug-related treatment admissions reporting any methamphetamine use. Any methamphetamine treatment admissions were defined as treatment admissions in which methamphetamine was listed as a primary, secondary, or tertiary substance of use.

Source: 2008-2017 Treatment Episode Data Set.

FIGURE 1—Percentage of Treatment Admissions Reporting Methamphetamine Use Among Drug-Related Treatment Admissions (a) Overall and by Sex, (b) by Age Group, (c) by Race/Ethnicity, and (d) by US Census Region: United States, 2008-2017

Route of Administration

Note: Any methamphetamine treatment admissions were defined as treatment admissions in which methamphetamine was listed as a primary, secondary, or tertiary substance of use. Primary methamphetamine treatment admissions were defined as treatment admissions in which methamphetamine was listed as the primary substance of use.

Source: 2008-2017 Treatment Episode Data Set.

FIGURE 2—Usual Route of Methamphetamine Use Reported at Treatment Admissions for (a) Any Methamphetamine and (b) Primary Methamphetamine: United States, 2008-2017

Disparate Data

- General population use is stable or has small increases (NSDUH)
- Treatment admissions for cocaine have decreased (TEDS)
- Significant relationship to the opioid epidemic
Opioids + Stimulants: Overdose deaths

DOI: http://dx.doi.org/10.15585/mmwr.mm6817a3external icon.
Opioids + Stimulants: Overdose deaths

Of all opioid overdose deaths, a growing proportion also involve stimulants

Opioids + Stimulants: Overdose deaths

A growing share of stimulant deaths involve opioids, mirroring the three waves of the opioid crisis

Opioids + Stimulants: Regionality

OD Deaths: Provisional Data 3/2018 – 2/2019
Source: CDC National Vital Statistics System, September 12, 2019

SYNTHETIC OPIOIDS

PSYCHOSTIMULANTS
Opioids + Stimulants: Regionality

OD Deaths: Provisional Data 3/2018 – 2/2019
Source: CDC National Vital Statistics System, September 12, 2019

SYNTHETIC OPIOIDS

PSYCHOSTIMULANTS

Cocaine Deaths
Opioids + Stimulants: Motivations for Use

Balance of effect 56

1. I could function on them together

(38.6)

2. I used meth to give me the rush & to have energy. I used heroin to numb myself or to get the high from the opioids. If i used too much meth id use heroin to calm down;

3. Cause I was trying to get allot of work done energy with no pain make you be able to get stuff done

4. Use meth sometimes to counter the drowsiness from opioids

Available as 22

Opioid Substitute (15.2)

1. So when i couldn’t use opioids because of money or availability, i used methamphetamine

2. I would use meth when I had ran out.

3. When I was really sick from the withdrawal and I couldn’t find opioids, I would use methamphetamine
Supply Side Forces: Seizures

Figure 65. DEA Nationwide Cocaine Removals, 2006 – 2018

Figure 45. Customs and Border Protection Southwest Border Methamphetamine Seizures, 2013 – 2018

Supply Side Forces: Production

**Figure 63. Colombian Cocaine Production, 2007 – 2018**

<table>
<thead>
<tr>
<th>Year</th>
<th>Potential Pure</th>
<th>Export Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>530</td>
<td>630</td>
</tr>
<tr>
<td>2008</td>
<td>320</td>
<td>400</td>
</tr>
<tr>
<td>2009</td>
<td>315</td>
<td>420</td>
</tr>
<tr>
<td>2010</td>
<td>280</td>
<td>380</td>
</tr>
<tr>
<td>2011</td>
<td>220</td>
<td>290</td>
</tr>
<tr>
<td>2012</td>
<td>210</td>
<td>270</td>
</tr>
<tr>
<td>2013</td>
<td>235</td>
<td>310</td>
</tr>
<tr>
<td>2014</td>
<td>324</td>
<td>423</td>
</tr>
<tr>
<td>2015</td>
<td>545</td>
<td>724</td>
</tr>
<tr>
<td>2016</td>
<td>776</td>
<td>994</td>
</tr>
<tr>
<td>2017</td>
<td>900</td>
<td>1,060</td>
</tr>
<tr>
<td>2018</td>
<td>887</td>
<td>1,040</td>
</tr>
</tbody>
</table>

Source: U.S. Government Estimates

**Figure 41. Number of Methamphetamine Laboratory Incidents, 2000 – 2017**

Source: El Paso Intelligence Center as of March 27, 2019

Supply Side Forces: Price & Purity

Figure 56. Price and Purity of Domestic Cocaine Purchases, January 2013 – December 2017

Figure 36. Domestic Methamphetamine Purchases, January 2013 – December 2017

Supply Side Forces: Emerging Trends

Figure 60. Counterfeit Xanax Pills Also Containing Cocaine and Fentanyl

Source: Wilmington, Massachusetts Police Department

Figure 49. Counterfeit Adderall Tablets Containing Methamphetamine seized In Michigan

Source: Michigan State Police
Impact of COVID-19
# Supply Side Forces: Early COVID-19

<table>
<thead>
<tr>
<th>Cocaine</th>
<th>Methamphetamine</th>
<th>Fentanyl/Heroin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production disruptions in Columbia</td>
<td>Precursor disruptions in China impacting production in Mexico</td>
<td>Precursor disruptions in China; opium disruptions in Afghanistan</td>
</tr>
<tr>
<td>Little disruption in sea trafficking</td>
<td>Disruptions in ground trafficking</td>
<td>Disruptions in air trafficking (fentanyl)</td>
</tr>
<tr>
<td>Economic crises could increase coca cultivation</td>
<td></td>
<td>Economic crises could increase opium cultivation</td>
</tr>
</tbody>
</table>

Opioid overdose deaths

3 Waves of the Rise in Opioid Overdose Deaths

- Other Synthetic Opioids: e.g., Tramadol and Fentanyl, prescribed or illicitly manufactured
- Heroin
- Commonly Prescribed Opioids: Natural & Semi-Synthetic Opioids and Methadone

Decreases in prescriptions
Wider availability of naloxone
Opioid Overdose deaths

- The Opioid Crisis, Already Serious, Has Intensified During Coronavirus Pandemic. [link](https://www.wsj.com/articles/the-opioid-crisis-already-serious-has-intensified-during-coronavirus-pandemic-11599557401) September 8, 2020
- As overdoses rise during pandemic, 2 moms share their stories of loss. [link](https://www.today.com/health/overdoses-rise-during-coronavirus-pandemic-moms-speak-out-t188420) August 5, 2020
- AMA Urges Changes After Dramatic Increase in Illicit Opioid Fatalities. [link](https://www.medscape.com/viewarticle/934548) July 24, 2020
- High Rate of Stimulant Use in Opioid ED Cases. [link](https://www.medscape.com/viewarticle/933527) July 7, 2020
Opioid Overdose deaths


Drug overdose death rates increased 13% in the first half of 2020.
Supply Side Forces: Current COVID-19

Office of Field Operations Nationwide Drug Seizures

Numbers below reflect FY 2014 - FY 2019 and FY20 To Date (TD).

*Fiscal Year 2020 runs October 01, 2019 - September 30, 2020.*

<table>
<thead>
<tr>
<th>Substance</th>
<th>FY 14</th>
<th>FY 15</th>
<th>FY 16</th>
<th>FY 17</th>
<th>FY 18</th>
<th>FY 19</th>
<th>FY20 TD AUG</th>
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<tbody>
<tr>
<td>Cocaine</td>
<td>45,323</td>
<td>38,346</td>
<td>52,838</td>
<td>62,415</td>
<td>51,592</td>
<td>89,207</td>
<td>37,380</td>
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<tr>
<td>Heroin</td>
<td>4,356</td>
<td>6,023</td>
<td>4,224</td>
<td>3,398</td>
<td>5,205</td>
<td>5,427</td>
<td>4,552</td>
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<tr>
<td>Marijuana</td>
<td>438,146</td>
<td>602,821</td>
<td>516,122</td>
<td>366,627</td>
<td>299,419</td>
<td>289,529</td>
<td>313,813</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>19,613</td>
<td>25,495</td>
<td>33,086</td>
<td>46,247</td>
<td>57,440</td>
<td>68,585</td>
<td>141,663</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>n/a</td>
<td>70</td>
<td>596</td>
<td>1,875</td>
<td>1,895</td>
<td>2,545</td>
<td>3,302</td>
</tr>
</tbody>
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*Weights are in pounds (lb)*

5 As of 01 October 2019, category includes both Methamphetamine and Crystal Methamphetamine.
Supply Side Forces: Current COVID-19

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As of 01 October 2019, category includes both Methamphetamine and Crystal Methamphetamine.
Supply Side Forces: COVID-19

- Diverted resources could make it easier for traffickers

- Shortages/Increases of drugs could shift drug use patterns
  - Shift to cheaper drugs
  - Use of multiple drugs
  - Lack of experience with different drugs may result in increased risk of overdose
  - Increased injection/sharing
  - Increase in new users

Demand Side Forces: COVID-19

- Life changes/Economic downturn
  - Loss of job, income or housing
  - Loss of social support
  - Increased stress on individuals/relationships
  - Worsening mental health

- Changes in treatment access
  - Loss/change in treatment structure
  - Less willingness to go to ERs or healthcare clinics
  - Less support
  - Increased stress and anxiety about treatment

Conclusions

• Stimulant and polysubstance use have significantly increased

• Greater need to focus on treatment of opioids and stimulants
  • Need to expand MAT access in rural areas
  • Lack of pharmacological treatments for stimulant use disorder

• COVID-19 has significantly altered both supply and demand
  • Rural areas could see increases in severity and new initiates
THANK YOU

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