TUPE0333

Increasing ascertainment of incident HIV infection reported to the NYC Department of Health and Mental Hygiene: maturation of a new HIV reporting system

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Background

Accurate surveillance for HIV is important for understanding epidemic trajectory, for targeting HIV primary care, prevention and other resources resources (e.g. housing), and for evaluating evaluating efficacy of prevention activities. Currently, HIV diagnoses are considered the standard for population-based surveillance for HIV transmission.

HIV/AIDS reporting in New York

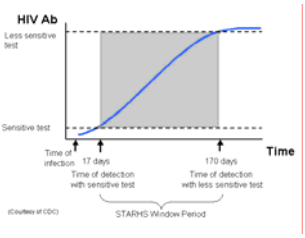
•Named reporting of HIV infections was implemented in NYS beginning on June 1, 2000.
- AIDS has been reportable since 1983 in New York.

New diagnoses do not = new infections

•New HIV case reports are investigated to determine whether cases are previous diagnoses just becoming reportable or new diagnoses BUT…

•…even new diagnoses represent a mix of:
1. Previously infected persons just now getting tested
2. Newly infected persons

•Therefore, new diagnoses may not accurately reflect HIV transmission trends.



STARHS

The serologic testing algorithm for recent HIV seroconversions (STARHS) is a laboratory method that can distinguish between recent (<=6 months) and long-standing HIV infection (>6 months).

This method consists of the highly sensitive test used for the diagnosis of HIV, and a second, less-sensitive enzyme immunoassay (EIA) that can detect only high levels of HIV antibody characteristic of established infection. Specimens that produce reactive results on the sensitive assay and non-reactive on the less-sensitive assay are considered recently infected.

Objective

This analysis used STARHS to evaluate the extent to which new HIV diagnoses reported to the NYC surveillance system represented new infections over the first four and one-half years of reporting.

Methods

Population

- The population for this analysis (N=3463) included all persons:
  - Reported to the NYC HIV surveillance from June 1, 2000 through December 31, 2004 (total N = 25,110)
  - Identified as new HIV diagnoses after field investigation
  - Diagnosed at NYC DOHMH Public Health Laboratories
  - Had remnant serum available from the diagnostic specimen
- Specimens represented 20.4% of all new non-AIDS HIV diagnoses in NYC during this period
- Because of requirement to de-link data for STARHS testing, new diagnoses were identified in 6 month intervals after 9 months had elapsed. At 9 months, case data during 2000-2004 were considered ~85% complete.

•After cases had been identified for inclusion, all identifying information was removed from surveillance data and specimens

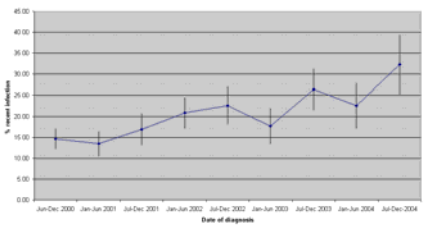
STARHS testing

Eligible de-linked specimens were sent to the NYS DOH Wadsworth Center for STARHS testing using a less sensitive bioMerieux Vironostika enzyme immunoassay

- Recent infections were defined as new HIV diagnoses with a non-reactive result on the LS-EIA
- Long-term infections were defined as new HIV diagnoses with a reactive result on the LS-EIA

Results

Percent of new HIV (non-AIDS) diagnoses testing as early infections on LS-EIA, New York City, 6/2000 - 12/2004



- Overall, the proportion of new infections detected among new non-AIDS HIV diagnoses increased significantly over the first four and one-half years of HIV reporting from 14.6% (12.2% - 17.1%) in June-December 2000 to 32.3% (25.2%-39.5%) in July-December 2004.
- Significant increases in the proportion recently infected were also observed among:
  - MSM
  - Persons aged 25 and older
  - Males
  - Blacks
  - Hispanics
  - Brooklyn residents

Proportion recently infected (as identified by STARHS), by semester of HIV diagnosis Among new non-AIDS HIV diagnoses, NYC, June 1, 2000- December 31, 2004

	June-December 2000		July-December 2004	
	N tested	% recent (95% CI)	N tested	% recent (95% CI)
TOTAL	**786**	**14.6 (12.2 - 17.1)**	**164**	**32.3 (25.2 - 39.5)**
SEX				
Male	426	14.1 (10.8 - 17.4)	113	38.1 (29.1 - 47.0)
Female	360	15.3 (11.6 - 19.0)	51	19.6 (8.7 - 30.5)
RACE				
White	57	19.3 (9.1 - 29.5)	7	57.1 (20.5 - 93.8)
Black	460	13.9 (10.7 - 17.1)	102	29.4 (20.6 - 38.3)
Hispanic	251	14.3 (10.0 - 18.7)	49	36.7 (23.2 - 50.2)
Asian/Pacific Islander/Native American	11	18.2 (0.0 - 41.0)	4	0.0 (0.0 - 62.5)
AGE AT DIAGNOSIS				
under 25	111	25.2 (17.2 - 33.3)	29	48.3 (30.1 - 66.5)
25 +	675	12.9 (10.4 - 15.4)	135	28.9 (21.2 - 36.5)
BOROUGH OF RESIDENCE				
Manhattan	291	12.7 (8.9 - 16.5)	40	27.5 (13.7 - 41.3)
Bronx	252	18.3 (13.5 - 23.0)	45	35.6 (21.6 - 49.5)
Brooklyn	136	13.2 (7.5 - 18.9)	40	37.5 (22.5 - 52.5)
Queens	89	13.5 (6.4 - 20.6)	30	23.3 (8.2 - 38.5)
Staten Island	4	50.0 (1.0 - 99.0)	3	33.3 (0.0 - 86.7)
Other/unknown	14	0.0 (0.0 - 18.6)	6	50.0 (10.0 - 90.0)
TRANSMISSION RISK				
Men who have sex with men	140	21.4 (14.6 - 28.2)	65	43.1 (31.0 - 55.1)
Injection drug use history	152	6.6 (2.6 - 10.5)	10	30.0 (1.6 - 58.4)
Heterosexual	232	16.0 (11.2 - 20.7)	29	27.6 (11.3 - 43.9)
Unknown/other/under investigation	261	14.6 (10.3 - 18.8)	60	23.3 (12.6 - 34.0)

Discussion

- Four and one-half years after the introduction of named HIV reporting in NYC, an increased proportion of new non-AIDS HIV diagnoses are being diagnosed earlier
- The significant increase in diagnoses of newly infected HIV/AIDS may be related to:
  - Ongoing campaign to increase awareness of HIV status in NYC
  - Availability of rapid testing beginning in 2004

Limitations

- STARHS method can misclassify recent and longstanding HIV infection, although data suggest that for aggregate results, the false negatives and false positives occur with similar frequency and effectively cancel each other out
- Any laboratory or provider reports sent after de-linking occurred could not be included in the analysis
- Sample represented only 20.4% of new diagnoses in NYC during this period

Conclusions

- These data emphasize that the NYC HIV surveillance system has matured over time and that new diagnoses reported to surveillance have gradually included a larger proportion of newly infected persons
- STARHS provides a useful method for estimating population-based HIV incidence and evaluating the HIV surveillance system
- Using new diagnoses as a measure of the leading edge of the HIV epidemic is not ideal. Using estimates of HIV incidence should continue to be a high priority for epidemic monitoring, targeting prevention resources, and evaluating the efficacy of prevention activities

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