

THE Value Initiative

Members in Action: Improve Quality and Patient Outcomes

Ochsner Health System – Jefferson, LA *AI-powered Early-warning System Saves Lives*

The AHA's Members in Action series highlights how hospitals and health systems are implementing new value-based strategies to improve health care affordability. This includes work to redesign the delivery system, manage risk and new payment models, improve quality and outcomes, and implement operational solutions.

Overview

Ochsner Health System is breaking new ground by implementing an early-warning system aided by artificial intelligence (AI) designed to proactively prompt clinicians to intervene in a patient's care. The goal is to identify patients at risk for "coding" and mitigate a deterioration of their health.

The system tracks millions of pieces of inpatient data and in real time alerts a special rapid response clinical team that attempts to prevent cardiac arrests, respiratory arrests and other adverse health events. The early-warning system is a partnership among the health system, electronic health record vendor Epic's machine learning platform, and Microsoft Azure cloud computing technology.

The AI system consumes all data within the electronic medical record as data are made available, and predicts whether patients' conditions are expected to deteriorate. The system is based on statistical models built using datasets of more than 125,000 hospitalized patients.

Previously, clinicians' standards of care used best practices to manage patients in the hospital, and they had no systematic method of predicting if a patient might code. This AI-powered early-warning system gives clinicians a few hours to intervene and potentially avoid a code or a deterioration of the patient's condition.

Ochsner, Louisiana's largest academic health care system, started laying the groundwork for the technological advancement in spring 2017 through its innovation lab, innovationOchsner, and began implementation in early 2018. Physician buy-in occurred by demonstrating the strength of the analytical model and piloting an intervention strategy that proved effective.

Impact

For Ochsner, the AI-powered early-warning system reduced adverse events outside of the ICU by 44% in a 90-day pilot, a rate officials believe will increase over time.

The early-warning system will improve patient outcomes by leading to:

- Fewer patient transfers to the ICU.
- Shorter lengths of stay.
- Fewer complications and lower costs as a result of fewer patients coding.



The alert system decreased adverse events outside the ICU by 44% in a 90-day pilot.

Lessons Learned

“A primary focus of Ochsner’s success is cultivating a cultural change among physicians,” said Richard Milani, M.D., chief clinical transformation officer.

The team also had to develop clinical pathways with appropriate treatment options, factoring in a myriad of variables.

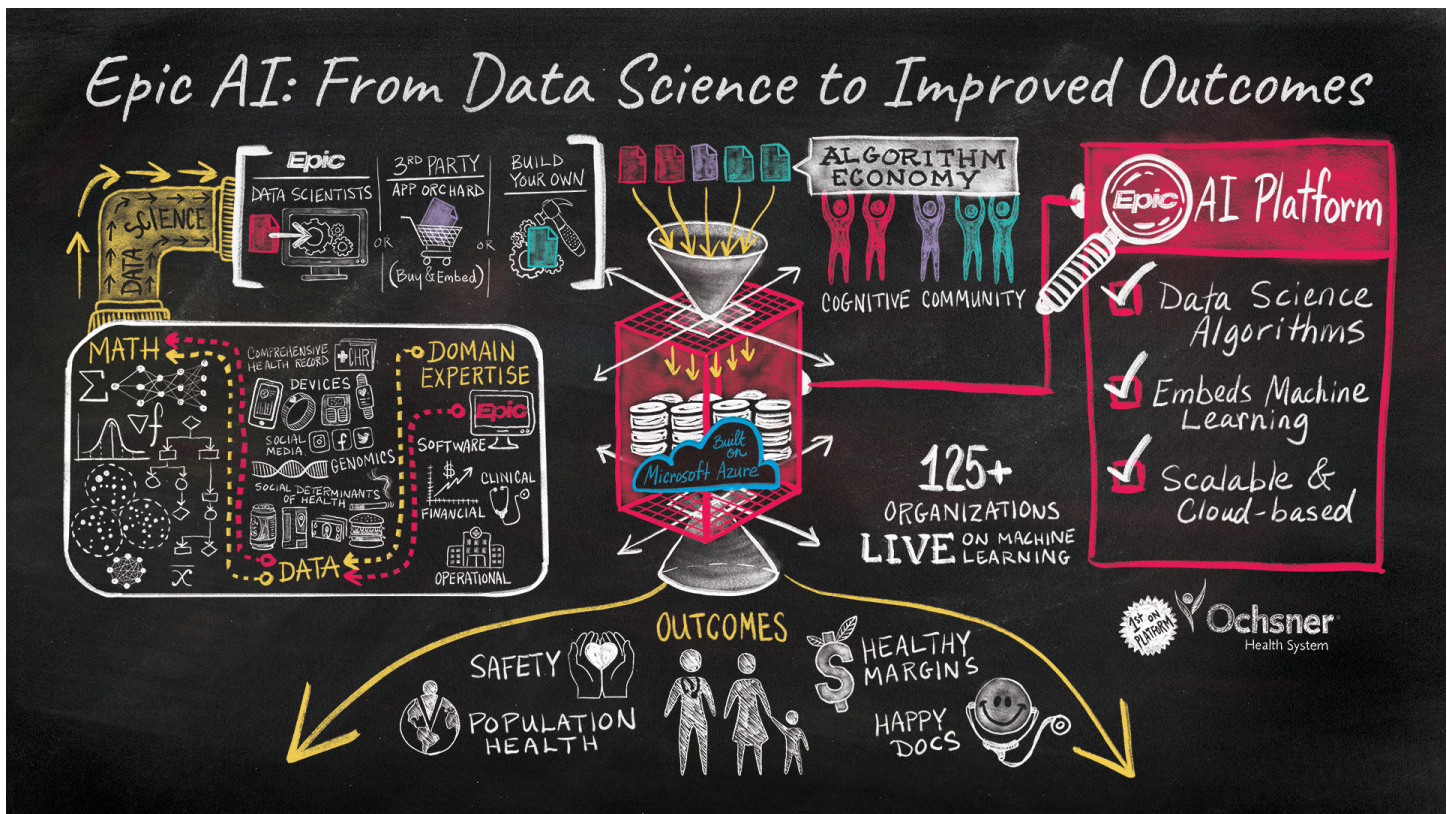
“We look at this in two parts,” said Milani. “The first is establishing the model that detects deterioration, which in this case is AI. The second is designing successful interventions that reduce the likelihood of patient deterioration.”

As a result, a dedicated rapid response team receives alerts from the early-warning system, makes a diagnostic evaluation at the bedside and intervenes with appropriate therapy.

Future Goals

Ochsner plans to implement the new system in all of its owned facilities with potential to scale to managed and affiliated partners.

“This is something that would not have been possible two years ago,” said Milani. “The technological capabilities just weren’t there. We are very excited about the future.”



Ochsner’s artificial intelligence early-warning system identifies patients at risk for coding.

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