Abstract #48

Can Sequentially Reactive HIV EIA's Replace HIV-1 Western Blot Testing?: Results of HIV-1 Western Blot Testing on Specimens that were Dual Reactive in both a Third generation HIV-1/ HIV-2 EIA and a First Generation HIV-1 EIA.

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ABSTRACT

It has been suggested in some of the proposed testing strategies to use sequentially reactive EIA's and/or rapid tests to replace conventional HIV-1 western blot testing.

Since the late 1980's the Maryland DHMH Laboratory has routinely performed a HIV antibody testing algorithm that tests all specimens simultaneously in parallel in two EIA's. Specimens that are initially reactive in both EIA's or repeatedly reactive in at least one of the EIA's are forwarded for HIV-1 western blot testing (WB). From 10/01/04 through 4/30/07 over 117,000 non-cadveric specimens were screened using a third generation EIA [HIV-1-HIV-2 plus O (Bio-Rad)] and a first generation viral lysate HIV-1 EIA (BioMerieux: Vironostika).

During that time vast majority (99.17 %: 4417/4454) of the dual EIA reactive specimens were initially confirmed as HIV-1 antibody positive by WB. Subsequent HIV-1 NAAT, HIV-2 testing and follow-up HIV-1 testing has demonstrated that 23 of the 37 dual EIA reactive specimens that were not initially confirmed as HIV-1 antibody positive by WB were from individuals who were infected with HIV-1 or HIV-2. No evidence of an HIV infection could be established in only 14 of the 4454(0.31%) dual HIV EIA reactive specimens. In 10 of these 14 cases the patients have been lost to follow-up.

This study has demonstrated the potential promise of using sequentially reactive EIA's to confirm HIV-1 antibody reactions in lieu of WB testing. However when using this approach it is highly recommended that the most sensitive assay be used for the initial screening with the discordantly reactive specimens subjected to additional or follow-up testing . Also it is necessary when implementing this strategy to predetermine that the populations of falsely reactive specimens that are generated due to the inherent level of non-specificity in each of the assays do not significantly overlap.