

Evaluating physical functioning in ICU patients



Measuring physical functioning is important in the intensive care unit (ICU) to help inform patient recovery after critical illness, to identify patients who may require rehabilitation interventions, and to monitor responsiveness to such interventions, according to a viewpoint article in the journal *Critical Care*.

"Impairment in physical functioning among ICU survivors results in significant morbidity and burden to patients, caregivers, and society. With a growing population of ICU survivors, greater utilisation and standardisation of physical functioning instruments is needed," the article says. In particular, weakness and physical functioning are predictive of subsequent length of stay (LOS), post-discharge survival, healthcare utilisation, quality of life (QOL), and return to home. The evaluation of physical functioning early and longitudinally in the ICU therefore is needed to determine patients at risk of poor physical outcomes, monitor intervention efficacy, and inform recovery trajectories.

Pre-ICU factors, such as age, comorbidities, and pre-ICU trajectories for muscle mass and physical functioning, impact on the physical functioning of patients in the ICU. In addition, there are many factors related to critical illness and the ICU environment – e.g., sedation, severity of illness, medical devices – that can impact on impairment in physiological body systems that are critical to the physical functioning of patients in the ICU.

According to the article, determining the specific purpose for assessing physical functioning is important when selecting an appropriate instrument. For example, if the purpose is to evaluate intervention efficacy, users should consider the specific effect of the intervention and match it with an instrument that evaluates that effect. Hence, if the primary aim of an intervention is to improve patient mobility via increased muscle strength, it may be most appropriate to use a composite instrument which evaluates mobility and strength (e.g., Physical Functional in ICU Test-scored or Chelsea Critical Care Physical Assessment Tool) or separate instruments individually focused on strength and mobility (e.g., dynamometry, plus ICU Mobility Scale or Functional Status Score for the ICU).

"Currently there is not a single measure available that can be utilised across the entire recovery trajectory. Therefore, consideration of the elements evaluated under the subdomains of the ICF [International Classification of Functioning] framework is important when selecting the relevant instrument based on the assessment purpose," the article notes. The ICF framework explicitly recognises that functioning is affected by the interplay between an individual's health condition and contextual factors, which may include personal (e.g., education) and environmental/social (e.g., home set-up, family support) factors.

Relevant measurement properties to consider when selecting an instrument include the ability to measure what is intended (validity). This includes subjective interpretation (face validity), whether the instrument's content adequately reflects the parameter of interest (content validity), comparison with other tools measuring a similar construct (construct validity), and prediction of future outcomes (predictive validity). Based on published measurement properties alone, the article says the most robust ICU instruments are: Physical Functional in ICU Test-scored; Chelsea Critical Care Physical Assessment Tool; Functional Status Score for the ICU; and ICU Mobility Scale.

There is often a delay in initiating evaluations of physical functioning in the ICU due to sedation, delirium, and illness severity impacting the volitional ability of patients. It is during this very early stage of critical illness that non-volitional instruments may be appropriate (e.g., screening neuromuscular electrophysiological or ultrasound tests), the article notes. "Future work should also explore how psychological and cognitive capacity impact patient performance, engagement, and the timing and frequency of evaluation of physical functioning," the article adds.

Source: [Critical Care](#)

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