By Indranil Ganguly

Siemens Soarian

CENTRASTATE HEALTHCARE SYSTEM, A NONPROFIT 272-BED MEDICAL facility located in Freehold, New Jersey, recently kicked off a system-wide initiative to address the risks and cost of preventable medication errors. As we reviewed our pharmacy and medication procedures, we noted areas for improvement in medication documentation and compliance with hospital policies. On the pharmacy side, there were fewer issues, but the robust patient safety features available on modern HIT systems – including advanced clinical decision support and bar code technology that verify the five rights of medication administration – were absent from our existing system. Our goal was a reduction in avoidable medication errors and adverse drug effects.

Though our nursing staff would document medications on paper, they would not always document medications in the computer system, and we saw a significant number of lost charges as a result. Our systems existed in silos – pharmacy with its own system, and nursing with its own – and communication between the systems was not always what it needed to be.

Selecting a Solution

We addressed this problem by initiating a full, enterprise-wide RFP process. We considered three elements in our decision process: system functionality, budget constraints, and developing a partnership between our employees and patients. While the solutions came close in functionality and price was comparable, Siemens won the bid based on their commitment to ensure the program's success.

We selected Siemens Soarian health care process management solution because we needed a powerful workflow engine to help our physicians and support staff increase efficiency, improve patient safety, and achieve the desired clinical and financial outcomes – all while supporting our key quality and regulatory initiatives. We are very focused on process improvements using Soarian's workflow engine, and are working with Siemens to develop metrics to document and validate the workflow engine outcomes. One specific patient initiative focuses on improving documentation times through easier charting. Since workflows are data-driven, clinicians cannot miss a step or wonder where to go next in the system to get the job done.

The Implementation

We converted to Siemens Pharmacy and Med Administration Check (MAK) as part of our first phase of implementing Siemens solutions, recognizing the immediate patient safety benefits that would result. The Siemens Pharmacy/MAK system uses bar coding and computer technology in the pharmacy and at the patient's bedside to help eliminate medication errors and automate clinical information documentation. The system automates many time-consuming manual tasks, improving efficiency in workflow and processes. Because this solution provides more time for collaborative drug therapy decision-making and patient monitoring, our clinical team can easily navigate ever-increasing drug therapy choices and clinical complexity to select safe and effective drug therapies, reduce costs through therapeutic substitutions, and improve our patient outcomes.

Our nursing staff now has the right information at the right time to help improve the quality of medication therapy and document all administration events. Additionally, by increasing nursing-pharmacy communication, MAK provides us with an environment that enables us to reduce errors and increase efficiency.

System Integration

Our pharmacy/MAK system incorporates two functions that work in tandem: Staff pharmacists enter and track medications using the pharmacy program, while the MAK program monitors and documents the administration of medications by our nurses. When our pharmacists fill a medication order, the computer system checks the patient's medical record for possible conflicts, such as allergies or interactions with other medicines. In hospital rooms, our nurses bring a mobile medication cart with a wireless laptop computer and an electronic scanner to the patient's bedside. If a potential error is detected, the computer immediately alerts the nurse.

Optimizing Outcomes

CentraState has seen a substantial, 42% reduction in avoidable adverse drug events, and our charge capture has gone up tremendously. Prior to implementing MAK, the hospital had approximately $2 million a year in lost charges related to the electronic documentation of medication administration. After deploying the MAK system, we saw a 90% reduction in undocumented medications, resulting in far better charge capture.

Today, we are among an estimated 21.1% of hospitals nationwide that have adopted bar code point-of-care technology to prevent patient medication errors. We were also among the first to use the MAK system for both inpatients and outpatients. With 1,100 defined users and 200 concurrent users, support and acceptance for the project has been tremendous. We have learned that a strong integration between the clinical system, the pharmacy system, and the order entry system is critical to meeting our objectives. We also learned we could not simply overlay new systems onto existing processes; it is rare that prior processes will directly translate to a new automated environment.

We have recently embarked on a Plan of Care Bridge with Siemens, through which we are able to push interventions and outcomes as Soarian worklist items. We have also collaborated with Siemens to create an IV Q 3 Day workflow, which pushes alerts to the IV team via pager, reducing turnaround time for restarting IVs. This new workflow eliminates phone calls to the IV team, improves overall efficiency, and aids in end-user (nurse and IV team) satisfaction with the system.

At CentraState, we have found that a more efficient process is not only less costly for our institution and more satisfying to the patient, but also reduces opportunities for complications, while optimizing our clinical outcomes. ■

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