Opioid Use Disorders in Criminal Justice Populations

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Disclosures

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• Travel and training (Braeburn)
Roadmap

1. Addiction is endemic in CJ populations
2. OUD is a chronic, neurobehavioral disorder
3. Medication treatment works by attenuating positive and negative reinforcement
4. Incarceration doesn’t treat addiction
5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment reduces overdose deaths
1. Addiction is endemic in CJ populations
2. OUD is a chronic, neurobehavioral disorder
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5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment reduces overdose deaths
Casualties of the War on Drugs

- From 1980 to 2014, U.S. inmate population ↑’d 220%
  - In 2013, 2.24 million in prison
- ~ 7.1 million adults in US CJ-involved system
Endemic in CJ Populations

• Drugs implicated in 60-83% of offenses
  – 39% of men, 80% of women w/ nonviolent or drug offense
  – 44% of men, 52% of women have SUD
• ~ 80% who could benefit from treatment do not receive it

Endemic in CJ Populations

- 20-23% of U.S. inmates h/o opioid use
- ~5-15% of U.S. arrestees utox+ for opioids
- Jail inmates 12% regular use of opioids

Roadmap

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Semi-Permanent Brain Changes
Long-Lasting Abnormalities In Brain Dopamine Transporters

Normal Control

Methamphetamine d/o (1 month detox)

Methamphetamine d/o (24 months detox)

“Dope Sickness” = Withdrawal
Powerful Negative Reinforcer in OUD

- sweating
- aches
- weakness
- diarrhoea
- muscular spasm
- shaking
- feeling of chill
- craving for the drug
- feeling depressed
Addiction ≠ Dependence

• Addiction – 4 C’s :
  – compulsive use, impaired control, continued use despite consequences, craving
• Physiological dependence = Biologic adaptation to chronic use
  – Tolerance
    • Decreased effect of substance after repeated use
    • Need for increased dose to achieve same effect
  – Withdrawal syndrome
Substance Use Disorder (DSM-V)
(2-3: mild; 4-5: moderate; six or more: severe)

**Impaired Control**
1. Larger amounts/longer than intended
2. Inability to cut down or control
3. Much time spent
4. Craving and urges

**Social Impairment**
5. Not able to function
6. Continued use despite interpersonal problems
7. Reduced activities

**Risky Use**
8. Use in dangerous circumstances
9. Continued use despite physical or psych. problems

**Physiological Manifestations**
10. Tolerance
11. Withdrawal
Strong Reinforcers/Aversives

- Salient
- Immediate
  - Swift
- Reliable
  - Certain
- Properties lost → behavior extinguished
# Reinforcement of Drug Use/Crime

<table>
<thead>
<tr>
<th>Positive Consequences</th>
<th>Negative Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immediate</strong> euphoria; $$</td>
<td><strong>Delayed</strong> arrest; prison; HIV; OD</td>
</tr>
<tr>
<td><strong>Reliable</strong> everytime</td>
<td><strong>Unreliable</strong> Vagaries of CJ system</td>
</tr>
</tbody>
</table>
## Reinforcement of Recovery/Rehabilitation

<table>
<thead>
<tr>
<th>Positive Consequences</th>
<th>Negative Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delayed</strong></td>
<td><strong>Immediate</strong></td>
</tr>
<tr>
<td>Job; housing; relationships; health</td>
<td>Withdrawal/craving; stress; dysphoria; no friends.</td>
</tr>
<tr>
<td><strong>Unreliable</strong></td>
<td><strong>Reliable</strong></td>
</tr>
<tr>
<td>No guarantee</td>
<td>?manageable</td>
</tr>
</tbody>
</table>

Baystate Health

UMASS University of Massachusetts Medical School
1. Addiction is endemic in CJ populations
2. OUD is a chronic, neurobehavioral disorder
3. Medication treatment works by attenuating positive and negative reinforcement
4. Incarceration doesn’t treat addiction
5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment is the most effective way to reduce overdose deaths
What Does It Feel Like to have Opioid Use Disorder?

Diagrammatic summary of functional state of typical "mailine" heroin user. Arrows show the repetitive injection of heroin in uncertain dose, usually 10 to 30 mg but sometimes much more. Note that addict is hardly ever in a state of normal function ("straight").

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.
How Does Medication Treatment Work?

- **Attenuates reinforcement**
  - Reward: ↓ immediate, reliable
  - Stops negative reinforcement
- **Extinguishes expectancies and conditioned responses**

Greenwald, MK et al, Neuropsychopharmacology 28, 2003
What Does It Feel Like to Be on Medication for Addiction Treatment (MAT)?

Stabilization of patient in state of normal function by blockade treatment. A single daily oral dose of methadone prevents him from feeling symptoms of abstinence ("sick") or euphoria ("high"), even if he takes a shot of heroin. Dotted line indicates course if methadone is omitted.

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.
Opioid Pharmacotherapy

Agonists

Percent ($\mu$) Receptor Intrinsic Activity vs. Drug Dose

- Full agonist, e.g., methadone

Legend:
- No drug
- Low dose
- High dose

Baystate Health

University of Massachusetts Medical School
Decades of Randomized Controlled Trials of Methadone Maintenance (MMT)

### Study or subgroup | Methadone MT | Control | Risk Ratio | Weight | Risk Ratio |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H.Random</td>
<td>95% CI</td>
<td>M-H.Random</td>
</tr>
<tr>
<td>Old studies (pre 2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neumann 1979</td>
<td>38/50</td>
<td>5/50</td>
<td>22.2 %</td>
<td>7.60 [3.26, 17.71]</td>
<td></td>
</tr>
<tr>
<td>Strain 1992a</td>
<td>44/94</td>
<td>17/81</td>
<td>35.2 %</td>
<td>2.50 [1.56, 3.99]</td>
<td></td>
</tr>
<tr>
<td>Vanwesen 1991</td>
<td>91/120</td>
<td>41/120</td>
<td>42.6 %</td>
<td>2.22 [1.70, 2.90]</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>254</strong></td>
<td><strong>251</strong></td>
<td></td>
<td><strong>100.0 %</strong></td>
<td><strong>3.05 [1.75, 5.35]</strong></td>
</tr>
</tbody>
</table>

*Total events: 173 (Methadone MT), 63 (Control)*

Heterogeneity: Tau² = 0.17; Chi² = 8.01, df = 2 (P = 0.02); I² = 75%

Test for overall effect: Z = 3.91 (P = 0.000092)

2. New studies

<table>
<thead>
<tr>
<th></th>
<th>Methadone MT</th>
<th>Control</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H.Random</td>
<td>95% CI</td>
<td>M-H.Random</td>
</tr>
<tr>
<td>Gruber 2008</td>
<td>46/72</td>
<td>40/99</td>
<td>16.7 %</td>
<td>6.23 [2.42, 16.02]</td>
<td></td>
</tr>
<tr>
<td>Schwartz 2006</td>
<td>151/199</td>
<td>25/120</td>
<td>33.5 %</td>
<td>3.64 [2.55, 5.21]</td>
<td></td>
</tr>
<tr>
<td>Senn 2000</td>
<td>78/91</td>
<td>18/88</td>
<td>31.5 %</td>
<td>4.19 [2.73, 6.38]</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>433</strong></td>
<td><strong>317</strong></td>
<td></td>
<td><strong>100.0 %</strong></td>
<td><strong>4.44 [3.26, 6.04]</strong></td>
</tr>
</tbody>
</table>

*Total events: 316 (Methadone MT), 52 (Control)*

Heterogeneity: Tau² = 0.02; Chi² = 3.90, df = 2 (P = 0.27); I² = 22%

Test for overall effect: Z = 3.48 (P < 0.00001)

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**1/3rd ↓**

**opioid use**

**4x ↑ retention**

Baystate Health

Mattick et al., Cochrane Review, 2009
Decades of Randomized Controlled Trials of Methadone Maintenance (MMT)

- ↓ mortality (Gronbladh, ‘90)
- ↓ IDU (Ball & Ross, ’91; others)
- ↓ crime days (Ball & Ross, others)
- ↓ HIV seroconversion
- ↑ employment, health, social function

Mattick et al., Cochrane Review, 2009
Methadone Effectiveness
Gunne & Gronbladh, 1984

Baseline

Adapted from Dean Gerstein
Methadone Effectiveness
Gunne & Gronbladh, 1984

After 2 Years

- Methadone
  - P
  - H
  - H
  - H
  - 1- Sepsis & endocarditis
  - 2- Leg amputation
  - 3- Sepsis

- No Methadone
  - P
  - P
  - H
  - H
  - 1- Sepsis & endocarditis
  - 2- Leg amputation
  - 3- Sepsis

Adapted from Dean Gerstein
Methadone Effectiveness

Gunne & Gronbladh, 1984

After 5 Years

Adapted from Dean Gerstein
Like full agonists, partial agonist drugs increase $\mu$ activity at lower doses. At higher doses, maximal agonist effect is never achieved.

Partial Agonist (e.g. buprenorphine)

$\mu$ activity reinforces adherence
# RCTs of Buprenorphine

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Very high dose BMT</th>
<th>Placebo</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H:Random/95% CI</td>
<td></td>
<td>M-H:Random/95% CI</td>
</tr>
<tr>
<td>Fudala 2003</td>
<td>86/106</td>
<td>75/110</td>
<td>1.19 [ 1.02, 1.39 ]</td>
<td>45.9 %</td>
<td>1.19 [ 1.02, 1.39 ]</td>
</tr>
<tr>
<td>Kakko 2003</td>
<td>15/20</td>
<td>9/20</td>
<td>3.50 [ 1.90, 4.85 ]</td>
<td>3.5 %</td>
<td>3.50 [ 1.90, 4.85 ]</td>
</tr>
<tr>
<td>Krock 2002</td>
<td>16/55</td>
<td>11/51</td>
<td>1.94 [ 1.04, 1.07 ]</td>
<td>6.2 %</td>
<td>1.94 [ 1.04, 1.07 ]</td>
</tr>
<tr>
<td>Ling 1998</td>
<td>110/181</td>
<td>74/185</td>
<td>1.52 [ 1.23, 1.88 ]</td>
<td>44.4 %</td>
<td>1.52 [ 1.23, 1.88 ]</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>362</strong></td>
<td><strong>366</strong></td>
<td><strong>100.0 %</strong></td>
<td><strong>1.74 [ 1.02, 2.96 ]</strong></td>
<td></td>
</tr>
</tbody>
</table>

> Total events: 227 (Very high dose BMT), 150 (Placebo)
> Heterogeneity: Tau² = 0.15; Chi² = 20.35, df = 3 (P = 0.00014); I² = 85%
> Test for overall effect: Z = 2.04 (P = 0.042)

## Opioid Use

- ↑ retention
- ↓opioid use

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**Baystate Health**

Mattick et al., Cochrane Review, 2009
Opioid antagonists bind and occupy \( \mu \) opioid receptors but result in no specific intrinsic activity regardless of dose. Antagonist (e.g. naltrexone)

No \( \mu \) receptor activity \( \rightarrow \) no abuse potential but also no adherence reinforcement.

Opioid Pharmacotherapy
Antagonists

\[ \begin{align*}
\text{No drug} & \quad \text{low dose} & \quad \text{high dose} \\
\% & \quad \mu \text{ Receptor Intrinsic Activity} & \\
& \quad \text{DRUG DOSE} &
\end{align*} \]
RCTs of Oral Naltrexone (NTX)

Ø effect on retention

...or opioid use

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>naltrexone n/11</th>
<th>placebo/n pharm n/11</th>
<th>Risk Ratio M-H/Fixed [95% CI]</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross 2001</td>
<td>11 / 13</td>
<td>11/14</td>
<td>128% [0.03, 0.30]</td>
<td>4.40</td>
</tr>
<tr>
<td>Ladwig 1990</td>
<td>8 / 13</td>
<td>2/5</td>
<td>233% [0.19, 0.41]</td>
<td>1.23</td>
</tr>
<tr>
<td>Shifman 1994</td>
<td>13 / 16</td>
<td>3/16</td>
<td>319% [0.49, 1.20]</td>
<td>0.77</td>
</tr>
<tr>
<td>Stella 2005</td>
<td>13 / 28</td>
<td>3/14</td>
<td>249% [0.00, 0.50]</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>94</strong></td>
<td><strong>49</strong></td>
<td><strong>100.0% [0.61, 3.17]</strong></td>
<td><strong>1.39</strong></td>
</tr>
</tbody>
</table>

Heterogeneity: Tau^2 = 0.44, Chi^2 = 7.64, df = 3 (P = 0.055), P = 0.63
Test for overall effect: Z = 0.77 (P = 0.44)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>naltrexone n/11</th>
<th>placebo/n pharm n/11</th>
<th>Risk Ratio M-H/Fixed [95% CI]</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lemon 1992</td>
<td>8 / 13</td>
<td>6/16</td>
<td>360% [0.06, 3.17]</td>
<td>1.42</td>
</tr>
<tr>
<td>Rawson 1979</td>
<td>10 / 20</td>
<td>4/15</td>
<td>226% [0.07, 0.33]</td>
<td>1.88</td>
</tr>
<tr>
<td>Sari 1991</td>
<td>9 / 28</td>
<td>8/22</td>
<td>463% [0.04, 1.91]</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>63</strong></td>
<td><strong>53</strong></td>
<td><strong>100.0% [0.60, 2.05]</strong></td>
<td><strong>1.28</strong></td>
</tr>
</tbody>
</table>

Heterogeneity: Tau^2 = 1.58, Chi^2 = 2 (P = 0.455), P = 0.02
Test for overall effect: Z = 1.02 (P = 0.31)

Baystate Health

Minozzi et al Cochrane Review, 2011
Extended-Release Naltrexone (XR-NTX) to Prevent Opioid Relapse in Criminal Justice

- Monthly gluteal IM injection
- Must be completely opioid-free

### Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Extended-Release Naltrexone (N=153)</th>
<th>Usual Treatment (N=155)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>44.4±9.2</td>
<td>43.2±9.4</td>
</tr>
<tr>
<td>Male sex — no. (%)</td>
<td>129 (84.3)</td>
<td>132 (85.2)</td>
</tr>
<tr>
<td>Race or ethnic group — no./total no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>31/152 (20.4)</td>
<td>30/155 (19.4)</td>
</tr>
<tr>
<td>Black</td>
<td>81/152 (53.3)</td>
<td>74/155 (47.7)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>37/152 (24.3)</td>
<td>45/155 (29.0)</td>
</tr>
<tr>
<td>Years of education</td>
<td>11.5±2.2</td>
<td>11.5±1.8</td>
</tr>
<tr>
<td>Current employment — no. (%)</td>
<td>26 (17.0)</td>
<td>29 (18.7)</td>
</tr>
<tr>
<td>Status with respect to supervision by criminal justice system — no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current supervision‡</td>
<td>121 (79.1)</td>
<td>124 (80.0)</td>
</tr>
<tr>
<td>Probation</td>
<td>55 (35.9)</td>
<td>62 (40.0)</td>
</tr>
<tr>
<td>Parole</td>
<td>57 (37.3)</td>
<td>54 (34.8)</td>
</tr>
<tr>
<td>Other</td>
<td>9 (5.9)</td>
<td>8 (5.2)</td>
</tr>
<tr>
<td>No supervision‡</td>
<td>32 (20.9)</td>
<td>31 (20.0)</td>
</tr>
<tr>
<td>Health insurance — any</td>
<td>109 (71.2)</td>
<td>111 (71.6)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>70 (45.8)</td>
<td>65 (41.9)</td>
</tr>
<tr>
<td>Opioid use during lifetime — no./total no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioid dependence¶</td>
<td>153/153 (100)</td>
<td>155/155 (100)</td>
</tr>
<tr>
<td>Heroin use</td>
<td>135/152 (88.8)</td>
<td>137/155 (88.4)</td>
</tr>
<tr>
<td>Other, non-heroin, opioid use</td>
<td>77/152 (50.7)</td>
<td>74/155 (47.7)</td>
</tr>
<tr>
<td>Injection-drug use</td>
<td>64/152 (42.1)</td>
<td>62/155 (40.0)</td>
</tr>
<tr>
<td>Opioid use in past 30 days — no./total no. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin use</td>
<td>32/152 (21.1)</td>
<td>43/155 (27.7)</td>
</tr>
<tr>
<td>Other, non-heroin, opioid use</td>
<td>31/152 (20.4)</td>
<td>26/155 (16.8)</td>
</tr>
<tr>
<td>Any opioid use</td>
<td>47/152 (30.9)</td>
<td>59/155 (38.1)</td>
</tr>
<tr>
<td>Needed opioid detoxification to enter trial — no. (%)</td>
<td>13 (8.5)</td>
<td>14 (9.0)</td>
</tr>
<tr>
<td>Cocaine use in past 30 days — no./total no. (%)</td>
<td>30/152 (19.7)</td>
<td>29/155 (18.7)</td>
</tr>
<tr>
<td>Heavy alcohol use in past 30 days — no. (%)</td>
<td>18 (11.8)</td>
<td>19 (12.3)</td>
</tr>
</tbody>
</table>
XR-NTX to Prevent Opioid Relapse in Criminal Justice

Opioid relapse: ≥10 days use

<table>
<thead>
<tr>
<th>Week</th>
<th>No. at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extended-release naltrexone</td>
</tr>
<tr>
<td>1</td>
<td>153</td>
</tr>
<tr>
<td>2</td>
<td>144</td>
</tr>
<tr>
<td>3</td>
<td>139</td>
</tr>
<tr>
<td>4</td>
<td>129</td>
</tr>
<tr>
<td>5</td>
<td>121</td>
</tr>
<tr>
<td>6</td>
<td>117</td>
</tr>
<tr>
<td>7</td>
<td>112</td>
</tr>
<tr>
<td>8</td>
<td>110</td>
</tr>
<tr>
<td>9</td>
<td>104</td>
</tr>
<tr>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>11</td>
<td>92</td>
</tr>
<tr>
<td>12</td>
<td>87</td>
</tr>
<tr>
<td>13</td>
<td>87</td>
</tr>
</tbody>
</table>

Roadmap

1. Addiction is endemic in CJ populations
2. Addiction is a chronic, neurobehavioral disorder
3. Medication treatment works by attenuating positive and negative reinforcement
4. Incarceration doesn’t treat addiction
5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment reduces overdose deaths
Incarceration does not extinguish addiction

- Forced abstinence does not address substance use disorder
  - Decreases tolerance but not conditioned responses, memory
  - Still vulnerable to triggers, craving on release
The Revolving Door...

- >12 million jail releases per year
- >700,000 prison releases per year
  – >200,000 opioid-addicted adults cycle thru CJ system annually (Nunn et al. 2009)
Corrections-Based Treatment

% Have available

<table>
<thead>
<tr>
<th></th>
<th>Prisons</th>
<th>Jails</th>
<th>Community Corrections</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES</td>
<td>27</td>
<td>26</td>
<td>6</td>
</tr>
<tr>
<td>IOP</td>
<td>47</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>OP</td>
<td>55</td>
<td>60</td>
<td>47</td>
</tr>
<tr>
<td>ED</td>
<td>74</td>
<td>62</td>
<td>53</td>
</tr>
</tbody>
</table>

Agonist medications underutilized in CJ Settings

• ‘Drug-free’ treatment predominates (Nunn 2009; Friedmann 2012)

• Illicit opiate use in detention
  – Corruption and violence
  – HIV and hepatitis outbreaks

• Untreated opiate withdrawal in detention
  – Forced detox: cruel and morbid
  – Reduces desire to resume medication post-release (Mitchell et al., 2009; Rich, 2015)
RCT of Forced Withdrawal
Jail Sentence ≤ 6 mos

— Continued MMT (N=114) — Forced withdrawal (N=109)

Logrank P<.001

• >½ relapse within 1 year  (Martin et al. 1999)
• 2/3\textsuperscript{rd} return to custody within 3 years  
  (Langan & Levin, 2002)
Treatment of Chronic Disorders

1. Untreated disorder manifests itself at high level
2. Treatment reduces symptoms
3. Symptoms return when treatment stopped – proof of its effectiveness

Substance use disorder

1. Untreated disorder manifests itself at high level
2. Treatment reduces symptoms
3. Symptoms return when treatment is stopped – does treatment work?

Adapted from McLellan, Lewis, O’Brien & Kleber, JAMA 2000.
Methadone Treatment at Community Reentry

- Arm 1 (N=29) (Blue)
  - MMT 30 days before release
  - MMT linkage in community (financial assistance)
  - 4 not treated before release

- Arm 2 (N=29) (Red)
  - MMT linkage in community (financial assistance)

- Arm 3 (N=30) (Green)
  - MMT referral
  - No financial assistance for MMT
  - 15 given ATR on release → as-treated crossed to Arm 2
Bup Treatment at Community Reentry

- N = 44
  - 27% pre-release
  - 73% postrelease bup

- 82% 6 month f/u
  - Median rx 9 vs 24 wks (p = .007)
  - IDU 26% vs. 0% (p = .05)
  - Arrest 17% vs. 0 (p = .14)

Zaller, McKenzie, Friedmann et al. JSAT 2013
Opportunities for Intervention in the CJ Setting

Key Players

Crime victim
Police
FBI

Prosecutor
Defense Attorney
Defendant
Jury
Judge

Judge
Jury

Probation Officers
Correctional Personnel
Probation/ Parole Officers
Family
Community-based providers

Intervention Opportunities

Screening/ Referral
Diversion Programs
Drug Courts, TASC
Community Treatment

Drug Court Terms of Incarceration Release Conditions
Drug Treatment

Baystate Health

Slide adapted from Redonna Chandler
Roadmap

1. Addiction is endemic in CJ populations
2. Addiction is a chronic, neurobehavioral disorder
3. Incarceration doesn’t treat addiction
4. Medication treatment works by attenuating positive and negative reinforcement
5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment reduces overdose deaths
Overdose Deaths Involving Opioids, United States, 2000-2015

- Any Opioid
- Commonly Prescribed Opioids (Natural & Semi-Synthetic Opioids and Methadone)
- Heroin
- Other Synthetic Opioids (e.g., fentanyl, tramadol)

Why a Surge in Overdoses?

- Clamp down on prescription opioids since 2009
- Poor access to effective medication
- Jail/prison, detox and med.-less treatment → loss of tolerance
- Relapse
- Cheap, erratic street heroin, fentanyl
- Overdose
Release from Prison
High Risk of Death

Loss of Opioid Tolerance ↑’s Risk for Overdose, Esp. after Incarceration

High risk of overdose death after prison

Roadmap

1. Addiction is endemic in CJ populations
2. Addiction is a chronic, neurobehavioral disorder
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4. Medication treatment works by attenuating positive and negative reinforcement
5. OUD has high mortality when tolerance is lost, esp. after incarceration
6. Medication treatment reduces overdose deaths
Kakko et al. (2003)

Bup Withdrawal vs. Maintenance

Control (6 day taper)
Subutex® Maintained

NO DEATHS IN PATIENTS MAINTAINED

4 DEATHS (20% OF SAMPLE) IN DETOXED PATIENTS (P=.015)

# Remaining in treatment

Treatment duration (days)
Agonist Treatment Reduces Overdose Mortality

• Methadone treatment engagement
  – ↓ annual overdose mortality to 2.6 versus 12.7 per 1000
  – ↓ annual all cause mortality to 11.3 versus 36.1 per 1000

• Bup associated with similar mortality benefits
  – smaller research cohorts limited robustness of the findings, so need additional data.

Sordo et al., BMJ 2017
↑’d Community Access to Agonist Treatment → ↓’d Overdose Death

Summary

• OUD is a chronic, neurobehavioral disorder
• Policies favoring medication-less intervention increase mortality in persons with OUD
  – Loss of tolerance → overdose, e.g. after prison
• Medication underutilized in criminal justice
  – XR-NTX increasingly used in corrections
    • Likely effective short-term on opioid use outcomes
    • Concern about risk of overdose when stopped
    • Uncertain long-term outcomes
• To reduce overdose deaths, policies need to increase access to agonist medication
THANK YOU!

Colleagues and Collaborators

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- Dean Gerstein

- Ed Senay (deceased)
- Michael Stein

NIDA esp. DESPR, Services Research Branch

Questions?? Comments??

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Opioid pharmacotherapy believed less effective than research suggests

• “The clinician’s illusion”
  – Illusion from seeing prevalence sample
    • Probability that a case will appear is proportional to duration
    • Probability of detection is related to severity
    • Biased to see long duration, unremitting cases
  – Clinical and correctional settings
    • Patients who don’t return are forgotten
    • Severe cases that return (“relapsers” or “frequent flyers”) are remembered (availability bias)

Cohen & Cohen Arch Gen Psych 1984