

## Optimal Approach to Fluid Resuscitation for Patients in Shock



Initial fluid resuscitation practices for patients with haemodynamic shock remain controversial. There is significant variability in these practices, and the impact of this is still poorly understood. Overall, non-patient-centred resuscitation practices, conflicting treatments, variability, and failure to meet targets for initial resuscitation are all issues that need to be addressed with respect to fluid resuscitation for mechanically ventilated patients in shock.

Several studies have already established that there is a positive association between fluid balance and mortality. A study was conducted to evaluate usual care variability and to determine the differential effect of observed and predicted fluid resuscitation volumes on mortality for mechanically ventilated patients in shock. The hypothesis was that mechanically ventilated patients with shock are frequently prescribed greater- or less-than-expected day 1 fluid volumes that could result in an adverse impact on hospital mortality.

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Mortality was evaluated by observed and predicted day 1 fluid administration, and the difference in predicted and observed outcomes were used to adjust for disease severity. Duration of mechanical ventilation, hospital and ICU length of stay, and cost were also evaluated.

Thirty-three thousand eight hundred thirty-one patients were included in the study. Findings show that observed hospital mortality was higher than predicted mortality for each additional litre of day 1 fluid beginning at 7L. Observed mortality for patients with septic shock was incrementally greater than predicted mortality with incrementally great day 1 fluid resuscitation volumes. Greater-than-expected fluid resuscitation was associated with increased hospital mortality among all patients with shock compared to patients that received predicted day 1 fluid volumes. The same was true for a subgroup of shock patients with comorbid conditions. However, both greater-than-expected and less-than-expected day 1 fluid resuscitation was associated with increased hospital mortality in patients with shock but without comorbid conditions.

These results suggest that variable day 1 fluid resuscitation is associated with a non-uniform impact on hospital mortality among subgroups of mechanically ventilated patients with shock. There is thus a need for closer evaluation of fluid resuscitation strategies applied in the early phase of shock resuscitation.

This study represents the largest analysis of fluid resuscitation outcomes for a wide spectrum of shock states and focuses on early, guideline informed day 1 fluid administration in shock. The results highlight the extensive treatment variability that exists in fluid resuscitation practices. This variability has an impact on patient outcomes and mortality, and that is why there is a need for further evaluation of which patients could benefit or be harmed by restricted and liberal fluid resuscitation strategies.

Source: [Critical Care](#)

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