

Substance Use and Sexual Risk

among Men Who Have Sex with Men
Injection Drug Users &
High-Risk Heterosexuals

RESULTS FROM THE NATIONAL HIV BEHAVIORAL SURVEILLANCE STUDY
IN NEW YORK CITY

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Health

New York City Department of
Health and Mental Hygiene

Key Findings

The National HIV Behavioral Surveillance Study in New York City

In this report, we examined the relationship between substance use and sexual risk among the three HIV risk groups investigated in the National HIV Behavioral Surveillance (NHBS) study in New York City from 2006 to 2009. For each risk group, we first explored the associations between substance use in the past year and unprotected sexual intercourse in the same time frame (global analyses), and second, the use of alcohol or drugs and condom use during the most recent sexual encounter (event-specific analyses). The key findings for each risk group are summarized here.

Men who Have Sex with Men

- In the 2008 NHBS study of New York City MSM recruited at social venues, we found high levels of HIV prevalence, sexual risk behaviors, and substance use.
- In global analyses, there was a strong relationship between noninjection drug use, particularly hard drug use (including cocaine, poppers, and crystal meth), and sexual risk: MSM who used hard drugs in the past year were over twice as likely to engage in unprotected anal intercourse (UAI) and nearly three times as likely to engage in UAI with a casual or exchange partner.
- In event-specific analyses, there were racial/ethnic differences in the association between concurrent substance use and sexual risk, with the association especially strong for Hispanic MSM.

Injection Drug Users

- In the 2009 NHBS study of New York City IDU recruited through respondent-driven sampling, we found that most IDU were heterosexually active and that sexual risk was common among many subgroups of IDU.
- In global analyses, speedball injection was associated with unprotected sexual intercourse with casual or exchange partners, but cocaine injection was not. Speedball injectors may be a particularly high-risk subgroup of IDU in terms of sexual risk.
- In event-specific analyses, the pervasiveness of sexual risk and concurrent substance use was noteworthy: the range of unprotected intercourse across type of concurrent substance use was 65-82%.

High-Risk Heterosexuals

- In the 2006-7 study of New York City high-risk heterosexuals recruited through respondent-driven sampling, we observed a high HIV prevalence, even after removing participants with a history of drug injection or male-to-male sex (6.7% overall, 6.1% among men, and 7.1% among women). Nearly all participants had unprotected sexual intercourse, almost three-quarters used noninjection drugs, and over half engaged in binge alcohol use in the past year.
- In global analyses, our findings suggest that sexual risk among women was primarily concentrated in substance-using females, while among men, sexual risk was high for both substance users and non-users.
- In event-specific analyses, important differences in associations between concurrent substance use and sexual risk emerged when we stratified the results by partner type, with sexual risk most strongly associated with concurrent substance use in main partnerships.

Background

Groups at Highest Risk for HIV Infection

New York City (NYC) has experienced the largest HIV epidemic in the United States. HIV in NYC has affected three main risk groups: men who have sex with men (MSM), injection drug users (IDU), and high-risk heterosexuals (HET). Overall HIV prevalence remains considerable in all three groups because of steady rates of new HIV infections and declining rates of HIV-related mortality.¹ An overall epidemiologic picture of HIV infection in NYC in each group is found in the table below.

Main Risk Groups and Disease Burden in New York City

	MSM	IDU	HET
Estimated HIV Prevalence	10–30% ^{2,3}	10–25% ⁴⁻⁶	5–10% ^{7,8}
Infection Disparities	Black and Hispanic MSM ⁹	Black, Hispanic and female IDU ¹⁰	Black and Hispanic heterosexuals, especially women ⁸
Behavioral Risk Factors	Unprotected anal sex with HIV+ or unknown status partners ¹¹	Syringe and equipment sharing, and increasingly unsafe sex ^{4,12}	Unprotected vaginal/anal sex, plus partner and network risks ¹³
Substance Use Risks	Alcohol and stimulants (cocaine and meth) ^{14,15}	Injection heroin, speedballs and cocaine; noninjection crack ^{5,16}	Noninjection crack and alcohol ¹⁷⁻¹⁹

Unprotected sexual intercourse is an HIV behavioral risk common to all three groups. Many studies have investigated the contextual factors that increase the likelihood of sexual risk, and a wealth of research has linked sexual risk to substance use in all three groups. Many studies have only been of small subpopulations, were limited to specific neighborhoods, or used convenience sampling that may not provide generalizable estimates.

In this report, we provide further evidence of the link between substance use and sexual risk among the three major risk groups in New York City based on results from the National HIV Behavioral Surveillance (NHBS) study, which recruits citywide using quasi-probability study designs.

National HIV Behavioral Surveillance (NHBS) Study

Study Objectives. NHBS is a behavioral risk factor study of the three major HIV risk groups. It is funded by the Centers for Disease Control and Prevention (CDC) in 21 cities around the United States with the highest HIV/AIDS burden.²⁰ Broadly, the objectives of NHBS are to:

1. Describe the sociodemographic characteristics of MSM, IDU, and HET, including gender, race/ethnicity, age, birthplace, homelessness, and arrest history;
2. Estimate the prevalence of HIV risk behaviors like unprotected sexual intercourse, injection and noninjection drug use, syringe and other injection equipment sharing, and infection with other sexually transmitted diseases;
3. Assess HIV testing history and patterns, including the frequency and location of testing;
4. Examine exposure to and use of HIV prevention programs like free condoms, syringe exchange, and intensive risk reduction counseling;
5. Estimate the prevalence of HIV infection, both diagnosed and undiagnosed, as well as other disease outcomes that interact with HIV infection or indicate HIV risk behaviors, including hepatitis B and C, herpes, and other STDs.

Study Design. NHBS is a cross-sectional, ongoing, and cyclical study.

- NHBS is **cross-sectional** in that it provides a snapshot of the characteristics of the target population. Study participants are not followed over time to observe any changes in their individual risks or disease outcomes. NHBS is anonymous: no personal identifiers are collected.
- NHBS is **ongoing** in that data collection is continuous: the NHBS study began in 2004 and continues to the present. This allows for monitoring trends in at-risk population characteristics over time.
- NHBS is **cyclical** because data collection activities cycle through the risk groups in three-year rounds and then start over again. NHBS was conducted among MSM first in 2004, IDU in 2005, HET in 2006-7, and then in the second round, MSM in 2008, and IDU in 2009. The second study cycle among HET will occur in Summer-Fall 2010.

For this report, we have used data on the three most current cycles: MSM2 (2008), IDU2 (2009), and HET1 (2006-7).

Study Recruitment. NHBS only focuses on specific target populations, and often the defining characteristics of these populations (e.g., gay/bisexual sexual identity, illicit drug use, and commercial sex work) are stigmatized or illegal, and therefore, hard to reach. These populations are considered “hidden” from traditional study sampling methods like random telephone surveys used by other DOHMH health studies.^{21, 22} Therefore, methodologies that allow for scientifically sound but also efficient recruitment of study participants are used.

NHBS uses two methods to recruit participants in a targeted and efficient manner: venue-based sampling (VBS) and respondent-driven sampling (RDS). VBS is used for the MSM study cycle and RDS is used for the IDU and HET study cycles.

- **Venue-based sampling** is a method in which participants are recruited from social venues attended by members of the target population. It is most commonly used with HIV/STD research of MSM and drug users. VBS improves on convenience sampling because it introduces elements of randomness in the selection of recruitment venues, time periods for recruitment, and participant selection at each recruitment event.²³
- **Respondent-driven sampling** is a relatively new recruitment method that is based on snowball or peer-referral sampling, in which participants recruit members of their social network into the study. But RDS adds complex tracking of recruitment to allow for the adjustment of study estimates to account for common biases in this type of sampling, such as the tendency for participants to preferentially recruit others who share similar demographic and risk characteristics.²⁴

Further descriptions of VBS and RDS and their use in the NHBS study are provided in each section.

Study Components. For all cycles, participating in NHBS consists of responding to a survey and taking an HIV test. Individuals may participate in the survey only.

- The **survey** is closed-ended, structured, and covers the topics listed under the *Study Objectives* above. It is administered by trained interviewers on a handheld computer programmed with skip patterns and accuracy prompts. The interview is conducted confidentially in a private setting.
- The **HIV test** is conducted either with a rapid oral test or a standard venipuncture test. With rapid testing, preliminary results are delivered to the participant within 20 minutes and preliminary positive results require a confirmatory test conducted in the laboratory setting. With standard venipuncture tests, blood specimens are collected, sent to a laboratory for testing, and returned to the participant within 2 weeks. In past NHBS cycles, supplemental testing, including hepatitis B and C and herpes simplex virus testing, has also been conducted.

Statistical Analysis. Across all three cycles, we provide overall estimates of HIV prevalence, and then for the remaining HIV risk behavioral and related results, exclude any participants who self-reported as HIV-positive in the survey (participants who tested HIV-positive but self-reported as HIV-negative or did not know their HIV status were retained). The reason for this is because, across risk groups, HIV-positive individuals who are aware of their status tend to reduce their risk behavior, which may underestimate behavioral characteristics in the at-risk population.²⁵

The outline for results for all cycles is HIV prevalence, demographics, sexual risk factors, substance use, and the association between substance use and sexual risk. This association is presented in two contexts:

1. Global-level associations of various forms of substance use in the past year and two main sexual risk outcomes (any unprotected intercourse and unprotected intercourse with a casual or exchange partner). Exchange partners are defined as those with whom sex is traded for goods like money or drugs.
2. Event-specific associations of unprotected intercourse at the participant's last sexual encounter and concurrent substance use at that encounter. Concurrent substance use is defined as alcohol or drug use at any time before or during that sexual encounter.

These global-level and event-specific approaches are complimentary in their strengths and weaknesses. With global-level analyses, we can describe all recent sexual activity and all recent substance use but cannot state whether that substance use occurred in the context of or influenced that sexual activity. With event-specific analyses, we can only describe the most recent sexual encounter, which may not be representative of all recent sexual activity, but we can examine whether that substance use specifically occurred in the context of, and thus potentially influenced, sexual activity.

Throughout, odds ratios (OR) are used to provide estimates of the relative likelihood of engaging in sexual risk behaviors by substance use; 95% confidence intervals (CI) are used to show the precision of the associations. Statistically significant associations are defined as CIs that do not cross the value of 1.00.

Different comparison variables are used to provide context for both the descriptive results and the associations. These include gender, race/ethnicity, age, and partner type. These comparison variables were chosen based on the characteristics of each risk group and where relevant differences emerged.

There were no eligibility restrictions for participants who crossed risk groups (e.g., MSM were eligible to participate in the IDU and HET studies, IDU were eligible for the MSM and HET studies, and HET were eligible for MSM and IDU studies). Although some men in the MSM cycle also reported female partners and some men in the IDU and HET cycles reported male partners, for sexual risk factors, we have focused on same-sex activity for the MSM cycle and heterosexual activity for the IDU and HET cycles. This is because the respective partnership types (same-sex or opposite-sex) were the predominant mode of sexual activity in the cycle and it would be inappropriate to aggregate same-sex and heterosexual activity.

Men Who Have Sex with Men

NHBS Study of New York City MSM, 2008

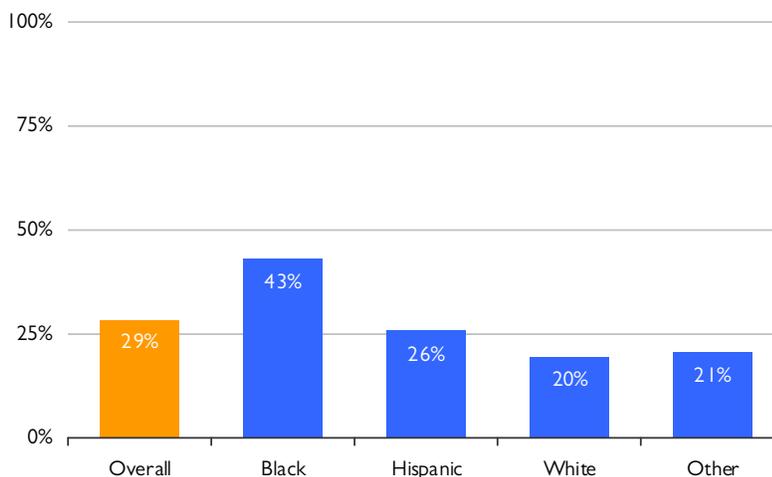
The second NHBS study cycle of MSM (NHBS-MSM2) was conducted in 2008 using venue-based sampling (VBS) to recruit MSM from social venues around NYC. Social venues included bars, dance clubs, cruising spots, sex strolls, parks, and high-density street intersections. A small number of non-random recruitment events were added for one-time venues like gay pride events.

At each recruitment event, men were enumerated and non-preferentially approached to participate. Men were screened for eligibility and eligible men were asked to provide informed consent. All adult men from NYC were eligible to participate in the study, including those without a recent history of sexual activity with a male partner. But for this analysis we removed any participants without past year MSM sexual activity.

HIV Prevalence and Demographics

HIV Prevalence. Of all MSM in the study (n=550), 458 (83.3%) had an HIV test as part of the study, and HIV prevalence was 29% overall. Figure 1 provides HIV prevalence by race/ethnicity. HIV prevalence was highest among black MSM (43%) compared with Hispanic (26%), white (20%), and other race (21%) MSM.

Figure 1. HIV Prevalence by Race/Ethnicity



Of MSM who were HIV-positive, 53% were unaware of their HIV infection (i.e., they did not self-report as HIV-positive). Unawareness of infection was higher among black (59%) and 'other' race MSM (67%) compared to Hispanic (49%) and white (42%) MSM. Of all the 550 MSM in the study,

71 (13%) self-reported as HIV-positive in the survey and were excluded from behavioral analyses. The following results represent the remaining 479 MSM who self-reported as HIV-negative or unknown.

Demographics. As Table 1 shows, 26% of participants were black, 35% Hispanic, 32% white, and 7% other races. Nearly half (46%) were 18-29 years old, 28% were 30-39, 16% were 40-49, and 10% were 50 or older. Most participants identified as homosexual (80%), with the remaining identifying as either bisexual or heterosexual (20%).

Table 1. Sociodemographics

	n	%
Race/Ethnicity		
Black	125	26.1
Hispanic	167	34.9
White	152	31.7
Other	35	7.3
Age		
18-29	219	45.7
30-39	134	28.0
40-49	76	15.9
50+	50	10.4
Sexual Identity		
Homosexual	383	80.0
Bisexual/Heterosexual	96	20.0

Sexual Risk Factors

Overall, 17% of MSM reported a female sex partner (could include oral, vaginal, or anal sex) in the past year, but the sexual risk indicators listed throughout this section are limited to male partners.

Half of participants (50%) had unprotected anal intercourse (UAI) with a man in the past year and 27% had UAI at their last sexual encounter. Figure 2 provides comparisons by race/ethnicity. In the past year and at last sex, Hispanic MSM had the highest levels of UAI and other race MSM had the lowest levels.

Figure 2. Unprotected Sex by Race/Ethnicity

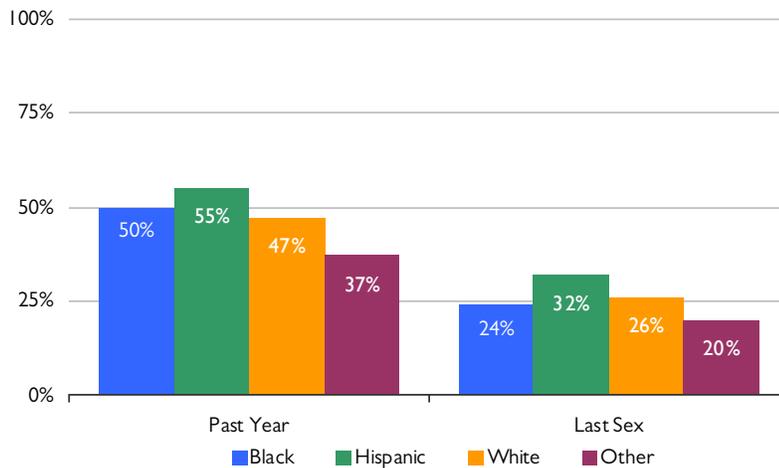


Table 2 provides information on particularly high-risk behaviors. In the past year, 19% reported UAI with 2 or more sex partners, 21% had UAI with a casual or exchange partner, 44% had 5 or more total partners (could include oral sex partners), and 18% engaged in group sex activities (defined as sexual intercourse with 2 or more people at the same time).

At last sex, 9% had UAI with a casual or exchange partner, 14% reported receptive UAI (i.e., the participant was penetrated), and 10% had UAI with an HIV-positive sex partner or a partner of unknown HIV status.

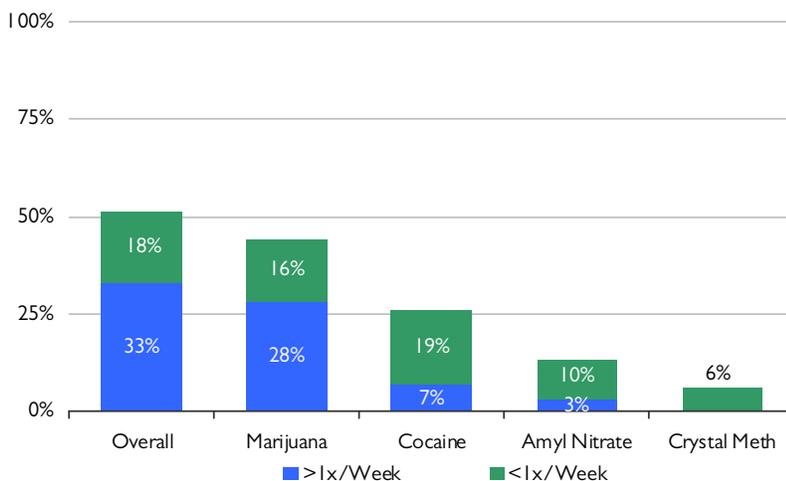
Substance Use

Noninjection Drug Use. Figure 3 shows the prevalence and frequency of noninjection drug use in the past year overall and by the most commonly used drugs. Overall, 51% of participants reporting using noninjection drugs in the past year, with 33% using them at least once a week.

Table 2. Sexual Risk Factors in the Past Year and at Last Sexual Encounter

	n	%
Past Year Behavioral Risks		
Unprotected Anal Intercourse	239	49.9
UAI with ≥2 Partners	89	18.6
UAI with Casual/Exchange Partner	102	21.3
≥5 Total Partners	210	43.8
Group Sex Encounters	85	17.8
Last Sex Behavioral Risks		
UAI	129	26.9
UAI w/ Casual/Exchange Partner	45	9.4
Receptive UAI	67	14.0
UAI w/ HIV+/Unk. Status Partner	46	9.6

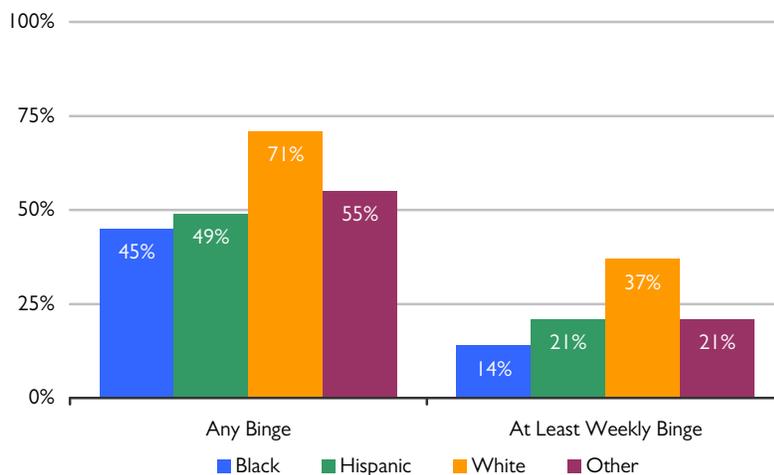
Figure 3. Noninjection Drug Use in Past Year



The most commonly used drug was marijuana, with 44% reporting any use and 28% reporting at least weekly use. Twenty-six percent used cocaine, with most of those participants (19%) reporting less than weekly use. Amyl Nitrate (poppers) was used by 13% of participants and 6% used crystal meth (none reporting weekly use). Hard drugs, defined as all drugs except marijuana, were used by 33% of participants in the past year.

Alcohol Use. Overall, 85% consumed alcohol in the past year. Binge alcohol use, defined as consuming 5 or more drinks ‘in one sitting’, was reported by 56% of participants, and 25% reported bingeing at least weekly.

Figure 4. Binge Alcohol Use in Past Year, by Race/Ethnicity



In Figure 4, binge alcohol use and weekly bingeing are shown by race/ethnicity. White MSM were most likely to report any binge (71%) and weekly binge alcohol use (37%) compared to black (45% and 14%, respectively), Hispanic (49% and 21%), and other race (55% and 21%) MSM.

The Association of Substance Use and Sexual Risk

Globa-Level Measures. Table 3 below shows the relationship between alcohol and noninjection drug use and any unprotected anal intercourse (UAI) or UAI with a casual or exchange partner. The timeframe for sexual risks and substance use is the past year.

Table 3. Relationship Between Alcohol and Noninjection Drug Use and Any UAI and UAI with a Casual/Exchange Partner in the Past Year

	Any UAI			Cas/Exch UAI		
	%	OR	95% CI	%	OR	95% CI
Alcohol Use						
Any Alcohol Use	50.6	1.21	0.73–1.98	22.9	1.72	0.84–3.51
Any Binge Alcohol Use	53.3	1.37	0.95–1.97	23.9	1.37	0.86–2.18
Weekly Binge	45.8	0.80	0.53–1.22	25.7	1.36	0.83–2.24
Noninjection Drug Use						
Any NI Drug Use	59.4	2.20	1.52–3.17	30.0	2.89	1.77–4.70
Weekly NI Drug Use	56.3	1.47	1.00–2.16	28.1	1.73	1.08–2.75
Marijuana Use	58.2	1.80	1.25–2.60	26.9	1.80	1.16–2.80
NI Hard Drug Use	65.4	2.59	1.75–3.85	33.6	2.77	1.74–4.40
Cocaine Use	65.0	2.31	1.51–3.53	29.9	1.86	1.15–3.02
Amyl Nitrate Use	63.9	1.93	1.11–3.37	34.5	2.15	1.18–3.90
Methamphetamine Use	42.3	0.72	0.33–1.61	16.7	0.71	0.24–2.14

Half of those who consumed alcohol engaged in UAI and 23% engaged in UAI with a casual or exchange partner, but drinkers were no more likely than non-drinkers to engage in sexual risk.

Among binge drinkers, 53% had any UAI and 24% had casual/exchange UAI, but again there was no significant association between bingeing and sexual risk. This also held true for at least weekly binge drinking.

Over half of noninjection drug users (59%) engaged in UAI and 30% had casual/exchange UAI. The association between noninjection drug use and sexual risk was statistically significant: drug users were over twice as likely to report any UAI and nearly three times as likely to report casual/exchange UAI. MSM who used noninjection drugs at least weekly were also significantly more likely to engage in any UAI or casual/exchange UAI, but the size of the associations was smaller.

Marijuana was associated with an 80% increased likelihood of both UAI and casual/exchange UAI: 58% of marijuana users engaged in UAI and 27% engaged in casual/exchange UAI. Two-thirds (65%) of hard drug users had UAI and one-third (34%) had casual/exchange UAI. Compared to MSM who did not use hard drugs, hard drug users were 2.6 times as likely to have UAI and 2.8 times as likely to have casual/exchange UAI. Cocaine users and amyl nitrate users were both more likely to engage in UAI and casual/exchange UAI, but there was no significant association for methamphetamine users.

Event-Specific Measures. Figure 5 shows concurrent use of alcohol and/or drugs during the last sexual encounter for all participants and then by race/ethnicity. Overall, 31% used alcohol only at last sex, 5% used drugs only, and 14% used both alcohol and drugs. Concurrent drug or alcohol use was higher among white MSM (60%) and lower among black (45%) and Hispanic MSM (44%).

Figure 5. Substance Use at Last Sex, by Race/Ethnicity

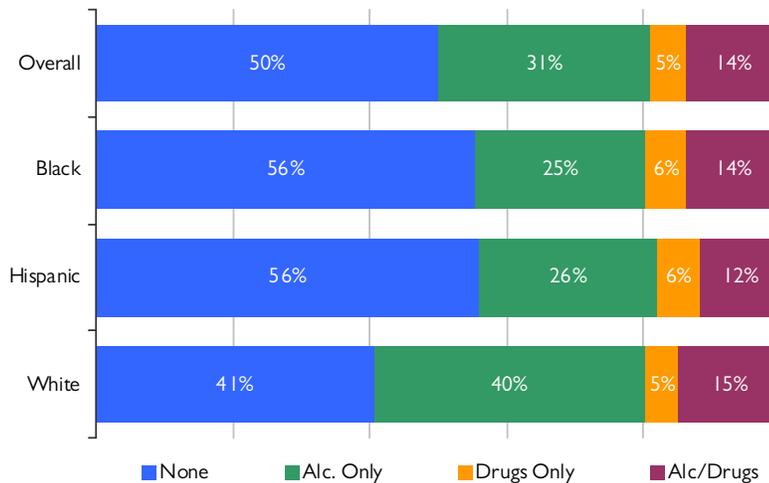


Table 4 shows concurrent substance use and UAI during last sex for all participants and then stratified by race since there were racial differences in the prevalence of concurrent substance use.

For all MSM, 22% of those who used no drugs or alcohol during last sex engaged in UAI. Half of those who used drugs only had UAI at last sex, and those MSM were 3.6 times as likely to engage in UAI compared to non-substance users. Among MSM who used both drugs and alcohol, 38% had UAI, representing a 2.2 times likelihood of UAI compared to MSM who used no substances.

Among black MSM, the association between UAI and concurrent substance use was weaker and not statistically significant: black MSM who concurrently used substances were no more likely to engage in UAI than black MSM who did not concurrently use substances.

Among Hispanic MSM, nearly three-quarters (70%) of those who used drugs only during at last sex engaged in UAI, and were 7.6 times as likely to have UAI compared to Hispanic MSM who did not engage in concurrent substance use. We found no statistically significant associations between alcohol use or alcohol/drug use and UAI for Hispanic MSM.

Finally, half of white MSM who used alcohol and drugs at last sex engaged in UAI, and they were 4.6 times as likely as white MSM who used no concurrent substances to engage in UAI. There was no significant association between UAI and the use of alcohol only or drugs only.

Table 4. Concurrent Substance Use and UAI During Last Sexual Encounter, Overall and Stratified by Race/Ethnicity

	UAI		
	%	OR	95% CI
All MSM			
None	21.6	1.00	
Alcohol Only	26.7	1.33	0.82–2.14
Drugs Only	50.0	3.64	1.59–8.32
Alcohol & Drugs	37.9	2.22	1.24–3.98
Black MSM			
None	24.3	1.00	
Alcohol Only	19.4	0.75	0.26–2.13
Drugs Only	42.9	2.34	0.48–11.51
Alcohol & Drugs	23.5	0.96	0.28–3.34
Hispanic MSM			
None	23.4	1.00	
Alcohol Only	37.2	1.94	0.89–4.24
Drugs Only	70.0	7.64	1.82–32.05
Alcohol & Drugs	40.0	2.18	0.79–6.02
White MSM			
None	17.7	1.00	
Alcohol Only	24.6	1.51	0.63–3.62
Drugs Only	28.6	1.86	0.32–10.83
Alcohol & Drugs	50.0	4.64	1.61–13.38

Summary

- We found high levels of HIV prevalence, sexual risk behaviors, and substance use among this sample of venue-attending MSM from New York City.
- There were relatively small racial disparities in rates of UAI in the past year and at last sex, but larger differences in the rates of alcohol use, with white MSM most likely to engage in alcohol use.
- For all MSM, there was a relationship between substance use and sexual risk. On a **global level**, sexual risk was no higher among alcohol users, even those who engaged in frequent binge drinking. However, there was a strong relationship between noninjection drug use, particularly hard drug use, and sexual risk: those who used hard drugs in the past

year were over twice as likely to engage in any UAI and nearly three times as likely to engage in UAI with a casual/exchange partner.

- At the **event-specific level**, we found racial differences when measuring the association between concurrent substance use and sexual risk. While there was a strong association for Hispanic and White MSM, there was no significant association for black MSM. This does not imply that black MSM who did not use substances were at lower risk, but suggests that sexual risk was more evenly distributed across concurrent substance users and non-users for this group. The relationship between concurrent drug use and sexual risk was particularly strong for Hispanic MSM.

Implications

- Further investigate settings and groups of MSM who use noninjection drugs, particularly stimulants like cocaine, either by themselves or with alcohol. These data suggest adding increased messaging and risk reduction around noninjection drug use.
- Target condom distribution and prevention messaging to MSM who engage in alcohol and drug use, who may be found in a variety of MSM-oriented social venues.
- Encourage the reduction of heavy alcohol and drug use during sex, especially in settings where MSM meet male sex partners with whom they engage in sexual risk behavior.
- Develop and disseminate prevention strategies for MSM that incorporate harm reduction approaches for alcohol and drug use in the context of sexual activity.
- Encourage routine and frequent HIV testing for all MSM.
- Promote screening for all types of substance use and assessment of frequency of use, with appropriate responses including brief interventions, brief treatment, or referral to long-term treatment.

Injection Drug Users

NHBS Study of New York City IDU, 2009

The second NHBS study cycle of IDU (NHBS-IDU2) was conducted in 2009 using respondent-driven sampling (RDS) to systematically recruit IDU throughout NYC. The study interview locations were located in Bushwick (Brooklyn), the Lower East Side (Manhattan), Jamaica (Queens), and the South Bronx.

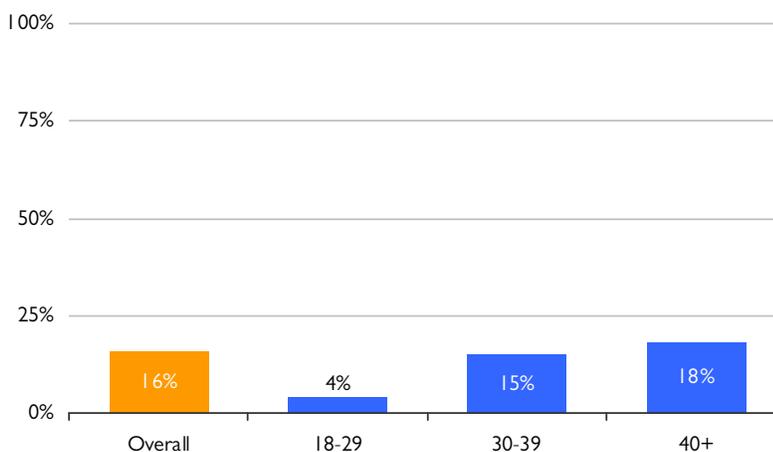
The study team recruited 12 seeds through facility and community-based outreach. Seeds then recruited peers who were IDU, those recruits then recruited others, and so on. Incentives were provided for participating in the study (survey and HIV test), and for recruiting peers who completed the study. All adult NYC residents who had injected illicit drugs in the past year were eligible.

These analyses display data weighted to adjust for recruitment biases common in peer-referral research. For more information on this weighting process and these biases see the Resources and References at the end of this document.²⁴ Because we have present weighted results, frequency counts (n's) are not available for these analyses.

HIV Prevalence and Demographics

HIV Prevalence. Of all IDU in the study (n=514), 511 (99.4%) had an HIV test as part of the study. HIV prevalence was 16% overall. Figure 6 provides HIV prevalence by age group. HIV prevalence

Figure 6. HIV Prevalence by Age Group



increased linearly with age: 4% of IDU aged 18-29, 15% among IDU aged 30-39, and 18% among IDU aged 40 or older. By race, HIV prevalence was 12% among black IDU, 21% among Hispanics, and 10% among whites (the sample size among 'other' race IDU was too small to provide meaningful results). By gender 14% of men and 22% of women tested HIV-positive.

Of the 514 IDU in the study, 36 (7%) self-reported as HIV-positive in the survey and were excluded from behavioral analyses. The following results represent the remaining 478 who self-reported as HIV-negative or unknown.

Demographics. As Table 5 shows, participants were mostly male (78%), nearly half were Hispanic (47%), most were above 40 years old (59%). Nearly one-fifth (19%) were born in Puerto Rico.

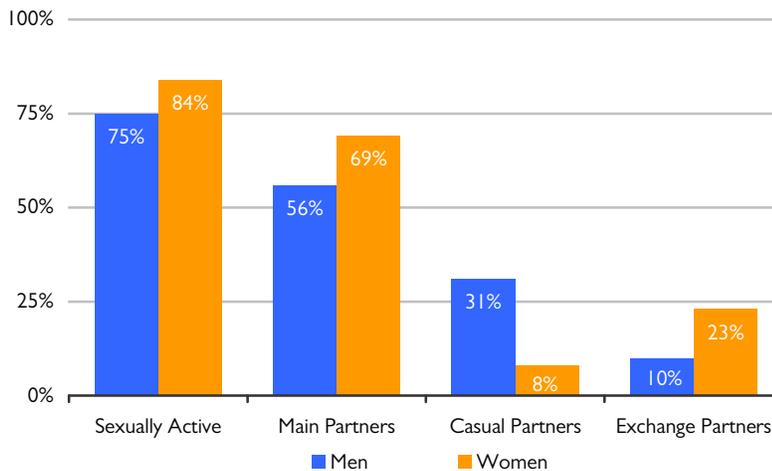
Table 5. Sociodemographics

	%
Gender	
Male	78.1
Female	21.2
Transgender	0.7
Race/Ethnicity	
Black	13.5
Hispanic	46.8
White	39.1
Other	0.6
Age	
18–29	12.1
30–39	29.3
40–49	42.0
50+	16.6
Birthplace	
United States	77.3
Puerto Rico	18.8
Foreign-Born	3.9

Sexual Risk Factors

Figure 7 shows the past year sexual activity for male and female study participants. Three-quarters of men and 84% of women had heterosexual partners (additionally, 7% of men and 19% of women reported same-sex partners). By heterosexual partner type, 56% of men and 69% of women had main partners, 31% of men and 8% of women had casual partners, and 10% of men and 23% of women had exchange partners. Sexual risk indicators throughout this section are limited to the 395 IDU who had past year heterosexual partners.

Figure 7. Past Year Heterosexual Partnerships by Gender



In Table 6, sexual risk factors in the past year and at last sex among these heterosexually active IDU are shown overall and by gender (transgender IDU are not included due to small sample size). Overall, 88% of IDU had unprotected intercourse in the past year and 75% had UI at last sex.

Table 6. Sexual Risk Factors in the Past Year and at Last Sexual Encounter among Heterosexually Active IDU

	Total	Men	Women
	%	%	%
Past Year Behavioral Risks			
Unprotected Intercourse	87.5	86.6	90.3
UI with Casual/Exchange Partner	30.5	34.3	18.3
Unprotected Anal Intercourse	37.3	39.0	31.9
≥3 Total Partners	28.0	26.9	31.6
Last Sex Behavioral Risks			
Unprotected Intercourse	74.7	75.1	73.6
UI with Casual/Exchange Partner	19.4	23.1	7.3
UI with HIV+/Unk. Status Partner	21.7	23.3	16.4

Thirty-one percent IDU had unprotected sexual intercourse with a casual or exchange partner in the past year, with more men (34%) than women (18%) reporting this. Specifically for unprotected anal intercourse, 39% of men and 32% of women reported this activity in the past year. Approximately one-quarter of men and one-third of women had at least three total sexual partners in the past year.

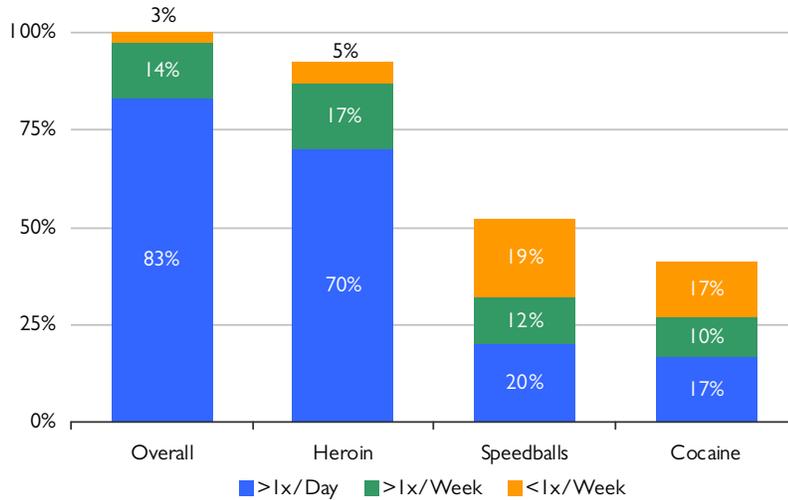
At last sex, more men reported UI with a casual/exchange partner (23%) compared to women (7%). Overall, 28% had three or more heterosexual partners in the past year, with a higher percentage among women (32%) versus men (27%). At last sex, 22% had UI with a partner who was HIV-positive or whose HIV status was unknown, with a higher proportion among men than women.

Substance Use

Injection Drug Use. Figure 8 shows the prevalence and frequency of injection drug use in the past year overall and by the most commonly used drugs. Overall, 83% of participants injected illicit drugs at least daily, 14% less than daily but at least weekly, and 3% less than weekly.

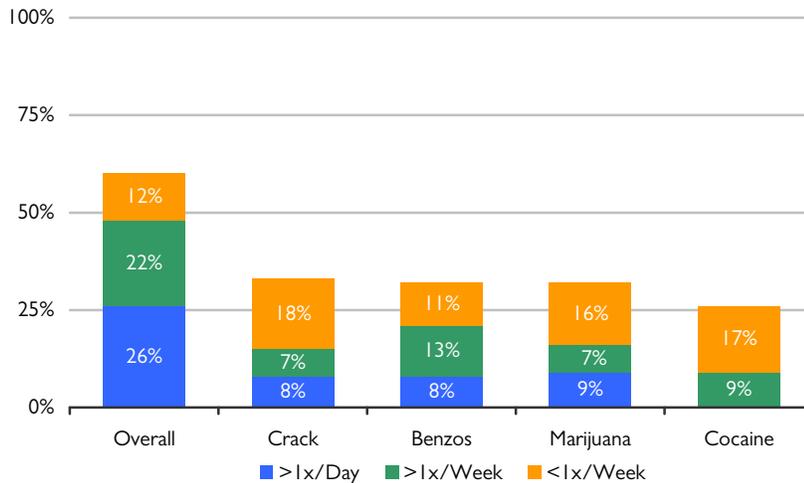
Nearly all participants (92%) injected heroin, and 70% injected it daily. Cocaine injection was also common (44% overall), but over half of cocaine injectors were not daily injectors. The injection of speedballs (heroin and cocaine mixed before injection), was more common than cocaine injection alone: half of IDU (51%) reported speedballs injection, but did not inject it daily.

Figure 8. Injection Drug Use in Past Year



Noninjection Drug Use. Figure 9 shows the prevalence and frequency of noninjection drug use in the past year overall and by most commonly used drugs. Overall, 60% of IDU reported using noninjection drugs in the past year, with 26% reporting at least daily use.

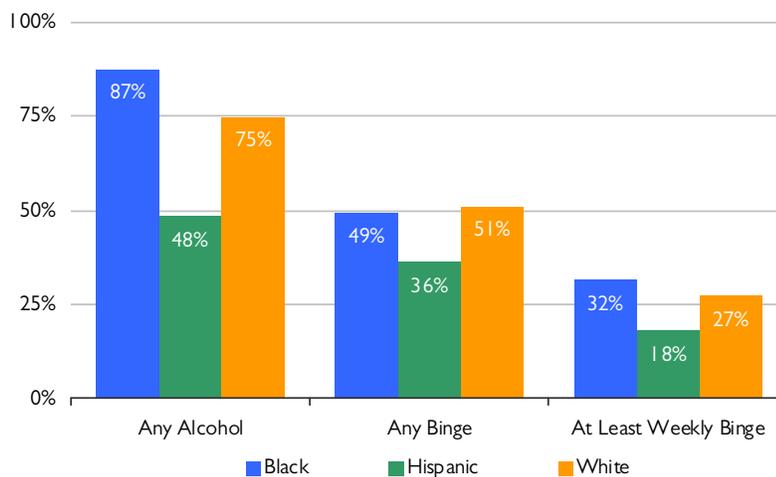
Figure 9. Noninjection Drug Use in Past Year



Crack was the most commonly used noninjection drug (33% of respondents) but most of those used crack less than once a week. One-third of IDU (32%) reported using benzodiazepines (e.g., Xanax), 32% used marijuana, and 26% used noninjection cocaine.

Alcohol Use. In the past year, 65% of participants reported any alcohol use, 44% reported any binge drinking, and 23% reported binge drinking at least weekly. There were no significant differences in any of these three measures by gender, but Figure 10 shows the differences by race/ethnicity.

Figure 10. Binge Alcohol Use in Past Year, by Race/Ethnicity



Black and white IDU had higher rates of alcohol use (87% and 75%, respectively) than Hispanic IDU (48%). Hispanic IDU were significantly less likely to engage in any binge drinking (36%) and weekly bingeing (18%) compared to black and white IDU.

The Association of Substance Use and Sexual Risk

Global Measures. Table 7 below shows the relationship between the two sexual risk outcomes (unprotected intercourse and UI with a casual or exchange partner) and key substance use variables. The timeframe for both sexual risks and substance use is the past year.

Table 7. Factors Associated with Heterosexual Unprotected Intercourse (UI) and UI with a Casual Exchange Partner among Heterosexually Active IDU

	Any UI			Cas/Exch UI		
	%	OR	95% CI	%	OR	95% CI
Injection Drug Use						
At Least Daily Injection	85.1	0.05	0.01–0.72	30.1	0.95	0.53–1.71
Speedball Injection	90.7	2.07	1.11–3.86	35.0	1.83	1.13–2.95
Cocaine Injection	86.6	0.86	0.46–1.59	29.6	0.94	0.60–1.48
Noninjection Drug Use						
Any NI Drug Use	84.4	0.38	0.17–0.83	32.0	1.29	0.80–2.09
Weekly NI Drug Use	88.1	1.12	0.60–2.09	35.3	1.62	1.03–2.54
Crack Use	89.4	1.34	0.69–2.61	27.9	0.84	0.52–1.34
Cocaine Use	87.2	0.96	0.49–1.90	35.2	1.39	0.86–2.24
Alcohol Use						
Any Alcohol Use	87.8	1.10	0.58–2.08	31.9	1.25	0.78–1.99
Any Binge Alcohol Use	85.9	0.77	0.41–1.43	39.2	2.13	1.36–3.36
Weekly Binge	88.0	1.06	0.51–2.23	34.5	1.29	0.77–2.17

IDU who injected drugs at least daily were less likely to have any unprotected intercourse and no more likely to have UI with a casual/exchange partner than IDU who injected less than daily.

Overall, 91% of IDU who injected speedballs in the past year reported any UI and 35% reported casual/exchange UI. Speedball injectors were over twice as likely to report any UI and 1.8 times as likely to report casual/exchange UI compared with IDU who did not inject speedballs. Finally, cocaine injectors were no more or less likely to engage in UI or casual/exchange UI compared with IDU who did not inject cocaine.

IDU who used noninjection drugs were significantly less likely to report any UI, but there was no difference in the likelihood of casual/exchange UI. However, IDU who reported noninjection drug use at least weekly were 62% more likely to report casual/exchange UI. Noninjection crack or cocaine users were no more engage in UI or casual/exchange UI.

By alcohol use, 88% of IDU who consumed alcohol engaged in any UI and 32% engaged in UI with a casual/exchange partner, drinkers were no more likely to report UI or casual/exchange UI. However, those who engaged in binge alcohol use were over twice as likely to engage in casual/exchange UI compared with non-bingeing IDU: 39% had casual/exchange UI.

Event-Specific Measures. Figure 11 shows concurrent use of alcohol and/or drugs during the last heterosexual encounter for all participants and then by gender. Overall, 4% used alcohol only, 50% used drugs only, and 28% used both alcohol and drugs. Concurrent substance use across categories was similar for male and female IDU, but male IDU were more likely to use both alcohol and drugs (30%) than females (21%).

Figure 11. Substance Use at Last Sex, by Race/Ethnicity

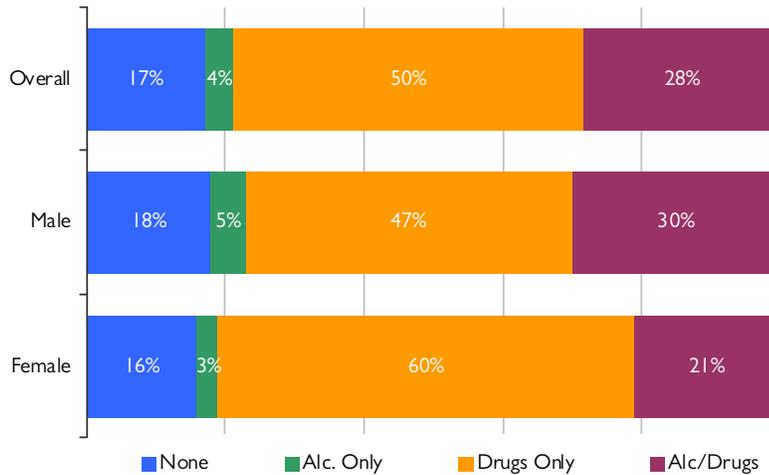


Table 8 shows concurrent substance use and unprotected intercourse during last sex overall and then stratified by gender. For all IDU, 77% who used no drugs or alcohol during last sex engaged in UI. IDU who used alcohol only, drugs only, or both alcohol and drugs at last sex were no more likely to engage in UI. The patterns were not substantially different when looking at male IDU only: 77% with no concurrent substance use engaged in UI, with no significant differences in likelihood of

UI. Among female IDU, 79% with no concurrent substance use engaged in UI, but again with no significant differences.

Summary

- There were expectedly high rates of substance use among this study of active injection drug users. Although the focus on sexual risk among IDU is often overshadowed by injection-related risks, our study shows that sexual risk is common across many subgroups of IDU. Most IDU were heterosexually active in the past year, so we focused on heterosexual risk specifically.
- On a **global level**, speedball injection was associated with sexual risk, but cocaine injection was not. Speedball injectors may be a particularly high-risk subgroup of IDU who engage in both sexual and injection-related risk behaviors. Frequent noninjection drug users and binge drinkers were more likely to engage in casual/exchange UI, which suggests higher-risk among IDU who are polydrug users. However, it should be noted that the absolute differences in sexual risk, even when significant, were not large: IDU who did not exhibit these key substance use characteristics still had high rates of sexual risk.
- This may be one reason for the lack of positive findings at the **event-specific level**. Heterosexually active IDU who engaged in concurrent substance use at last sex were no more likely to engage in unprotected intercourse during that encounter than IDU who used no alcohol or drugs. This pattern held when we stratified by gender. But the noteworthy finding here again is the pervasiveness of sexual risk across concurrent substance use categories: the range of UI across type of concurrent substance was 65-82%. In this sense, rates of UI at both the global and event-specific level were much higher and more widespread than among MSM.

Table 8. Concurrent Substance Use and UI During Last Sexual Encounter, Overall and by Gender, among Heterosexually Active IDU

	UI		
	%	OR	95% CI
All IDU			
None	77.4	1.00	
Alcohol Only	65.5	0.55	0.16–1.87
Drugs Only	79.8	1.15	0.58–2.29
Alcohol & Drugs	65.3	0.55	0.27–1.12
Male IDU			
None	76.8	1.00	
Alcohol Only	71.4	0.75	0.18–3.05
Drugs Only	81.9	1.36	0.62–3.00
Alcohol & Drugs	63.9	0.53	0.24–1.18
Female IDU			
None	79.4	1.00	
Alcohol Only	36.9	0.15	0.01–2.62
Drugs Only	74.5	0.76	0.18–3.22
Alcohol & Drugs	71.7	0.66	0.13–3.43

Implications

- Further investigate the prevalence and rates of various forms of sexual risk behavior and sex partnerships among active IDU, including the overlap between sexual and injection-related risks.

- Continue to promote condom distribution, HIV testing, and prevention messaging to all IDU, regardless of specific substance use risk factors, given the relative widespread distribution of sexual risk across IDU.
- Consider targeting IDU who inject speedballs for focused sexual risk reduction and other prevention activities.
- Promote screening for all types of substance use and assessment of frequency of use, with appropriate responses including brief interventions, brief treatment, or referral to long-term treatment.
- Train clinical providers to assess and counsel clients on sexual risks among IDU, not just injection-related risks and encourage the reduction of substance use within sexual encounters.
- Encourage routine and frequent HIV testing for all IDU.

High-Risk Heterosexuals

NHBS Study of New York City HET, 2006-7

The first NHBS study cycle of high-risk heterosexuals (NHBS-HET I) was conducted in 2006-2007 using respondent-driven sampling (RDS) to systematically recruit HET throughout NYC.

Since heterosexual HIV infection is not uniformly distributed in the general heterosexual population, a definition for heterosexuals at highest-risk for HIV infection was constructed. Research suggests that individual risk factors (rates of unprotected sexual intercourse or number of sex partners) may not fully explain the heterosexual HIV epidemic, and that sociodemographic and structural factors, such as poverty and homelessness, also play a role in heterosexual HIV transmission.⁸

In this study, high-risk heterosexuals were defined as men and women between the ages of 18 and 50 years old who engaged in heterosexual activity in the past year, but who also had a residential or social connection to a “high-risk area”. High-risk areas (HRAs) were defined at the zip code level using historic rates of household poverty (from Census data) and heterosexual HIV prevalence (from local HIV surveillance data).⁷ We created an HRA index that ranked all NYC zip codes based on a standardized sum of these two factors, and then chose the top 20% of zip codes as HRAs. The NYC HRAs clustered in the South Bronx, Harlem, and Central Brooklyn.

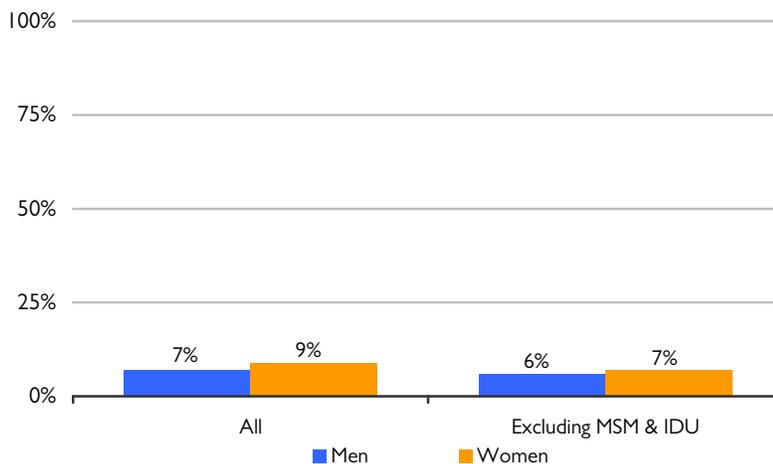
A residential connection to an HRA meant living in one of those zip codes and a social connection meant being recruited into the study by someone with a residential connection. RDS was used for this peer recruitment method. As with the IDU cycle results, study data were weighted to account for peer recruitment biases, and for that reason, frequency counts (n’s) are not provided for the following analyses.

HIV Prevalence and Demographics

HIV Prevalence. Of all participants in the study (n=850), 827 (97.3%) had an HIV test as part of the study. HIV prevalence was 8.2% overall. Figure 12 provides HIV prevalence by gender: 7% of men and 9% of women tested HIV-positive. Because MSM and IDU were not excluded from the study, HIV prevalence is slightly inflated by participants with those risk histories. After MSM and IDU were removed, HIV prevalence was 6.7% overall, 6.1% among men, and 7.1% among women.

Of the 850 HET from NYC who participated in the study, 4 (<1%) self-reported as HIV-positive in the survey and were excluded from behavioral analyses. The following represent the 846 who self-reported as HIV-negative or unknown in the study.

Figure 12. HIV Prevalence by Gender



Demographics. Overall, 410 (48.5%) participants were male and 436 (51.5%) were female. As Table 9 shows, men and women were predominantly black (69% for both), 24% of men and 20% of women were Hispanic, 4% of men and 9% of women were white, and 3% of men and 2% of women were other races. By age group, 20% of men and 35% of women were 18-29, 19% of men and 19% of women were 30-39, and 61% of men and 46% of women were 40-50 years old.

Table 9. Sociodemographics by Gender

	Men	Women
	%	%
Race/Ethnicity		
Black	68.9	69.3
Hispanic	24.1	19.7
White	4.3	9.3
Other	2.7	1.7
Age		
18-29	20.0	35.0
30-39	19.1	19.3
40-50	61.0	45.7

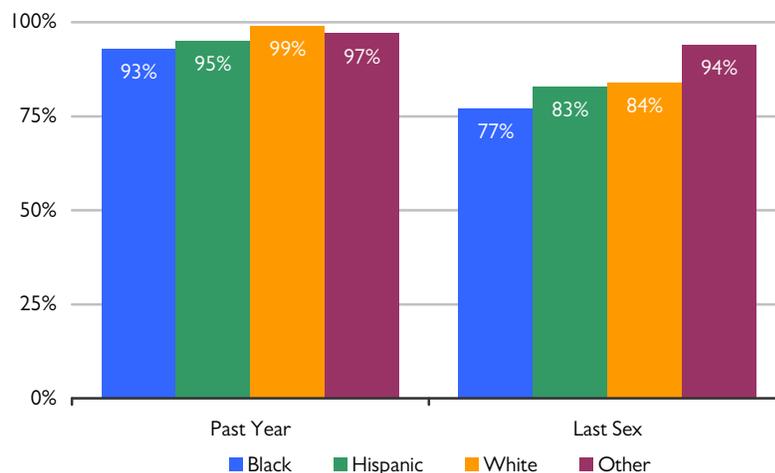
Sexual Risk Factors

Overall, 9% of male participants reported same-sex partners in the past year. The following tables represent heterosexual activities only. As Figure 13

shows, nearly all participants reported unprotected vaginal or anal intercourse in the past year, with little racial variation. Most also reported UI at the last sexual encounter, but with the lowest rates among black participants.

In Table 10, sexual risk factors in the past year and at last sexual encounter are shown overall and by gender. Overall, 94% of heterosexuals had unprotected intercourse in the past year, with little variation by gender.

Figure 13. Unprotected Intercourse, by Race/Ethnicity



Fifty-eight percent overall had UI with casual or exchange partner, with slightly more women (61%) than men (55%) reporting this. Specifically for unprotected anal intercourse, 32% of men and 38% of women reported this activity in the past year. Over half of participants (57%) also reported a total of three or more sex partners in the past year, with similar proportions for men (55%) and women (58%).

At last sex, 79% had unprotected intercourse and 25% had UI with casual/exchange partner, with more men (29%) reporting than women (21%). Finally, 47% reported UI at last sex with a partner who was HIV-

positive or whose HIV status was unknown. Overall at last sex, 83% of those with a main partner had unprotected intercourse, as did 77% of those with a casual partner, and 62% of those with an exchange partner.

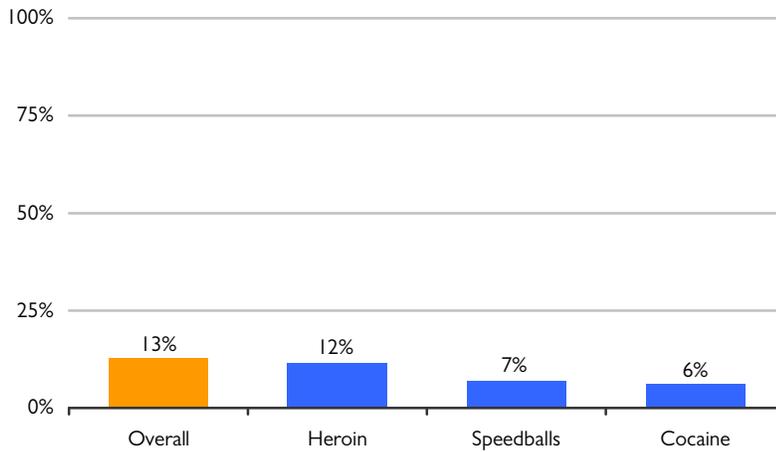
Table 10. Sexual Risk Factors in the Past Year and at Last Sexual Encounter

	Total	Men	Women
	%	%	%
Past Year Behavioral Risks			
Unprotected Intercourse	94.1	93.7	94.6
UI with Casual/Exchange Partner	58.0	55.3	60.7
Unprotected Anal Intercourse	35.0	31.8	37.9
≥3 Total Partners	56.8	55.2	58.4
Last Sex Behavioral Risks			
Unprotected Intercourse	79.1	80.1	78.2
UI with Casual/Exchange Partner	24.6	28.5	20.8
UI with HIV+/Unk. Status Partner	46.5	47.9	45.1

Substance Use

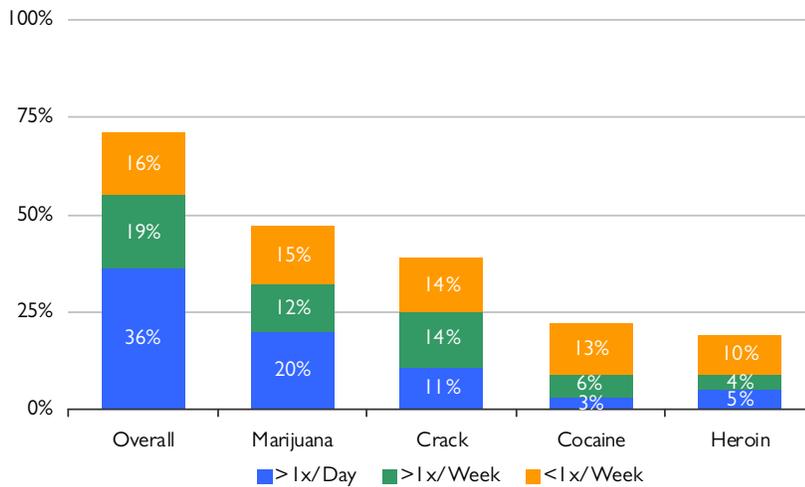
Injection Drug Use. In the overall sample, 22% of participants reported any history of injection drug use and 13% injected in the past year. Figure 14 below shows the prevalence and frequency of injection drug use in the past year overall and by the most commonly used drugs. Most IDU had injected heroin (12% overall), followed by speedballs (7%), and cocaine (6%).

Figure 14. Injection Drug Use in Past Year



Noninjection Drug Use. Figure 15 shows noninjection drug use in the past year overall and by the most commonly used drugs. Overall, 71% of participants reported using noninjection drugs in the past year, with 36% reporting at least daily use.

Figure 15. Noninjection Drug Use in Past Year

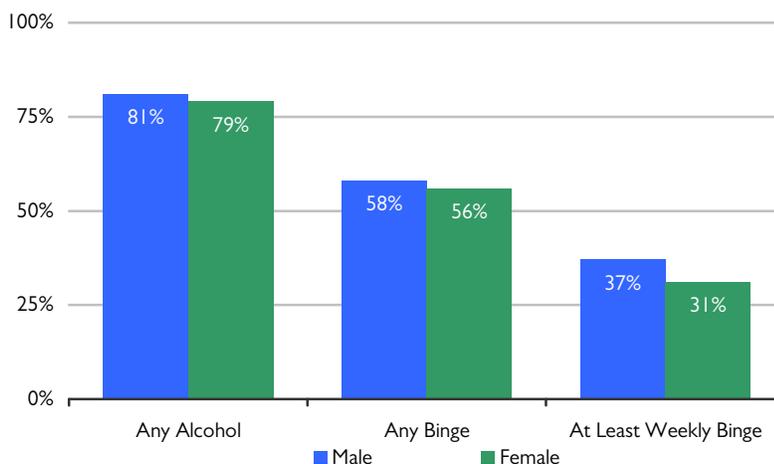


Marijuana was the most commonly used noninjection drug (47% of participants), and nearly one-fifth of participants used this drug daily. Crack was the second most commonly used drug (39% of participants), but most of those used crack less than daily. Finally, 22% reported using cocaine and 19% reported using heroin in the past year, but most used those drugs less than once a week.

Alcohol Use. In the past year, 80% of participants consumed alcohol. Figure 16 below shows different levels of alcohol consumption by gender. Men and women had similar rates of alcohol use (81% and 79%, respectively). Fifty-seven percent of participants engaged in binge alcohol

consumption. Finally, 34% binged at least weekly, with slightly higher rates for men (37%) than women (31%).

Figure 16. Binge Alcohol Use in Past Year, by Gender



The Association of Substance Use and Sexual Risk

Global Measures. Table 11 below shows the relationship between two sexual risk outcomes (unprotected intercourse and UI with casual or exchange partner) and key substance use variables. The timeframe for both sexual risk and substance use variables is the past year.

Table 11. Factors Associated with Heterosexual Unprotected Intercourse (UI) and UI with a Casual/Exchange Partner

	UI			Cas/Exch UI		
	%	OR	95% CI	%	OR	95% CI
Drug Use						
Any Drug Injection	99.3	9.69	1.13–83.30	62.5	1.24	0.83–1.85
Any NI Drug Use	95.9	2.77	1.56–4.93	61.3	1.61	1.19–2.18
Weekly NI Drug Use	96.2	2.29	1.26–4.13	65.5	2.00	1.52–2.64
NI Crack Use	96.0	1.87	0.99–3.54	66.9	1.87	1.41–2.48
NI Cocaine Use	98.4	4.65	1.44–15.01	71.4	2.10	1.48–2.98
Alcohol Use						
Any Alcohol Use	95.0	1.94	1.05–3.60	57.8	0.96	0.68–1.34
Any Binge Alcohol Use	97.0	3.47	1.85–6.51	62.9	1.58	1.20–2.08
Weekly Binge	98.5	5.70	2.13–15.27	67.5	1.83	1.36–2.46

Nearly all participants who engaged in substance use reported UI. Heterosexuals who had injected drugs were more likely to have any UI but no more likely to have casual/exchange UI. Those who reported any noninjection drug use were 2.8 times as likely to report any UI and 1.6 times as likely to report casual/exchange UI compared with participants who did not use drugs. At least weekly noninjection drug use was associated with a 2.3 times increased likelihood of UI and 2.0 times increased likelihood of casual/exchange UI. By specific noninjection drugs, crack users were 1.9

times as likely as non-crack users to engage in UI and casual/exchange UI. Cocaine users were over four times as likely to engage in UI and over twice as likely to engage in casual/exchange UI compared to non-cocaine users.

By alcohol use, drinkers were nearly twice as likely as non-drinkers to engage in UI, but there was no significant association with casual/exchange UI. Binge drinkers were 3.5 times as likely as non-binge drinkers to engage in UI and 1.6 times as likely to engage in casual/exchange UI. Those who binged at least weekly were nearly six times to engage in UI and 1.8 times as likely to engage in casual/exchange UI.

Given the literature on substance use and sexual risk specifically for women in non-main partnerships, we examined the association of casual/exchange UI stratified by gender. As Table 12 shows, the associations between casual/exchange UI and substance use factors are stronger for women than men.

Table 12. Factors Associated with Heterosexual UI with a Casual or Exchange Partner, by Gender

	Casual/Exchange UI					
	Men			Women		
	%	OR	95% CI	%	OR	95% CI
Drug Use						
Any Drug Injection	59.7	1.24	0.71–2.15	65.5	1.27	0.70–2.30
Any NI Drug Use	56.2	1.13	0.74–1.73	66.1	2.29	1.49–3.53
Weekly NI Drug Use	58.0	1.25	0.85–1.84	71.8	3.21	2.15–4.81
NI Crack Use	60.8	1.43	0.96–2.13	72.9	2.47	1.63–3.72
NI Cocaine Use	62.0	1.45	0.93–2.27	84.1	4.26	2.26–8.07
Alcohol Use						
Any Alcohol Use	55.4	1.02	0.63–1.66	60.2	0.91	0.57–1.46
Any Binge Alcohol Use	58.1	1.31	0.88–1.93	67.6	1.93	1.30–2.85
Weekly Binge	55.1	0.99	0.66–1.47	82.0	4.36	2.66–7.17

Female noninjection drug users were 2.3 times as likely to engage in casual/exchange UI, compared with no significantly increased likelihood for men. This pattern also holds for weekly noninjection drug use (women: 3.2 times as likely; men: no significant difference), noninjection crack use (women: 2.5 times as likely; men: no significant difference); noninjection cocaine use (women: 4.3 times as likely; men: no significant difference); binge alcohol use (women: 1.9 times as likely; men: no significant difference); and at least weekly binge alcohol use (women: 4.4 times as likely; men: no significant difference).

Event-Specific Measures. Here we have stratified by the partner type in the last sexual encounter because there were few differences between the overall associations and the race-stratified or gender-stratified associations, while we observed differences when stratified by partner type.

Overall, 66% had a main partner at last sex, 22% had a casual partner, and 12% had an exchange partner. Figure 17 below shows the prevalence of the concurrent use of alcohol and/or drugs at

last sex overall and by partner type. Across all partner types, 47% used substances concurrently: 19% used alcohol only, 11% used drugs only, and 17% used both alcohol and drugs. Among those with a main partner, 39% engaged in concurrent substance use: 18% used alcohol only, 9% used drugs only, and 12% used alcohol and drugs. Among those with a casual partner, 59% engaged in concurrent substance use: 24% used alcohol only, 8% used drugs only, and 27% used alcohol and drugs. Finally, among those with an exchange partner, 72% engaged in concurrent substance use at last sex: 17% used alcohol only, 24% used drugs only, and 31% used both alcohol and drugs.

Figure 17. Substance Use at Last Sex, by Partner Type

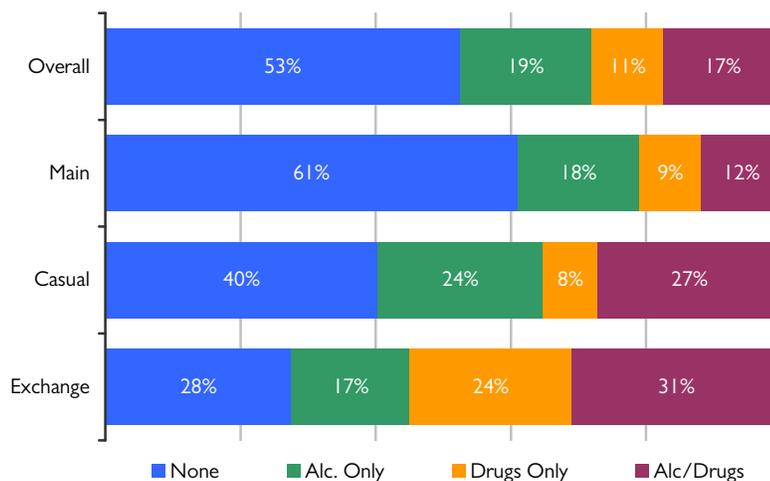


Table 13 shows concurrent substance use and unprotected intercourse during the last sexual encounter overall and then stratified by partner type. Among all participants, 77% who engaged in no concurrent substance use had UI, and those who engaged in concurrent substance use were no more likely to engage in UI.

In main partnerships, 78% of those who used no drugs or alcohol engaged in UI. Those who used alcohol only were 2.3 times as likely, those who used drugs only were 6.1 times as likely, and those who used alcohol and drugs were 2.6 times as likely to engage in UI. In casual partnerships, those who used both drugs and alcohol were more likely to engage in UI, but the association was not significant. In exchange partnerships, there was no significant association between concurrent drug use and unprotected intercourse.

Summary

In our study of high-risk heterosexuals sampled and recruited in social networks from areas in NYC with high concentrations of heterosexual HIV infections and poverty, we found a high HIV prevalence, even after removing high-risk heterosexuals who reported a history of male-to-male sex or injection drug use. Nearly all participants had unprotected intercourse, almost three-quarters used noninjection drugs, and over half engaged in binge alcohol use in the past year.

- On a **global level**, sexual risks were significantly higher among drug injectors, frequent noninjection drug users, noninjection crack or cocaine users, and binge drinkers. However, when we stratified the findings by gender, we found that the effects were stronger and only statistically significant for women. Importantly, this does not mean that women were at greater risk than men: there were no substantial differences by gender in sexual risk factors in the past year and at last sexual encounter. Instead, our findings suggest that sexual risk among women was primarily concentrated in substance-using females, while among men, it was more evenly distributed across substance use categories.

Table 13. Concurrent Substance Use and UI During Last Sexual Encounter, Overall and by Partner Type

	UI		
	%	OR	95% CI
All HET			
None	77.3	1.00	
Alcohol Only	80.4	1.20	0.77–1.87
Drugs Only	78.3	1.06	0.61–1.83
Alcohol & Drugs	83.7	1.51	0.95–2.45
Main Partners			
None	77.9	1.00	
Alcohol Only	89.2	2.34	1.19–4.61
Drugs Only	95.6	6.11	1.58–23.68
Alcohol & Drugs	90.1	2.59	1.11–6.01
Casual Partners			
None	78.6	1.00	
Alcohol Only	69.5	0.62	0.27–1.42
Drugs Only	47.2	0.24	0.08–0.76
Alcohol & Drugs	90.0	2.45	0.84–7.12
Exchange Partners			
None	66.3	1.00	
Alcohol Only	57.8	0.70	0.20–2.38
Drugs Only	61.8	0.82	0.27–2.56
Alcohol & Drugs	66.3	0.76	0.26–2.20

- On the **event-specific level**, there were no clear associations between concurrent substance use and sexual risk overall, but important differences emerged when we stratified our results by partner type. Main partnerships were the most common type of partnership (66% of participants) with the highest rates of unprotected intercourse (83%) but the lowest rates of concurrent drug use (39%). Exchange partnerships were the least common type of partnership (11% of participants) with the lowest rates of unprotected intercourse (62%) and the highest rates of concurrent drug use (72%). Casual partnerships were in the middle in the proportion of partnerships (22%), rates of unprotected intercourse (77%), and rates of concurrent substance use (59%).
- These **partner type differences** help explain the complexities of the primary association: substance use may increase sexual risk in main partnerships, but not necessarily for casual or exchange partnerships. However, it is important to note that nearly two-thirds of those in exchange partnerships, the group with the lowest rate of UI, still had unprotected intercourse.

Implications

- Further investigate the prevalence and rates of unprotected intercourse and substance use by gender, in order to understand the dynamics of substance use and sexual risk among females compared with their male partners.
- Examine the differences in sexual risk and substance use by main, casual, and exchange partners, in order to understand the different risk profiles of each partnership type.
- Focus on female substance users and their sex partners specifically for HIV prevention activities regarding their substance use, given the concentration of sexual risk factors among this group. For men, provide HIV prevention interventions and messaging to both substance users and non-users.
- For high-risk heterosexuals in main partnerships, direct risk reduction messages and condom distribution specific to those who engage in concurrent substance use.
- Encourage routine and frequent HIV testing for all high-risk heterosexuals given the high rates of unprotected intercourse with partners of HIV positive or unknown status.
- Promote screening for all types of substance use and assessment of frequency of use, with appropriate responses including brief interventions, brief treatment, or referral to long-term treatment.

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Resources & References

Resources

NYC DOHMH HIV Epidemiology Program Website

<http://www.nyc.gov/html/doh/html/dires/hivepi.shtml>

NYU Center for Drug Use and HIV Research Website

<http://www.cduhr.org/>

CDC Division of HIV/AIDS Prevention Website

<http://www.cdc.gov/Hiv/>

Respondent-Driven Sampling Website

<http://www.respondentdrivensampling.org/>

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