High HIV Incidence among Men Attending LGBT and STD Clinics in NYC, 2009-2012

Lucia V. Torian, Lisa A. Forgione, William Duffy, Bisram Deocharan, Robert Pirillo, Orlin Trochev, Amado Punsalang, Anthony Muyombwe

The New York City Department of Health and Mental Hygiene, Public Health Laboratory and HIV Epidemiology Program

#896

Contact Information:
Lucia Torian, PhD
ltorian@health.nyc.gov
(347)-396-7692

BACKGROUND

HIV incidence is notoriously difficult to measure accurately using cross-sectional laboratory-based algorithms and/or statistical modeling. The ideal method – direct measurement of seroconversions in a cohort of seronegative persons followed over time – is logistically challenging, expensive and difficult to implement on a population basis.

METHODS

We assembled a cohort of initially seronegative persons undergoing HIV diagnostic testing at the public health laboratory (PHL) in New York City. Persons were followed from the date of their first negative test after January 1, 2009, through the date of their first positive test, death, or December 31, 2012. Seroconversions were identified in the PHL database and through matching with the HIV surveillance registry.

POPULATION

Base population: 82,926 unique individuals

Initially seronegative: 74,463 (89.8%); Initially seropositive: 8,463 (10.2%)

Exclusions before population count:
- 466 specimens not tested (e.g., improper labeling, incomplete requisition, qns)
- 3,951 specimens tested anonymously

Repeat Tester N=18,197 (24% of original population)

5,343 (29.4%) men; 2,854 (70.6%) women

WOMEN IN THE REPEAT TESTER COHORT

12,854 women; 11,229 (87.3%) tested at HHC (public) hospitals

Median number of tests: 2.2 (range 2-6)

11,117 (99%) of childbearing age (15-44)

Most testing prenatal? Healthy, low-risk Population?

LABORATORY TESTING

Screening: 3rd Generation BioRad GS HIV 1-2+0 EIA®
Supplemental: BioRad GS HIV-1 WB®
Rule out Acute HIV-1 Infection: HIV-1 NAAT Gen-Probe Aptima®

RESULTS

34,455.9 total person-years of follow-up
447 seroconversions
- 56.2% at PHL, 43.8% other test sites
- 93% male

Overall incidence rate: 1.30/100 py [1.18,1.42]
Female incidence rate: 0.06/100 py [0.24,0.87]
Elevated incidence:
- Men overall 5.7/100 py [5.2,6.3]
- Men at LGBT clinics 14.9/100 py [10.6,19.2]
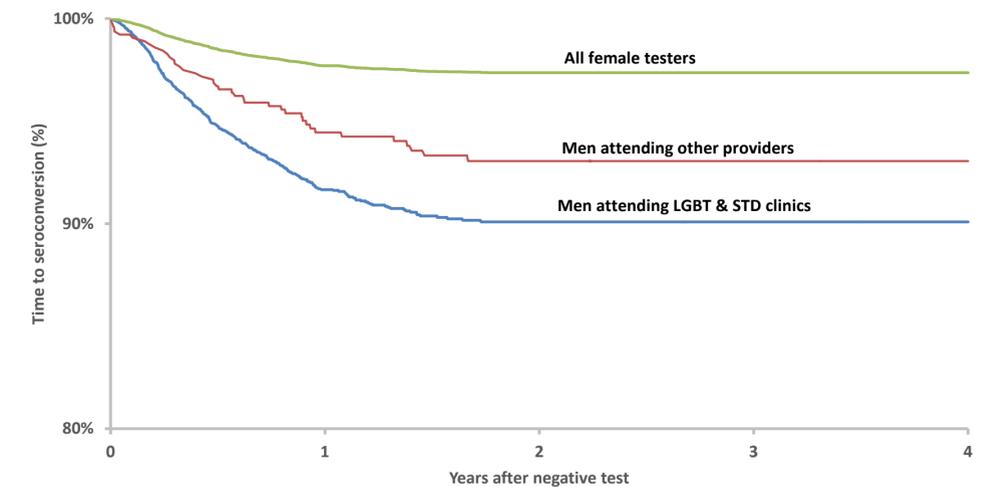- Men at STD clinics 5.7/100 py [5.1,6.4]

INCIDENCE RATES, 2009-2012

	All PHL testers with a negative result	Number of Seroconverters	Total person-years of follow-up time	Incidence rate per 100 person years	95% CI's low	95% CI's high
All	18,197	447	34455.9	1.297	1.177	1.418
Sex						
Male	5,246	416	7257.1	5.732	5.181	6.283
Female	12,854	28	26978.4	0.104	0.065	0.142
Race/Ethnicity						
Black	3,948	167	7518.8	2.221	1.884	2.558
Hispanic	4,550	27	9203.7	0.293	0.183	0.404
White	2,040	121	2485.8	4.868	4.000	5.735
Race/Ethnicity by Sex and Age Group						
Black Male	1,629	154	2423.7	6.354	5.350	7.358
<30	1,007	121	1418.3	8.532	7.011	10.052
30+	622	33	1005.4	3.282	2.162	4.402
Hispanic Male	415	22	479.9	4.584	2.669	6.500
<30	288	15	348.7	4.301	2.124	6.478
30+	127	7	131.2	5.337	1.383	9.291
White Male	1,778	118	1966.8	5.999	4.917	7.082
<30	1,003	71	1118.8	6.346	4.870	7.822
30+	775	47	848.1	5.542	3.958	7.127
Black Female	2,301	11	5052.6	0.218	0.089	0.346
Hispanic Female	4,105	5	8648.9	0.058	0.007	0.108
Age at HIV Diagnosis						
13 - 19	1,619	44	3294.2	1.336	0.941	1.730
20 - 29	9,620	263	18104.3	1.453	1.277	1.628
30 - 39	5,444	90	10306.5	0.873	0.693	1.054
40 - 49	1,088	44	1916.4	2.296	1.618	2.974
50 - 59	292	6	559.6	1.072	0.214	1.930
Provider						
GMHC/Callen Lorde	310	47	332.0	14.159	10.111	18.206
Male	291	46	309.4	14.868	10.571	19.164
STD Clinics	4,989	340	7406.6	4.591	4.103	5.078
Male	4,317	330	5726.8	5.762	5.141	6.384
Female	662	8	1670.1	0.479	0.147	0.811
HHC Facilities	11,229	35	22710.3	0.154	0.103	0.205
Male	439	23	869.0	2.647	1.565	3.728
Female	10,715	12	21657.2	0.055	0.024	0.087
Other	1,669	25	4007.0	0.624	0.379	0.868

RISK FACTORS FOR SEROCONVERSION

	Hazard Ratio	95% CI low	95% CI High
All			
Sex			
Males vs. Females	43.9	29.9	64.4
Race/Ethnicity			
White vs. all other	3.4	2.8	4.2
White men vs. other men	0.8	0.7	1.0
Age at HIV Diagnosis			
<30 vs. 30+	1.3	1.1	1.6
<30 men vs. 30+ men	1.6	1.3	2.0
Provider			
Men attending LGBT and STD clinics vs. all others	18.6	14.1	24.4
Men attending LGBT and STD clinics vs. other men	1.5	1.1	2.1

TIME TO HIV SEROCONVERSION: INITIALLY SERONEGATIVE MEN ATTENDING LGBT AND STD CLINICS VS. MEN ATTENDING ALL OTHER HEALTHCARE PROVIDERS VS. WOMEN

All female testers
Men attending other providers
Men attending LGBT & STD clinics

Time to seroconversion (%)
Years after negative test

CONCLUSIONS

- Incidence rates from this repeat tester cohort are consistent with surveillance data indicating that MSM are at the leading edge of the HIV epidemic in New York City
- NYC's overall epidemic is in a state of slow decline but HIV in MSM, particularly those aged<30, is hyperendemic and urgently requires interventions that reach beyond frequent testing, which is already common among MSM
- Data from this analysis can be used to target local biomedical and behavioral prevention resources, including PrEP and nPEP, to appropriate venues and populations

LIMITATIONS

- Missing demographic data, e.g., risk (96.3%) and race/ethnicity (29.4%)
- Use of sex and provider as surrogate for risk factor
  - These categories include heterosexual men
  - Incidence estimate low
- Person-years at risk accurate for PHL, not for non-PHL testing sites unless test result is positive.
  - Estimates accurate for LGBT and STD clinics and HHC
  - Negative tests at other venues not reportable, thus incidence rates and hazard ratios potentially inflated
- PHL tests 12% of new dx in NYC. Not representative of all new HIV in city—more likely to be male, young, not black.
- Overall PHL incidence rate consistent with CDC SEA incidence estimate for NYC.