

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

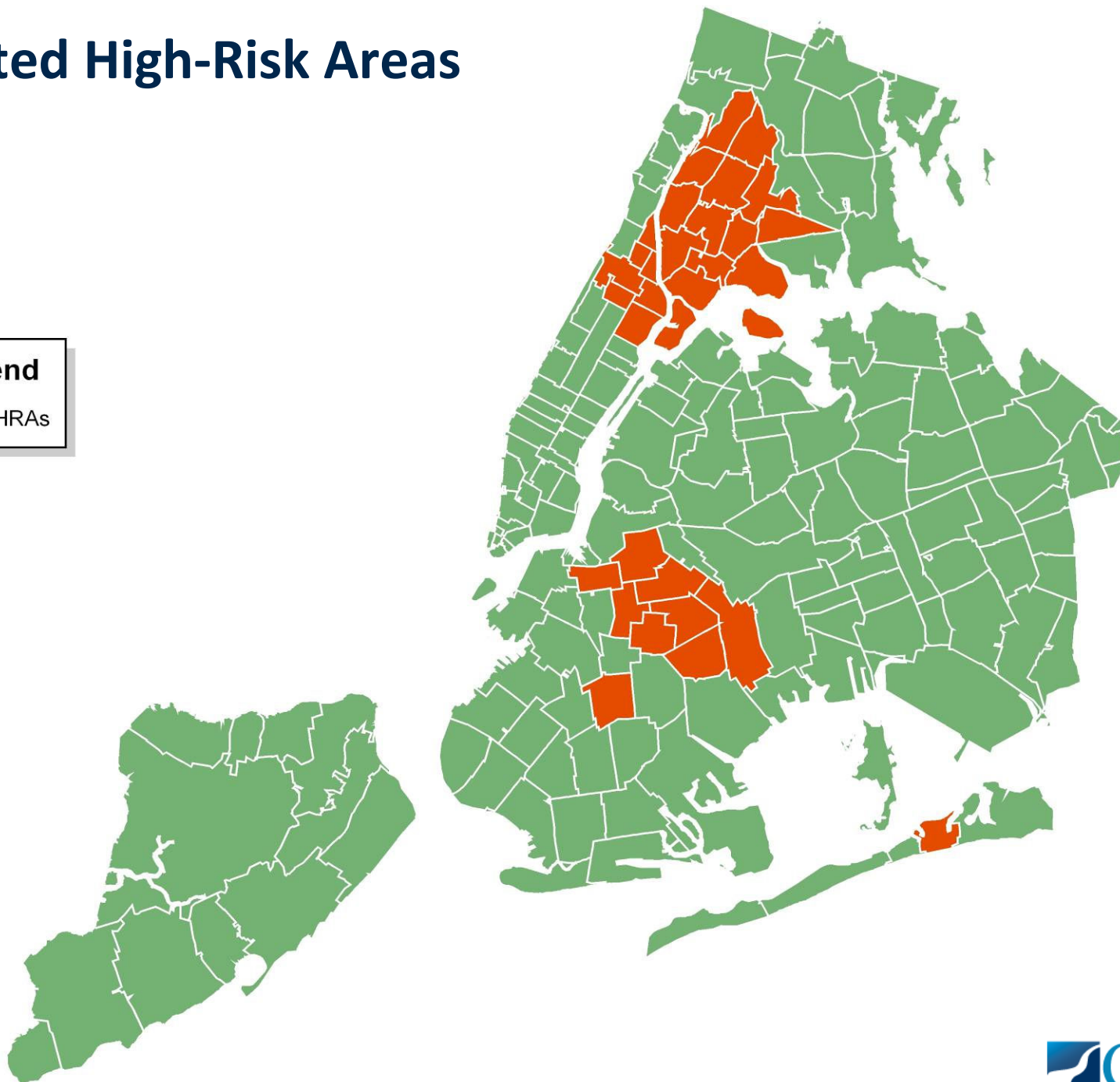
Newer Ideas

- 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

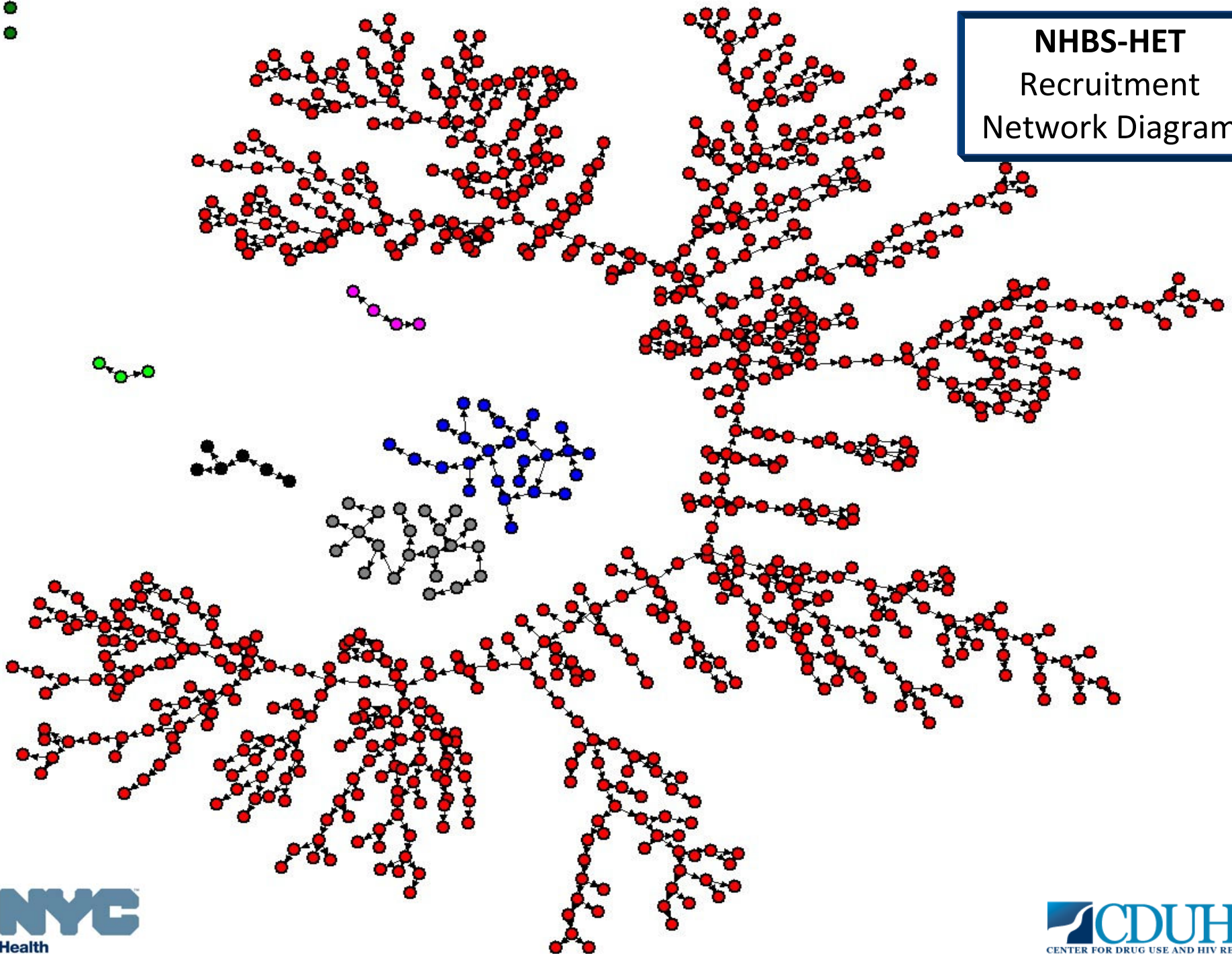
- Has a geographic or social connection to an HRA
 - Lives in HRA (geographic connection)
 - Recruited by someone who lives in HRA (social connection)
- A man or woman between 18-50 years old
- Vaginal or anal sex with opposite-sex partner in the past year
- Resident of NYC
- Speaks English or Spanish

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

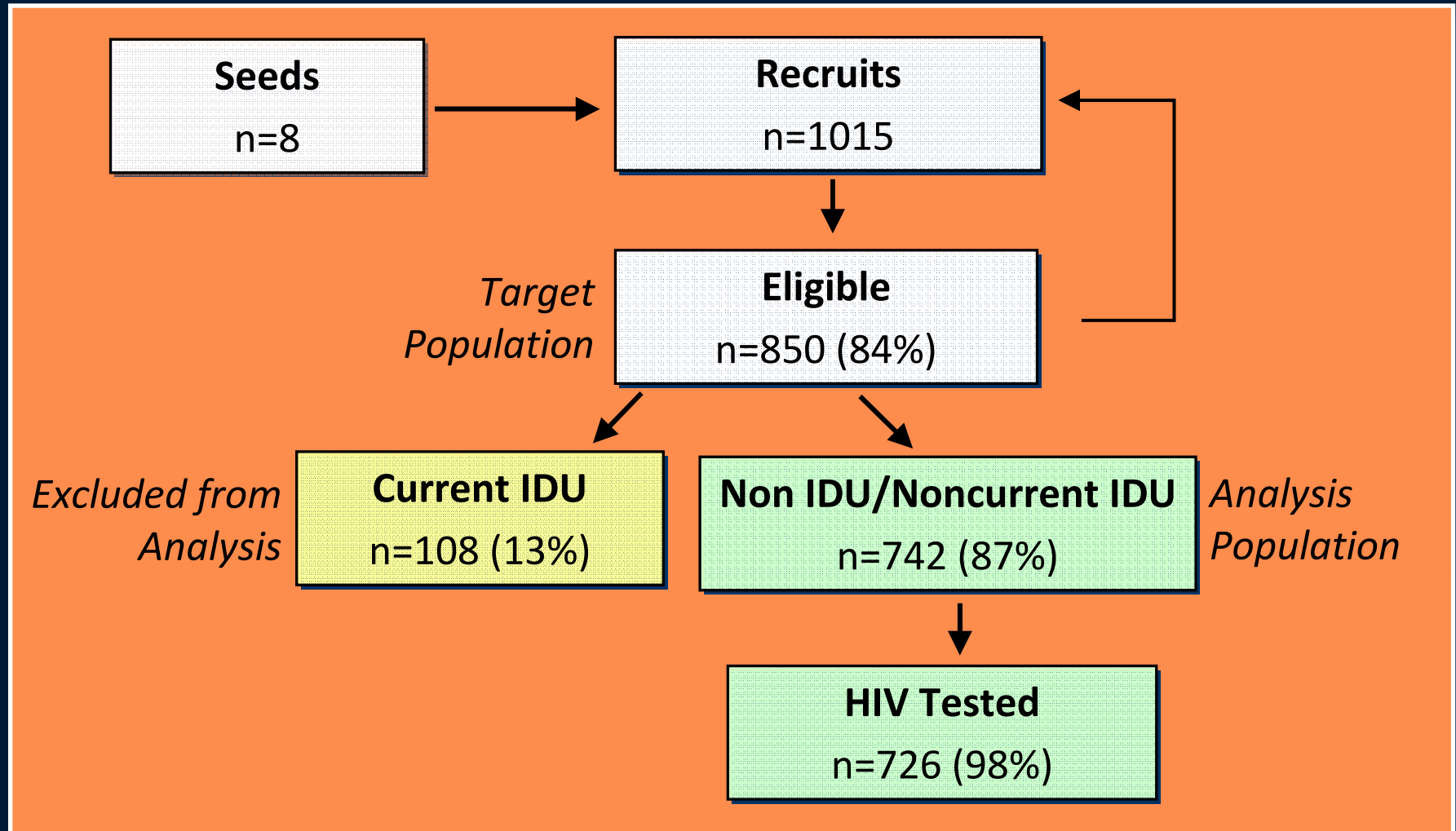
NHBS-HET
Recruitment
Network Diagram



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



Demographics

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

Gender

| | |
|--------|-----|
| Male | 50% |
| Female | 50% |

Age

| | |
|-------|-----|
| 18-29 | 30% |
| 30-39 | 19% |
| 40-50 | 51% |

Race/Ethnicity

| | |
|----------|-----|
| Black | 76% |
| Hispanic | 19% |
| White | 4% |
| Other | 1% |

Birthplace

| | |
|---------------|-----|
| United States | 96% |
| Puerto Rico | 2% |
| Foreign | 2% |

Demographics

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

Homeless

| | |
|-----------|-----|
| Ever | 51% |
| Currently | 39% |

Income

| | |
|------|-----|
| <10k | 66% |
| >10k | 24% |

Incarceration

| | |
|----------------------------|-----|
| >1 day <i>Past year</i> | 30% |
| >3 months <i>Ever</i> | 37% |

Employment

| | |
|------------|-----|
| Employed | 16% |
| Unemployed | 84% |

NHBS-HET: Distribution of Recruits by Zip Code New York City

Legend

 HRAs

Recruits per zip code

 1-7

 8-20

 21-62

 63-107

Harlem Storefront

Brooklyn
Storefront

0 1.5 3 6 9 12 Miles



Average Number of Past Year Sex* Partners

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

| | Median | Mean | 95% CI |
|-----------|--------|------|------------|
| Main | 1 | 1.3 | 1.1 - 1.4 |
| Casual | 1 | 4.5 | 2.6 - 6.5 |
| Exchange | 0 | 4.9 | 3.8 - 6.0 |
| All Types | 3 | 10.7 | 8.4 - 13.0 |

* Oral, vaginal, or anal sex

Unprotected Sex* in Past Year and Last Sex, by Gender and Partner Type

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

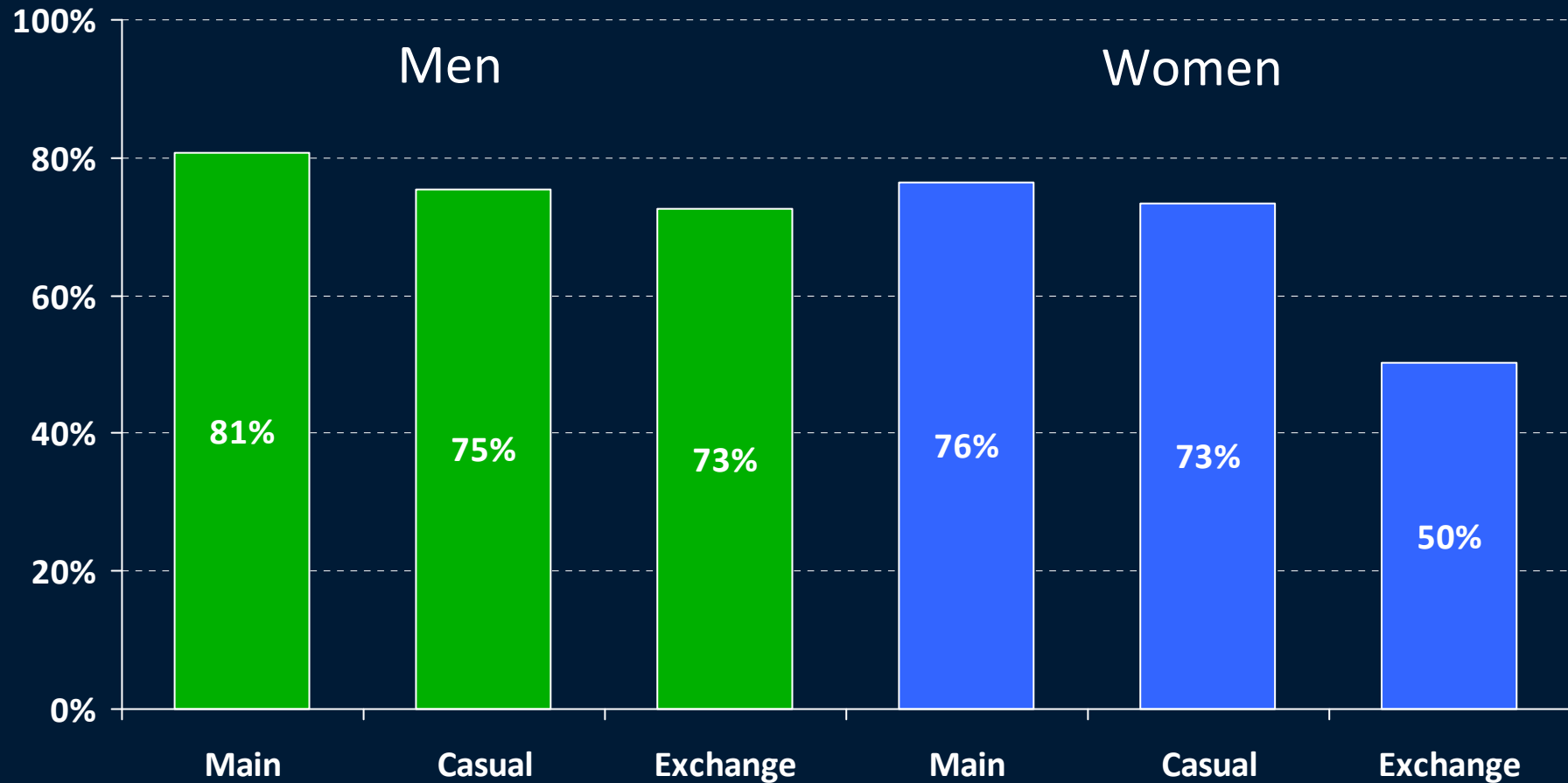
| | Men | | Women | |
|------------------|-----------|----------|-----------|----------|
| | Past Year | Last Sex | Past Year | Last Sex |
| Main | 69% | 51% | 73% | 58% |
| Casual | 45% | 21% | 46% | 12% |
| Exchange | 16% | 7% | 30% | 6% |
| All Types | 93% | 78% | 94% | 78% |

* Vaginal or anal sex

Denominators: All Men or Women

Unprotected Sex at Last Sex, by Partner Type at Last Sex & by Gender

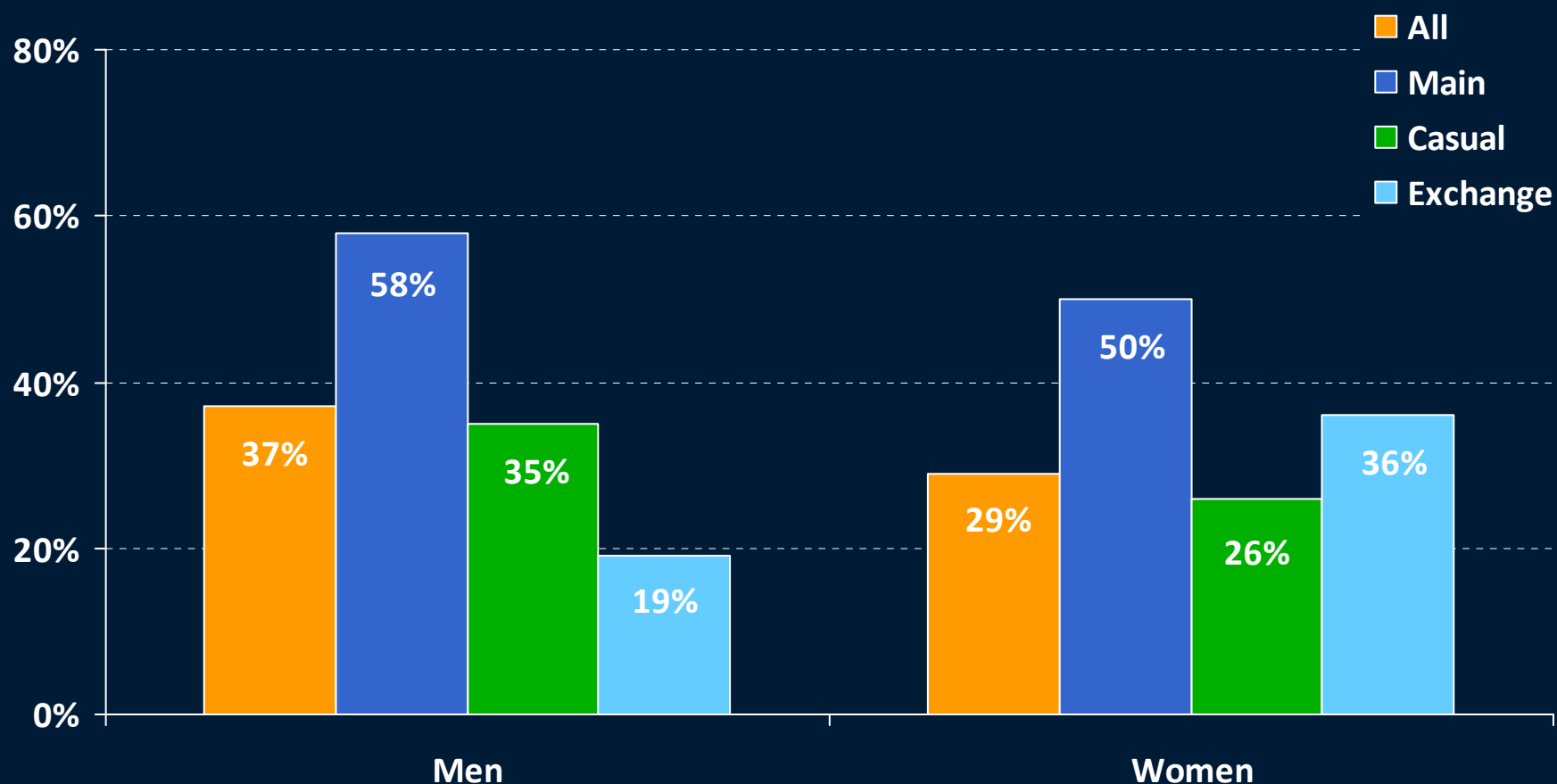
NYC NHBS-HET, 2006-7, n=742



Denominators: Men or women who had sex
with respective partner type at last sex

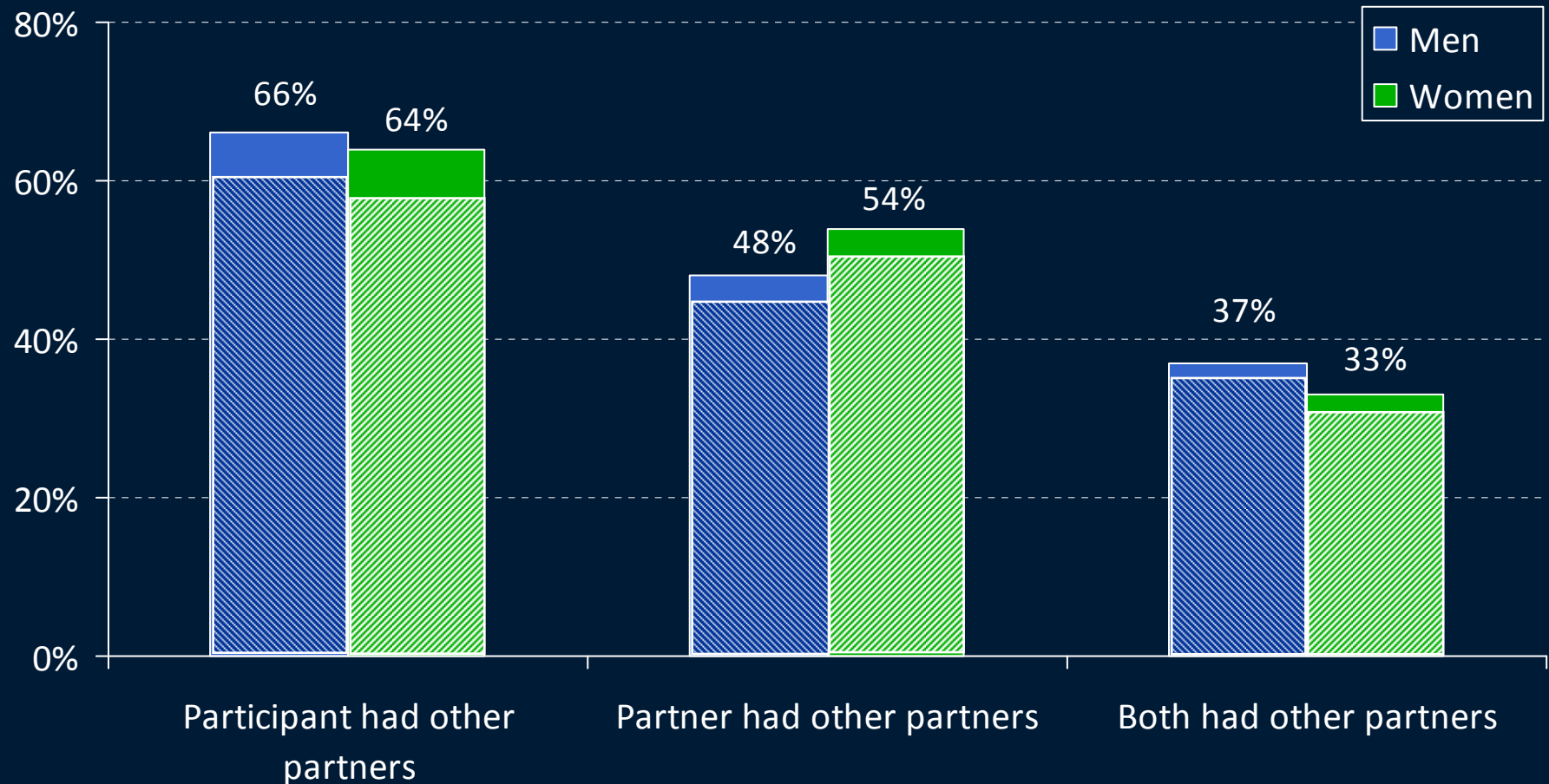
Discussed HIV with All New Sex Partners in Past Year, by Gender and Partner Type

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



Concurrent Partnerships with Last Sex Partner

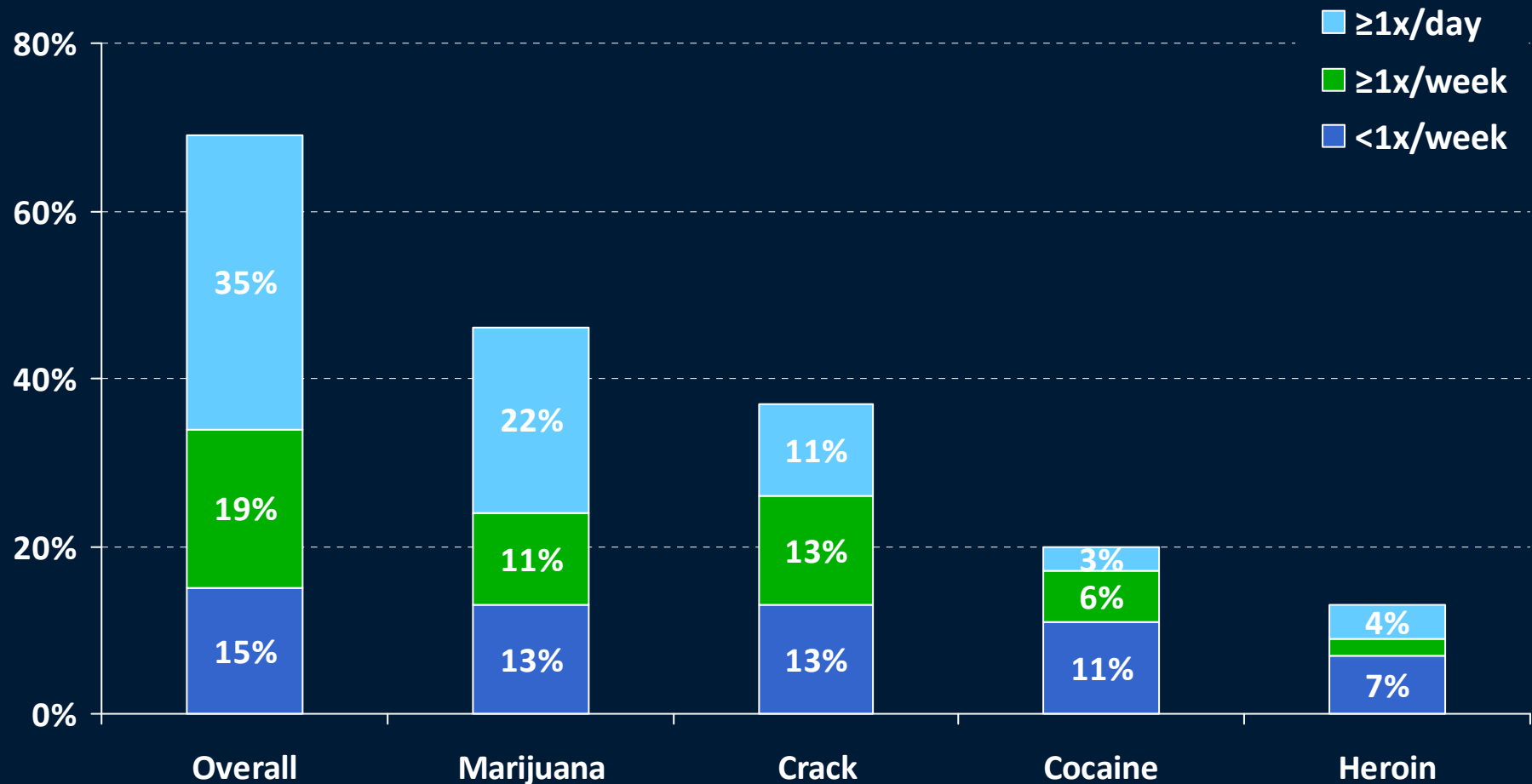
NYC NHBS-HET, 2006-7, n=742



Cross-hatch: % who had unprotected sex at last sex

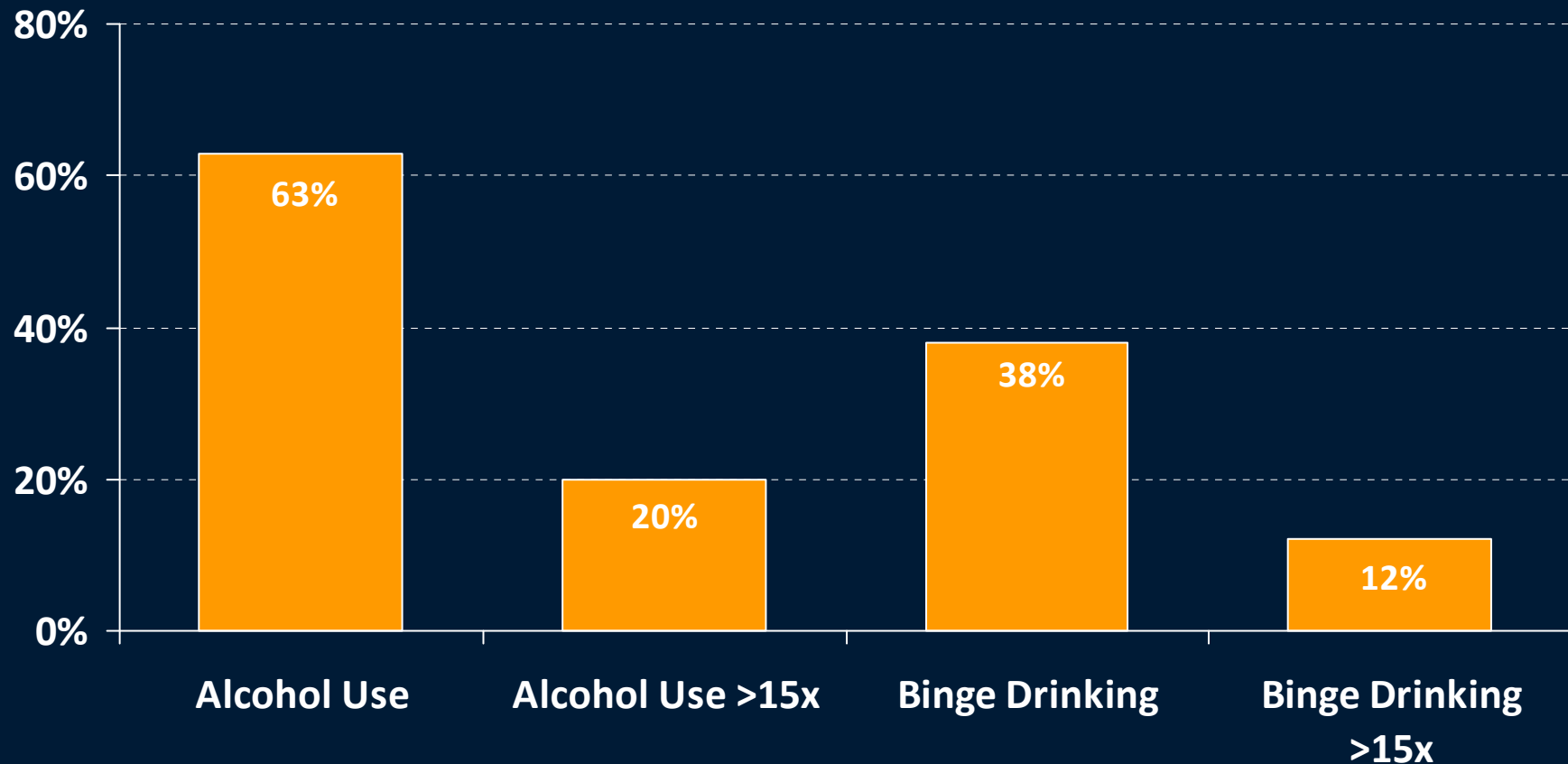
Non-Injection Drug Use in Past Year

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



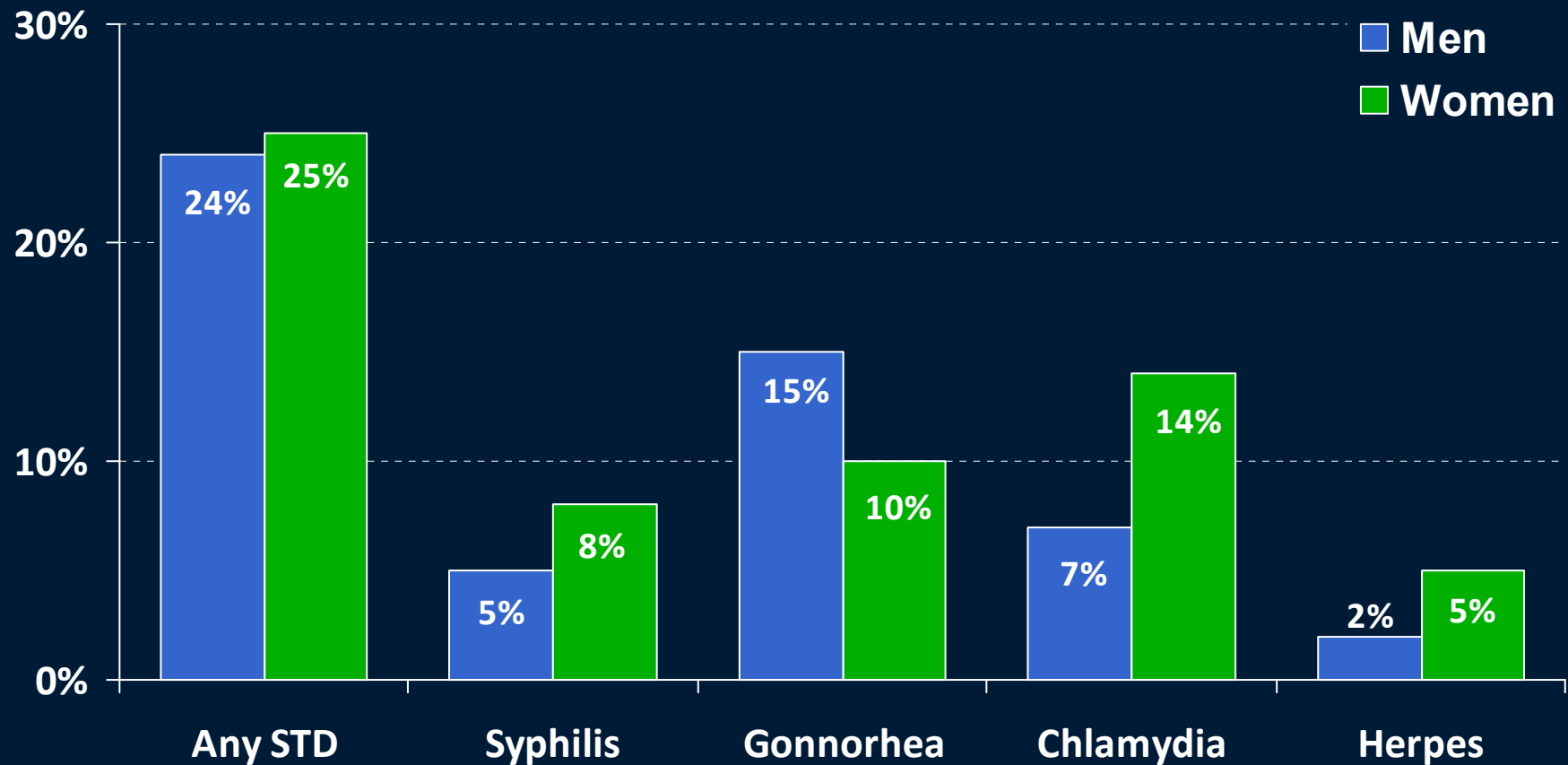
Alcohol Use in Past Month

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



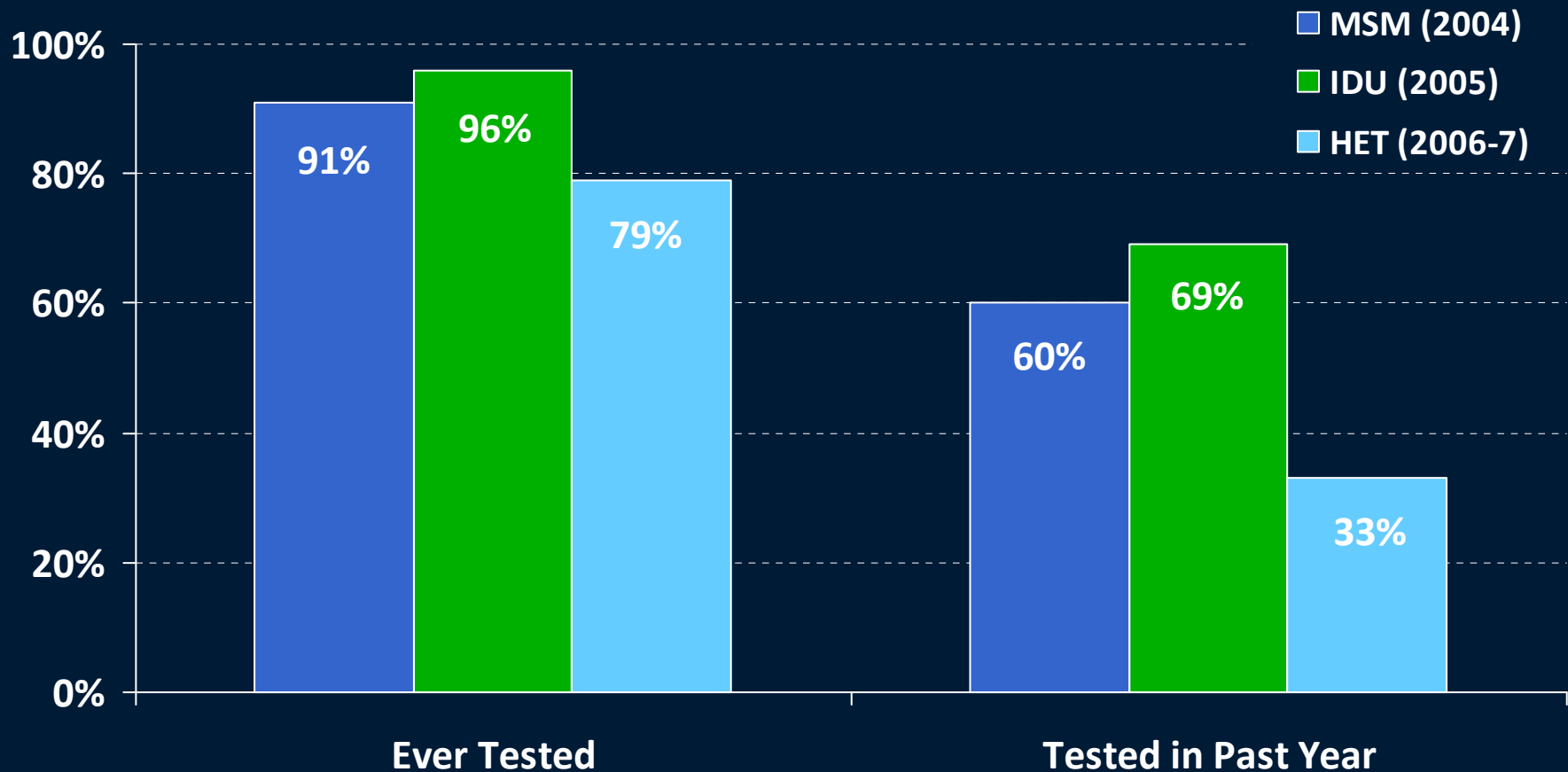
STD Diagnoses in Past Year

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



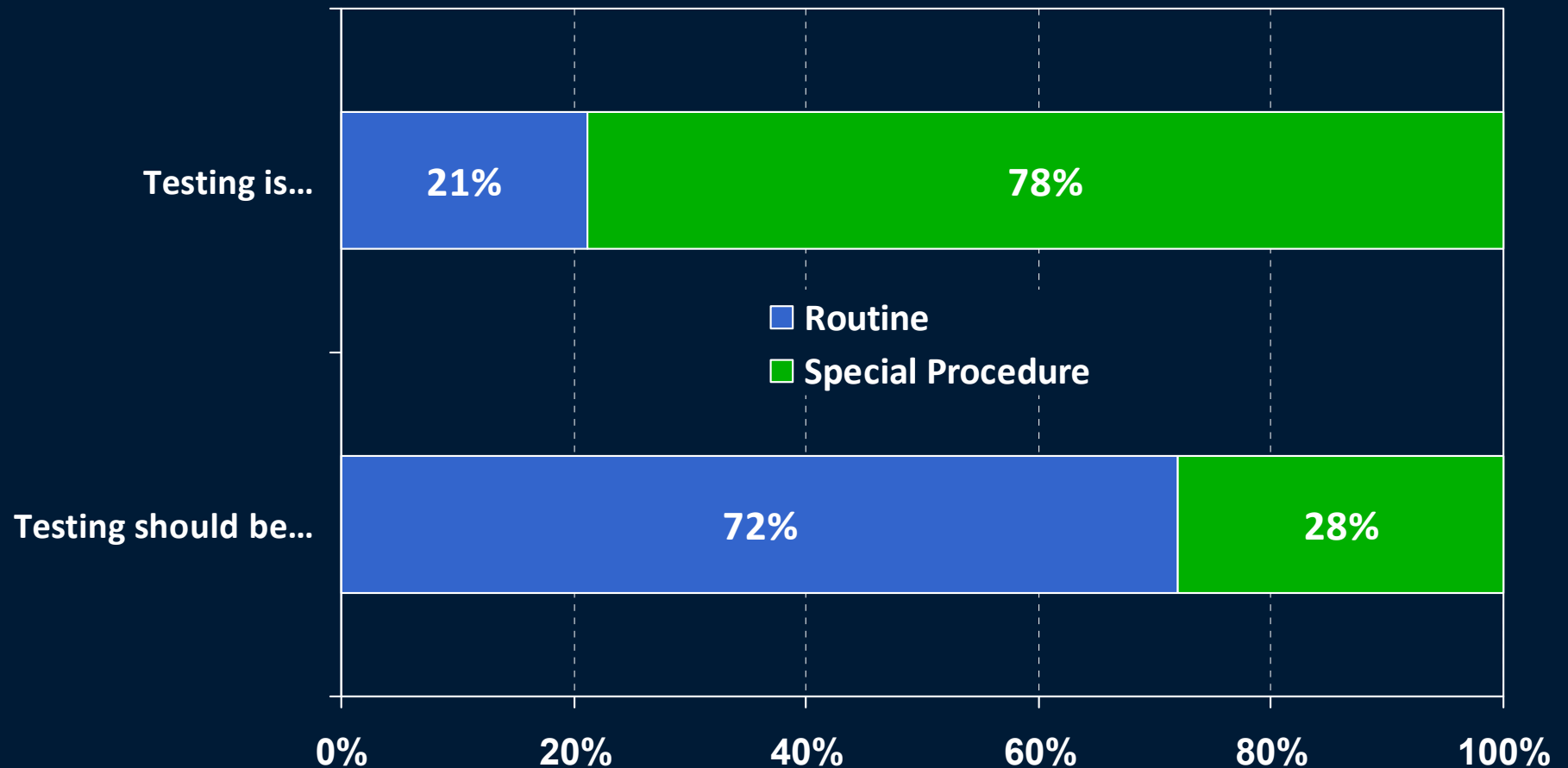
HIV Testing History by Risk Group

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



Beliefs about Routine HIV Testing

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



Estimated HIV Prevalence

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

| | % | 95% CI |
|--|-----|------------|
| Overall | 8.4 | 4.9 - 11.9 |
| By Gender | | |
| Men | 7.6 | 3.1 - 12.1 |
| Women | 9.2 | 3.8 - 14.6 |
| By Gender, excluding past IDU and MSM | | |
| Men | 6.1 | 1.1 - 11.1 |
| Women | 7.1 | 2.5 - 11.8 |

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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