

**EPIDEMIOLOGICAL IMPACT OF THE LARGE SCALE
DEPLOYMENT OF EARLY DIAGNOSIS AND COMBINATION
TREATMENT OF FALCIPARUM MALARIA ON THE
NORTHWESTERN BORDER OF THAILAND; THE TAK
MALARIA INITIATIVE**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
(TROPICAL MEDICINE)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

2006

ISBN 974-04-7322-9

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Ph. D. (TROPICAL MEDICINE)****THESIS ADVISORS: PRATAP SINGHASIVANON, Dr P.H., FRANÇOIS NOSTEN, Ph. D., NICHOLAS J. WHITE, DSc., JARANIT KAEWKUNGWAL, Ph. D.****ABSTRACT**

Early diagnosis and treatment with artesunate and mefloquine in combination has reduced the transmission of falciparum malaria and halted the progression of resistance to mefloquine in populations of displaced persons living along the Thai-Myanmar border. We extended the same strategy to all communities living in five districts of Tak province, northwestern Thailand.

Existing health structures were reinforced and village health volunteers trained to use rapid diagnostic tests and to treat positive cases with artesunate-mefloquine. Cases of malaria, hospitalisations, and malaria related deaths were recorded in the six years before, during, and one year after the intervention. Cross-sectional surveys were conducted before and during the intervention.

P. falciparum malaria cases fell by 34% [95% CI: 33.5; 34.4] and hospitalisations for falciparum malaria fell by 39% [95% CI: 37.0; 39.9] while hospitalisations for *P. vivax* remained constant. There were 32 deaths attributed to malaria during, and 22 after the intervention, a 52% [95% CI: 39.0; 64.0] reduction compared to the average of the previous six years. Cross-sectional surveys indicated that *P. vivax* had become the predominant species in Thai villages, but not in populations living on the Myanmar side of the border. In the displaced population, where the original deployment took place, the transmission of *P. falciparum* continued to be suppressed, the incidence of malaria remained low, and the *in vivo* efficacy of the 3-day artesunate-mefloquine combination remained high.

In the remote malarious northwestern border area of Thailand, the early detection of malaria by trained village health volunteers using rapid diagnosis tests and treatment with artesunate-mefloquine was feasible and reduced the morbidity and mortality of multi-drug resistant *P. falciparum*.

KEYWORDS: MALARIA / EARLY DIAGNOSIS / COMBINATION THERAPY / EPIDEMIOLOGY / THAILAND

165 P. ISBN 974-04-7322-9