USING CPOE TO DRIVE PRESCRIBING CHANGE

STEEP

Safe

Medication errors and error severity have decreased significantly.

Effective

CPOE allows Winthrop clinicians to provide evidence-based care.

Efficient

Nurses and others are not spending time clarifying or trying to interpret physician orders, rather they are focused on direct patient care.

THE PROBLEM

More than one million serious medication errors occur each year in U.S. hospitals. The IOM attributes at least $3.5 billion in extra costs a year to such errors, not counting lost wages and productivity. About 10 years ago, Winthrop administrative and clinical leaders began an initiative to reduce its medication-related mishaps.

THE SOLUTION

As part of an ambitious plan to prevent medication errors, Winthrop changed the prescribing culture by initiating systemic changes. A linchpin of the effort was implementing a computerized provider order entry (CPOE) system.

RESULTS

» In 2002, 28 patients suffered moderate (temporary harm requiring intervention) or severe or permanent patient harm from medication errors. In 2007, only five patients suffered moderate harm from medication errors; none suffered severe harm.

» High-risk anticoagulation drug errors that reached patients and had the potential to cause harm fell from 50 percent to 14 percent between 2001 and 2008.

» Of errors reaching patients in 2008, none caused patients any degree of harm, versus 22 percent of such errors in 2001 that caused moderate harm, 14 percent resulted in major harm and 14 percent reached the patient but caused no harm.

BACKGROUND

Few U.S. hospitals have fully implemented CPOE; the process for doing so is not standardized. Before purchasing its CPOE system, Winthrop officials spent years creating a vision for it, saving for it, and preparing for—not reacting to—the changes that accompany implementation of the technology. This includes changing order sets, processes and workflow. Additionally, information technology (IT) director Nick Casabona and Peter Cunningham, associate director of communications and planning made sure a redundant network information technology system was put in place before CPOE was rolled out.

Winthrop's journey to a successful CPOE implementation came on the heels of the 1999 IOM report. The report prompted the hospital to form a multidisciplinary medication safety team that focused on improving the entire medication-use process. Meanwhile, Winthrop's former chief financial officer, John F. Collins, now its chief operating officer, inherited the hospital's IT department. With the newfound responsibility, Collins toured the hospital looking at the organization's IT capacity. "I was concerned at the manual processes in place," he said. "Physician orders were extremely difficult to read because of illegible handwriting and the reliance on faxed orders is not an acceptable solution to the problem." At the same time, a nursing shortage gripped Long Island, with the hospital paying a premium in agency fees. Too much of nursing time, however, was unnecessarily spent tracking down doctors to clarify written orders.

Hospital officials started by projecting ahead to 2010, envisioned a medication-safe facility, and developed a plan from that vision. That plan will be capped off with an electronic medical record that will automate the entire medication use process—prescribing, transcribing, dispensing, administering and measuring outcomes. CPOE was the linchpin. "To me, quality and CPOE are integrally connected," Collins said.

PRINCIPLES OF PERFORMANCE EXCELLENCE

Creation of a High-Reliability Culture

"Winthrop had a strong foundation from which to work, as it had instituted a non-punitive culture prior to release of the 1999 IOM report," says Daniel P. Walsh, president and CEO. The hospital enhanced its no-blame atmosphere after the report. For example, an "escalation" policy, promulgated by Walsh,

TEAM MEMBERS

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» **John F. Collins**
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» **Maureen Gaffney, RN**
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» **Brian Malone**
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» **Kerry O'Brien, RN**
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» **Suzanne Parker**
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» **Valerie Terzano, RN**
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» **Daniel P. Walsh**
President and CEO

encourages workers to raise issues of patient concern so they are addressed, not dismissed or overlooked.

Around 2000, the hospital took extra pains to enhance a non-punitive environment, resulting in more open reporting of errors, which increased the number of errors. "It was important for the board of directors, senior executives and frontline staff to understand that an increase in medication error reporting was not necessarily a bad thing," says Valerie Terzano, RN, vice president of nursing. "Identifying actual medication errors, as well as near misses, helped us to identify process problems—how the errors were occurring—and gave us an opportunity to develop systems to prevent errors in the future. More medication error reporting, coupled with a lower severity rate, is indicative of a culture that encourages and supports staff reporting and embraces patient safety as a top priority."

The environment facilitated the team approach to fixing problems. "Inherent to this improvement process is the ability of each department involved not to look at its own processes and variances in silos, but instead to investigate the root cause across departments, disciplines and processes," says Suzanne Parker, Winthrop's director of quality management. "Comprehensive medication management is a multidisciplinary process."

Reducing Process Variation

Early on, it became evident that "the clinical staff wanted to move to CPOE," Collins says. "We let the clinicians drive the process," Collins adds. "The hospital did not earmark the

$25 million for CPOE and other technologies all at once. This was a phased expenditure of dollars consistent with an orderly implementation process as technology needs were identified," he says. "There are many obstacles that stand in the way of automating the process, but we knew that CPOE had to be the prime directive."

While Collins was strategizing to secure CPOE, the hospital's quality oversight committee saw a trend in bleeding complications in patients receiving therapeutic anticoagulation. "Case review revealed human errors, system failures, educational deficits and variability in care," Parker says. This finding in 2000 and resulting efforts to reduce such problems was a cornerstone in how Winthrop eventually implemented CPOE.

The crux of the issue is common, says Steven Fishbane, MD, associate chair of the department of medicine's quality improvement program: high-risk medicines are used cautiously after initial approval, but over time they hit a tipping point when they are more commonly used. Unfortunately, classic education about the problem wasn't working. So the team tried something new. A checklist was added to anticoagulation prescribing in order to force prescribers to balance the risks and benefits of treatments. "Doctors weren't consistently looking at the risks," Fishbane notes. "By taking these steps, we kept the awareness of risks high in the mind of clinicians."

Physicians grumbled initially, not over automation, but the checklists. "That very much goes to the heart of physician fears of cookbook medicine," Fishbane notes. Encour-

agement from physician leadership, nursing, pharmacy and the quality department help make the process standard practice. "We approached other challenges with the same method," says Maureen Gaffney, chief medical information officer.

The Patient Experience

Improving patient safety was the ultimate goal of the CPOE program. CPOE became a critical step in efforts to improve the safety of the prescribing process, the first component of the medication use process. The result: CPOE has created transparency in ordering, as intentions of prescribers are clearly specified so nurses and pharmacists no longer have to "translate" orders.

"Ordering pathways with embedded decision support such as prompts, lab data, mandatory selections and order sets based upon best practice guidelines, national initiatives and hospital priorities maximize the benefit of a systematic approach to medication management and have facilitated a change in the prescribing culture," Gaffney notes.

CONTINUAL IMPROVEMENT

Winthrop expects to complete the rollout of CPOE in the ED, medical intensive care unit and the rest of adult general medicine by early 2009. Meanwhile, after implementation of CPOE in the medical/surgical unit, the hospital spent $3.5 million on smart pumps for medication administration. Collins says that after spending money on CPOE ordering piece, he wanted to assure the automation effort could not be undone because other components of the medication system were not yet automated.