

## Detection of Acute HIV infections in Florida, Los Angeles and New York City, 2006-2007

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| <i>Abstract Category:</i> | Strategies for Routine Screening for Acute HIV-infection                                                                                                                                             |
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### BACKGROUND

The yield of screening for acute HIV infection (AHI), using pooled HIV RNA testing for persons with non-reactive HIV antibody results may vary with different enzyme immunoassays (EIA) used to screen for HIV antibody.

### METHODS

To evaluate the diagnostic yield of AHI screening, we used the Aptima® HIV-1 RNA assay on 16-member pools of EIA-non-reactive (NR) specimens from persons who consented for HIV testing at 80 public-health clinics in four Florida counties; 14 county sexually transmitted disease (STD) clinics and the Gay and Lesbian Center in Los Angeles (LA); and 3 city STD clinics in New York City (NYC). Additionally, specimens testing EIA-repeatedly reactive (RR)/WB-indeterminate or negative were tested with Aptima® individually. A more sensitive EIA, Genetic Systems 1/2 +O®, was used to screen for HIV antibodies in Florida, Vironostika HIV-1 Microelisa System® (less sensitive EIA) in LA, and Oraquick Advance® in NYC. All acute cases in LA and NYC were also tested with Genetic Systems 1/2 +O®.

### RESULTS

From May 2006 to August 2007, we screened 40,468 persons in Florida of whom 482 (1.2%) were EIA-RR/Western blot (WB)-positive; 12 persons with AHI were identified, increasing the overall HIV diagnostic yield by 2.3 percent. Five persons tested EIA-NR/HIV RNA-positive and 7 persons tested EIA-RR/Western blot (WB)-indeterminate or negative/HIV RNA-positive. From May 2006 to August 2007, 25,882 persons were screened in LA of whom 305 (1.2%) were EIA-RR/WB-positive; 22 persons (who tested EIA-NR/HIV RNA-positive) with AHI were identified, increasing the HIV diagnostic yield by 7.2 percent. Most AHI cases (73%) were identified at the LA Gay and Lesbian Center. Of the 22 AHI cases, 9 were EIA-reactive when tested with Genetic Systems 1/2 +O®, decreasing the diagnostic yield to 4 percent. From June 2007 to August 2007, 2,276 persons were screened in NYC of whom 8 (0.35%) were EIA-RR/WB-positive; 2 persons (who tested EIA-NR/HIV RNA-positive) with AHI were identified, increasing the diagnostic yield by 25 percent. Of the 2 acute cases, one was EIA-reactive when tested with Genetic Systems 1/2 +O®, decreasing the diagnostic yield to 11 percent.

### CONCLUSIONS

Pooled HIV RNA screening for those with negative HIV antibody tests increased HIV case detection most where the less sensitive EIA was used for screening. Although a more sensitive EIA was able to detect 47 percent (17/36) of all AHI cases, pooled HIV RNA screening in addition to screening with a more sensitive EIA may still increase HIV case detection.