

**Prevalence of Hepatitis B Virus Infections
in Residents of Phnom Penh**

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OBJECTIVE : To determine the experience with Hepatitis B virus of residents of Phnom Penh.

DESCRIPTION : This work completes the study of a Phnom Penh population reported in the SEATO Medical Research Laboratory Annual Report 1974-1975. This study was done in collaboration with the National Blood Transfusion Center and the Institute of Biology, Phnom Penh, Khmer Republic. In June of 1973, questionnaire information and sera were obtained on residents of Phnom Penh, presenting for polio immunization. Prior to transport to SEATO Medical Research Laboratory sera were stored in Phnom Penh in a -20°C freezer for approximately one year. Assays were performed for antibodies to several viruses known to be common in the tropics. Sera were screened at a dilution of 1:10 for antibodies against polio types one, two and three using a metabolic inhibition technique with LLC₂ cells (1). Antibody to mosquito-borne togaviruses found in Southeast Asia was detected by a hemagglutination inhibition test using eight hemagglutinating units of antigen antigens used were chikungunya (Ross) for alphavirus and dengue type two (Hawaii) for flavavirus. Sera with no detectable antibody at a dilution of 1:10 were considered negative. Hepatitis B surface antigen (HB_sAg) and antibody (anti-HB_s) were detected by commercially available radioimmune assays. For HB_sAg the AUSRIA II test (Abbott Laboratories) was used with confirmation by counterimmuno-electrophoresis (CIEP) or appropriate absorption of antigen by anti-HB_s. A radioimmune assay inhibition test (RIAI) using a standardized quantity of HB_sAg was employed for the detection of anti-HB_s. The sensitivity of the RIAI has been shown to be approximately equivalent to the passive hemagglutination test (2).

PROGRESS : Information and serology was completed for all viruses tested on 340 individuals of which 116 were male and 229 were female. Sexes were equally represented in the age group less than ten years old. The preponderance of females in the older age groups was probably due to collection of blood from mothers who brought their children in for immunization.

In the Phnom Penh population described, the age specific prevalence for antibody to alpha, flavavirus, and poliovirus of all three types in presented is Table 1. The prevalence of prior Hepatitis B virus infections, as defined by the sum of those people with HB_sAg and with anti-HB_s, is also shown.

DISCUSSION : As noted in the preliminary report (3), the acquisition of antibody to the three forms of polio, alphaviruses and flavaviruses, is extremely rapid in this population. This is probably due to the generally poor sanitation and high density of mosquitoes in the Phnom-Penh area at the time of the sampling. Development of the HB_sAg carrier state appeared to occur early in life and to be maintained at a relatively constant level through all age groups tested. Anti-HB_s appears to be acquired later; the data indicated that the prevalence of anti-HB_s does not reach a plateau until the age of 15 years. The prevalence of HB_sAg and anti-HB_s among these residents of Phnom Penh is similar to that reported in a Bangkok population using a PHA test (Figure 1) (4). Similar

age specific prevalence of experience with hepatitis B virus in these two cities suggests similar epidemiological conditions in other urban centers in Southeast Asia.

SUMMARY : Among a group of Phnom Penh residents presenting for polio immunization. The age specific point prevalences of hepatitis B virus infections were similar to those seen in Bangkok, suggesting a similar epidemiology.

REFERENCES :

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Table 1. Age Specific Prevalences of Viral Infections
in 340 Residents of Phnom Penh

Age	No. Tested	Togaviruses		Poliovirus			Hepatitis B* Virus
		Alpha	Flava	One	Two	Three	
0-1	44	9 (20.4)	19 (43.2)	10 (22.7)	9 (20.5)	12 (27.3)	8 (18.2)
2-3	37	10 (27.0)	32 (86.5)	21 (56.6)	15 (40.5)	20 (54.1)	5 (13.5)
4-5	60	23 (38.3)	52 (86.7)	38 (60.3)	45 (75.0)	33 (55.0)	13 (21.7)
6-9	40	22 (55.0)	37 (92.5)	24 (60.0)	33 (82.5)	26 (65.0)	12 (30.0)
10-14	48	40 (83.3)	47 (97.9)	41 (85.4)	43 (90.0)	40 (83.3)	17 (35.4)
15-19	30	23 (76.7)	28 (93.3)	22 (73.3)	28 (93.3)	19 (63.3)	16 (53.3)
20-24	42	41 (97.6)	42 (100)	29 (69.0)	37 (88.1)	27 (64.2)	25 (59.5)
25-30	39	37 (94.6)	39 (100)	30 (76.9)	34 (87.2)	20 (51.3)	21 (53.8)
Total	340	205 (60.3)	296 (87.1)	215 (63.0)	244 (71.7)	197 (57.9)	117 (34.4)

* Hepatitis B virus is the sum of those people with HB_sAg and anti-HB_s

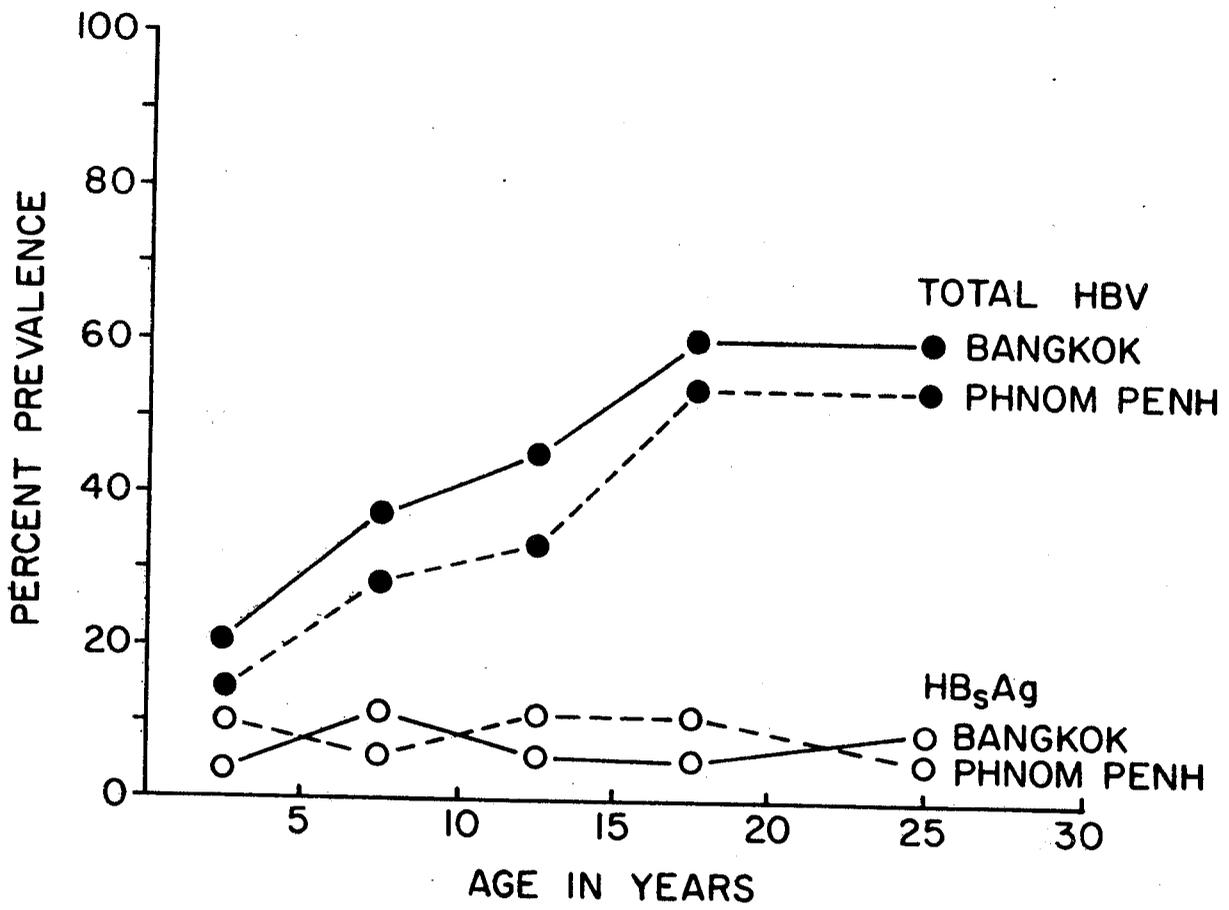


Figure 1. Age Specific Prevalences of Hepatitis B Infection in 697 Residents of Bangkok and 340 Residents of Phnom Penh.