Understanding the Increase in Opioid Overdoses: NDEWS New Hampshire HotSpot Study Results

Lisa A. Marsch, PhD
Director
Northeast Node of the National Drug Abuse Treatment Clinical Trials Network
Center for Technology and Behavioral Health
Andrew G. Wallace Professor of Psychiatry
Geisel School of Medicine at Dartmouth College
New Hampshire Fentanyl HotSpot Study

- State with highest rate of fentanyl-related overdose deaths per capita
- Fentanyl is about 50-100 times more potent than heroin
- Rate has doubled in the past two years
- Rate has increased over 1600% in the past five years
### Top 10 states with highest fentanyl-related overdose deaths, by 2015 rate

<table>
<thead>
<tr>
<th>State</th>
<th>2014 number</th>
<th>2014 rate</th>
<th>2015 number</th>
<th>2015 rate</th>
<th>Percent change</th>
<th>Key category</th>
<th>Significant by &lt;0.05</th>
<th>Reporting quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH</td>
<td>151</td>
<td>12.4</td>
<td>285</td>
<td>24.1</td>
<td>94.4</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>MA</td>
<td>453</td>
<td>6.9</td>
<td>949</td>
<td>14.4</td>
<td>108.7</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>RI</td>
<td>82</td>
<td>7.9</td>
<td>137</td>
<td>13.2</td>
<td>67.1</td>
<td>increase 0-70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>WV</td>
<td>122</td>
<td>7.2</td>
<td>217</td>
<td>12.7</td>
<td>76.4</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>OH</td>
<td>590</td>
<td>5.5</td>
<td>1,234</td>
<td>11.4</td>
<td>107.3</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>good</td>
</tr>
<tr>
<td>ME</td>
<td>62</td>
<td>5.2</td>
<td>116</td>
<td>9.9</td>
<td>90.4</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>CT</td>
<td>94</td>
<td>2.7</td>
<td>211</td>
<td>6.1</td>
<td>125.9</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>MD</td>
<td>230</td>
<td>3.8</td>
<td>357</td>
<td>5.8</td>
<td>52.6</td>
<td>increase 0-70</td>
<td>Yes</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>VT</td>
<td>21</td>
<td>3.6</td>
<td>33</td>
<td>5.6</td>
<td>55.6</td>
<td>stable - not significant</td>
<td>No</td>
<td>very good to excellent</td>
</tr>
<tr>
<td>TN</td>
<td>132</td>
<td>2.1</td>
<td>251</td>
<td>4</td>
<td>90.5</td>
<td>increase &gt;70</td>
<td>Yes</td>
<td>good</td>
</tr>
</tbody>
</table>

Data courtesy CDC [https://www.cdc.gov/drugoverdose/data/fentanyl.html](https://www.cdc.gov/drugoverdose/data/fentanyl.html)
Phase I: Rapid HotSpot Study

- Support from National Drug Early Warning System (NDEWS) initiative
  - Cooperative Agreement funded by NIDA (DA038360-ZD717001)

- Designed to systematically evaluate factors giving rise to the disproportionately high rates of opioid overdose deaths in the state of NH

- 45+ key stakeholders in New Hampshire
  - Treatment providers
  - Medical responders
  - Law enforcement
  - State authorities
  - Policymakers

- Reported increased opioid overdose deaths, ED visits for overdoses, increased treatment admissions for heroin and fentanyl vs. other opioids, increased fentanyl seizures (twice the amount as heroin)
Phase I: Rapid HotSpot Study

- Fentanyl use heaviest in Hillsborough and Strafford Counties
  - UDS-positive rates upwards of 90% in Hillsborough County compared to 5% in Grafton County (Lebanon region)

- Many thought consumers were using and overdosing on fentanyl without being aware, while others reported intentional fentanyl-seeking behavior

- Input from users was not available, but was critically needed to better understand the trajectory of fentanyl use, the trafficking of fentanyl, fentanyl-seeking behavior, the value of harm reduction resources, and treatment preferences - to inform policy and community response.
Phase II: Rapid Epidemiological Study

Qualitative interviews and surveys from 6 targeted NH counties

- 76 active/recent opioid users
  - Heavier recruitment in Hillsborough and Strafford counties
- 18 first responders (police, fire, emergency medical services [EMS])
- 18 emergency department [ED] clinical staff
- Completed in 6 months (October 2016-March 2017)
Phase II: Rapid Epidemiological Study – Identified Themes

• Trajectory of opioid use
• Trafficking and supply chain
• Formulation of heroin and fentanyl being used
• Fentanyl-seeking behaviors
• Experiences with overdoses
• Experiences with naloxone

• Harm reduction
• Experiences with treatment
• Prevention
• Laws and Policies
• Uniqueness of New Hampshire
CONSUMER PROFILES (n=76)

MALE (48.7%)
- White (89.2%)
- Not Hispanic or Latino (94.4%)
- Never married (51.4%)
- 34.6 years old (sd 7.4)
- High school diploma / GED (67.6%)
- Employed full time (37.8%)
- Renting home (43.2%)

FEMALE (51.3%)
- White (97.4%)
- Not Hispanic or Latino (97.4%)
- Some college (30.8%)
- Employed full time (15.4%)
- Never married / living with partner (30.8%)
- Renting home (59.0%)

33.7 years old (sd 9.2)
High school diploma / GED (41.0%)
RESPONDER PROFILES (n=18)

**FIRE**
- Male (100%)
- White (100%)
- Not Hispanic or Latino (100%)
- 42.2 years old (sd 11.2)
- 18.4 years on the job (sd 10.9)
- Responded to 58 overdoses
- Given Narcan 33 times

**POLICE**
- Male (83.3%)
- White (100%)
- Not Hispanic or Latino (100%)
- 41.8 years old (sd 7.0)
- 17.2 years on the job (sd 7.3)
- Responded to 62 overdoses
- Given Narcan 0 times

**EMS**
- Male (100%)
- White (100%)
- Not Hispanic or Latino (100%)
- 44.8 years old (sd 10.8)
- 18.3 years on the job (sd 9.1)
- Responded to 88 overdoses
- Given Narcan 157 times
EMERGENCY DEPARTMENT STAFF PROFILE (n=18)

MEDICAL DIRECTORS
PHYSICIANS
PHYSICIAN ASSISTANTS
NURSES

Male (66.7%)
42.2 years old (sd 11.2)
White (88.9%)
Not Hispanic or Latino (88.9%)

Responded to 100 overdoses
Given Narcan 30 times
7.9 years on the job (sd 5.6)
RESULTS

Trafficking and Supply Chain

- Fentanyl hit NH in 2014-2015
- Drugs are reportedly originating in China via Mexico but can be home-manufactured
- Distributed from Massachusetts
  - Greater profit potential in NH vs MA
- Demand driven by lower cost, higher potency, easy availability

“[Doctors] weren’t really taking care of me enough, and my insurance wouldn’t cover me to get into a good pain clinic, so I was kind of flying on one wing. I was still in a lot of pain, so what they ended up making me do was look for other people that had pain meds so I could just be right … next thing I knew [heroin/fentanyl mix] was in front of me.”

Trajectory of Opioid Use

- Main trajectories involved
  - Early recreational substance use
  - Injuries/surgeries/chronic pain resulting in prescriptions
  - Intergenerational use
  - Self-medication of mental health conditions
RESULTS

Formulation of Heroin and Fentanyl
- Responders report limited knowledge
- Consumers report ways to distinguish:
  - Sight
  - Taste
  - Effect (speed of onset, strength, duration)
  - Cost
- Overdoses not limited to injection use – some report inhalation

Fentanyl-seeking Behavior
- Some consumers seek fentanyl specifically
- Many consumers prefer heroin to fentanyl
- Consumers report buying whatever opioid is available from their dealer, and widely acknowledge that fentanyl-laced heroin is most available in NH
- Many consumers report seeking batches of drugs that caused overdoses
- Street oxycontin is a “thing of the past”

“We want whatever is strongest and the cheapest. It’s sick. I know me using, when I hear of an overdose, I want it because I don’t want to buy bad stuff. I want the good stuff that’s going to almost kill me.”
RESULTS

Experiences with Overdoses
• Unanimous agreement that fentanyl is the culprit of increased rates in NH
• Fentanyl potency, mix inconsistency, and user inexperience contribute
• Primary goal of responders differs at the scene

Experiences with Naloxone
• Consumers report significant barriers to access in NH
  - High cost
  - Fear of Police
  - Fear of stigmatization
  - Lack of knowledge
  - Fear of withdrawal
• Responders report mixed opinions about making it available to public
• No unanticipated side effects have been observed

“He was a handyman, and he and his son were in the truck one morning ... The son had come in the morning and said 'Dad, I was up late last night with my friends. I just need to lay down in the backseat and get a little rest before we get to the job.' They got to the job and he was dead and blue, and had overdosed in the truck right behind his father driving to work ... No family is ever the same with that kind of thing.”
RESULTS

Harm Reduction
• Unanimous support for needle exchange programs in NH
• Strong support for wider availability of Suboxone

Experiences with Treatment
• Unanimous agreement that consumers cannot stop using opioids without help
• Available services lacking in NH
• Lengthy waitlists, trouble navigating the system, funding
• Both groups recommended:
  • Increasing access to medication treatment
  • More counseling options
• Referral rate after overdose treatment low

“When you know someone who’s willing and able and ready and physically standing there in the halls of the [treatment program] in front of you, and you say ‘Come back in 8 weeks,’ that’s crazy. You could be dead tonight. Eight weeks is a f@%!ng long time in the trenches.”
RESULTS

Prevention

• Education must start before middle school
• Dismantle stigma, intergenerational use
• Eliminate pain as the 5th vital sign, prescribe more prudently
• Mobilize communities to be part of the solution

Laws and Policies

• Consumers are not well informed
• Frustration and mistrust towards police and justice system
  • Lack of treatment in jail
  • Mistrust of Good Samaritan Law
• Prescribing crackdowns may reduce opioid prescribing but will likely mean an increase in heroin/fentanyl use
• PDMPs viewed as useful but burdensome by ED staff

“Show a successful person in a commercial and then show them starting to use in the bathroom at work. Show them starting to use in their car outside of their work. Show them losing their teeth, losing their everything. Then show them dead on the side of the street somewhere.”
CONFLUENCE OF FACTORS CONTRIBUTING TO HEROIN/FENTANYL CRISIS IN NH

• Consistently rates in top 10 states with highest drug use rates
• Opioid prescribing exceeds national averages

<table>
<thead>
<tr>
<th>Region</th>
<th>Opioid Pain Reliever Prescriptions</th>
<th>Long-acting/extended release opioid prescriptions</th>
<th>High-dose opioid prescriptions</th>
<th>Benzodiazepine prescriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hampshire</td>
<td>71.7</td>
<td>14.8</td>
<td>8.2</td>
<td>37.5</td>
</tr>
<tr>
<td>U.S. National Average</td>
<td>82.5</td>
<td>10.3</td>
<td>4.2</td>
<td>37.6</td>
</tr>
</tbody>
</table>

Rates of prescription pain medications per 100 people, CDC, 2014

• High availability of highly potent fentanyl drug (interstate access and close proximity to supply chain)

• Happening in a context in which access to substance use disorder treatment and prevention interventions are greatly limited
CONFLUENCE OF FACTORS CONTRIBUTING TO HEROIN/FENTANYL CRISIS IN NH

- Treatment admission rates per capita are lower than both national average and all other New England states.
- Lowest per capita spending on treatment in all of New England and 2nd lowest in the nation.
- Lowest rate of Suboxone providers per capita in all of New England.
- Public health funding per resident lower than national average and surrounding states.

<table>
<thead>
<tr>
<th>Region</th>
<th>Funding per Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hampshire</td>
<td>$66</td>
</tr>
<tr>
<td>U.S. National Average</td>
<td>$94</td>
</tr>
<tr>
<td>Vermont</td>
<td>$114</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>$102</td>
</tr>
</tbody>
</table>

- Needle exchange programs legalized July 2017; Access to clean needles still limited.
- Barriers to naloxone access.
- Rural setting (Tightly knit social networks; Limited access of “things to do”; “Live Free or Die”).
- So far in 2017, 10 deaths connected to carfentanil (100x stronger than fentanyl; NH DMI, July 2017).
RECOMMENDATIONS FROM HOTSPOT

• Increase public health resources for effective substance use prevention and treatment
• Expand prevention programs in elementary and middle schools
• Strengthen treatment to include broader availability and affordability of effective medications
• Incentivize physicians to become buprenorphine-waivered providers or increase capacity
• Assist physicians with prudent opioid prescribing, patient education, alternatives to pain management
• Support first responder and emergency department personnel with vicarious trauma
RECOMMENDATIONS FROM HOTSPOT

• Expand access to needle exchange programs

• Collaborate with Mass. on addressing the manufacturing/trafficking of fentanyl and other opioids

• Launch programming to dispel stigma and fear and educate about effective treatments to:
  • Consumers (e.g., Naloxone and Good Samaritan Law)
  • Physicians and pharmacists (e.g., chronic disease management, value of Naloxone, options for care)
  • Law enforcement (e.g., alternative approaches to punitive measures)
  • Public (e.g., About opioid risks; Breaking the intergenerational cycle of addiction)

• Opportunity to extend services beyond acute care to coordinated models of science-based care and recovery support
ACKNOWLEDGMENTS

Special thanks to
The men and women who participated in the HotSpot study
First responders
Emergency Department staff
Groups Inc.
Habit OpCo
Safe Station
Serenity Place

Dartmouth research team:
Andrea Meier, MS, LADC, LCMHC
Sarah K. Moore, PhD
Elizabeth Saunders, MS
Bethany McLeman, BA
Stephen Metcalf, MPhil
Samantha Auty, BS
Olivia Walsh, BA

NDEWS/NIDA
• NDEWS Phase I and II
• Safe Station study
• Participation in CTN-funded studies
• Science Series presentations on current state of the science
• Links to state data
• Links to resources
• Calendar of upcoming events and trainings
• Partner list and descriptions