HIV Testing among New York City High-Risk Heterosexuals

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Background

HIV Testing as HIV Prevention
- Estimated that 5-25% of HIV+ persons are unaware of their status
- HIV+ persons unaware of their status appear to contribute to many new infections
- HIV+ persons aware of their status significantly reduce risk behaviors after diagnosis

CDC's HIV Testing Guidelines
1994/2001
- Risk-based testing and routine testing for high prevalence settings and areas (MSM, IDU, and high-risk heterosexuals)

2003
- *Advancing HIV Prevention* initiative broadens testing settings,
- Enabled by rapid HIV testing

2006
- Routine testing of all adults in all medical settings;
- Annual testing of high-risk adults

Heterosexual HIV Transmission
- *At least* 33% of NYC HIV diagnoses in 2006 attributable to heterosexual sex
- Disproportionately impacts women and Blacks & Hispanics
- Crossover risk with MSM and IDU
- HIV testing rates lower than MSM and IDU
- Routine testing is still uncommon
- Risk-based testing is more complicated

Objectives

Research Question
- What are the structural characteristics of HIV testing *(how and when and why testing is offered)* for high-risk heterosexuals?
- Specifically:
- Do high-risk heterosexuals encounter settings where testing is recommended?
- Are encounters associated with increased likelihood of testing?
- What settings provide the best opportunity to increase HIV awareness?

Methods

National HIV Behavioral Surveillance
- 25 cities throughout the United States
- Funded by CDC, designed collaboratively
- Ongoing data collection among 3 risk groups: MSM, IDU, and high-risk heterosexuals (HET)
- NHBS-HET data collection in 2006-7
- Cross-sectional study design
- Interviewer-administered quantitative survey & HIV test
- Anonymous recruitment, survey & test

High-Risk Heterosexual Definition
- Main eligibility criteria
  - Physically or socially connected to a "high risk area" in NYC
  - A man or woman between 18-50 years old
  - Vaginal or anal sex with opposite-sex partner in the past year
- Additional eligibility criteria
  - Resident of NYC
  - Speaks English or Spanish

Methods (cont'd)

Classifying High-Risk Areas
- Created high-risk area (HRA) index with:
  - Incident heterosexual HIV diagnoses, HIV surveillance data, 2001-6
  - Household poverty, census data, 2000
- Explored index to identify:
  - Geographic clustering
  - Non-residential zip codes
- Selected top 30 zip codes as HRAs
  - Jenks' natural breakpoint for top quintile
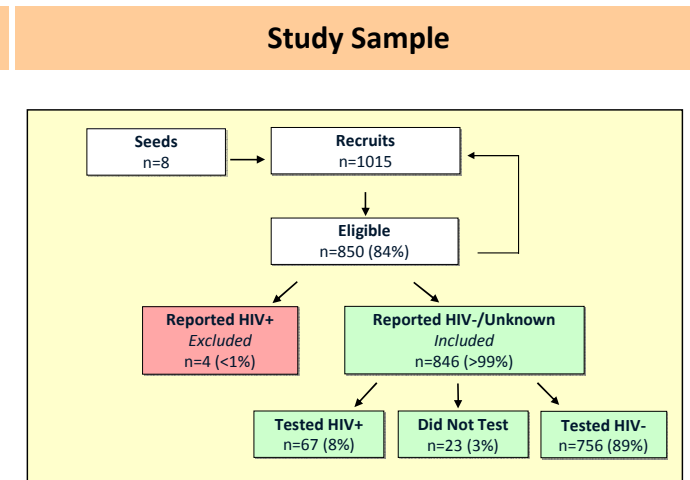
Respondent-Driven Sampling (RDS)
- Study team recruits initial participants ("seeds") through street and facility outreach
- Seeds recruit up to 3 other participants
- Those participants recruit up to 3 others
- Incentives provided for participating and recruiting

Measures
- HIV testing: *Tested in past year*
- Encounters with testing settings
  - Healthcare: *Seen a doctor, nurse, or other healthcare provider in past year*
  - Drug treatment: *Participated in a drug or alcohol treatment program in past year*
  - Shelters: *Living in a shelter, Single Room Occupancy hotel, or on the street in past year*
  - Jail: *Arrested and booked in past year*

Statistical Analysis
- Weighted analysis conducted with RDS Analysis Tool (RDSAT) 5.6 and SAS 9.1
- RDSAT may generate generalizable population estimates if RDS methodological assumptions are met
- Rao-Scott chi-square univariate tests
- Gender-stratified multiple logistic regression models adjusted for age, current healthcare insurance, injection history, and past year risky heterosexual sex, STD dx, and MSM sex

Study Sample

- Seeds n=8 → Recruits n=1015
- Eligible n=850 (84%)
- Reported HIV+ *Excluded* n=4 (<1%)
- Reported HIV-/Unknown *Included* n=846 (>99%)
- Tested HIV+ n=67 (8%)
- Did Not Test n=23 (3%)
- Tested HIV- n=756 (89%)

Results

Demographics and HIV Prevalence and Risk

Characteristic	Men (n=410) (Weighted %)	Women (n=436) (Weighted %)
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	19.9	35.0
30-39	19.1	19.3
40-50	61.0	45.7
Income in Past Year		
<10k	65.9	77.4
≥10k	34.1	22.6
Current Health Insurance		
Uninsured	15.2	16.5
Insured	84.8	83.5
HIV Seroprevalence		
Did not test	1.6	5.6
HIV-negative	91.0	85.4
HIV-positive	7.4	9.0
HIV Risk Factors		
History of Injection (Ever)	26.9	23.4
Male to Male Sex (Past Year)	7.6	-
STD Diagnosis (Past Year)	22.2	32.1
Risky Heterosexual Sex (Past Year)	55.3	60.7

HIV Testing History, Beliefs, and Potential Encounters

Characteristic	Men (n=410) (Weighted %)	Women (n=436) (Weighted %)
Testing History		
Ever HIV Tested	81.5	78.6
HIV Tested in Past Year	31.3	35.3
Testing Beliefs		
HIV Testing is Routine	23.5	18.9
HIV Testing Should be Routine	67.1	75.6
Testing Setting Encounters		
Healthcare Provider	72.9	76.5
Homeless Shelter	52.0	56.5
Jail/Prison	40.3	25.9
Drug/Alcohol Treatment	38.1	26.8
Any Testing Setting	91.3	93.0

Results (cont'd)

Multiple Logistic Regression Model of Recent HIV Testing

Testing Setting Encounters	Men Adjusted OR	Men 95% CI	Women Adjusted OR	Women 95% CI
Healthcare Provider				
No	1.00		1.00	
Yes	2.57	1.12 - 5.94	4.33	1.66 - 11.27
Homeless Shelter				
No	1.00		1.00	
Yes	2.27	1.11 - 4.62	0.91	0.48 - 1.73
Jail/Prison				
No	1.00		1.00	
Yes	2.02	1.00 - 4.08	1.15	0.51 - 2.59
Drug/Alcohol Treatment				
No	1.00		1.00	
Yes	2.11	0.97 - 4.62	1.91	0.90 - 4.10

Controls for current health insurance, age, history of injection, past year male to male sex, risky heterosexual sex, and STD diagnosis

Limitations

- Homelessness and arrest are imprecise indicators for shelter and jail encounters
- Limited information on availability of testing in all potential testing settings (only those who get a medical assessment have an opportunity to be offered testing)
- Misclassification of HIV testing because of recall or social desirability biases
- RDS-weighted estimates may not be generalizable

Conclusions

Discussion
- A high-risk heterosexual sample with high prevalence of undiagnosed HIV infection
- Positive associations suggest that encounters with various settings drive testing
- Associations adjusted for risk factors may reflect routine testing
- Differences by gender may reflect testing initiatives or personal preferences
- Those "outside the system" much less likely to test and may represent highest-risk group

Implications
- Further routinization of testing needed for high-risk heterosexuals in different institutional systems
- Structural factors should be considered
- Barriers to routine voluntary testing (e.g., written consent) should be addressed
- Further efforts for testing high-risk heterosexuals outside institutional settings may be needed
- Exploring NHBS methods may help to define and engage high-risk heterosexuals

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