

## Weekend ICU admissions linked to higher death risk



Adjusted risk of death for ICU admission was greater over the weekends compared with weekdays, according to a systematic review published in the journal *Critical Care Medicine*. The report authors explain: "The absence of a dedicated intensivist on-site overnight may be associated with increased mortality for acute admissions. These results need to be interpreted in context of the organisation of local healthcare resources before changes to healthcare policy are implemented."

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Organisational factors are associated with outcome of critically ill patients and may vary by time of day and day of week. There have been several studies with large patient numbers investigating the effect of out-of-hours (evening, nighttime, weekday, and weekend) admissions to ICU and patient mortality. Any differences in mortality by time of day or day of week is likely to have a significant influence on healthcare policy, medical insurance, and workforce planning.

This systematic review and meta-analysis aimed to identify the association between out-of-hours admission to critical care and mortality. A systematic literature search of MEDLINE (via Ovid) and EMBASE (via Ovid) was conducted to identify suitable studies. Only studies reporting mortality as the primary outcome were included. Secondary analyses included the effect of country/region of study and the presence of an on-site intensivist. Data are presented as odds ratios [95% CIs], p values).

A total of 16 studies with 902,551 patients were included in the analysis with a crude mortality of 18.2%. Fourteen studies with 717,331 patients reported mortality rates by time of admission and 11 studies with 835,032 patients by day of admission. The review team reported these key findings:

- Admission to ICU at night was not associated with an increased odds of mortality compared with admissions during the day (odds ratio, 1.04 [0.98–1.11];  $p = 0.18$ ).
- ICU admissions during the weekend were associated with an increased odds of death compared with admissions during weekdays (1.05 [1.01–1.09];  $p = 0.006$ ).
- Increased mortality associated with weekend ICU admissions compared with weekday ICU admissions was limited to North American countries (1.08 [1.03–1.12];  $p = 0.0004$ ).
- The absence of a routine overnight on-site intensivist was associated with increased mortality among weekend ICU admissions compared with weekday ICU admissions (1.11 [1.00–1.22];  $p = 0.04$ ) and nighttime admissions compared with daytime ICU admissions (1.11 [1.00–1.23];  $p = 0.05$ ).

"The observation of increased odds of mortality associated with weekend ICU admission in North American countries but not European countries is likely to be explained by multiple differences between American and European intensive care services. These include the availability of ICU beds, threshold for ICU admission, and utility of ICU bed for terminal hospitalisations," according to the review team.

Moreover, the team says differences in working patterns may also be a factor. Data show the presence of nighttime ICU doctors varies from 40% of ICUs in Netherlands, Norway, and Finland to 90–100% in France, Italy, Portugal or Spain. In contrast, only a minority of North American hospitals have full-time attending physician ICU coverage 24 hours a day.

Source: [Critical Care Medicine](#)

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