

POPULATION HEALTH FORUMS

Using Electronic Health Records and Nursing Assessment to Redesign Clinical Early Recognition Systems

Eric V. Jackson, Jr, MD, MBA

Director, Health Care Delivery Service

Associate Director, Value Institute

Christiana Care Health System

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The 2016 Forum season kicked off with an interesting presentation on innovative tools and interventions used in improving quality and safety led by Dr. Eric V. Jackson, Associate Director of the Value Institute, and Director of Health Care Delivery Service at Christiana Care Health System. Dr. Jackson oversees the integration of clinically connected pragmatic implementation science for all the service lines within Christiana Care.

First established in 2011 by Robert Laskowski, MD, the Value Institute was initially driven by the framework of the Triple Aim. The Institute serves as a multidisciplinary research center focused on discovering solutions that improve the experience, efficiency and effectiveness of health care for patients and providers.¹ The Value Institute is comprised of 4 centers:

The Center for Health Care Delivery Science

The Center for Organizational Excellence

The Center for Outcomes Research

The Center for Quality and Patient Safety

Dr. Jackson set the stage by discussing studies related to early warning scores that alert the clinical team to patients whose condition is beginning to deteriorate and discussed the importance of cognitive aids that serve as enhancements to decision making. He outlined ways in which Christiana leveraged EHR and predictive system-wide surveillance, through early detection of deterioration, clinical transformation, readmission reduction, ICU collaboration, and palliative care. "Hospitals are big bags of data," stated Jackson, and asked, "how do we make sense of it?" He emphasized the importance of leveraging EHR and IT to detect early symptoms of adverse events. Knowing what tool works depends on how things operate organizationally within an institution, and the priorities of that institution.

Dr. Jackson described the strategic aims influencing Christiana's Early Warning Score (CEWS) which fall into three major themes: optimal health, exceptional experience, and organizational vitality. CEWS is described as an integrated trigger tool that detects early signals of adverse events 24 hours before they occur. CEWS includes predictive performance, IT infrastructure, workload integration, and Nursing Screening Assessment (NSA). The pilot study showed

that perceived workload did not increase, interface with physicians improved, and overall the assessment was useful to evaluating a patient's condition.

Discrete-Event Simulation (DES) is computer simulation that models a system as a discrete sequence of events. Each event occurs at a particular instant in time and follows a specific time distribution. Dr. Jackson explained optimization of implementation strategies, which are centered on the ability to predict unexpected physiologic deterioration of patients, together with DES allows the system to enhance: staff and scheduling, resource and workflow, capacity planning management, and patient flow.

The overall findings as described by Dr. Jackson are: patient rescue is a complex interdependent system that requires an integrated approach; CEWS provided strong predictive capability to detect early signals of RRT (rapid response team) activation; electronic NSA statistically improved predictive performance; and frontline line providers should be encouraged through system design to become champions of early warning assessments.

REFERENCES

1. Christiana Care Health System. Value Institute Overview. <http://www.christianacare.org/valueinstituteoverview>

