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these variables, but these data are unavailable. The development of an internationally representative comparator cohort of individuals who have not received a liver transplant is required for fair comparison.

Rather than relying on clinician reporting, we believe that data acquired through primary and secondary care coding would better capture accurate information for cohorts of interest and for comparison. Although there are well described limitations to this method, it will ensure not only more robust data capture but also that the studies are adequately powered to truly understand the risk of mortality from COVID-19 in liver transplant recipients. Until then, we believe the jury is still out on this risk.

We declare no competing interests.

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Authors' reply

We thank Oliver Tavabie and colleagues for their interest in our work[1] and their comments. We also thank them for contributing patient data from their institution to our registries.

Tavabie and colleagues speculate as to the generalisability of our work. However, the mortality following severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in liver transplant recipients in our registries (19%) is similar to contemporaneous Spanish (18%), and UK national registries (20%), suggesting some consistency.[1–3] The Spanish liver transplant recipients also had no increased risk of severe disease compared with the general population.

A further point raised is that either the preponderance of patients from the UK and the USA in our study, or a focus on hospitalised patients, might have biased results. The rate of hospitalisation (70 [83%] of 84 *vs* 54 [81%] of 67; p=0·675) and death (14 [17%] of 84 *vs* 14 [21%] of 67; p=0·533) did not differ in patients from the UK and the USA versus those from elsewhere; furthermore, non-hospitalised patients were included in our analyses.

We recognise that mortality in our comparison cohort might have been lower than elsewhere. The Oxford area ranked 115th of 336 in UK COVID19 age-standardised mortality during the study period; slightly below average. Crucially, however, the lower the comparison cohort mortality, the greater the likelihood of recording excess mortality in the liver transplant cohort. Thus, when assessing for excess mortality among recipients of liver transplants, the key concern would in fact be high mortality in the comparison cohort increasing the risk of type II error. The relatively lower mortality in Oxford therefore provides reassurance that COVID-19 mortality is unlikely to be substantially higher in the liver transplant population. Using the same techniques, we have recently reported increased mortality from SARS-CoV-2 in patients with advanced cirrhosis.[4]

We agree with the final suggestion that coding data from primary and secondary care will provide additional valuable information, accepting that COVID-19 coding is not standardised. However, this approach will need to compliment specifically reported work to allow accurate classifications. For example, primary aetiologies for patients who received liver transplants were discordant in more than 30% of liver transplant recipients between a secondary care dataset and a central clinician-reported registry, and ethnicity is absent in a third of UK primary care records.[5,6]

Although larger and more varied datasets will continue to improve our understanding of the risks from SARS-CoV-2 faced by liver transplant recipients, the urgency and changing nature of the pandemic mean that a variety of approaches are required to inform the risk stratification of specific patient groups in a timely manner.

We declare no competing interests.

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Published **Online** October 30, 2020 https://doi.org/10.1016/S2468-1253(20)30337-X