Innovative New Software in the Neuro Critical Care Unit Could Revolutionize Patient Care
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Innovative new software in the University of Utah Hospital Neuro Critical Care Unit could soon revolutionize patient care.

“Utah Metrics” is a software tool designed to improve compliance with guideline-recommended treatment thresholds for victims of brain and spinal cord injury. The software allows care providers to see physiologic trends while tracking compliance with treatment thresholds in real time. This helps identify shifts and abnormalities related to patient conditions.

Now a study is underway to determine if this software indeed improves success with hitting nationally recognized physiologic thresholds and if this has a positive impact on patient health.

“People around the world have heard about what we’re doing,” said Greg Hawryluk, MD, PhD, a neurosurgeon who helped launch the study focusing on traumatic brain injury and spinal cord injury patients.

Brain and spinal cord injury remain without targeted treatments, but achieving threshold values for measures like blood pressure, intracranial pressure, and brain oxygenation has been associated with improved outcomes.

In spinal cord injuries, higher blood pressure is believed to increase the provision of red blood cells and oxygen to the site of injury, helping nourish and heal the damaged spinal cord. But a study Hawryluk previously worked on at the University of California, San Francisco found that — despite staff’s efforts — patients were out of compliance 30 percent of the time.

Imagine Perfect Care helped pay for one of the monitors and some of the laptops being used to collect and track the data in Utah. The new study will examine how often the patients are in compliance with guidelines as well as whether the location of the laptop — in or out of the room — affects compliance.

“Does having software in the room trigger nurses and physicians to look more closely or not?” said Sarah Menacho, an assistant professor of neurosurgery who is leading the study.

Five monitors are churning out data in the 23-bed University Hospital Neuro Critical Care Unit
where the study began last July. Data will be collected into this summer and beyond.

Doctors believe this could be part of the ICU of the future.

“We’re making much more intensive use of computing to provide better care,” Hawryluk said. “It’s going to evolve into more sophisticated algorithms that could lead to treatment recommendations.”

With Utah Metrics, he’s noticed it’s unusual for patients to be out of compliance with guidelines more than 10 percent of the time — a major improvement. For some, they’ve been out of range less than 1 percent of the time.

Because the software can be accessed remotely, Hawryluk has reviewed live patient data while in Europe and South America. When he noticed concerning trends, he called in to the ICU.

“The nurses were stunned,” he recalled.

Physicians receive email updates hourly with data and graphics on individual patients.

“We think this is a new paradigm for patient care,” Hawryluk said.

Current participation in the study is voluntary, but most patients have been happy to be included. Menacho noted that no additional procedures or costs are being added to patient stays. And whatever the study ultimately reveals will be useful — even if it suggests ICU staff need to improve.

“Even a negative result would lead to more positive outcomes for the patient,” she said. “If it turns out that this software improves compliance with national guidelines, it could be something every patient room would be wired up to have.”

By Julia Lyon