HIV Risk and Prevalence among New York City Injection Drug Users

2012 National HIV Behavioral Surveillance Study
NYC National HIV Behavioral Surveillance Team

NYC Department of Health
Alan Neaigus
Katie Reilly

New York University
College of Nursing
Holly Hagan

John Jay College of Criminal Justice
Travis Wendel
David M. Marshall IV

CDC
Gabriela Paz-Bailey
Dita Broz
Isa Miles

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Background & Methods
Background

- NYC has a large population of IDUs
- In 2011, 4% of new HIV diagnoses in NYC were attributable to injection drug use (direct injection risk)
- The number of new HIV infections among IDUs in NYC has decreased over the course of the epidemic
  - Largely based on the success of sterile syringe access programs and increased safe injection practices by NYC IDUs
- Yet many IDUs continue to exhibit sexual and injection-related risks
National HIV Behavioral Surveillance (NHBS)

- 20 metropolitan statistical areas throughout the United States
- Funded by CDC, designed collaboratively
- Ongoing, cyclical study of three risk groups: men who have sex with men, IDU, and heterosexuals at increased risk of HIV infection
- Third cycle of NHBS-IDU data collection in 2012
- Cross-sectional study design
NHBS 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 risk and prevalence
NHBS-IDU3 Eligibility Criteria

- Injected drugs not prescribed for participant in past 12 months
  - 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 then recruit up to 3 other participants who meet the eligibility criteria
3. Each of those 3 participants then recruits 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
*larger nodes are network seeds
NHBS-IDU3 Statistical Analysis

• Weighted analysis conducted with RDS Analysis Tool (RDSAT) 7.1 and SAS 9.2
• RDS weighting may reduce recruitment biases common in chain-referral methods (preferential in-group recruitment [homophily] and large networks)
• If methodological assumptions are met, RDSAT may estimate generalizable population proportions (%’s) but not population sizes (n’s)
NHBS-IDU3 Statistical Analysis

- Self-reported HIV-positive IDUs (n=43) excluded from HIV behavioral risk analyses; IDUs untested for HIV (n=23) or HCV (n=42) excluded from seroprevalence analyses
- 11 specimens not tested for HCV due to lab closure associated with Hurricane Sandy
NHBS-IDU3 Sample

Seeds
n=12

Total Recruits
n=580

Eligible Non-Seeds
Primary Analyses
n=525

- Not Self-Reported HIV+
  HIV Behavioral Risk Analyses
  n=482 (92%)

- HIV Tested
  HIV Prevalence Analyses
  n=502 (96%)

- HCV Tested
  HCV Prevalence Analyses
  n=483 (92%)
Sociodemographics
NHBS-IDU3: Distribution of Participants by Zip Code of Residence

Legend
- Storefronts
- # of Participants
  - 1 - 6
  - 7 - 15
  - 16 - 25
  - 26 - 45

[Map showing distribution of participants by zip code with various shades of green, yellow, orange, and red indicating different ranges of participants.]
Demographics
*NYC NHBS-IDU3, 2012, n=525*

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Age</th>
<th>Birthplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>58%</td>
<td>United States</td>
</tr>
<tr>
<td>White</td>
<td>14%</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>Foreign</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Birthplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>United States</td>
</tr>
<tr>
<td>Female</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>Transgender</td>
<td>Foreign</td>
</tr>
</tbody>
</table>
## Demographics

**NYC NHBS-IDU3, 2012, n=525**

<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></td>
<td>74%</td>
</tr>
<tr>
<td>10k+</td>
<td>H.S. Grad+</td>
</tr>
<tr>
<td></td>
<td>26%</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>62%</td>
<td>90%</td>
</tr>
<tr>
<td>Currently Married or Cohabiting</td>
<td>Homosexual/Bisexual</td>
</tr>
<tr>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Previously Married</td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>
Demographics
NYC NHBS-IDU3, 2012, n=525

Homelessness

- Past 12 months: 45%
- Currently: 32%

Jailed >24 hours

- Past 12 Months: 38%
Injection Drug Use
### Lifetime Injection History, by Race/Ethnicity

*NYC NHBS-IDU3, 2012, n=525*

<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>45</td>
<td>52</td>
<td>43</td>
<td>40</td>
</tr>
<tr>
<td><strong>Age at First Injection</strong></td>
<td>19</td>
<td>21</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td><strong>Years Since First Injection</strong>*</td>
<td>22</td>
<td>30</td>
<td>22</td>
<td>19</td>
</tr>
</tbody>
</table>

*p<0.0001*
Most Common Injection Location

NYC NHBS-IDU3, 2012, n=525

- Own Place: 64%
- Friend's Place: 14%
- Public Bathroom: 9%
- Other: 9%
- Street/Park: 3%
- Abandoned Buildings: 1%
Frequency of Drugs Injected (Past 12 Months)

NYC NHBS-IDU3, 2012, n=525

Injection of other drugs was less common.
Syringe Sources (Past 12 Months)
NYC NHBS-IDU3, 2012, n=525

59% of IDUs obtained syringes only from sterile sources
5% obtained syringes only from potentially unsterile sources
Syringe Reuse and Sharing (Past 12 Months)

*NYC NHBS-IDU3, 2012, n=482 (HIV-/Unk. IDU)*

<table>
<thead>
<tr>
<th>Reuse</th>
<th>Receptive Sharing</th>
<th>Distributive Sharing</th>
<th>Recep. or Dist. Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>22%</td>
<td>23%</td>
<td>31%</td>
</tr>
</tbody>
</table>
Syringe Reuse and Sharing (Past 12 Months)

NYC NHBS-IDU3, 2012, n=482 (HIV-/Unk. IDU)

- IDUs who shared receptively had a mean 3.5 and a median 2 partners who gave them used syringes
- IDUs who shared distributively had a mean 4.7 and a median 2 partners to whom participants gave their used syringes
Syringe Reuse and Sharing in Past 12 Months

NYC NHBS-IDU3, 2012, n=43 (self-reported HIV+)

- Reuse: 41%
- Receptive Sharing: 17%
- Distributive Sharing: 16%
- Recep. or Dist. Sharing: 23%
Syringe Reuse and Sharing in Past 12 Months

NYC NHBS-IDU3, 2012, n=43 (self-reported HIV+)

• IDUs who shared receptively had a mean 1.9 and a median 1 partners who gave them used syringes

• IDUs who shared distributively had a mean 9.0 and a median 2 partners to whom participants gave their used syringes
Other Equipment Sharing in Past 12 Months

NYC NHBS-IDU3, 2012, n=482 (HIV-/Unk. IDU)

- Cooker Sharing: 36%
- Cotton Sharing: 34%
- Water Sharing: 35%
- Dividing Drugs in Used Syringe: 15%
- Any Recep. Syringe or Equip. Sharing: 43%
Non-Injection Drug & Alcohol Use
Frequency of Non-Injection Drugs Used (Past 12 Months)

*NYC NHBS-IDU3, 2012, n=525*

- **Overall:**
  - ≥1x/Day: 21%
  - ≥1x/Week: 16%
  - <1x/Week: 18%

- **Crack (Benzodiazepines):**
  - ≥1x/Day: 8%
  - ≥1x/Week: 10%
  - <1x/Week: 21%

- **Downers (Benzodiazepines):**
  - ≥1x/Day: 6%
  - ≥1x/Week: 11%
  - <1x/Week: 13%

- **Marijuana:**
  - ≥1x/Day: 10%
  - ≥1x/Week: 12%
  - <1x/Week: 21%

- **Cocaine (Prescription Opioids):**
  - ≥1x/Day: 9%
  - ≥1x/Week: 5%
  - <1x/Week: 14%

- **Painkillers (Prescription Opioids):**
  - ≥1x/Day: 2%
  - ≥1x/Week: 5%
  - <1x/Week: 11%

- **Heroin:**
  - ≥1x/Day: 2%
  - ≥1x/Week: 5%
  - <1x/Week: 13%
Alcohol Use (Past 12 Months)

NYC NHBS-IDU3, 2012, n=525

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

- Any Drinking: 59%
- Binge Drinking: 44%
- At Least Weekly Binge Drinking: 24%
Sexual Activity
Sexual Partnerships (Past 12 Months)

NYC NHBS-IDU3, 2012, n=479 (HIV-/Unk. IDU)

- **Any Partners**: 84% (Men) vs. 83% (Women)
- **Main Partners**: 52% (Men) vs. 60% (Women)
- **Casual Partners**: 47% (Men) vs. 43% (Women)
- **Exchange Partners** (*): 24% (Men) vs. 36% (Women)
- **Same-Sex Partners**: 9% (Men) vs. 13% (Women)

*p=0.01

_Heterosexual Partners_

*Reported giving or receiving money or drugs for sex with main or casual partners*
Heterosexual Partnerships, by Gender (Past 12 Months)

*NYC NHBS-IDU3, 2012, n=401 (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>0.8</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Casual</td>
<td>3.7</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>All Types</td>
<td>4.5</td>
<td>2</td>
<td>3.8</td>
</tr>
</tbody>
</table>
Exchange Heterosexual Partnerships, by Gender (Past 12 Months)

NYC NHBS-IDU3, 2012, n=401 (HIV-/Unk. IDU with Heterosexual Partners)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
<td></td>
</tr>
<tr>
<td>Exchange*</td>
<td>2.4</td>
<td>0</td>
<td>1.8</td>
<td>0</td>
<td>4.2</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

p=0.004

*Reported giving or receiving money or drugs for sex with main or casual partners
Heterosexual Risks, by Gender (Past 12 Months)
NYC NHBS-IDU3, 2012, n=401 (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>83.2</td>
<td>83.0</td>
<td>83.9</td>
<td>0.84</td>
</tr>
<tr>
<td>Unprotected Anal Sex (UAS)</td>
<td>40.4</td>
<td>44.8</td>
<td>26.7</td>
<td>0.002</td>
</tr>
<tr>
<td>UVS or UAS</td>
<td>83.8</td>
<td>83.8</td>
<td>83.6</td>
<td>0.97</td>
</tr>
<tr>
<td>UVS or UAS w/ Casual Partner</td>
<td>35.0</td>
<td>37.0</td>
<td>28.5</td>
<td>0.12</td>
</tr>
<tr>
<td>≥ 3 Total Partners</td>
<td>33.2</td>
<td>33.8</td>
<td>31.2</td>
<td>0.62</td>
</tr>
</tbody>
</table>
# Heterosexual Risks, by Age (Past 12 Months)

*NYC NHBS-IDU3, 2012, n=401 (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>83.1</td>
<td>90.9</td>
<td>83.8</td>
<td>81.7</td>
<td>0.40</td>
</tr>
<tr>
<td>Unprotected Anal Sex (UAS)</td>
<td>40.4</td>
<td>44.9</td>
<td>51.0</td>
<td>34.9</td>
<td>0.01</td>
</tr>
<tr>
<td>UVS or UAS</td>
<td>83.8</td>
<td>90.8</td>
<td>83.5</td>
<td>82.8</td>
<td>0.51</td>
</tr>
<tr>
<td>UVS or UAS w/ Casual Partner</td>
<td>35.0</td>
<td>41.0</td>
<td>37.6</td>
<td>32.8</td>
<td>0.47</td>
</tr>
<tr>
<td>≥ 3 Total Partners</td>
<td>33.2</td>
<td>38.8</td>
<td>38.8</td>
<td>29.8</td>
<td>0.16</td>
</tr>
</tbody>
</table>
Unprotected Sex in Past 12 Months and Last Sex, by Race

NYC NHBS-IDU3, 2012, n=397 (HIV-/Unk. IDU with Heterosexual Partners)

Other race removed because of small sample size.
Risk Characteristics of Last Heterosexual Partner, by Gender

NYC NHBS-IDU3, 2012, n=401 (HIV-/Unk. IDU with Heterosexual Partners)

- Concurrent Alcohol/Drug Use: 70% Men, 63% Women
- Partner HIV+/Unknown: 41% Men, 40% Women
- Concurrent* Partners during this Partnership (12m): 42% Men, 35% Women

*Participant reported having sex with other people during the past 12 months when they were having a sexual relationship with this partner.
Risk Characteristics of Last Heterosexual Partner, by Gender

NYC NHBS-IDU3, 2012, n=401 (HIV-/Unk. IDU with Heterosexual Partners)

<table>
<thead>
<tr>
<th>Risk Characteristic</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner Ever IDU</td>
<td>46%</td>
<td>73%</td>
</tr>
<tr>
<td>p&lt;0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner Ever Used Crack</td>
<td>35%</td>
<td>47%</td>
</tr>
<tr>
<td>p=0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partner Ever Incarcerated</td>
<td>33%</td>
<td>62%</td>
</tr>
<tr>
<td>p&lt;0.0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Definite or Probable
HIV Testing and Other Healthcare
Healthcare, Drug and Alcohol Treatment Encounters (Past 12 Months)

NYC NHBS-IDU3, 2012, n=525

- Saw Medical Provider: 85%
- Drug Treatment: 57%
- Alcohol Treatment: 7%
HIV Testing History by Risk Group

NYC NHBS (HET, MSM, and IDU), 2010-12

<table>
<thead>
<tr>
<th>Ever Tested</th>
<th>Tested in Past 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>81%</td>
<td>94%</td>
</tr>
<tr>
<td>45%</td>
<td>75%</td>
</tr>
</tbody>
</table>
Offered HIV Test by Medical Provider (Past 12 Months)

NYC NHBS-IDU3, 2012, n=420 (HIV-/Unk. IDU Who Visited a Medical Provider)

- Overall: 67%
- Sexually Active: 69%
- Shared Syringes: 71%

Offered Test by Past 12 Month Risk Factors
HIV Prevention Activities
HIV Prevention Activities (Past 12 Months)

NYC NHBS-IDU3, 2012, n=525

- Received Free Condoms: 70%
- Used Free Condoms: 52%
- Individual Counseling: 25%
- Group Counseling: 20%
- Any Counseling: 35%
HIV & HCV Prevalence
## HIV Prevalence

**NYC NHBS-IDU3, 2012, n=502 (Tested in Study)**

<table>
<thead>
<tr>
<th></th>
<th>HIV-Positive</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>18.1%</td>
<td>14.2% – 22.3%</td>
</tr>
<tr>
<td><strong>By Race</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>32.7%</td>
<td>22.8% – 42.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14.5%</td>
<td>9.8% – 19.3%</td>
</tr>
<tr>
<td>White</td>
<td>10.6%</td>
<td>2.0% – 19.3%</td>
</tr>
<tr>
<td><strong>By Gender</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17.0%</td>
<td>12.6% – 21.6%</td>
</tr>
<tr>
<td>Female</td>
<td>22.3%</td>
<td>13.6% – 31.1%</td>
</tr>
<tr>
<td><strong>By Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>4.1%</td>
<td>0.0% – 11.9%</td>
</tr>
<tr>
<td>30-39</td>
<td>6.4%</td>
<td>1.0% – 11.7%</td>
</tr>
<tr>
<td>40+</td>
<td>23.8%</td>
<td>18.6% – 29.1%</td>
</tr>
</tbody>
</table>

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

**NYC NHBS-IDU3, 2012, n=483 (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>66.2%</td>
<td>62.0% – 70.5%</td>
</tr>
<tr>
<td><strong>By Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>51.1%</td>
<td>41.7% – 60.5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>71.8%</td>
<td>66.6% – 77.0%</td>
</tr>
<tr>
<td>White</td>
<td>63.9%</td>
<td>52.6% – 75.2%</td>
</tr>
<tr>
<td><strong>By Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>70.0%</td>
<td>65.2% – 74.8%</td>
</tr>
<tr>
<td>Female</td>
<td>55.2%</td>
<td>46.0% – 64.4%</td>
</tr>
<tr>
<td><strong>By Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>54.3%</td>
<td>38.4% – 70.2%</td>
</tr>
<tr>
<td>30-39</td>
<td>79.5%</td>
<td>72.1% – 87.0%</td>
</tr>
<tr>
<td>40+</td>
<td>62.9%</td>
<td>57.7% – 68.2%</td>
</tr>
</tbody>
</table>

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

- Continuing injection-related and sexual risk behaviors despite widespread encounters with exchange programs, pharmacies, medical providers, and other prevention outlets is a major concern.
- High levels of HIV infection were found, with notable disparities by race/ethnicity.
- Many IDU face structural risk factors that may increase HIV infection risk: poverty, homelessness, and arrest/incarceration.
Strengths

• Large dataset with multiple HIV risk factors
• National, standardized survey and protocol
• Extensive formative research supporting data collection
• RDS can reach “hidden” populations of IDUs who may not access treatment programs and other institutionalized settings
• Local questions developed to explore issues relevant specifically to NYC IDUs
Limitations

• RDS-based estimates may not be generalizable to population of New York City IDUs if methodological assumptions are not met
• RDS can only recruit those who are socially networked to other IDUs
• 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
Contact

Katie Reilly, PhD, MPH
NHBS Project Director
HIV Epidemiology Program
NYC Department of Health
Phone: 347-396-7755
Email: kreilly3@health.nyc.gov