

Abstract Submission
Resuscitation and Transport

Oral presentation

EVIDENCE-BASED VITAL SIGNS DO NOT IMPROVE PREDICTIVE PERFORMANCE OF EFFECTIVE PAEDIATRIC TRACK AND TRIGGER SYSTEMS

Background and aims

Paediatric Track and Trigger Systems (PTTS) alert staff to deteriorating children, accelerating access to appropriate intervention. However vital sign thresholds are variable and this may explain differences in predictive performance. This study examined whether inclusion of percentile-based heart and respiratory rate thresholds¹ improves performance of existing PTTS.

Methods

Two-year retrospective case-controlled study of ward patients in a UK tertiary children's hospital. Patients who suffered a critical deterioration event (respiratory and/or cardiac arrest, unplanned transfer to paediatric intensive care and/or unexpected death) were designated 'cases' and matched with a control closest in age present on the same ward at the same time. Heart and respiratory rate thresholds were modified in a standardised manner. Modified PTTS values were calculated from existing clinical data and the area under the receiver operator characteristic curve (AUROC) for modified and unmodified systems were compared using z-scores adjusted for Bonferroni's correction. PTTS were then ranked by AUROC values.

Results

Eighteen systems were suitable for comparative analysis. 297 case events in 224 patients were available for analysis. 244 control patients were identified for the 311 events. Modification significantly improved the performance of 5 PTTS and decreased performance in one. However these systems had low unmodified AUROC values and modification did not improve their ranking. Performance of the top 4 ranked PTTS did not significantly improve after modification.

Conclusions

Inclusion of percentile based thresholds does not improve the performance of existing PTTS with high AUROC values.

Reference:

1. Bonafide CP et al. Development of heart and respiratory rate percentile curves for hospitalized children. *Pediatrics*. 2013;131(4):e1157.