

**Surveillance of Dengue Hemorrhagic Fever
Cases in Thailand, 1973 and 1974**

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OBJECTIVE: The purpose of this study is to confirm the clinically diagnosed dengue hemorrhagic fever (DHF) cases reported to the Ministry of Public Health by using a hemagglutination inhibition (HI) serum screening technique.

BACKGROUND: Dengue hemorrhagic fever remains a major infectious disease in every province and town of Thailand, manifested by high mortality and morbidity in children under 14 years old. The social and demographic features of Thailand make effective control of DHF a complex problem. This program is a long-range study to help in planning public health DHF control measures. An earlier report contains the results obtained from a study of acute and convalescent blood of clinical DHF cases (1). This report compares the results from the first two years of this surveillance program.

DESCRIPTION: In 1974, 70 provincial hospitals submitted acute and convalescent dried blood for testing compared to only 60 provinces in 1973. The methods for blood collection on filter paper discs and HI tests have been described (2).

PROGRESS: The localities of provinces and towns contributing to the study are shown in Figure 1. The total number of cases tested in 1974 was 2850, a 130% increase over the 1236 cases of 1973. At the same time, the total number of cases reported to the Ministry of Health was nearly the same for both years. It appeared that in 1974 more communities participated in the program and many provinces submitted more specimens for testing.

Dengue infections were confirmed for 491 patients in 1973 and 1042 in 1974, but the frequency of confirmation fell from 40% to 37% since many more negative specimens were also obtained during the second year (Table 1). Specimens from 178 patients (13%) were unsatisfactory for testing in 1973, because of insufficient blood, incomplete clinical information, unpaired blood specimens or laboratory technical problems; these specimens were considered undetermined. In 1974, only 17 patients (0.6%) fell into the undetermined category. The striking decrease in the number of patients with undetermined results also reflects improved operation of the surveillance system.

Figures 2 to 6 illustrate the frequency of positive dengue cases by region and month. Although cases of dengue were confirmed for each month of 1974, the highest frequency of positive results was found during the usual epidemic season of May to November. Even then, positive cases rarely represented half of all of the cases tested. As seen in other reports, the epidemic period for the Central region was more prolonged than for the other regions (1).

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The experience with testing encephalitis patients for JEV infection was similar to that with testing DHF patients. In 1974, more patients were submitted from all regions except the North (Table 2). The overall frequency of JEV infections was the same for both years, but the number of undetermined specimens fell substantially.

DISCUSSION: The results of 1974 support the value of the surveillance system. During the 1974 dengue season, the physicians in the provincial hospitals submitted more and better specimens from a greater number of provinces than in 1973. This suggests an increasing awareness of the system on the part of referring physicians and a favorable reaction on their part.

REFERENCES:

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2. Top, F.H., Jr., Gunakasem, P., Chantrasri, C. and Supavadee, J.: Serologic Diagnosis of Dengue Haemorrhagic Fever Using Filter Paper Discs and One Dengue Antigen. SE Asian J. Trop Med and Pub. Health 6:18-24, 1975.

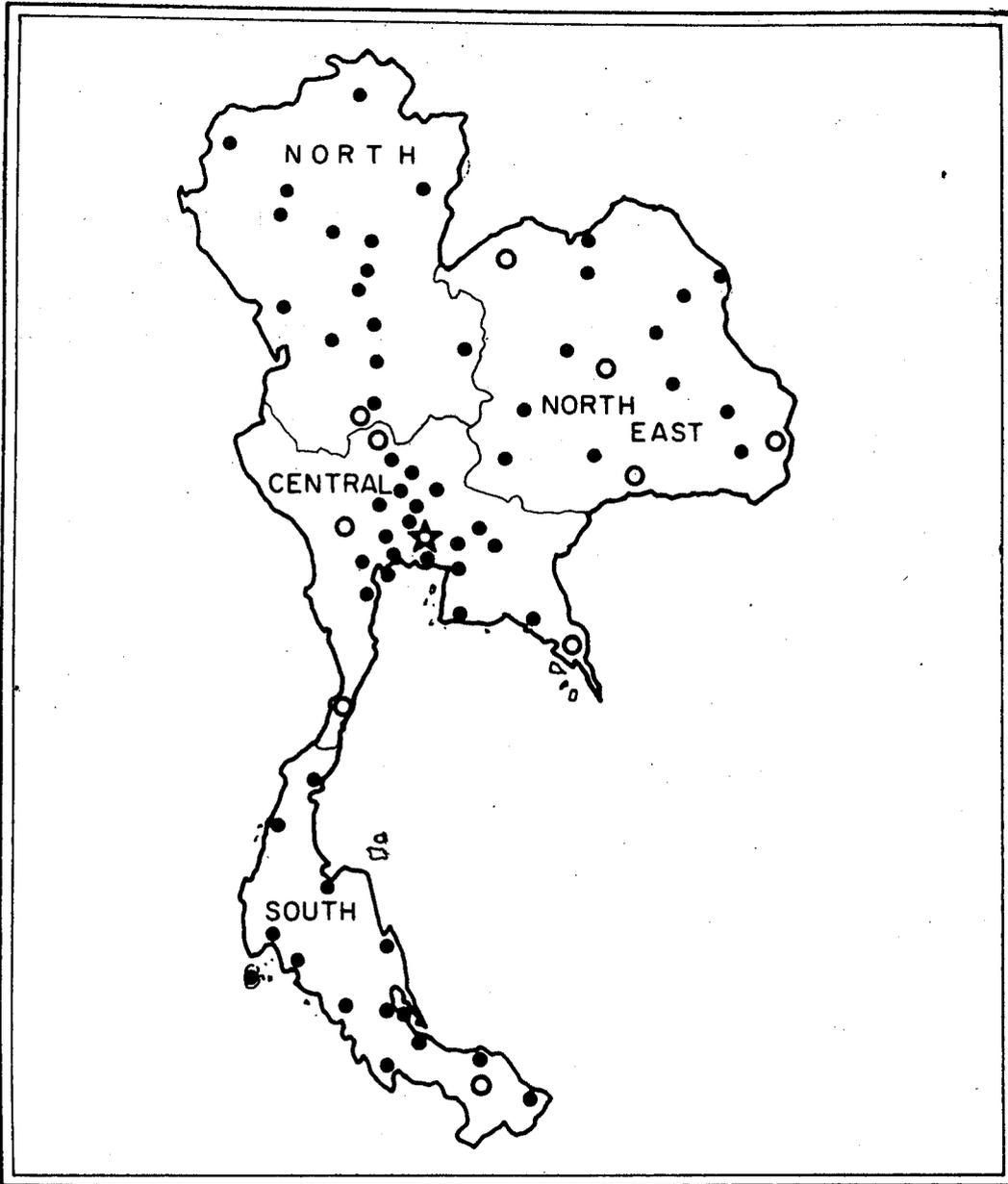


FIGURE I. MAP DEMONSTRATING PROVINCES OR TOWNS OF STUDY (●),(○)

- STUDY AREAS 1973 (60)
- ○ STUDY AREAS 1974 (60 + 10)

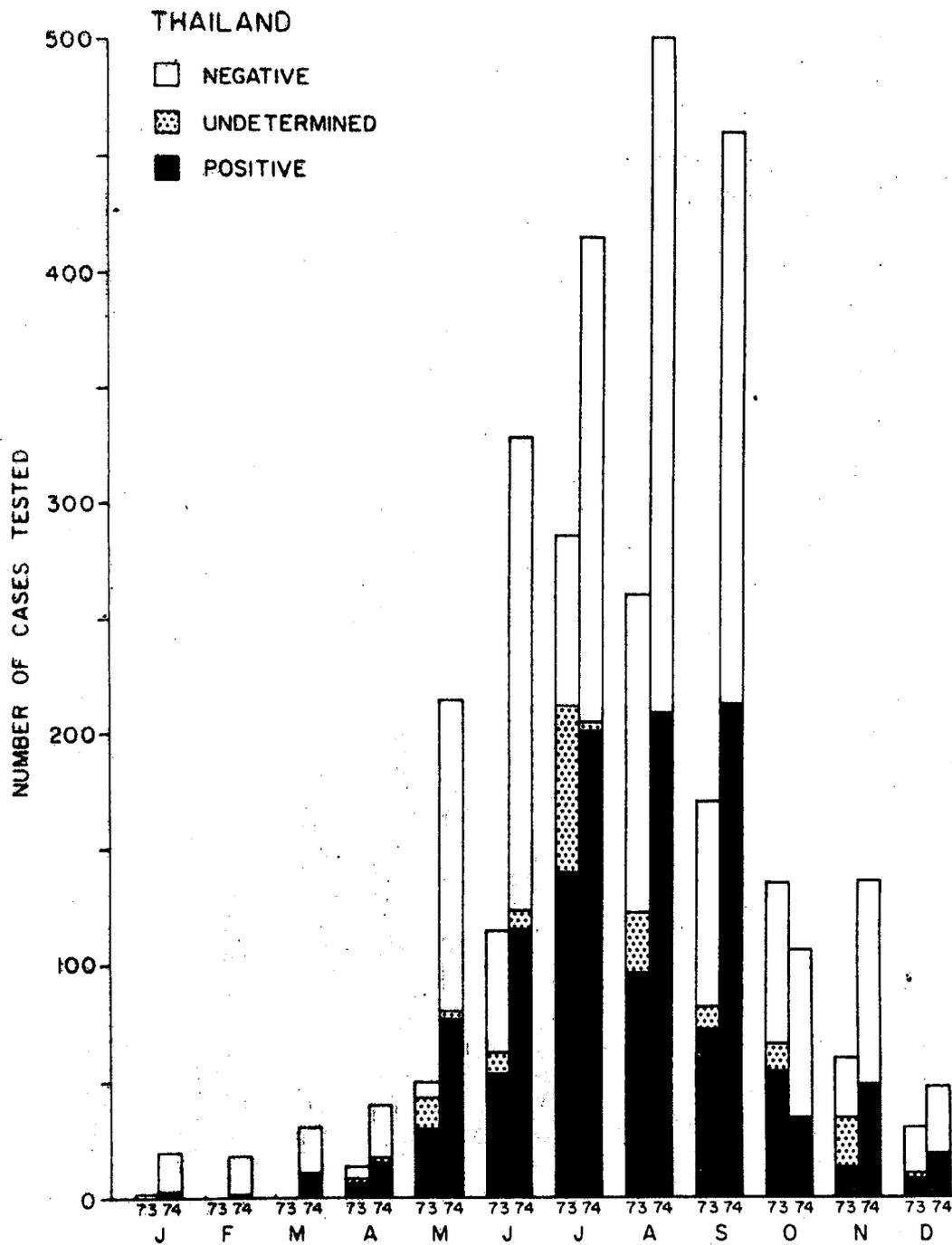


FIGURE 2. CONFIRMATION OF DHF CASES BY HI

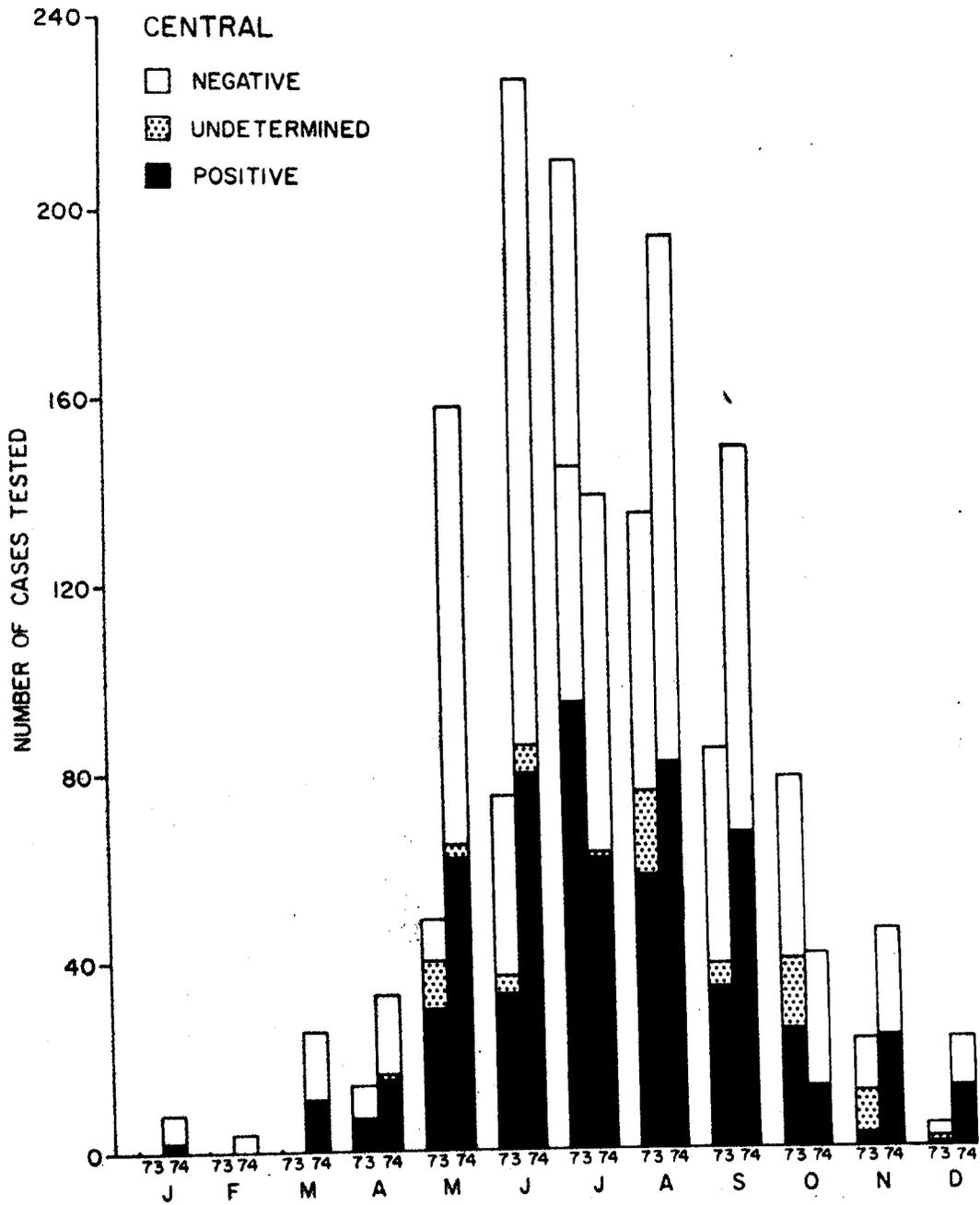


FIGURE 3. CONFIRMATION OF DHF CASES BY HI

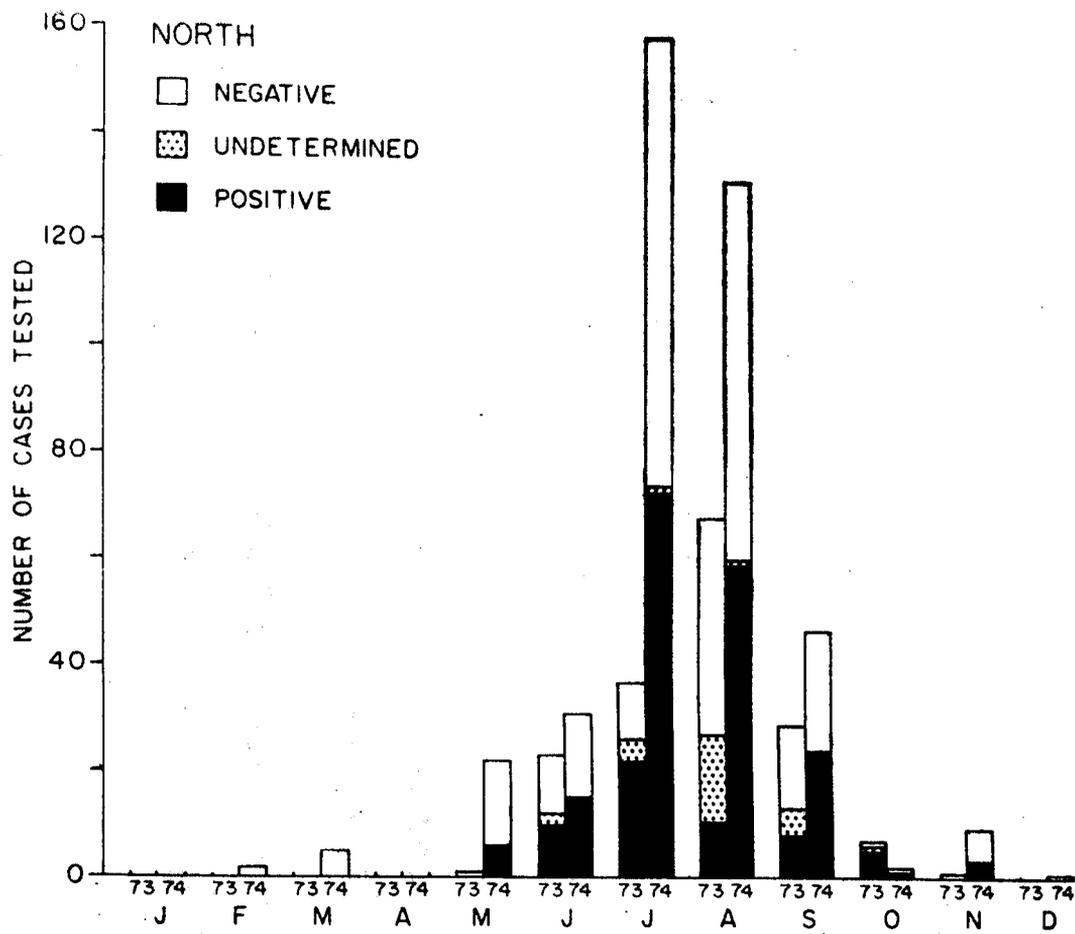


FIGURE 4. CONFIRMATION OF DHF CASES BY HI

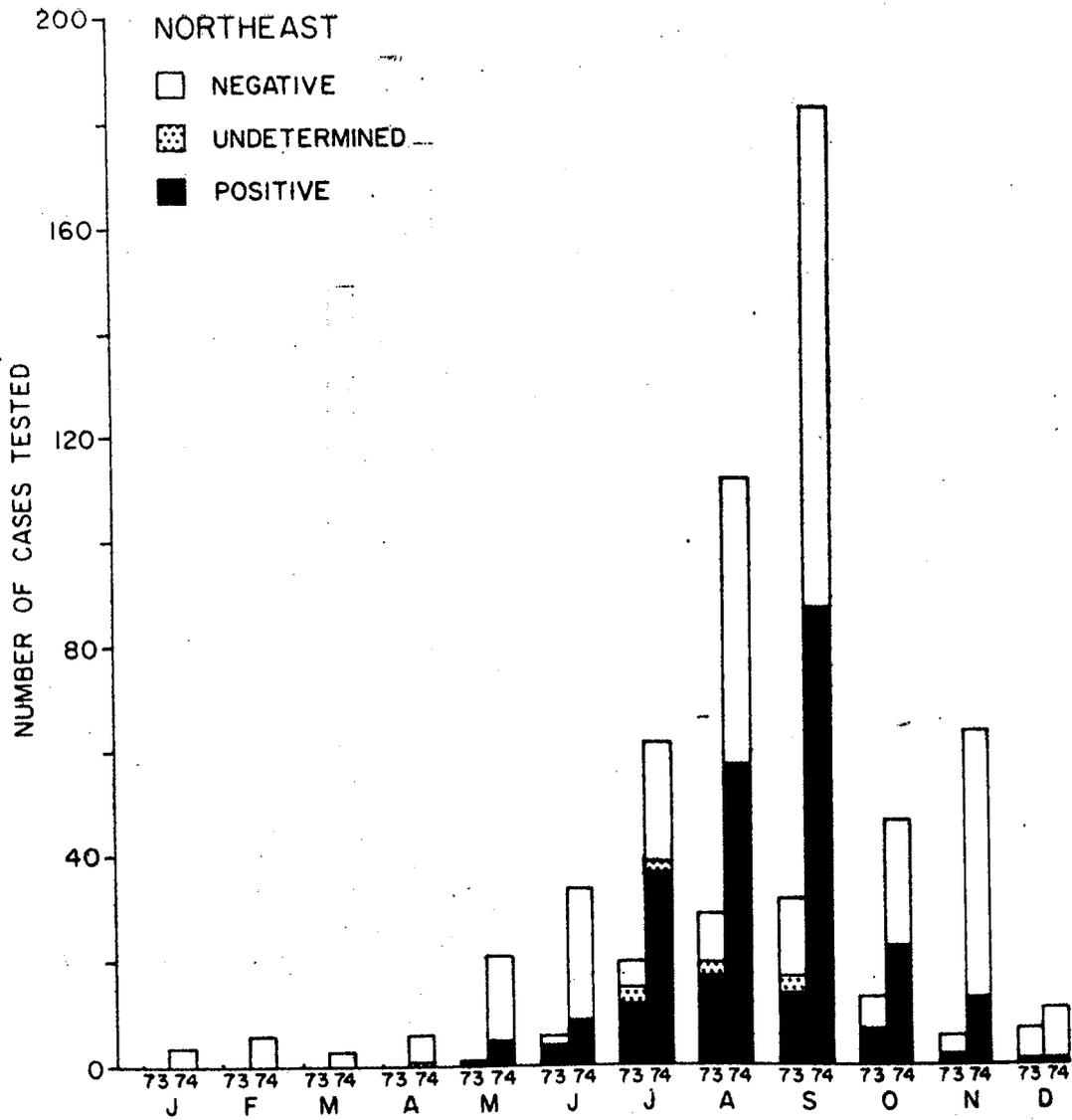


FIGURE 5. CONFIRMATION OF DHF CASES BY HI

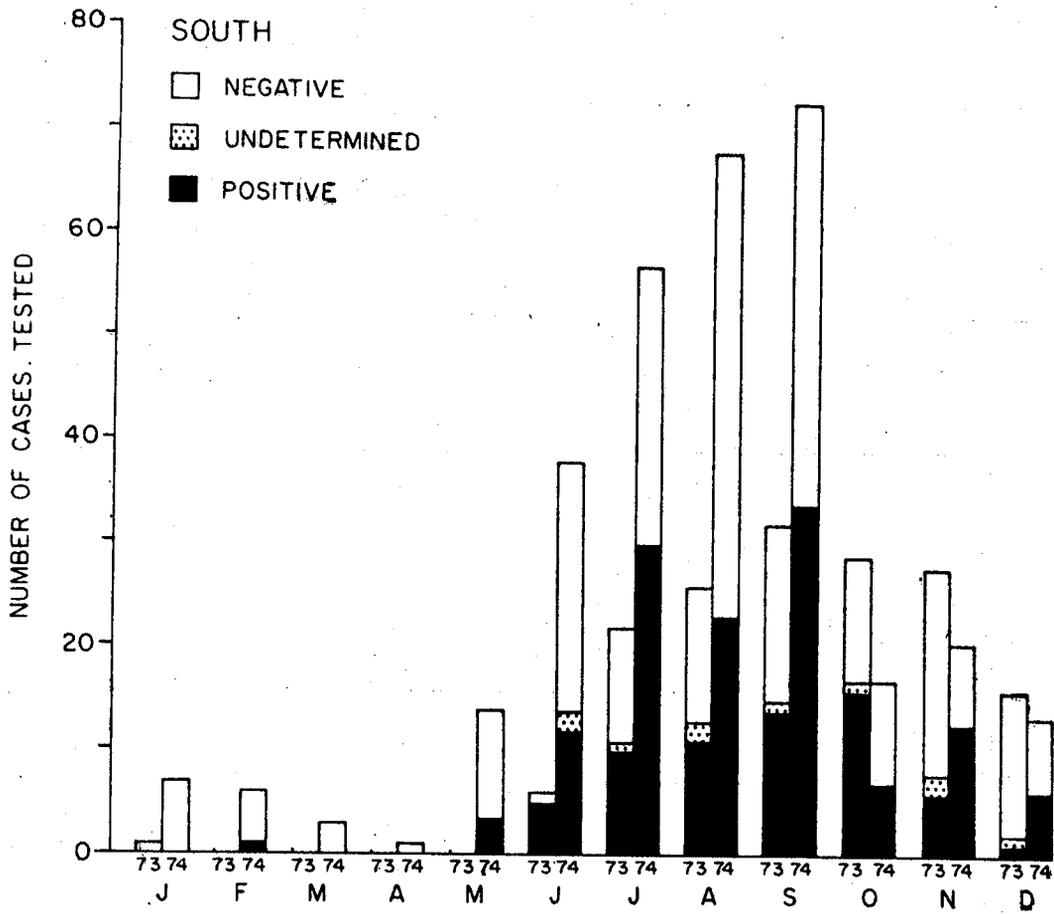


FIGURE 6. CONFIRMATION OF DHF CASES BY H₁

Table 1. Results of HI Tests for Dengue Antibody—1973, 1974

Region	No. Patients		Dengue Positive		Undetermined	
	1973	1974	1973 No. (%)	1974 No. (%)	1973 No. (%)	1974 No. (%)
North	249	419	77 (31)	419 (44)	40 (16)	2 (0.5)
Northeast	125	945	62 (50)	945 (26)	9 (7)	3 (0.3)
Central	689	1132	288 (42)	1132 (41)	120 (17)	9 (0.1)
South	173	354	64 (37)	354 (41)	9 (5)	3 (0.8)
Total	1236	2850	491 (40)	2850 (37)	178 (14)	17 (0.6)

Table 2. Results of HI Tests for JEV Antibody—1973, 1974

Region	No. Patients		JEV Positive		Undetermined	
	1973	1974	1973 No. (%)	1974 No. (%)	1973 No. (%)	1974 No. (%)
North	84	18	22 (26)	21 (26)	10 (12)	0 (0)
Northeast	11	79	3 (27)	13 (16)	1 (9)	0 (0)
Central	17	113	5 (29)	32 (28)	0 (0)	2 (1.8)
South	14	26	1 (7)	6 (23)	0 (0)	0 (0)
Total	126	299	31 (25)	72 (24)	11 (9)	2 (0.7)