

# Keys to Successful CPOE Implementation

**Connecticut hospital maintains a constant focus on improved patient safety as its top reason for implementing CPOE.**

*By Gary Davidson and Charles Riordan, M.D.*

Some healthcare organizations embarked on computerized physician order entry (CPOE) in response to the Institute of Medicine's (IOM) shocking numbers about annual deaths from medical errors. Others forged ahead when The Leapfrog Group identified CPOE as one of its three key patient safety standards. For others, President Bush's endorsement of healthcare IT is a catalyst. Whatever the motivation, our shared objective is improved patient safety.

At the Hospital of Saint Raphael (HSR) in New Haven, Conn., the IOM report sparked our interest in CPOE as a patient safety initiative. Contrary to popular beliefs that CPOE reduces costs or makes physicians' lives easier, HSR still views CPOE as a way to improve patient safety.

## **Familiarity Breeds Comfort**

The Hospital of Saint Raphael is a 511-bed academic health sciences center affiliated with the Yale University School of Medicine. A leader in cardiac, cancer, orthopedic, neuroscience and geriatric services, Saint Raphael's is the largest member of the Saint Raphael Healthcare System, which also includes surgical, skilled nursing and community services.

Rather than invest in a new clinical product, we turned on the CPOE features already in our computer-based patient record (CPR) system, Misys CPR. This made sense to us for two reasons. First, we believe data integration within a CPR should precede CPOE. Effective real-time decision support—multidisciplinary knowledge that results from aggregating disparate silos of clinical data from connecting ancillary systems—supplements CPOE. The CPR is where the “disciplines” of data, of which CPOE is one, converge and correlate.

Second, HSR clinicians were already using Misys CPR across all inpatient departments, and hospital pharmacists entered medication orders into the application's pharmacy module. Physicians were familiar with the system. Discharge summaries and operative reports were already online. With the CPR foundation established, CPOE design and programming began in the spring of 2001.

## **Securing Buy-In**

The hospital created a multidisciplinary team, including physicians, pharmacists, nursing and IT, to develop screens and automate workflows to drive online documentation. It wasn't hard to secure nursing's buy-in. Nursing welcomed the focus and was willing to do its part. However, system use by physicians was not so readily embraced.

Physicians resist innovations that are time-consuming and that make their lives more complicated, like CPOE. We knew that CPOE would not ease physicians' lives and we didn't try to convince them it would. Rather, we continued to zero in on patient safety, reminding them that the extra time spent using CPOE was time well spent.

Simultaneous implementation of an electronic medication administration record (MAR) helped us make the point. The electronic MAR added greater value to the CPOE implementation in physicians' eyes by giving them automated access to patient medication profiles. With paper records, nurses "own" the MAR and physicians are unable to tell which medications a patient is receiving without physically hunting down this paper-based document. With CPOE, physicians enter orders online; the CPR stores them in the patient's electronic profile and provides access to the historical records as needed.

If we were asking physicians to devote their time for IT to improve patient safety, it was fair to ask the IT department to devote time to improving physician convenience. IT had to modify the system's user interface for physicians and nurses. We had to configure the system to work the way physicians worked. At the outset, we created order sets for individual physicians and specialty groups. While this was far from the most efficient solution, it helped us gain physician buy-in.

Training spanned four to six weeks and relied heavily on nursing, pharmacy and IT staff. Nursing folded the MAR system training into its staff development goals, effectively transforming it into a strategic imperative.

We mandated training for residents and house staff, but getting attending physicians (who, of course, didn't practice in a single location) to attend training was more difficult. We first focused on high-volume clinicians, the top 100 admitting physicians in terms of orders written. We also knew that physicians respond better to just-in-time training, so we provided it: one-on-one training in their offices or at the hospital to accommodate their schedules. Our IT nurses and pharmacists, who are experts in medication order entry, trained the physicians.

One of our best practices was to clothe a host of HSR expert users, IT staff and pharmacists in red jackets. Dubbed "redcoats," they were available 24/7 on the nursing units to answer physicians' questions. Also, physician advocates were key. Physicians who encouraged other physicians to move forward came from steering committee meetings, medical staff leadership and those physicians most interested in IT.

### **Flipping the Switch**

We thought an incremental implementation was the answer. We staged it by functional area: medicine going first, followed by surgery. In May 2002, seven medical care units went live, followed by seven surgical units a month later. Over the following four months, five additional units went live. We quickly learned:

- Form can influence function. To encourage order entry and documentation at the point of care, we used a portion of IT's budget to purchase wireless medication carts and 43 wireless mobile carts for nursing. The mobile carts have proved extremely helpful to physicians during morning rounds, which they now conduct in real time using the most current data. However, the medication carts proved too large for the rooms, forcing nurses to administer medications and then document the administration outside the patient's room.
- There is such a thing as too many alerts. Physicians will ignore them, making them ineffective and significantly reducing their ability to improve care and patient safety.
- Not all order sets and processes lend themselves to use online. Complicated order sets such as anesthesiology took many more hours to develop than anticipated. However, they can be automated. We now consider ourselves leaders in using CPOE for anesthesiology.

### **CPOE in Action**

Today, practice is markedly different at HSR, thanks to CPOE. Twenty-three inpatient units are connected to the CPR/CPOE system and 95 percent of medication orders are entered online. More than 300 affiliated physicians order and review results from their homes and offices over secure lines.

We have experienced an 83 percent reduction in time required for pharmacist computer order entry and verification. Pharmacist verification of orders dropped from two hours to 20 minutes, allowing patients to get pain medication faster. Turnaround time for pharmacist verification to administration of intravenous medications decreased from four hours to one hour. Also, with the electronic MAR, physicians can access real-time patient medication lists, which boosts their satisfaction.

Pharmacists now spend much less time entering orders and spend more time working on clinical interventions such as IV-to-PO conversions. The quality of pharmacist interventions also changed with CPOE. Pharmacists spend less time facilitating formulary control and more time ensuring appropriate medication dose and route. Proof of this is a decrease in formulary-related pharmacy interventions from 27 percent of total to 6 percent. At the same time, IV-to-PO conversion interventions increased from 25 percent to 34 percent, and renal dosing interventions increased from 6 percent to 10 percent. The IV-to-PO interventions contributed to a 7.5 percent reduction in antibiotic costs.

Let's face it. CPOE does not necessarily reduce costs. We know this because our IT budget increases each year. CPOE does not automate practice. The human factor remains important; even the best system is no replacement for the experience of clinicians. And CPOE certainly does not make physicians' lives easier, at least initially.

CPOE improves patient safety. Replacing paper and handwriting alone makes a significant difference. CPOE can prevent potential medication errors with alerts. In addition, it gives clinicians a comprehensive, dynamic view of what patients have taken, and what they are and will be taking. CPOE also enhances interdisciplinary communication—and all of these increase patient safety. What better motivation can a healthcare organization have?

For more information about **Misys CPR and CPOE**,  
[www.rsleads.com/409ht-207](http://www.rsleads.com/409ht-207)

*Gary Davidson is the vice president and CIO, and Charles Riordan, M.D., is vice president of medical affairs, at the Saint Raphael Healthcare System, New Haven, Conn.*

© 2004 Nelson Publishing, Inc