The Role of Drug Abuse In the Evolving HIV Pandemic

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Goals of Presentation

• Update on HIV epidemiology linked to drug use in domestic and international settings

• Interventions to reduce HIV among drug users: how are we doing?

• Case studies

• Gaps in research and resource allocation
Proportion of AIDS Cases among Adults and Adolescents, by Transmission Category and Year of Diagnosis, 1985–2005—United States and Dependent Areas

Note: Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.

* Heterosexual contact with a person known to have or to be at high risk for HIV infection.
Proportion of HIV/AIDS Cases among Adults and Adolescents, by Sex and Transmission Category 2005—33 States

Males
- Male-to-male sexual contact: <1%
- Injection drug use (IDU): 5%
- Male-to-male sexual contact and IDU: 13%
- Other/not identified: 15%
- High-risk heterosexual contact: 67%

Females
- Male-to-male sexual contact: 1%
- Injection drug use (IDU): 19%
- Male-to-male sexual contact and IDU: 80%

Note: Data include persons with a diagnosis of HIV infection regardless of their AIDS status at diagnosis. Data from 33 states with confidential name-based HIV infection reporting since at least 2001. Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.

* Heterosexual contact with a person known to have or to be at high risk for HIV infection.
Estimated Number and Proportion of AIDS Cases Associated with Injection Drug Use, by Transmission Category Diagnosed in 2005—United States and Dependent Areas

<table>
<thead>
<tr>
<th>Category</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual male injection drug user (IDU)</td>
<td>6,273</td>
<td>45</td>
</tr>
<tr>
<td>Female IDU</td>
<td>3,278</td>
<td>24</td>
</tr>
<tr>
<td>Male-to-male sexual contact and IDU</td>
<td>2,251</td>
<td>16</td>
</tr>
<tr>
<td>Heterosexual sex partners of IDUs</td>
<td>2,127</td>
<td>15</td>
</tr>
<tr>
<td>Children whose mothers are IDUs or sex partners of IDUs</td>
<td>5</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13,934</td>
<td></td>
</tr>
</tbody>
</table>

Note: Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.
Proportions of AIDS Cases among Male Adults and Adolescents, by Transmission Category and Race/Ethnicity 2001–2005—United States and Dependent Areas

Note. Data have been adjusted for reporting delays, and cases without risk factor information have been proportionally redistributed. IDU, injection drug use.
* Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
† Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
Proportions of AIDS Cases among Female Adults and Adolescents, by Transmission Category and Race/Ethnicity 2001–2005—United States and Dependent Areas

Note: Data have been adjusted for reporting delays, and cases without risk factor information have been proportionally redistributed.

* Includes sex with a bisexual male, a person with hemophilia, an HIV-infected transfusion recipient, or an HIV-infected person whose risk factor was not specified.

† Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
AIDS Cases among Female Adults and Adolescents Attributed to Injection Drug Use or High-Risk Heterosexual Contact, by Region, 2001–2005—50 States and DC

- **Northeast**: 6,224 (Injection drug use: 15,136), 10,962 (High-risk heterosexual contact: 36,916)
- **Midwest**: 1,437 (Injection drug use: 15,136), 3,366 (High-risk heterosexual contact: 36,916)
- **South**: 6,130 (Injection drug use: 15,136), 19,663 (High-risk heterosexual contact: 36,916)
- **West**: 1,346 (Injection drug use: 15,136), 2,925 (High-risk heterosexual contact: 36,916)

Note: Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.
* Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
Estimates on the size of the IDU populations available in 130 countries and territories (1998/2003)

13,158,345 IDUs Worldwide
10,292,220 of them (78%) in developing countries

Countries with estimates on the size of IDU

To ease comprehension, both absolute nos. and %s have been rounded up

© UN Reference Group on HIV/AIDS Prevention and Care among IDUs in Developing and Transitional Countries
### Proportions of HIV Infections by Risk Groups and Region, 2005

#### Eastern Europe and Central Asia
- **IDU**: 67%
- **MSM**: 4%
- **CSW**: 5%
- **CSW clients**: 7%
- **All others**: 17%

#### Latin America
- **IDU**: 19%
- **MSM**: 26%
- **CSW**: 4%
- **CSW clients**: 13%
- **All others**: 38%

#### South and South-East Asia*
- **IDU**: 22%
- **CSW**: 8%
- **MSM**: 5%
- **CSW clients**: 41%
- **All others**: 24%

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**MSM**: Men having sex with men  
**CSW**: Commercial Sex Workers

*excludes India

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UNAIDS, 2006
Diffusion of Injection and HIV along Heroin Trafficking Routes: Central Asia
# of new HIV cases by risk group: 1998-2005
14 E. European/Central Asian countries*

*Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan


HIV infections per million population

Total number of HIV infections

Year of report

Source: EuroHIV Report, 2006
HIV Antiretroviral treatment access among IDUs in Eastern Europe, 2004

Source: WHO, 2007
Bridging Populations
HIV Prevalence in IDU Prisoners in Developing / Transitional Countries

Dolan et al., 2007
HIV Prevalence among Current IDUs and Never IDUs in New York City: 2001-2004

Des Jarlais et al., 2006
HIV prevalence among injecting drug users, sex workers and men who have sex with men in Central Asia, selected studies, 2005

* Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan

Source: CDC Central Asia offices (Almaty & Tashkent), National and City HIV/AIDS centers; Sanchez et al, 2006
Prevalence of HIV/STIs among Female Sex workers (FSWs) and FSWs who Inject Drugs (FSW-IDUs) in Tijuana and Cd. Juarez, Mexico 2005 – 2006

Patterson et al., 2007
Characteristics Independently Associated with HIV Infection among FSWs in Tijuana and Cd. Juarez (N=920)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injected cocaine last month</td>
<td>2.9</td>
<td>(1.3-6.8)</td>
</tr>
<tr>
<td>Snort/smoked meth last month</td>
<td>3.3</td>
<td>(1.9-5.9)</td>
</tr>
<tr>
<td>Syphilis titer &gt;1:8</td>
<td>4.2</td>
<td>(2.3-7.6)</td>
</tr>
</tbody>
</table>

(Patterson et al, submitted)
Stimulant Injection: Ukraine

Courtesy of Bob Booth
### Characteristics Independently Associated with HIV Incidence among IDUs in St. Petersburg, Russia (N=417)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Adjusted Odds Ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulant Injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2X/wk</td>
<td>1.89</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&gt;3X/wk</td>
<td>8.15</td>
<td></td>
</tr>
<tr>
<td>&gt;3 sex partners</td>
<td>3.3</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Kozlov et al, 2006
Meta-analysis of HIV Interventions among IDUs

• 37 studies; only 12% conducted outside U.S;
• Only half grounded in behavioral theory;
• Only 6% had ≥2 follow-up visits;
• Effective studies focused on both sexual and injection risk reduction
• Overall, studies support effectiveness for increasing condom use, entry into drug abuse treatment, and reducing injection and non-injection drug use

Copenhaver et al, 2006
Behavioral Intervention to Reduce High Risk Sex among HIV+ MSM Methamphetamine Users

P<0.001

Mausbach et al, 2006
Beyond Individual Risk Factors: The Risk Environment

MACRO LEVEL
- Laws/regulations
- Political transitions
- Trafficking routes

MESO LEVEL
- Enforcement
- Social norms
- Health services
- Geospatial factors

MICRO LEVEL
- Risk behaviors
- Health seeking
- Criminal behaviors

The "Risk Environment"

Health outcomes

Cross-Border Intervention Study in China/Vietnam

- Peer-Driven Intervention: Ha Giang, Vietnam & Guigang, China
- Collection/safe disposal of used needles/syringes
- Social marketing of new needles/syringes – direct distribution and through redemption of pharmacy/clinic vouchers
- Community education, vocational training
- Support for drug use cessation

• Full implementation of interventions in began July (Vietnam) – October (China), 2002

Des Jarlais, Hammett et al, 2007
HIV Incidence among New Injectors: Vietnam/China

Des Jarlais, Hammett et al, 2007
Expanded Syringe Access Demonstration Program (ESAP): New York

As of January 1, 2001, pharmacies and health care facilities registered with health dept to:

- Sell or furnish up to 10 syringes per transaction.
- Sell to persons 18 years or older.
- Not advertise that syringes are for sale without a prescription.
- Provide ESAP safety pamphlet with each syringe sale.

An independent evaluation was mandated by law.
Pre- and Post-Intervention Effects in Harlem (n=340) vs. South Bronx (control; n=377)

Knowledge of ESAP

- Harlem (p<0.09)
- South Bronx (p<0.01)

Use Pharmacy at Last Injection

- Harlem (p<0.05)
- South Bronx (p<0.24)

Street Syringe Disposal

- Harlem (p<0.04)
- South Bronx (p<0.12)

Syringe Re-Use

- Harlem (p<0.21)
- South Bronx (p<0.81)

Fuller et al, AJPH 2006
Response to HIV and Drug Use in China

- >3 million IDUs
- 650,000 HIV+ves in 2005 alone
  - Half among IDUs
- Former drug policy: Zero tolerance; mandatory “rehabilitation”
- Paradigm shift; by end of 2005:
  - 91 Needle exchange programs (NEPs)
  - 128 methadone maintenance clinics, 1500 by 2008
  - Buprenorphine maintenance (Suboxone) launched in 04/07

Sources: WHO; Wu et al. in press
Former Approach to Drug Treatment

AIDS Prevention Rally, China

Methadone Program Launch: Guizhou

Source: UNAIDS
IDU & HIV in Iran

• Highest per capita opiate dependence: 1 in 17 and >200,000 IDUs
• 30,000 HIV+ves
  – 67% attributed to IDU
• Progressive governmental response:
  – Expanded drug treatment, including substitution therapies
  – “Triangular clinics” – cater to needs of IDUs and FSWs
  – Community and pharmacy based NEPs
  – Subsidized treatment for drug abuse and ARVs
  – Drug law reform

Razzaghi et al., 2006
FY2008 U.S. Federal Drug Control Budget; Prevention Gets Smallest % in Past Decade

SOURCES: Adapted by CESAR and National Drug Control Policy (ONDCP)
Conclusions: Epidemiology

- Drug use continues to account for large proportions of HIV cases in the U.S. and internationally, especially in ethnic minorities
- Eastern Europe, Central, South and SE East Asia especially hard hit
- Increasingly important role of stimulants
- Need to target ‘bridging populations’ to prevent ongoing transmission
Conclusions: Interventions

• Since HIV is transmitted both parenterally and sexually, interventions need to operate at multiple levels
• Growing recognition of the ‘risk environment’ beyond individual risk factors
• Impressive advances in some countries with otherwise repressive regimes
• Political will needed to shift resource allocation towards prevention and treatment in the U.S.
Acknowledgements

• Carmen Aceijas
• Bob Booth
• Don Des Jarlais
• Crystal Fuller
• Kaveh Khoshnood
• Brent Maushbach
• Tom Patterson
• Robin Pollini

• NIDA Program
  – Peter Hartsock
  – Katherine Davenny
  – Lynda Erinoff
  – Jacques Normand