

**Tele-Rapid Response Team (Tele-RRT): The effect of implementing patient safety network system on outcomes of medical patients-A before and after cohort study**

Balshi AN, Al-Odat MA, Alharthy AM, Alshaya RA, Alenzi HM, Dambung AS, Mhawish H, Altamimi SM, Aletreby WT. *PLoS One*. 2022 Nov 22;17(11):e0277992. doi: 10.1371/journal.pone.0277992.

Background: Rapid Response Teams were developed to provide interventions for deteriorating patients. Their activation depends on timely detection of deterioration. Automated calculation of warning scores may lead to early recognition, and improvement of RRT effectiveness.

Method: This was a "Before" and "After" study, in the "Before" period ward nurses activated RRT after manually recording vital signs and calculating warning scores. In the "After" period, vital signs and warning calculations were automatically relayed to RRT through a wireless monitoring network.

Results: When compared to the before group, the after group had significantly lower incidence and rate of cardiopulmonary resuscitation (CPR) (2.3 / 1000 inpatient days versus 3.8 / 1000 inpatient days respectively,  $p = 0.01$ ), significantly shorter length of hospital stay and lower hospital mortality, but significantly higher number of RRT activations. In multivariable logistic regression model, being in the "After" group decreases odds of CPR by 33% (OR = 0.67 [95% CI: 0.46-0.99];  $p = 0.04$ ). There was no difference between groups in ICU admission.

Conclusion: Automated activation of the RRT significantly reduced CPR events and rates, improved CPR success rate, reduced hospital length of stay and mortality, but increased the number of RRT activations. There were no differences in unplanned ICU admission or readmission.

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