Reviewer's report

**Title:** The risk of perinatal hepatitis B virus transmission: Hepatitis B e antigen (HBeAg) prevalence estimates for all world regions.

**Version:** 1  **Date:** 7 May 2012

**Reviewer:** Brian J McMahon

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This is reviewing serosurveys for hepatitis B virus (HBV) worldwide and examining prevalence of HBeAg in HBsAg-positive persons. Two time points were selected and using Bayesian a hierarchical model, age specific estimates were generated and compared. This is an important study because transmission of HBV is almost 100% without immunoprophylaxis from mother to infant when mother is also HBeAg-positive and infected infants have a 90% chance of lifetime chronic HBV infection. Since a birth dose is not given in many areas endemic for HBV, this analysis contains important information that can be used to improve regional hepatitis B vaccination programs. I have a few comments that might be helpful to the authors.

The authors found that prevalence of HBeAg in HBsAg-positive women of childbearing age was highest in South-east and East Asia and Oceania. These are the areas of the world where HBV genotype C is frequently found. The authors' cite on article in the Discussion on page 10 that found that HBeAg seropositivity was higher in persons infected with HBV genotype C than B. The authors might consider also citing an article by Livingston et al (Gastroenterology 2007; 133:1452-7) which reported a study following a population-based prospective cohort of HBsAg carriers for over 20 years that included five HBV genotypes and found that the mean age that HBeAg seroconversion occurred was less than 20 years of age for those persons who were infected with HBV genotypes A, B, D and F compared to over 40 years of age in those infected with genotype C. This implies that most women infected with genotype C would remain HBeAg-positive through most of the childbearing years. Thus, a strategy to reduce perinatal transmission might be to focus encouraging a birth dose in those countries where HBV genotype C is prevalent.

One other limitation of this study that is not noted is that serosurveys was not available in many regions of the world. Also, even within countries, prevalence of HBV seromarkers can differ widely and very few country wide population-based serosurveys have been conducted.

In the conclusion, the last line on page 10 “screening pregnant women is not useful (due to HBV strains not producing HBeAg)” is a confusing phrase. I might suggest changing that to “due to HBeAg testing not being available in many areas of the world”.
Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I do personally know one of the authors but prior to now did not know of the current study. I have no financial or non financial conflicts of interest