The utility of a local multidisciplinary working group to oversee the establishment of rapidly evolving standards of care and to support trial recruitment during the COVID-19 pandemic

OVERVIEW

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Test and trace … and test again?

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Editor – I read with interest the rapid report on contact tracing for SARS-CoV-2.[1] The authors refer to the potential for a much larger network of potentially secondarily infected contacts, but don't address how this could be solved other than by prompt contact tracing. One addition to the current system which may help would be testing of all identified contacts. This is standard practice in the given examples of sexually transmitted infections and tuberculosis, and recommended for SARS-CoV-2, yet remains curiously absent from the NHS Test and Trace programme unless contacts develop symptoms.[2,3]

Testing of all contacts, regardless of symptoms, would ensure any secondarily infected contacts (including those who are asymptomatic or presymptomatic) are identified early, enabling their own contact tracing processes to be started promptly. It could also aid compliance to self-isolation for those with positive tests. This would need to be offset by clear messaging and incentives to reinforce the need for ongoing isolation in those with negative tests; one potential solution would be to offer tests at multiple timepoints during the isolation period, to ensure continued compliance and to confirm negativity prior to release from isolation.

The test, trace and isolate (TTI) modelling group published a report in November advising that daily test of contacts could offer an improvement over the current strategy; consideration should be given to implementing testing for all traced contacts at the earliest opportunity.[4] ■

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National Early Warning Score 2 (NEWS2) to identify inpatient COVID-19 deterioration: The importance of pO_2:FiO_2 ratio

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Editor – We read with great interest the early Newcastle experience of using National Early Warning Score 2 (NEWS2) to identify hospitalised COVID-19 patients at risk of clinical deterioration.[1] The study highlights an average >30 hour lag between triggering the NEWS2 ≥5 threshold and first 'serious clinical event' (defined as initiation of respiratory support, intensive care unit (ICU) transfer, end-of-life care or death).

Baker *et al* confirm that COVID-19 patients frequently present with isolated hypoxaemia without significant disturbance of other physiological parameters.[1] Low fractional inspired oxygen (FiO_2; ~0.3) oxygen therapy with 91% oxygen saturation and otherwise normal physiology are sufficient to trigger the NEWS2 ≥5 threshold (Table 1; 'Time 0–12 hours'). The extremely low probability of clinical escalation with less severe physiological deterioration (ie arterial oxygen partial pressure (pO_2):FiO_2 ratio >26) would explain the reported high sensitivity (0.98) of NEWS2 ≥5 in this population.[1]

The NEWS2 ≥5 threshold had an excellent ability to identify deterioration, albeit typically >24 hours before a 'serious clinical event'. We believe the important NEWS2 ≥7 threshold (immediate ICU review trigger) would have been a better test of practical clinical utility, albeit with lower sensitivity.

The authors acknowledge a potential weakness of NEWS2, namely the binary response to oxygen therapy.[2] We suggest the relatively wide 'dividing bins' used by NEWS2 for individual parameters including oxygen saturations are also suboptimal, particularly in this patient cohort.[3]

The failure of NEWS2 to recognise increasing FiO_2 from 0.3 to 0.5 is well recognised.[1,2] Failure to recognise worsening desaturation from 91% to ≤90% is also problematic, and often overlooked.[3] The combined net effect is a risk that clinically significant reduction in pO_2:FiO_2 ratio may go unnoticed in the event of failure to escalate any increase in FiO_2 or mild desaturation (Table 1).

Table 1. Hypothetical COVID-19 ward patient with isolated hypoxaemia due to deteriorating pO_2:FiO_2 ratio

Deterioration	O_2 saturations	pO_2, kPa	FiO_2	pO_2:FiO_2 ratio	NEWS2	
'Time 0–12 hours'	91%	~7.9	0.3	~26	5	Patient generally managed in level 1 ward area
'Time 0–6 hours'	90%	~7.7	0.4	~19	5	Candidate for ICU escalation
'Time 0'	89%	~7.4	0.5	~15	5	Constant NEWS2 due to absence change in other physiological parameters

ICU = intensive care unit; NEWS2 = National Early Warning Score 2; pO_2:FiO_2 ratio = ratio of arterial oxygen partial pressure (pO_2; in kPa) to fractional inspired oxygen (FiO_2; expressed as a fraction, not a percentage).

By 2022 when NEWS is next due for review, the vast majority of acute NHS hospitals will have switched from 'pen and paper' to 'electronic' observation charts. We believe this considerable investment should be accompanied by the introduction of more sophisticated early warning scoring systems which include patient trajectory and the capability to detect clinically relevant deteriorations in pO_2:FiO_2 ratio among other key parameters.[4,5] ■

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