Update on Seroconversion for HIV Infection

What is seroconversion (the "window period")?

Seroconversion is the length of time after infection that it takes for a person to develop enough specific antibodies to be detected by our current testing methods. This is commonly referred to as the "window period." If an individual engages in unsafe sex or shares drug injection equipment and becomes infected, the body will make antibodies to fight HIV. When enough antibodies are developed, the HIV antibody test will come back positive. Each person's body responds to HIV infection a little differently, so the window period varies from person to person. HIV is most commonly diagnosed in adolescents and adults through HIV antibody testing. However, there are also tests that diagnose HIV infection by detecting certain parts of the genetic material of HIV. PCR (polymerase chain reaction) tests are used to diagnose HIV infection in infants. Viral culture may also be performed in certain circumstances to diagnose HIV.

How has our understanding of seroconversion changed over the years?

Early in the epidemic, our testing methods were not as sensitive as they are today. Doctors and public health officials wanted to make sure that people who engaged in risk behaviors for HIV were tested long enough after their risk to be sure that anyone who was actually infected would test positive. The Centers for Disease Control currently states that people with possible exposure to HIV, who test negative, should be re-tested six months after the possible exposure to ensure that sufficient time has elapsed to make antibodies. However, as early as 1990, the Association of State and Territorial Public Health Laboratory Directors reached a consensus recommendation that virtually all seroconversions are complete within twelve weeks of exposure. Improvements in HIV testing technology over the last fifteen years, increasing laboratory experience with testing and the ability to better monitor early infection through PCR testing have contributed greatly to our understanding of the window period and have provided increased confidence that virtually all cases of HIV infection can be detected within three months.

What is the best time for the first HIV test after a possible exposure to HIV?

Most people infected with HIV will develop enough antibodies to be detected by our current HIV antibody tests four weeks after the exposure. This means that, for example, if a person had unsafe sex and became infected on January 1, it is likely that he/she will have enough antibodies to test positive four weeks later. If the person tests positive, this early testing is beneficial because the person can begin receiving medical care very early in the course of infection. Recent advances in care and treatment for HIV infection have increased the advantages of early identification and treatment. Therefore, especially when HIV infection is highly suspected, the first HIV test should take place four weeks after the exposure. In cases of occupational exposure or exposure through sexual assault, an HIV test is also recommended immediately after the exposure to establish baseline HIV status. The protocol for testing following exposure remains unchanged by this new policy with tests recommended at baseline, six weeks, three months and six months post-exposure. (See MMWR 1996;45(22):468-472)

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How long after a possible exposure to HIV does the person have to wait to be tested to be sure he/she is not infected?

It is possible that someone who tests negative four weeks after an exposure may be infected but his/her body has not had sufficient time to develop antibodies. Therefore, to rule out HIV infection, it is important to re-test three months after the exposure. It is extremely rare for an HIV-infected individual to not develop antibodies by three months. An individual who tests negative three months after an exposure does not require further testing unless he/she may have repeated exposures or if their antibody test results are incompatible with their clinical history.

What is the recommendation for testing individuals who engage in on-going risk behavior?

The primary focus of our work with individuals who place themselves at on-going risk for HIV infection must be continued education, behavioral counseling and harm reduction, such as education about safer injection practices and referral to syringe exchange programs and drug rehabilitation services. HIV testing offers no "protection" from HIV infection. When an individual is engaging in on-going risk behavior it is not possible to develop a timeline for re-testing based on a single exposure. An individual with a negative HIV test who engages in on-going risk behavior should be offered testing every three months and counseled to avoid risk behavior. In these cases, the function of testing is to ensure early access to care in the event that the individual becomes HIV positive.

For more information about seroconversion, consult the following articles:

Bartlet JG. *Serology and Baseline Laboratory Studies for Human Immunodeficiency Virus Infection* Infectious Diseases in Clinical Practice, Vol. 4, No. 5, pp-334-42

Busch MP, Lee LL, et. al. *Time Course of Detection of Viral and Serologic Markers Preceding Human Immunodeficiency Virus Tyoe I Seroconversion: Implications for Screening of Blood and Tissue Donors* Transfusion, 1995 Vol 35., No. 2, pp 91-7

Lackritz EM, Satten GA, et. al. *Estimated Risk of the Human Immunodeficiency Virus by Screened Blood in the United States* New England Journal of Medicine, Vol. 333, Number 26, pp-1721-25

Report and Recommendations; Fifth Consensus Conference on Testing for Human Retroviruses, March 6-8, 1990; Association of State and Territorial Public Health Laboratory Directors.

This fact sheet was adapted from the New York State and New York City Joint Recommendations for HIV Testing and Re-Testing

For HIV/STD testing locations in Texas, call: 2-1-1

For other HIV/STD questions, call:
1 (800) CDC-INFO (English/Español)
1 (888) 232-6348 (TTY)

For more information, go to: www.dshs.state.tx.us/hivstd

DSHS TB/HIV/STD Unit
DSHS Stock E13-11918
Revised 1/2005

TEXAS Department of State Health Services