SEPTEMBER 2014 INFO BRIEF

ACUTE HIV INFECTION

KEY FACTS

- The diagnosis of Acute HIV Infection (new HIV infection) is a critical but often missed step in HIV prevention efforts.
- It is estimated that almost 50% of all new HIV infections occur when a person who is in the earliest stage of HIV infection unknowingly transmits HIV.
- During the Acute HIV Infection phase, a person is between 100 and 3,000 times more infectious than persons in the later stages of HIV infection.

WHAT IS ACUTE HIV INFECTION?

"Acute HIV Infection" or "Primary HIV Infection" are terms that denote the first 10 weeks after HIV infects a new person. This is a time when a person's immune system is just beginning to mobilize against HIV and before antibodies are produced. It is also the time when viral load is extremely high. Researchers estimate that because of the very high viral load during the Acute HIV Infection phase, a person is between 100 and 3,000 times more infectious than persons in the later stages of HIV infection.[1] They further estimate that as many as half of all new HIV infections may be attributable to transmission from an acutely infected person who does not know she or he is infected.[2,3,4,5]

Due to the higher risk of transmission during this stage, detection becomes extremely important; however, detection of acute infection is also very difficult. During this phase a person has not yet developed enough anti-bodies to be detected using standard HIV diagnostic tests.[6] Routine HIV testing using the HIV-antibody test does not identify Acute HIV Infection and provides negative test results to acutely infected individuals precisely when they are most infectious.[7]

Symptoms during this acute phase are frequently dismissed as they often resemble mononucleosis (mono) and influenza symptoms.[8] When symptoms abate, the person feels better but has no idea she or he has been infected with HIV. This situation makes for a person who does not feel sick and does not know she or he has HIV, but who has a very high viral load that makes the person "biologically hyper-infectious."[9]

HOW TO DETECT ACUTE HIV

Screening and diagnostic testing for Acute HIV Infection involve multiple steps on behalf of the provider, including asking the appropriate screening questions and developing and applying the appropriate testing procedures. It is important to have providers ask questions about patient behaviors and symptoms particularly when they have patients who present with flu-like or mono-like symptoms, or who report such symptoms in the last 30 days. If these patients report HIV risk behaviors and/or sexually transmitted infections in the last 30 days, providers should consider diagnostic testing for Acute HIV Infection.[10]

It is also important to use a testing protocol that is able to detect HIV during this phase in the infection. Guidelines released in June 2014 by the Centers for Disease Control and Prevention (CDC) and the Association of Public Health Laboratories promote a new protocol for diagnosis of HIV infection using the HIV-1/HIV-2 Antigen and Anti-body Combo tests as the first step in the new testing algorithm. For providers and clinics using standard HIV antibody testing, both antibody and viral load tests should be done to diagnose Acute HIV Infection. Expected results for Acute HIV Infection using these procedures would be an HIV-negative result on the antibody test but high viral load detected on the HIV Viral Load testing.

According to the New York State guidelines:

> High levels of HIV RNA detected in plasma through use of sensitive amplification assays (PCR, bDNA, or NASBA), in combination with a negative or indeterminate HIV antibody test, support the diagnosis of Acute HIV Infection.[11]

Newer approved tests, for example 4th Generation HIV Anti-body/Antigen Combo tests, allow for HIV detection during this period, but not necessarily Acute HIV Infection. When using 4th generation testing, providers should further test reactive samples to differentiate between HIV-1 and HIV-2 antibodies. If the differentiation tests are non-reactive for HIV antibodies, but the patient presented with or reported compatible symptoms, the provider must then use HIV Nucleic Acid Testing (Viral Load) to determine if the patient has Acute HIV Infection. A high viral load in the context of non-reactive or indeterminate HIV antibody testing suggests Acute HIV Infection.[12] The goal of these new guidelines and tests is to detect HIV infections at the phase when an individual is considered highly infectious with the hope that this detection will decrease the spread of the virus through engagement in HIV treatment and behavior change.

BENEFITS OF IDENTIFICATION & TREATMENT OF ACUTE HIV INFECTION

Research shows that persons diagnosed with Acute HIV Infection often reduce their risk behaviors,[13] thereby reducing HIV transmission. Recent research confirms that early treatment for Acute HIV Infection has both short- and long-term individual clinical and behavioral benefit.[14,15] When patients engage in HIV care they reduce their HIV risk behaviors by more than half.[16] Research reported in 2014 demonstrated that "Of an estimated 408 092 HIV-infected adults receiving medical care in the United States, the majority [76%] of persons did not engage in sexual risk behaviors that have the potential to transmit HIV."[17] Only twelve percent of HIV-Positive persons in care reported unprotected anal or vaginal sex with known HIV-negative partner or a partner of unknown status.[18] This finding has been confirmed by another study that found "Overall, 12.9% of patients engaged in unprotected sex with a partner of negative or unknown HIV status."[19]

The New York City department of Health and Mental Hygiene in December of 2011 recommended that providers offer HIV treatment to all HIV-positive patients at all CD4 levels.[20] The ability to detect HIV at these early stages is an essential step in the fight against HIV especially when followed up by linking that individual to care. So not only does detecting Acute HIV Infection, particularly in the context of routine screening for HIV-antibody, significantly benefit the individual but also has broader public health ramifications.

FEDERAL AND STATE RECOMMENDATIONS

- Centers for Disease Control and Prevention and Association of Public Health Laboratories. (2014) ***Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations***.
  - Available at http://stacks.cdc.gov/view/cdc/23447

- Centers for Disease Control and Prevention and Association of Public Health Laboratories. (2014) ***Quick Reference Guide—Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations***.
  - Available at http://www.cdc.gov/hiv/pdf/testingHIValgorithmQuickRef.pdf.

- New York State Department of Health AIDS Institute. (2012) **Diagnosis and Management of Acute HIV Infection, HIV Clinical Resource**
  - Available at http://www.hivguidelines.org/wp-content/uploads/2012/10/diagnosis-and-management-of-acute-hiv-infection-10-16-2012.pdf

CURRENT WEBINARS

The New York State Department of AIDS Institute's Clinical Education Initiative has developed three webinars that cover the following topics:

- Diagnosis and Treatment of Acute HIV: A Stitch in Time? (2014)
- Acute HIV Infection: Diagnosis, Pathogenesis and Treatment (2013)
- Acute HIV Infection: New Frontiers for HIV Prevention (2009)

http://www.ceitraining.org/resources/audio-video.cfm?topicID=103

The Training for Health Professionals has developed a webinar and toolkit that cover new advances in HIV diagnostic testing, specifically:

- The testing window and how the virus is detected in each generation of tests
- The turnaround time and test sensitivity within each testing generation Describe the key characteristics of the HIV test(s) the learner is currently using
- The key characteristics of the current test(s) compare with those of a 4th generation assay
- How to interpret 4th generation test results
- Appropriate follow-up for patients based on a specified clinical setting, test results and risk factors
- For more information see: http://www.4thgenhivtests.edc.org/

REQUEST FREE CBA SERVICES TODAY!

CAI provides training and technical assistance on Acute HIV Infection and other aspects of HIV High-Impact Prevention through the Capacity Building Assistance (CBA) program. For more information about CAI's CBA Center and **free capacity building assistance services**, visit our website at www.hivcbacenter.org or contact Emily Rebella by email at erebella@caiglobal.org or by phone at 212-594-7741 ext. 291.

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