

HIV Risk and Prevalence among Heterosexuals at Increased Risk for HIV in New York City: High-Risk Women

Results from the
National HIV Behavioral Surveillance Study
among High-Risk Women
2016



HIV among Persons with Heterosexual Risk¹ in NYC, 2016

- HIV case surveillance in NYC shows there were:
 - 386 new diagnoses among persons with heterosexual risk in 2016
17% of all new diagnoses and 22% of new diagnoses with known risk
 - 24,383 people living with HIV/AIDS (PLWHA) with heterosexual risk as of 2016
20% of all PLWHA and 25% of PLWHA with known risk

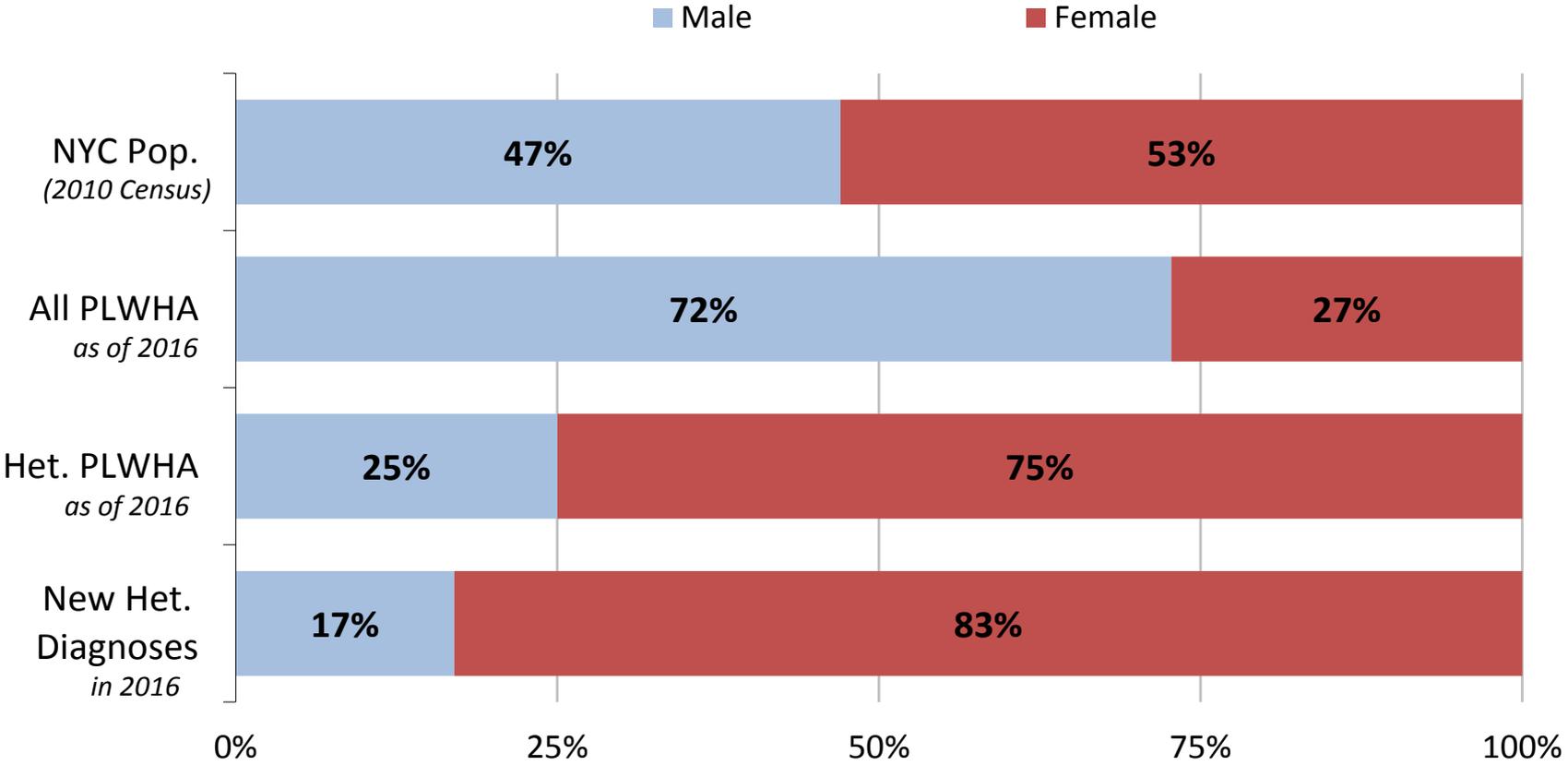
¹Includes persons who had heterosexual sex with a person they know to be HIV-infected, an injection drug user, or a person who has received blood products; for females only, also includes history of prostitution, multiple sex partners, sexually transmitted disease, crack/cocaine use, sex with a bisexual male, probable heterosexual transmission as noted in medical chart or sex with a male and negative history of injection drug use

HIV among Females with Heterosexual Risk¹ in NYC, 2016

- Among females, heterosexual transmission HIV case surveillance in NYC
 - 319 new heterosexual diagnoses in 2016
63% of all new diagnoses and 84% of new diagnoses with known risk
 - 18,305 heterosexual PLWHA as of 2016
53% of all PLWHA and 70% of PLWHA with known risk
- Heterosexual transmission risk assignment among women is complicated by requirements for multiple data points
 - Heterosexual transmission risks for individual women are often unknown (26% of newly diagnosed women had no risk assignment in 2016)

¹Includes persons who had heterosexual sex with a person they know to be HIV-infected, an injection drug user, or a person who has received blood products; for females only, also includes history of prostitution, multiple sex partners, sexually transmitted disease, crack/cocaine use, sex with a bisexual male, probable heterosexual transmission as noted in medical chart or sex with a male and negative history of injection drug use

Gender Disparities in Heterosexual HIV Transmission Risk in NYC



Heterosexual PLWHA and new heterosexual diagnoses are disproportionately female

National HIV Behavioral Surveillance (NHBS)

- Ongoing, cyclical study of three HIV risk groups: MSM, IDU, and high-risk heterosexuals (HET)
 - Conducted in 20 cities through the U.S.
 - Funded by CDC, designed collaboratively
 - Cross-sectional study design
 - Anonymous, structured interview and HIV testing
- In NYC, the fourth HET cycle was restricted to high-risk women (HRW), focusing on women who exchange sex for money or drugs (NHBS-HET4 HRW).

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

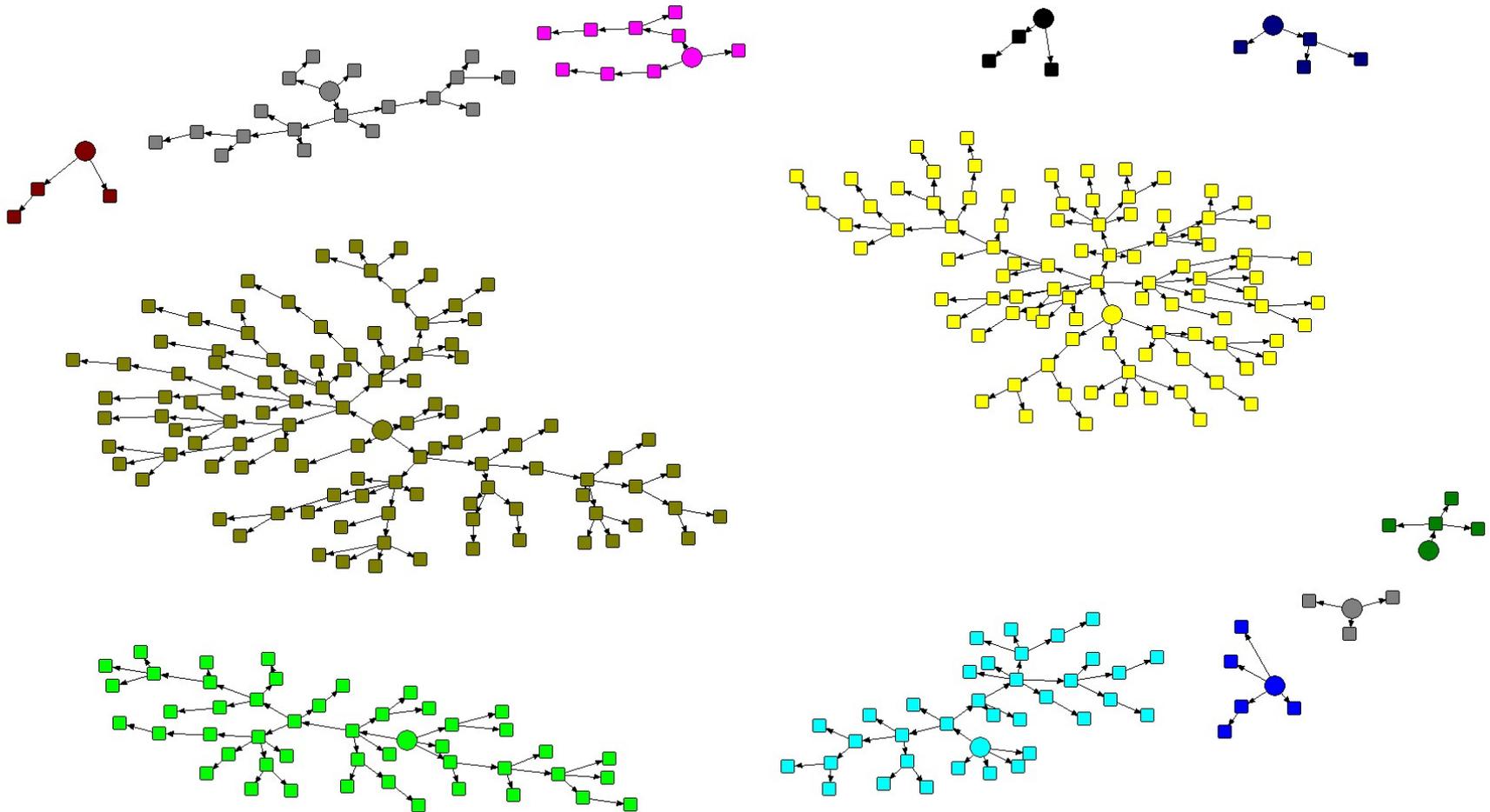
NHBS-HET4 HRW Eligibility Criteria

- Female (not male or transgender)
- Vaginal or anal sex with a male sex partner in the past 12 months
- Aged 18-60 years old
- Resident of NYC metropolitan statistical area
- 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 5 peers in their social networks
3. If eligible, those 5 peers participate and each recruits up to 5 more peers until sample size was met
 - Recruitment chains continually monitored to ensure demographic representativeness
 - In order to focus on women who exchange sex, women who did not exchange sex were not eligible to recruit. Those who were eligible to recruit were told to recruit women who exchange sex.
 - Incentives provided for participating in study and peer recruitment

Recruitment Chain Diagram

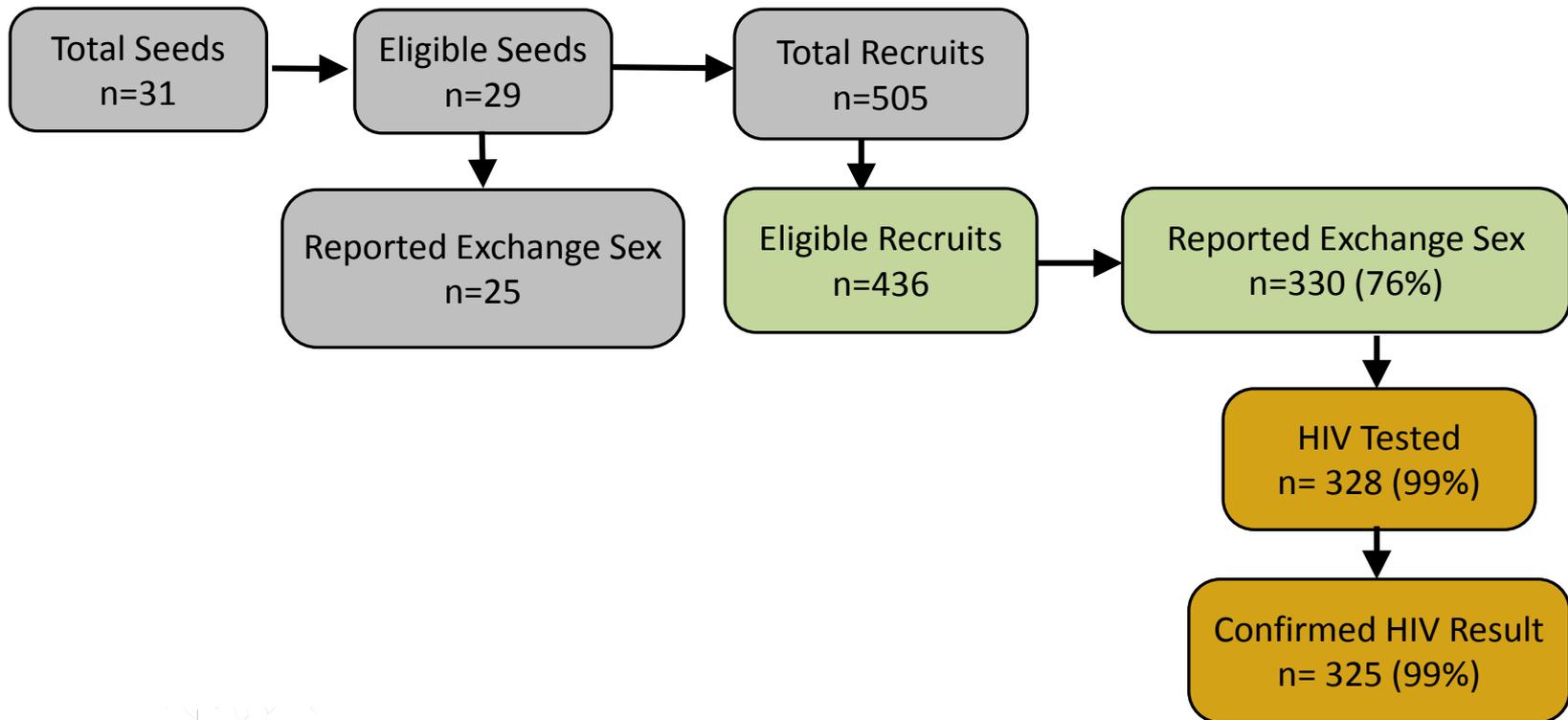


- Each node represents a study participant. Linking lines show recruitment chains, initiated by 12 productive seeds (represented by circular nodes).
- To focus recruitment on women who exchange sex, those who did not report exchange sex in the past 12 months were not eligible to recruit other participants and are not shown in the diagram.

Statistical Analysis

- Unweighted analyses conducted with SAS 9.3
- Analyses restricted to non-seeds who reported exchange sex in past 12 months (n=330)
- Basic descriptive frequencies of demographics, risks, and use of HIV testing and prevention services
- Chi-square tests (categorical variables) and Wilcoxon tests (non-normal continuous variables) were used to compare differences in HIV risks and use of HIV testing and prevention services
- Self-reported HIV+ participants (n=75) removed from behavioral risk analyses; participants without a confirmed HIV result (n=5) excluded from prevalence analyses

NHBS-HET4 HRW Sample



Demographics

NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)

Race/Ethnicity

Black	59%
Hispanic/Latina	31%
White	9%
Other*	2%

Age

18-29	6%
30-39	13%
40-49	26%
50+	55%

Education

< H.S. Grad	45%
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Birthplace

United States	88%
Puerto Rico	3%
Foreign	8%

Demographics

NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)

Marital Status

Never Married	65%
Currently Married or Cohabiting	7%
Previously Married	28%

Homeless¹

Past 12 mos.	50%
Currently	27%

Criminal Justice

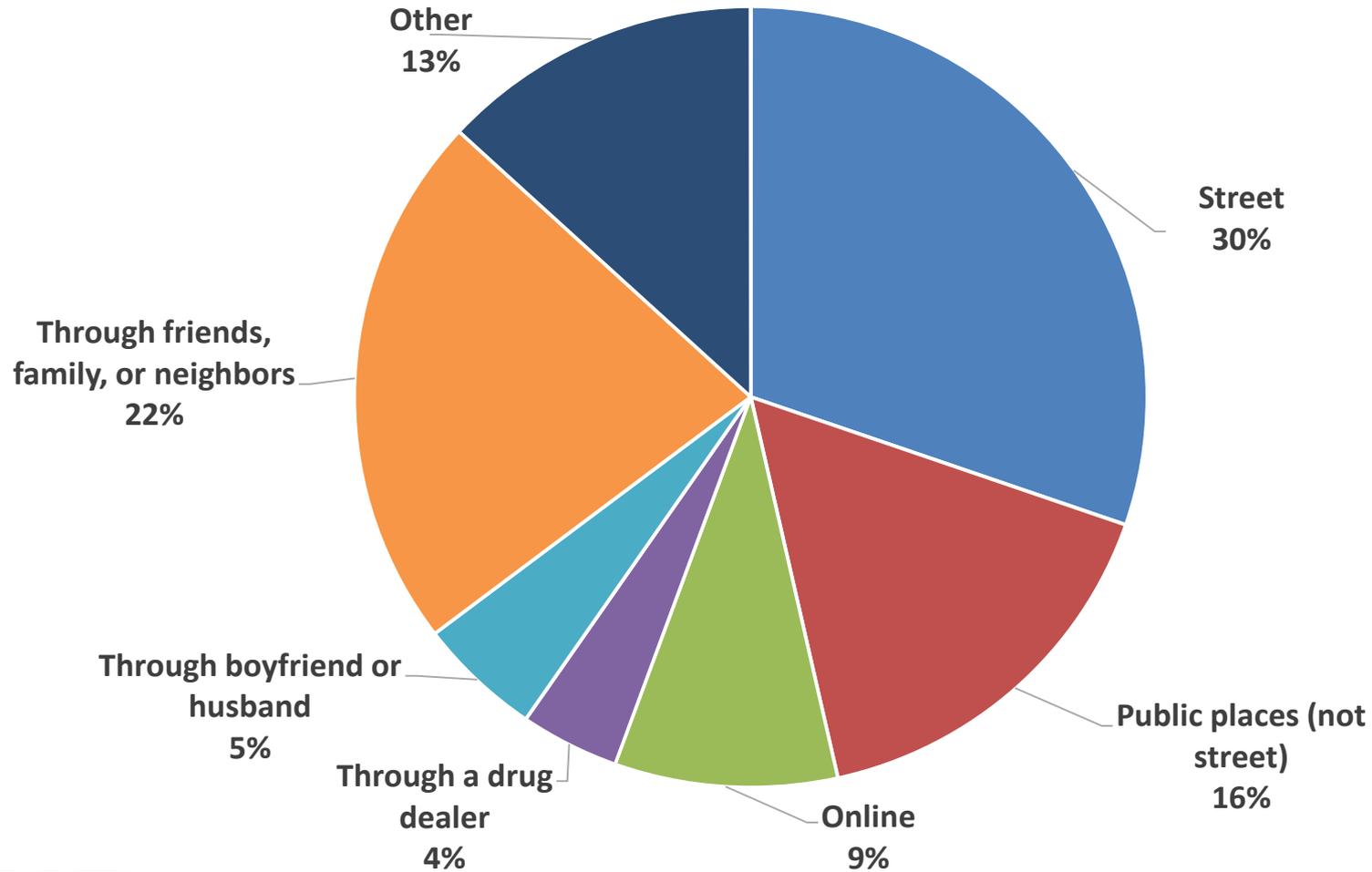
Incarcerated (12m)	18%
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Household Income (12m)

< \$10k/year	52%
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Most Common Modality of Exchange Sex in Past 12 Months¹

NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)

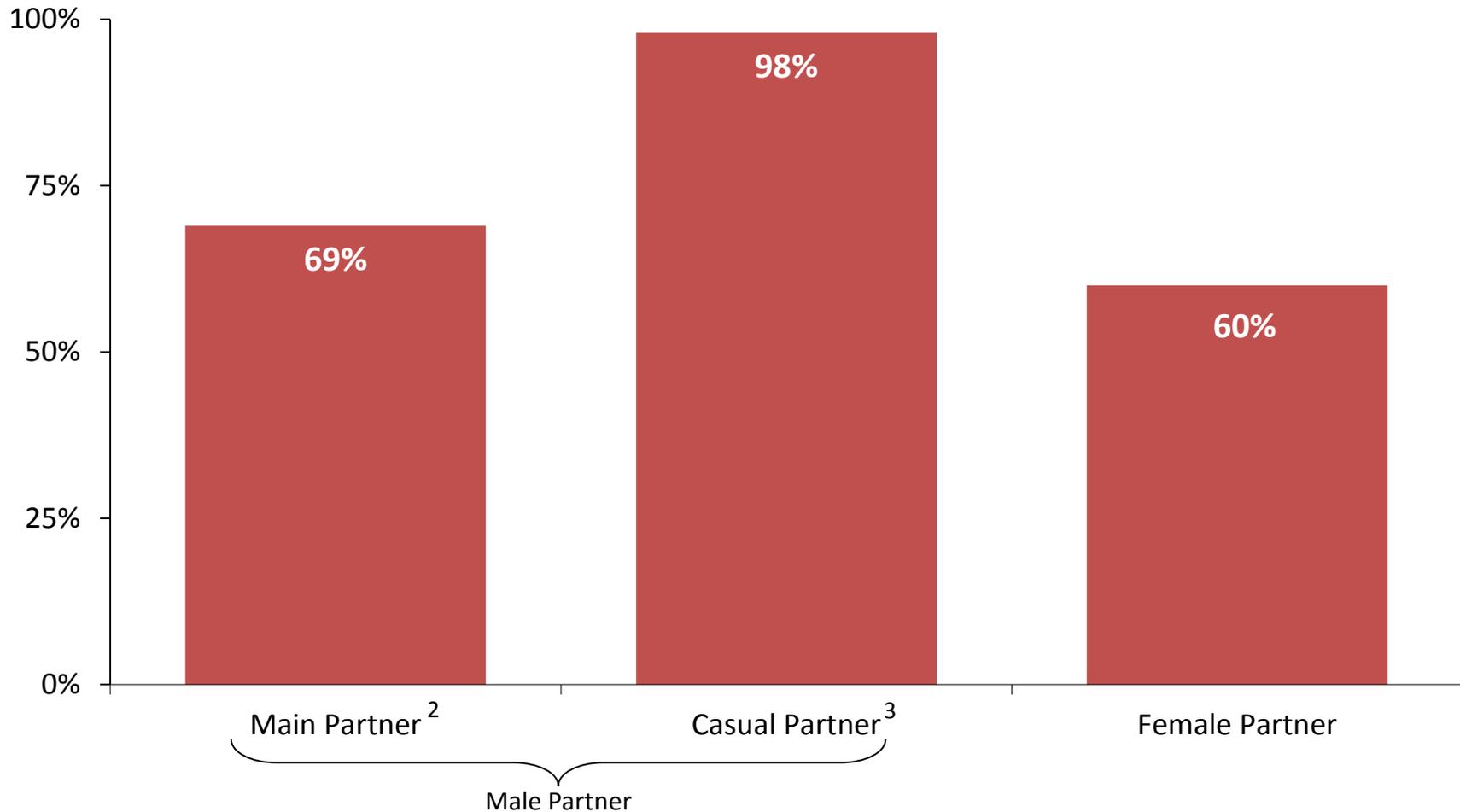


¹The most common way the participant found men to exchange sex with

Sexual Behaviors

Type of Sexual Partnerships¹ in Past 12 Months

NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)



¹Oral, vaginal, or anal sex

²Someone who the participant feels committed to above anyone else

³Someone who the participant does not feel committed to or does not know very well

Number of Male Sex Partners¹ by Partner Type in Past 12 Months

NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)

	Total (n=255)	
	Median	Mean
Main ²	1	3.2
Casual ³ (Non-Exchange)	0	0.7
Casual Exchange ⁴	4	39.3
Any Exchange	6	39.5
All Types	6	42.2

¹Oral, vaginal, or anal sex

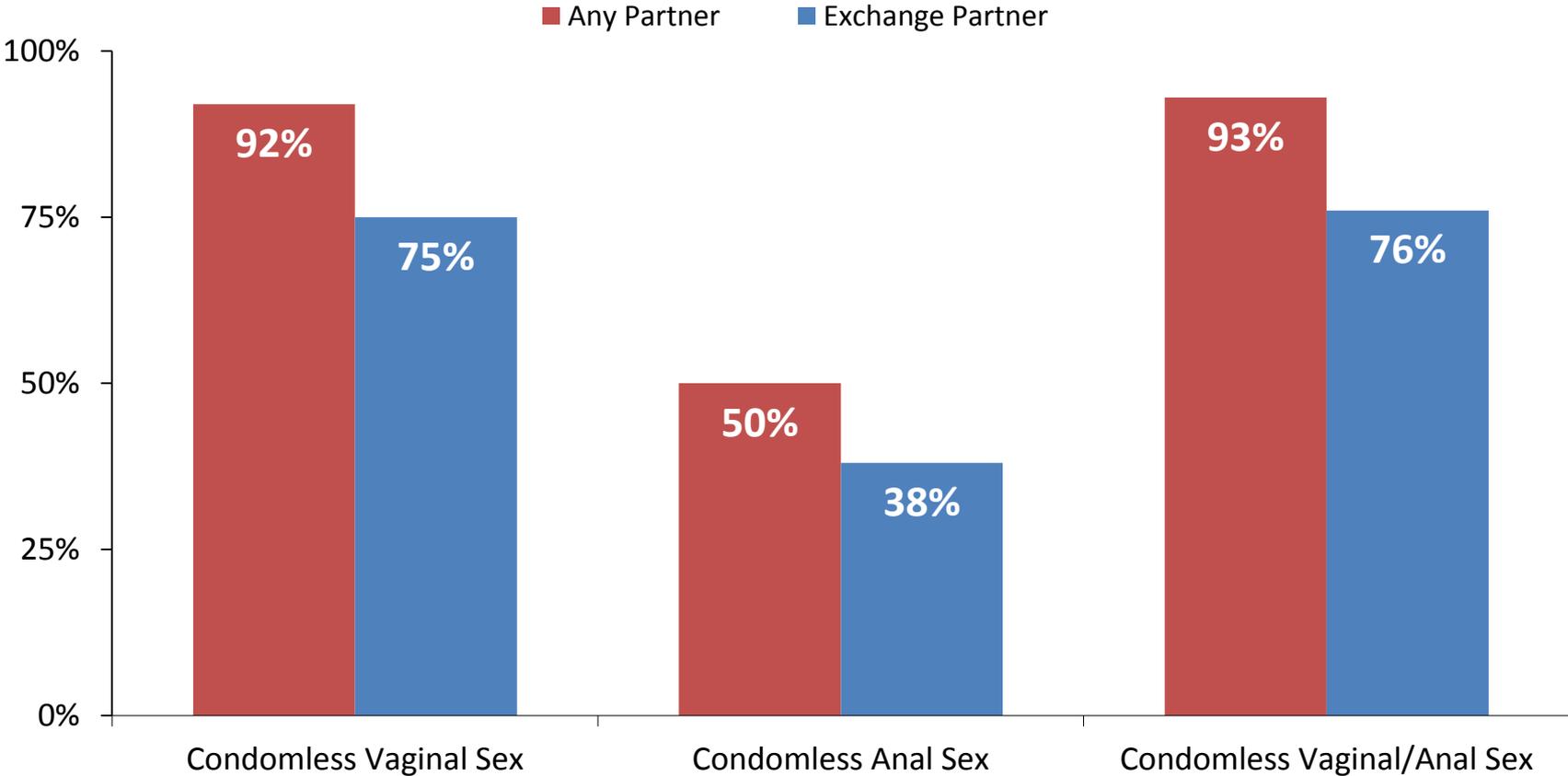
²Someone who the participant feels committed to above anyone else

³Someone who the participant does not feel committed to or does not know very well

⁴Casual partner who gave money or drugs in exchange for sex

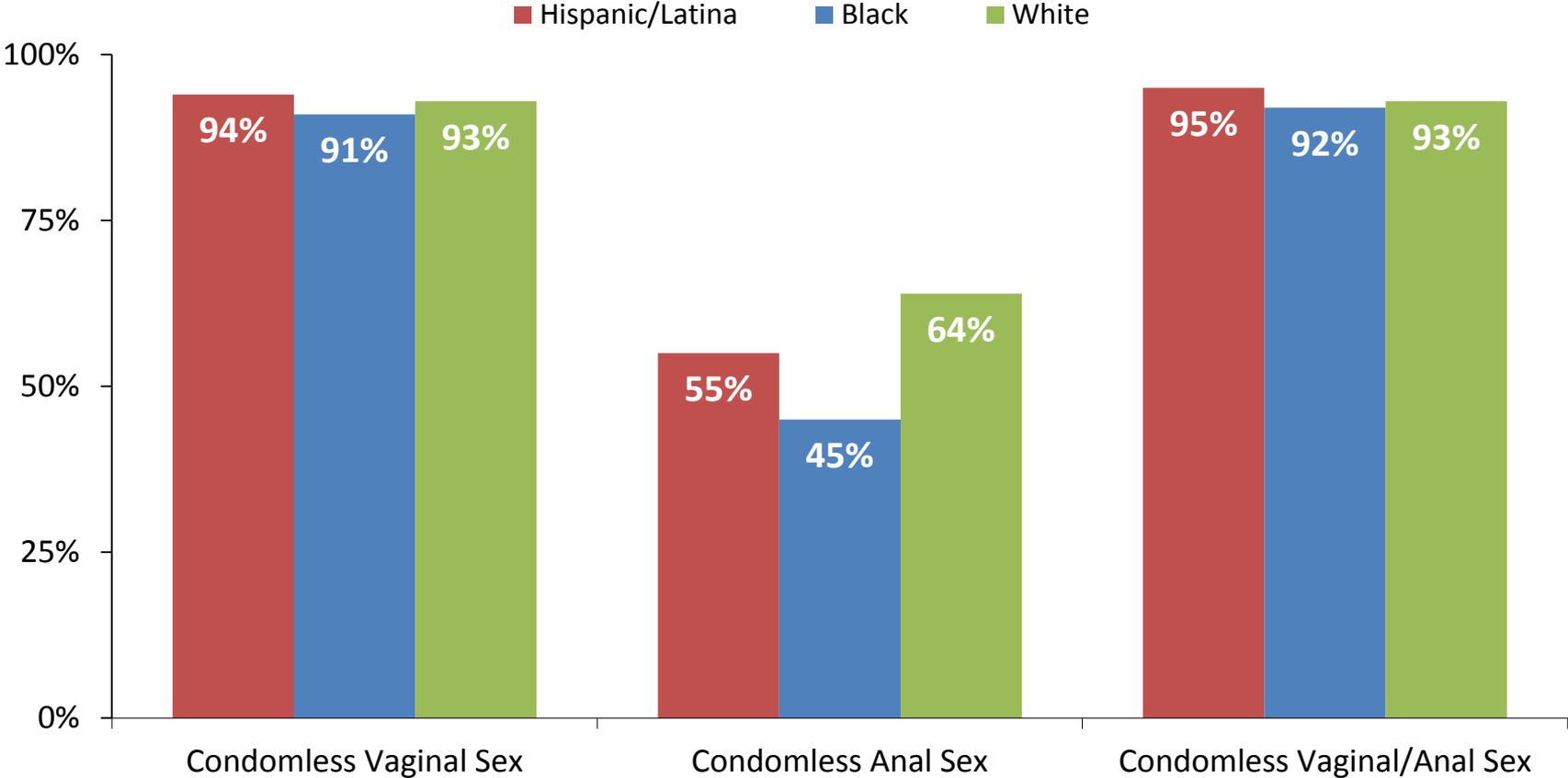
Past 12 Month Sexual Risk Behavior by Male Partner Type

NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)



Past 12 Month Sexual Risk Behavior with Male Partners by Participants' Race/Ethnicity

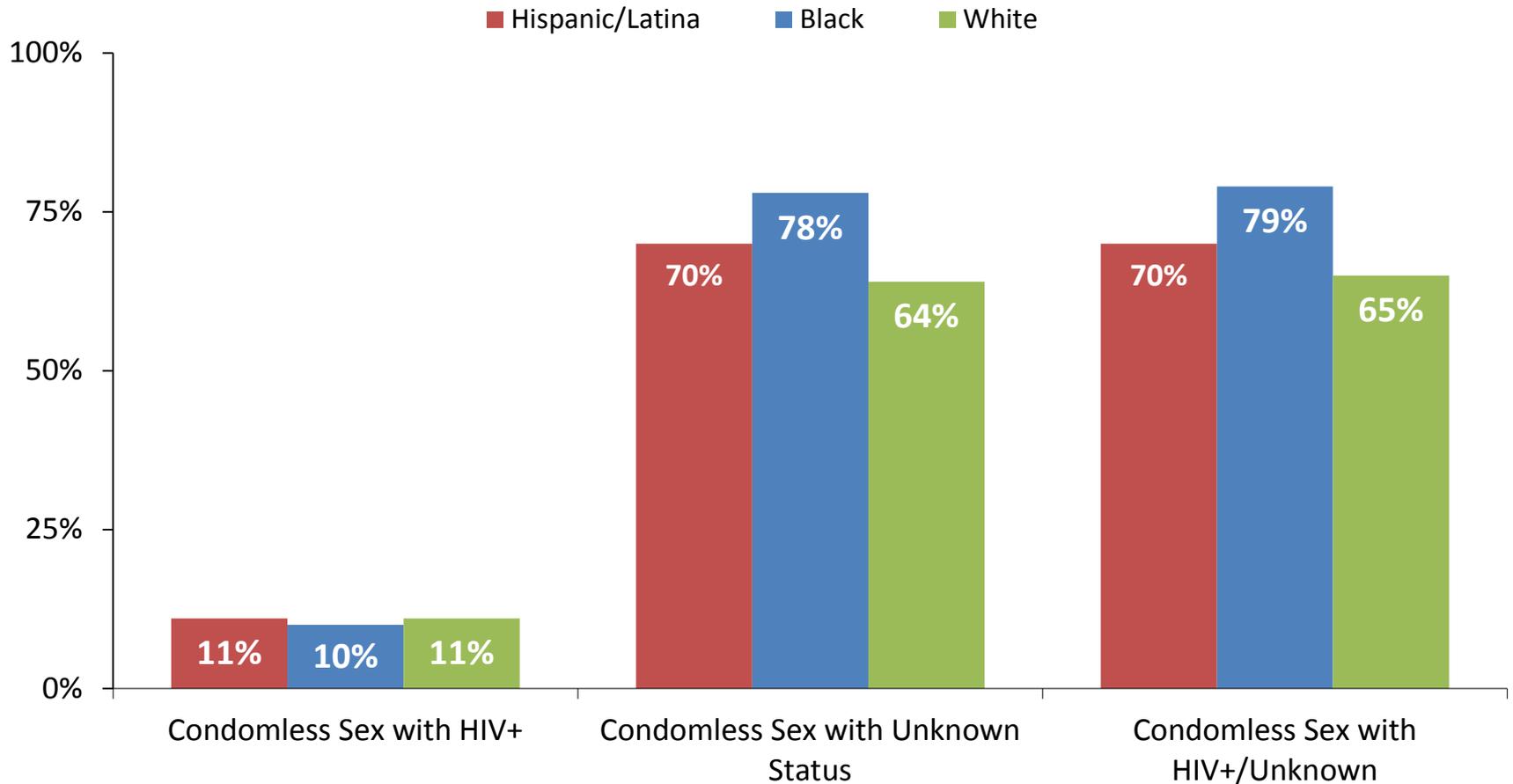
NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹



¹Other' race (American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander) not shown due to small sample size

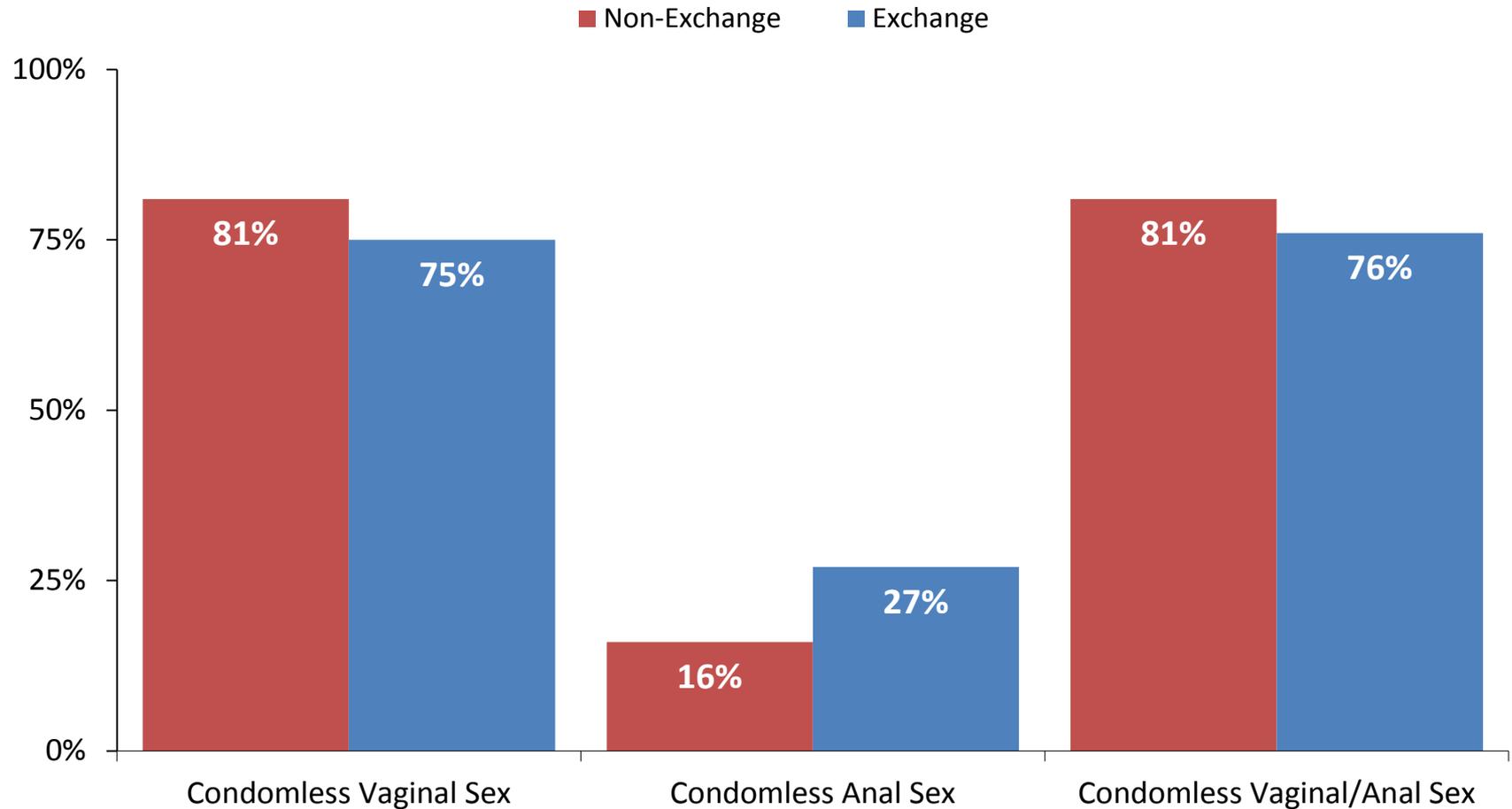
Past 12 Month Sexual Risk Behavior by Participants' Race/Ethnicity

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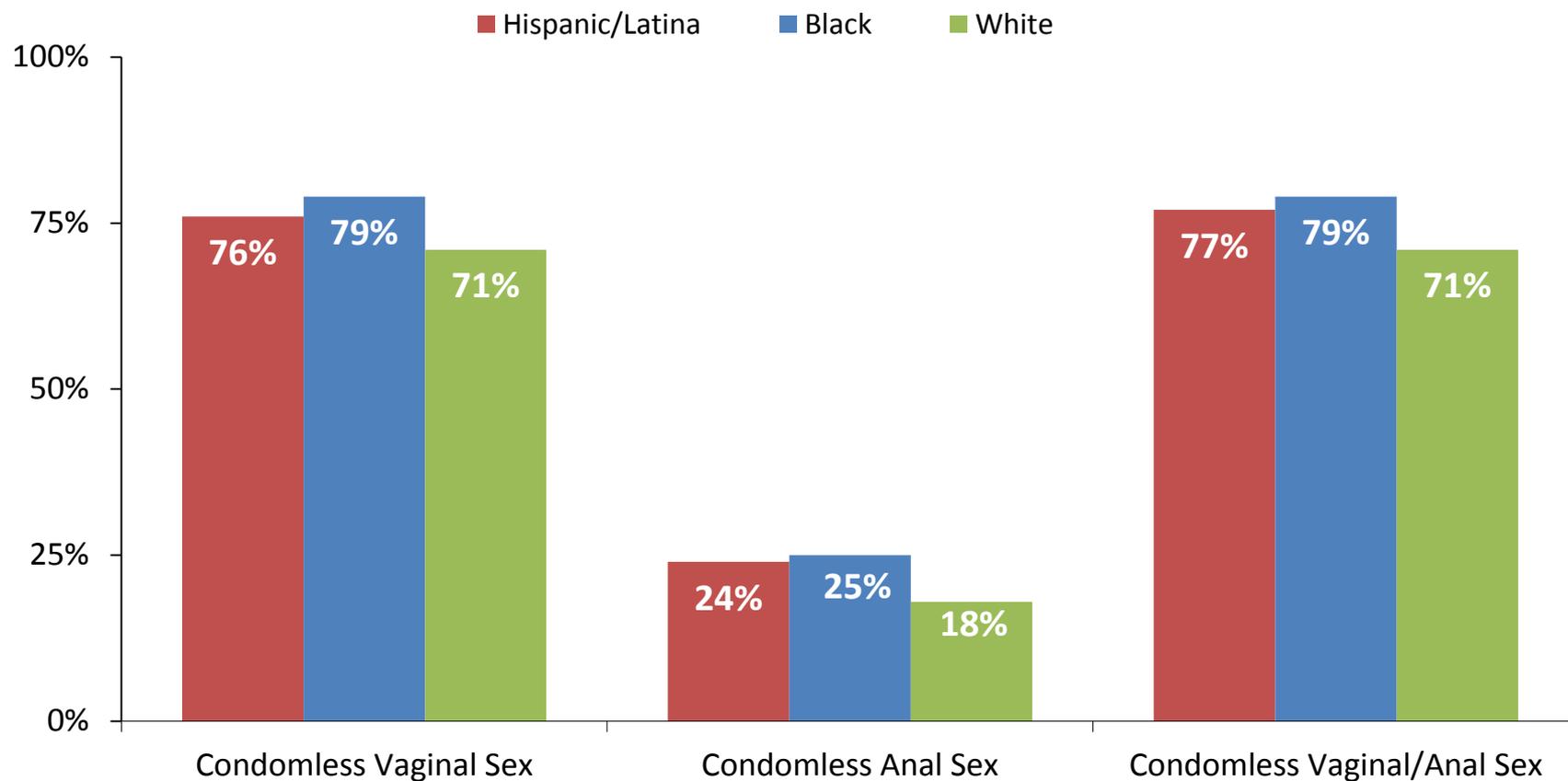
Sexual Risk Behavior at Last Sex by Male Partner Type

NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)



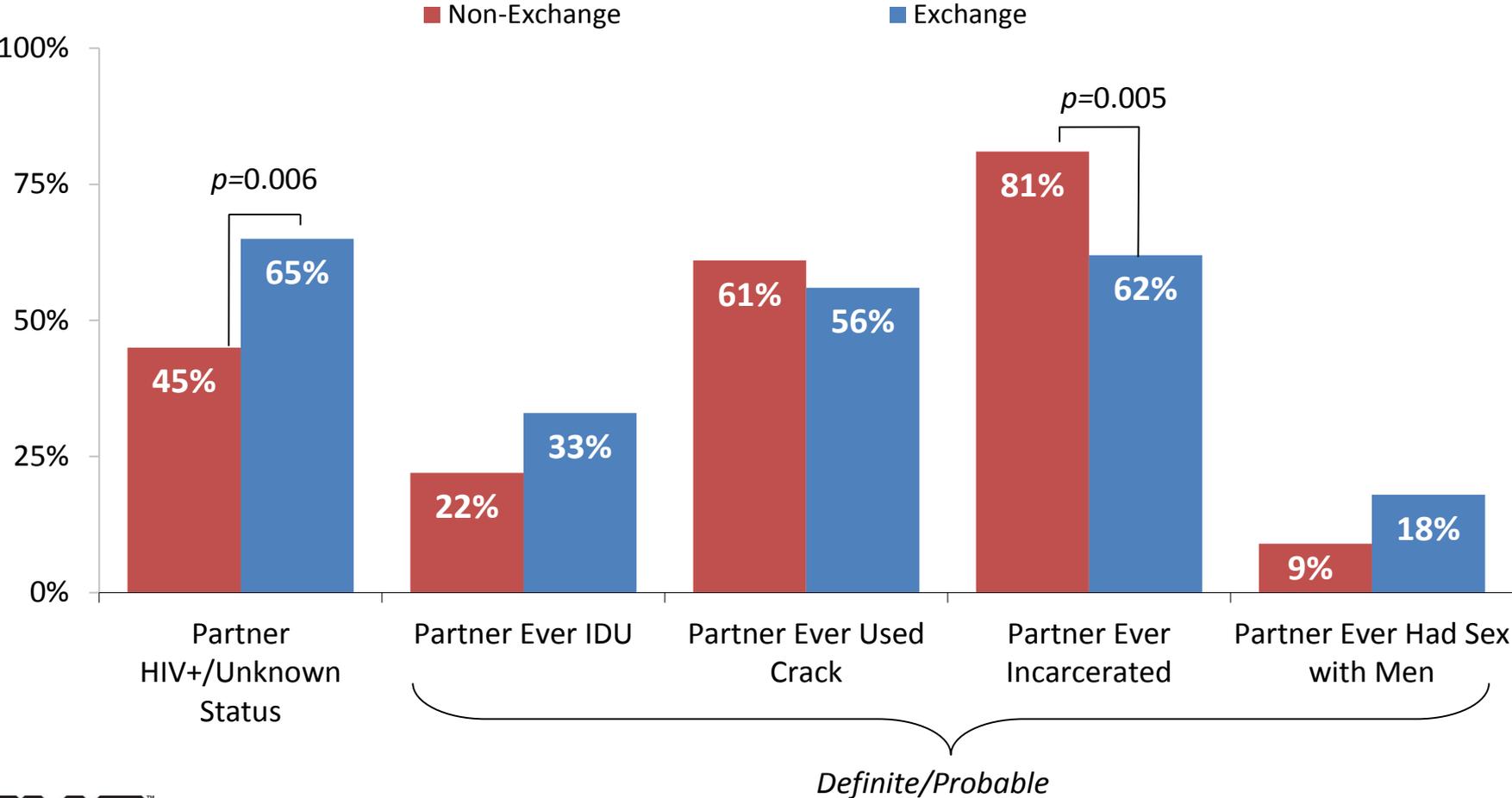
Sexual Risk Behavior at Last Sex by Participants' Race/Ethnicity

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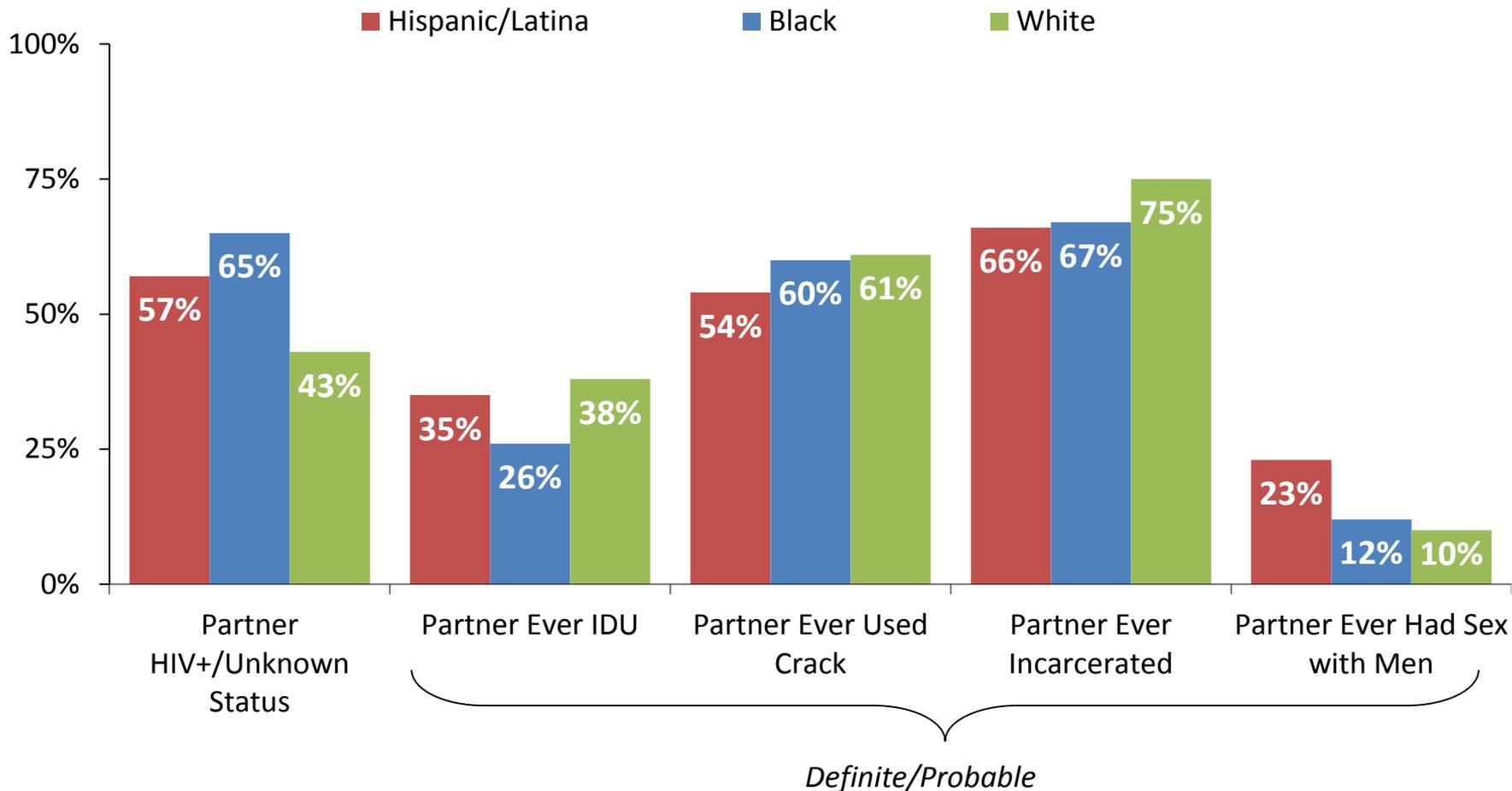
Risk Characteristics of Last Male Partner by Partner Type

NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)



Risk Characteristics of Last Male Partner by Participants' Race/Ethnicity

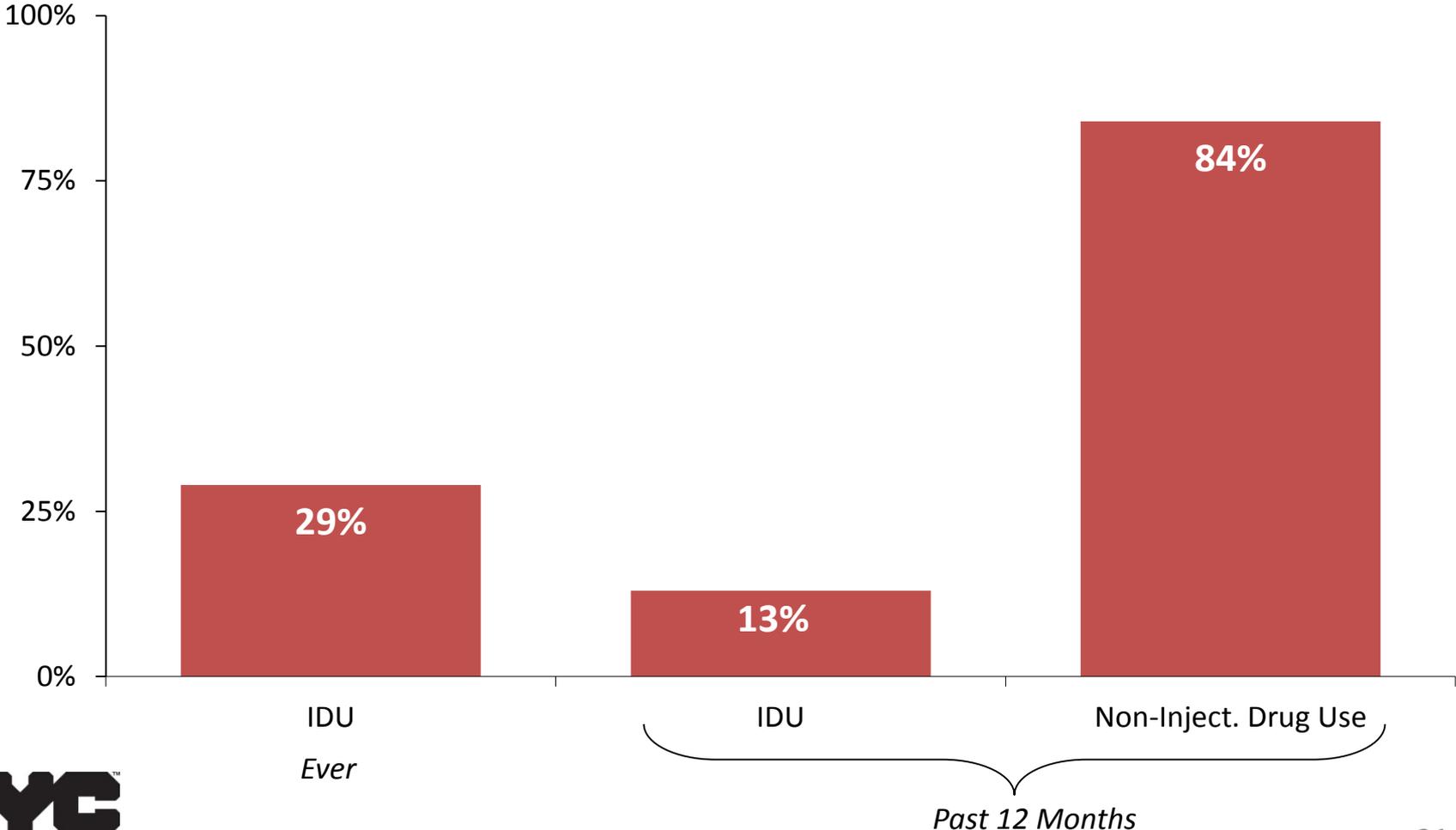
NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹



Substance Use

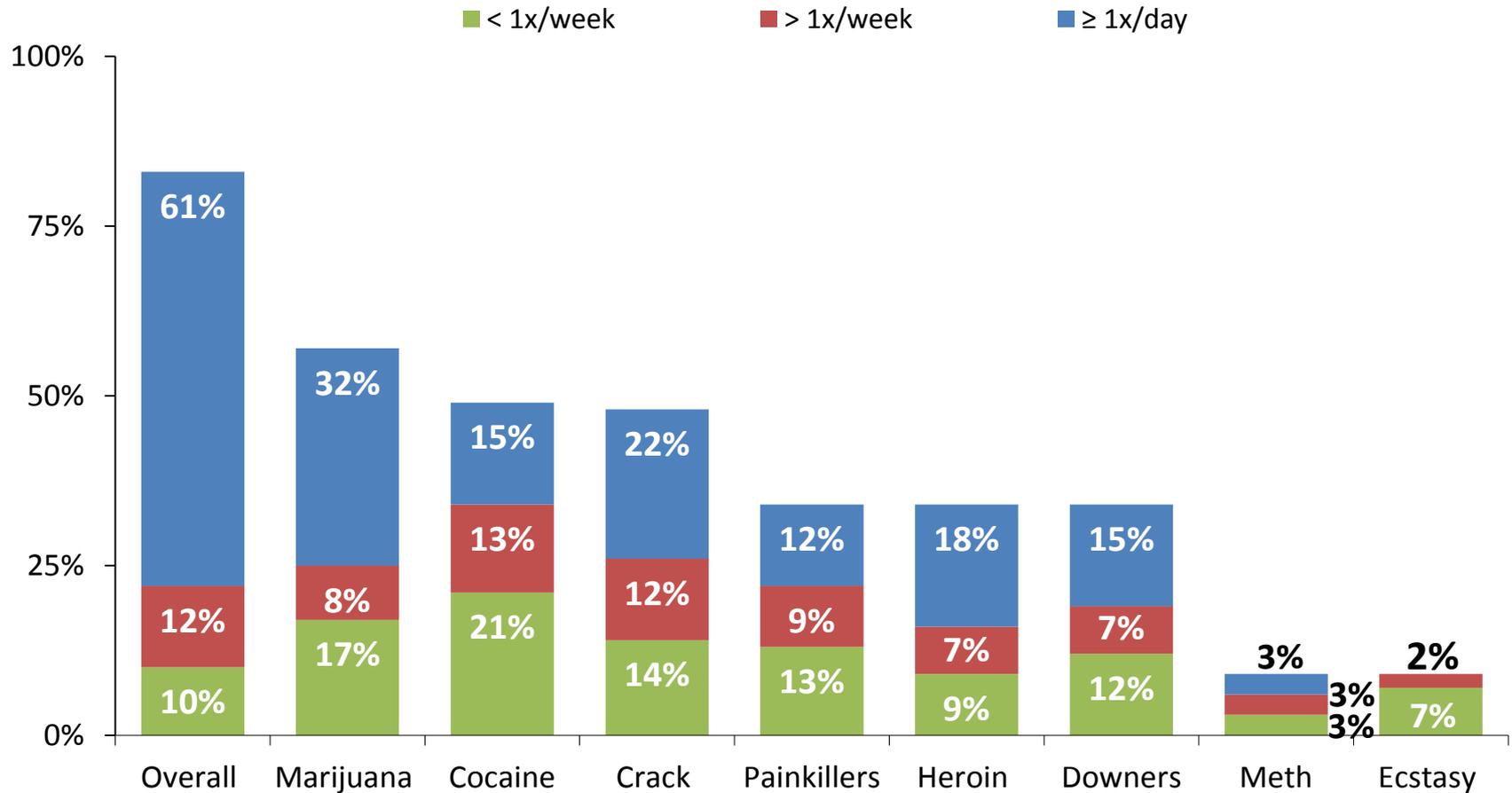
Drug Use History

NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)



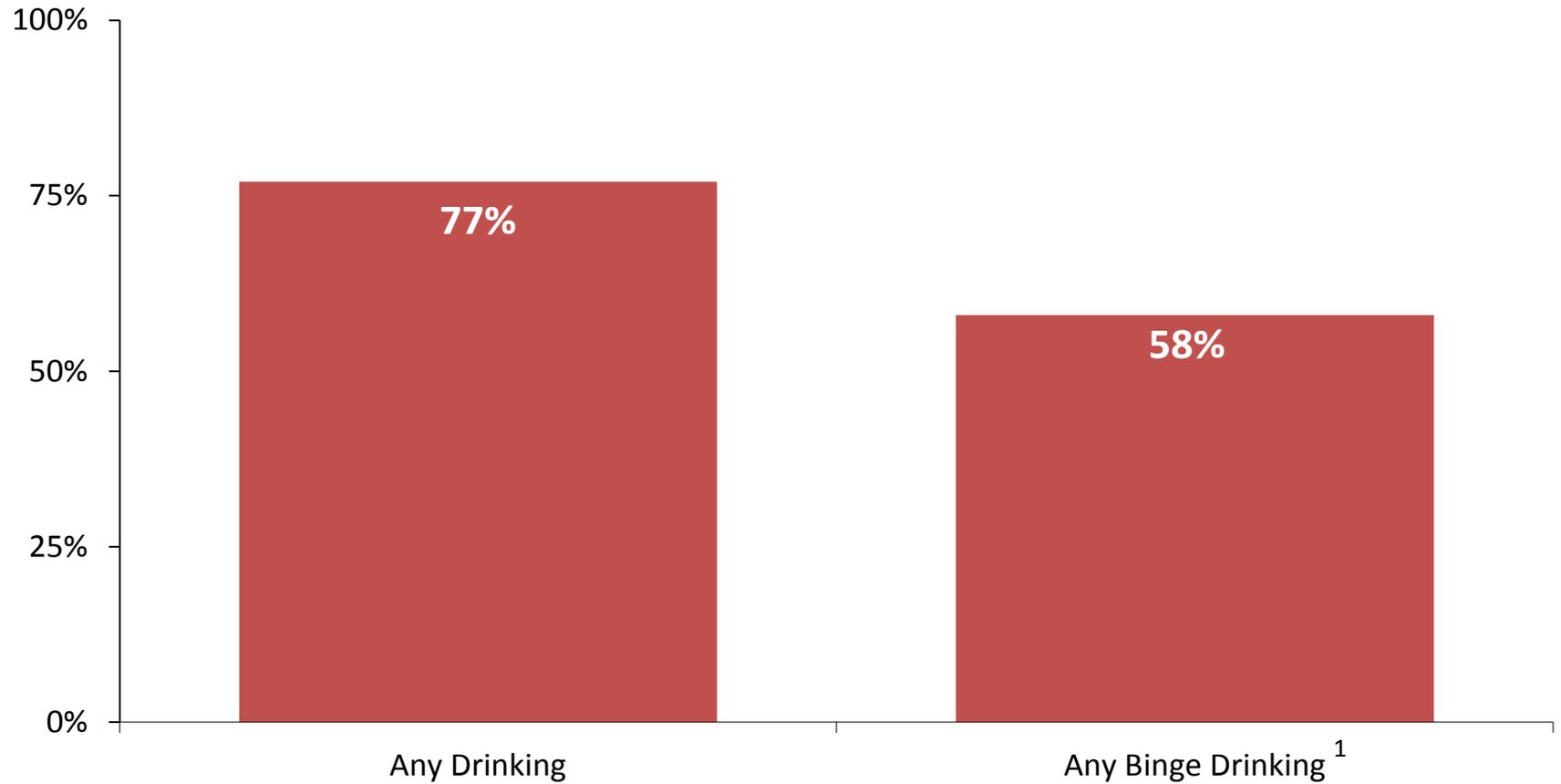
Non-Injection Drug Use in Past 12 Months

NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)



Alcohol Use in Past 30 Days

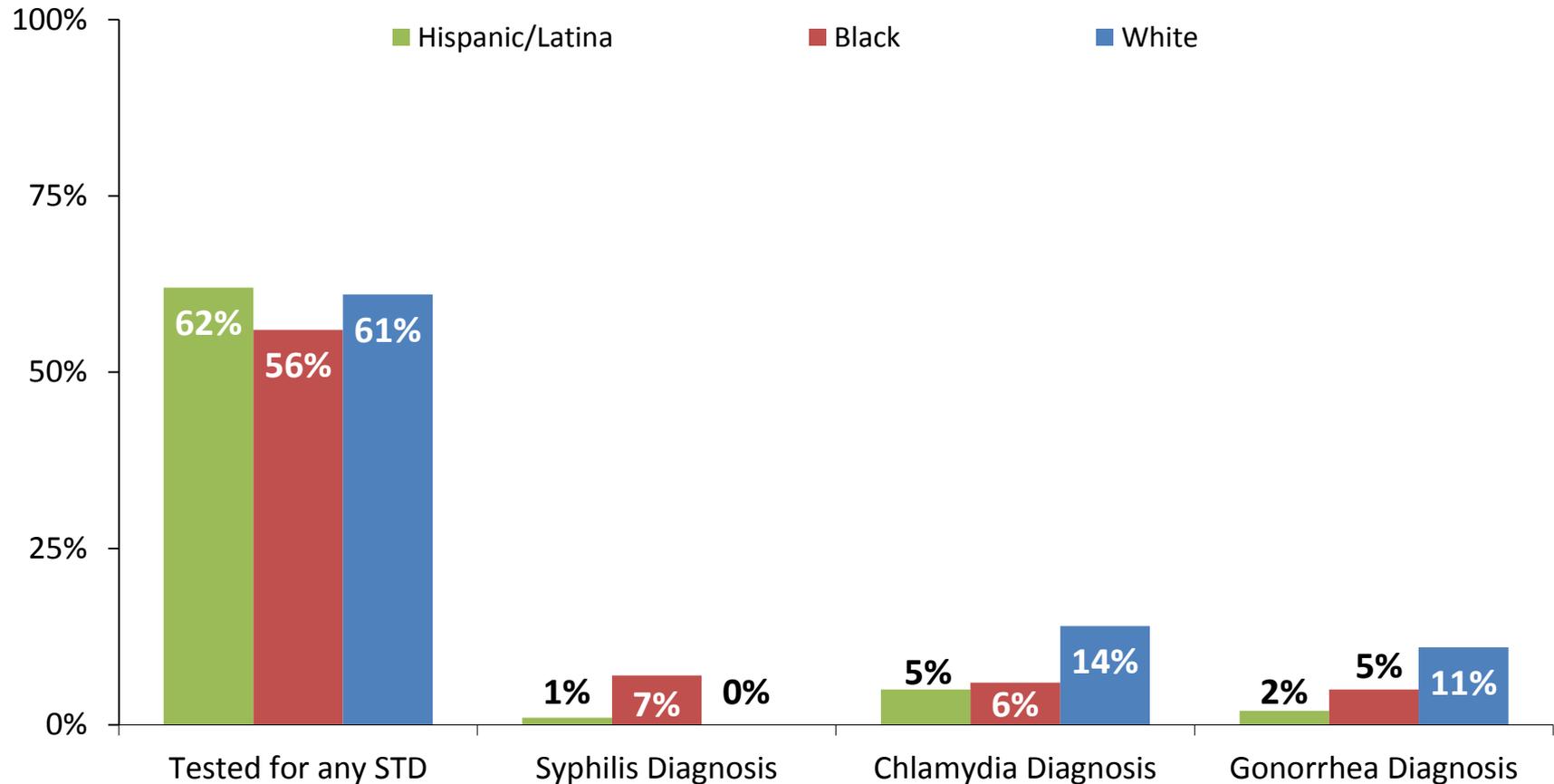
NYC NHBS-HET4 HRW, 2016, n=330 (Exchange Sex)



Sexually Transmitted Diseases

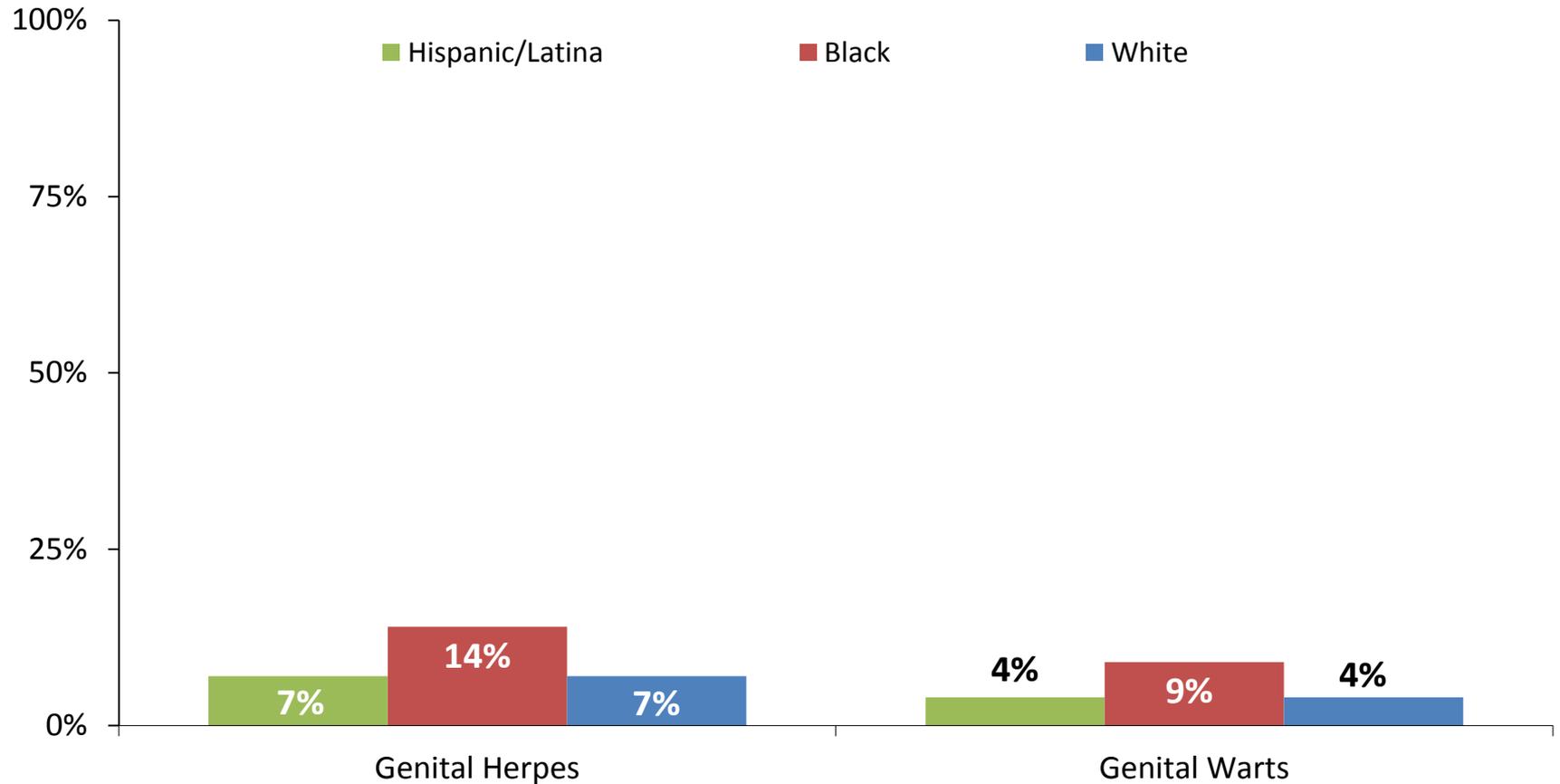
Self-Reported Sexually Transmitted Disease (STD) Testing and Diagnosis in Past 12 Months by Participants' Race/Ethnicity

NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹



Self-Reported Sexually Transmitted Disease (STD) Diagnosis in Lifetime by Participants' Race/Ethnicity

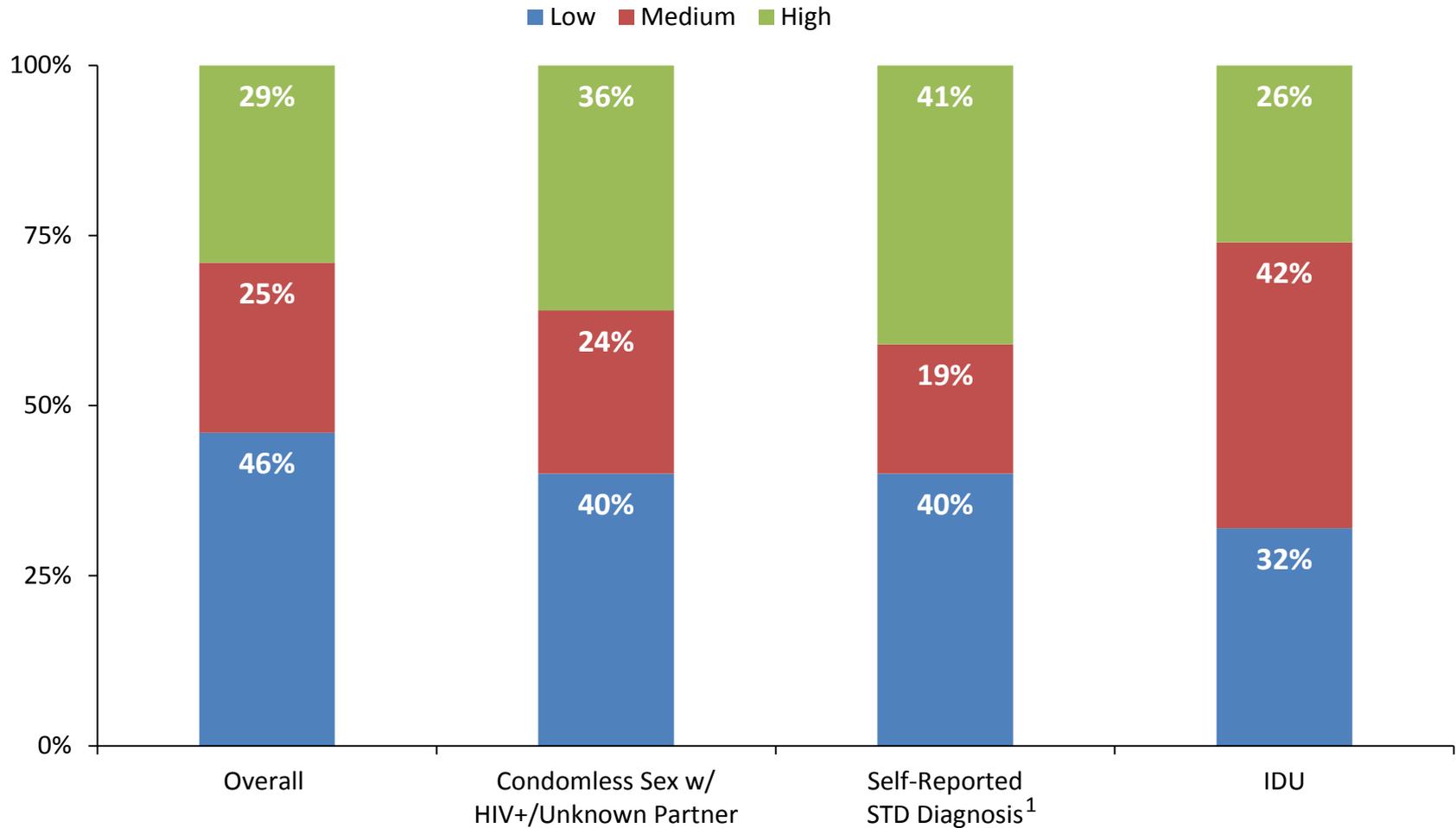
NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹



HIV Prevention Behaviors

Perceived HIV Risk by Past 12 Month Risk Behavior

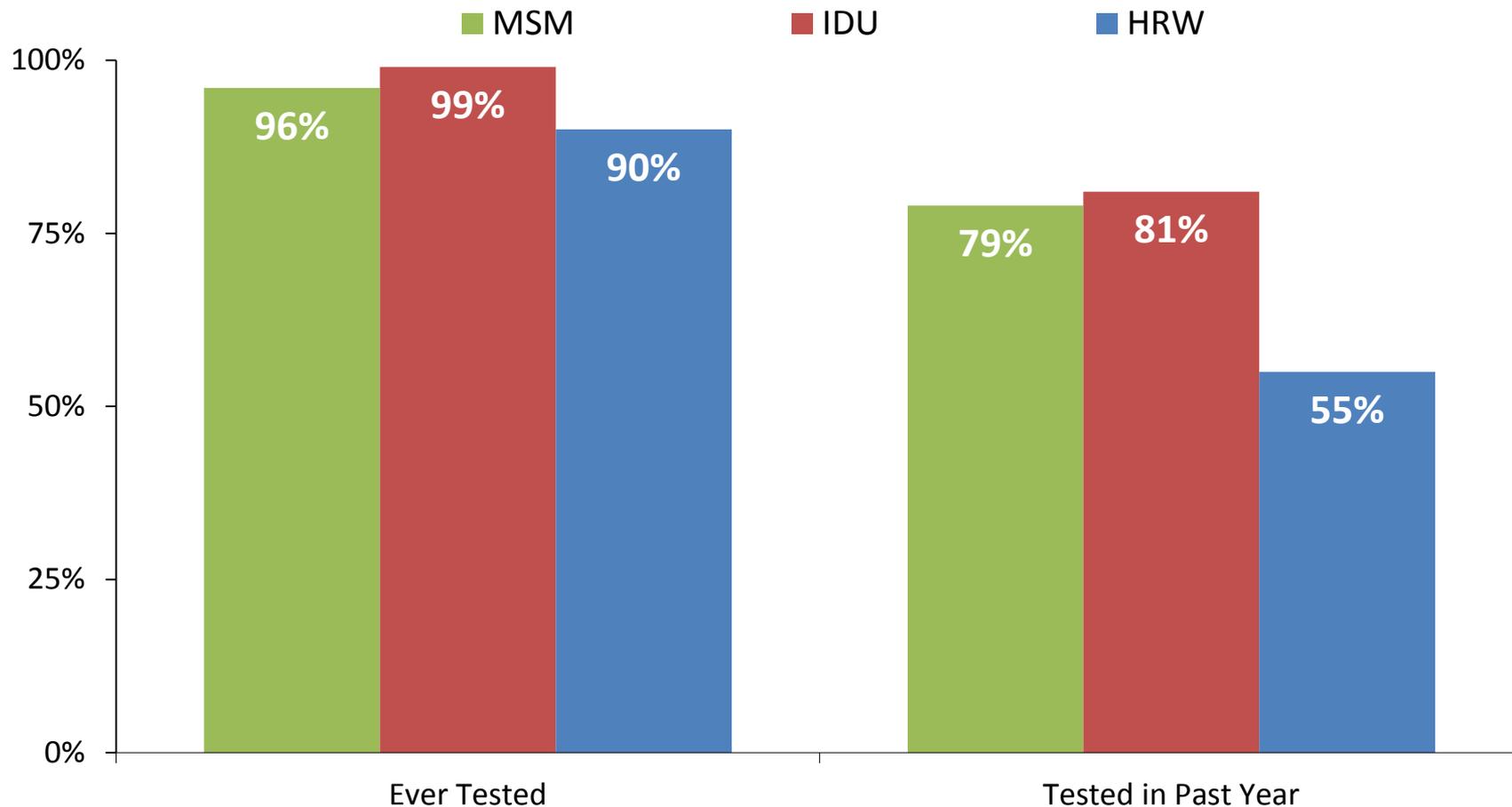
NYC NHBS-HET4 HRW, 2016, n=255 (Exchange Sex, HIV-/Unknown Status)



¹Includes chlamydia, gonorrhea, or syphilis diagnosis

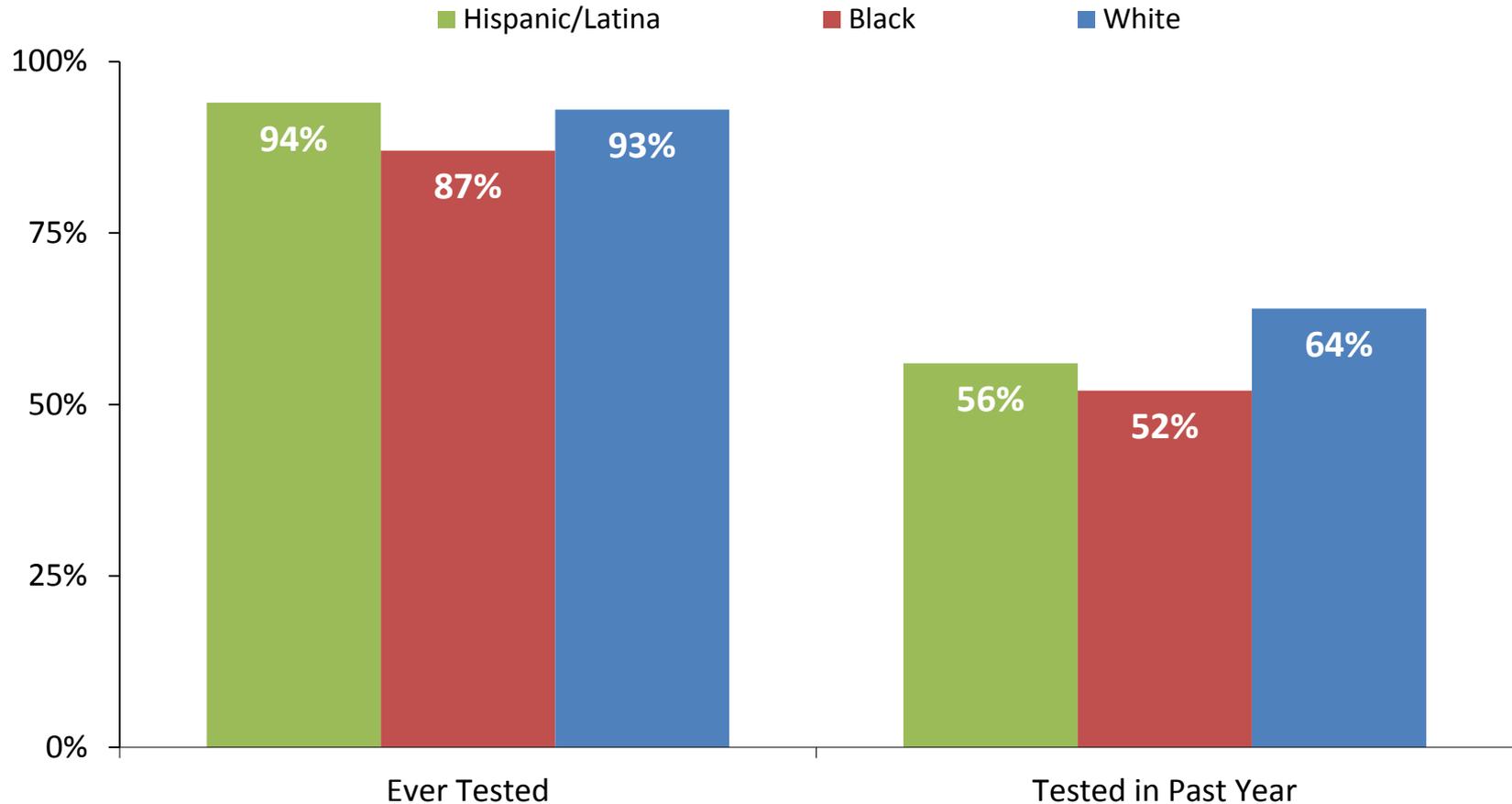
HIV Testing History among Women Who Exchange Sex Compared to Other High-Risk Groups

NYC NHBS MSM (2014), IDU (2015), and HRW (2016); HIV-/Unk. Status



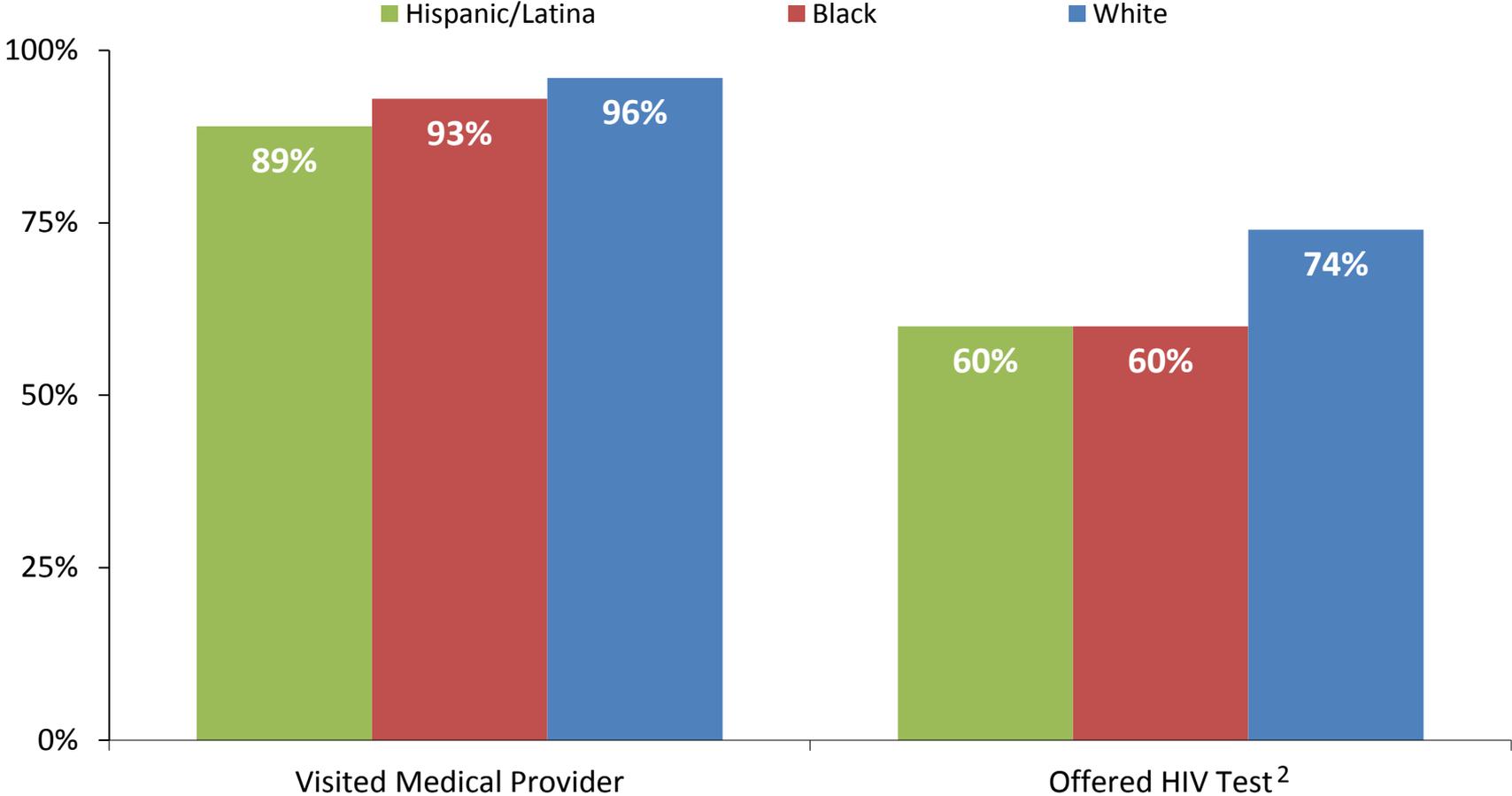
HIV Testing History Among HRW by Race/Ethnicity

NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹



Medical Visits and HIV Testing in Past 12 Months by Participants' Race/Ethnicity

NYC NHBS-HET4 HRW, 2016, n=250 (Exchange Sex, HIV-/Unknown Status)¹

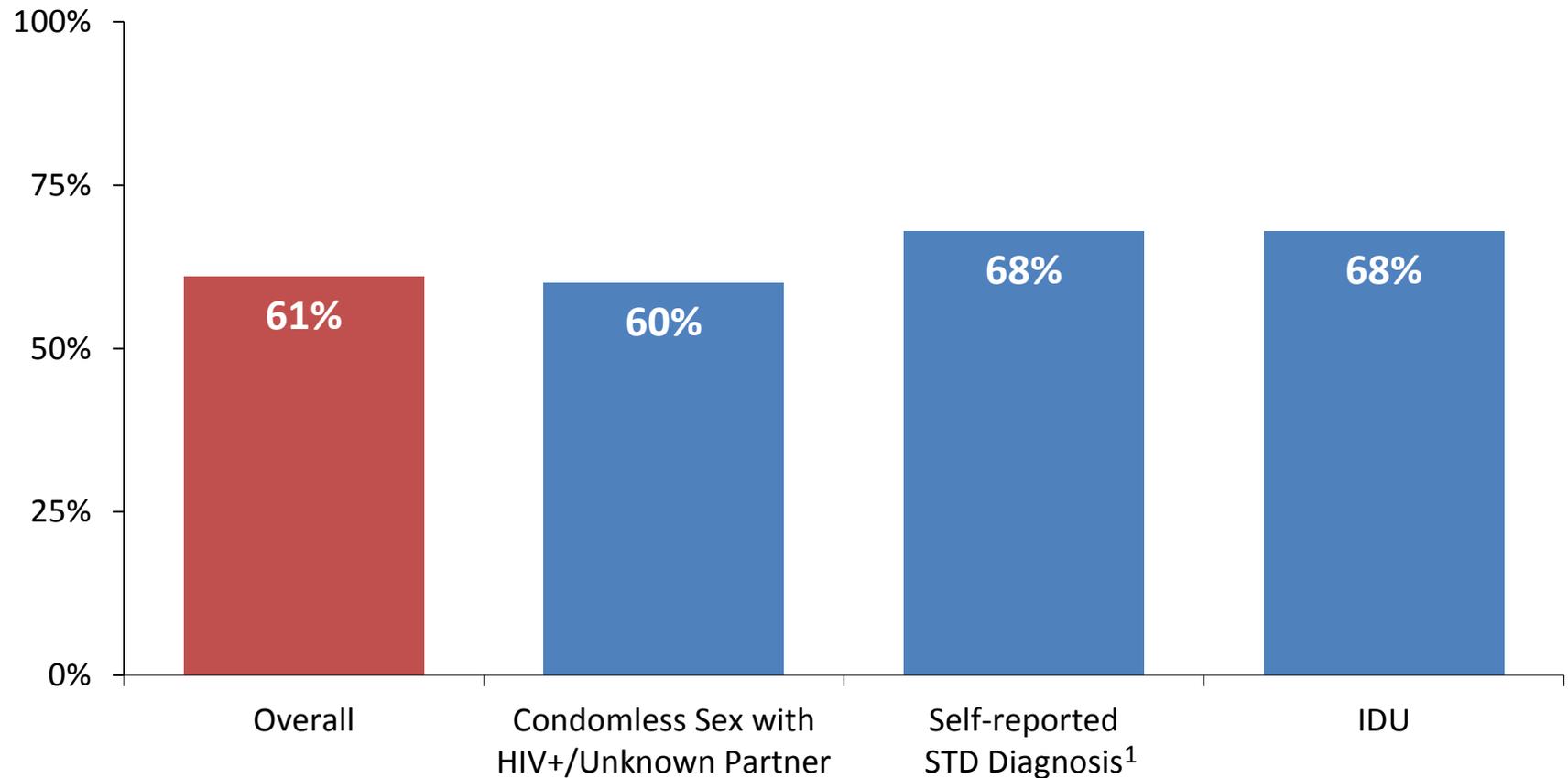


¹'Other' race (American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander) not shown due to small sample size

²Of those who visited a medical provider

Offered HIV Test by Medical Provider by Past 12 Month Risk Behavior

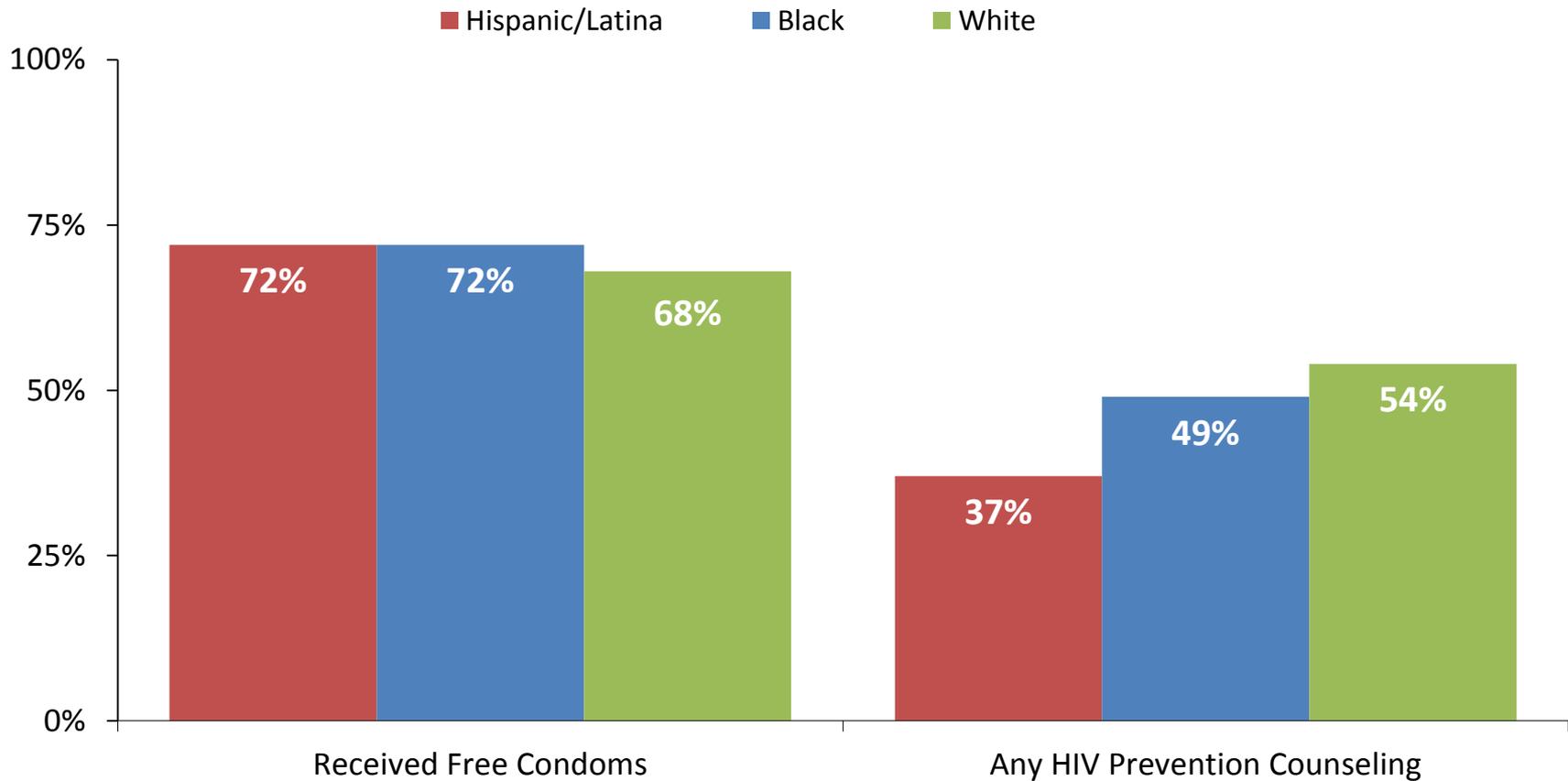
NYC NHBS-HET4 HRW, 2016, n=233 (HIV-/Unk., Visited Med. Provider in past 12m)



¹Includes chlamydia, gonorrhea, or syphilis diagnosis

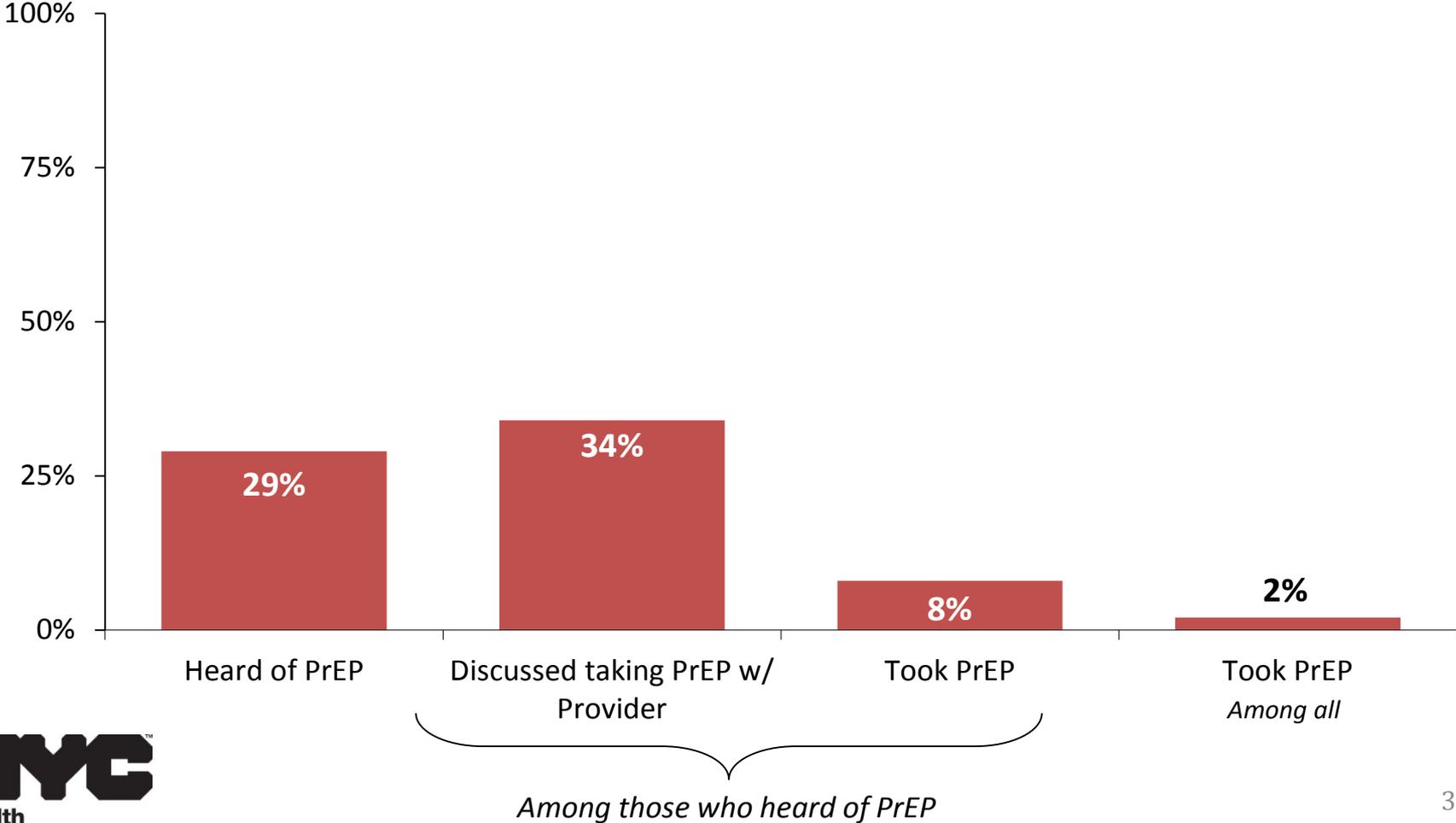
HIV Prevention Engagement in Past 12 Months by Participants' Race/Ethnicity

NYC NHBS-HET4 HRW, 2016, n=250 (HIV-/Unknown Status)¹



Pre-Exposure Prophylaxis (PrEP) Awareness and Utilization in Past 12 Months

NYC NHBS-HET4 HRW, 2016, n=255 (HIV-/Unknown Status)



HIV Prevalence

NYC NHBS-HET4 HRW, 2016, n=325 (Confirmed HIV result)

	HIV-Positive	95% CI	p-value
Overall	34.5%	29.3%-39.9%	
Lifetime Risks			0.02
HET only	38.4%	32.1%-45.1%	
HET & IDU	25.0%	16.7%-34.9%	
Race/Ethnicity			0.0008
Hispanic/Latina	28.7%	20.2%-38.6%	
Black	42.1%	35.0%-49.5%	
White	6.9%	0.9%-22.8%	

HIV Prevalence

NYC NHBS-HET4 HRW, 2016, n=325 (Confirmed HIV result)

	HIV-Positive	95% CI	p-value
Overall	34.5%	29.3%-39.9%	
Age			<0.0001
18-29	5.3%	0.1%-26.0%	
30-39	16.3%	6.8%–30.7%	
40-49	29.4%	20.0%-40.2%	
50-60	44.4%	37.0%-52.0%	

Summary

- Special NHBS study successfully sampled women who exchange sex with multiple types of modalities and risks
- Many participants experienced poverty, homelessness, and incarceration
- Most participants reported drug or alcohol use

Summary (Cont'd)

- Participants reported high numbers of recent sexual partners and most reported condomless sex
- Sexual partnerships with high-risk partners (HIV+/unknown status, people who inject drugs, previously incarcerated, MSM) were frequent
 - Exchange sex partners at last sex were more frequently of HIV+/unknown status and less frequently had a history of incarceration
- No racial/ethnic differences were found in recent sexual risk, partnerships, or STD diagnoses

Summary (Cont'd)

- Compared to MSM & IDU in past NHBS cycles, HRW have lower levels of recent HIV testing despite high levels of risk
 - Slightly more than half of those visiting a medical provider were offered an HIV test by the provider
 - Offers of HIV testing did not vary by HIV risk factors
 - Low uptake may be due to low levels of perceived HIV risk
- Most participants received free condoms in the past 12 months, but less than half reported receiving HIV prevention counseling
- Awareness of PrEP was low and very few participants reported taking PrEP in the past 12 months

Summary (Cont'd)

- Overall HIV prevalence was much higher than in the general population
 - HIV prevalence varied by lifetime risk factors; those who had never injected drugs had higher prevalence than those who had
 - HIV prevalence was higher among those who were older and among Black participants
- The high HIV prevalence may not be generalizable to the population. Higher than expected prevalence could be due to:
 - Strong networks and high homophily among known HIV+ women (women who were known HIV+ were more likely to recruit other women who are HIV+)
 - The sampling of a population who were diagnosed (median year of dx=1995) when HIV prevalence was high (12%-30%) among certain subgroups of women in NYC (*Chiasson et al., 1991; Edlin et al., 1994; Tortu et al., 1998*) or from higher HIV prevalence subgroups (*Ompad et al., 2011; Des Jarlais et al., 2014; El-Bassel et al., 2017*).

Strengths

- Dataset with information on multiple HIV risk factors
- Standardized survey and protocol
- Extensive formative research to support data collection
- RDS can reach “hidden” populations for which no sampling frame exists

Limitations

- Methodological assumptions of RDS most likely not met due to high homophily according to HIV status; RDS-based estimates (which are generalizable to the population) were not calculated
- All data except HIV serostatus were collected by self-report, and may be biased by recall error or social desirability and self-selection
- Lack of lifetime risk factors (i.e., crack use), which may help explain the high prevalence identified
- Subgroups of women who exchange sex not fully represented (i.e., brothel/massage parlor workers; escorts; women who do not speak English/Spanish) due to recruitment challenges and survey language

References

- Chiasson MA, et al. Heterosexual transmission of HIV-1 associated with the use of smokable freebase cocaine (crack). *AIDS*. 1991; 5(9):1121-6.
- Des Jarlais DC, et al. A perfect storm: crack cocaine, HSV-2, and HIV among non-injecting drugs users in New York City. *Subst Use Misuse*. 2014; 49(7):783-92.
- Edlin BR, et al. Intersecting epidemics—crack cocaine use and HIV infection among inner-city young adults. Multicenter Crack Cocaine and HIV Infection Study Team. *N Engl J Med*. 1998; 331(24):1422-7.
- El-Bassel N, et al. Women in community corrections in New York City: HIV infection and risks. *Int J STD AIDS*. 2017; 28(2):160-169.
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- Ompad DC, et al. HIV risk behaviors among young drug using women who have sex with women (WSWs) in New York City. *Subst Use Misuse*. 2011; 46(2-3):274-84.
- Tortu S, et al. Predictors of HIV infection among women drug users in New York and Miami. *Women Health*. 1998; 27(1-2):191-204.

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