From Prisons to Communities

Post-Release Interventions for People Living with HIV

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Professor of Medicine
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Scope of the Problem(s)
Growth in CJ Populations:
293 % growth in ~30 years

- HIV (HCV, HBV, TB, STIs)
- Substance Use Disorders
- Mental Illness

Sources:
Concentration of Infectious Diseases Among Prison Releasees (1997)

12 Million Annual Prison Releasees

- HIV: 31.3%
- AIDS: 15.8%
- HIV/AIDS: 26.2%
- Hepatitis C: 43.2%
- Tuberculosis: 39.6%

Hammett, AJPH. 20002
Spaulding, PLoS One, 2009
Correctional Settings: Absence of Active SUDs

Time-Limited Treatment or Prevention

TB

HCV

HBV

STDs

12 million released annually
Correctional Settings: Semi-Permeable Membrane

Chronic Treatment & Prevention

- Mental Illness
- Substance Use Disorders
- Other

HIV

12 million released annually
Continuum of HIV Care

HRSA

Inadequately Treated SUD or Mental Illness

- Unaware of HIV infection
- Aware of HIV infection (not in care)
- Receiving some medical care but not HIV care
- Entered HIV care but lost to follow-up
- Cyclical or intermittent user of HIV care
- Fully engaged in HIV care
Targets for Intervention

• Entry issues
  – Routine testing (HIV, HBV, HCV, TB)
  – Diagnosis and treatment for SUDs and mental illness
  – Which criminal justice setting?

• Treatment issues
  – Outcomes in a supervised setting

• Release or transitional issues
  – Adherence to therapies (HIV, SUDs, mental illness)
  – HIV risk reduction and linkage to care strategies
  – Which criminal justice setting?
Public Health Implications for Adequate Transitional Care for HIV-Infected Prisoners: Five Essential Components

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1AIDS Program, Section of Infectious Diseases, Yale University School of Medicine, New Haven, Connecticut; and 2Rollins School of Public Health, Emory University, Atlanta, Georgia
Context: Criminal Justice Populations

Legend:
- Entrants to jail = a + d
- All releasees from jail = b + c + e + g + h
- Release from jail to street = b + c + g + h
  - In order to calculate unique individuals, need to determine percentage of entrants that have been released in the past year.
- Entrants to prison = e + f + i
- Release from prison to street = j + k
  - In order to calculate unique releasees over the course of a year, must not double count those who are violating and returning within the year.
- Portion of diagram above dashed line represents populations in custody.
- Portion of diagram below dashed line represents populations that have been released to street.

Diagram:
- In Custody
  - Alleged crime or violation with charges filed
    - Charges dropped after time spent in jail
      - Release after bail posted
      - Back to street after court
      - Jail, pre-adjudication
        - back to jail after court
      - Jail, post-adjudication
        - from street via court
        - (release from jail, transfer to prison)
      - (to prison from street via court)
  - Court
  - Prison
    - Release from prison (sentence complete)
    - Release from prison (on parole)
      - Parole violation within a year with charges filed
AIDS-Related Mortality Achieves Parity in Prisons and the General Population

HIV Treatment Outcomes During and After Incarceration

HIV RNA Change

-1.04  +1.14
DURING (N=292)  AFTER (3 MO) (N=292)

P < 0.0001

CD4 Change

DURING  AFTER (3 MO)
(During N=292) (After N=292)

Viral Suppression (%)

Pre  Post
59%  18%

Impact of Methadone Treatment

8 (4%) deaths of the 204 subjects
- 6 due to overdose (none on MMT)
- 2 cardiovascular

MMT protective of death

Kinlock, J Sub Abuse Treat, 2009
Impact of Methadone Dose on Retention on Treatment
Jail Release Issues
Correlates of retention in care for six months include:

--- male gender
--- not relapsing to drugs or alcohol
--- receiving pre-release planning
--- post-release disease management
Prison

Detour
• Washington state
• Overall increased mortality 3.5 times greater than general population
• Mortality highest (12.5 times) in the first two weeks post-release
• Increased mortality for overdose, HIV, homicide, MVA, cancer, liver disease
• Studies from six sites (domestic and international)
• Drug-related deaths accounted for 50% of deaths
• Confirms the highest risk of death within the first 2 weeks post-release
• Implications for MAT among prisoners transitioning to the community
Release Programs for HIV
Requisite Steps in Stabilizing HIV Treatment Outcomes

- Medical Entitlements (ADAP)
- Medical Appointment and Prescription
- Adherence
- Viral Suppression

- Altice, CROI 2011
- Springer, CID 2004
- Baillargeon, JAMA 2004
- Rich, JUH 2001
Case Management

• Compared to no discharge planning, results in higher rates of receipt of first HIV appointment

• Variable results on:
  – Retention in HIV (continuous engagement)
  – HIV treatment outcomes

Rich, J Urb Health, 2001
Zahler, J Health Poor Underserved, 2008
Lincoln, J Ambul Care Manage, 2006
No difference in:
- Follow-up visits (5.23 v 4.07)
- ER use (39%)
- Reincarceration (35%)
Accessing Antiretroviral Therapy Following Release From Prison

- Retrospective cohort study (2004-2007)
  - All HIV-infected inmates released from Texas Department of Criminal Justice prison system (n=2112)
  - Texas ADAP program
    • ADAP program not convenient
- >90% of the former inmates experienced a treatment interruption
  - Treatment interruptions lasting
    • >30 days: >70%
    • >60 days: >60%

Requisite Steps in Stabilizing HIV Treatment Outcomes

- Medical Entitlements (ADAP)
- Medical Appointment and Prescription
- Adherence
- Viral Suppression

Relapse to Alcohol or Drug Use
Requisite Steps in Stabilizing HIV Treatment Outcomes

- Medical Entitlements (ADAP)
- Medical Appointment and Prescription
- Adherence
- Viral Suppression
Project CONNECT
NIDA

• RCT of DAART vs SAT
• DAART provided once-daily, 7 days per week
• All prescriptions, including for other chronic conditions, are provided as DAART (co-morbidity is frequent)
• If meets DSM-IV criteria for opioid-dependence, will be offered MMT or BMT (patient preference) for relapse prevention
• All subjects receive standard case management services
Total Referrals Within Prisons (N=256)

Self Referrals
N = 23

Ineligible
N = 78

Eligible (N = 201)

Randomized
N = 154

DAART
N = 103
Follow-up at 6 months: 88%

SAT
N = 51
Follow-up at 6 months: 86%
## Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>DAART (N=103)</th>
<th>SAT (N=51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>46.3</td>
<td>43.8</td>
</tr>
<tr>
<td>Racial/ethnic minority</td>
<td>85 (85)</td>
<td>22 (70)</td>
</tr>
<tr>
<td>Women</td>
<td>18 (18)</td>
<td>11 (22)</td>
</tr>
<tr>
<td>Opioid Dependence</td>
<td>64 (64)</td>
<td>30 (59)</td>
</tr>
<tr>
<td>Cocaine Abuse</td>
<td>89 (89)</td>
<td>46 (90)</td>
</tr>
<tr>
<td>Alcohol Dependence</td>
<td>26 (26)</td>
<td>19 (37)</td>
</tr>
<tr>
<td>Axis I Disorder</td>
<td>42 (42)</td>
<td>24 (47)</td>
</tr>
<tr>
<td>HIV-1 RNA&lt;400</td>
<td>80 (80)</td>
<td>39 (76)</td>
</tr>
<tr>
<td>Mean CD4</td>
<td>414</td>
<td>350</td>
</tr>
</tbody>
</table>

P=ns for all comparisons
Six Month Outcomes

**Percent Non-detectable**

- **VL<400**
  - DAART (N=94): 78
  - SAT (N=43): 51
  - \( P < .001 \)
- **VL<50**
  - DAART (N=94): 58
  - SAT (N=43): 41
  - \( P < .05 \)

**CD4 Change**

- DAART (N=94):
  - 9
  - \( P = .17 \)
- SAT (N=43):
  - -13
## Correlates of Achieving a VL<400 copies/mL at 6 Months

<table>
<thead>
<tr>
<th>Variable</th>
<th>AOR</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAART (vs SAT)</td>
<td>2.91</td>
<td>(1.29-6.57)</td>
<td>0.010</td>
</tr>
<tr>
<td>Baseline VL&lt;50</td>
<td>5.54</td>
<td>(2.52-12.17)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>0.36</td>
<td>(0.15-0.83)</td>
<td>0.016</td>
</tr>
<tr>
<td>Prescribed BPN (among those meeting criteria for OD)</td>
<td>3.62</td>
<td>(1.32-9.92)</td>
<td>0.012</td>
</tr>
</tbody>
</table>

* NS were age, gender, race/ethnicity, homeless at time of release, mental illness, duration of incarceration
Evidence-Based Pharmacological Treatment

- 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)
HIV Treatment Outcomes Among HIV-Infected, Opioid-Dependent Patients Receiving Buprenorphine/Naloxone Treatment within HIV Clinical Care Settings: Results From a Multisite Study

Frederick L. Altice, MD, MA,* R. Douglas Bruce, MD, MA, MSc,* Gregory M. Lucas, MD, PhD,† Paula J. Lum, MD, MPH,‡ P. Todd Korthuis, MD, MPH,§ Timothy P. Flanigan, MD,¶ Chinazo O. Cunningham, MD, MPH,‖ Lynn E. Sullivan, MD,* Pamela Vergara-Rodriguez, MD,** David A. Fiellin, MD,* Adan Cajina, MS,†† Michael Botsko, MSW, MPhil,‡‡ Vijay Nandi, MPH,§§ Marc N. Gourevitch, MD, MPH and Ruth Finkelstein, ScD, §§ for the BHIVES Collaborative¶¶
Buprenorphine and HIV Treatment Outcomes

- 295 HIV+ subjects starting BPN at 10 diverse clinical sites
- BPN treatment increased likelihood of initiating ART and improving CD4 count; but had no impact on VL outcomes (most were on ART at baseline)
- Stratified analysis by those on (N=176) and not on ART (N=119) at baseline
- Not being ART: younger, alcohol problems, homeless, higher VL and ↑ risk behaviors
P<0.5 for all comparisons between subjects on BPN/NX < 3 Quarters and those on longer duration. Using GEE and incorporating being on BPN/NX 3 or 4 Quarters, β=1.34 95% CI:(1.18, 1.53).

P<0.5 for all comparisons between subjects on BPN/NX < 3 Quarters and those on longer duration and for comparisons from baseline. Using GEE and incorporating being on BPN/NX 3 or 4 Quarters, β=1.25 95% CI: (1.10, 1.42).
Project BRIDGE

R21 DA019843

- Pilot Study to assess the acceptability and feasibility of BPN treatment as part of prison-release activities for HIV+ prisoners meeting DSM-IV criteria for opioid dependence
- BPN induction occurred on the day of release or up to 30 days post-release
- Standardized protocols used for induction and maintenance. For DAART subjects, BPN was observed
Improved HIV and Substance Abuse Treatment Outcomes for Released HIV-Infected Prisoners: The Impact of Buprenorphine Treatment

Sandra Ann Springer, Shu Chen, and Frederick L. Altice
Buprenorphine Treatment for Released HIV+ Prisoners (N=23)

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

Retention on BPN Treatment (N=50)

Percent on Treatment vs Weeks of Observation

- 66% retention at 12 weeks
- 48% retention at 24 weeks
<table>
<thead>
<tr>
<th>Independent Correlates of a Having a VL&lt;50 at 6 Months</th>
<th>AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention on BPN (24 weeks)</td>
<td>5.56 (1.12-27.69)</td>
</tr>
<tr>
<td>Male gender</td>
<td>4.86 (1.07-21.98)</td>
</tr>
<tr>
<td>(female=referent)</td>
<td></td>
</tr>
<tr>
<td>Black race</td>
<td>0.14 (0.03-0.73)</td>
</tr>
<tr>
<td>(white=referent)</td>
<td></td>
</tr>
<tr>
<td>Hispanic ethnicity</td>
<td>0.47 (0.09-2.31)</td>
</tr>
<tr>
<td>(white=referent)</td>
<td></td>
</tr>
<tr>
<td>Months of incarceration</td>
<td>1.04 (1.00-1.07)</td>
</tr>
<tr>
<td>Baseline VL&lt;50</td>
<td>10.61 (2.99-37.62)</td>
</tr>
<tr>
<td>Quality of Life (Physical Composite)</td>
<td>2.04 (1.09-3.85)</td>
</tr>
</tbody>
</table>
Treatments for Substance Use Disorders and Stabilization of HIV Treatment Outcomes

• RCT of XR-NTX for alcohol use disorders (CT) among prisoners
• RCT of XR-NTX for opioid dependence (CT/MA) among prisoners
• RCT of XR-NTX for opioid dependence in community corrections
• RCT of Methadone +/- behavioral interventions among prisoners (Malaysia)
• Trials of MAT, NSEP and TB treatment (Ukraine and Russia)
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
Targets for Intervention

Jail or Prison

Community Supervision

Pre-Trial  AIC  Probation  Parole

Seek & Test

Community Release (Retain)
Where's the safety net?
McPrison

2 Million Sentenced!
2 Million Sentences Served!