

# Fluid overload and outcomes in critically ill children: A single center prospective cohort study.

Franco Diaz, Mark Benfield, LaTanya Brown y Leslie Hayes.

## Abstract

**Objective:** To prospectively evaluate the association between fluid overload (FO) and clinical outcomes, mortality, mechanical ventilation (MV), and duration and length of stay in a pediatric intensive care unit (PICU).

**Methods:** Over a 12-month period, patients who were on MV for >24h or vasoactive support were prospectively included. Demographic and clinical data were recorded. Daily FO was calculated as [(fluid in-fluid out)/admission weight]×100%. Multivariate stepwise logistic regression analysis was used to determine predictors of survival.

**Results:** 224 patients were included; median age was 3.3 (IQR 0.7, 9.9) years, mortality was 15.6%. The median peak FO (PFO) was 12.5% (IQR 5, 25), PFO>10% was present in 55.8% of patients, and PFO>20% was present in 33%. The PFO in non-survivors was 17.8% (IQR 8, 30) and 11% (IQR 4, 23) in survivors (p=0.028). A survival analysis showed no association between PFO and mortality. A multivariate analysis identified vasoactive support, >3 organ failures and acute kidney injury (AKI) but not FO as independent risk factors for mortality. FO was associated with MV duration and PICU length of stay.

**Conclusion:** FO is frequent in a general PICU population, but PFO is not an independent risk factor for mortality. Future studies of FO should focus on patients with AKI and multiorgan failure for better classification of severity and potential interventions.