HIMSS Analytics

HIMSS Analytics Stage 7 Case Study

University of Iowa Hospitals and Clinics

Profile

University of Iowa Hospitals and Clinics is an 873-bed tertiary care facility with 1,432 physicians, 6,100 staff and 32,000 annual admissions. It is Iowa's only comprehensive academic medical center, providing specialized multidisciplinary care in more than 200 specialties. University of Iowa Hospitals and Clinics has nationally recognized programs in ophthalmology, orthopedics, otolaryngology, cancer, cardiology, neurology/neurosurgery, transplant, nephrology and gynecology. **HIMSS Analytics EMR Adoption Model℠ Stage 7 status achieved: 11/25/2014**

The Challenge

University of Iowa Hospitals and Clinics has a rich history of using information technology to support clinical delivery. Internally developed software addressed most of the needs of the organization from the 1970s to the early part of the 21st century, when it was recognized that it could no longer provide sufficient software development support to meet the rapidly evolving needs of healthcare. The enterprise identified the need for a highly integrated solution that provided a robust set of common patient management tools that could be utilized by all staff and also supported the unique workflow requirements of specific care providers and clinical specialties. The organization recognized it needed to standardize many basic patient management processes across the enterprise in order to meet its clinical quality and patient safety objectives, and believed a robust clinical information system would be instrumental in driving that standardization. As an academic- and research-oriented organization, University of Iowa Hospitals and Clinics was also seeking a solution that could leverage the tremendous amount of transactional data associated with clinical care to support teaching its students and trainees on optimal patient management strategies and advancing the science of medicine through clinical research.

Implementation Overview

A large, multidisciplinary team of healthcare and information technology staff dedicated 2005-2006 to reviewing enterprise class clinical information systems and vendors. In fall of 2006, a decision was reached to contract with Epic Systems for their enterprise suite of applications. Formal project kick-off occurred in 2007 with operating room management. Radiology went live in 2008, and inpatient pharmacy, ICU device integration, clinical documentation and CPOE went live across the institution in 2009. Additional clinical modules, including patient and referring physician web portals, have been rolled out across the enterprise. The institution is live or installing all clinical solutions provided by our vendor across all areas of the organization.

Resulting Value / ROI

- **Ability to respond quickly to drug recalls and shortages:** Shortly after the CPOE go live, the Heparin used as a flush for vascular access catheters was recalled. Using the EHR in one afternoon we were able to identify all inpatients being treated with the recalled Heparin and replace all impacted Heparin inventory within a few hours. We routinely rely upon the EHR to direct physicians when certain medications are in limited supply or have been recalled.

- **Patients' access to their medical information:** Implementation of the EHR patient portal, which provides patients with access to their diagnostic studies, notes and visits, has had a dramatic and positive impact on patient satisfaction scores relating to access to medical information. This has resulted in patients being better informed about the care we are providing.

- **Documentation compliance:** As in many large health care organizations, we struggled to comply with our policies regarding completing patients' history and physical documentation prior to surgical procedures. With the support of the institution's leadership and the documentation tools of the EHR, we were able to use the EHR and retrain all of our surgeons in just over two weeks. The EHR has allowed us to closely monitor documentation performance to the point that our compliance routinely exceeds 95%.

- **Laboratory utilization:** Our organization has worked for many years to reduce unnecessary and inappropriate laboratory testing. Using the EHR and CPOE, we have been able to direct providers' laboratory ordering behavior to significantly reduce unnecessary and duplicative laboratory testing, resulting in fewer blood draws from patients and a decrease in expenses associated with these tests. We have also been better positioned to provider physician-level reports on laboratory ordering behavior to drive the desired practice changes.

- **Use of bar codes for medication and blood product administration:** We have been able to dramatically reduce patient identification errors and medication / blood product disbursement errors in patients using bar code scanning technology in our EHR. We are also better positioned to provide routine safety reports regarding this activity within the enterprise.

- **Bedside medical device integration:** We have been able to greatly reduce the amount of time our nursing staff spends transcribing data from bedside medical devices into the EHR by directly interfacing the flow of data from the devices into the EHR. We have also been able to improve the accuracy of the data in the EHR by eliminating manual transcription errors, and we have been able to use this real-time data to drive clinical decision support.

Lessons Learned

- It is critical for the institution to invest in securing dedicated time from physicians, nurses, pharmacists and other members of the care delivery team to support the clinical systems. At the University of Iowa

Hospitals and Clinics, this team is directed by the Chief Medical Information Officer and is given advanced training in the EHR. It provides invaluable direction to IT staff regarding systems configuration, implementation and training. It is also focused on optimizing the use of the system by specific providers (for example, pediatricians, behavioral health, emergency medicine).

- A standard system change management structure must be in place. This should include a group of system users to advise IT on which system changes to make and when. System users should clearly understand what types of system enhancements require vendor engagement and what enhancements can be completed by institutional IT staff. System customizations that deviate from the vendor development roadmap must be avoided. Institutions should prioritize use of the most current version of the products.

- System training should be focused on the care delivery team rather than on specific types of providers. System training should be mandatory for all system users prior to system implementation and on a regular interval after implementation.

- Go live is one step in the journey to an all-digital clinical delivery environment. It is not the final step. Do not delay system implementation in the hopes of achieving a perfect configuration. Recognize significant system optimization can only occur after staff members have been using the system in their daily activities.

> *"We are delighted to receive this recognition of our focus on using advanced information technology to improve clinical quality and patient safety. Stage 7 designation is testament to the dedication and hard work of our teams of clinicians and information technology professionals. With this strong foundation, I am confident that we will continue to advance clinical care."*
> ***KENNETH P. KATES***
> *CEO*
> *University of Iowa Hospitals and Clinics*