



NEW YORK CITY DEPARTMENT OF  
HEALTH AND MENTAL HYGIENE  
Thomas Farley, M.D., M.P.H.  
*Commissioner*

## 2012 HEALTH ADVISORY #29: Missed Opportunity to Detect Acute HIV Infection

October 15, 2012

Please distribute to colleagues in HIV Primary Care, Infectious Disease, Emergency Medicine, Family Practice, Internal Medicine, Primary Care, Neurology, Laboratory Medicine, Obstetrics/Gynecology, Pediatrics, and Adolescent Medicine

### Summary:

- **Physicians should order a nucleic acid test to rule out acute HIV-1 infection in cases where there is a discrepancy between an HIV screening test and an HIV confirmatory test, such as the HIV-1 Western blot.**

Dear Provider,

We are writing to inform you about the importance of performing additional diagnostic testing in patients who have a positive screening test for HIV but a negative confirmatory test. Recently, a patient with acute HIV infection remained undiagnosed for one month after initial presentation because the provider did not order an HIV-1 nucleic acid test to resolve a discrepancy between a positive HIV antibody screening test and a negative HIV Western blot. The case emphasizes the need for providers to understand the performance characteristics of new tests for HIV infection.

### *Report of Case*

Early in 2012, a 56 year-old man presented to a NYC hospital outpatient clinic for HIV testing. In the past 12 months, the patient had a history of two sexual partners, including one primary and one anonymous partner. The patient had no history of fever, sore throat, lymphadenopathy, myalgia, anorexia, diarrhea, or other signs or symptoms of acute or prodromal HIV or other viral infection.

The patient was screened for HIV using a 4<sup>th</sup> generation HIV-1 antigen and HIV-1/HIV-2 antibody combination assay followed by HIV-1 Western blot. The combination screening test was repeatedly reactive. The HIV-1 Western blot was unequivocally negative for HIV antibody, i.e., no bands were present. The negative Western blot was reported by the laboratory and interpreted by the provider as evidence that the patient was not infected with HIV.

Two subsequent rapid tests conducted by a different provider were positive, but the Western blots were again negative. Review of the case by DOHMH raised the possibility of acute HIV infection, and nucleic acid testing was recommended. The HIV-1 viral load was 100,000 copies.

## *Acute HIV Infection – A Diagnostic Challenge*

It is important for providers to diagnose acute HIV infection. The U.S. Department of Health and Human Services recommends that all patients with HIV infection begin treatment immediately, both to improve the patient's health and reduce the risk of transmission. Patients with acute HIV infection are at particularly high risk of transmitting infection. Acute HIV infection can be challenging to diagnose, because 50% of acutely infected persons have no symptoms and because screening tests cannot detect HIV antibody or p24, the earliest HIV-1 antigen to appear, until 12-14 days after initial infection. Qualitative nucleic acid testing can detect HIV RNA as early as nine days after initial infection. There is currently no commercially available assay that can detect HIV RNA in the peripheral blood between day 1 and day 8 after initial infection.

### *4<sup>th</sup> Generation HIV Screening Tests*

Many laboratories in New York City currently perform “fourth generation” HIV testing. These tests detect HIV-1 p24 antigen and antibodies to HIV-1 and HIV-2. Such tests detect HIV infection 12-14 days after infection, but they do not report whether p24 antigen or antibody to HIV-1 or HIV-2 was detected. Supplemental antibody testing, e.g., with HIV-1 Western blot, will confirm if the patient has well-established HIV-1 infection. Nucleic acid testing, however, is needed for an infection that has not yet generated sufficient antibody titers to be detected by Western blot, a process that can take up to five weeks.

Whenever there is a discrepancy between the screening test and the Western blot, laboratories that use 4<sup>th</sup> generation screening platforms should perform nucleic acid testing. The Western blot report should include a message requesting that a specimen for nucleic acid testing be submitted as soon as possible. Primary care physicians ordering HIV testing should be aware that discrepancies between initial screening tests and the Western blot must be resolved using nucleic acid testing (and possibly additional tests), and they should proactively notify patients and obtain a second specimen as soon as possible. Submission of the second specimen, whether for qualitative or quantitative nucleic acid testing, should include reference to the testing history and request expedited handling.

*Please Call the Public Health Laboratory for Assistance with Nucleic Acid Testing for HIV*

Many laboratories do not have the capacity to perform diagnostic HIV testing using qualitative nucleic acid testing. Please call the New York City Public Health Laboratory to discuss your case and, if appropriate, to arrange for specimen pickup and qualitative nucleic acid testing to rule out acute HIV-1 infection. If the Public Health Laboratory determines that additional testing is appropriate, instructions for specimen collection and transport will be provided. The comprehensive diagnostic algorithm used by the Public Health Laboratory has the capacity to go beyond HIV-1 nucleic acid testing to resolve discrepant test results, including those due to infection with HIV-2.

Please call:

Robert Pirillo  
Community Testing Coordinator  
[rpirillo@health.nyc.gov](mailto:rpirillo@health.nyc.gov)  
212-447-2864

Amado Punsalang, Jr., Ph.D.  
Virology Section, Chief  
[apunsalan@health.nyc.gov](mailto:apunsalan@health.nyc.gov)  
212-447-2864

Providers and laboratories with questions about testing protocols, possible detection of acute HIV infection, and differential diagnosis of HIV-2 are welcome to call the HIV Epidemiology and Field Services Program of the NYC DOHMH at the numbers listed below.

Sincerely yours,

*Lucia V. Torian*

Lucia V. Torian, PhD  
Deputy Director, HIV Epidemiology and Field Services Program  
347-396-7692

*Charu Jain Sabharwal*

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**Health Alert:** conveys the highest level of importance; warrants immediate action or attention

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