Drug Abuse Treatment as HIV Prevention

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Outline

• The disease of opiate dependence
• Risk behaviors of opiate dependent individuals
  – Data from surveys of not-in-treatment individuals in Malaysia
• Reductions of risk behaviors during drug treatment
  – Data from RCTs in Malaysia and in the US
The spectrum of drug use

- Drug using patterns range across a spectrum, from no use to dependent use, and may include more than one drug.
- For many drugs, a person can move along the spectrum (in either direction) and cease using at any point.

Opiate use has a distinctively different pattern:
- Most people who begin to use opiates either stop after initial short period of experimentation or become dependent.
Concentration levels in the brain

Source: The Brain: Understanding the Neurobiology of Addiction National Institute on Drug Abuse, NIH
The disease of opiate dependence

• Chronic disorder with high risk of persistence, relapse and recurrence
  – Similar to diabetes, hypertension or other medical disorders in some clinical features, prognosis, or treatment aspects

• Multi-factor etiology
  – Social factors (e.g., culture, family, peers, environment)
  – Psychological factors (e.g., developmental environment, emotional distress, classical and operant conditioning)
  – Psychiatric comorbidity (e.g., depression, anxiety)
  – Genetic risk

• Clearly identifiable neurobiological components
  – Opioids bind to brain receptors and mimic the action of natural endorphins produced by the body
  – Acute and chronic effects on neurochemistry and brain motivation, reward, stress, pain, and other systems
Consequences of opiate dependence

• Dysregulation of brain reward systems and higher-order executive functions
  – Increased difficulties in dealing with stress or experiencing natural rewards, deterioration of emotional and coping skills
  – Lowered motivation and drive
  – Impaired cognitive functioning (learning and memory, decision making, problem solving)

• Specific pattern of behavioral risks
  – Increased risk of contracting bloodborne and infectious diseases
  – Adverse impact on general health status
  – Adverse impact on the individual’s ability to fulfill family (e.g., parent, spouse) and social roles
  – Vocational and/or educational disruption
  – Violence and crime
Behavioral risks

- Unsafe injection practices
  - Reusing one's own needles and/or equipment
  - Ineffective cleaning techniques
  - Non-sterile process and paraphernalia during drug preparation (dirty water, cooker, filtering devices, etc.)

- Sharing injection equipment and materials
  - Restrictions on buying needles and syringes
  - Fear of police arrest while carrying injection equipment
  - Unintentional sharing
    - “Port doctors”
    - Hiding own equipment in places that other drug users can find it

- Risks related to the disease of opiate dependence, often not under volitional control of the individual
  - Impaired decision making due to intoxication or withdrawal
  - Taking risks to alleviate withdrawals or satisfy cravings
  - Vulnerability to consequences of risky decisions made by other users
  - Opportunity, impulse
Prevalence of IDU
Prevalence of HIV among IDU
## IDU and HIV

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated number of people who inject drugs</th>
<th>Estimated number of people who inject drugs and who are HIV positive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
<td>Mid</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>2540 000</td>
<td>3476500</td>
</tr>
<tr>
<td>Western Europe</td>
<td>816 000</td>
<td>1044 000</td>
</tr>
<tr>
<td>East and southeast Asia</td>
<td>3043 500</td>
<td>3957 500</td>
</tr>
<tr>
<td>South Asia</td>
<td>434 000</td>
<td>569 500</td>
</tr>
<tr>
<td>Central Asia</td>
<td>182 500</td>
<td>247 500</td>
</tr>
<tr>
<td>Caribbean</td>
<td>137 500</td>
<td>186 000</td>
</tr>
<tr>
<td>Latin America</td>
<td>1508 000</td>
<td>2018 000</td>
</tr>
<tr>
<td>Canada and USA</td>
<td>1604 500</td>
<td>2270 500</td>
</tr>
<tr>
<td>Pacific Island states and territories</td>
<td>14 500</td>
<td>19 500</td>
</tr>
<tr>
<td>Australia and New Zealand</td>
<td>105 000</td>
<td>173 500</td>
</tr>
<tr>
<td>Middle East and north Africa</td>
<td>89 000</td>
<td>121 000</td>
</tr>
<tr>
<td>Sub-Saharan Africa*</td>
<td>534 500</td>
<td>1778 500</td>
</tr>
<tr>
<td>Extrapolated global estimates</td>
<td>11 008 500</td>
<td>15 861 500</td>
</tr>
</tbody>
</table>

All estimates rounded to the nearest 500; global figure totalled from regional estimates before rounding. 2007 UN population division estimates have been used to derive 2007 estimates of IDU population size. *Estimates for sub-Saharan Africa should be viewed with considerable caution as the prevalence estimates were derived from three of 47 countries in the region (South Africa, Mauritius, and Kenya). Additionally, the estimated range of injecting drug use for this region was derived by applying the regional observed error; this large error band reflects the considerable uncertainty around these estimates.

*Table 7: Regional and global estimates of the number of people who inject drugs, and the number who may be HIV positive, 2007*
Drug use, HIV, and infectious diseases

- Injection drug users (IDUs)
  - Highest prevalence of HIV and HCV
  - Highest risk of new HIV infection
  - Contribute significantly to HIV transmission to the general population

- Many drug users are young, unmarried, sexually active and only a small fraction of them report consistent condom use
  - Knowledge about HIV/AIDS, sexually transmitted diseases (STDs) and blood borne viruses is generally very poor
Sex related risks

• Exchanging sex for money or drugs
• Impaired decision making increases the willingness to take sexual risks
  – sex with anonymous partners,
  – sex with multiple partners
  – not using condoms
IDU and safe sex

Monitoring the AIDS Pandemic (The MAP Network) Report 2005
Malaysia

Population: 27 million (2008 est.)

GDP per capita: $14,400 (2007 est.)

Industrial-based

Rural to urban migration

Proximity to Golden Triangle

Major heroin abuse problem since 1970s
Survey sites in Malaysia

- Downtown Johor Bahru site
- 24 hour General Clinic at Penang site
- Interview session at Kuala Lumpur site
### HIV risk behaviors

<table>
<thead>
<tr>
<th>Risk Behavior</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime sharing needles or works</td>
<td>81.4%</td>
</tr>
<tr>
<td>(223/274)</td>
<td></td>
</tr>
<tr>
<td>Current sharing needles or works (past 30 days)</td>
<td>55.1%</td>
</tr>
<tr>
<td>(151/274)</td>
<td></td>
</tr>
<tr>
<td>Sharing with more than 2 to 3 people (past 30 days)</td>
<td>73.5%</td>
</tr>
<tr>
<td>(111/151)</td>
<td></td>
</tr>
<tr>
<td>Always cleaning needles/works before sharing (past 30 days)</td>
<td>46.4%</td>
</tr>
<tr>
<td>(70/151)</td>
<td></td>
</tr>
<tr>
<td>Cleaning by rinsing in water</td>
<td>86.4%</td>
</tr>
<tr>
<td><em>None reported using bleach</em></td>
<td>(133/154)</td>
</tr>
<tr>
<td>Self-reported HIV-positive in the sample</td>
<td>27.8%</td>
</tr>
<tr>
<td>(68/245)</td>
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</tbody>
</table>

*High rates of risk behaviors among not-in-treatment opiate abusers*
HIV status and risk behaviors

- Data from surveys conducted between 2006 and 2008 enrolling not-in-treatment drug users in Malaysia (N=732); 26.5% HIV-positive (self-report)
- 56.2% of HIV-positive report current sharing of injecting equipment, majority of them share with multiple individuals
- Opiate abusers (in Malaysia) who know that they are HIV+ do not seem to significantly change their risk behaviors
Treatment effects on HIV risks


How effective is drug treatment in reducing HIV?

• IOM 2007 report concludes

  “Evidence from prospective cohort and case-control studies shows that continuous opioid agonist maintenance treatment is associated with protection against HIV seroconversion. This association persists after controlling for many confounders. These studies also show that the risk of seroconversion is inversely related to the length of time in treatment.”
Comprehensive drug treatment

Components of Comprehensive Drug Abuse Treatment

- Intake Processing/Assessment
- Treatment Plan
- Substance Use Monitoring
- Behavioral Therapy and Counseling
- Pharmacotherapy
- Self-Help/Peer Support Groups
- Continuing Care
- Clinical and Case Management
- Child Care Services
- Vocational Services
- Medical Services
- Educational Services
- AIDS/HIV Services
- Legal Services
- Financial Services
- Housing/Transportation Services
- Family Services

Mental Health Services
Drug treatments as HIV prevention

• Drug treatments prevent HIV transmission by
  – Reducing or eliminating drug use and drug related risk behaviors (e.g., needle use and needle sharing) and other risk behaviors
  – Providing opportunity to educate about consequences of drug use and drug- and sex-related risk behaviors
  – Teaching decision making skills and coping and problem solving strategies
  – Supporting lifestyle changes
  – Providing a platform to enhance rehabilitation, HIV education and medical care
Acknowledgments

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