Planning for and Optimizing the Use of Computerized Provider Order Entry

The majority of hospitals and outpatient healthcare practices use some form of computerized provider order entry (CPOE),[1] which refers to any system that enables healthcare providers to electronically enter and send medical treatment orders/ instructions — including medication, laboratory, and radiology orders — directly to the recipient. Originally designed to improve the safety of medication orders, modern CPOE systems also allow electronic ordering of tests, procedures, and consultations.

Some advantages of CPOE include avoiding problems with handwriting, similar drug names, drug interactions, and specification errors; integration with electronic health record (EHR) systems, clinical decision support systems, and adverse drug event reporting systems; faster transmission to the laboratory, pharmacy, or radiology department; ability to recommend alternative tests or treatments that may be safer or lower cost; and potential economic savings.[2]

Like any type of technology, however, CPOE also creates risk and safety concerns. To maximize its usefulness and minimize any unintended consequences, consulting these high-level strategies[3] may assist healthcare providers as they navigate CPOE.

1 Ask healthcare providers for their input before choosing and implementing a CPOE system. If possible, include qualified personnel who understand both the clinical and information technology (IT) domains in the planning process.

2 Conduct a needs assessment, gather requirements to determine product and workflow needs, and redesign workflows as needed before implementing a CPOE system. Understanding workflows and redesigning inefficient processes are critical to ensuring a successful adoption of CPOE.

3 Ensure that usability evaluation (how well users can learn and use a product to achieve their goals in addition to how satisfied users are with the process) is part of the system design, implementation, maintenance, and modification.

4 Strive to have user interfaces that follow well-established functional design principles to minimize error traps. Poorly designed user interfaces may contain error traps that can introduce new risks to patients into clinical work systems.

5 Make a demonstration system available to potential users for testing before "going live" to help identify implementation issues and training needs.

6 Institute mandatory CPOE training. Training should be held by the system vendor and by a superuser within the organization (a clinician who spends additional time learning how to use the system, assisting the implementation team, and keeping his/her colleagues informed about the implementation process). Provide sufficient resources and materials to educate clinicians.

7 Ensure your organization has written processes for CPOE use. Users should undergo continuous retraining to ensure that processes are not forgotten, ignored, or learned incorrectly. Consistency is critical.

8 If healthcare providers experience alert fatigue (i.e., they begin to ignore repeated alerts because of a combination of critical medical alerts and a high volume of less consequential alerts), address ways to manage it including any system customizations. Alert fatigue is a recognized safety threat.[4]

9 Don't become over-reliant on the CPOE system. Some alerts may be turned off without the physicians' knowledge or certain nonformulary drugs may not be subject to alert checks.

10 Review and collaborate with senior leaders about planning and progress (fixes and enhancements).

11 Don't let CPOE replace traditional face-to-face communication. Lack of communication may compromise coordination of care and result in errors.

12 Develop a feedback loop so that when CPOE errors do occur, a system is in place to examine why they occurred and to devise ways to prevent them in the future.

13 Be sure to have a contingency plan in place for an EHR failure or other IT failure. Also, give staff members the opportunity to practice the plan (i.e., perform simulation drills) so they can review it and provide any helpful suggestions or feedback.

Endnotes

[1] Agency for Healthcare Research and Quality. (2019, September). Computerized provider order entry. Retrieved from https://psnet.ahrq.gov/primers/primer/6/Computerized-Provider-Order-Entry

[2] Ibid.

[3] Ibid; Dixon, B. E. & Zafar, A. (2009, January) *Inpatient computerized provider order entry (CPOE): Findings from the AHRQ Health IT Portfolio* (AHRQ Publication No. 09-0031-EF). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from https://digital.ahrq.gov/ahrq-funded-projects/emerging-lessons/computerized-provider-order-entry-inpatient/inpatient-computerized-provider-order-entry-cpoe; Eramo, L. A. (2010, August). How to avoid CPOE pitfalls. *For the Record, 22*(15), 10. Retrieved from www.fortherecordmag.com/archives/081610p10.shtml

[4] Agency for Healthcare Research and Quality, Computerized provider order entry.