

## Hospital Surveys of Malaria in Central and Southeast Thailand

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### OBJECTIVES :

1. To determine how much malaria was seen at the Prachinburi Hospital in Central Thailand, the severity of the disease, and what drugs were used for treatment.
2. a. To determine the clinical picture of malaria at Trad Hospital, in Southeast Thailand.  
b. To perform parasite counts on patients suspected of malaria, as a service for the Trad Hospital.  
c. To screen patients with falciparum malaria suitable for a SMRL study.

### DESCRIPTION :

Prachinburi Hospital. Therapeutic studies were performed at this hospital between July 1972 and January 1973. (See reports by MAJ Segal).

The hospital keeps records of the number of patients with malaria and these are presented. Between 20 November and 19 December 1972 a survey was conducted on all patients admitted with malaria to the adult wards. The pediatric ward was not included. The SMRL team performed quantitative parasite counts on the majority of patients who were admitted.

Trad Hospital. SMRL studies were resumed at the Trad Hospital on 11 January 1973. The SMRL malaria unit occupies an unused ward located above the Male Medical Ward, by courtesy of Dr. Sanong Kosakal the Medical Director of the hospital. Half the area has been converted into a spacious laboratory and the remainder into living quarters for the technicians and drivers. The clinic is open 0600 to 2200 daily. Anybody may walk in and have a malaria smear done. Other patients are referred from the hospital outpatient clinic.

Patients with a positive smear are interviewed (current symptoms, history of previous malaria), examined (fever and splenomegaly as a minimum) and a quantitative parasite count is determined. In consultation with the Trad physicians, the patients are admitted to the hospital or treated as outpatients.

### PROGRESS ;

Prachinburi Hospital. Between 1968 and 1971 the hospital diagnosed malaria in between 500 and 900 individuals annually. Deaths from malaria ranged from 27 to 58 (Figure 1). It is not clear whether all these diagnoses were confirmed by microscopy. The seasonal variation in the malaria rate is shown in Figure 2. Peaks occurred in July and November. There was little malaria between January and June. Further details for 1971 are shown in Table 1.

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Between 20 November and 19 December 1972 SMRL diagnosed 76 inpatients as having falciparum malaria and 8 as having vivax malaria. Twelve other individuals diagnosed as having malaria did not pass through the SMRL Laboratory. Thus malaria was the working diagnosis in 96 people.

The distribution of the parasite counts of *P. falciparum* patients are shown in Figure 3. The largest group had counts between 10,000 and 100,000/cmm (same as at Trad). There was a tendency for women to have lower parasite counts (Table 2). Ninety-six individuals were given antimalarial therapy and the frequency of each type of medication is shown in Table 3. (Patients in the SMRL therapeutic study are not included). The SMRL team screened most of the outpatients suspected of having malaria and the results are shown in Table 4.

Trad Hospital. Up to 30 June 1973, the clinic had been open for 171 days and had examined 3073 patients of whom 1272 were infected with *Plasmodium falciparum* and 196 with *P. vivax* (Table 5).

The largest group of patients with falciparum malaria had a parasite count between 10,000 and 100,000 per cmm (Table 6). The distribution of parasite counts was similar to that seen in the Prachinburi Hospital in Central Thailand.

There was a tendency for parasitemia to be lower in women and in older people (Table 6).

Splenomegaly was present in 31% (54/172) of patients with falciparum malaria and in 45% (13/29) of patients with vivax malaria (not all patients were examined).

By doing parasite counts before admission and when requested afterwards, the SMRL clinic greatly assists in the management of the patients with malaria.

#### CONCLUSIONS:

1. Malaria is much less prevalent at the Prachinburi Hospital (fewer than 900 cases annually) than at the Trad Hospital (about 3000 cases annually).
2. At the Prachinburi Hospital intravenous quinine is the most popular form of therapy and Fansidar is next. (A combination of quinine and tetracycline is the standard treatment at the hospital in Trad).

Table 1.  
Prachinburi Hospital 1971. Monthly Incidence of Malaria  
and Areas Where Patients Lived

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent
Malarial Cases	43	23	28	31	47	98	136	103	81	117	95	60	862	13.37
P. falciparum	43	23	28	31	47	98	134	100	78	115	95	60	852	98.84
P. vivax	—	—	—	—	—	—	2	3	3	2	—	—	10	1.16
Deaths	2	1	2	1	2	8	10	6	7	8	6	5	58	6.73

Table 1. (Continued)

Location	Total	%
Kabin Buri	224	25.99
Other Province	187	21.69
Sa Kaeo	125	14.50
Si Mahaphot	124	14.39
Prachinburi City	93	10.80
Prachantakham	67	7.77
Wat Thananakhon	29	3.36
Aranya Prathet	9	1.04
Ban Sang	3	0.35
Ta Phraya	1	0.12
Incidence of complications		
Cerebral	17	1.97
Jaundice	15	1.74
Recrudescence	29	3.36

Table 2.  
Prachinburi Hospital Survey November 1972  
Sexual Distribution of counts of *P. falciparum*

Parasite Count <sup>1</sup>	Total Patients	Male	Female	% Female
< 1,000	13	7	6	46 %
1,000 - 100,000	44	30	14	32 %
> 100,000	19	14	5	26 %
Total	76	51	25	

<sup>1</sup> Asexual parasites per cmm

Table 3.  
Prachinburi Hospital November 1972. Frequency of  
Administration of Each Type of Antimalarial Therapy

Intravenous Quinine	Fansidar	Oral Chloroquine	Primaquine	Oral Quinine	Bactrim	Tetracycline
60	44	34	24	6	2	2

Table 4.  
Malaria Diagnoses in the SMRL Outpatient Clinic,  
Prachinburi Hospital 1972

Month	Patients Screened*	Falciparum	Vivax
September	63	17	2
October	74	23	6
November	97	41	7
December	88	36	8

\* These figures do not include patients examined for the first time after admission to a ward.

Table 5.  
Malaria Diagnoses in the SMRL Outpatient Clinic,  
Trad Hospital 1973

	Patients		
	Screened	Falciparum	Vivax*
January (11th - 31 st)	167	75	11
February	318	102	14
March	618	278	44
April	743	344	38
May	642	252	43
June	<u>585</u>	<u>221</u>	<u>46</u>
Total	<u><u>3073</u></u>	<u><u>1272</u></u>	<u><u>196</u></u>

\* *P. vivax* comprised 13% of all malaria cases.

Table 6.  
SMRL Malaria Clinic at Trad\*. Distribution of  
Parasite Counts of *P. falciparum* In Males and Females

Parasite Count/cmm	0-100	100-1000	1000-10000	10,000-100,000	100,000+	
No. Males	35 (8%)	70 (16%)	131 (34%)	164 (38%)	34 (8%)	434
Average Age	31	29	25	27	24	28
No. Females	3 (10%)	9 (33%)	10 (36%)	5 (18%)	1 (3%)	28**
Average Age	42	26	18	25	—	24

\* Only includes data up to 31 March 1973

\*\* Many females with malaria were not seen in the clinic.

Fig. 1.

PRACHINBURI HOSPITAL. ANNUAL CASES OF  
MALARIA AND DEATHS. 1968 - 1971

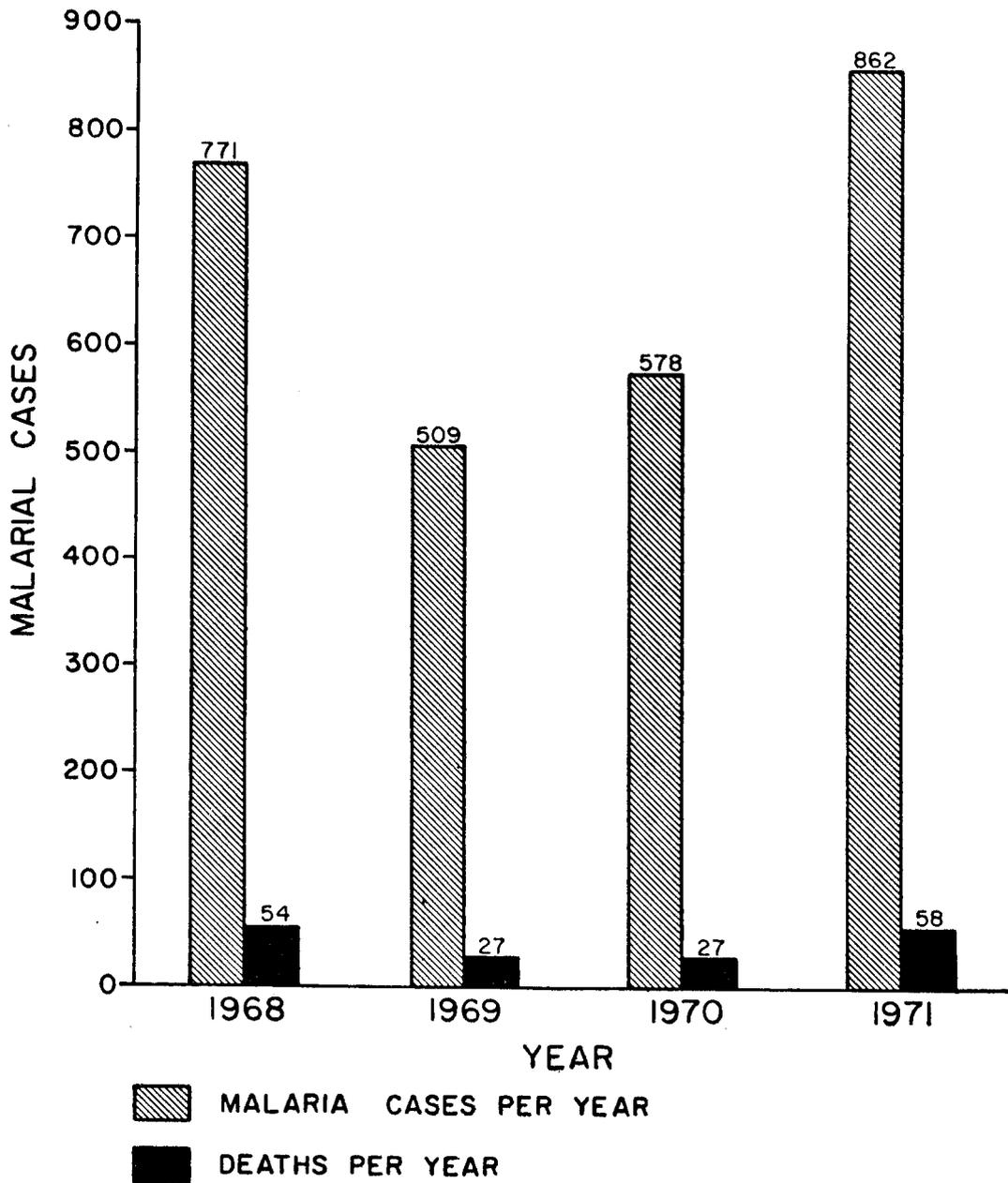


Fig. 2.  
 PRACHINBURI HOSPITAL  
 MONTHLY DIAGNOSES OF MALARIA 1968-1971

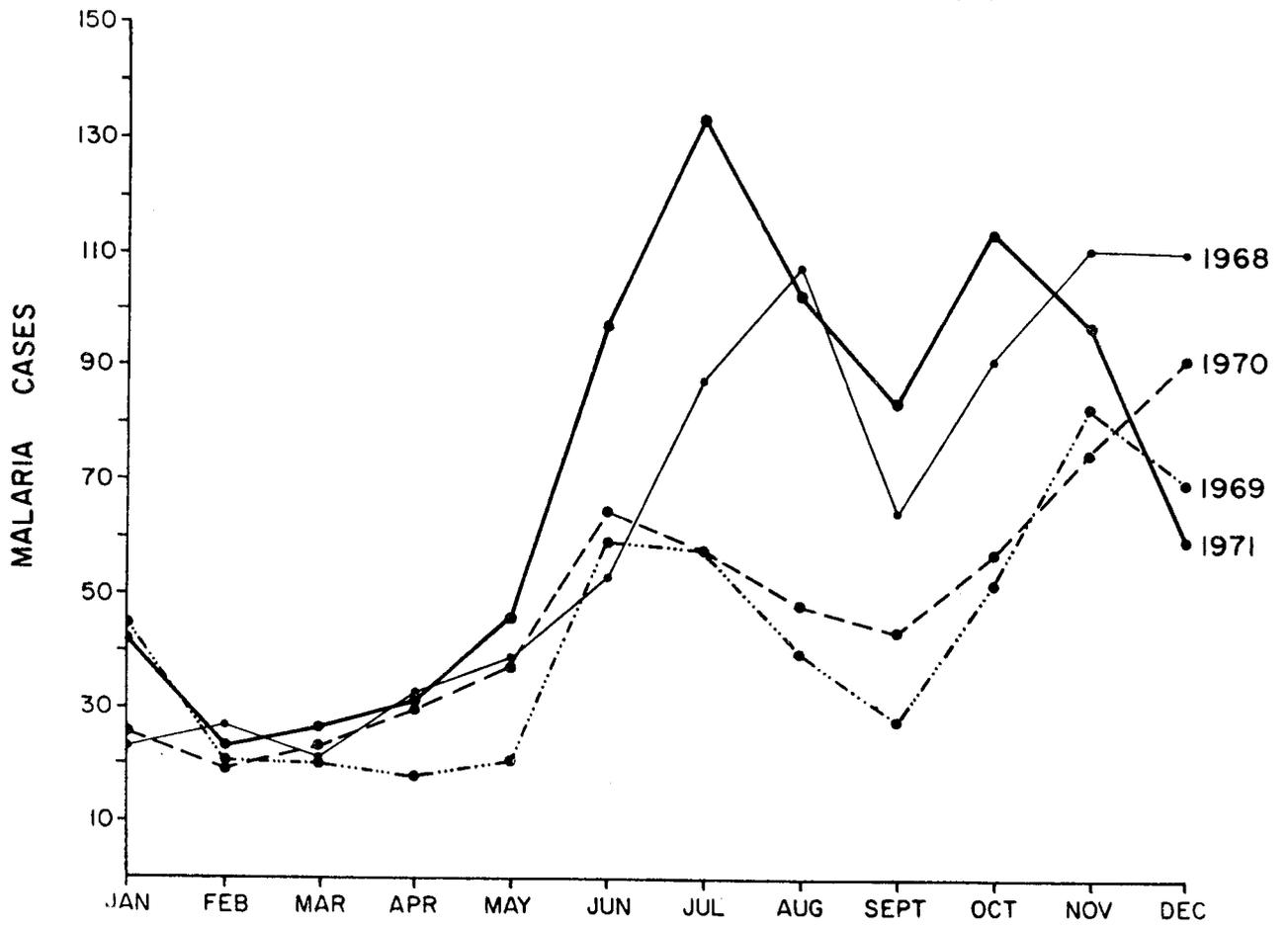


FIG. 3  
PRACHINBURI HOSPITAL  
DISTRIBUTION OF PARASITE COUNTS

