

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

Paul Galea<sup>1</sup>, Kirsten Joyce<sup>2</sup>, Sarah Galea<sup>2</sup>, and Frank Loughnane<sup>2</sup>

<sup>1</sup>University College Cork

<sup>2</sup>Cork University Hospital

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.

## Hosted file

Level 2 critical care in a major trauma centre.doc available at <https://authorea.com/users/454662/articles/552194-a-service-evaluation-examining-the-requirement-for-level-2-critical-care-in-a-major-trauma-centre>