

FINAL REPORT

BODY OF 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

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SEASIA (Thailand)

Reporting Installation:                              US Army-SEATO Medical Research  
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Objective: The objective of this study was 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 considered 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 enabled continued surveillance of the pathogenic potential of this organism with concurrent saving of time and materials.

Description: 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. 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 37c.

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 185 strains of Enteropathogenic E. coli were isolated from 2763 specimens examined (Table I). More than half of these were accounted for by serotypes 025:B19 and 0119:B14. The former was found consistently throughout the year (Table II) while 33 of the strains of 0119:B14 were involved in an outbreak of acute diarrhea in the premature ward of Children's Hospital, Bangkok in July and August 1964. These results indicate that enteropathogenic E. coli are significant in diarrheal diseases of infants in Thailand. The fact that 11 of the 12 enteropathogenic serotypes searched for in this study were found in infants and small children suffering from acute diarrhea emphasizes the potential danger of outbreaks and continued sporadic cases of enteritis due to these organisms in the community.

Summary: Surveys of 2763 stool cultures from diarrhea patients less than 6 years old indicate that enteropathogenic E. coli were significant in diarrheal diseases of infants and small children in Thailand. Two outbreaks caused by organisms occurred during this reporting period.

Conclusion: The reservoir for serious outbreaks of infant diarrhea caused by enteropathogenic E. coli continue to be present in Thailand. The present limited survey will suffice to maintain adequate surveillance of this danger. Future results will be reported in SEATO Medic Study No. 60, "Bacteriologic Survey of Stools from Patients with Acute Diarrhea."

Table I  
 ENTEROPATHOGENIC ESCHERICHIA COLI FROM PATIENTS WITH  
 ACUTE DIARRHEA

	Total from	Total from	Caucasians
	1 Apr 63 to 31 Mar 64 (Thai Nationals)	1 Apr 64 to 31 Mar 65 (Thai Nationals)	
Number Typed	454	2222	541
Rough	173	1145	232
Negative	261	915	286
Positive	20	162	23
Serotypes			
025:B19	6	53	8
026:B6	0	2	4
055:B5	1	4	0
086:B7	1	8	4
0111:B4	0	1	0
0112:B11	1	7	2
0119:B14	2	40	1
0124:B17	1	18	0
0125:B15	4	17	1
0126:B16	2	4	1
0127:B8	1	0	0
0128:B12	1	8	2

Table II  
 DISTRIBUTION OF ENTEROPATHOGENIC ESCHERICHIA COLI BY  
 MONTH

Serotype	1964										1965		
	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
025:B19	2	2	2	2	12	6	12	1	5	6	6	5	
026:B6	1	1	1	1	1					1			
055:B5				2	2								
086:B7				1	6			1		2	2		
0111:B4								1					
0112:B11			2					1	1	2		3	
0119:B14	1		1	12	21			2		1	2	1	
0124:B17					5	1	3	6			1	2	
0125:B15	2	1		1	8	1	1			1		3	
0126:B16	1						2				2		
0127:B8													
0128:B12	1				4	1	2		1		1		
Total positive	8	4	6	19	59	9	20	12	7	13	14	14	