

# Clinical appropriateness of the use of early warning scores in medical wards

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## Background

Early warning scores (EWS) are vital tools in the identification of clinically deteriorating patients. They use a combination of physiological parameters to create an aggregate score, alerting medical teams to the acute deterioration of patients. This score impacts on the frequency of patient reviews, and triggers referral to critical care. However, in some patients with persistently altered physiology or patients approaching the end of their life with a do not attempt resuscitation (DNAR) order, EWS scoring can be inappropriate. Local and Royal College of Physicians (RCP) guidelines<sup>1</sup> stipulate that a patient's clinical condition may necessitate action from 'resetting' NEWS thresholds to stopping scoring to ensure patient-centred comfort-targeted care. We hypothesised that the proportion of inpatients with DNAR decisions in place who also have EWS addressed (threshold reset or stopped) is an effective metric of clinician awareness of the appropriateness of the use of EWS.

## Methods

We performed two cycles of snapshot audits on acute medical (admissions and short stay unit) and medical wards in 2018 and 2019 before and after improvement measures. We identified patients with DNAR decisions and counted how many of them had adjustments made to their EWS threshold. The first intervention (after the 2018 cycle) was the Trust-wide switching from the Modified EWS (MEWS) to the National EWS2 (NEWS2). The second set of interventions was targeted at medical wards only: two announcements at the departmental meetings, two group emails to the consultant body, a targeted email to senior ward nurses and documented discussions at two morbidity and mortality meetings, creating a control arm (acute medical wards) and an intervention arm (medical wards). Chi-squared test was used (SPSS version 24) for statistical analysis.

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**Table 1. A comparison of the number of patients with amended early warning scores in 2018 and 2019**

Group	Number of patients with EWS amended 2018	Number of patients with EWS amended 2019	p-value
Control	12/21 (57.1%)	12/32 (37.5%)	0.160
Intervention	16/43 (37.2%)	55/93 (59.1%)	0.017

EWS = early warning score.

## Results

In 2018, 28/64 patients had an amendment made to their MEWS (43.8%). In 2019, 67/125 patients had an amendment made to their NEWS2 (53.6%). This trend towards improvement was not statistically significant ( $p=0.200$ ). There was no significant difference in EWS amendment in the control group between 2018 and 2019 (Table 1). However, the intervention arm did show a statistically significant improvement in amendment to EWS (37.2% vs 59.1%;  $p=0.017$ ).

## Conclusion

Our results indicate that the proportion of inpatients with DNAR decisions in place who also have EWS addressed (threshold reset or stopped) can be improved by targeted communication. This has measurable effects like reduction in futile emergency calls as well as less measurable effects like allowing dying patients to receive appropriate end-of-life care and reducing stress of futile activity in clinical staff. The results also suggest that the NEWS2 chart alone is not enough to prompt medical staff to think about the appropriateness of EWS. Targeted communication is essential to significantly reduce the number of patients being inappropriately escalated. Interestingly, a recent study showed that nurses' pattern recognition can provide important information for the detection of acute physiological deterioration.<sup>2</sup> Therefore further data is required from different healthcare settings where EWS are implemented to limit futile activity, avoid distress for dying

patients and their relatives and make more appropriate use of nursing resources. ■

### Conflicts of interest

None declared.

### References

- 1 Royal College of Physicians. *RCP welcomes recommendations for NHS Trusts to use RCP's NEWS2*. RCP, 2019. [www.rcplondon.ac.uk/news/rcp-welcomes-recommendations-nhs-trusts-use-rcp-s-news2](http://www.rcplondon.ac.uk/news/rcp-welcomes-recommendations-nhs-trusts-use-rcp-s-news2) [Accessed 20 October 2019].
- 2 Romero-Brufau S, Gaines K, Nicolas CT *et al*. The fifth vital sign? Nurse worry predicts inpatient deterioration within 24 hours. *JAMIA Open* 2019;2:465–70.