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Letter to the Editor

# NEWS2 needs to be tested in prospective trials involving patients with confirmed hypercapnia

We have several concerns regarding the study of Pimentel and colleagues and the conclusions of the authors.[1]

1 **NEWS2 was not tested.** The oximetry section in NEWS2 is designed to modify clinical behaviour by facilitating guideline-based management for hypercapnic patients.[2,3] NEWS2 was not used in the management of any patient in this study; therefore assumptions about its effect on survival are invalid.
2 **Most of this paper is not relevant to NEWS2.** The revised oximetry section in NEWS2 applies only to patients with confirmed hypercapnia. Only 1394 of 251,266 patients (0.55%) had presumed hypercapnia based on prescriptions. None had confirmed hypercapnia.
3 **NEWS2 was found to be equivalent to NEWS for predicting mortality within 24 h for presumed hypercapnic patients. However, NEWS2 had higher positive predictive value and would generate fewer clinical alerts.** The use of NEWS2 for presumed hypercapnic patients would lead to 11% fewer alerts to junior clinicians (31% V 42%) and 5% fewer alerts to senior staff (13% V 18%). There is no evidence that the extra workload using NEWS would improve outcomes.
4 **The results would be different in a hospital with safer practice.** Figure 2 demonstrated serious over-use of oxygen. Approximately 25% of patients with presumed hypercapnia had oxygen saturation above 92% on oxygen therapy. In a hospital with safer use of oxygen, most of these patients would have oxygen saturation of 88–92%, causing the old NEWS chart to generate even more callouts whilst NEWS2 charts would generate fewer callouts.
5 **What is the purpose of clinical observation rounds?** The authors state that the main purpose of Early Warning Systems is to identify ill or deteriorating patients. This is only partly true. Observation rounds should additionally guide best practice to prevent patients from dying. It is well established that correct oxygen management reduces mortality for hypercapnic patients.[3–5] NEWS2 promotes a target saturation range of 88–92% for hypercapnic patients. NEWS may lead to inappropriate oxygen administration to hypercapnic patients with oxygen saturation above 92% but below 96% on air.
6 **Is sensitivity always more important than specificity?** The authors express a preference for sensitivity over specificity. This is not necessarily a good thing because of "call-out fatigue" and the risk of calling clinicians away from other sick patients to deal with these call-outs.
7 **Workload related to calculation of NEWS2 scores and possible human errors.** It is mandated that all NHS hospitals will soon become paperless. Comments about workload and human calculation errors using paper charts will then be irrelevant.

In summary, the purpose of bedside observations charts is not to predict which patients will die but to promote best practice and thus to improve the likelihood of survival. Clinical management that targets controlled oxygen therapy improves survival for hypercapnic patients.[3–5] We believe that clinical management that is guided by NEWS2 will achieve this goal, a hypothesis that has not been tested in the present study. A prospective clinical study comparing NEWS with NEWS2 for patients with proven hypercapnia is required urgently.

## Conflict of interests

We have no conflicts of interest to declare.

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