Supportive Place for Observation and Treatment (SPOT)

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BHCHP’s Main Practice
LIFE AND LOSS ON METHADONE MILE

Sunny stands smoking in front of the Cumberland Medical Center in South Boston, her eyes on the street. A week earlier, she was in the hospital with a broken jaw. She’s in pain, but she’s not afraid. She’s had worse. She’s had the thrill of the addiction, the rush of the high, the feeling of being alive.

The Methadone Mile is a place where people come to get their fix. It’s a place where people go to escape. It’s a place where people die. It’s a place where people live.

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The street is a war zone, a place where people fight for their lives. It’s a place where people are killed. It’s a place where people are alive.

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Implement a harm reduction program within a health care setting, in order to:

1. Prevent fatal overdose
2. More effectively connect highest-risk individuals with treatment
3. Tackle stigma
Services Offered

• Medical monitoring during sedation
• Treatment of overdose (oxygen, IV fluids, naloxone)
• Counseling about safer injection techniques
• Connection to primary care, behavioral health services, and addictions treatment
• Naloxone rescue kit distribution

Staffing Model

• Registered nurse specializing in addiction
• Harm reduction specialist builds relationships and links people to treatment
• Rapid response clinician (MD/NP/PA) available for emergency
CONSUMER INVOLVEMENT

- Participated in weekly planning meetings
- Perspectives sought in survey conducted at syringe exchange program before opening
- Interviewed harm reduction applicants
- Patient experience survey
SPOT RESEARCH ROADMAP

1. Environment

1A. Consumer willingness to use harm reduction program

- Before opening SPOT, 91% of injection drug users reported willingness to use harm reduction programs, and those most likely to use such spaces were among those at highest risk of overdose.\(^1\)

1B. Community perceptions of SPOT

- Significant increases in community knowledge about drugs, favorable attitudes towards harm reduction, and favorable attitudes towards our intervention following the opening of SPOT.\(^2\)

1C. Evaluating public order, pre- and post-SPOT (first 12 weeks)

- SPOT was associated with a significant decrease in observed over-sedated individuals; injection-drug related public order (e.g., publicly discarded syringes, injection-related litter) did not worsen.\(^3\)

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SPOT RESEARCH ROADMAP

1. Environment

✓ 1A. Consumer willingness to use harm reduction program
✓ 1B. Community perceptions of SPOT
✓ 1C. Evaluating public order, pre- and post-SPOT (first 12 weeks)

2. Participant Population

✓ 2A. Internal dashboard / population profile

SPOT Stats, April 2016-2018

<table>
<thead>
<tr>
<th>Metric</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total visits</td>
<td>7,139</td>
</tr>
<tr>
<td>De-duplicated visitors</td>
<td>666</td>
</tr>
<tr>
<td>Participants who identify as women</td>
<td>34%</td>
</tr>
<tr>
<td>Naloxone administrations</td>
<td>47</td>
</tr>
<tr>
<td>Oxygen administrations</td>
<td>488</td>
</tr>
<tr>
<td>ED avoidances (nurse-reported)</td>
<td>987</td>
</tr>
<tr>
<td>Direct referrals to addiction treatment</td>
<td>22%</td>
</tr>
<tr>
<td>Direct connections to medical/BH care</td>
<td>20%</td>
</tr>
</tbody>
</table>
• Cohort using program is extremely high risk

• Nature of relationship with participants is quite different than in other clinical settings

• Substance use is layered with “cocktail”
  — Opioid
  — Benzodiazepine
  — Clonidine
  — Gabapentin
  — Promethazine

• Participants reluctant to seek health care services elsewhere because of stigma
SPOT RESEARCH ROADMAP

1. Environment

✓ 1A. Consumer willingness to use harm reduction program
✓ 1B. Community perceptions of SPOT
✓ 1C. Evaluating public order, pre- and post-SPOT (first 12 weeks)

2. Participant Population

✓ 2A. Internal dashboard / population profile
✓ 2B. Polysubstance overdose syndrome (cluster analysis)
✓ 2C. Participant substance use patterns, acute & chronic health issues
Vital signs monitoring in SPOT often shows bradycardia and hypotension, in addition to sedation and respiratory depression, thought to be a result of polysubstance use.
Table 1. Characteristics of intoxication clusters

<table>
<thead>
<tr>
<th></th>
<th>Cluster A: Mild (N=81 episodes)</th>
<th>Cluster B: Moderate (N=136 episodes)</th>
<th>Cluster C: Severe (N=88 episodes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedation level (0-6), mean (SD)</td>
<td>3.6 (0.8)</td>
<td>4.5 (0.6)</td>
<td>4.5 (0.5)</td>
</tr>
<tr>
<td>Sedation level ≥5, N (%)</td>
<td>2 (2.5)</td>
<td>70 (51.5)</td>
<td>41 (46.6)</td>
</tr>
<tr>
<td>Systolic blood pressure nadir (mm Hg), mean (SD)</td>
<td>113.5 (13.3)</td>
<td>94.5 (13.6)</td>
<td>89.2 (12.8)</td>
</tr>
<tr>
<td>Systolic blood pressure nadir &lt;90mm Hg, N (%)</td>
<td>4 (4.9)</td>
<td>54 (39.7)</td>
<td>43 (48.9)</td>
</tr>
<tr>
<td>Pulse nadir (beats/min), mean (SD)</td>
<td>80.2 (18.0)</td>
<td>57.3 (11.1)</td>
<td>59.2 (11.9)</td>
</tr>
<tr>
<td>Pulse nadir &lt;60 beats/min, N (%)</td>
<td>10 (12.4)</td>
<td>83 (61.0)</td>
<td>53 (60.2)</td>
</tr>
<tr>
<td>Respiratory rate nadir (breaths/min), mean (SD)</td>
<td>13.5 (1.9)</td>
<td>11.7 (0.9)</td>
<td>11.7 (0.8)</td>
</tr>
<tr>
<td>Respiratory rate &lt;12 breaths/min, N (%)</td>
<td>3 (3.7)</td>
<td>18 (13.2)</td>
<td>14 (15.9)</td>
</tr>
<tr>
<td>Oxygen saturation nadir (%), mean (SD)</td>
<td>95.8 (2.2)</td>
<td>95.4 (1.5)</td>
<td>91.1 (1.7)</td>
</tr>
<tr>
<td>Oxygen saturation &lt;95%, N (%)</td>
<td>21 (25.9)</td>
<td>41 (30.2)</td>
<td>88 (100)</td>
</tr>
</tbody>
</table>

Qualitative description of clusters:
Cluster A: mild sedation with stable vital signs
Cluster B: moderate sedation with non-hypoxic vital sign abnormalities
Cluster C: moderate sedation with hypoxia and other vital sign abnormalities
Table 2. Demographic and self-reported substance ingestion characteristics overall and by intoxication cluster

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Overall (N=305 episodes)</th>
<th>Cluster A: Mild (N=81 episodes)</th>
<th>Cluster B: Moderate (N=136 episodes)</th>
<th>P value (B vs A)</th>
<th>Cluster C: Severe (N=88 episodes)</th>
<th>P value (C vs A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), mean (SD)</td>
<td>39.0 (9.4)</td>
<td>38.0 (10.0)</td>
<td>37.5 (8.8)</td>
<td>0.77</td>
<td>42.3 (9.0)</td>
<td>0.04</td>
</tr>
<tr>
<td>Female, N (%)</td>
<td>137 (44.9)</td>
<td>29 (35.8)</td>
<td>59 (43.4)</td>
<td>0.38</td>
<td>49 (55.7)</td>
<td>0.07</td>
</tr>
<tr>
<td>Substance ingestions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioids, N (%)</td>
<td>219 (71.8)</td>
<td>66 (81.5)</td>
<td>96 (70.6)</td>
<td>0.10</td>
<td>57 (64.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>Sedating medications, N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>172 (56.4)</td>
<td>29 (35.8)</td>
<td>83 (61.0)</td>
<td>0.001</td>
<td>60 (68.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Clonidine</td>
<td>165 (54.1)</td>
<td>24 (29.6)</td>
<td>86 (63.2)</td>
<td>&lt;0.001</td>
<td>55 (62.5)</td>
<td>0.002</td>
</tr>
<tr>
<td>Promethazine</td>
<td>114 (37.4)</td>
<td>16 (19.8)</td>
<td>64 (47.1)</td>
<td>&lt;0.001</td>
<td>34 (38.6)</td>
<td>0.03</td>
</tr>
<tr>
<td>Gabapentin</td>
<td>112 (36.7)</td>
<td>16 (19.8)</td>
<td>61 (44.9)</td>
<td>&lt;0.001</td>
<td>35 (39.8)</td>
<td>0.03</td>
</tr>
<tr>
<td>Any of above</td>
<td>193 (63.3)</td>
<td>34 (42.0)</td>
<td>92 (67.7)</td>
<td>0.001</td>
<td>67 (76.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Stimulants, N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine/crack</td>
<td>18 (5.9)</td>
<td>8 (9.9)</td>
<td>6 (4.4)</td>
<td>0.15</td>
<td>4 (4.6)</td>
<td>0.20</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>5 (1.6)</td>
<td>2 (2.5)</td>
<td>2 (1.5)</td>
<td>0.60</td>
<td>1 (1.1)</td>
<td>0.52</td>
</tr>
<tr>
<td>Any of above</td>
<td>23 (7.5)</td>
<td>10 (12.4)</td>
<td>8 (5.9)</td>
<td>0.11</td>
<td>5 (5.7)</td>
<td>0.14</td>
</tr>
<tr>
<td>Cannabinoids, N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td>3 (1.0)</td>
<td>1 (1.2)</td>
<td>2 (1.5)</td>
<td>0.89</td>
<td>0 (0)</td>
<td>--</td>
</tr>
<tr>
<td>Synthetic cannabinoids</td>
<td>17 (5.6)</td>
<td>6 (7.4)</td>
<td>10 (7.4)</td>
<td>0.99</td>
<td>1 (1.1)</td>
<td>0.10</td>
</tr>
<tr>
<td>Any of above</td>
<td>20 (6.6)</td>
<td>7 (8.6)</td>
<td>12 (8.8)</td>
<td>0.97</td>
<td>1 (1.1)</td>
<td>0.07</td>
</tr>
<tr>
<td>Alcohol, N (%)</td>
<td>11 (3.6)</td>
<td>5 (6.2)</td>
<td>3 (2.2)</td>
<td>0.23</td>
<td>3 (3.4)</td>
<td>0.41</td>
</tr>
</tbody>
</table>

**Qualitative summary:** Cluster B and C patients were more likely to have ingested sedating medications. Cluster C patients were slightly older, marginally more likely to be female, less likely to have ingested opioids, and marginally less likely to have ingested cannabinoids.
Table 3. Multivariable associations with intoxication cluster membership.

<table>
<thead>
<tr>
<th></th>
<th>Adjusted OR (95% CI) Cluster B vs A</th>
<th>Adjusted OR (95% CI) Cluster C vs A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, per 10 years</td>
<td>0.93 (0.64, 1.36)</td>
<td>1.54 (1.00, 2.35)</td>
</tr>
<tr>
<td>Female</td>
<td>1.44 (0.71, 2.92)</td>
<td>2.51 (1.03, 6.10)</td>
</tr>
<tr>
<td>Substance ingestions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioids</td>
<td>0.65 (0.27, 1.61)</td>
<td>0.53 (0.23, 1.25)</td>
</tr>
<tr>
<td>Sedating medications</td>
<td>2.75 (1.40, 5.40)</td>
<td>3.38 (1.48, 7.70)</td>
</tr>
<tr>
<td>Stimulants</td>
<td>0.57 (0.22, 1.47)</td>
<td>0.64 (0.20, 2.02)</td>
</tr>
<tr>
<td>Cannabinoids</td>
<td>1.29 (0.41, 4.01)</td>
<td>0.24 (0.03, 2.10)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>0.28 (0.06, 1.44)</td>
<td>0.37 (0.09, 1.54)</td>
</tr>
</tbody>
</table>

**Qualitative summary:** In multivariable models, ingestion of sedating medications was the strongest predictor of intoxication syndrome severity. Older age and female sex were associated with higher odds of severe (cluster C) intoxication syndromes.
SPOT RESEARCH CHALLENGES

- Not insignificant issues around gaining consent
  - Desire to maintain trusting relationships with participants
  - Participants’ engagement in illicit behavior
  - Sedation and its impact on ability to give consent
- Need to prevent research from being viewed as encouraging participants to use again
- At SPOT, beginning data collection at unknown time point in symptom progression
- Difficult to follow participants over time given the instability in their lives
SPOT RESEARCH ROADMAP

1. Environment
   - 1A. Consumer willingness to use harm reduction program
   - 1B. Community perceptions of SPOT
   - 1C. Evaluating public order, pre- and post-SPOT (first 12 weeks)

2. Participant Population
   - 2A. Internal dashboard / population profile
   - 2B. Polysubstance overdose syndrome (case series)
   - 2C. Participant substance use patterns, acute & chronic health issues

3. Impact
   - 3A. Impact of SPOT on OD rates & ED utilization
   - 3B. Impact of SPOT on SUD treatment initiation & engagement
   - 3C. Changes in SPOT user risk behavior over time (cohort study)
• Disproportionate effect of overdose deaths among homeless population
• Harm reduction services play a crucial and complementary role in SUD treatment continuum
• SPOT doesn’t go far enough – unable to prevent fatal OD at point of injection
What do we see?

Image courtesy Boston Globe
With Thanks

SPOT Clinical Team
Led by Kate Orlin & Courtney Kenney

BHCHP Leadership
Barry Bock, CEO
James O’Connell, President

AHOPE
of Boston Public Health Commission

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