HIV Risk and Prevalence among New York City High-Risk Heterosexuals

Results from the National HIV Behavioral Surveillance Study

HIV Epidemiology Program
New York City Department of Health and Mental Hygiene

Center for Drug Use and HIV Research
National Development and Research Institutes
Background

- At least 33% of NYC HIV diagnoses in 2006 attributable to heterosexual transmission
- Underreport of heterosexual transmission due to “unknown” risk
- Disproportionately impacts women and Blacks & Hispanics
- Possible overlapping sexual networks with men who have sex with men (MSM) and injection drug users (IDU)
National HIV Behavioral Surveillance (NHBS)

- 25 cities throughout the United States
- Funded by CDC, designed collaboratively
- Ongoing, cyclical study of three risk groups: MSM, IDU, and high-risk heterosexuals (HET)
- NHBS-HET data collection in 2006-7
- Cross-sectional study design
- Interviewer-administered quantitative survey & HIV test
- Anonymous recruitment, survey & test
NHBS-HET Objectives

• Test new definition for *high-risk* heterosexuals
• 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
What is a High-Risk Heterosexual?

**Past Definitions**
- Multiple sexual partners
  - But most women and many men recently infected report 1 sexual partner in past year
- Sexual partners’ risks
  - But most did not accurately know partners’ risks

**Newer Ideas**
- Geography
  - Heterosexual HIV is clustered in high-poverty neighborhoods
- Social networks
  - Some social and sexual networks have high HIV levels despite equal individual risks
  - Greater inter-network mixing may drive infections
High-Risk Areas

1. Created high-risk area (HRA) index with:
   - New HIV diagnoses, 2001-6, NYC HIV surveillance
   - Household poverty, 2000, census

2. Explored index to identify:
   - Geographic clustering
   - Non-residential zip codes (for exclusion)

3. Selected top 30 zip codes as HRAs (top 20%)
Selected High-Risk Areas
High-Risk Heterosexual Definition

- Has a geographic or social connection to an HRA
  - Lives in HRA (geographic connection)
  - Recruited by someone who lives in HRA (social connection)
- A man or woman between 18-50 years old
- Vaginal or anal sex with opposite-sex partner in the past year
- Resident of NYC
- Speaks English or Spanish
Respondent-Driven Sampling (RDS)

1. Study team recruits initial participants ("seeds") through street and facility outreach
2. Seeds recruit up to 3 other participants
3. Those participants recruit up to 3 others
4. Recruitment until sample size is met

Incentives provided for participating and recruiting
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
- If RDS methodological assumptions are met, RDSAT may generate generalizable population proportions (%’s). RDSAT cannot generate population sizes (n’s).
NHBS-HET Sample

Seeds
n=8

Recruits
n=1015

Eligible
n=850 (84%)

Target Population

Excluded from Analysis

Current IDU
n=108 (13%)

Non IDU/Noncurrent IDU
n=742 (87%)

Analysis Population

HIV Tested
n=726 (98%)
## Demographics

*NYC NHBS-HET, 2006-7, n=742*

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>50%</td>
</tr>
<tr>
<td>Female</td>
<td>50%</td>
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<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
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<tbody>
<tr>
<td>Black</td>
<td>76%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>19%</td>
</tr>
<tr>
<td>White</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
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<table>
<thead>
<tr>
<th>Age</th>
<th></th>
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<tbody>
<tr>
<td>18-29</td>
<td>30%</td>
</tr>
<tr>
<td>30-39</td>
<td>19%</td>
</tr>
<tr>
<td>40-50</td>
<td>51%</td>
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</table>

<table>
<thead>
<tr>
<th>Birthplace</th>
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<tbody>
<tr>
<td>United States</td>
<td>96%</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>2%</td>
</tr>
<tr>
<td>Foreign</td>
<td>2%</td>
</tr>
</tbody>
</table>
## Demographics

*NYC NHBS-HET, 2006-7, n=742*

<table>
<thead>
<tr>
<th>Homeless</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever</td>
<td>&lt;10k</td>
</tr>
<tr>
<td>Currently</td>
<td>&gt;10k</td>
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</tbody>
</table>

- Ever: 51%
- Currently: 39%
- <10k: 66%
- >10k: 24%

<table>
<thead>
<tr>
<th>Incarceration</th>
<th>Employment</th>
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<tbody>
<tr>
<td>&gt;1 day</td>
<td>Employed</td>
</tr>
<tr>
<td>Past year</td>
<td>Unemployed</td>
</tr>
<tr>
<td>&gt;3 months</td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td></td>
</tr>
</tbody>
</table>

- >1 day: 30%
- Past year: 30%
- >3 months: 37%
- Ever: 37%

- Employed: 16%
- Unemployed: 84%
Average Number of Past Year Sex* Partners

*Oral, vaginal, or anal sex

NYC NHBS-HET, 2006-7, n=742

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>Mean</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>1</td>
<td>1.3</td>
<td>1.1 - 1.4</td>
</tr>
<tr>
<td>Casual</td>
<td>1</td>
<td>4.5</td>
<td>2.6 - 6.5</td>
</tr>
<tr>
<td>Exchange</td>
<td>0</td>
<td>4.9</td>
<td>3.8 - 6.0</td>
</tr>
<tr>
<td>All Types</td>
<td>3</td>
<td>10.7</td>
<td>8.4 - 13.0</td>
</tr>
</tbody>
</table>
### Unprotected Sex* in Past Year and Last Sex, by Gender and Partner Type

*NYC NHBS-HET, 2006-7, n=742*

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Past Year</td>
<td>Last Sex</td>
</tr>
<tr>
<td>Main</td>
<td>69%</td>
<td>51%</td>
</tr>
<tr>
<td>Casual</td>
<td>45%</td>
<td>21%</td>
</tr>
<tr>
<td>Exchange</td>
<td>16%</td>
<td>7%</td>
</tr>
<tr>
<td>All Types</td>
<td>93%</td>
<td>78%</td>
</tr>
</tbody>
</table>

* Vaginal or anal sex

Denominators: All Men or Women
Unprotected Sex at Last Sex, by Partner Type at Last Sex & by Gender

NYC NHBS-HET, 2006-7, n=742

Denominators: Men or women who had sex with respective partner type at last sex
Discussed HIV with All New Sex Partners in Past Year, by Gender and Partner Type

*NYC NHBS-HET, 2006-7, n=742*
Concurrent Partnerships with Last Sex Partner

NYC NHBS-HET, 2006-7, n=742

Cross-hatch: % who had unprotected sex at last sex
Non-Injection Drug Use in Past Year

NYC NHBS-HET, 2006-7, n=742

Overall: 35% ≥1x/day, 19% ≥1x/week, 15% <1x/week
Marijuana: 22% ≥1x/day, 11% ≥1x/week, 13% <1x/week
Crack: 11% ≥1x/day, 13% ≥1x/week, 13% <1x/week
Cocaine: 3% ≥1x/day, 6% ≥1x/week, 11% <1x/week
Heroin: 4% ≥1x/day, 7% ≥1x/week, 7% <1x/week
Alcohol Use in Past Month

NYC NHBS-HET, 2006-7, n=742

- Alcohol Use: 63%
- Alcohol Use >15x: 20%
- Binge Drinking: 38%
- Binge Drinking >15x: 12%
STD Diagnoses in Past Year

NYC NHBS-HET, 2006-7, n=742

- Any STD: Men 24%, Women 25%
- Syphilis: Men 5%, Women 8%
- Gonnorhea: Men 15%, Women 10%
- Chlamydia: Men 7%, Women 14%
- Herpes: Men 2%, Women 5%
HIV Testing History by Risk Group

NYC NHBS (MSM, IDU, and HET), 2004-7

Ever Tested
- MSM (2004): 91%
- IDU (2005): 96%
- HET (2006-7): 79%

Tested in Past Year
- MSM (2004): 60%
- IDU (2005): 69%
- HET (2006-7): 33%
Beliefs about Routine HIV Testing

NYC NHBS-HET, 2006-7, n=742

Testing is...
- Routine: 21%
- Special Procedure: 78%

Testing should be...
- Routine: 72%
- Special Procedure: 28%
## Estimated HIV Prevalence

*NYC NHBS-HET, 2006-7, n=742*

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>95% CI</th>
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</thead>
<tbody>
<tr>
<td>Overall</td>
<td>8.4</td>
<td>4.9 - 11.9</td>
</tr>
<tr>
<td>By Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>7.6</td>
<td>3.1 - 12.1</td>
</tr>
<tr>
<td>Women</td>
<td>9.2</td>
<td>3.8 - 14.6</td>
</tr>
<tr>
<td>By Gender, excluding past IDU and MSM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>6.1</td>
<td>1.1 - 11.1</td>
</tr>
<tr>
<td>Women</td>
<td>7.1</td>
<td>2.5 - 11.8</td>
</tr>
</tbody>
</table>

93% of HIV infections were previously undiagnosed, according to self-report.
Summary

**Low** numbers of partners for most

**Average** overall rates of unprotected sex

**High** rates of unprotected sex among those with risky partners

**Low/moderate** discussion about HIV before sex

**High** rates of concurrent partnerships

**High** non-injection drug use and alcohol use

**High** rates of STDs

**Low** rates of HIV testing

**High** heterosexual HIV prevalence
Discussion

• Individual risks may not fully explain the considerable heterosexual HIV prevalence
  – Social network factors (e.g., concurrent partnerships) may be important to consider

• Partners’ risks are often unknown (i.e., discussions about HIV before first sex)

• HIV testing is largely supported in this group

• A mix of routine HIV prevention efforts and targeted outreach should be considered
Acknowledgements

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