Improving in-hospital patient safety by use of the National Early Warning Score

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Abstract

Background & aim: Clinical deterioration often occurs before serious adverse events on the hospital wards such as cardiac arrest or mortality. Early identification of potentially deteriorating patients is therefore crucial. If the hospital staff can detect these abnormal vital signs they might be able to prevent the potential deterioration on the hospital ward or transfer the patient to a higher level of care. The National Early Warning Score (NEWS) is a "track and trigger" scale that offers a standardised way of assessing in-hospital patients’ vital signs and detection of clinical deterioration. The overall aim of the project was to translate the NEWS into Swedish and evaluate it in a Swedish and Nordic healthcare setting.

Method: First a translation and cultural adaptation of the NEWS concept into Swedish was performed. The Swedish version was tested by interrater reliability and the association of the NEWS values with ICU admission was investigated by medical record reviews. Second the predictive value of the NEWS risk classification on in-hospital and 30-day mortality was assessed amongst patients with deviating vital signs by analysis of a vital signs database.

Results: The Swedish translated NEWS seems to have excellent inter-rater reliability and can be used without risk of linguistic misinterpretation. The cut off value for contact with the critical care outreach team seems reasonable even in a Swedish setting. High scores for the
parameters oxygen saturation and level of consciousness in the NEWS may predict admission to the ICU better than the other parameters in the NEWS. Logistic regression models for age-adjusted in-hospital and 30-day mortality on patients with deviating vital signs at the hospital wards showed that the NEWS risk classification seems to be a reliable predictor of death.

**Conclusion:** Preliminary results to the overall aim showed that the NEWS can be used to discriminate deteriorating patients at hospital wards in a Swedish and Nordic healthcare setting. Further studies will evaluate the dynamics in the NEWS for patients who suffer an in-hospital cardiac arrest by medical record reviews and investigate nurses perceptions of using the NEWS by questionnaires.

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