

Performance of six commercial enzyme immunoassays and two alternative HIV-testing algorithms for the diagnosis of HIV-1 infection in Kisumu, Western Kenya.

Abstract:

Performances of serological parallel and serial testing algorithms were analyzed using a combination of three ELISA and three rapid tests for the confirmation of HIV infection. Each was assessed individually for their sensitivity and specificity on a blinded panel of 769 retrospective sera of known HIV status. Western blot was used as a confirmatory assay for discordant results. Subsequently, one parallel and one serial testing algorithm were assessed on a new panel of 912 HIV-positive and negative samples. Individual evaluation of the ELISAs and rapid tests indicated a sensitivity of 100% for all assays except Uni-Gold with 99.7%. The specificities ranged from 99.1% to 99.4% for rapid assays and from 97.5% to 99.1% for ELISAs. A parallel and serial testing algorithms using Enzygnost and Vironostika, and Determine followed by Uni-Gold respectively, showed 100% sensitivity and specificity. The cost for testing 912 samples was US\$4.74 and US\$ 1.9 per sample in parallel and serial testing respectively. Parallel or serial testing algorithm yielded a sensitivity and specificity of 100%. This alternative algorithm is reliable and reduces the occurrence of both false negatives and positives. The serial testing algorithm was more cost effective for diagnosing HIV infections in this population.