

Thesis Title The Evaluation of Diagnostic
Properties and Cost-effectiveness
of the New Rapid Test for Anti-HIV
Detection.

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ABSTRACT

The conventional method for detection of antibody to HIV infection is screening by the ELISA test and then confirming the positive results by the Western Blot test. These techniques are quite laboursome and are relatively expensive. Normally they are not suitable for use in small health or medical services. Many new rapid tests have been developed as an alternative tests to ELISA. In this study we determined the diagnostic properties of the HIV-1 + HIV-2 Dipstick rapid test in detection of antibody to HIV type 1 and type 2 in human sera or plasma and comparing to ELISA.

The cost-effectiveness of this newly developed rapid test(HIV-1 + HIV-2 Dipstick) was analyzed in comparison to ELISA.

A total of 260 serum samples were randomly chosen from the panel of sera obtained from several high risk groups of contracting HIV infection namely, pregnant women attending ANC clinic, injecting drug users(IDU's), blood donors, female commercially sex workers(FCSW) and sexually transmitted disease(STD) patients stored at the Division of Virology, Department of Microbiology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand. These positive samples were tested by ELISA and then confirmed by Western Blot which are regarded as the gold standard and compared to the HIV Dipstick rapid test. The sensitivity and the specificity of the new rapid test were 100% (95% CI; 88.4,100) and 99.6% (95% CI; 97.7,99.9) respectively for whole group and for individual groups when compared to ELISA. The positive predictive value was 96.8% (95% CI; 83.3,99.9) and the accuracy of the test was 99.6%(95% CI; 97.9,99.99).

The cost effectiveness of the new rapid test were assessed as compared to ELISA tests. The direct medical costs and direct non-medical costs were calculated for conventional ELISA and new rapid test. It was observed that the cost of ELISA was US \$ 439.6/260 tests and US \$ 859/260 tests of new rapid test. After analyzing for cost-effectiveness of new rapid test it was observed that the cost was US \$ 419 less

expensive than the conventional ELISA US \$ 439.6

Therefore the new rapid test(HIV-1 + HIV-2 Dipstick) may be suitable for small health or medical settings especially in developing countries. Not only that the test was highly sensitive and specific as compared to conventional ELISA and ELISA/Western blot but it was also more cost-effective than the conventional method especially ELISA test.