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Letter to the Editor

Policy analysis of the use of Hepatitis B, Hemophilus influenzae type B, Streptococcus pneumoniae-conjugate and Rotavirus vaccines in the National Immunization Schedules.

The following correspondence arises from comments on a paper by M. A. Miller and L. McCann, published in Health Economics, vol. 9, January 2000 [1]. The editors would like to emphasise that extreme care should be taken when citing information as available on websites. As well as citing in the appropriate style (see Notes for Contributors), authors should check that the information is indeed available at the time of publication of the paper containing the citation, and is likely to remain accessible for the foreseeable future.

The Editors

At the Editors' behest, I summarize correspondence I have had through them. This is naturally a one-sided interpretation.

'Save the Children' says poor countries are being induced to use vaccines they cannot afford and perhaps don't need [2]. I had alleged that Taiwanese data (with the highest mortality-rate among hepatitis B carriers) was being projected to exaggerate the risk from hepatitis B in India [1]. Dr Miller refuted this saying he had used data 'stratified by geographic area and income group' to estimate 20% of carriers 'would die of liver cancer (not counting cirrhosis)'. He wrote that the model used was posted at the website http://nihfic.cit.nih.gov/research/.

This was 'deliberately misleading', I wrote to the editor – the website had no model for Hepatitis B. We showed, in the Lancet [3] and the Journal of Hepatology [4], how the figure for India [1,5] can be arrived at using Taiwan data.

Dr Miller replied. There was no word about the missing model. This time he wrote, '*Other manifestations such as cirrhosis, and fulminant hepatitis also contribute to our estimation of 20–28% mortality*'. He did not say what contribution each made to the overall mortality. Dr Miller had previously written that only 'liver cancer (not counting cirrhosis)' was considered.

I wrote again, saying the author was 'improvising' along the way. In reply, Dr Miller seemed willing to consider the mortality as 13% instead of 20–27%, '*given the differential hepatocellular cancer rates in males and females*'. Earlier bluster notwithstanding ('stratification by area —'), not even this correction had been incorporated in the original paper!

In his response, the author admits there were 'limitations from extrapolating limited available studies'. Again, this is not true. Data were available for India, from well-maintained, population-based, cancer registries [6].

The data presented are clearly invalid. I suggest the paper needs to be retracted.

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Author's Reply

The original work on the hepatitis B and other models presented in this study (1) was performed in 1998 at the Children's Vaccine Initiative, a precursor to the Global Alliance for Vaccines and Immunization. The outputs and the models themselves were also freely distributed to UN officials at the World Health Organization, World Bank and national vaccine program managers. At the time the work was performed, models were adapted to a user friendly interface and placed on the WHO supported CVI website. Unfortunately, after the dismantling of the CVI in late 1999, the WHO did not maintain the website nor the service function models. In his recent paper to Lancet (3), Dr Puliyel accuses 'our bullying' governments to adopt vaccines because of purposeful inflated disease burden estimates. Our published mortality rate of 20–28% for chronic carriers of hepatitis B infection was assumed for all causes of hepatitis B associated death, such as cirrhosis and fulminant hepatitis, and was not stated as exclusively for hepatocellular carcinoma as Dr Puliyel suggests. The 189 000 estimated deaths in India cited in the paper is a point estimate which reflects a 4% carriage rate of hepatitis B projected on India's ~25M birth cohort with a 20% mortality rate who would die, on average, at age 45 years. Although we published the aggregated results of these models as a guide for policy makers, we clearly stated that they should be further refined by in-country investigators in consultation with local policy makers.

While I applaud Dr Puliyel's finding better published representational data in India for hepatocellular

carcinoma (6) to refine the model, his suggested mortality rate change to 13% would have little impact on the robustness of our analysis. We estimated that with a hepatitis carrier fatality rate of 20%, hepatitis B vaccination in India would amount to $12 and $66/year of life saved undiscounted and discounted at 3%, respectively (1). With his suggested modified mortality rate of 13%, only Dr Puliyel and the Government of India can decide if it is worth investing in a vaccine which would cost ~$18 and ~$102/year of life saved undiscounted and discounted, respectively.

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References

1. Miller MA, McCann L. Policy analysis of the use of Hepatitis B, Hemophilus influenzae type B, Streptococcus pneumoniae-conjugate and Rotavirus vaccines in the National Immunization Schedules. *Health Econ* 2000; **9**: 19–35.
2. Fleck F. Children's charity criticizes global immunization initiative. *Br Med J* 2002; **324**: 129.
3. Puliyel JM. Plea to restore pubic funding for vaccine development. *Lancet* 2004; **363**: 659.
4. Tiwari L, Varughese RM, Puliyel JM. Computerised-hepatitis B-model is subject to processing axiom: garbage in, garbage out. *J Hepatol* 2003; **39**: 133.
5. Miller MA, Kane M. Routine Hepatitis B immunization in India: cost effectiveness assessment. *Indian J Pediatr* 2000; **67**: 229–300.
6. Dhir V, Mohandas KM. Epidemiology of digestive tract cancers in India III. Liver. *Indian J Gastroenterol* 1998; **17**: 100–103.

