Increased Gonorrhea and Chlamydia Case Detection in a Multisite U.S. HIV Cohort

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BACKGROUND

- U.S. guidelines recommend annual *Neisseria gonorrhea* (NG) and *Chlamydia trachomatis* (CT) testing for people living with HIV.[1]
- Detecting NG/CT provides opportunities to treat disease and provide sexual risk counseling and may help decrease HIV transmission[2]
- A prior study (Figures A and B) documented significant increases in NG/CT testing between 2004 and 2010 among women, men who have sex with men (MSM), and men who have sex with women (MSW)[3]
- Prior studies from the U.S. and Canada indicate increases in NG/CT screening led to decreased test positivity and did not increase case detection, suggesting targeted screening may be warranted[4,5]

OBJECTIVES

1. Estimate linear trends in **test positivity** - the proportion of patients testing positive *among those tested* each year during 2004-2010

2. Estimate linear trends in **case detection** - the proportion of patients testing positive *among all patients* in care during 2004-2010

METHODS

Sample
- We used clinical HIV cohort data from seven HIV Research Network (HIVRN) sites from across the United States (CA, OR, PA, MD, NY)
- Inclusion criteria: All patients with at least one calendar year of active clinical follow-up

Outcome
- Whether there was at least one positive NG or CT test within the calendar year of active care

Analysis
- Logistic regression using generalized estimating equations accounting for within-person correlation
- Adjusted for age, race, injection drug use, CD4 count, number of HIV provider visits, viral load, and HIVRN site

RESULTS

Table 1: HIVRN participant characteristics

	2004 (N = 8,947)	2007 (N = 9,297)	2010 (N=10,975)
Age in years			
< 30	610 (7)	585 (6)	825 (8)
30-39	2,460 (28)	1,862 (20)	1,794 (16)
40-49	3,851 (43)	4,019 (43)	4,228 (39)
>50	2,026 (23)	2,831 (30)	4,128 (38)
Race			
Non-Hispanic White	2523 (28)	2,548 (27)	2,901 (26)
Non-Hispanic Black	4117 (46)	4,310 (46)	5,124 (47)
Hispanic	2,123 (24)	2,225 (24)	2,679 (24)
Other	184 (2)	214 (2)	271 (2)
Injection drug use			
Used injection drugs	2,403 (27)	2,256 (24)	2,278 (21)
No injection drug use	6,544 (73)	7,041 (76)	8,697 (79)
Sex Risk Group			
Women	2,697 (30)	2,700 (29)	3,091 (28)
Men who have sex with women (MSW)	2,758 (31)	2,770 (30)	3,187 (29)
Men who have sex with men (MSM)	3,492 (39)	3,827 (41)	4,697 (43)
Number of visits			
≤3	2,520 (28)	3,199 (34)	4,004 (36)
4-6	2,872 (32)	3,044 (33)	3,653 (33)
≥7	3,555 (40)	3,054 (33)	3,318 (30)
First CD4 count of calendar year			
≤200 cells/mm^3	2,143 (24)	1,846 (20)	1,852 (17)
201-350 cells/mm^3	2,035 (23)	2,009 (22)	2,122 (19)
≥351 cells/mm^3	4,769 (53)	5,442 (59)	7,001 (64)
First Viral Load of calendar year			
≤400 copies/mL	4,159 (46)	5,370 (58)	7,511 (68)
≥401 copies/mL	4,788 (54)	3,927 (42)	3,464 (32)

Notes: Median years participants included: 4; interquartile range: 2-6

Table 2: NG/CT test positivity by sex risk group

	Women (N= 9,074)		MSW (N= 3,684)		MSM (N = 8,839)	
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Calendar year	**1.114***	(1.00 - 1.24)	**0.92**	(0.82 - 1.04)	**1.09*****	(1.03 - 1.15)
Age in years						
< 30	**14.57*****	(5.97 - 35.53)	**5.18*****	(2.21 - 12.16)	**4.18*****	(2.95 - 5.91)
30-39	**5.13*****	(2.10 - 12.52)	**2.88*****	(1.29 - 6.44)	**2.99*****	(2.18 - 4.11)
40-49	**1.73**	(0.68 - 4.42)	**2.21****	(1.09 - 4.48)	**1.91*****	(1.40 - 2.61)
>50		Ref				
Race						
Non-Hispanic White		Ref				
Non-Hispanic Black	**0.86**	(0.41 - 1.78)	**1.91***	(0.95 - 3.86)	**1.08**	(0.84 - 1.39)
Hispanic	**0.83**	(0.36 – 1.90)	**1.36**	(0.59 - 3.12)	**0.79***	(0.62 - 1.00)
Other	**2.08**	(0.45 - 9.51)	**1.93**	(0.47 - 7.90)	**0.80**	(0.50 - 1.27)
Injection drug use	**1.02**	(0.59 - 1.75)	**0.35*****	(0.19 - 0.62)	**0.67****	(0.47 - 0.95)
Number of visits						
≤3		Ref				
4-6	**0.90**	(0.552 - 1.46)	**0.96**	(0.57 - 1.61)	**1.17**	(0.94 - 1.46)
≥7	**1.11**	(0.645 - 1.92)	**1.46**	(0.84 - 2.53)	**1.36****	(1.07 - 1.74)
First CD4 count of yr						
≤200 cells/mm^3		Ref				
201-350 cells/mm^3	**1.23**	(0.65 - 2.31)	**1.81***	(0.92 - 3.56)	**1.79*****	(1.29 - 2.49)
≥351 cells/mm^3	**1.05**	(0.61 - 1.81)	**1.75***	(0.959 - 3.18)	**2.05*****	(1.52 - 2.75)
First Viral Load of yr						
≤400 copies/mL		Ref				
≥401 copies/mL	**1.52****	(1.00 - 2.31)	**1.41**	(0.90 - 2.21)	**1.47*****	(1.21 - 1.78)

Notes: *p<0.1, **p<0.05, ***p<0.01; also controlled for clinical site

NG/CT testing over time

Figure A: NG/CT Testing Among All Participants

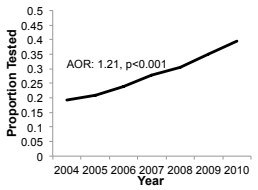
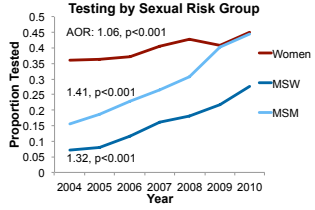
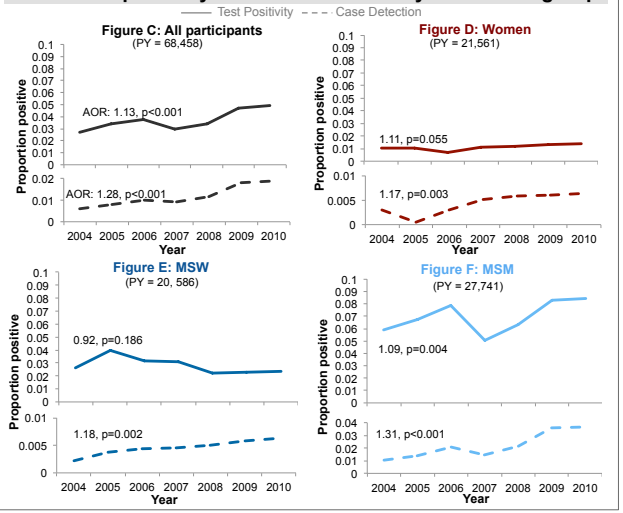


Figure B: Gonorrhea and Chlamydia Testing by Sexual Risk Group



NG/CT test positivity and case detection by sexual risk group



CONCLUSIONS

- As NG/CT testing increased, test positivity and case detection increased
- The largest increase in case detection occurred among MSM
- Increasing annual testing rates above 39% may further improve case detection, and NG/CT screening in clinics should be further promoted, particularly among individuals <30
- Our findings indicate a universal screening approach may be reasonable if clear target groups cannot easily be established

Limitations
- No data to distinguish between regular screening and symptomatic or exposure-based testing
- No data on body site of testing

REFERENCES

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4. Berry et al. (2011). *STI;* 87:469
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ACKNOWLEDGEMENTS

- **NIH T32AI102623**: PIs: Chris Beyrer and Shruti Mehta
- **K23 AI084854:** PI: Steve Berry
- **HIVRN Participating Sites:** Alameda County Medical Center, Oakland, California (Howard Edelstein, M.D.); Children's Hospital of Philadelphia, Philadelphia, Pennsylvania (Richard Rutstein, M.D.); Drexel University, Philadelphia, Pennsylvania (Jeffrey Jacobson, M.D., Sara Allen, C.R.N.P.); Fenway Health, Boston, Massachusetts (Stephen Boswell, M.D.); Johns Hopkins University, Baltimore, Maryland (Kelly Gebo, M.D., Richard Moore, M.D., Allison Agwu M.D.); Montefiore Medical Group, Bronx, New York (Robert Beil, M.D.); Montefiore Medical Center, Bronx, New York (Uriel Felsen, M.D.); Oregon Health and Science University, Portland, Oregon (P. Todd Korthuis, M.D.); Parkland Health and Hospital System, Dallas, Texas (Ank Nijhawan, M.D., Muhammad Akbar, M.D.); St. Jude's Children's Research Hospital and University of Tennessee, Memphis, Tennessee (Aditya Gaur, M.D.); St. Luke's Roosevelt Hospital Center, New York, New York (Judith Aberg, M.D., Antonio Urbina, M.D.); Tampa General Health Care, Tampa, Florida (Charurut Somboonwit, M.D.); Trillium Health, Rochester, New York (William Valenti, MD., Roberto Corales, D.O.); University of California, San Diego, California (W. Christopher Mathews, M.D.)
- **HIVRN Sponsoring Agencies:** Agency for Healthcare Research and Quality, Rockville, Maryland (Fred Hellinger, Ph.D., John Fleishman, Ph.D., Irene Fraser, Ph.D.); Health Resources and Services Administration, Rockville, Maryland (Robert Mills, Ph.D., Faye Malitz, M.S.); *Data Coordinating Center:* Johns Hopkins University (Richard Moore, M.D., Jeanne Keruly, C.R.N.P., Kelly Gebo, M.D., Cindy Voss, M.A., Nikki Balding, M.S.)