

Identifying Acute HIV Infections in Florida with Fourth Generation HIV Testing

Florida ranks fourth in the nation for total population but second in the nation for newly diagnosed HIV cases, and third in the nation for newly diagnosed AIDS cases. It is estimated that there are 126,000 individuals living with HIV in Florida, and as many as 16% (19,665) do not know that they are infected. The U.S Centers for Disease Control and Prevention estimates that half of all new HIV infections are transmitted by those who do not know that they are infected, and many of those are from people who are newly infected themselves.

Florida continues to have one of the largest publicly funded HIV testing programs in the nation. Florida's testing partners conducted over 428,000 HIV antibody tests in 2013. Testing is conducted utilizing rapid tests (66% of all tests), OraSure (6% of all tests) and blood draw (28% of all tests). Florida began testing blood specimens via 4th generation testing technology in April 2012. Fourth generation testing detects not just HIV antibodies but also HIV surface antigen which is part of the virus itself. Testing using this technology reduces the window period for HIV detection by as much as two weeks or more.

Florida's public health labs utilize the Abbott Diagnostics' Architect HIV Ab/Ag combination test. If reactive, the result is confirmed using the Bio-Rad Multispot HIV 1/2 rapid antibody test. The Multispot test offers rapid detection of antibodies to HIV 1 and 2, even in specimens that are Western blot negative. If the Multispot produces a negative result, the specimen is tested using a Nucleic Acid Amplification Test, or NAAT. The NAAT test, like the Abbott Architect, looks for HIV antigen rather than antibodies and can reduce the window period for detection to as little as two weeks. If the initial immunoassay (IA) has a negative Multispot but a positive NAAT the client is determined to have acute HIV infection (AHI). Clients with AHI have generally been infected within the past month and usually have very high viral loads, making them very infectious to other sexual or needle sharing partners.

The Department of Health created a rapid response protocol for AHI. Once an AHI is identified, the retrovirology section chief with the Bureau of Public Health Laboratories notifies the HIV/AIDS section administrator, the HIV prevention manager, the STD section administrator, the HIV/AIDS section medical team (all in Tallahassee) and the area STD manager for the county in which the AHI was identified. The case is immediately assigned to a disease intervention specialist (DIS). All parties work to ensure that the client is located, post-test counseled and offered partner services (PS) for the identification of sexual and/or needle-sharing partners. The goal of the DIS is to complete this step within 24 hours of notification, and to immediately initiate all partners for follow-up testing. Staff also identify a designee from the area AIDS program office to assume the responsibility of linking the client to care. This allows for treatment of persons with HIV infection before clinically significant injury to the immune system occurs. This also decreases the likelihood of infected persons transmitting the virus to others.

In the period between April 12, 2012 and June 30, 2014, the Florida public health laboratories identified 27 AHIs. AHIs were identified in Broward (2), Pinellas (2), Brevard (1), Lake (2), Nassau (1), Hillsborough (2), Duval (2), Palm Beach (1), Polk (3), Escambia (1), Seminole (1), Miami-Dade (3), Volusia (1), Leon (1), Osceola (1), Bay (1), Alachua (1) and Sarasota (1) counties. Twelve of the 27 (44%) were black, nine were white (33%) and five were Hispanic (18%). Twenty-five of the 27 were male (92%) and two were female (8%). Twenty-one of the 27 AHIs (77%) self-disclosed as men who have sex with men (MSM), and reported this as their highest risk factor (this includes MSM/IDU). Three of the 27 reported an STD diagnosis (11%), one reported being an injection drug user (IDU) (3%), one reported having sex with an IDU (3%) and one reported heterosexual sex (3%) as their highest risk factor.

Almost all (93%) of the AHIs were linked to PS and care within 90 days, with the average time to PS being 12 days (range = one to 34 days). Average number of days to care was 16, with a range of one to 90 days. This is in comparison to 71% of all other positives linked to PS and care within 90 days. The average numbers of partners named from the AHIs was 5.4 (range 0 to 30) and the initial viral load range was 9,104 to 10,000,000.

Of the 27 AHIs identified, 13 were identified in the Central Florida region, specifically along the "I-4 corridor" compared to just six in the heavily impacted South Florida region. While there was more HIV testing in South Florida (389,721) than in Central Florida (189,153) during the time period, much of that testing is conducted via rapid test. Only 16% of the tests in South Florida were conducted with 4th generation technology compared to 40% in Central Florida.

Fourth generation HIV testing has the ability to detect HIV earlier after infection than other available testing technologies. Early identification of acute infections is essential. In our program, acutely infected patients (and their partners) are quickly linked to care for better health outcomes. While rapid and oral fluid-based testing have an important place in Florida's HIV testing algorithm, increased testing utilizing 4th generation technology can have a significant impact on the HIV epidemic in Florida. Persons with recent high-risk behavior who test negative on a rapid test should have a blood sample sent to the state lab for 4th generation testing.

