

**Study Reports:**

1. Title: Prevalence and distribution of histoplasmin hypersensitivity among Thai nationals

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The percentage of histoplasmin sensitivity among lifetime residents of a given area is an index of the exposure rate that can be anticipated should non-resident personnel move into the area. For this reason, Korat (Nakorn Rajasima) was selected as the first area to study. Lt Col G. Hennard, Surgeon 9th Logistical Command, assisted in the establishment of contacts resulting in the histoplasmin skin testing of 610 adult Thais (532 males; 78 females). The overall percentage of reactors was found to be 5.40 (5.82% males; 2.56% females).

The second area to be surveyed was Chiangmai province in north Thailand. Dr. Kampol Panas-Ampol, Head of the Department of Microbiology at the Chiangmai Medical School, and Dr. Leon Le Beau, University of Illinois advisor to the Department of Microbiology, made the arrangements to apply skin tests in the school system. A total of 542 (278 males; 264 females) young adults (14 to 20 years of age) were tested. The histoplasmin sensitivity was found to be 4.8 per cent with females having only a slightly lower rate than males.

The third geographic area studied was Udonthani province in the northeast of Thailand. Dr. Kasem Chittayasothorn, Director of the provincial hospital, made arrangements to apply histoplasmin skin tests in the provincial prison. The prison provided an excellent population for our purposes since it is an adult group, readily accessible for reexamination 48 hours after testing. It was also possible to select lifetime residents of given areas from the group. Subsequent studies were conducted in prisons whenever possible. Six hundred forty six adults (633 males; 13 females) were tested. The overall percentage of reactors was found to be 6.8 (6.95% males; 0.0% females).

Dr. Udom Legsomboon, microbiologist at Ubol provincial hospital, assisted in a similar survey conducted in the Ubol provincial prison. Five hundred ninety two persons (572 males; 10 females) between the ages of 16 and 70 years of age were tested. The percentage of reactors was 5.74 per cent (5.84% males; 0.0% females) and was comparable to rates found in north and northeastern areas of Thailand.

The histoplasmin sensitivity in central Thailand was determined by testing 500 male inmates (18 to 65 years of age) of Bangkwang prison (Nondhaburi, near Bangkok). Dr. Suchit Pookavej, Department of Interior, made arrangements for testing. Residents of the central plains were found to have a three and non-half fold higher reactor rate than residents of the northern provinces (18% males; females not tested).

Chanthaburi was selected as a representative area in the southeast of Thailand and 208 prisoners and 77 Shai marines were skin tested. The reactor rate among the 208 prisoners (203 males; 5 females) was 19.2 per cent, whereas among the marines the rate was 14.3 per cent. The discrepancy between reactor rates can be attributed to age distribution in the two groups. The Thai marines were all between 20 and 23 years of age while many of the prisoners were older, hence had greater opportunity to develop histoplasmin hypersensitivity.

The last geographic area studied during the period of this report was the southern peninsula of Thailand which is contiguous with Malaysia. Histoplasmin skin tests were applied to 515 inmates (482 males; 33 females) of the Songkhla provincial prison. Slightly more than 25 per cent of the males and 9 per cent of the females were reactors. The overall reactor rate of 24.3 per cent is the highest yet found in Thailand and five times greater than found in Chiangmai province in the north of Thailand.

The histoplasmin survey of Thailand is approaching completion, with information obtained from seven population centers in different geographic regions. Two additional sites in the southeast and west of Thailand may be examined in the near future.

The results are summarized in Table 1 and the histoplasmin reaction sizes (induration) plotted in figure 1. The frequency distribution of histoplasmin reaction sizes were used as an index of the specificity of these reactions among Thai nationals. The reactions can be seen to fall into a bimodal distribution with a low frequency at 4 mm. Therefore, the 5 mm criterion used in this study would appear to afford a satisfactory separation of positive from negative reactors. The plot of reactions measuring 5 mm or greater resembles a normal distribution curve with a maximum frequency a 9 mm. Similar distributions have been found in areas of endemicity, and are used to verify specific histoplasmin sensitivity and to rule out cross-reactions or non-specific reactions. The raw data reported in Table 1 must be considered in view of factors which influence the results in any histoplasmin survey; such as ratio of males to females, age, and occupation of the test population. In general, the percentage of histoplasmin sensitivity increases in the same population with every year of age. Males uniformly react in a higher percentage than do females, and occupations closely associated with agriculture or the soil have a higher sensitivity rate. In this survey age and sex are the most important differences among the populations tested in the various geographic regions. In every area except Chiangmai and possibly Korat the number of females was too low to be of significance. In Chiangmai the female rate was unusually similar to that found in males and therefore did not unduly depress the overall percentage. Adults comprised the majority of the test group in each area except in Chiangmai where the survey was conducted in the secondary school system. For this reason caution must be exercised when comparing the number of reactors in Chiangmai with other areas. A lower rate is to be anticipated among the younger people.

The results of 3690 histoplasmin skin tests in Thailand indicate a low Histoplasma capsulatum endemicity in most areas of the country with few clinical cases occurring each year. The areas of highest endemicity are the southern peninsula and the southeastern provinces of Thailand.