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# Decreasing mortality rates in ICU during the COVID-19 pandemic

We would like to thank the readers of *Anaesthesia* for their interest in our recent systematic review and meta-analysis of intensive care unit (ICU) mortality in patients with COVID-19, in which we found that reported mortality rates have fallen as the pandemic has progressed [1]. The process of post-publication peer review has highlighted that we could have

Deaths All Patients Deaths per 100 admissions Mortality rate (%) January to March 41.7 [15.2; 72.3] 0.0 [0.0; 97.5] 0.0 [0.0; 84.2] 78.0 [64.0; 88.5] 84.6 [54.6; 98.1] 0.0 [0.0; 97.5] 57.1 [34.0; 78.2] 59.5 [39.8; 76.5] Huang et al Stoecklin et al Young et al Zhou, F et al 50 39 11 0 12 Arentz et al
Wang, L et al
Bhatraju et al
Random effects model 13 21 **100** April 61.3 [57.4; 65.0] 12.5 [0.3; 52.7] 41.8 [36.3; 47.5] 51.9 [31.9; 71.3] 28.1 [13.7; 46.7] 51.1 [35.8; 66.3] 42.1 [20.3; 66.5] 18.8 [4.0; 43.96] 78.4 [73.9; 82.5] 63.6 [30.8; 89.1] 45.2 [33.4; 57.7] Grasselli et al 661 Grasselli et al Ling et al Wang, Y et al Barrasa et al Zhang, G et al Klok et al Zhang, J et al Zhou, Y et al 1 133 14 9 23 318 Llitios et al 19 371 Richardson et al 291 Pedersen et al Random effects model Heterogeneity:  $I^2 = 92\%$ ,  $\tau$ 1527 May Ferguson et al Zheng et al Auld et al 14.3 [3.0; 36.3] 0.0 [0.0; 16.8] 29.7 [23.6; 36.4] 25.5 [17.5; 34.9] 17.1 [10.5; 25.7] 43.2 [42.1; 44.3] 24.7 [15.7; 36.7] 3 0 62 27 18 20 209 106 105 8062 **8523** Maatman et al 41.6 [34.0: 49.7] Random effects model 10150 Heterogeneity:  $I^2 = 93\%$ ,  $\tau^2 = 0.4083$ , p < 0.01Residual heterogeneity:  $I^2 = 90\%$ , p < 0.010 20 40 60

**Figure 1** Forest plot of ICU COVID-19 deaths per 100 completed intensive care admissions, grouped by month of publication (January to March, April, May), and combined. Values are proportions (95%CI).

presented the changes in mortality rate over time more clearly.

Combined ICU mortality (95%CI) was 59.5% (39.8–76.5%) in studies published before the end of March 2020 and 41.6% (34.0–49.7%) for all included studies to the end of June 2020. Figure 1 was not included in the original published manuscript or supplementary material, but we include it here to provide a clear illustration of the reported mortality rate for completed intensive care admissions over the course of the pandemic.

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