HIV Risk and Prevalence among New York City Injection Drug Users

2009 National HIV Behavioral Surveillance Study
NYC National HIV Behavioral Surveillance Team

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CDC Grant#: U62/CCU223595-03-1
NHBS-IDU2 Overview

• Background and Methods
• Results
  • Sociodemographics
  • Injection & Non-Injection Drug and Alcohol Use
  • Sexual Risk Factors
  • Use of HIV Testing, Healthcare, and HIV Prevention Services
  • HIV & HCV Prevalence
• Summary and Conclusions
Background & Methods
Background

- NYC has the largest population of IDU (40,000-120,000) in U.S.
- 9% of new HIV diagnoses in 2008 in NYC were attributable to injection drug use (direct injection risk)
  - Additionally, 8% of heterosexual diagnoses in 2001-2008 were attributable to sex with an IDU partner (indirect injection risk)
- Estimated HIV incidence among IDU decreased from 3.6/100 PYAR in 1991 to 0.3/100 PYAR in 2008
  - Largely based on the success of sterile syringe access programs
- Yet many IDU continue to exhibit injection-related and sexual risks
- IDU face barriers to timely HIV testing, entry to HIV medical care entry, and treatment adherence
National HIV Behavioral Surveillance (NHBS)

- 21 cities throughout the United States
- Funded by CDC, designed collaboratively
- Ongoing, cyclical study of three risk groups: MSM, IDU, and high-risk heterosexuals
- Second IDU cycle (NHBS-IDU2) data collection in 2009
  - First IDU cycle (NHBS-IDU1) data collection in 2005
- Cross-sectional study design
- Anonymous quantitative survey, HIV & HCV tests
NHBS Study Objectives

- Determine frequency and correlates of HIV risk behaviors
- Assess HIV testing history and patterns
- Assess exposure to and use of HIV prevention services
- Estimate the prevalence of HIV infection
- Understand trends in HIV risk and prevalence
NHBS-IDU2 Eligibility Criteria

- Injected drugs not prescribed for participant in past year
  - Verified through visible signs of injection (e.g., track marks) and/or knowledge of injection practices
- At least 18 years old
- Resident of NYC metropolitan statistical area
- Speaks English or Spanish
Respondent-Driven Sampling (RDS)

1. Study team recruit initial participants ("seeds") through street and facility-based outreach
2. Seeds recruit up to 3 other participants they believe are eligible for the study
3. Those 3 participants each recruit up to 3 more and so on until the target sample size is met
   • Study team continually monitors recruitment chains to ensure demographic representativeness
   • Study incentives provided for the survey, blood tests, and peer recruitment
   • See www.respondentdrivensampling.org for more information
NHBS-IDU2 Statistical Analysis

- Weighted analysis conducted with RDS Analysis Tool (RDSAT) 5.6 and SAS 9.1
- RDS weighting may reduce recruitment biases common in chain-referral methods (homophily and large networks)
- If methodological assumptions are met, RDSAT may estimate generalizable population proportions (%’s) but not population sizes (n’s).
- Self-reported HIV-positive IDU (n=36) excluded from HIV behavioral risk analyses; IDU untested for HIV (n=3) or HCV (n=10) excluded from seroprevalence analyses
NHBS-IDU2 Sample

Seeds  n=14

Total Recruits  n=614

Eligible Non-Seeds  
*Primary Analyses*  
n=514

Not Self-Reported HIV+  
*HIV Behavioral Risk Analyses*  
n=478 (93%)

HIV Tested  
*HIV Prevalence Analyses*  
n=511 (99%)

HCV Tested  
*HCV Prevalence Analyses*  
n=504 (98%)

NYC Health  

CDUHR  
CENTER FOR DRUG USE AND HIV RESEARCH
Sociodemographics
NHBS-IDU2: Distribution of Participants by Zip Code of Residence

Legend
- Blue Storefronts

# of Participants
- Green: 1 - 4
- Yellow: 5 - 11
- Orange: 12 - 24
- Red: 25 - 38

[Map showing distribution of participants by zip code with color-coded areas indicating different participant counts]
# Demographics

**NYC NHBS-IDU2, 2009, n=514**

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage</th>
<th>Age</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>13%</td>
<td>18-29</td>
<td>11%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>50%</td>
<td>30-39</td>
<td>28%</td>
</tr>
<tr>
<td>White</td>
<td>36%</td>
<td>40-49</td>
<td>43%</td>
</tr>
<tr>
<td>Other</td>
<td>&lt;1%</td>
<td>50+</td>
<td>18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage</th>
<th>Birthplace</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>78%</td>
<td>United States</td>
<td>75%</td>
</tr>
<tr>
<td>Female</td>
<td>22%</td>
<td>Puerto Rico</td>
<td>21%</td>
</tr>
<tr>
<td>Transgender</td>
<td>&lt;1%</td>
<td>Foreign</td>
<td>4%</td>
</tr>
</tbody>
</table>
### Demographics

**NYC NHBS-IDU2, 2009, n=514**

<table>
<thead>
<tr>
<th>Income</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10k</td>
<td>&lt;High School</td>
</tr>
<tr>
<td>36%</td>
<td>44%</td>
</tr>
<tr>
<td>10k+</td>
<td>H.S. Grad+</td>
</tr>
<tr>
<td>36%</td>
<td>56%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Sexual Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Married</td>
<td>Heterosexual</td>
</tr>
<tr>
<td>57%</td>
<td>92%</td>
</tr>
<tr>
<td>Currently Married</td>
<td>Homosexual/Bisexual</td>
</tr>
<tr>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Previously Married</td>
<td></td>
</tr>
<tr>
<td>34%</td>
<td></td>
</tr>
</tbody>
</table>
62% of IDU were ever homeless in the past year, with 23% in a shelter, 33% on the street, and 9% in a single-room occupancy apartment.
Criminal Justice Encounters in Past Year, by Race

NYC NHBS-IDU2, 2009, n=514

<table>
<thead>
<tr>
<th>Event</th>
<th>Total</th>
<th>Black</th>
<th>Non-Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stopped/Frisked or Searched by Police*</td>
<td>52%</td>
<td>71%</td>
<td>49%</td>
</tr>
<tr>
<td>Police Confiscated Syringes, No Arrest</td>
<td>10%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Arrested</td>
<td>42%</td>
<td>44%</td>
<td>41%</td>
</tr>
<tr>
<td>Arrested for Carrying Syringes</td>
<td>4%</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>Incarcerated in Jail/Prison</td>
<td>33%</td>
<td>33%</td>
<td>37%</td>
</tr>
</tbody>
</table>

*p<0.01
Injection Drug Use
## Lifetime Injection History, by Race/Ethnicity

*NYC NHBS-IDU2, 2009, n=514*

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Black</th>
<th>Hispanic</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>41</td>
<td>48</td>
<td>40</td>
<td>39</td>
</tr>
<tr>
<td><strong>Age at First Injection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>19</td>
<td>21</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td><strong>Years Since First Injection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>17</td>
<td>25</td>
<td>18</td>
<td>15</td>
</tr>
</tbody>
</table>
Most Common Injection Location

NYC NHBS-IDU2, 2009, n=514

- Own Place: 59%
- Public Bathroom: 16%
- Friend's Place: 7%
- Street/Park: 8%
- Other: 10%

30% most commonly injected in a public or semipublic location
Drugs Injected in Past Year

NYC NHBS-IDU2, 2009, n=514

Injection of other drugs was uncommon
Syringe Sources in Past Year

NYC NHBS-IDU2, 2009, n=514

- **Exchange Program**: 72%
- **Pharmacy**: 56%
- **Medical Provider**: 5%
- **Friend, Sex Partner**: 30%
- **Dealer, Street Sources**: 8%

68% of IDU obtained syringes only from sterile sources.

6% obtained syringes only from potentially unsterile sources.
Secondary Syringe Exchange in Past Month

NYC NHBS-IDU2, 2009, n=514

Secondary syringe exchange: obtaining syringes from an exchange program for another person’s use.

- **0%**
  - Exchanged for Others
  - Others Exchanged for Participant
  - Either

- **15%**
  - Either

- **9%**
  - Others Exchanged for Participant

- **8%**
  - Exchanged for Others

- **100%**
Syringe Reuse and Sharing in Past Year

NYC NHBS-IDU2, 2009, n=478 (HIV-/Unk. IDU)

IDU who shared receptively had a mean 3.3 and a median 2 partners who gave them used syringes.

IDU who shared distributively had a mean 4.6 and a median 2 partners to whom participants gave their used syringes.
Other Equipment Sharing in Past Year

NYC NHBS-IDU2, 2009, n=478 (HIV-/Unk. IDU)

- Cooker Sharing: 39%
- Cotton Sharing: 32%
- Water Sharing: 31%
- Dividing Drugs in Used Syringe: 24%
- Any Recep. Syringe or Equip. Sharing: 45%
Noninjection Drug & Alcohol Use
Noninjection Drugs Used in Past Year

NYC NHBS- IDU2, 2009, n=514

Overall Crack (Benzodiazepines) Downers Marijuana Cocaine Painkillers (Prescription Opioids)

- ≥1x/Day
- ≥1x/Week
- <1x/Week

11% 21% 28%
17% 10% 10%
10% 12% 9%
15% 7% 9%
17% 6% 5%
9% 3% 6%
Alcohol Use in Past Year

NYC NHBS-IDU2, 2009, n=514

Any Drinking: 64%
Binge Drinking: 44%
At Least Weekly Binge Drinking: 24%

Binge drinking is consuming at least 5 drinks for men or 4 drinks for women in “one sitting”
Overdose
Recent Drug Overdose

NYC NHBS-IDU2, 2009, n=514

- Overdosed in Past 3 Years: 31%
- Overdosed in Past Year: 13%
- Know Other IDU Who OD'd in Past Year: 41%
Characteristics of Last Overdose

*NYC NHBS-IDU2, 2009, n=168 (Overdosed in Past 3 Years)*

81% of IDU overdosed by injecting drugs only, 5% by using alcohol or noninjection drugs only, 14% by a combination of injecting and using alcohol and noninjection drugs.
Sexual Activity
**Past Year Sexual Partnerships**

*NYC NHBS-IDU2, 2009, n=478 (HIV-/Unk. IDU)*

![Bar chart showing the percentages of different types of sexual partners for men and women.](chart.png)

- **Any Partners**
  - Men: 75%
  - Women: 84%

- **Main Partners**
  - Men: 56%
  - Women: 69%

- **Casual Partners**
  - Men: 31%
  - Women: 8%

- **Exchange Partners**
  - Men: 10%
  - Women: 23%

- **Same-Sex Partners**
  - Men: 7%
  - Women: 19%

*Heterosexual Partners*
## Past Year Heterosexual Partnerships, by Gender

*NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
</tr>
<tr>
<td>Main</td>
<td>0.9</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Casual</td>
<td>1.4</td>
<td>0</td>
<td>1.6</td>
</tr>
<tr>
<td>Exchange</td>
<td>3.4</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>All Types</td>
<td>5.8</td>
<td>2</td>
<td>3.1</td>
</tr>
</tbody>
</table>
## Past Year Heterosexual Risks, by Gender

*NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprotected Vaginal Sex (UVS)</td>
<td>86.5</td>
<td>86.0</td>
<td>88.0</td>
<td>0.63</td>
</tr>
<tr>
<td>Unprotected Anal Sex (UAS)</td>
<td>37.3</td>
<td>39.0</td>
<td>31.9</td>
<td>0.24</td>
</tr>
<tr>
<td>UVS or UAS</td>
<td>87.5</td>
<td>86.6</td>
<td>90.3</td>
<td>0.36</td>
</tr>
<tr>
<td>UVS or UAS w/ Casual or Exchange Partner</td>
<td>30.5</td>
<td>34.3</td>
<td>18.3</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>≥ 3 Total Partners</td>
<td>28.0</td>
<td>26.9</td>
<td>31.6</td>
<td>0.40</td>
</tr>
</tbody>
</table>
# Past Year Heterosexual Risks, by Age

*NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>18-29</th>
<th>30-39</th>
<th>40+</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprotected Vaginal Sex (UVS)</td>
<td>86.5</td>
<td>89.7</td>
<td>87.5</td>
<td>85.1</td>
<td>0.65</td>
</tr>
<tr>
<td>Unprotected Anal Sex (UAS)</td>
<td>37.3</td>
<td>44.4</td>
<td>50.1</td>
<td>28.1</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>UVS or UAS</td>
<td>87.5</td>
<td>89.7</td>
<td>90.7</td>
<td>85.1</td>
<td>0.31</td>
</tr>
<tr>
<td>UVS or UAS w/ Casual or Exchange Partner</td>
<td>30.5</td>
<td>42.2</td>
<td>37.4</td>
<td>23.7</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>≥ 3 Total Partners</td>
<td>28.0</td>
<td>45.6</td>
<td>33.8</td>
<td>20.3</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
Unprotected Sex in Past Year and Last Sex, by Race

NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)

Both differences p<0.01
Other race removed because of small sample size
Discussed HIV with All New Partners, by Partner Type

NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)
Risk Characteristics of Last Heterosexual Act, by Gender

NYC NHBS-IDU2, 2009, n=395 (HIV-/Unk. IDU with Heterosexual Partners)

- Concurrent Alcohol/Drug Use
  - Men: 82%
  - Women: 84%
- Partner HIV+/Unknown
  - Men: 35%
  - Women: 28%
- Partner Ever IDU
  - Men: 50%
  - Women: 70%
- Partner Ever Used Crack
  - Men: 42%
  - Women: 63%
- Partner Ever Incarcerated
  - Men: 36%
  - Women: 75%
HIV Testing and Other Healthcare
Healthcare and Drug Treatment Encounters

NYC NHBS-IDU2, 2009, n=514

- Saw Medical Provider: 73%
- Entered Drug/Alcohol Treatment: 52%
- In Methadone Treatment Currently: 37%

Past Year
HIV Testing History by Risk Group

NYC NHBS (HET, MSM, and IDU), 2006-9

- HET (2006): 79%
- MSM (2008): 89%
- IDU (2009): 87%

- Ever Tested: 79%, 89%, 87%
- Tested in Past Year: 33%, 60%, 60%
Offered HIV Test by Medical Provider in Past Year

NYC NHBS-IDU2, 2009, n=345 (HIV-/Unk. IDU Who Visited a Medical Provider)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>69%</td>
</tr>
<tr>
<td>Sexually Active</td>
<td>65%</td>
</tr>
<tr>
<td>Shared Syringes</td>
<td>60%</td>
</tr>
<tr>
<td>STD Diagnosed</td>
<td>51%</td>
</tr>
</tbody>
</table>

Offered Test by Past Year Risk Factors

NYC Health

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HIV Prevention Activities
HIV Prevention Activities Encounters in Past Year

NYC NHBS-IDU2, 2009, n=514

- Received Free Condoms: 55%
- Used Free Condoms: 31%
- Individual Counseling: 12%
- Group Counseling: 4%
- Any Counseling: 13%
HIV & HCV Prevalence
HIV Prevalence

NYC NHBS-IDU2, 2009, n=511 (Tested in Study)

<table>
<thead>
<tr>
<th></th>
<th>HIV-Positive</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>15.9%</td>
<td>10.2 – 21.6%</td>
</tr>
<tr>
<td>By Race*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>12.1%</td>
<td>2.1% – 22.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>20.9%</td>
<td>16.2% – 25.7%</td>
</tr>
<tr>
<td>White</td>
<td>10.0%</td>
<td>5.5% – 14.5%</td>
</tr>
<tr>
<td>By Gender*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14.2%</td>
<td>10.7% – 17.6%</td>
</tr>
<tr>
<td>Female</td>
<td>21.7%</td>
<td>14.0% – 29.4%</td>
</tr>
<tr>
<td>By Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>4.2%</td>
<td>0.0% – 8.7%</td>
</tr>
<tr>
<td>30-39</td>
<td>15.4%</td>
<td>9.7 – 21.2</td>
</tr>
<tr>
<td>40+</td>
<td>18.1%</td>
<td>13.5 – 22.7</td>
</tr>
</tbody>
</table>

* Other race and transgender IDU excluded due to small sample size
# HCV Prevalence

*NYC NHBS-IDU2, 2009, n=504 (Tested in Study)*

<table>
<thead>
<tr>
<th></th>
<th>HCV-Positive</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>71.4%</td>
<td>64.3 – 78.4%</td>
</tr>
<tr>
<td><strong>By Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>70.9%</td>
<td>56.9 – 84.8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>78.2%</td>
<td>73.4 – 83.1%</td>
</tr>
<tr>
<td>White</td>
<td>61.5%</td>
<td>54.1 – 68.9%</td>
</tr>
<tr>
<td><strong>By Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>71.8%</td>
<td>67.3 – 76.3%</td>
</tr>
<tr>
<td>Female</td>
<td>70.7%</td>
<td>62.1 – 79.3%</td>
</tr>
<tr>
<td><strong>By Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>59.9%</td>
<td>49.2 – 70.7%</td>
</tr>
<tr>
<td>30-39</td>
<td>66.8%</td>
<td>59.3 – 74.3%</td>
</tr>
<tr>
<td>40+</td>
<td>75.4%</td>
<td>70.2 – 80.6%</td>
</tr>
</tbody>
</table>

* Other race and transgender IDU excluded due to small sample size
Conclusions
Summary

• Many IDU face structural risk factors that may increase HIV infection risk: poverty, homelessness, and arrest/incarceration
• Exchange programs and pharmacies were most common sources for syringes
• Sharing of syringes and other injection equipment persists
• Nearly all IDU injected daily; alcohol and noninjection drug use was common but less frequent
• Around 75% of IDU were sexually active, and many of those IDU exhibit high levels of sexual risk
• Most IDU recently HIV tested and received free condoms, but few engaged in other HIV prevention activities
• High levels of in HIV infection were found, with notable disparities by gender and race/ethnicity
Limitations

- RDS-based estimates may not be generalizable to population of New York City IDU if methodological assumptions are not met.
- All data except HIV and HCV serostatus were collected by self-report, and may be biased by recall error or social desirability and self-selection.
Conclusions

- The ability of the RDS methodology to penetrate into hidden IDU populations not connected to HIV prevention and drug treatment services may be one reason for the high observed levels of HIV and HCV infection.
- Further research is needed to determine the causes of the disparities in HIV infection among female and Hispanic IDU.
- Continuing injection-related and sexual risk behaviors despite widespread encounters with exchange programs, pharmacies, medical providers, and other prevention outlets is a major concern.
- Future analyses of geographic and demographic differences in prevention activity encounters, risk behaviors, and disease outcomes will allow for improved targeting of prevention services.
Contact

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