

Sexual Risk Behavior and Viral Suppression among HIV-infected Adults Receiving Medical Care in



New York City (NYC), 2013-2015.



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Background

- Adherence to antiretroviral medication and subsequent viral load (VL) suppression improve health outcomes for people living with HIV/AIDS (PLWHA) and make the probability of forward transmission negligible.
- Despite the benefits of VL suppression, it is estimated that over half of PLWHA in NYC have detectable viral loads.
- Providers may not be aware of sexual behaviors that put virally detectable patients and their partners at risk of HIV/STD transmission/acquisition.
- We estimated the prevalence of sexual behaviors related to HIV transmission, and examined correlations between these behaviors and VL detection in a sample of PLWHA in care in NYC.

DEFINITIONS

- PLWHA:** People Living with HIV/AIDS
- MSM:** Men who have sex with men
- Exchange sex:** Sex in exchange for drugs, money, gifts, or housing
- SUI:** Sex under the influence of drugs or alcohol
- VL Detection:** HIV-1 RNA greater than 50 copies/mL
- STI:** Sexually Transmitted Infection

METHODS

Design:

- 18-month sexual behavior screen and counseling project conducted at four academic medical center-affiliated HIV primary care clinics in New York City
- Analysis included data from baseline (first) screen from all HIV-positive patients with a quarterly visit between April 2013 and May 2015

Study Population:

- HIV-positive patients who:
 - Reported sexual activity within the last 3 months, and
 - Had an HIV-1 RNA test within 12 months of baseline (first) screen

Data Collection:

- Trained nursing staff administered a 9-question sexual behavior screen during intake at quarterly visits and recorded responses in the EMR (Figure 1)
- Behavior screen measured engagement in sexual activity and sexual behaviors in the past 3 months, specifically condomless sex (last sex), multiple partners, SUI, and exchange sex
- Sexual behavior screen results, patient demographic data and HIV-1 RNA test results were extracted quarterly by each clinic, de-identified and sent to the Department of Health for analysis

Figure 1. Example Sexual Behavior Screen auto-populated into EMR Progress Note

ANALYSIS AND RESULTS

ANALYSIS

- Measured associations between sexual behavior and VL detectability (outcome) using multivariable logistic regression
- Demographic factors (gender, age, race/ethnicity) and sexual partnering were examined as potential covariates
- Multivariable models included demographic variables and risk behaviors correlated in bivariable analysis with VL detectability ($p < 0.05$), controlling for clinic.

RESULTS

Patient demographics, risk-related behavior, and viral detectability (Table 1)

- 3697 patients were screened, among whom nearly half (47%, $n/N=1720/3697$) reported sexual activity in the past 3 months
- Majority of sexually-active patients were male (77%), >36 years of age (67%), and MSM (54%)
- Nearly half of patients (49%) reported at >1 risk behavior; the most common was multiple sexual partners (30%)
- Nearly one-third of patients (31%) were virally detectable at their last VL test

Correlates of viral detectability (Figure 2, Tables 2-3)

- Prevalence of all sexual behaviors measured by the screen was significantly greater in virally detectable patients than suppressed patients, with the exception of exchange sex (Figure 2)
- In bivariable analysis, clinic, younger age, and reported engagement in condomless sex, sex under the influence, multiple sexual partners, and a STI diagnosis in the past 3 months were associated with viral load detectability (Table 2)
- In the multivariable model, viral detectability remained associated with age ≤ 35 (adjusted OR 1.99 CI: 1.60-2.48) and SUI (aOR 1.59 CI: 1.21-2.08) (Table 3)

Table 2. Sociodemographic and behavioral correlates of viral detectability among sexually active patients, bivariable analysis

Category	N	% Virally Detectable	OR (95% CI)	
Gender	Male	31.59	1.02 (0.80,1.30)	
	Female	399	31.08	Ref
Age, years	18-35	42.50	2.09 (1.69, 2.58)	
	36+	1158	26.20	Ref
Race/ ethnicity	White	283	32.16	Ref
	Black	764	34.16	1.10 (0.82,1.46)
	Hispanic	450	29.11	0.87 (0.63,1.20)
	Other race	206	26.70	0.77 (0.52,1.14)
Sexual Partnering	MSW	386	29.29	Ref
	MSM	924	32.36	1.16 (0.89,1.50)
	WSM	389	30.85	1.08 (0.79,1.47)
Clinic	Clinic 1	687	34.79	Ref
	Clinic 2	452	32.96	0.92 (0.72,1.19)
	Clinic 3	314	26.43	0.67 (0.50,0.91)
	Clinic 4	267	26.59	0.68 (0.50,0.93)
Any risk reported*	Yes	844	34.83	1.35 (1.10,1.66)
	No	876	28.31	Ref
Exchange sex (past 3 months)	Yes	21	42.86	1.66 (0.69,3.96)
	No	1665	31.17	Ref
Condomless sex (last sex)	Yes	424	36.32	1.33 (1.06,1.68)
	No	1285	29.96	Ref
SUI (past 3 months)	Yes	287	43.55	1.88 (1.45,2.43)
	No	1403	29.15	Ref
Multiple sexual partners (past 3 months)**	Yes	507	35.50	1.31 (1.05,1.63)
	No	1200	29.67	Ref
STI diagnoses (past 3 months)	Yes	144	41.00	1.57 (1.10,2.22)
	No	1549	30.70	Ref

*Any risk reported is defined as client engagement in one or more risk behaviors under study; **Multiple sexual partners is defined as >1 sexual partner

Table 1. Sociodemographic characteristics of sexually active patients screened

Category	N (%)
Sexually active patients (past 3 months)	1720 (100)
Male	1320 (77)
Female	399 (23)
18-35	562 (33)
36+	1158 (67)
White	283 (17)
Black	764 (44)
Hispanic	450 (26)
Other race	206 (12)
MSW	386 (22)
MSM	924 (54)
WSM	389 (23)
Any risk reported	844 (49)
Exchange sex (past 3 months)	21 (1)
Condomless sex (last sex)	424 (25)
SUI (past 3 months)	287 (17)
Multiple sexual partners (past 3 months)	507 (30)
STI diagnoses (past 3 months)	144 (8)
Virally detectable (last VL test)	524 (31)

Figure 2. Proportion reporting risk-related behaviors by viral detection status

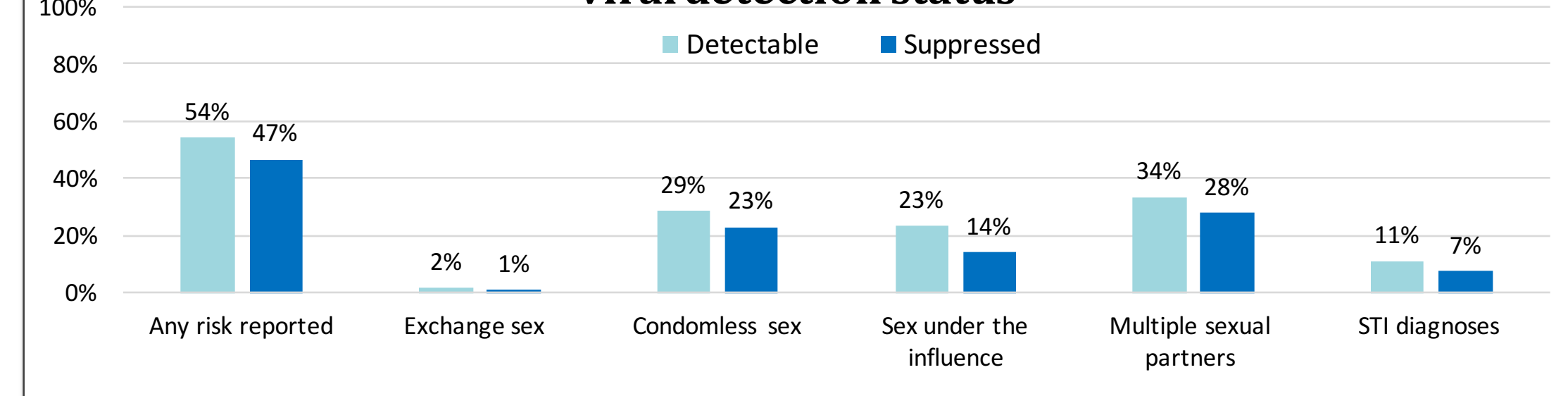


Table 3. Sociodemographic and behavioral correlates of viral detectability, multivariable analysis

Category	N	% Virally Detected	aOR (95% CI)	
Age, years**	18-35	562	26.20	1.99 (1.60-2.48)
	36+	1158	42.50	Ref
Clinic**	Clinic 1	687	32.96	Ref
	Clinic 2	452	34.79	1.07 (0.83-1.39)
	Clinic 3	314	26.59	0.82 (0.60-1.11)
	Clinic 4	267	26.43	0.76 (0.55-1.05)
Any risk reported*	Yes	844	34.83	1.14 (0.92-1.41)
	No	876	28.31	Ref
Condomless sex (last sex)*	Yes	424	36.32	1.19 (0.94-1.51)
	No	1285	29.96	Ref
SUI (past 3 months) *	Yes	287	43.55	1.59 (1.21-2.08)
	No	1403	29.15	Ref
Multiple sexual partners (past 3 months)*	Yes	507	35.50	1.07 (0.85-1.35)
	No	1200	29.67	Ref
STI diagnoses (past 3 months)*	Yes	144	41.00	1.28 (0.89-1.84)
	No	1549	30.70	Ref

* Adjusted by Age and Clinic; ** Adjusted by Any risk reported; Variables that are significantly associated ($p < .05$) with viral detection are bolded

DISCUSSION

- Sexual activity and engagement in risk behaviors were prevalent in this diverse, urban patient population with half of sexually active patients reporting sexual risk behavior.
- Over the course of the project, >3,000 HIV-positive patients were screened; we approximate that this was between 75%-100% of each clinic's population.
 - Brief risk behavior screening/sexual history taking can be integrated as standard of care within HIV primary care clinics.
- Younger age was most strongly associated with viral detectability, and remained so after controlling for all other demographic factors.
 - Providing additional support (e.g., adherence support, counseling/education) to younger PLWHA is critical.
- Sex under the influence was also associated with viral detectability.
 - Clinicians have a special opportunity to discuss the overlapping issues of HIV transmission risk and substance use with their patients, providing counseling or referrals as needed.
- SUMMARY:** A combination of counseling on risk reduction strategies and medication adherence support is key in the provision of optimal care for PLWHA.

LIMITATIONS

- We used self-reported measures; social desirability or reporting bias may have been introduced
- Data from this project are cross-sectional so we cannot infer causality
- Data may not be generalizable to other HIV primary care clinic populations including those in smaller practices or those outside of NYC

ACKNOWLEDGEMENTS

Funding provided by a cooperative agreement for HIV prevention (PS12-1201) between the Centers for Disease Control and Prevention and the NYC DOHMH Bureau of HIV Prevention and Control. The authors wish to thank and acknowledge all clinic partners and staff for their participation and dedication.

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