A Malaria Survey Conducted at Panom Sarakam in Cha Choeng Sao Province.

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OBJECTIVE: To conduct a malaria survey on a stable population of workers and families located in the forest at a lumber camp.

BACKGROUND: An earlier visit to this lumber camp indicated that this area may be a satisfactory area for detailed study of the immune response to malarial infections. Although the population is relatively small it is stable and would provide a continuing source of material for several studies. The camp is located within a 2 hour drive from the laboratory thereby providing good accessibility. Migration is limited and the population is willing to participate in a malaria study.

DESCRIPTION: A survey was conducted over a two day period, which included a majority of the workers and their families. The name of each individual was recorded and blood samples were obtained by venipuncture on everyone possible. Finger or heel sticks were made on infants. Two thick and thin blood smears were made for each individual, hematocrit tubes were filled, and a collection of the blood was made on filter paper (Whatman No. 1) in a predescribed area. The remainder of the blood was allowed to clot and the serum was removed. After the hematocrit reading was obtained, the tubes were cut at the cell–plasma interface, both ends of the plasma containing portion of the tube sealed with clay and the tube placed on ice. Upon return to the laboratory the tubes were emptied and the plasma frozen. The filter papers were appropriately labeled, allowed to dry and placed in air tight containers. The serum from the clot, plasma from the hematocrit tubes and the filter paper extracts will be assayed by radioimmunoassay to determine antibody levels, and results of the three collection methods compared. Each individual was examined for enlargement of the spleen and a history of malaria infections was obtained. With the individuals complaining of fever, one thick blood smear was immediately stained with aqueous Romanowsky's stain and examined for the presence of parasites. All individuals with complaints were either treated or referred to one of the local hospitals for further examination and treatment.

PROGRESS: The resident population consists of approximately 400 individuals of which 100 are classified as full time employees. An additional 100 employees live off the plantation and commute to work on a daily basis. The age at which an individual enters the jungle to work on a full–time basis is 15; however, children as young as 10 are employed on a part–time basis to clear weeds and underbrush. A total of 327 individuals were included in the survey. Venipunctures were done on 262 individuals with hematocrit tubes being filled by finger or heel sticks on 25 more, giving a total of 297 collections of serum and/or plasma and corresponding filter paper collections. A total of 315 individuals were examined for spleen size (Table 1) with a spleen rate of 10.48%. A total of 294 thick and thin smears were examined twice by WHO standards with 59 positive for a parasitemia rate of 20.07% (Table 2). The asexual parasitemia rate was low (Table 3). Both palpable spleens and parasitemia were observed primarily in individuals 15 years of age and older. Approximately 18% of the observed parasitemias were in children of age 14 and under. Hematocrit values were within a normal range (35–50%) for the majority of the persons included in this study. Approximately 75% of the infections were asymptomatic as indicated by the medical histories.

Data from the radioimmunoassay is not yet available to determine the specific antibody levels, however the relatively high prevalence of malaria infections during the dry part of the year indicates that this area will be adequate for a study of the immune response as measured by specific antibody levels and by *in vitro* evaluation of the antibody molecule.

Table 1: Results of Spleen Examinations

Category	Spleen Size					Rate
	0	1	2	3	4	
Males under 15	23	0	2	5	1	11.27%
Females under 15	57	0	1	2	0	5.00%
Males 15 and older	95	1	5	11	0	15.18%
Females 15 and older	67	1	0	4	0	6.94%
Total	282	2	8	22	1	10.48%

Table 2: Results of Blood Film Examination

Category	NPS*	*P. falciparum*	*P. vivax*	Mixed	Rate
Males under 15	44	7	3	0	18.52%
Females under 15	41	6	1	0	14.29%
Males 15 and older	84	20	10	0	26.32%
Females 15 and older	66	8	2	2	15.38%
Total	235	41	16	2	20.07%

* NPS — No parasites seen.

Table 3: Observed Gametocytemia

Category	*P. falciparum*	*P. vivax*	Mixed
Sexual Parasite Rate	0.0%	0.0%	0.0%
Asexual Parasite Rate	1.0%	0.0%	0.0%
Mixed	12.88%	5.76%	0.36%
Total	13.88%	5.76%	0.36%