Outreach and Early Warning Systems (EWS) for the prevention of Intensive Care admission and death of critically ill adult patients on general hospital wards

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Authors' objectives

Background: Despite the fact that outreach and early warning systems (EWS) are an integral part of a hospital wide systems approach to improve the early identification and management of deteriorating patients on general hospital wards, the widespread implementation of these interventions in practice is not based on robust research evidence. Objectives: The primary objective was to determine the impact of critical care outreach services on hospital mortality rates. Secondary objectives included determining the effect of outreach services on intensive care unit (ICU) admission patterns, length of hospital stay and adverse events.


Selection criteria: Randomised controlled trials (RCTs), controlled clinical trials (CCTs), controlled before and after studies (CBAs) and interrupted time series designs (ITS) which measured hospital mortality, unanticipated ICU admissions, ICU readmissions, length of hospital stay and adverse events following implementation of outreach and EWS in a general hospital ward to identify deteriorating adult patients versus general hospital ward setting without outreach and EWS were included in the review.

Data collection and analysis: Three review authors independently extracted data and two review authors assessed the methodological quality of the included studies. Meta-analysis was not possible due to heterogeneity. Summary statistics and descriptive summaries of primary and secondary outcomes are presented for each study.

Main results: Two cluster-randomised control trials were included: one randomised at hospital level (23 hospitals in Australia) and one at ward level (16 wards in the UK). The primary outcome in the Australian trial (a composite score comprising incidence of unexpected cardiac arrests, unexpected deaths and unplanned ICU admissions) showed no statistical significant difference between control and medical emergency team (MET) hospitals (adjusted P value 0.640; adjusted odds ratio (OR) 0.98; 95% confidence interval (CI) 0.83 to 1.16). The UK-based trial found that outreach reduced in-hospital mortality (adjusted OR 0.52; 95% CI 0.32 to 0.85) compared with the control group.

Authors' conclusions: The evidence from this review highlights the diversity and poor methodological quality of most studies investigating outreach. The results of the two included studies showed either no evidence of the effectiveness of outreach or a reduction in overall mortality in patients receiving outreach. The lack of evidence on outreach requires further multi-site RCT's to determine potential effectiveness. US: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005529.pub2/abstract

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