

Country Report on Dengue Fever/Dengue Haemorrhagic Fever and Japanese Encephalitis in Lao People's Democratic Republic

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Background

The Lao People's Democratic Republic (P. D. R.) a landlocked country located in Indochina, with a population of 4.2 million and land area of 146.8 thousand square kilometers, density=16/km².

More than 90 percent of the population relies on farming and the activities of these people depend on the climate condition. The country as a whole is subject to the monsoon which imposes a rainy season from May to September and dry season from October to April. Annual rainfall varies from 1300 mm to 3000 mm depending on exposure to the southwest monsoon.

Agricultural system, breeding of swine and climate condition are favorable to develop the vectors of dengue fever/dengue haemorrhagic fever (DF/DHF) and Japanese encephalitis (JE). However, the occurrence of haemorrhagic complication led to epidemic proportion and to significant morbidity, especially among children. Fatal haemorrhagic complications are usually confined to persons under 15 years of age with a peak incidence in the 3–6 years age group.

Key words: dengue fever, dengue haemorrhagic fever, Japanese encephalitis, Lao P. D. R

Epidemiology

After a major epidemic in 1987, the Aedes Control Unit (ACU) was created in the Vientiane Municipality Health Service in 1988. The activities on DF/DHF were supervised by the ACU staff and were carried out with the participation of the community health personnel. The Breteau and House indices were employed for the evaluation of density of the vector larva in four of the eight urban districts of the Vientiane Municipality with the following standards:

Breteau index (BI)

BI > 50 = high risk

BI < 5 = low risk

House index (HI)

HI > 10 = high risk

HI < 1 = low risk

Although the average of BI and HI in January to June 1989 to 1992 in the target areas had been significantly lower than those in any district for 1987, both indices did not give the

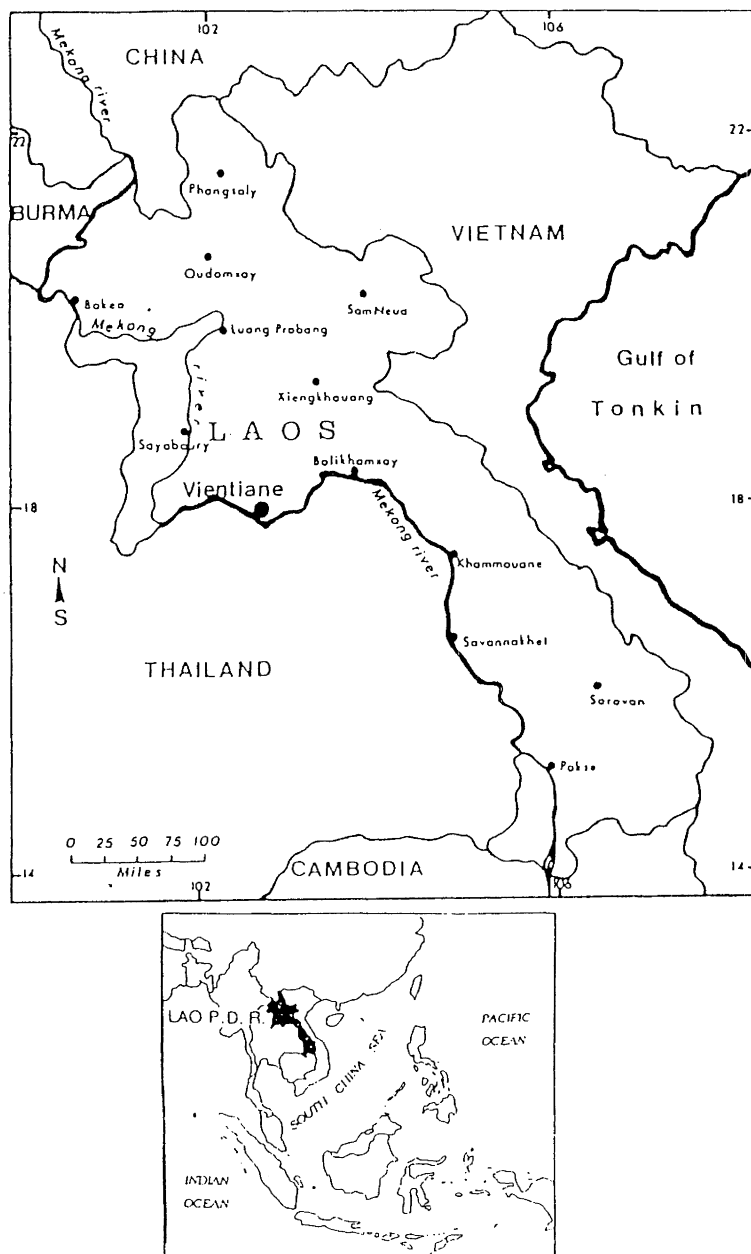


Fig. 1. Map of Lao P.D.R.

Table 1. Comparison of average BI and HI in Jan. to Jun., 1987, with those in 1989 to 1992.

Year	Chanthabury		Sikhottabone		Xaysettha		Sisattanak	
	BI	HI	BI	HI	BI	HI	BI	HI
1987	72.5	44.0	72.3	47.3	51.7	40.2	76.2	49.0
1989	11.2	8.0	20.5	12.0	13.3	10.2	9.8	7.5
1990	20.0	12.3	9.7	8.0	13.2	13.9	5.5	5.7
1991	13.6	11.6	11.8	10.8	10.5	9.3	5.5	5.3
1992	10.6	10.4	21.4	28.2	11.4	8.0	6.5	5.3

Source: Dr. Bounlay (Vientiane Municipality Health Service)

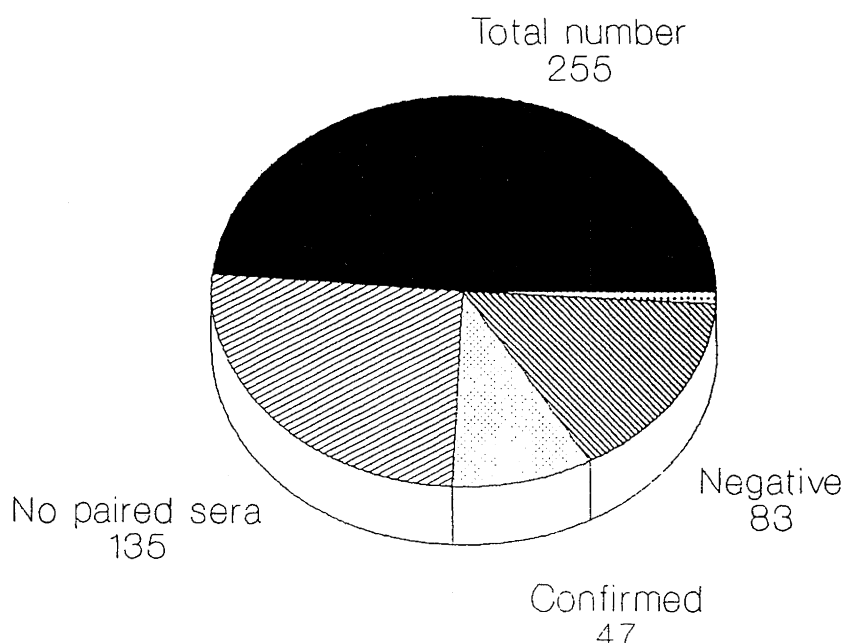


Fig. 2. Number of specimens suspected of DF/DHF in Lao P. D. R., January to June 1994
Source: NIHE

low risk values.

In particular, the HI gave many risk values (>10), except in Sisattanak district. It however, shows that no large epidemic has occurred in Vientiane Municipality since 1988.

This year 1994, rainy season came earlier than usual before all prevention activities have been initiated. The epidemic started in Hatsayfong district which was not under the responsibility of ACU. Hatsayfong district is one of the eight districts of Vientiane Municipality with a population density lower than the four urban districts. Survey done by ACU in this area showed the average of BI and HI higher than usual.

First case was confirmed by HI test in March, which increased every month, the

Table 2. *Aedes* visual larva survey in 1994 in Vientiane Municipality

Mouth District	Jan		Feb		Mar		Apr		May		Jun	
	HI	BI	HI	BI	HI	BI	HI	BI	HI	BI	HI	BI
C. bury	10.5	10.7	4.6	4.6	7.7	7.7	4.3	5.7	5.03	3.6	10.6	11.1
Sikhot	8.7	10.03	5.8	4.9	5.2	5.5	11.2	11.2	11.2	13.1	12.4	19.7
Sinak	9.6	4.09	9.7	7.2	15.6	15.6	na		3.5	4.5	15.9	12.2
Settha	16.8	20	9.3	6.1	11.5	11.5	na		5.9	8.7	7.18	9.51
Hsaifong	na		na		na		na		88	188	21.3	29.7

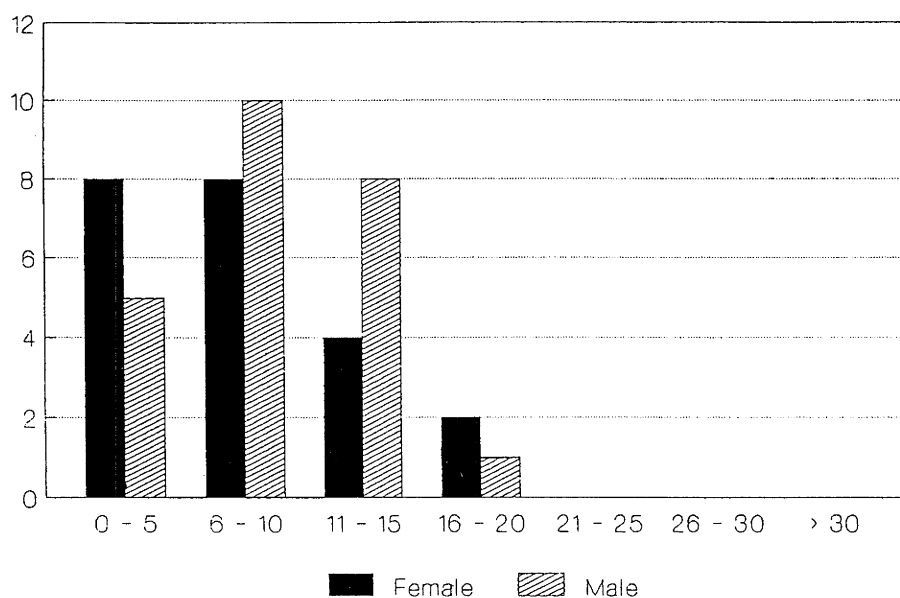
Source: Dr. Bounlay (Vientiane Municipality Health Service)

HI: house index, BI: Breteau index, na: not available

Table 3. Number of specimen from DF/DHF suspected cases since January to June 1994

	Jan	Feb	Mar	Apr	May	Jun	Total
No of cases	1	0	8	15	26	205	255
No of paired sera	1	0	5	10	19	100	135
Confirmed	0	0	1	0	11	35	47
Negative	0	0	4	10	8	61	83
ND	1	0	0	0	0	4	5

(Source NIHE)

**Fig. 3.** Dengue positive cases by age groups in Lao P. D. R., January to June 1994
Source: NIHE

highest in June and July. Of the 208 sera collected in June, only 91 pairs of sera and 20 cases were confirmed by haemagglutination test. In July, two main hospitals were full of suspected cases of DF/DHF. Due to lack of space, patients were given stretchers in the corridors. Experience from the last two epidemics contributed a lot to resolve the epidemic in July. Due to shortage of hospital resources, death cases were still reported.

Activity

Systemic destruction of larva in breeding sites (all stagnant water in containers/places) and the use of mosquito nets during daytime were strongly recommended. Educational information on the DF/DHF control was disseminated through national radio and television. Training and information sessions for local administrators, medical practitioners at district hospitals, health workers were conducted. Several training courses were organized in Vientiane Municipality and other provinces with the objective to increase the knowledge, awareness and capability for DF/DHF case management.

Several informative meeting/sessions on the actual DF/DHF situation were conducted for physicians, laboratory vector control and primary health care personnel as well as meeting of a district governors to discuss control measures. Mass campaign to clean up the environment has been organized, i. e. composition of traditional song and role play on DF/DHF and JE, etc. A booklet on DF/DHF and JE for health staff has been published.

Meanwhile, NIHE had decentralized the laboratory diagnosis of DF at the same time. HI test kits produced in Vientiane were supplied to other major provinces. Results were followed up.

HI screening test were carried out as laboratory diagnosis. Virus isolation from patients sera were not successful due to lack of knowledge/experience, storage, and problem on transportation.

On the other hand, there has no case report of JE infection. In 1989, five cases of JE were confirmed in APRIMS Thailand.

Research on JE antibody in swine sera showed high distribution of JE virus in Vientiane Municipality but only sporadic cases were found (In 1993, 2 cases were IgM positive in ELISA).