

Thesis Title                    The study of antibody level by hemagglutination  
   inhibition test to dengue hemorrhagic fever in  
   Thai children aged under fifteen years at  
   Burirum Province

Name                                Chuthamas Kamolchai

Degree                             Master of Science in Public Health (Infectious  
   Diseases)

Thesis Supervisory Committee

   Kanda Vathanophas, M.D., M.Sc.(Hyg.)  
   Chalam Chantrasri, B.Sc.

Date of Graduation            15 June B.E. 2533 (1990)

#### ABSTRACT

A hemagglutination inhibition test was carried out to determine antibody and antibody level in children under 15 years old whom were in the high risk group of acquiring hemorrhagic fever in Nangrong, Lamplaimat, Puthaisong and Pakham districts, Burirum Province. Cord blood was obtained from newborn babies and peripheral blood from finger's tip of children aged 1 month - 14 years old. The total number of studied children was 1,660. The testing antibody against dengue viruses types revealed that 1,440 (85.9%) had antibodies but were not found in 220 (14.1%). Antibodies to dengue viruses were found in all age groups and the most common was the 10-14 year age group (382/391 cases, 98%) and the least was in the 1-4 year age group (268/359 cases, 74.6%). The low level of antibody found in infants 6 months and one year old. Among the children with negative

antibody to dengue viruses, the frequency was high in 1-4 year age group (91/359 cases, 25.4%) and the highest was in one year old children (27/86 cases, 31.4%). The 1-4 year age group was the high risk group of acquisition to hemorrhagic fever. The second high risk group was the children under one year old (74/515 cases, 14.4%) and was most frequent in 6 months old infants (14/45 cases, 31.1%). No sex difference was found in both group of children with and without antibody to dengue viruses.

Of 1,440 children who had antibody against dengue viruses, the range of log geometric mean of the antibody was 0.80-2.2. The newborn babies had the highest level of antibody to each individual type and the antibody level-decreased in 6 months old children. The older of the age group; the increase of antibody to each type of dengue viruses was observed. The correlation values ( $r$ ) between the age groups and antibody level against dengue viruses types 1,2,3 and 4 were 0.5623, 0.5640, 0.5490 and 0.2959, respectively.

Of 1,660 investigated children 529 (31.8%) had antibody to one or another type of dengue viruses and the majority was antibody against type 4(30.5%). Older children had increased the acquisition of antibody to more than one virus type. 991 children (54.9%) had antibodies against at least 2 types of dengue viruses.

The deductions from the results in this study could explain the existence and the absence of antibody against natural infection of hemorrhagic fever.