

**Point prevalence of hepatitis B in mother-child dyads in a stratified random sample in an urban resettlement community in Delhi**

There have been no community studies, employing epidemiologically valid sampling techniques, looking at prevalence of hepatitis B in India<sup>1</sup>. We did this study to see how many mothers and children were HBsAg positive, and to estimate the number of children who can be protected by selective immunization of HBsAg positive mothers.<sup>2</sup>

A cluster of approximately 20,000 households with a population of about 100,000 persons in a resettlement colony in East Delhi was selected. 600 households were chosen by stratified random method. All 302 households with children-under-5 years were approached. Written informed consent was obtained. Mother and their children were considered as dyads for analysis. Blood was tested using HEPACARD HBsAg spot test. (Hepacard; J Mitra, New Delhi: Test sensitivity 99%, specificity 100%) Every positive sample was tested a second time for confirmation. The study had the approval of the hospital research committee.

156 households with 242 children consented to participate and provided blood samples; 17 samples

were lost so 148 mothers and 231 children were tested. The group that participated in the study was similar to the non-participants in economic and religious groupings.

Five mothers were HBsAg positive (point prevalence 3.38% [proportion 0.034; 95% CI 0.015-0.077].<sup>2</sup> 3 children were positive (point prevalence 1.30% [proportion 0.013; CI: 0.004-0.037]). The 5 mothers who tested positive had 9 children, of whom 3 were positive. All these 3 were children of the 5 HBsAg-positive mothers.

Three of 9 children of HBsAg-positive mothers presumably got infection vertically. The anti-HBs status of children was not tested; so it is not clear how many others acquired the infection and cleared it subsequently.

A study by Nayak *et al.*,<sup>3</sup> like our study, suggested that 33% of chronic carriers in India get the infection from their mothers. Immunization at birth targeted at babies of HBsAg-positive mothers will reduce this 33% of infection and also horizontal spread from this group. Another study also looking at mother-child dyads but not utilizing random sampling techniques, recruiting 400 children and their mothers, found that 2.25% of children below five were HBsAg positive.<sup>4</sup> The authors concluded that vertical transmission is responsible for the majority of chronic carriers.

Cost constraints in India stand in the way of universal immunization at birth. Other alternatives are universal immunization starting at 6 weeks or selective immunization at birth to babies of HBsAg-positive mothers.<sup>5,6</sup> Immunization at 6 weeks will not protect against vertical transmission. Also, coverage with immunization is unlikely to be complete; those who are not immunized are at risk from the pool of children who get the infection vertically.

A systematic review of world literature found that no study has demonstrated that the carrier rate can come down with immunization starting after 6 weeks.<sup>7</sup> Further community-based studies are needed before a final answer is available.

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