



Abstract

Persons with microscopically undetectable infections may go untreated, contributing to ongoing transmission to mosquito vectors. This study determined the magnitude and determinants of undiagnosed submicroscopic *Plasmodium falciparum* infections in a rural area of western Kenya. A health facility-based survey was conducted, and 367 patients seeking treatment for symptoms consistent with uncomplicated malaria in Homa Bay County were enrolled. The frequency of submicroscopic *P. falciparum* infection was measured by comparing the prevalence of infection based on light microscopic inspection of thick blood smears versus realtime polymerase chain reaction (RT-PCR) targeting *P. falciparum* 18S rRNA gene. Long-lasting insecticidal net (LLIN) use, participation in nocturnal outdoor activities, and gender were considered as potential determinants of submicroscopic infections. Microscopic inspection of blood smears was positive for asexual *P. falciparum* in 14.7% (54/367) of cases. All of these samples were confirmed by RT-PCR. 35.8% (112/313) of blood smear negative cases were positive by RT-PCR, i.e., submicroscopic infection, resulting in an overall prevalence by RT-PCR alone of 45.2% compared to 14.7% for

1. Ochwedo K.O, Omondi CJ, Magomere EO, Olumeh JO, Debrah I, et al. (2021) Hyper-prevalence of submicroscopic *Plasmodium falciparum* infections in a rural area of western Kenya with declining malaria cases. *Malaria journal* 20: 1-8.

Kevin O. Ochwedo is a molecular biologist with a passion for improving people's health and well-being by participating in programs aimed at malaria transmission reduction and eradication. He is *Plasmodium falciparum* Infections in a Rural Area of Western Kenya with Declining Malaria Cases. *J Plant Genet Breed* 2022.

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