



## 'Code ICU' and Improved Patient Outcomes



A system of rapid review of critically ill patients in the emergency department (ED) is associated with reduced ED length of stay and improved intensive care unit (ICU) outcomes, suggests a new study to appear in Journal of Critical Care.

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In 2012, a National Emergency Access Target (NEAT) system was introduced to Australian public hospitals in an effort to improve patient flow through EDs. This target aims to have 90% of patients admitted to hospital or discharged within four hours of presentation to ED. Subsequent Australian data suggests a complex relationship between ED length of stay (LOS) under the NEAT system and patient outcome. Increasing NEAT compliance may be associated with reductions in Standardised Mortality Ratio (SMR), although the relationship is non-linear, with increased SMR seen at hospitals with very high compliance rates.

As part of efforts to improve NEAT compliance for critically ill patients a "Code ICU" system was introduced to the Royal Melbourne Hospital in February 2014 (two years after the NEAT began). This system aimed to identify ED patients who had a high likelihood of requiring an ICU admission and facilitate their rapid assessment and admission to the ICU for ongoing care. This study examined the effect of the "Code ICU" protocol on ED LOS – defined by the NEAT target ED LOS of <240 minutes – and improvements in ICU patient outcomes, particularly for patients already intubated in ED.

In this retrospective cohort study, researchers compared two 12-month periods before and after the implementation of the hospital's "Code ICU" system. All adult ED to ICU admissions were included. Separate analyses were performed for patients intubated prior to ICU admission.

Overall, 622 and 629 patients were included in each time period. During the intervention period more patients had ED LOS <240 minutes in both the total and intubated cohorts. "Code ICU" intubated patients had a shorter duration of mechanical ventilation, ICU LOS and hospital LOS compared to non-"Code ICU" intubated patients. "This is despite these intubated subgroups having similar characteristics and illness severity scores, providing the strongest evidence for the effectiveness of the Code ICU system in expediting admission of critically unwell patients," the researchers point out.

Notably, the intervention does not require additional resources or staffing, and is easy to implement, according to the research team. The novel elements at the Royal Melbourne Hospital included the use of a paging system to rapidly alert all relevant staff and the use of target timeframes for review (30 minutes) and admission (as

early as possible, and within 4 hours of arrival), the team said.

The study has several limitations. While the researchers attempted to control for interacting variables, they said the non-randomised and retrospective nature of the study makes it difficult to exclude confounding factors entirely. Patients with sepsis, cardiac arrest and trauma were identified from their APACHE (Acute Physiology, Age, Chronic Health Evaluation) diagnosis, which may underestimate the true incidence of these presentations, although the researchers consider this unlikely.

Source: [Journal of Critical Care](#)

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