

CPOE Usage 2004: The Realities of Computerized Physician Order Entry in 2004

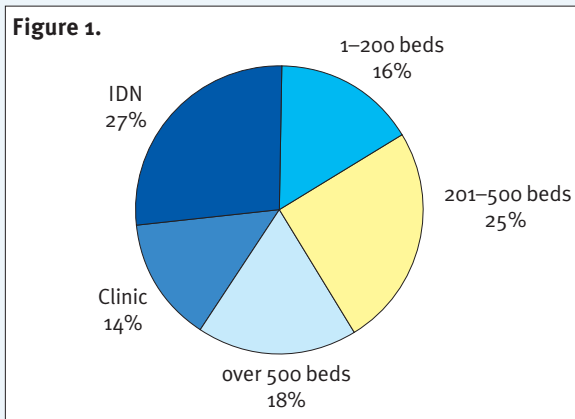
A 2004 CPOE report is the second such report from KLAS (initial report February 2003) regarding CPOE usage, its vendors and systems. Today, interest in CPOE remains strong, and deployment of CPOE by healthcare providers is increasing as evidenced by the results of the 2004 study. The report is intended to provide a snapshot of current CPOE usage and capabilities, through the eyes of users and vendors, as the market grows and its vendors and products mature.

The objective of the study was to survey every live CPOE site in North America where there was coordinated activity between the inpatient and ambulatory environment and a potential need to effect or be responsible for patient care treatment across these boundaries. The study incorporates the opinions of IT executives, directors, managers, project managers, medical directors, physicians and others. The full report contains 200 pages of observations, commentaries and analysis and was published February 2004.¹

The following excerpt from the 2004 report focuses primarily on physician use.

SURVEY PARTICIPANTS (Figure 1)

To “qualify” for the study, the participant had to be “live” with CPOE in either an inpatient or ambulatory setting. In an attempt to survey every site possible, all HIT CPOE vendors were invited to provide a list of their live CPOE clients where computerized physician order entry (emphasis on physician) was part of the healthcare provider’s planned use of the order entry software. Survey participants represent the experiences of a wide variety of care delivery organizations and their CPOE experiences using various products from 10 different vendors (Cerner, CliniComp, Eclipsys, Epic, GE, IDX, McKesson, Meditech, Misys and Siemens). In addition, information from “custom,” “one of a kind” or “in-house” developed sites was collected and noted where applicable, all in an effort to represent better the accomplishments with CPOE.



DEFINITION OF CPOE USED FOR THE STUDY

CPOE is translated as Computerized Physician Order Entry. The CPOE software objective is for physicians to enter electronically virtually all clinical orders that they previously ordered via paper. Typical orders include laboratory tests, medications, other diagnostic tests and all other clinical care orders. CPOE routinely includes alerting, decision logic and knowledge tools to help eliminate errors during the ordering process. CPOE is NOT geared to be the electronic ordering tool for non-physicians to enter orders (typically referred to as order entry, order management or order communications and utilized by nursing, ward clerks and other care providers).

The survey used for this study focused on various aspects of CPOE: provider organization details, actual CPOE use, the foundation for alerting and medication administration, physician interaction, nurse interaction, technology and wireless use. In addition to the CPOE questionnaire itself, information and commentary was solicited during the interview process regarding

- Benefits – Expected versus Actual
- Motivation to Choose Current CPOE Vendor
- Advice for Others

- Physician Use
- Wireless Use
- Voice Recognition
- Training Techniques
- Go-Live Support Strategies
- Largest Hurdles Overcome
- Rollout Strategies

A vendor section focused on a “self reported status” in regards to vendor customers and select product Q&A regarding technology used, complementary product integration (order entry and pharmacy), alerting functionality, handheld usage and “one of a kind” solutions.

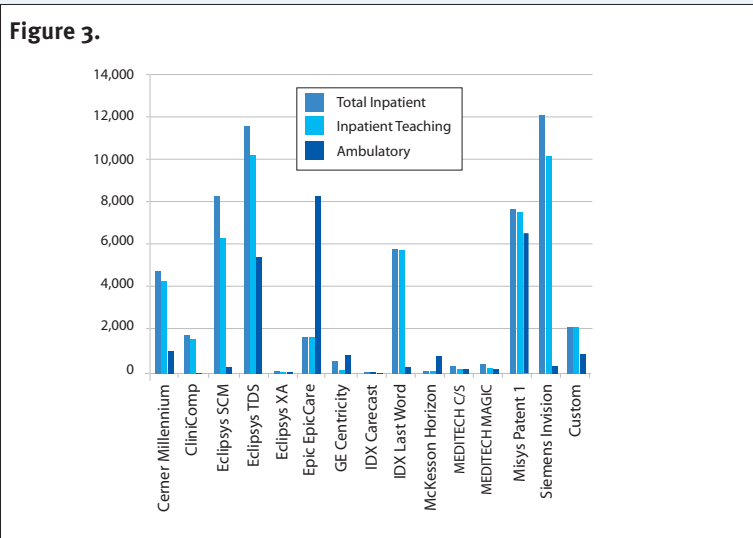
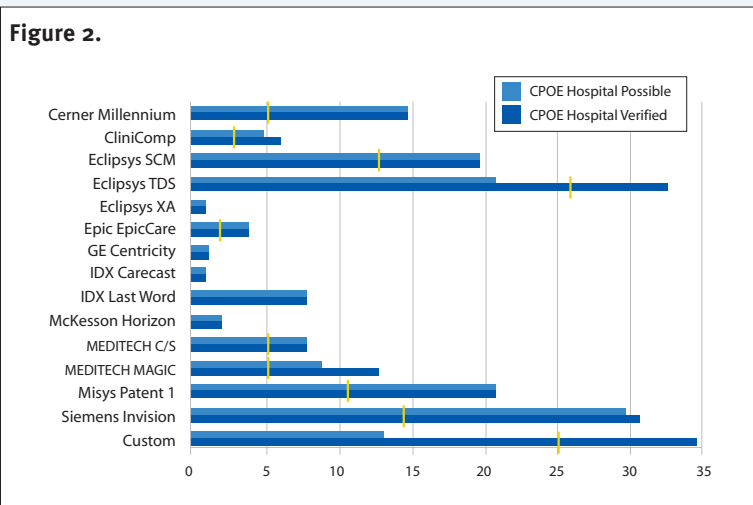
The survey document was designed with the assistance and input from the physicians at Cerner Corporation, Eclipsys Corporation, Epic Systems Corporation, McKesson Corporation and Siemens Health Services. Three provider organizations also provided guidance. The final data collection tool met with the approval of all those above.

NUMBER OF CPOE HOSPITALS VERIFIED VERSUS POSSIBLE (Figure 2)

KLAS’ goal was to contact the most knowledgeable person, from each site, about the live CPOE operation. From a potential of 209 sites, KLAS was able to contact and validate that 159 US hospitals or 2.7% (using the AHA guideline of 5,794 US hospitals) as having some COPE in use by physicians. KLAS found that 51% of the live CPOE hospitals have over 50% of potential orders entered by physicians and considers this group as “aggressive” CPOE users. As compared to the AHA of 5,794 hospitals, this translates into 1.3% of US hospitals aggressively doing CPOE. From the data collected and AHA hospital numbers, actual CPOE use becomes more definitive.

- Less than 4% of US hospitals are currently doing any organized CPOE (assumes those not validated are all using CPOE).
- Between 1.3% and 1.8% of US hospitals are actively using CPOE (active defined as physicians entering >50% of patient orders and assumes those not able to validate are all using above the 50% level).
- Finally, less than 2% of US hospitals are actively using CPOE with a commercially available software product.

The yellow bar represents the number of hospitals verified in 2003.



DEFINITION OF TEACHING SITE

KLAS asked survey participants this question: “What kind of provider organization are you?” The choices were: (1) IDN (more than one acute hospital, all non-teaching); (2) IDN w/teaching (interns/residents use systems); (3) children’s hospital; (4) acute community; (5) teaching (interns/residents use systems); and/or (6) clinic. KLAS relied on the survey participant to indicate the type of organization. KLAS did not further grade or query, for example, “percent teaching.” Graphs and charts within the report that segregate “teaching” are the combination of IDN’s with teaching and pure play teaching organizations. There was not enough data to separate the two for reporting purposes.

THE NUMBER OF PHYSICIANS DOING CPOE BY VENDOR/PRODUCT (Figure 3)

Overall, the number of physicians doing CPOE exceeds 69,000 (up from 45,000 last year), the majority of which are from teaching organizations.

INPATIENT CPOE USAGE (Figure 4)

Of all the organizations surveyed, 105 (up from 57 last year) are now live with CPOE and 10 of the sites have accomplished 100% participation by physicians doing CPOE for all medication orders. The range of responses regarding CPOE usage is huge and the use of active complex alerts is in its infancy. Note that all 100% accomplishing inpatient sites are teaching sites.

AMBULATORY CPOE USAGE (Figure 5)

Of all the organizations surveyed, 76 (up from 53 last year) on the ambulatory side are now live with CPOE, and 17 of the sites have accomplished 100% participation by physicians doing CPOE for all medication orders.

INPATIENT AMBULATORY DELIMITERS

(Figure 6)

Today, inpatient and ambulatory environments remain delimiters, although the gap is narrowing. While most vendors provide solutions for both venues, no vendor leads or has substantial penetration and CPOE use in both. Elusive and yet to be proven is whether a vendor and product can be successful in both environments.

FOUNDATION FOR ALERTING AND MEDICATION ADMINISTRATION

(Figure 7)

The foundation elements to accomplish the goal of closed loop medication ordering, alerting, administration and tracking are starting to be offered and put to use. The ability for physicians to enter all medication orders and to be notified of alerts from decision logic at the time of the medication order is generally, but not always, available. A serious advance was made this year in regards to the number of orders needing re-entry in pharmacy (down from 48% to 36%). With this comes improvement in the physician and pharmacist using the same medication ordering and alerting system in the process. Access to medical or knowledge content during the ordering process and an on-line MAR complete with all medications dispensed and positive patient ID at the time of medication administration appears to be more vendor related.

For comparison, the yellow line represents findings from the 2003 study.

Figure 4.

IP Criteria Verified	Range of Responses	Mean	Median	Mode
% CPOE of All Orders	1-100	53.24	51	100
% MDs Doing CPOE	1-100	53.84	50	100
% Med Orders Electronic	0-100	65.62	90	100
# Active Complex Alerts	0-500	30.21	10	0

Figure 5.

Ambulatory Criteria Verified	Range of Responses	Mean	Median	Mode
% CPOE of All Orders	1-100	67.70	80	100
% MDs Doing CPOE	1-100	76.68	100	100
% Med Orders Electronic	0-100	83.69	98	100
# Active Complex Alerts	0-250	19.45	9	0

Figure 6.

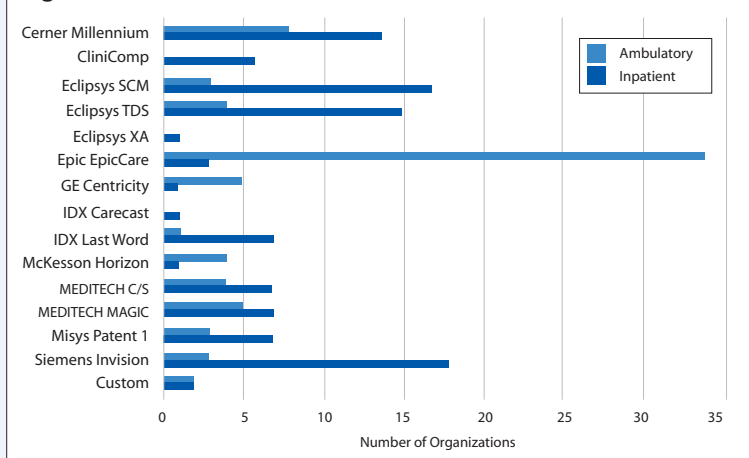
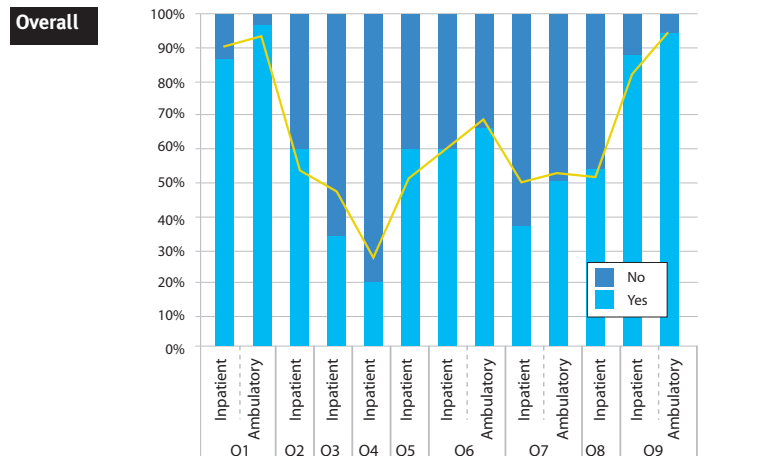


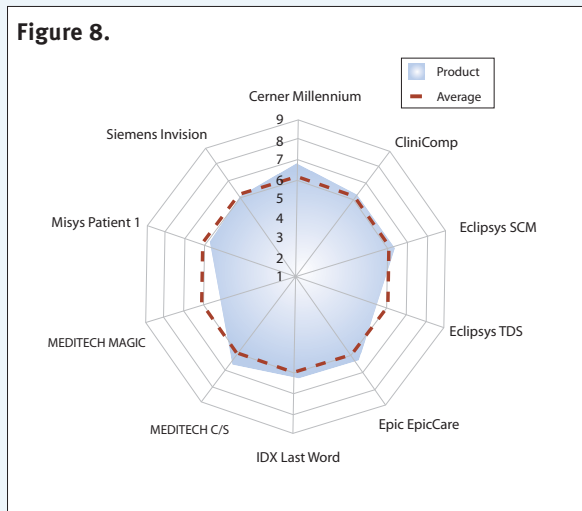
Figure 7.

- Keys** Q1 The ability for physicians to enter all medication orders?
 Q2 Do the Physician and Pharmacist (Pharmacy) use the same medication ordering and alerting systems?
 Q3 Do Pharmacists re-enter orders done by physicians?
 Q4 Positive patient and Med ID at time of medication administration?
 Q5 If yes, is the solution provided by the CPOE vendor?
 Q6 Does robust, rules-based alerting/guidance occur at the time of med & non-med orders?
 Q7 Immediate access to Physician Desk Reference, evidence based medicine and other sources of medical knowledge and content during Order Process and Physician interaction?
 Q8 Online MAR with all meds dispensed (including Pyxis or Omnicell)?
 Q9 Are medication orders stored in the same database used by Physician Order Entry?



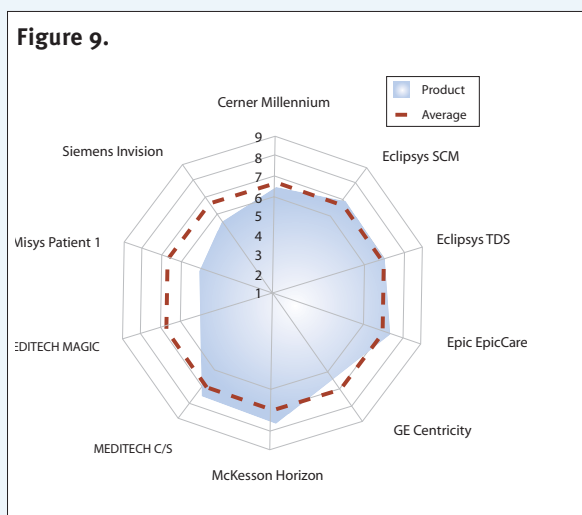
PHYSICIAN SATISFACTION WITH CPOE SYSTEM – INPATIENT (Figure 8)

(Vendor/Products must have more than one organization reporting to be included in Figure 8.)



PHYSICIAN SATISFACTION WITH CPOE SYSTEM – AMBULATORY (Figure 9)

(Vendor/Products must have more than one organization reporting to be included in Figure 9.)



SUMMARY

The challenge with CPOE is that it continues to be more theoretical than proven. While improvements are noted in the 2004 report (as compared to 2003), the gap between reality and expectation remains large in that few sites are actually live on CPOE (critical mass has not yet been accomplished), and those that are live are primarily teaching organizations. However, those sites that are live speak “across the board” to the benefit of reducing errors and enhancing patient safety.

OFFER TO CANADIAN HEALTHCARE FACILITIES

If you are a Canadian site live on CPOE, please contact KLAS for inclusion in upcoming studies. KLAS did not find enough live Canadian CPOE sites to support delineation of any findings in the 2004 study. In addition, many Canadian Healthcare facilities and organizations use vendors who supply solutions unique to Canada. KLAS – the organization rating IT vendors in this and subsequent issues of Healthcare Quarterly – is willing to gather confidential and candid data from Canadian healthcare executives and provide access to the results to all data contributors. The vehicle that will be used is the Web-based KLAS vendor evaluation form found at www.healthcomputing.com under “rate your vendor” button. If you have comments, suggestions or questions about this vendor-rating feature, please e-mail editors@longwoods.com.

About KLAS

KLAS, founded in 1996, is a research and consulting firm specializing in monitoring and reporting the performance of HealthCare’s Information Technology vendors (HIT). The KLAS staff and advisory board average 25 years of healthcare information technology experience.

KLAS, in concert with thousands of healthcare executives, CIO’s, Directors, Managers and Clinicians, has created a dynamic database of information on the performance of (HIT) vendors. The KLAS database represents the opinions of healthcare executives, managers and clinicians from over 4,500 healthcare facilities, 1,000 clinics, on 300+ vendors and 500+ different products. The information is continually refreshed with new performance evaluations and interviews daily. The KLAS database is dynamically and effectively used by

- healthcare organizations to align expectations with a vendor’s actual performance, to assist in strategic planning and to validate decision processes
- vendors to monitor their performance in comparison with competitors
- consultants for current performance information on a specific company or product
- healthcare investment firms to evaluate publicly traded HIT company trends



Frank D. Scarpino
President & C.E.O.

fscarpino@solutionalternatives.com

e-Health Strategy and Consulting Services

118 Queen Street W., Suite 201, Brampton, ON Canada L6X 1A5
Tel: (905) 459-9832 Fax: (905) 459-9828 Cell: (905) 302-3394
www.solutionalternatives.com