Predicting outcomes for patients with kidney injury

January 26 2017, by Ziba Kashef

When patients experience acute kidney injury (AKI)—sudden kidney failure or damage—in the hospital, they are at increased risk of death and other adverse events. Theoretically, if clinicians could predict which patients were at risk of these outcomes, they could mobilize resources, such as diagnostic evaluation and increased monitoring, to those individuals, counsel them and their families, and improve care.

To test this theory, assistant professor of medicine Dr. F. Perry Wilson and his colleagues applied new machine-learning techniques, using patient data from electronic medical records. The researchers compared the more advanced techniques to a more commonly used statistical method called logistic regression. They found that while both approaches were effective in predicting risk for patients with AKI, machine-learning could achieve the same predictive results with fewer variables—an important consideration if these techniques are to be expanded to diverse health systems.

Either approach can be used to create real-time, time-updated predictive models, with risk scores that change with every new data point, that hospital physicians can use to direct care to the right patient at the right time, the researchers said.

The study is published in *PLOS ONE*.

More information: Danielle Saly et al. Approaches to Predicting Outcomes in Patients with Acute Kidney Injury, *PLOS ONE* (2017).

DOI: 10.1371/journal.pone.0169305