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Can gendered personal protective equipment design account for high infection rates in female healthcare workers following intubation? A reply

We thank Drs Turner and Marshall [1] for their interest in our recent publication [2] and agree that the higher incidence of the primary endpoint in females found in our study warrants further investigation. This association persisted despite adjustment for role and country in a multivariable proportional hazards model. Whereas the underlying cause of this association is unclear, we had suggested potential hypotheses regarding the biological differences between men and women, differences in symptom-reporting behaviour or possibly variations due to heterogeneous sex distributions in our sample.

However, we urge caution in over-interpreting the magnitude of this effect. The point estimate of the hazard ratio for women was 1.36, and the 95%CI was 1.01–1.82. This would be consistent with a true hazard ratio that is unlikely to be clinically significant at the lower bound, to an extremely large effect at the upper bound.

Our study was primarily designed to estimate the incidence of COVID-19-related outcomes in healthcare workers involved in tracheal intubation, and the identification of risk factors was a secondary outcome. We did not perform adjustments for multiple testing in our exploratory analyses for risk factors and therefore did not feel it warranted focus in our report. However, observational studies such as ours present opportunities for hypothesis generation, and thus there is a critical need for future studies to explore this potential relationship further.

We agree with Drs Turner and Marshall that gender-insensitive personal protective equipment (PPE) may potentially explain the findings in our study. The suitability of respirator masks and other PPE items sensitive to differences in baseline characteristics including sex and ethnicity, is an area that needs urgent exploration [3]. As well as improving access and training in PPE utilisation, objective data from fit-testing to determine characteristics of respirators design that would indicate suitability to a wide

range of healthcare workers, are called for [4]. As the pandemic subsides in many regions, the time has come to prepare ourselves for the possibility of a second surge by ensuring the safety of our healthcare workforce, regardless of social, ethnic or other baseline characteristics. The hypotheses generated from our paper represent an opportunity to understand this potential inequity further [1].

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