COUNTY OF SAN LUIS OBISPO
PUBLIC HEALTH LABORATORY

Messenger

January 2017

Laboratory Diagnosis of HIV

Human Immunodeficiency Virus (HIV) continues to cause an estimated 40-50,000 new infections each year in the US, confounding multiple decades of effort to understand, detect, treat, and prevent this insidious viral infection. Among the advances made in the laboratory detection of HIV has been a progression of improvements in the sensitivity and specificity of the HIV screening tests. These improvements are often referred to as generations and the recommendations for use of these tests have recently changed. During 2016 the County of San Luis Obispo Public Health Laboratory (SLOPHL) adopted a 4th generation serum screening test called the HIV 1-2 Combo EIA (Bio-Rad) and the only FDA-cleared supplemental test called the HIV 1-2 Geenius assay (Bio-Rad). The combination of these two assays provides the most sensitive and specific serologic testing algorithm made available to laboratories to date.

Screening Test. The Bio-Rad HIV 1-2 Combo is designed to not only detect HIV type 1 and type 2 antibodies, but is also capable of detecting a component of the HIV-1 virus called p24 antigen. The p24 antigen is often present in the blood before HIV-specific antibodies appear. While an overwhelming portion of HIV infections is caused by HIV-1, the rare HIV-2 infection must also be effectively detected to allow proper patient management and prevention of transmission.

Supplemental Test. A repeatedly reactive HIV serum screening test must be followed with a second test. Although often referred to as a confirmatory test, this second test is properly referred to as a supplemental test, as only viral culture and certain molecular amplification assays can conclusively confirm the presence of the virus. The Bio-Rad HIV Geenius assay is a serologic lateral flow device with photometric scanning of the developed testing cartridge and computerized interpretation of results. For several years, in the setting of indeterminate serologic results, the SLOPHL has referred certain specimens to the Florida State Public Health laboratory for qualitative HIV RNA testing—the marker that appears first in HIV infection.

Additionally, SLOPHL will continue to offer the 1st generation HIV-1 antibody screening test and the HIV-1 Western Blot as a supplemental test on oral fluids for community partners that lack phlebotomy capability.

Advancing HIV screening and diagnostic testing technologies is an important tool for preventing transmission. As reported in a recent study, the time of detection of HIV antibody with use of a 4th generation serum screening test is only 5 days longer than detection of HIV RNA, while 1st generation tests may require 16-24 days for diagnosis. Among high risk groups, the additional 2-3 weeks for test results could mean the difference in extra precaution being taken with susceptible sexual or needle sharing partners (Clinical Infectious Disease 64:54-59, 2017). Questions on laboratory testing? Call (805) 781-5507.

SAVE THE DATE - Laboratory Workshop on Agents of Bioterrorism

The San Luis Obispo County Public Health Laboratory will be hosting a "wet" workshop on agents of bioterrorism on **March 25th, 2017** at Cal Poly in San Luis Obispo. You will learn, as sentinel lab personnel, proper rule-out and referral protocols through a series of lectures and a practical, hands-on section. Best yet, you can **earn 7 CEUs** offered through The California Association of Public Health Laboratory Directors. For more information, contact Kyllie Bouget at 805-781-5507 or kbouget@co.slo.ca.us.

Priority for seats for the workshop will be reserved for individuals who have not previously attended this workshop. Registrations for individuals who have previously attended this workshop may be waitlisted to ensure this priority. Students may request registration to attend lectures only.