

ANNUAL PROGRESS REPORT

SEATO Medic Study No. 61      Occurrence of Enteropathogenic Escherichia coli 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 Investigators:      Miss Yupin Achavasmith  
Mrs. Malinee Thareesawasdi

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 kinds and distribution of enteropathogenic Escherichia coli isolated from acute diarrheas in Thailand. During the period covered by this report the scope of this project has been reduced by limiting serotyping to strains isolated from children under 6 years of age. Only 20 of the 193 strains typed were enteropathogenic, but at least one example of each of 10 serotypes was identified. While there were no serious outbreaks of acute diarrhea caused by enteropathogenic E. coli it is apparent that the "inoculum" for such outbreaks is present. The study will continue on a limited basis.

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

BODY OF REPORT

SEATO Medic Study No. 61      Occurrence of Enteropathogenic Escherichia coli in Thailand

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Objective: To determine the kinds and distribution of enteropathogenic Escherichia coli isolated from acute diarrheas in Thailand. While these organisms are often responsible for serious diarrhea in children, they are less serious for adults. For this reason it was considered unnecessary to continue serotyping all strains of E. coli isolated from patients. Instead serotyping was limited to isolates from children under six years. This limited approach will enable continual surveillance of the pathogenic potential of this organism with the concurrent saving of time and materials.

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Description: The individuals included in this study were patients of both sexes from hospitals throughout Thailand. All were less than 6 years of age and were suffering from acute diarrhea, for which they had been hospitalized.

A rectal swab was taken from each child and placed immediately into a screw-capped tube of freshly prepared selenite-F enrichment broth or a tube of holding medium for transport and subsequent inoculation into selenite-F enrichment broth. After 24 and 48 hours incubation each selenite-F broth was subcultured to MacConkey agar or eosin-methylene blue agar plates. All incubations were at 37 C.

All plates were examined after 24 and 48 hours incubation. Representative lactose positive cultures 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 *E. coli* were definitively identified serologically in accordance with methods described by Edwards and Ewing.

Progress: During the period covered by this report only 20 strains of enteropathogenic *E. coli* were identified (Table I). Ten serotypes were represented, but there was no indication of an outbreak or even of related cases. It is apparent from the data presented that many serotypes of pathogenic *E. coli* are present in Thailand and as such constitute a potential medical problem to members of the military and their dependants. The study will continue on its present basis until an outbreak of acute diarrhea caused by this pathogen occurs. At that time the study will be expanded to help with the epidemiologic aspects of the outbreak.

Summary: Twenty of 193 strains of *E. coli* isolated from children under 6 years of age were enteropathogenic. None of the 20 isolates - representing 10 serotypes - were responsible for serious outbreaks of diarrhea.

Conclusion: The inocula for serious outbreaks of infant diarrhea caused by enteropathogenic *E. coli* are present in Thailand. The present limited survey will suffice to maintain proper surveillance of this danger.

TABLE I

Enteropathogenic Escherichia coli from Patients with Acute Diarrhea

Serotype	Total from 20 Dec 61 to 31 March 64	Total from April 63 to 31 March 64
025:B19	88	6
026:B 6	14	0
055:B 5	6	
086:B 7	18	
0111:B 4	2	0
0112:B11	16	1
0119:B14	48	2
0124:B17	6	1
0125:B19	27	4
0126:B16	6	2
0127:B 8	2	1
0128:B12	27	1
Rough	621	173