

Planning for and Optimizing the Use of Computerized Provider Order Entry

Most 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.

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 cost less; and potential economic savings.²

Like any new technology, CPOE requires a strong culture in which employees understand and accept change. This technology also can create risk and safety concerns. To maximize its usefulness and minimize any unintended consequences, consulting these high-level strategies may assist healthcare providers as they implement and navigate CPOE.³

1

Perform a comprehensive assessment of your organization's readiness for CPOE, including reviewing the appropriate infrastructure (e.g., hardware, software, the physical layout, and policies/procedures), involving healthcare professionals and other stakeholders, and determining product and workflow needs.

2

Ensure that usability evaluation (how well users can learn and use a product to achieve their goals and how satisfied they are with the process) is part of the system design, implementation, maintenance, and modification. Conduct usability testing and simulations to see how users interact with the system.

3

Identify knowledgeable users to be involved in each stage of the implementation plan, including healthcare providers, trainers, and technical experts.

4

Strive to have user interfaces that follow well-established functional design principles to minimize error traps and reduce risks to patients.

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, and consider having the system vendor and/or a superuser (i.e., someone who is well-versed in using the system) direct the training. Provide sufficient resources and materials to educate healthcare providers.

7

Ensure your organization has written processes for CPOE use. Users should receive periodic retraining to ensure that processes are not forgotten or ignored.

8

If healthcare providers experience alert fatigue, address ways to manage it, including system customizations. Alert fatigue is a recognized safety threat.

9

Remind providers of the dangers of becoming overreliant on the CPOE system. Some alerts may be turned off without the healthcare providers' knowledge or some drugs may not be subject to alerts.

10

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

11

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.

12

Be sure to have a contingency plan in place for [EHR downtime](#) or other IT issues. 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; Elshayib, M., & Pawola, L. (2020, August 1). Computerized provider order entry-related medication errors among hospitalized patients: An integrative review. *Health Informatics Journal*, 26(4), 2834-2859. doi: [doi/10.1177/1460458220941750](https://doi.org/10.1177/1460458220941750); Wears, R. L. (2016, October 1). *Web M&M case studies: Unintended consequences of CPOE*. Agency for Healthcare Research and Quality. Retrieved from <https://psnet.ahrq.gov/web-mm/unintended-consequences-cpoe>

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