Why CPOE Must Become SOP

Jeffrey C. Bauer, PhD

Computerized practitioner order entry (CPOE) is finally getting the respect it deserves – or, perhaps more accurately, it finally deserves to be respected. Therefore, the timing is perfect for focusing an issue of this journal on CPOE's contributions to patient safety. CPOE is worth another look by HIT professionals and the caregivers they serve.

CPOE has always been strong in theory, but CPOE in practice arguably deserved a negative reputation until recently. The technology was expensive. Few vendors had stable, integrated products. Installations at some well-known hospitals flopped dismally. Most physicians found CPOE to be more trouble than it was worth. We should not be surprised that fewer than 5 percent of all hospitals reported having automated order entry two years ago, even though academicians and policy analysts had been promoting CPOE for the better part of a decade.

Medical errors focused national attention on CPOE. Indeed, articles about the technology moved from academic and trade journals to the popular press following the highly publicized publication of *To Err is Human* (Institute of Medicine, 1999). The report's allegation of 50,000 to 100,000 deaths attributable each year to medical errors caused some of America's largest corporations – also the largest purchasers of private health insurance – to create an organization for encouraging providers to "leapfrog" ahead by adopting three practices presumably proven to reduce errors: evidence-based referrals, intensivists in ICUs, and CPOE.

Organized medicine immediately countered that medical errors caused fewer than 20,000 deaths per year. However, attempts to minimize the problem did not deter The Leapfrog Group or politicians and policy analysts from promoting order automation. Most healthcare executives responded to the pressures by making initial inquiries into CPOE shortly after the IOM report appeared, but few made the decision to implement it. How many hospital CEOs wanted to admit that avoidable, deadly errors were occurring in their hospitals? Besides, the doctors on their medical staffs likely assured them that avoidable errors did not occur in their hospital. Adopting CPOE was also seen by some as an admission of guilt.

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A recent increase in interest in CPOE is probably due to something other than concern with deaths caused by error. CPOE's economic benefits are finally being recognized. CPOE eliminates lots of waste, most notably in the pharmacy. Electronic order entry means that prescriptions are done quickly and correctly the first time. Pharmacists do not have to track down prescribing physicians in order to understand illegible handwriting, nor do they have to correct a misinterpreted order that was caught by a vigilant nurse about to administer a wrong medication. The economic savings of getting prescriptions right from the start is much greater than the cost of adverse drug events because most drug errors do not harm patients; they just waste money.

A good CPOE system can flag redundant radiology orders, thus preventing unnecessary and expensive duplication of orders for the same imaging study. CPOE can call attention to possible overlaps in orders for different tests for the same pathology, such as simultaneous requests for CT and MRI studies when one study would be sufficient. CPOE can also ensure efficient coordination of patient transportation by forcing the ordering clinician to indicate whether oxygen and medical support are required during transport – common oversights that waste time for all concerned.

Of course, CPOE's contributions to patient safety are impressive even if providers' growing interest may be explained more by saving money than by saving lives. Automated order entry is an ideal mechanism for implementing the essential shift from a culture of blame to a culture of safety. CPOE reinforces good practice by making sure orders are meaningfully entered by prescribing clinicians, correctly understood by the caregivers who fulfill them, and fully integrated with intelligent systems that produce alerts when possible errors or deviations from "best practices" are identified.

Success stories from the aviation and nuclear power industries suggest that improving safety requires technology to make errors visible and improbable at every stage of the production process. Safety-promoting technologies must be updated by root cause analysis (RCA) of new error possibilities that are constantly intro-

duced into the system. CPOE is arguably today's best available tool for transferring other industries' safety successes to healthcare, but it must be constantly reengineered to keep up with all the other changes taking place in healthcare. CPOE will be a moving target for healthcare leaders trying to keep up with it.

Finally, experience in other industries shows that healthcare leaders must pay careful attention to the way health professionals work when planning, installing, and supporting automated order entry. CPOE may not reduce many errors or save any money – indeed, it might waste lots of money – if implementation is not formally tied to workflow redesign. Like all today's disruptive technologies, CPOE has an enormous impact on the way things get done in a hospital.

For example, a common historical approach to verbal orders put nursing and clerical personnel in the middle of the work process for much of the past century. A doctor told a nurse or ward clerk what needed to be done for a patient, verbally delegating responsibility for entering the order into the patient record and for preparing a written order to deliver to the pharmacy or diagnostic department. Nurses and ward clerks effectively provided continuity and quality control for orders under this common practice.

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With CPOE, nursing and service managers can be bypassed as an electronic order goes directly from a physician's personal digital assistant to a pharmacist's or technician's computer. Continuity of care can be compromised in the process.

Because it changes the ways caregivers interact and the things they do, successful CPOE implementation will necessarily be part of a broader process of clinical transformation management. COOs, CIOs, CFOs, CMOs, and CNOs must work together to manage a structured, clinically sensitive process that redesigns workflows, incorporates best practices, integrates resources, and standardizes operations. Collaboration must be focused on achieving specified improvements in clinical, operational, and economic objectives. As management learns how to do these things successfully, CPOE will become standard operating procedure (SOP). It will finally prove its ability to save lives and money in practice, not just in theory.

About the Author

Jeffrey C. (Jeff) Bauer, PhD, is a nationally recognized medical economist and health futurist. He is senior vice president of Superior Consultant Company, Inc., in Southfield, Michigan, a provider of outsourcing, management, and information technology consulting services to the healthcare industry.