

A Randomized Trial of Nighttime Physician Staffing in an Intensive Care Unit

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BACKGROUND

Increasing numbers of intensive care units (ICUs) are adopting the practice of nighttime intensivist staffing despite the lack of experimental evidence of its effectiveness.

METHODS

We conducted a 1-year randomized trial in an academic medical ICU of the effects of nighttime staffing with in-hospital intensivists (intervention) as compared with nighttime coverage by daytime intensivists who were available for consultation by telephone (control). We randomly assigned blocks of 7 consecutive nights to the intervention or the control strategy. The primary outcome was patients' length of stay in the ICU. Secondary outcomes were patients' length of stay in the hospital, ICU and in-hospital mortality, discharge disposition, and rates of readmission to the ICU. For length-of-stay outcomes, we performed time-to-event analyses, with data censored at the time of a patient's death or transfer to another ICU.

RESULTS

A total of 1598 patients were included in the analyses. The median Acute Physiology and Chronic Health Evaluation (APACHE) III score (in which scores range from 0 to 299, with higher scores indicating more severe illness) was 67 (interquartile range, 47 to 91), the median length of stay in the ICU was 52.7 hours (interquartile range, 29.0 to 113.4), and mortality in the ICU was 18%. Patients who were admitted on intervention days were exposed to nighttime intensivists on more nights than were patients admitted on control days (median, 100% of nights [interquartile range, 67 to 100] vs. median, 0% [interquartile range, 0 to 33]; $P < 0.001$). Nonetheless, intensivist staffing on the night of admission did not have a significant effect on the length of stay in the ICU (rate ratio for the time to ICU discharge, 0.98; 95% confidence interval [CI], 0.88 to 1.09; $P = 0.72$), ICU mortality (relative risk, 1.07; 95% CI, 0.90 to 1.28), or any other end point. Analyses restricted to patients who were admitted at night showed similar results, as did sensitivity analyses that used different definitions of exposure and outcome.

CONCLUSIONS

In an academic medical ICU in the United States, nighttime in-hospital intensivist staffing did not improve patient outcomes. (Funded by University of Pennsylvania Health System and others; ClinicalTrials.gov number, [NCT01434823](#).)