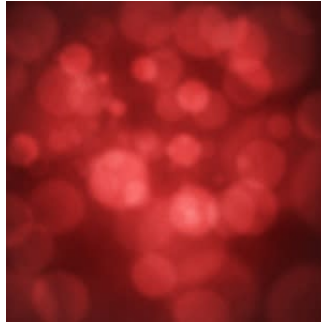


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## Study: global differences in blood transfusion practice



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A large worldwide study of patients admitted to the ICU shows clear differences in transfusion practice in different geographic regions. The findings also suggest that red blood cell (RBC) transfusion may be associated with better outcomes in the most severely ill patients, highlighting the importance of taking severity of illness into account when making transfusion decisions.

"We observed considerable variation in transfusion practice among geographic regions, and marked differences in pretransfusion haemoglobin concentrations according to age, type of admission, the presence of sepsis, severity scores and ICU length of stay," study authors write. "There are surprisingly few data on ICU transfusion practice in areas of the world other than Europe, Oceania and North America."

RBC transfusions are frequently administered in critically ill patients, which can help increase oxygen delivery to the tissues and improve the oxygen demand/supply balance, but may also have some harmful effects. Moreover, the heterogeneity of critical illness and the absence of universally accepted guidelines may influence RBC transfusion practice in intensive care units (ICUs) worldwide.

Researchers used the worldwide Intensive Care Over Nations (ICON) database, to investigate current transfusion practices worldwide and the possible effect of transfusion on outcomes. This was a pre-planned sub-study of the ICON audit, which involved 730 ICUs in 84 countries and included all adult patients admitted between 8 May and 18 May 2012, except admissions for routine postoperative surveillance.

ICU and hospital outcomes were recorded. Among the 10,069 patients included in the audit, data related to transfusion had been completed for 9,553 (mean age  $60 \pm 18$  years, 60% male); 2,511 (26.3%) of these had received a transfusion, with considerable variation among geographic regions. The mean lowest haemoglobin on the day of transfusion was  $8.3 \pm 1.7$  g/dL, but varied from  $7.8 \pm 1.4$  g/dL in the Middle East to  $8.9 \pm 1.9$  g/dL in Eastern Europe.

Hospital mortality rates were higher in transfused than in non-transfused patients (30.0% vs. 19.6%,  $p < 0.001$ ) and increased with increasing numbers of transfused units. In an extended Cox proportional hazard analysis, the relative risk of in-hospital death was slightly lower after transfusion in the whole cohort (hazard ratio 0.98, confidence interval 0.96–1.00,  $p = 0.048$ ). There was a stepwise decrease in the hazard ratio for mortality after transfusion with increasing admission severity scores.

"As expected, transfusions were associated with higher severity scores, longer lengths of stay and higher mortality rates. The important finding was that in multivariable analysis, RBC transfusion was associated with greater benefit in sicker patients and with worse outcomes in patients with lower severity scores," the authors explain.

Although transfusion was associated with a lower hazard of mortality in sicker patients, the authors are unable to comment on optimum thresholds or targets of transfusion. Also, while this was a predefined sub-study, the authors emphasise that the original ICON study was not specifically designed to investigate this topic and some potentially relevant aspects were not available. "For example, the indication for red blood cell transfusion, especially acute bleeding, was not recorded in our database, so that a possible confounding effect cannot be excluded," the authors point out.

Source: [Critical Care](#)

Image Credit: Pixabay

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