CPOE Lessons Learned

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Hospitals and healthcare providers acknowledge that computerized physician order entry (CPOE) systems effectively address patient safety issues such as medication errors and document legibility. Built-in clinical decision support alerts can help identify drug-to-drug interactions or dosage errors before medications are administered. Moving from handwritten physician orders to electronic entry of medications from an approved data dictionary can virtually eliminate poor handwriting and use of unapproved abbreviations.

However, fewer than 5 percent of US hospitals have fully implemented CPOE systems.[1] Why is that share so low?

Expense is one reason. Costs associated with CPOE implementation can range between $3 million and $10 million, depending on hospital size and level of existing IT infrastructure.[2] Providers and ancillary staff may also be resistant to changing a paper order process to an electronic process.

Due to these challenges, many chief medical informatics officers say the number-one challenge in meeting ARRA incentive goals will be achieving the required CPOE usage level.[3] Identifying CPOE lessons learned from others can help organizations when the time comes to implement this new functionality.

Planning and Implementation

Any IT implementation requires planning, and CPOE functionality is no different. Initial planning may begin with the identification of a core team. Members should include physicians, project manager, nursing, pharmacy, radiology, laboratory, HIM, IT, and senior leadership.

The team should include a physician champion, according to Diana Warner, MS, RHIA, practice resource manager at AHIMA. Ensuring a physician champion is involved at the beginning ensures planning and implementation success, she says.

Physician champions should be well-respected clinicians who have a thorough knowledge of current physician workflow practices. They can assist during planning by providing input on clinical system needs (e.g., the need for weight-based dosages in pediatric medications). During implementation, physician champions can serve as system super users, encourage other clinicians to move past initial frustration with order entry changes, and act as liaisons between physicians and the implementation team to address concerns.

Mary Beth Haugen, MS, RHIA, CEO of The Haugen Group, agrees that physician champions are integral to a successful CPOE implementation and notes that executive support is crucial as well. No CPOE implementation can be successful without the strong support of leadership and physician champions, she says.

Once assembled, the implementation team should:

1. Document current workflows and how they might change
2. Create a plan for creating test panels, standing orders, and preprinted orders
3. Determine if orders will be printed during implementation
4. Establish procedures for when the system is down
5. Identify staff who currently have privileges to write orders
6. Decide if remote access to CPOE will be offered
7. Determine the measures for success (e.g., 90 percent of orders will be entered electronically or 80 percent of the medical staff will use CPOE within one month of implementation)
8. Determine what will be incorporated into the legal health record (e.g., if a CDS is used, will the alerts, pop-ups, and reminders be part of the legal health record?)

9. Determine how deficiencies will be identified and tracked

Valerie Bell, Warner, and Haugen all agree that making CPOE mandatory for all authorized users is a must. Bell, RHIA, HIM manager at OU Medical Center, says that when CPOE is not mandatory, deficiency analysis in the HIM department can become time consuming and burdensome because both an electronic and paper process must be maintained.

During implementation organizations should print orders daily to validate that each order is transmitted and received as intended. The implementation team should determine the point at which orders will no longer need to be printed.

CPOE Best Practices

Organizations that implement a CPOE system should include the following steps during implementation:

1. Identify a physician and executive champion during the initial phases of the project (e.g., request for proposal).
2. Make CPOE mandatory for all providers who are privileged to write orders.
3. Plan for multiple super users to assist during training and go-live and ensure they are available to each unit. Immediate support at the point of care is critical to success; providers should not have to call the help desk.
4. Provide appropriate training for super users and staff. Consider annual recertification training.
5. Define a time to stop printing orders (e.g., after a unit has more than 75 percent of orders entered electronically or after quality checks indicate all orders are transferring to ancillary departments correctly).
6. Identify and correct broken paper processes before implementation.
7. Plan, develop, and educate staff on downtime procedures, both planned and unexpected.
8. Ensure log-in time is quick and efficient.
9. Engage residents, physician assistants, or advance nurse practitioners early in the process. These providers may write the majority of orders for their respective attending physicians; their engagement can assist in physician buy-in.
10. Identify how verbal orders will be handled. If allowed, ensure ancillary staff (e.g., nursing, physical therapy) understand the importance of identifying the correct physician when entering the verbal order.
11. Understand and acknowledge upfront that identifying a system that meets every need may not be available.
12. Audit orders to ensure final signatures are applied during testing and implementation.

Functionality

Determining the organization's expectations of CPOE system functionality is a key component for success. For example, if an organization expects to decrease medication errors such as drug-to-drug interactions through the CPOE system, it must ensure its CPOE system allows for alerts when a potential contraindication has been identified.

Identifying and understanding current paper workflows, backlogs, and workarounds are important when incorporating new technology to the process.

"A broken paper process is a nightmare in the electronic world," Haugen notes. Therefore, automation of the order process should not be seen as a fix; the process itself must be fixed before implementing automation efforts.

Another functionality concern for many physicians is log-in time, which Haugen says "must be quick and efficient."

Addressing these types of functionality concerns can help organizations gain buy-in and support from CPOE users.

Training

Training for a system implementation of this magnitude cannot be overlooked. Organizations should identify staff members who will be super users with significant application training. All departments involved in the project should have super users, including physicians, nurses from every unit, HIM, IT, and all ancillary departments.

It is helpful to remember that the paper process physicians are accustomed to may take a matter of minutes. Converting that process to CPOE could result in order entry that takes up to five minutes or more during the implementation phase. Physicians are likely to find this frustrating. Making super users available to help is a key for success, Warner says.

Haugen notes that super users "must be provided at the time the physician is writing the order, at the point of care." Asking a busy physician to call a help desk and wait on hold or struggle to find a super user will lead to frustration and a potential unwillingness to enter orders.

Organizations should also clearly identify the amount of training end users will receive. Super users clearly will require the most comprehensive training; however, all end users will still need extensive training.

Haugen and Warner both agree that requiring sufficient mandatory training is essential for success. Training can be provided prior to, during, and post implementation as well as on an annual basis to ensure system functionality and upgrades are meeting the needs of providers.

CPOE is a key strategic decision for many organizations. Understanding current paper processes and workflows can assist in developing a new electronic process that meets the needs of the organization and providers.

On its own, CPOE has minimal impact on patient safety by improving legibility within the health record. As a part of a highly interoperable EHR, CPOE has the ability to create added value, providing clinical decision support tools, speeding up ancillary notification, and decreasing medication errors. Understanding the clinical, financial, and legal aspects of CPOE can assist organizations in a successful implementation.

Notes

1. The Leapfrog Group. "Computerized Physician Order Entry Fact Sheet." April 9, 2008. Available online at www.leapfroggroup.org/media/file/Leapfrog-Computer_Physician_Order_Entry_Fact_Sheet.pdf.
2. Poon, Eric G., David Blumenthal, Tonushree Jaggi, et al. "Overcoming Barriers to Adopting and Implementing Computerized Physician Order Entry Systems in U.S. Hospitals." July 27, 2004. Available online at www.commonwealthfund.org/Content/Publications/In-the-Literature/2004/Jul/Overcoming-Barriers-to-Adopting-and-Implementing-Computerized-Physician-Order-Entry-Systems-in-U-S.aspx.
3. Stevens, Mary. "Top Health IT Trends Survey & CMIO Consensus." CMIO (July 2010). Available online at www.cmio.net/index.php?option=com_articles&view=article&id=22846:top-health-it-trends-survey-a-cmio-census.

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