Community-based screening and treatment for chronic hepatitis B in sub-Saharan Africa – Authors' reply

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Authors' reply

We thank Gang Qin and Jian-Guo Shao for their interest in our study[1] and their observations. First, in response to their point about the baseline proportion of people in each health state, we would like to draw their attention to the table in the supplementary appendix, where these values are presented.

Second, regarding the parameterisation of the natural history model, it is important to recognise that a limitation of any hepatitis B virus model is the difficulty in capturing all the heterogeneity with regards to the natural history. We chose to include only the most salient features, and accordingly some simplifying assumptions were necessary.

We accept that bidirectional transitions between health states are sometimes seen in clinical practice; however, this observation is rare and there is a paucity of data to parameterise these transition rates with much accuracy. We therefore chose to exclude this feature from the model.

It has been shown that there is an ongoing risk of development of hepatocellular carcinoma, even if hepatitis B virus is successfully suppressed, at least for the first few years of treatment.[2,3] Papatheodoridis and colleagues[4] showed that hepatocellular carcinoma developed in 1·2% of entecavir-treated patients early into treatment (at a median age of 1·5 years). However, this risk of development was seen particularly in older people, in men, and in those with established cirrhosis. We have therefore assumed that, if patients are non-cirrhotic at initiation of antiviral therapy and fully adherent to medications, there is no risk of progression to cirrhosis and hepatocellular carcinoma.

We agree with the comment by Qin and Shao that the evidence is accumulating for the regression of fibrosis on long-term nucleos(t)ide antiviral therapy for hepatitis B virus.[2,5] We acknowledge that by not including the regression of fibrosis in our model, our estimate of cost-effectiveness might be slightly conservative. Finally, we understand how the labels in the tornado diagram might be misleading, and as Qin and Shao rightly point out, for these particular parameters of adherence and natural history, the higher range corresponds with the lower incremental cost-effectiveness ratio result.

We declare no competing interests.

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1 Nayagam S, Conteh L, Sicuri E, et al. Cost-effectiveness of community-based screening and treatment for chronic hepatitis B in The Gambia: an economic modelling analysis. *Lancet Glob Health* 2016; **4:** e568–78.

2 Wong GL, Chan HL, Mak CW, et al. Entecavir treatment reduces hepatic events and deaths in chronic hepatitis B patients with liver cirrhosis. *Hepatology* 2013; **58:** 1537–47.

3 Lampertico P, Soffredini R, Yurdaydin C, et al. Four years of tenofovir monotherapy for NUC naïve field practice European patients suppresses HBV replication in most patients with a favorable renal safety profile but does not prevent HCC in patients with or without cirrhosis. *Dig Liver Dis* 2014; **46** (suppl 1)**:** e14.

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