

HIV and Sexual Partnerships between Injection Drug Users and Non-Injection Drug Users

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Acknowledgements

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Heterosexual HIV

- In NYC, heterosexual sex is transmission risk for 24% of prevalent and 33% of incident (2006) HIV diagnoses
- Heterosexual HIV disproportionately affects women and non-whites
- These groups test late and delay HIV medical care
- Figuring out who is a “high-risk” heterosexual is complex

Individual and Network-Level Risks

- Multiple partners and unprotected sex do not fully explain heterosexual HIV risk
- Racial segregation of partnerships, concurrency, and partnerships between “low-risk” women and bisexual or incarcerated men
- 8% of NYC heterosexual diagnoses attributed to IDU sex partnerships
- Risky injection is declining but risky sex is not

Research Questions

- How prevalent are IDU/non-IDU sex partnerships?
- What are the characteristics of non-IDU heterosexuals with IDU partners?
- Are IDU sex partnerships a plausible risk factor driving the heterosexual HIV epidemic?
 - Is having a partner with IDU history or unknown IDU history independently associated with HIV infection?

National HIV Behavioral Surveillance

- Investigates HIV infection, HIV risk factors, HIV testing, and use of HIV prevention services
- Study funded by CDC & designed collaboratively
- 20–25 U.S. cities with highest AIDS burden
- Ongoing, cyclical data collection to study MSM, IDU, and high-risk heterosexuals (HET)
- Cross-sectional design
- Anonymous interviewer-administered structured survey & HIV test

High-Risk Heterosexual Definition

- Man or woman between 18 and 50 years old
- Had opposite-sex vaginal/anal sex in past year
- Resides in or recruited by someone who lives in a “high-risk area” (HRA) in NYC
 - 30 zip codes with highest rates of heterosexual HIV and poverty
- Speaks English/Spanish
- Resident of NYC

Respondent-Driven Sampling (RDS)

- Ethnographer recruits initial participants ('seeds') through street and facility outreach
- Seeds recruit up to 3 other participants
- Those participants recruit up to 3 others
- And so on, until target sample size is met
- Incentives provided for participating and recruiting

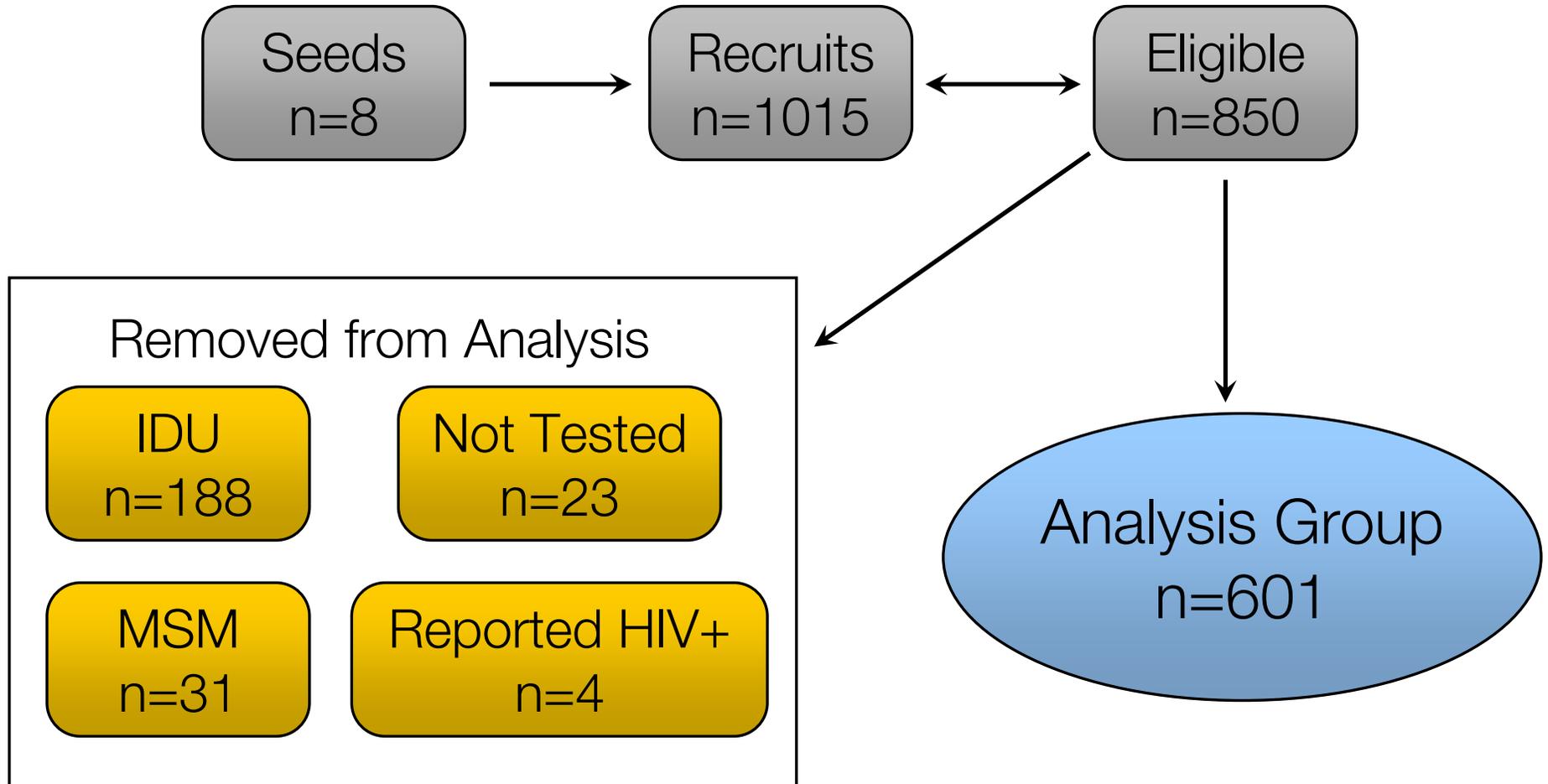
Measures

- IDU sex partnerships
 - Last sex partner: IDU, unknown, non-IDU
 - Past year partners, hierarchically: IDU, unknown, non-IDU
- HIV and HCV infection determined by whole blood testing
- Independent variables: demographics, unprotected sex with a casual/exchange partner ('risky sex'), STD diagnoses, crack use

Statistical Analysis

- Chi-square tests for bivariate associations with IDU sex partnerships and HIV infection
- Multiple logistic regression for factors associated with IDU/Unknown partnerships
- Personal network size included as independent variable in regression model
- Regression model controls for overall partner number
- Sensitivity analysis for misreported IDU history by removing those who were HCV-infected

Study Sample



Demographics

Gender

Male	43%
Female	57%

Race/Ethnicity

Black	79%
Hispanic	15%
White	4%
Other	2%

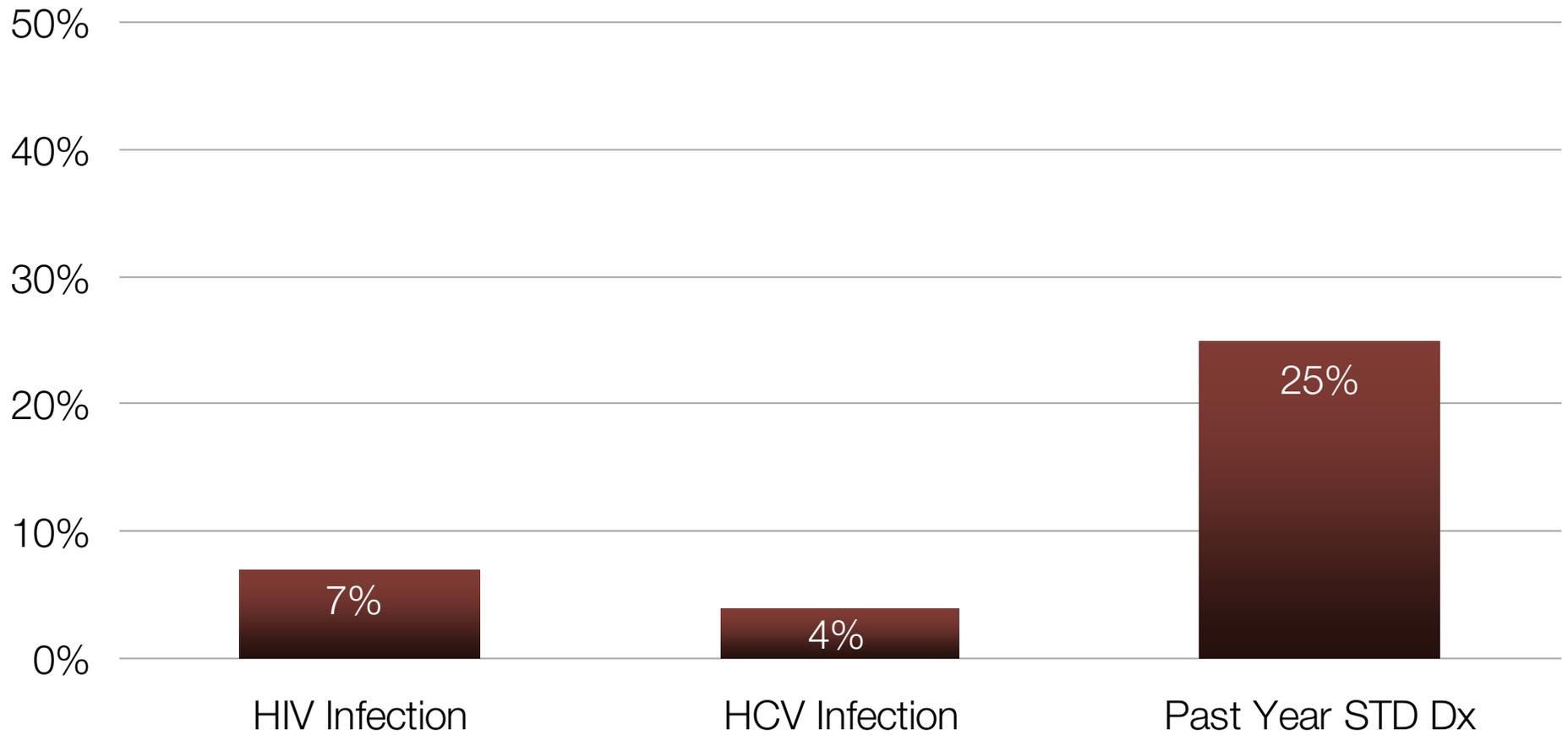
Age

18-29	38%
29-39	16%
40-50	46%

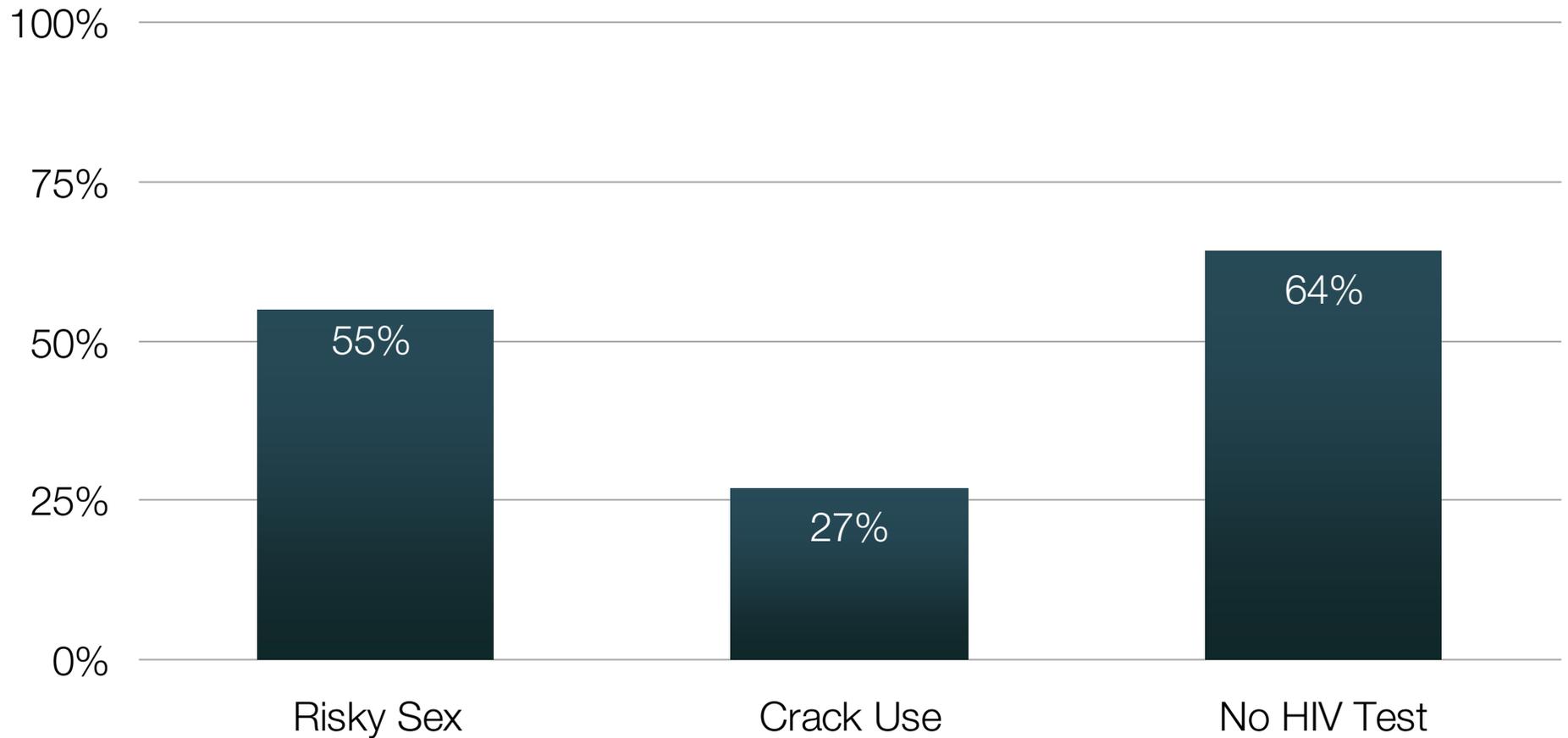
Other (Past Year)

Homeless	43%
Arrested	26%

Disease Outcomes

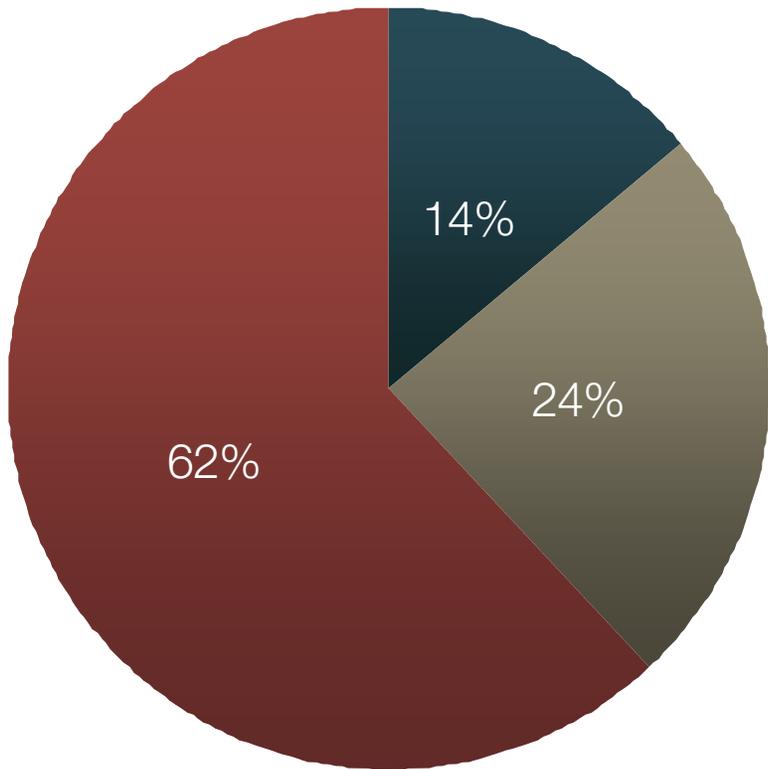


Past Year HIV Risk Factors

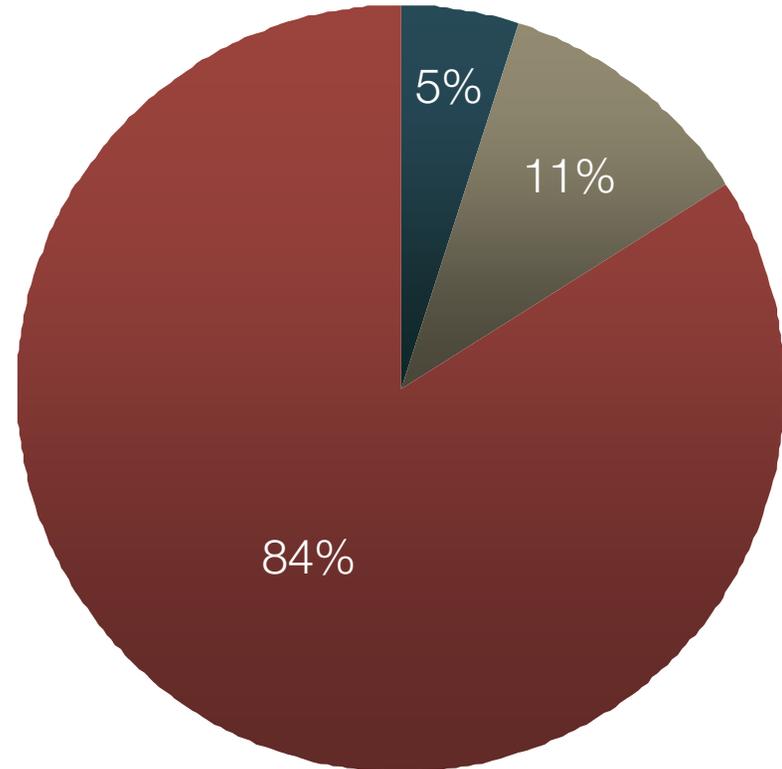


IDU Sex Partners

■ IDU ■ Unknown ■ Non-IDU



Past Year Partners



Last Sex Partner

Factors Associated with IDU Sex Partnerships

	% IDU Partner	OR	95% CI	p
Female	17%	1.8	1.1- 2.9	0.03
<10k Income	16%	1.9	1.1 - 3.2	0.02
Risky Sex	19%	2.9	1.7 - 5.0	<0.01
STD Dx	19%	1.8	1.1 - 2.9	0.02
Crack Use	22%	2.4	1.5 - 3.8	<0.01

Marginal: No HIV Test (p=0.07)

Bivariate Factors Associated with Undiagnosed HIV Infection

	% HIV+	OR	95% CI	p
Age 40-50	12.3%	5.6	2.5 - 12.2	<0.01
<10k Income	8.8%	2.7	1.2 - 6.3	0.01
STD Dx	10.7%	2.0	1.0 - 3.7	0.04
HCV+	21.4%	4.1	1.6 - 10.7	<0.01
IDU/Unk. Partners	11.0%	2.6	1.4 - 4.9	<0.01

Multiple Logistic Regression Model of Undiagnosed HIV Infection

	% HIV+	AOR	95% CI	p
Age 40-50	12.3%	5.4	2.2 - 13.0	<0.01
<10k Income	8.8%	2.0	0.8 - 4.9	0.13
STD Dx	10.7%	1.4	0.7 - 3.0	0.36
HCV+	21.4%	2.0	0.7 - 5.9	0.19
IDU/Unk. Partners	11.0%	2.2	1.0 - 4.6	0.04

Follow-up Analyses

- No significant interaction between gender and IDU sex partnerships
- Ungrouped, those with IDU sex partners were marginally more likely to be infected in bivariate ($p=0.07$) and multivariate ($p=0.14$) tests
- Ungrouped, those with IDU sex partners were more likely to have a past year STD diagnosis ($p<0.01$)
- In sensitivity analysis removing HCV+ participants, main association remained similar

Summary

- One out of seven had a past year IDU partner
- Another one out of four had a partner with unknown IDU history
- IDU partnerships clustered with individual-level risk factors
- IDU/Unknown partnerships were associated with HIV infection after controlling for demographics and risks
- Undiagnosed HIV was very high

Discussion

- Recent study on the convergence of HIV rates for IDU and non-IDU in shared social networks
- IDU who inject safely still exhibit sexual risks
- Network-level risks are not always independent of individual-level risks
- IDU sex partnerships are a plausible heterosexual HIV risk for non-IDU in areas with large IDU populations
- Knowledge of IDU history is lower for historic partners

Limitations

- Cannot establish causality
- Did not measure other partner risk factors
- Report or recall bias on own and partners IDU history
- RDS-derived data may not be generalizable to the underlying population inside or outside of high-risk areas

Conclusions

- Network-level risk factors should be a continuing focus of heterosexual HIV research
- Targeting non-IDU high-risk heterosexuals is necessary in era of declining injection drug use
- Geographic and network-based method to target non-IDU is indicated
- Promote disclosure of IDU history and HIV prevention (condoms, testing, treatment) with IDU partners

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