Substance Abuse Treatments: Expanding Options for HIV Prevention

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No conflicts to report

The Treatment Research Institute is a not for profit research organization dedicated to the translation of scientific findings on substance abuse treatment strategies into policy and practice.
Overview

• Brief overview of drug use and the HIV epidemic
• Addiction as a chronic medical condition
• Treatment as Prevention and new behavioral targets
• Proof of Concept: Methadone as HIV prevention
• Expanding treatment options: HPTN 058 Suboxone
• New medications and formulations: Naltrexone for alcohol and opiates
• Integrating substance abuse treatment in HIV care in the community
Adults and children estimated to be living with HIV | 2012

Total: 35.3 million [32.2 million – 38.8 million]
Current global AIDS epidemiology

- Approximately 35,000,000 living with HIV/AIDS
- Over 3,000,000 IDUs living with HIV/AIDS
- Outside of sub-Saharan Africa, over 33% of all new infections are estimated to be attributable to injection drug use
- No estimates of the major role of alcohol and non-injection drug use
Predictors of seroconversion in Explore: drug and alcohol use

<table>
<thead>
<tr>
<th>Drug</th>
<th>N at baseline</th>
<th>No. of infections</th>
<th>Hazard ratio*</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy alcohol**</td>
<td>419</td>
<td>41</td>
<td>1.87</td>
<td>1.24, 2.81</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>527</td>
<td>67</td>
<td>1.93</td>
<td>1.41, 2.64</td>
</tr>
<tr>
<td>Alcohol or drugs before sex</td>
<td>2952</td>
<td>205</td>
<td>1.57</td>
<td>1.08, 2.27</td>
</tr>
</tbody>
</table>

* REF = no, light or moderate use of alcohol; no speed use; no use before sex
** Heavy alcohol = 4+ drinks every day or 6+ drinks on a typical day

(Koblin et al, AIDS 2006)
Substance use disorders as chronic medical condition

- Biological components (dependence)
- Behavioral components (addiction)
- Effective management requires attention to both—medication assisted treatment
HIV prevention outcomes of effective substance abuse treatment

- Reduced injection related risks
- Reduced sexual transmission associated with alcohol and non injections drug use
- Improved adherence
- Suppression of viral load (facilitate Treatment as Prevention)
Prevention of HIV-1 Infection with Early Antiretroviral Therapy


ABSTRACT

BACKGROUND
Antiretroviral therapy that reduces viral replication could limit the transmission of human immunodeficiency virus type 1 (HIV-1) in serodiscordant couples.

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Cohen at the University of North Carolina...
Philadelphia Engagement in Care, 2009

(Eberhart et al, 2013)
Heroin
Proof of concept: Effective substance use treatment is effective HIV treatment

Drug use and injection among 557 heroin users by methadone treatment status, Sichuan Province, China

(Han-Zhu Qian et al, 2008)

Six year HIV infection rates by treatment status at time of enrollment

(Metzger et al. 1993)

Needle sharing among 557 heroin users by methadone treatment status, Sichuan Province, China

(Han-Zhu Qian et al, 2008)

Incidences of HBV and HCV 12 Months Following Treatment Entry

(Thiede, Hagan, and Murrill, 2000)
Methadone maintenance therapy promotes initiation of antiretroviral therapy among injection drug users

Sasha Uhlmann, M.-J. Milloy, Thomas Kerr, Ruth Zhang, Silvia Guilleli, David Marsh, Robert S. Hogg, Julio S. G. Montaner & Evan Wood

British Columbia Centre for Excellence in HIV/AIDS, St Paul's Hospital, Vancouver, Canada; Department of Medicine, University of British Columbia, Vancouver, Canada; Vancouver Coastal Health, Vancouver, Canada; and Faculty of Health Sciences, Simon Fraser University, Burnaby, Canada.

Review

Adherence to HIV treatment among IDUs and the role of opioid substitution treatment (OST)

Bruno Spire, Gregory M. Lucas, M. Patrizia Carriere

Université Paris Diderot-UMR 7190 INSERM, Paris, France

Johns Hopkins University, Baltimore, USA

Received 26 May 2006; revised 15 October 2006; accepted 6 December 2006

Commentary

Social and structural determinants of HAART access and adherence among injection drug users

Andrea Krüsi, Evan Wood, Julio Montaner, Thomas Kerr

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Available online at www.sciencedirect.com

International Journal of Drug Policy

Journal homepage: www.elsevier.com/locate/drugpo

Antiretroviral adherence and HIV treatment outcomes among HIV/HCV co-infected injection drug users:

The role of methadone maintenance therapy


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Department of Health Care and Epidemiology, University of British Columbia, BC Canada

Received 15 November 2005; revised 5 February 2006; accepted 7 February 2006
MANIF 2000: Drug treatment and injection as predictors of poor adherence to HAART (N=276; 1558 patient visits)

Adjusted Odds Ratio

Abstinent
Bup TX No Inj
MMT No Inj
Bup TX Inj
MMT Inj
No Tx Inj

(Roux P et al 2008)
Adherence and VL by past and current drug and alcohol diagnoses

<table>
<thead>
<tr>
<th></th>
<th>Alcohol</th>
<th>Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current diagnoses</td>
<td>p&lt;.01</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Lifetime diagnoses</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>

Wu et al, 2012
Clear need for more treatment options

Figure 3: Availability of opioid substitution treatment
BMT=buprenorphine maintenance treatment. MMT=methadone maintenance treatment. OST=opioid substitution therapy
HPTN 058

- Does buprenorphine/naloxone treatment reduce HIV infection and mortality?
- Does buprenorphine/naloxone treatment reduce opiate use?
- Does buprenorphine/naloxone treatment reduce injection risk behavior?
HPTN 058: comparing new delivery strategies using buprenorphine/naloxone

Opiate injectors recruited from community and screened

If not eligible, referred to local resources

Short-Term Medication Assisted Treatment
Suboxone detox
At Bx and 6 months plus one year counseling;
Referral to local resources

Long-Term Medication Assisted Treatment
12 months of Suboxone 3x per week and one year counseling;
Referral to local resources

HIV testing and counseling
Every 6 months
Year 02

HIV testing and counseling
Every 6 months
Year 02

If not eligible, referred to local resources
Buprenorphine/Naloxone offers new opportunities for HIV prevention and care

- Partial agonist, longer half-life
- Reduced risk of overdose
- Less severe withdrawal
- Fewer interactions with anti-retrovirals
Behavioral drug and risk counseling (BDRC)

- Rooted in cognitive behavioral therapy
- Focus on short term behavioral goals
- Uses behavioral contracts
- Emphasis on drug use and related problems
- Relapse is anticipated
- 12 weekly sessions followed by 9 monthly sessions
HIV infection rate has declined dramatically in the past 8 years: HPTN 033 and HPTN 058
Percent reporting any injection during previous month

<table>
<thead>
<tr>
<th>BX</th>
<th>6 month</th>
<th>12 month</th>
<th>18 month</th>
<th>24 month</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTMAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STMAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Percent injecting 20+ days in the last month by arm

- **Baseline**
- **Week 26**
- **Week 52**
- **Week 78**
- **Week 104**

- **LT-MAT**
- **ST-MAT**
Opiate positive urine toxicology by arm

- Percent opiate positive
- LTMAT
- STMAT

Graph showing the percentage of opiate positive urine tests over time for two arms, LTMAT and STMAT.
Percent ever used a syringe or needle after someone by arm (in prior 6 months)

- LT-MAT
- ST-MAT

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Week 26</th>
<th>Week 52</th>
<th>Week 78</th>
<th>Week 104</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LT-MAT</td>
<td>25</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>ST-MAT</td>
<td>18</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Naltrexone: Oral, XR injectable, Implant
Total abstinence (100% opioid-free weeks) during Weeks 5-24 was reported in 45 (35.7%) of subjects in the XR-NTX group versus 28 (22.6%) subjects in placebo group (P=0.0224).

Krupitsky et al, 2011
Effective treatments for substance use

- recognize addiction as a chronic medical condition
- use pharmacologic and counseling interventions
- are accessible, acceptable, and affordable
How does drug treatment prevent HIV infection and transmission?

- Effective treatments reduce the frequency of substance use
- Fewer substance related risk behaviors
- Fewer new infections
- Increased access to HIV treatment and primary care
- Increased adherence to HIV medications (including PreP)
Strategies for expanding treatment coverage

- Treatments must be led by addiction medicine
- Expand the number of medication assisted treatments
- Treat alcohol and other non injection drug use
- Use of new extended release formulations
- Integrate substance abuse treatment and HIV care
Go Vap medication assisted treatment study

- Collaboration between ESTHER, NIDA, HCMC PAC, and University of Pennsylvania
- Study the introduction of methadone treatment, buprenorphine/naloxone treatment and behavioral counseling into Go Vap clinic
- Assess accessibility, acceptability, and impact on drug use, and risk behavior
- Measure retention and adherence in HIV care
Options for expanding treatment coverage

• Treatments must be led by addiction medicine
• We expand the number of medication assisted treatments
• Use of extended release formulations
• Integrate substance abuse treatment and HIV care
Drug treatment is necessary but not sufficient for HIV prevention in communities.
Summary

• IDUs are small segment of the population but a major part of the HIV infected population

• Alcohol and non-injection drug use is a major risk factor in all risk groups that has not been well recognized

• Research on opiate injectors in methadone treatment has provided “proof of concept” that drug treatment is HIV prevention

• Despite selected expansion of methadone treatment as harm reduction—coverage remains extremely limited

• Need for expanded treatments, improved efficacy, new formulations and delivery strategies