

Neurocheck

Following [acute brain injury](#), patients in the [intensive care unit](#) often undergo hourly or every-other-hour exams (“neurochecks”) to monitor for [neurodeterioration](#)

In the certification of stroke centers, the performance of serial nursing neurological assessments and reassessments, commonly known as neurochecks, is often cited as one of the most problematic standards. The role of neurochecks is to readily detect neurological change, but it is surprising that this practice has undergone relatively little scientific study ^{1) 2)}.

Neurochecks are effective at detecting clinically important neurologic changes in the intensive care unit setting that are relevant to patients' long-term outcomes. The initial 12 hours is a period of frequent and prognostically important neurologic changes in patients with ICH.

Neurocheck Frequency

LaBuzetta et al. assessed health care [provider](#) attitudes towards neurocheck frequency and evaluated providers' ideal neurocheck frequency.

This was a [cross-sectional](#), online [survey](#) distributed in Spring 2021 at a tertiary care academic medical [center](#). Providers from multiple intensive care unit and neuroscience clinical specialties including attending faculty, medical trainees, advanced practice providers, and bedside nurses were invited to participate.

Among 177 participants, 61 (34%) and 116 (66%) were self-identified as ordering and performing providers, respectively. The survey response rate was 58% among physicians and 51% among bedside nurses with neurological expertise. The most common medical and non-medical reasons for ordering hourly neurochecks were “a specific diagnosis with anticipated course” and “standard of care”, respectively. Compared with ordering providers, performing providers felt guidelines regarding neurocheck frequency ($P<0.01$) and duration ($P<0.01$) should be proscriptive. Conversely, ordering providers felt hourly neurochecks were detrimental to patients with acute brain injury ($P=0.02$) and believed they would not utilize hourly neurochecks if there was another mode of monitoring available ($P=0.03$). Performing providers identified multiple patient-related factors impacting the difficulty of and their willingness to perform frequent neurochecks, and only 70% of neurochecks were perceived to be performed as ordered. Both ordering and performing providers preferred every-other-hour neurochecks following acute brain injury.

This survey revealed clinically relevant differences in ordering versus performing provider attitudes about frequent neurochecks. Providers preferred every-other-hour rather than hourly neurochecks ³⁾.

Intensive neurological assessments in neurocritical care settings for unduly prolonged period result in profound sleep deprivation in those patients that confounds the true neurological status of these patients, and the mounting apprehension in providers can beget a vicious cycle of even more

intensive neurological assessments resulting in further sleep deprivation from being constantly woken up to be “assessed.” This iatrogenic state drives these patients into deep sleep stages that impact spontaneous breathing trials, weaken immunity, and lead to unwarranted investigations and interventions. There is dwindling value of prolonged frequent neurochecks beyond the initial 24-48 h of an intracranial event. We insist that sleep must be considered on at least an equal par to other functions that are routinely assessed. We reason that therapeutic sleep must be allowed to these patients in suitable amounts especially beyond the first 36-48 h to achieve ideal and swift recovery. This merits a paradigm shift ⁴⁾.

Although neurochecks detected neurological deterioration in almost half of patients with [acute stroke](#), a significant proportion of deteriorations were found outside scheduled assessments or remained undetected. This suggests that novel monitoring strategies are needed to readily identify worsening neurological status in acute stroke ⁵⁾.

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²⁾

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³⁾

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⁴⁾

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