Medical Xpress

Predicting avoidable 30-day readmissions

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In an international, multicenter study researchers have found that the HOSPITAL score, an acronym created to identify the variables associated with hospital readmissions, successfully predicted patients at high risk of a 30-day potentially avoidable readmission. Researchers believe this score may help easily identify patients in need of intense transitional care interventions to prevent avoidable hospital readmissions.

The findings are published in the March 07, 2016 issue of *JAMA Internal Medicine*.

"Interventions to reduce readmissions are demanding and complex. We need to target patients who are most likely to benefit, which means identifying who is at high risk for avoidable readmission," said Jacques Donzé, MD, MSc, lead author of the study and research associate at Brigham and Women's Hospital (BWH) and Harvard Medical School, and associate physician at the Bern University Hospital (Switzerland). "The three main advantages of this score is that it is simple to use, it can be calculated before discharge so that interventions can be started, and it performs well in many population and countries."

Using data from 117,065 adult patients who were discharged from nine different hospitals across four countries, researchers estimated the risk of 30-day avoidable readmission using the following predictors at discharge: Hemoglobin level, discharge from an Oncology service, Sodium level, Procedure during the index admission, Index Type of admission (urgent), number of Admissions during the last 12 months, and Length of stay. Based on these 7 predictors, each patient obtained a score between 0 and 13, which reflects the risk of readmission. Within 30 days after discharge, 15 percent of the medical patients had a readmission, and 9.7 percent had a potentially avoidable readmission. Using the HOSPITAL score, 62 percent of the patients were categorized as low risk, 24 percent as intermediate risk, and 14 percent as high risk for a potentially avoidable readmission. Patients identified at high risk (7 points or more) had 4 times the risk of being readmitted within 30-days as compared to patients at low risk (4 points or less).

The score showed an excellent ability to identify patients at high risk for potentially avoidable readmission. A 30-day potentially avoidable readmission was predicted with a 72 percent probability using the HOSPITAL score. Moreover, the predicted probabilities of readmission

in each risk category matched exactly the real observed proportion of readmission. Overall, patients with a potentially avoidable readmission had an urgent or emergent index admission, were more frequently discharged from an oncology service, had a length of stay greater than 5 days, had more hospitalizations in the past year, were more likely to have had a procedure, and more often had a low hemoglobin or low sodium level at discharge.

"This score is easy to use and is currently the most widely validated prediction model for hospital readmission in medical patients. It remains to be shown whether interventions to reduce readmission are more efficient when targeted specifically to the high-risk patients according to the HOSPITAL score," said Donzé.

Provided by Brigham and Women's Hospital