

Effectiveness and cost analysis of Rapid Whole Blood Immunochromatographic P.f/P.v Assay for the diagnosis of *Plasmodium vivax* malaria in two rural areas of Sri Lanka

S D Fernando^{1*}, N D Karunaweera¹, W P Fernando², N Attanayake³ and A R Wickremasinghe⁴

¹ Department of Parasitology, Faculty of Medicine, Colombo, Colombo 07

² Anti-Malaria Campaign, Headquarters, Colombo

³ Department of Economics, University of Colombo, Colombo

⁴ Department of Community Medicine and Family Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda

A prospective study was conducted in two malaria endemic areas from May 2001 to March 2002 to determine the cost-implications of an immunochromatographic test that can detect *Plasmodium vivax* malaria. All consecutive subjects above five years of age who presented a history of fever were recruited into the study. Malaria infections were diagnosed by microscopic blood smear examination under field conditions (100 fields). Immunochromatographic (ICT) malaria P.f/ P.v (AMRAD, Australia) test was performed simultaneously by an independent investigator. The cost of diagnosis of malaria by blood smear examination and the ICT malaria P.f/ P.v test was estimated. Sensitivity, specificity and predictive values were calculated. The cost per case detected was simulated for different slide positivity rates and different sensitivities. The RDT had a sensitivity of 70% and a specificity of 99% for diagnosis of *P. vivax* as compared to field microscopy. The cost of performing ICT malaria P.f/ P.v test is approximately 14 times greater than blood smear examination for diagnosis of malaria. The cost per case detected is approximately 20 times greater than blood smear examination when the sensitivity of the test is 70%. The number of cases missed increases with slide positivity rate. The current cost of the ICT test is the most important barrier to its routine operational use for diagnosis of malaria. Further, the limited sensitivity of the test would lead to underdiagnosis of *P. vivax* which is the more prevalent species in this country.

This investigation received financial support from the National Science Foundation, Sri Lanka (Grant Number: RG/2001/M/09).