A service evaluation examining the requirement for Level 2 critical care in a major trauma centre

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January 9, 2022

Abstract

Critical care provision is fundamental in all developed health systems in which severe disease and injury is managed. This is especially true in major trauma centres and high-acuity establishments, where acutely unstable patients can be admitted at any time, requiring clinical monitoring and interventions appropriate for their burden of illness. This single-centre, prospective service evaluation applied validated scoring systems to a surgical population, sampling and following those considered “high-risk” through to discharge or death, alongside all intensive care unit (ICU) admissions during 2019. Primarily we aimed to quantify the number of patients objectively suitable for Level 2 critical care, conventionally provided in a high-dependency unit (HDU) setting. Secondary outcome measures included ICU readmission rate, in-hospital mortality, and delays to ICU admission and discharge. Of the “high-risk” surgical patients, more than eight per week were found to have peri-operative Portsmouth Physiological and Operative Severity Score for the enUmeration of Mortality and morbidity (P-POSSUM) scores that would advocate critical care admission. Only one individual received scheduled peri-operative critical care. Post-operative mortality in this group was 6.1%, though none of these patients was admitted to ICU prior to death. There were 605 ICU admissions in 2019, with 32.1% of admitted days spent at the equivalent of Level 2 critical care, which could have been administered in a HDU if one was available. The ICU readmission rate was 6.45%. This data demonstrates substantial unmet critical care needs, with patients not uncommonly managed in clinically inappropriate areas for extended periods due to delays accessing ICU. A designated HDU may mitigate clinical risk from this subgroup, reducing morbidity and in-hospital mortality, and this methodology for assessing requirements could be used in other similar institutions.

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