OBJECTIVES: To evaluate the reliability and validity of a previously derived clinical dehydration scale (CDS) in a cohort of children with gastroenteritis and evidence of dehydration.

METHODS: Participants were 226 children older than 3 months who presented to a tertiary care emergency department and required intravenous rehydration. Reliability was assessed at treatment initiation, by comparing the scores assigned independently by a trained research nurse and a physician. Validity was assessed by using parameters reflective of disease severity: weight gain, baseline laboratory results, willingness of the physician to discharge the patient, hospitalization, and length of stay.

RESULTS: Interobserver reliability was moderate, with a weighted $\kappa$ of 0.52 (95% confidence interval [CI] 0.41, 0.63). There was no correlation between CDS score and percent weight gain, a proxy measure of fluid deficit (Spearman correlation coefficient = $\hat{\rho}$ 0.03; 95% CI $\hat{\rho}$ 0.18, 0.12). There were, however, modest and statistically significant correlations between CDS score and several other parameters, including serum bicarbonate (Pearson correlation coefficient = $\hat{\rho}$ 0.35; 95% CI $\hat{\rho}$ 0.46, $\hat{\rho}$ 0.22) and length of stay (Pearson correlation coefficient = $\hat{\rho}$ 0.49; 95% CI $\hat{\rho}$ 0.40, $\hat{\rho}$ 0.57).
coefficient = 0.24; 95% CI 0.11, 0.36). The scaleâ€™s discriminative ability was assessed for the outcome of hospitalization, yielding an area under the receiver operating characteristic curve of 0.65 (95% CI 0.57, 0.73).

CONCLUSIONS: In children administered intravenous rehydration, the CDS was characterized by moderate interobserver reliability and weak associations with objective measures of disease severity. These data do not support its use as a tool to dictate the need for intravenous rehydration or to predict clinical course.