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

Results from the 2010 National HIV Behavioral Surveillance Study
NYC National HIV Behavioral Surveillance Team

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Overview

- Background
- Methods
- Results
  - Sociodemographics
  - Sexual risk
  - Drug and alcohol use
  - Exposure to HIV testing & prevention services
  - HIV prevalence and awareness of status
- Summary and conclusions
Background

- **HIV case surveillance**
  - 823 new heterosexual diagnoses in 2009
    - *22% of all diagnoses and 32% of diagnoses with known risk*
  - 20,718 heterosexual PLWHA as of 2009
    - *19% of all PLWHA and 26% of PLWHA with known risk*

- **Heterosexual case categorization is complicated by need for known partner risks**
  - Heterosexual HIV epidemic is partially driven by sexual partnerships with high-risk partners (e.g., MSM & IDU)
  - Partner risks are often unknown
Racial Disparities in Heterosexual HIV

Compared to the overall NYC population, heterosexual PLWHA are disproportionately black, and new heterosexual diagnoses occur even more disproportionately among this group.
Heterosexual HIV diagnoses also disproportionately occurred in three areas: Harlem, South Bronx, and Central Brooklyn.
National HIV Behavioral Surveillance (NHBS)

- Ongoing, cyclical study of three HIV risk groups: MSM, IDU, and high-risk heterosexuals (HET)
  - Conducted in 21 cities through the U.S.
  - Funded by CDC, designed collaboratively
  - Cross-sectional study design
  - Anonymous, structured interview and serologic HIV testing
- Current results are from second HET cycle (NHBS-HET2)
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-HET2 Eligibility Criteria

- Vaginal or anal sex with an opposite-sex partner in the past year
- Man or woman between 18 and 60 years old
- Resident of New York City
- Speaks English or Spanish
Respondent-Driven Sampling

1. Study team recruits small number of initial participants ("seeds") through community outreach
2. Seeds participate in the study then recruit up to three peers in their social networks
3. Those three peers participate and each recruit up to three more peers
   - Recruitment chains continually monitored to ensure demographic representativeness
   - Incentives provided for participating in study and peer recruitment
To focus recruitment in geographic areas of interest, seeds must have resided in census tracts with at least 20% household poverty (in red)
Recruitment Diagram

Each circle represents a study participant. Linking lines show recruitment chains, initiated by 7 productive seeds (represented by colors). To focus recruitment in high-risk heterosexual social networks, current IDU and high income/education participants are not allowed to recruit.
Statistical Analysis

- Weighted analysis conducted with RDS Analysis Tool 6.0, SAS 9.2, and R 2.13
- RDS weighting may mitigate recruitment bias associated with peer-recruitment
  - Overrepresentation of groups with large networks and in-group recruitment preference
- Weighted parameter proportion estimates (e.g., % female) are available, but not parameter sizes
- Self-reported HIV+ HET (n=16) removed from behavioral risk analyses; HET untested for HIV (n=14) excluded from seroprevalence analyses
NHBS-HET2 Sample Diagram

Seeds
n=8

Recruits
n=625

Eligible & Complete
n=523 (84%)

Not Self-Reported HIV+
Behavioral Risk Analyses
n=507 (97%)

HIV Tested
HIV Prevalence Analyses
n=509 (97%)
# Demographics

**NYC NHBS-HET2, 2010, n=523**

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
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<tbody>
<tr>
<td>Male</td>
<td>56.1%</td>
</tr>
<tr>
<td>Female</td>
<td>43.9%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
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<tbody>
<tr>
<td>Black</td>
<td>76.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>22.4%</td>
</tr>
<tr>
<td>White</td>
<td>0.8%</td>
</tr>
<tr>
<td>Other</td>
<td>0.6%</td>
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<table>
<thead>
<tr>
<th>Age</th>
<th></th>
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<tbody>
<tr>
<td>18-29</td>
<td>40.7%</td>
</tr>
<tr>
<td>30-39</td>
<td>12.9%</td>
</tr>
<tr>
<td>40-49</td>
<td>25.1%</td>
</tr>
<tr>
<td>50+</td>
<td>21.3%</td>
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</table>

<table>
<thead>
<tr>
<th>Birthplace</th>
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<tbody>
<tr>
<td>United States</td>
<td>95.0%</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>1.2%</td>
</tr>
<tr>
<td>Foreign</td>
<td>3.8%</td>
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</tbody>
</table>
## Demographics

*NYC NHBS-HET2, 2010, n=523*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Homeless</strong>*</td>
<td><strong>Income</strong>*</td>
<td></td>
</tr>
<tr>
<td>Ever</td>
<td>44.3%</td>
<td>&lt; $10k/year</td>
</tr>
<tr>
<td>Currently</td>
<td>27.5%</td>
<td>≥ $10k/year</td>
</tr>
<tr>
<td><strong>Criminal Justice</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrested</td>
<td>28.2%</td>
<td>&lt; H.S. Grad</td>
</tr>
<tr>
<td>Incarcerated</td>
<td>25.2%</td>
<td>≥ H.S. Grad</td>
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</tbody>
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*In the past year*
Number of study participants by zip code of residence and location of interview sites in Harlem and Crown Heights are shown.
Past Year Sexual Partnerships

NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)
## Number of Past-Year Heterosexual Partners

*NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)*

<table>
<thead>
<tr>
<th>Type</th>
<th>Median</th>
<th>Mean</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>1</td>
<td>1.2</td>
<td>1.1-1.3</td>
</tr>
<tr>
<td>Casual</td>
<td>1</td>
<td>3.4</td>
<td>2.7-4.0</td>
</tr>
<tr>
<td>Exchange</td>
<td>0</td>
<td>2.5</td>
<td>1.3-3.7</td>
</tr>
<tr>
<td>All Types</td>
<td>3</td>
<td>7.1</td>
<td>5.7-8.5</td>
</tr>
</tbody>
</table>
Unprotected Sex in Past Year and Last Sex

NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Past Year</th>
<th>Last Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>90%</td>
<td>72%</td>
</tr>
<tr>
<td>30-39</td>
<td>90%</td>
<td>74%</td>
</tr>
<tr>
<td>40-49</td>
<td>95%</td>
<td>72%</td>
</tr>
<tr>
<td>50-60</td>
<td>89%</td>
<td>72%</td>
</tr>
</tbody>
</table>
Unprotected Sex at Last Sex

NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)

Denominators: of those with a respective partner type at last sex
Past Year Heterosexual Risks

*NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)*

- **Unprotected Vaginal Sex**: 86% (Men) 90% (Women)
- **Unprotected Anal Sex**: 39% (Men) 38% (Women)
- **Unprotected Sex with Casual/Exchange Partner**: 54% (Men) 53% (Women)
- **>2 Sex Partners**: 69% (Men) 53% (Women)
Discussed HIV with All New Partners in Past Year
NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)
Risk Characteristics of Last Heterosexual Act

*NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)*

- Concurrent Drug/Alc. Use
  - Men: 62%
  - Women: 50%
- Partner HIV+/Unk.
  - Men: 51%
  - Women: 57%
- Partner Ever IDU
  - Men: 11%
  - Women: 13%
- Partner Ever Used Crack
  - Men: 31%
  - Women: 29%
- Partner Ever Incarcerated
  - Men: 56%
  - Women: 38%
Concurrent Partners During Last Sex Partnership

NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)

- Had Concurrent Partners: Men 73%, Women 66%
- LS Partner Had Concurrent Partners: Men 58%, Women 65%
- Both Had Concurrent Partners: Men 42%, Women 38%
Drug and Alcohol Use History

*NYC NHBS-HET2, 2010, n=523*

IDU  IDU  Non-Inject. Drug Use  Alcohol Use

- **Ever**
  - IDU: 18%
  - IDU: 8%
- **Past Year**
  - Non-Inject. Drug Use: 74%
  - Alcohol Use: 79%
Non-Injection Drug Use in Past Year

NYC NHBS-HET2, 2010, n=523

Overall Marijuana Cocaine Crack Heroin Ecstasy

- < 1x/week
- ≥ 1x/week
- ≥ 1x/day

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

0% 25% 50% 75% 100%

- Overall: 47% 18% 9%
- Marijuana: 34% 15% 11%
- Cocaine: 5% 6% 12%
- Crack: 9% 6% 6%
- Heroin: 7% 5% 5%
- Ecstasy: 7%

Data from NYC NHBS-HET2, 2010, n=523.
Alcohol Use in Past Year

NYC NHBS-HET2, 2010, n=523

- Any Drinking
  - 18-29: 83%
  - 30-39: 85%
  - 40-49: 80%
  - 50-60: 72%

- Binge Drinking
  - 18-29: 48%
  - 30-39: 56%
  - 40-49: 59%
  - 50-60: 47%

- Weekly Binge Drinking
  - 18-29: 26%
  - 30-39: 34%
  - 40-49: 37%
  - 50-60: 32%
HIV Testing History by Risk Group

*NYC NHBS MSM (2008), IDU (2009), and HET (2010)*
Medical Visits and HIV Testing in Past Year

NYC NHBS-HET2, 2010, n=507 (HIV-/Unknown Status)
Offered HIV Test by Past-Year Risks


- Overall: 55%
- >1 Partner: 57%
- Unprot. Sex with Cas./Exch. Partner: 51%
- STD Diagnosis: 58%

Past-Year Risk Factors
Beliefs about Routine HIV Testing

NYC NHBS-HET2, 2010, n=523

Testing is...:
- Routine: 12%
- Special Procedure: 88%

Testing should be...:
- Routine: 63%
- Special Procedure: 37%
HIV Prevention Activities in Past Year

*NYC NHBS-HET2, 2010, n=523*

- **Received Free Condoms**
  - Men: 59%
  - Women: 50%

- **Used Free Condoms**
  - Men: 43%
  - Women: 27%

- **Individual Counseling**
  - Men: 9%
  - Women: 6%

- **Group Counseling**
  - Men: 6%
  - Women: 7%

- **Any Counseling**
  - Men: 10%
  - Women: 9%
STD Diagnoses in Past Year

*NYC NHBS-HET2, 2010, n=523*

- **Any STD**: 6% (Men) | 10% (Women)
- **Gonnorhea**: 1% (Men) | 1% (Women)
- **Chlamydia**: 2% (Men) | 9% (Women)
- **Herpes**: 1% (Men) | 1% (Women)
# Estimated HIV Prevalence

*NYC NHBS-HET2, 2010, n=509 (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>12.3%</td>
<td>8.0–16.7%</td>
</tr>
<tr>
<td><strong>Lifetime Risks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HET only</td>
<td>9.0%</td>
<td>4.4–13.5%</td>
</tr>
<tr>
<td>HET &amp; MSM</td>
<td>0.2%</td>
<td>0.0–0.5%</td>
</tr>
<tr>
<td>HET &amp; IDU</td>
<td>29.6%</td>
<td>14.1–45.1%</td>
</tr>
<tr>
<td>HET, MSM &amp; IDU</td>
<td>42.2%</td>
<td>7.6–76.8%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11.2%</td>
<td>5.5–16.8%</td>
</tr>
<tr>
<td>Female</td>
<td>14.9%</td>
<td>7.0–20.8%</td>
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## Estimated HIV Prevalence

**NYC NHBS-HET2, 2010, n=509 (Tested in Study)**

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<tr>
<th>Race/Ethnicity</th>
<th>HIV-Positive</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>12.3%</td>
<td>8.0–16.8%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>30-39</td>
<td>1.2%</td>
<td>0.0–3.5%</td>
</tr>
<tr>
<td>40-49</td>
<td>14.8%</td>
<td>6.7–22.9%</td>
</tr>
<tr>
<td>50-60</td>
<td>30.9%</td>
<td>18.7–43.1%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>15.3%</td>
<td>9.9–20.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.8%</td>
<td>0.0–2.1%</td>
</tr>
</tbody>
</table>
Summary

- NHBS study able to sample heterosexuals with multiple levels of sexual risk
  - Substantial overlap between lower and higher risk heterosexuals (e.g., heterosexually active MSM & IDU)
- Many participants experienced poverty, homelessness, and incarceration
- Overall average of sexual partners was low (median=3), but high-risk exchange and MSM partnerships were common
Summary

- Nearly all engaged in unprotected sex
  - Rates of unprotected sex at last encounter were highest in main partnerships, but still common with riskier casual/exchange partners
- Sexual partnerships with high-risk partners (HIV+, IDU, incarcerated) and partner concurrency were common
- Most participants used drugs and alcohol, with a minority of heavy users
Summary

- Compared to MSM & IDU, HET have lowest levels of recent HIV testing despite high levels of risk
  - Only half of those visiting a medical provider were offered an HIV test
  - Offers of HIV testing did not vary by HIV risk factors
  - Few perceived that testing *was* routine, but most thought that it *should be* routine

- Only half of participants received free condoms in the past year, and fewer used them
  - Levels of intensive HIV prevention counseling were very low
Summary

- STDs were more common among women than men
- HIV prevalence was high overall (12%), and varied by lifetime risk factors, with rates among MSM/IDU the highest (42%)
  - There were also disparities by gender, race/ethnicity, and age
Limitations

- RDS-based estimates may not be generalized to the population of New York City high-risk heterosexuals if methodological assumptions are not met
  - Selection bias from certain subgroups (e.g., drug users) may overestimate HIV risk and prevalence estimates
- All data except HIV status were measured by self-report, and may be biased by recall error or social desirability
Conclusions

- Continued work is needed to define and identify high-risk heterosexuals across multiple dimensions of risk
  - Individual, partner, network, community, and structural
- The broadest HIV prevention activities – HIV testing and condom distribution – require further expansion and targeting in this population
- Intensive biomedical and behavioral interventions for high-risk heterosexuals are indicated
Contact

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