Researchers develop new tool to eliminate 30-day hospital readmissions in heart failure patients

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Researchers at the Intermountain Heart Institute at Intermountain Medical Center have developed an innovative tool designed to eliminate 30-day hospital readmissions for heart failure patients and improve the quality of medical care a patient receives in the hospital.

The tool, known as the IMRS-HF, was adapted from the Intermountain Risk Score (IMRS) that has been used at Intermountain [Medical](#) Center to predict mortality rates in trauma patients.

Heart researchers discovered that by using the IMRS-HF, they could more accurately evaluate a patient's condition prior to discharge, and ensure there is less risk of the patient being readmitted for the same condition within 30 days.

"The IMRS-HF is another step forward in using evidence-based care to improve the quality of medical care provided to heart failure patients during a hospital stay," said Benjamin Horne, PhD, director of cardiovascular and genetic epidemiology at the Intermountain Heart Institute at Intermountain Medical Center, and lead researcher. "When implemented, this gives physicians an effective, real-time tool to help assure patients are in a healthy position for discharge."

Researchers designed the tool following an extensive examination of more than 6,000 electronic [medical records](#) involving discharged heart

failure patients from Intermountain Healthcare hospitals between 1999 and 2011.

The IMRS-HF tool was then validated using 459 patients hospitalized between April 2011 and October 2012. Using this new tool, researchers discovered that male patients with a score higher than 15 (on a 1-19 scale) were 8.5 times more likely to be readmitted within 30 days compared to a male patient with a score between one and eight. Women with a score of 5-9 (on a 0-9 scale) were twice as likely to be readmitted than a female patient with a score between 0-3.

Results of the project were presented at the American College of Cardiology's Annual Scientific Session in San Francisco on Saturday, March 9.

This research is especially timely because under the Affordable Care Act (ACA), hospitals receive Medicare reimbursement penalties for heart attack, heart failure or pneumonia patients who are discharged from the hospital and readmitted within 30 days for the same condition.

The IMRS-HF tool was composed using a statistical model that analyzes the effect of several variables on a specific event using survival methods. The IMRS-HF tool combines all this information into a risk score that tells the physician how likely the patient is to be readmitted within 30 days.

The score would be calculated when a heart failure patient is admitted to the hospital and included in the patient's individual electronic medical records. The components of the score are typically available in electronic medical records. The score would then be available to the physician as an alert to keep in mind as treatment decisions are made.

Planning for making the score available at Intermountain Healthcare

hospitals is now underway.

"Our next step is to look at ways to integrate this tool into the planning for all of our heart failure patients so we can reduce the number of 30-day readmissions and provide better quality care at a lower cost," said Dr. Horne.

The IMRS-HF tool also uses some laboratory components from the complete blood count and basic metabolic panel, but also adds additional factors such as hospital length of stay, and patient co-morbidities.

Provided by Intermountain Medical Center