

For data and full R code see <https://github.com/EdjCarr/Crick-HD-Omicron-2021-12>

There are several implications of these data. First, the deployment of third doses in the UK took about 8 weeks between eligibility announcements for third or booster doses and their receipt in this highly vulnerable patient group. This contrasts with their very rapid access to first doses.⁵ Second, a lack of a quantifiable response (non-response) after two doses does not predict ongoing non-response to a third dose. We suggest that each further dose reduces this fraction. Some of these non-responders are already eligible for four doses in the UK, as their primary course has already been deemed three doses because of immunosuppression use or comorbidities.⁷ Third, adequate nAbTs against delta in IC-HD patients required three doses of vaccine, and this is reflected in the epidemiological data from the delta wave.³ Finally, omicron neutralisation will require at least three vaccine doses, perhaps four doses, in UK IC-HD patients, particularly as the kinetics of waning of omicron nAbs are unknown. Together, our data show that the current generation vaccines still have utility in clinically extremely vulnerable patient groups and that the number of doses that constitute an appropriate primary course differs between VOCs: for omicron, three doses in IC-HD might be insufficient.

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contributed equally. Members of the Haemodialysis COVID-19 Consortium and Crick COVID Immunity Pipeline are listed in the appendix. Funding details and acknowledgments can be found in the appendix. All data (anonymised) and full R code to produce all figures and statistical analysis presented in this Correspondence are available online on GitHub.

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GBD 2019 Adolescent Mortality Collaborators. Global, regional, and national mortality among young people aged 10–24 years, 1950–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet* 2021; **398**: 1593–618—In figure 8 of this Article, the total deaths and proportion in each age group in 1950 were incorrect. These corrections have been made to the online version as of Feb 24, 2022.

Stuart ASV, Shaw RH, Liu X, et al. Immunogenicity, safety, and reactogenicity of heterologous COVID-19 primary vaccination incorporating mRNA, viral-vector, and protein-adjuvant vaccines in the UK (Com-COV2): a single-blind, randomised, phase 2, non-inferiority trial. *Lancet* 2022; **399**: 36–49—In this Article, the X axis for figure 3B has been updated to read 14 days since boost vaccination. This correction has been made to the online version as of Feb 24, 2022.

Jaffe S. The next steps for US vaccine mandates. *Lancet* 2022; **399**: 425–26—In this World Report, Professor Laurence Tribe's first name was misspelled. This correction has been made to the online version as of Feb 24, 2022.