

To the Editor,

Reply to: Performance of the National Early Warning Score in hospitalised patients infected by Covid-19.

The letter by Villar et al. suggests that our publication '*The performance of the National Early Warning Score in hospitalised patients infected by Covid-19*'¹ did not emphasise the 'main' message of the Royal College of Physicians (RCP) guidance on NEWS2 and deterioration in patients with COVID-19.² We disagree.

The RCP's 'main' message is that "...NEWS2 should be used when managing patients with COVID-19..." This was accompanied by the recommendation that "...**ANY** increase in oxygen requirements should trigger an escalation call to a competent clinical decision maker..."² based on a concern that in patients with COVID-19 infection, treated with oxygen, oxygen requirements "...might increase rapidly if their respiratory function deteriorates but this may not result in any significant increase in the NEWS2 score..."² The wording of the RCP's qualifying statement indicates a possible but not certain occurrence, and, to our knowledge, there is no published research that quantifies the frequency of missed deterioration/delayed care escalation or the risk associated with NEWS' binary weighting system when it is used in patients with COVID-19.

Decisions regarding the escalation of a patient's care are separate to the discriminant ability of an early warning score.³ As stated in our publication, we investigated the ability of NEWS or NEWS2 to *discriminate* the combined outcome of either death or intensive care unit (ICU) admission within 24 h of a vital sign set.¹ What is striking about our results is that when used in patients with proven COVID-19 infection, NEWS/NEWS2's discrimination is virtually identical to that of patient cohorts without COVID-19. We did not undertake a separate analysis of failed escalations resulting from any theoretical impact that the binary weighting of NEWS2 may have on model performance but did suggest that future research could investigate this hypothesis and cited the RCP guidance as the appropriate reference. We had no reason to cite or discuss the work of the Cambridge group into the impact of estimated F_iO₂ on NEWS/NEWS2 values^{4,5} in our publication, as its studies were conducted in patients following cardiac surgery and their findings may not be transferrable to patients with COVID-19 infections.

References

1. Kostakis I, Smith GB, Prytherch D, et al. on behalf of the Portsmouth Academic Consortium For Investigating COVID-19 (PACIFIC-19). The performance of the National Early Warning Score and National Early Warning Score 2 in hospitalised patients infected by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Resuscitation 2020
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2. Royal College of Physicians. NEWS2 and deterioration in COVID-19.
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3. Smith GB, Prytherch DR, Schmidt PE, Meredith P. Early warning scores: unravelling detection and escalation. Int J Health Care Qual Assur. 2015;28:872-5.
4. Chiu YD, Villar SS, Brand JW, et al. Logistic early warning scores to predict death, cardiac arrest or unplanned intensive care unit re-admission after cardiac surgery. Anaesthesia. 2020;75:162-70.
5. Zhu Y, Chiu YD, Villar SS, et al. Dynamic individual vital sign trajectory early warning score (DyniEWS) versus snapshot national early warning score (NEWS) for predicting postoperative deterioration. Resuscitation 2020;157:176-84.