Hepatitis B vaccine continues to provide long-term protection to healthcare workers

To the Editor:

Boot et al. describe a case of hepatitis B vaccination failure in a healthcare worker [1]. According to this report, the case belongs to two risk groups for hepatitis B virus (HBV) infection: healthcare workers and male homosexuals. The report presents a history of unsafe sex with at least five male partners in the six months prior to the acute infection and no details about occupational exposures. In addition, the molecular epidemiology is that of a HBV isolate prevalent among men who have sex with men (MSM) in the Netherlands.

The authors state that "Healthcare workers [HCWs] whose response to the initial hepatitis B vaccination is moderate might be vulnerable to hepatitis B virus infection". However, this case report is not about occupationally acquired hepatitis B infection but rather about sexually transmitted infection from sexual exposure. Furthermore, there are host factors that indicate some immunological dysfunction. The patient had "responded only marginally" to his primary vaccination series (anti-HBs = 10 sample ratio units). In addition, the patient had a reverse CD4:CD8 ratio with decreased T-cell responsiveness against mitogens.

Hepatitis B vaccine provides at least 15 years of protection, as demonstrated in a randomized controlled trial of children vaccinated at birth [2], and at least 10 years of protection in HCWs [3]. Policy makers should continue to be vigilant about the potential for breakthrough infections, however, they should also remain assured of the excellent performance of this vaccine in the occupational health setting. Behavior change should continue to be seen as an important protective measure in MSM, especially when immune dysfunction could blunt the response to vaccination.

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Acute hepatitis B in a healthcare worker: A lesson in awareness of failure of hepatitis B vaccination

To the Editor:

In response to our case report of an acute HBV infection in a vaccinated male nurse [1], Dr. S. Wiersma of the WHO [2] argues that our patient had multiple HBV exposure risks, and that HBV acquisition via the hospital setting is less likely than acquisition via sexual exposure in this particular case. We agree with his view that unsafe homosexual contacts in the months preceding the acute HBV infection are the most likely source of infection. However, it is not the source of infection that is the important issue here, but the fact that a fully vaccinated person, registered as being HBV protected, can be a source of HBV transmission to others, and, if the person is a healthcare worker, a source within a hospital. We agree that, at the moment, there is no need to revise the policy for healthcare-specific HB vaccination. However, as also stated by Dr. Wiersma [2], we must be aware of the fact that vaccinees, including healthcare workers, might become infected with HBV despite a documented adequate response to an HB vaccine in the past. This might become a more prominent feature when individuals who were vaccinated against HBV as neonates start working in the healthcare setting. If and why this specific patient was predisposed to become HBV infected remains unclear. Were his poor-to-moderate responses to the successive HB-plasma vaccines the reason for his vulnerability, or is his unbalanced immune response involved, or is it a combination of both?

As we have stressed in the Discussion section of our paper [1], it is not easy to recognize secondary HB vaccination

failures because primary HB-vaccination failures occur in over 5% of adult vaccinees. Not only awareness that vaccine-induced immunity against HBV can wane over time, but also awareness of which factors are associated with waning immunity is important for preventing HBV infection in general and in the healthcare setting in particular.

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Towards a better liver allocation system

To the Editor:

We read with great interest the Twelfth Forum on Liver Transplantation published in *Journal of Hepatology* [1]. Although we agree that the MELD score is basically a "justice system" which allocates patients according to severity of liver disease however it is not necessarily the best system [2] and indeed some limitations of the MELD score were totally ignored in the forum mentioned above. For example, significant variations of the MELD score have been found using different laboratory methodologies for INR measurement [3], as well as creatinine (Cr) as we have published [4], and recently MELD-Na [5]. These variations, which may be cumulative when summated, lead to inequalities in prioritization of candidates, especially in those with the highest priority for LT (more jaundiced, greater renal dysfunction and lower serum sodium). A system of allocation that inherently does not have standardized measurements cannot reflect true justice for individuals on waiting lists – this needs to be addressed. Moreover, there is an issue of potential gender bias, highlighted by us [6] and reported by Moylan et al. [7]. In the UNOS database, women were more likely to die on the waiting list in the post-MELD era, compared to the pre-MELD era, although women were listed with lower median MELD scores, compared to men (14 vs. 15, $p < 0.001$). These findings are likely to be the result of not considering lower Cr in women for the same renal function (GFR), as in men [8], as we documented in our paper [6]. Interestingly, we found that correcting Cr by equalising the GFR between men and women resulted in an increase in MELD score by 2 or 3 points in 65% of female LT candidates [6]. Our findings with Cr are also pertinent to ethnicity differences. South Asian candidates have worse GFR for the same Cr values than Caucasians, and the opposite is true for black Africans, whether Americans or otherwise. A correction factor for gender and ethnicity could be introduced [6].

Regarding post-LT survival, it is true that the MELD score is a weak predictor of mortality after LT, so it cannot be used as a predictor. In order to assess likelihood of a good outcome, we have proposed a MELDD score – a second D for donor [2,8]. This would allow a utilitarian approach to allocation on top of the "solely justice approach" of MELD and would lead to a transplant benefit model for allocation. A recent evaluation of the European Liver Transplant Registry data [9], demonstrated that donor age, total ischaemic time, and other operative and recipient factors, not included in MELD, significantly and independently impacted on outcomes post-LT with very good