

# Hospital-wide scores underestimate readmission risk in neurocritical care patients

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Scoring models used to predict 30-day readmission risk in the general hospital population may not accurately predict readmissions for patients in the neurocritical care unit, reports a study in the *Journal of Neuroscience Nursing*, official journal of the American Association of Neuroscience Nurses.

"In analyzing the current readmission tool at our institution, we found that it underestimated the risk of readmission in our neurocritical care patient [population]," according to the research by Sarah Peacock, APRN, and colleagues of the Mayo Clinic in Jacksonville, Fla. They believe that developing risk scores specific to the neurocritical care unit could have important implications for [patient care](#) as well as financial reimbursement.

## Calculator Doesn't Predict 30-Day Readmissions in Neurocritical Care Patients

Thirty-day [hospital](#) readmission risk has become an important measure of the quality of hospital care. Medicare and other healthcare payers have implemented "pay for performance" programs including financial penalties for [patients](#) with unplanned readmissions. In response, hospitals have developed risk calculators to identify patients at high risk for readmission and target them for efforts to prevent adverse outcomes.

But there is concern that risk calculators based on the overall hospital population may not accurately reflect readmission risk in neurocritical care patients. Neurocritical care units—sometimes called neuroscience ICUs—provide specialized care for patients with conditions such as stroke and brain or spinal cord injuries. While previous studies have evaluated [risk factors](#) for readmission in neurocritical care patients, there are currently no specific models to predict readmission risk in patients with neurological conditions.

The researchers evaluated their institution's hospital-wide risk calculator using data on 279 patients admitted to the neurocritical care unit over one year. The study included only patients who were alive and not in hospice care when discharged from the hospital. The most common diagnoses were stroke and central nervous system cancers.

In this sample, only 38 neurocritical care patients were readmitted to the hospital within 30 days after discharge. The readmission rate of 13.6 percent was consistent with national trends. But based on the hospital-wide risk calculator, nearly two-thirds of the readmitted patients were labeled at "low risk" for readmission.

Emergency admission was the single strongest risk factor for readmission for neurocritical care patients, but received relatively low weight on the hospital-wide readmission score. The risk calculator did not account for the presence of brain or spinal cord cancers, which were another major risk factor; or infection, the most common reason for readmission in the neurocritical care population.

The results suggest that the risk calculator used for the hospital's general population is not accurate for neurocritical care patients. Because of differences in patients' characteristics and risk factors, the hospital-wide tool underestimates readmission risk in the neurocritical care group.

"Because Medicare payment is directly tied to readmission, having an accurate scoring model is essential," Ms. Peacock and coauthors write. Noting that their findings won't necessarily apply to every institution, they encourage hospitals to develop customized "neurological-specific" readmission risk scales, based on local data and practice.

"The development of a readmission risk [calculator](#) specific to neuroscience patients would provide the bedside nurse an accurate scoring tool that identifies patients at a high risk for hospital readmission," the researchers conclude. "The tool would enable bedside nurses, advanced practice nurses, and physicians to be alerted if a patient is at a high risk for [readmission](#) and the specific characteristics of the patient that make him/her [high risk](#)."

**More information:** Sarah Peacock et al. Evaluation of Hospital-wide Readmission Risk Calculator to Predict 30-Day Readmission in Neurocritical Care Patients, *Journal of Neuroscience Nursing* (2018). [DOI: 10.1097/JNN.0000000000000410](https://doi.org/10.1097/JNN.0000000000000410)

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