

Editorial ■

CPOE: Sufficient, but not Perfect, Evidence for Taking Action

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Computerized provider order entry (CPOE) systems facilitate safe, effective care for patients by insuring that clinical care directions are communicated in a timely, accurate, and complete manner. Integrating clinical decision support functions into CPOE systems enhances the value of the CPOE systems by incorporating contemporary knowledge and best practice recommendations into the clinical management process. Insuring the quality, accuracy, and relevance of the decision logic integrated within CPOE systems is a sine qua non of safe and effective practice. The special section on CPOE presented within this issue of *JAMIA* offers practical advice on taking the next steps toward insuring the availability of CPOE systems enriched by decision support.

Institutions hoping to deploy decision-support enhanced CPOE systems require evidence to justify acquisition and use of such systems. They require evidence that the CPOE developers have embedded and maintained a sufficient quantity and quality of knowledge upon which to base actionable clinical recommendations, such as prescribing. They need functional tools and strategies to integrate actionable advice into order sets and other decision support venues. Ideally, such order sets first undergo professional vetting and peer review to insure quality and safety, and then “go live” through efficient tools that integrate order sets into user-friendly and effective clinical information systems. Most importantly, pragmatic evidence should demonstrate not only the efficacy of the order sets’ recommendations, but also the effectiveness of their actual deployment in clinical care practices. Despite the uneven and incomplete patchwork of existing evidence addressing the safety and efficacy of clinical decision support in CPOE settings, hospitals and other health care delivery systems are faced with a need to act now, basing such decisions on the available evidence.

To discuss the state of the art in both CPOE practices and supporting evidence, a group of experts in clinical practice, healthcare informatics, and healthcare safety gath-

ered in San Francisco in June, 2005 at a conference on Computerized Provider Order Entry and Clinical Decision Support. Several of the papers in the special section, Focus on CPOE, in the current issue of *JAMIA*, report key outcomes from that meeting. The papers provide pragmatic directions for institutions considering deployment of decision-support enhanced CPOE. Gross and Bates¹ present an overview of the meeting, summarizing meeting goals and recommendations gleaned throughout the presentations. Kuperman et al.² describe the basic and advanced clinical decision support afforded for electronic prescribing within CPOE and review some of the related evidence of its effectiveness. Bobb, Payne, and Gross³ explore challenges and benefits of using evidence-based order sets within CPOE systems. Classen and colleagues⁴ review approaches to evaluation and credentialing CPOE systems. Two additional articles were not part of the San Francisco conference but add relevance to the *JAMIA* Focus on CPOE section. The article by Weir and colleagues⁵ sheds light on the complexity of the tasks involved in CPOE. Ko and colleagues⁶ solicited evaluation of CPOE-generated alerts and warnings from physicians and pharmacists in the Veterans Affairs system; clinicians were not excessively bothered by the alerts, nor did they find them particularly helpful, preferring to have more detail about alternative management provided along with the alert.

Publication of the special Focus on CPOE section represents *JAMIA*’s commitment to bringing knowledge into the public domain as quickly as possible. Authors’ models for these papers are meritorious—comprising reasoned, professionally vetted recommendations that are informed by underlying clinical trials and basic research findings. However, publication of these papers does not signal an end to the need for research on decision support in CPOE. Rather, the papers help to focus future research on investigations of how to develop better models of decision support, how to keep decision support systems “current” with best practices, and how to support full, successful deployment of robust provider order entry systems in all settings. Such future investigations must: generate basic science knowledge regarding identification of proper therapeutic approaches to clinical problems; promote clinical and translational research activities that focus on efficient, effective decision support (including, for example, order sets) that address commonly seen constellations of clinical problems; encourage as a “standard of care” the

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human factors evaluation of clinical systems, before and after their implementation, to determine the most effective ways to present recommendations from clinical decision support to the ordering clinicians in a manner that maximizes use and adoption; and provide healthcare systems administrators with guidelines for the best ways to implement the treatment planning and care coordination benefits afforded by CPOE systems.

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