

MALARIA PREVALENCE IN TSUNAMI-AFFECTED DISTRICTS OF ACEH, INDONESIA

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INTRODUCTION: Sumatra is one of Indonesia's outer islands that was most severely affected by the 2004 Indian Ocean Tsunami, with much of the destruction centered in Aceh Province. Aceh Province had been relatively isolated prior to the tsunami due to a long-standing separatist conflict, and although malaria is known to be endemic throughout much of Indonesia, little information on malaria prevalence in Aceh is publicly available.

The MENTOR Initiative, a non-governmental organization specializing in malaria control in complex emergencies, was one of many humanitarian groups which provided assistance in Indonesia after the tsunami. Given the paucity of baseline data on malaria prevalence, and the need to set priorities and monitor program effectiveness, the MENTOR Initiative conducted community-based malaria prevalence surveys in tsunami-affected subdistricts of Aceh Province.

METHODS: Surveys were conducted during the dry season each year, between May and July, 2005 and between April and July, 2006.

Five tsunami-affected districts were identified for the community-based malaria prevalence surveys, based on predicted malaria burden, and on their accessibility and security. Various subdistricts were selected from the districts. Both year's data are presented in this analysis. Within each subdistrict, probability proportional to size cluster sampling was used to select villages. Within each village, households were selected by simple random sampling. The target sample size was 10% of the population of each subdistrict. Written consent was obtained from the head of each household, and all members of the household were surveyed. Survey data was collected by two teams of health care providers (usually nurses) from the local clinics, and data collection was overseen by a supervising physician from the MENTOR Initiative. All patients who tested positive for malaria were given appropriate therapy.

Microscopy was considered the gold standard for diagnosis of malaria infection. Slides were prepared by survey staff and read by a MENTOR Initiative-trained laboratory technician as well as two technicians from the Provincial Health Office. Systematic external quality controls were conducted to ensure accuracy of the blood smear readings. In 2006, the slides from two subdistricts were damaged, therefore results from the rapid diagnostic test Falcivax are reported instead of slides results.

Data was entered into Epi Data and analyzed using Epi Info. Pearson's chi-square test was used to test for significance where appropriate. P values of < 0.05 were considered statistically significant. Written consent was obtained from the head of each household, and all members of the household were surveyed. Survey data was collected by a two teams of health care providers (usually nurses) from the local clinics, and data collection was overseen by a supervising physician from the MENTOR Initiative. All patients who tested positive for malaria were given appropriate therapy.

RESULTS:

DEMOGRAPHICS: In 2005 and 2006, a combined total of 220 villages, with 11,763 individuals in 3771 households, were surveyed. Overall, 43.6% (n= 5,130) of those surveyed were male. 12.3 % (n = 1447) of the population surveyed was < 5 years old.

MALARIA PREVALENCE: The overall prevalence of malaria parasitemia 2.1%. Males were significantly more likely to have parasitemia than females (2.8% vs 1.5%, p < 0.01). Parasitemia was more less common in children < 5 years old (0.6% vs 2.3%, p < 0.01).

Table 1: Prevalence of malaria in subdistricts surveyed (2005 and 2006)

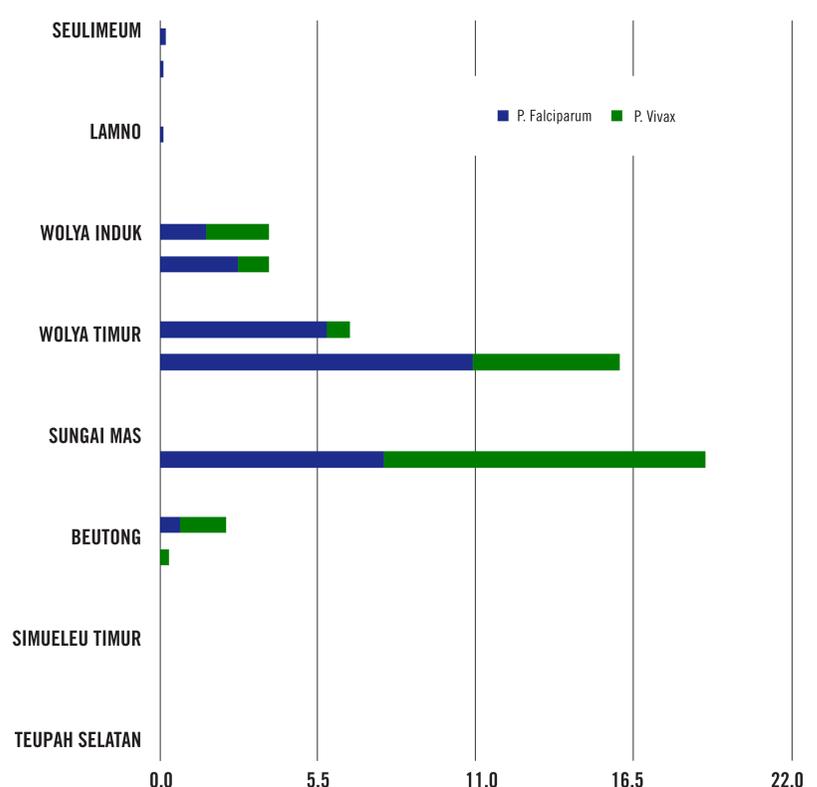


Table 2: Range of parasitemia rates among villages

SUBDISTRICT	2005 (%)	2006(%)
Seulimeum	0 - 22	0 - 1.3
Lamno	1.0 - 1.5	0
Wolya Induk	0 - 13	0 - 26
Wolya Timur	0 - 31	0 - 41
Sungai Mas	-	0 - 55
Beutong	0 - 7	0 - 4
Simueleu Timur	0	-
Teupah Selatan	0	0

There was a wide range of parasitemia prevalence among villages within the same subdistrict

CONCLUSIONS: Malaria endemicity varies greatly within districts in Aceh Province. Certain villages were found to be hyperendemic, with a prevalence far higher than average in Indonesia, and similar to Sub-Saharan Africa. There is a need for ongoing malaria surveillance in Aceh Province to monitor prevention and treatment efforts.



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