

HIV Type 1 Incidence Estimates Using the BED-EIA Assay in Young Thai Men from 2005-2008 in Thailand

S Tabprasit¹, K Kana¹, E Sununtarod², K Seakam², P Chaitaveep¹, T Chuenchitra¹ and S Nitayaphan¹

¹Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand ²Army Institute of Pathology, Bangkok, Thailand

Abstract

Background: Recruitment of Royal Thai Army (RTA) male conscripts (mostly 21 years old) occurs in April every year with placement taking place twice a year in May and November. Since November 1989, the Army Institute of Pathology and the Armed Forces Research Institute of Medical Sciences have conducted HIV-1 screening among RTA conscripts in order to assess the prevalence of HIV-1 infection. However, detection newly HIV-1 infection has gained much attention for extending the usefulness of HIV testing and surveillance in providing information about HIV incidence. Measurement of Human Immunodeficiency Virus 1 (HIV-1) incidence is important in identifying specific populations for young Thai men and to assess changes in infection patterns for preventive and therapeutic interventions. Incidence is usually calculated prospectively from cohort studies. However, this strategy is difficult due to potential loss to follow-up during the study. Moreover cohort studies are expensive and time consuming.

Objective: To estimate the incidence of HIV-1 infection among RTA conscripts.

Methods: Each year, over 50,000 young men age 21 or older are conscripted to serve in the RTA. The conscripts are selected by lottery yearly throughout Thailand. Since May 2000, males age 18-20 are permitted to volunteer for Army service. All enlistees are routinely screened for HIV-1 by enzyme-linked immunosorbent assay (ELISA) with Western Blot confirmation. From 2005, the HIV-1 seropositive subjects were tested by the Calypte® HIV BED-EIA, a quantitative assay in which specimens are evaluated against a Calibrator to generate an ODn value. An ODn of ≤ 0.8 is considered a recent (≤ 155 days) seroconversion.

Results: The prevalence of HIV-1 infection from 2005 to 2008 was 0.5. In 2005, twenty-five sera were positive by BED-EIA for recent seroconversion. Thus estimation of HIV-1 incidence was 0.14% per year (95% CI: 0.09-0.20). The estimation of HIV-1 incidence since 2007-2008 slightly increased and reached 0.28% per year (95% CI: 0.19-0.36).

Conclusions: Use of the BED-EIA allowed discrimination of 21% of HIV prevalent infections as recent seroconversions, and may be a practical and more economical tool for estimating HIV incidence compared to more laborious cohort studies.

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