

## Is ICU Readmission Associated with Higher Severity of Illness Scores?



ICU readmission is associated with higher severity of illness scores during the same hospitalisation in adult patients, according to a systematic review of data from over 480,000 ICU patients and more than 32,000 readmissions. The findings, published in the journal *Heart & Lung*, contribute to current efforts to identify high-risk patients and to design interventions to reduce readmissions.

Readmission exposes patients to increased risks, as transfers between healthcare professionals have been linked to an increased rate of adverse events, higher mortality, and longer hospital stays. The management of critically ill patients therefore poses significant challenges to healthcare providers seeking to improve quality and reduce costs.

The systematic review, led by Evan G. Wong, MD, MPH, Department of Surgery at McGill University (Montreal, Canada), aimed to evaluate whether ICU readmissions remain associated with the most commonly used severity of illness scores — ie, APACHE and SAPS — in adult patients. The review team searched the MEDLINE, EMBASE, and grey literature databases to February 2014. They selected studies reporting data from adults who were hospitalised in an ICU, received severity of illness scores, and were discharged from the ICU.

The reviewers screened 4,766 publications and included 31 studies in their analysis. The studies were conducted between 1987 and 2011 and included 482,338 patients. Of these, 32,537 were readmitted to the ICU. The studies varied regarding the following characteristics: types of patients studied (subspecialty populations, such as tracheostomy patients, vs. general medical or surgical populations); type of ICU (medical vs. surgical vs. mixed); and hospital and ICU sizes.

While all studies defined ICU readmission as a readmission occurring during the same hospitalisation, several used time-based cut points (eg, 48 hours) after ICU discharge to classify early vs. late readmissions. Other studies limited the time they followed patients during their hospitalisation. Analysis of data revealed that severity of illness scores were higher in patients readmitted to the ICU. Readmission was also associated with higher mortality — ranging from 10% to >50% vs. 1% to 18% in non-readmitted patients — and longer ICU and hospital stays.

"Although our analysis was not intended to assess the predictive value of severity of illness scores, it does provide evidence that severity of illness scores may have wider clinical use and could be considered for inclusion in future ICU readmission prediction models," the authors note.

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Published on : Thu, 7 Jan 2016