

ICU Clinical Staff Assessment of Patient Frailty Is Neither Accurate Nor Precise

K. Sherwani¹, A. J. Tidswell², O. R. Steingrub³, M. A. Tidswell¹, J. S. Steingrub¹, M. S. Stefan⁴; ¹Pulmonary and Critical Care Medicine, Baystate Medical Center, Springfield, MA, United States, ²Vassar College, Poughkeepsie, NY, United States, ³Bowdoin College, Brunswick, ME, United States, ⁴Hospital Medicine and Institute for Healthcare Disparities and Population Science, Baystate Med Center, Springfield, MA, United States.

Rationale: Estimates of prognosis for intensive care unit (ICU) patients are important for communicating likely outcome and establishing goals of care. Frailty is an assessment of diminished physiological reserve which may impact outcome. In elderly patients, frailty is independently associated with mortality. A recent study of a large cohort of critically ill patients aged ≥ 18 demonstrated that greater frailty assessed by a Clinical Frailty Score (CFS) was independently associated with greater mortality at 3 and 12 months [Brummel 2017]. In that study, the CFS score was assigned by study personnel trained to use patient or proxy interviews and medical records. The Clinical Frailty Scale (CFS) [Rockwood, 2005] is a well-validated scale that measures frailty on a scale from 1 (very fit) to 9 (terminally ill). Our goal was to implement CFS as a standard frailty assessment in our ICU. We intended to determine whether clinicians need formal training in the use of CFS or whether their clinical knowledge of patients allows accurate assessment of frailty and the implication of frailty on prognosis. **Methods:** CFS scores were assigned by trained personnel using interview tools (gold standard). Clinical staff (nurses, medical students, fellows, residents, attending physicians) assigned CFS scores based only on their clinical expertise and knowledge of the patient, without any prior training and without conducting an interview. Scores by trained individuals were compared to CFS scores by clinical staff. **Results:** Trained personnel interviewed 67 patients/proxies to assign a CFS. The mean age was 62 ± 16 years. The median CFS by trained personnel was 5 (IQR 4-6), compared to clinical staff median CFS = 5 (IQR 3-6), $p = 0.33$. Clinical staff were more likely to assign extreme scores than trained personnel (Figure 1). The mean absolute error (the mean absolute difference between the trained score and overall mean clinical staff score for each patient) was 1.4 (Figure 2). Composite inter-rater agreement was weak but statistically significant, as indicated by intra-class correlation coefficient 0.36 ($p < 0.001$). **Conclusion:** Assessment of frailty by untrained clinical staff, when compared to frailty scored by trained interviewers, was inaccurate and differed in a non-systematic manner. Given the value of pre-ICU frailty for predicting short- and long-term outcomes, a more accurate assessment of frailty may help clinical staff better set goals of care with patients and their proxies.

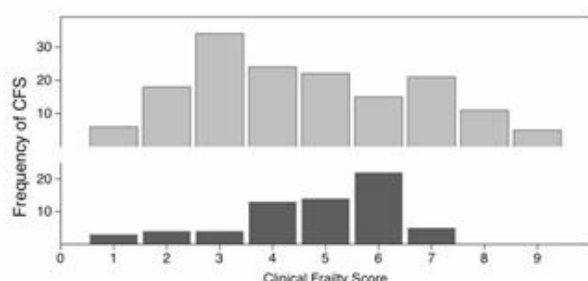


Figure 1. Distribution of CFS in patients assessed by trained reviewers (lower frame, dark bars) or clinical staff (upper frame, light bars).

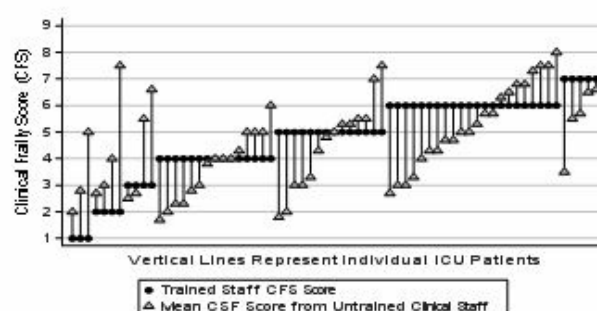


Figure 2. Paired plot for each patient. Trained interviewer CFS score (●) compared to Mean of CFS scores from all clinical staff (Δ).

