Interventions Targeting Medication Adherence and Drug Use for HIV+ Criminal Justice Populations

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Why Focus on Correctional Settings?

• Success in any endeavor requires single-minded attention to detail and total concentration.

• You can get more with a kind word and a gun than you can get with just a kind word.

• Go where the money is... and go there often.

Willie F. Sutton
Where Do HIV+ Persons Interact with Criminal Justice System?
Prison Population and Incarceration Rate in the United States

Prevalence of DSM-IV Diagnoses Among U.S. Prisoners

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recent</th>
<th>Lifetime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Dependence</td>
<td>6%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Drug Dependence</td>
<td>3%</td>
<td>53.9%</td>
</tr>
<tr>
<td>Serious Mental Illness</td>
<td>11%</td>
<td>56.2%</td>
</tr>
<tr>
<td>Dual Diagnosis</td>
<td>2.5%</td>
<td>42.2%</td>
</tr>
</tbody>
</table>

Concentration of Infectious Diseases Among U.S. Prisoners

10 Million Annual Prison Releases

Percent Leaving Annually

- HIV: 31.2%
- AIDS: 15.8%
- HIV/AIDS: 26.2%
- HCV: 43.2%
- TB: 39.6%

Hammett, AJPH, 2002
The Revolving Door…

• 97% of prisoners will eventually be released to the community (10 million/year)
• 25% of HIV+ prisoners released yearly
• Most reenter society after <2 years of incarceration
• 60% reincarcerated

What Happens to HIV+ Prisoners During Incarceration and After They Are Released?

Effectiveness of Antiretroviral Therapy among HIV-Infected Prisoners: Reincarceration and the Lack of Sustained Benefit after Release to the Community

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1Yale AIDS Program, Yale University School of Medicine, and 2Department of Statistics, Yale University, New Haven, 3Department of Medicine, University of Connecticut Health Center, Farmington, and 4Connecticut Department of Correction, Wethersfield, Connecticut

Springer et al., Clinical Infectious Diseases, 2004
HIV Treatment Outcomes During and After Incarceration

**HIV RNA Change**
- During: -1.04
- After (3 Mo): +1.14
- Change: $P < 0.0001$

**CD4 Change**
- During: -80
- After (3 Mo): +67
- Change: $P < 0.0001$

The Public Health Impact of Prisoners Who Discontinue ART Upon Release

- After Release, HIV+ prisoners have \( \uparrow \) VL\(^{1,2} \)
- Increased HIV-1 VL is associated with increased infectiousness\(^{3,4} \)
- After release, prisoners return to high risk behaviors (unprotected sex, shared needles) with new and former partners\(^{5,6,7} \)

**Understanding why released HIV+ prisoners have interruptions in their ART is therefore important from a public health perspective**…

1. Springer, CID, 2004
2. Stephenson, Public Health, 2005
Pre-Incarceration
“Old Environment”

Incarceration
“Artificial Environment”

Post-Incarceration
“New Environment”

Behavioral Interventions
Re-Integration with Family/Supports
Vocational Training/Education
Antiretroviral Therapy
Medical Care
Psychiatric Care
Drug Treatment Needs
Basic Needs (food, shelter, safety)

Time ➔
Reasons for Poor Post-Release HIV Treatment Outcomes

• Reasons for **non-persistence** (stops abruptly) or **non-adherence** (adherence tapers off)
  – System problems (entitlements, follow-up)
  – Loss of entitlements
  – Competing post-release priorities
  – Relapse to drug or alcohol use
  – Lack of motivation or behavioral skills
    • Un/undertreated mental illness or substance use
HIV+ Prisoners Do Not Fill Their Prescription After Community-Release

Had prescription filled within:

- 10 days: 5.4% (Non-detectable VL at time of release)
- 30 days: 17.7% (Whites, compared to Blacks and Hispanics)
- 60 days: 30% (Community assistance filling prescriptions, On parole)

Associations with filling prescriptions:
- Non-detectable VL at time of release
- Whites (compared to Blacks and Hispanics)
- Community assistance filling prescriptions
- On parole

Community Examples of Evidence-Based Interventions

• Community system integration
• Case Management (not enough!)
• Medication interventions (DAART)
• Effective drug treatment
  – Opiate substitution therapy (MMT, BMT)
  – Alcohol relapse prevention
  – Counseling (CBT, MET, 12 steps)
  – Therapeutic communities
Community Collaborations

A Public Health Model to Connect Correctional Health Care With Communities

Thomas J. Conklin, MD, CCHP
Thomas Lincoln, MD
Timothy P. Flanigan, MD

Facilitators and Barriers to Continuing Healthcare After Jail
A Community-integrated Program

Thomas Lincoln, MD; Sofia Kennedy, MPH;
Robert Tutbill, PhD; Cheryl Roberts, MPA;
Thomas J. Conklin, MD; Theodore M. Hammett, PhD

- Hamden County jail
- Comprehensive health care approach
- Community health centers participate with provision of services
- Replication and evaluation underway

Am J of Public Health 1998. 88; 8: 1249-1250
J Ambulatory Care Manage 2006. 29; 1: 2-16.
DAART for Released HIV+ Prisoners

*Project Connect*

- Modeled after DAART efficacy of RCTS for HIV+ drug users in community-based settings \(^1,2\)
- DAART is provided once-daily, seven days per week
- All prescriptions, including for other chronic conditions, are provided as DAART (co-morbidity is frequent)
- All subjects receive mobile telephones standard case management services

### Project CONNECT Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>DAART (N=61)</th>
<th>SAT (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>45.1</td>
<td>45.3</td>
</tr>
<tr>
<td>Racial/ethnic minority</td>
<td>44 (72)</td>
<td>22 (70)</td>
</tr>
<tr>
<td>Women</td>
<td>17 (28)</td>
<td>7 (30)</td>
</tr>
<tr>
<td>Opioid Dependence</td>
<td>45 (74)</td>
<td>23 (76)</td>
</tr>
<tr>
<td>Cocaine Dependence</td>
<td>34 (56)</td>
<td>16 (52)</td>
</tr>
<tr>
<td>Alcohol Dependence</td>
<td>20 (33)</td>
<td>12 (39)</td>
</tr>
<tr>
<td>Axis I Disorder</td>
<td>37 (61)</td>
<td>18 (58)</td>
</tr>
<tr>
<td>Percent HIV-1 RNA&lt;50</td>
<td>37 (61)</td>
<td>20 (64)</td>
</tr>
<tr>
<td>Mean CD4</td>
<td>355</td>
<td>364</td>
</tr>
</tbody>
</table>
Project CONNECT
HIV Treatment Outcomes

**Viral Load**

- 3 Months: DAART (N=61) 67, SAT (N=31) 52
- 6 Months: DAART (N=61) 47, SAT (N=31) 22

**CD4 count**

* 101 subjects received 150 cell phones; 50 lost/stolen, 23 damaged and replaced, others were recycled – texting and calling reminders to be assessed
Evidence-Based Pharmacological Treatment for Opioid & Alcohol Dependence

• Opioid Dependence
  – Methadone (pure opioid agonist)
  – Buprenorphine (partial opioid agonist)
  – Naltrexone (pure opioid antagonist)

• Alcohol Dependence
  – Naltrexone (oral, monthly IM injection)
  – Acamprosate (thrice daily)
  – Disulfuram (aversion therapy)
A randomized clinical trial of methadone maintenance for prisoners: Results at 12 months postrelease

Timothy W. Kinlock, (Ph.D.)^{a,b,*}, Michael S. Gordon, (D.P.A.)^{a}, Robert P. Schwartz, (M.D.)^{a,c}, Terrence T. Fitzgerald, (M.D.)^{d}, Kevin E. O’Grady, (Ph.D.)^{e}

<table>
<thead>
<tr>
<th>12 month Outcomes (N=204 OD Prisoners)</th>
<th>Counseling Only</th>
<th>Counseling + MMT Transfer after release</th>
<th>Counseling + MMT in prison and after release</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention in Treatment (mean Days)</td>
<td>23.1</td>
<td>91.3</td>
<td>166</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Urine Opioid Drug + (%)</td>
<td>65.5</td>
<td>48.7</td>
<td>25.0</td>
<td>=.008</td>
</tr>
<tr>
<td>Criminal Activity</td>
<td>50.8</td>
<td>59.1</td>
<td>52.9</td>
<td>NS</td>
</tr>
</tbody>
</table>
Buprenorphine as a Conduit to Care for Released HIV+ Opioid Dependent Prisoners

PROJECT CONNECT

DAART

Standard of Care (SAT)

Meet criteria for DSM-IV Opioid Dependence Prior to Incarceration?

PROJET BRIDGE: Offered Buprenorphine (BPN) or Methadone (MM)

Springer et al, J Urban Health, 2010
• Abstinent from opioids <8 months
• All subjects guaranteed HAART upon release
• 100% had Axis I Disorder (68% mood disorders)
• BPN treatment initiated as close to release as possible
• Nearly 1/3 had relapsed to opioids before being inducted on BPN

Springer, Chen, Altice, J Urban Health, 2010
Buprenorphine Treatment for Released HIV+ Prisoners

- Opioid craving ↓ within 3 days
- Low mean BPN stabilization dose (9mg)
- High satisfaction
- 83% Opioid Negative Urine Toxicology
- Retention on BPN 74%

HIV Treatment Outcomes 6 month Project BRIDGE (N=51)

- Comparison to Opioid Dependent subjects who did not select BPN to be assessed
- Will assess impact of BPN treatment on HIV risk behaviors (2^0 prevention)
Impact of Alcohol on HIV Treatment Outcomes

• 40% of Project CONNECT subjects met AUDIT criteria for hazardous drinking (HD)

• HIV outcomes better in HDs who received DAART, but HD overall still had worse HIV outcomes than non-HD subjects
Future Directions…

• Other pharmacotherapies to prevent relapse to opioid and alcohol use
• Cues and Reminders
• Contingency Management (money manager)
• Transitional Adherence Plan
Conclusions

- Correctional systems are an integral part of our public health system
- Prisoners, concentrated with prisoners with HIV, mental illness and substance use disorders, will return to the community
- Released HIV+ prisoners have poor HIV treatment outcomes and are important targets for intervention (system, adherence, adequate treatment of co-morbid conditions)
- Evidence-based community transitional programs are urgently needed for HIV treatment and secondary prevention
McPrison
A Million Sentenced!
A Million Sentences Served!