

ANNUAL PROGRESS REPORT

SEATO Medic Study No. 65      Diarrhea Outbreaks in U.S. Personnel in Thailand

Project No. 3A 025601 A 811      Military Medical Research Program S. E. Asia

Task 01:      Military Medical Research Program S. E. Asia

Subtask 01:      Military Medical Research Program SEASIA (Thailand)

Reporting Installation:      US Army-SEATO Medical Research Laboratory  
APO 146, San Francisco, California

Division of Medical Research Laboratories  
Department of Bacteriology and Immunology

Period Covered by Report:      1 April 1963 to 31 March 1964

Principal Investigator:      Howard E. Noyes, Ph.D.\*

Associate Investigator:      Dr. Chiraphun Duangmani

Assistant:      Miss Poonsook Atthasampunna

Reports Control Symbol:      MEDDH-288

Security Classification:      UNCLASSIFIED

\* This study was initiated by Lt. Col. Sidney Gaines and was under his direction until 8 September, 1963.

ABSTRACT

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The objective of this study was to determine the cause and incidence of acute diarrhea in American personnel in Thailand where salmonellosis, shigellosis and other diarrheal diseases are endemic. Most American personnel and their dependents usually have one or more episodes of acute diarrhea shortly after their arrival in Thailand. In the event of outbreaks in U.S. personnel this department provides assistance in determining the source of the infecting organisms and in eliminating carriers in the immediate vicinity. Four strains of shigella and one

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strain of salmonella were isolated from 26 specimens submitted from two small outbreaks of acute diarrhea in American troops. Overall, 28 of 105 stool specimens from Americans residing in Thailand were positive for enteric pathogenic bacteria. There were 14 cases of shigellosis and 10 cases of salmonellosis in an area where salmonellosis cases usually outnumber shigellosis cases six to one.

BODY OF REPORT

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Objective: To determine the incidence and etiologic agents of acute diarrheas in American personnel in a geographic area where salmonellosis and shigellosis are epidemic. Most American personnel and their dependants usually have one or more episodes of acute diarrhea shortly after their arrival in Thailand. In the event of such an outbreak this department provides assistance in determining the source of the infection and in eliminating carriers in the immediate vicinity.

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Description: Specimens included in this study were from Americans residents in the Bangkok area or from various military installations throughout Thailand. In the latter instance rectal swabs were placed in a holding medium designed for transport of enteric bacteria and sent to this laboratory where they were inoculated into selenite-F enrichment broth and alkaline peptone broth. Locally swabs were placed directly into these two broths and submitted to this laboratory, usually within a few hours. In some instances, a series of rectal swabs were obtained from positive patients to ascertain the persistence of the organisms.

Upon receipt in the laboratory each selenite-F broth was subcultured onto desoxycholate-citrate and MacConkey Agar plates. After overnight incubation, the selenite-F broth was again subcultured, this time to Salmonella-Shigella and eosin-methylene blue or MacConkey agar plates. All incubations were at 37 C.

All plates were examined after 24 and 48 hours incubation. Lactose negative colonies were transferred to Kligler's iron agar slants, and subsequently into a variety of media to determine patterns of biochemical activity. Those isolates showing biochemical changes characteristic of enteric pathogens were definitively identified serologically in accordance with methods described by Edwards and Ewing.

Progress: In a small outbreak in U.S. troops in the vicinity of Korat, Thailand in April 1963, Shigella flexneri 3 was isolated from one of six individuals. In May 1963 a second outbreak occurred in U.S. troops in the same vicinity. Specimens from 20 patients were received. Shigella sonnei 1 was isolated from 4 specimens; Shigella flexneri 2 from 3 specimens, Shigella dysenteriae 1 from one specimen and Salmonella anatum from one specimen.

During the year 79 additional specimens from Americans were analyzed. The results in Table I show that 14 of the 28 enteric pathogens isolated were shigella a proportion much greater than found in the Thai population where salmonella isolates outnumber shigella isolates about 6 to 1.

Considering the number of Americans who are entitled to submit specimens to this laboratory these data indicate a remarkably low incidence of acute diarrhea in an area where diarrheal diseases are endemic and a significant portion of the population is known to harbor enteric pathogens.

Summary: Twenty-seven of 105 stool specimens from Americans residing in Thailand were positive for enteric pathogenic bacteria. There were 14 cases of shigellosis and 10 cases of salmonellosis in an area where salmonellosis cases usually outnumber shigellosis cases six to one.

Conclusion: The incidence of acute diarrhea in American personnel in Thailand was quite low, presumably the result of an awareness of the prevalence of the disease and the resultant attention to sanitation.

TABLE I

Enteric Pathogens Isolated from U.S. Personnel in Thailand from  
1 April 1963 - 31 March 1964

<u>Organism</u>	<u>Number</u>
<u>Shigella sonnei</u> form 1	6
<u>Shigella flexneri</u> 2	3
<u>Shigella flexneri</u> 3	3
<u>Shigella flexneri</u> 4	
<u>Shigella dysenteriae</u>	1
<u>Salmonella anatum</u>	3
<u>Salmonella derby</u>	5
<u>Salmonella lexington</u>	1
<u>Salmonella newport</u>	
<u>Escherichia coli</u> O119:B14	
<u>Escherichia coli</u> O125:B15	2
<u>Vibrio cholerae</u> El Tor (Ogawa serotype)	1
No enteric pathogen isolated	77