mitrais
clarity in care

Medical Systems Newsletter

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www.mitraismedical.com
info@mitraismedical.com

Singapore:

Tel.: +65 6 235 0959
Fax.: +65 6 235 0959

10 Anson Road
#03-05 International Plaza
Singapore 079903

Bali (Development Center):

Tel.: +62 361 755 025
Fax.: +62 361 755 024

Jl. Kediri No. 38,
Kuta, Bali 80361, Indonesia

Jakarta:

Tel.: +62 21 520 1655
Fax.: +62 21 525 6609

Plaza Kuningan
Menara Selatan Suite 502,
Jl. H.R. Rasuna Said Kav C11 - 14
Jakarta 12940 - Indonesia

Sydney:

Tel.: +61 2 9959 1009
Fax.: +61 2 9959 3003

12th Floor, 1 Pacific Highway
North Sydney, NSW 2060, Australia

Editorial

The statistics which support the uptake of Computerized Physician Order Entry (CPOE) are dramatic to say the least.

Studies of computerized physician order entry (CPOE) have yielded evidence that suggests the medication error rate can be reduced by 80% and errors that have potential for serious harm or death for patients can be reduced by 55%.

Other studies highlight similar benefits flowing from the use of CPOE which is why we feature it in this latest issue of the Mitrais Medical System newsletter.

We know after reading about CPOE that you will see how it joins hospital information systems and electronic medical records, which we have covered in earlier newsletters, as a crucial platform in achieving quality healthcare outcomes.

In this edition:

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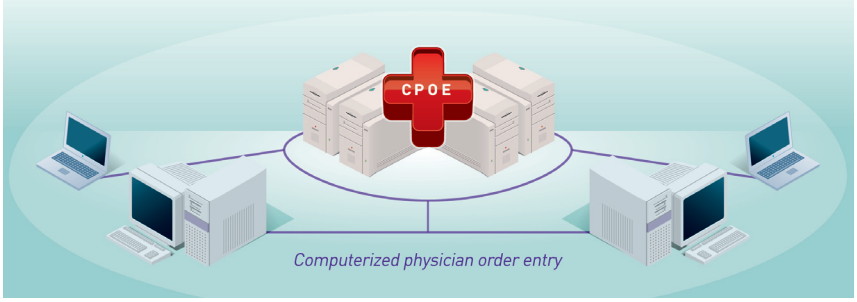
CPOE: What is CPOE, features and benefit of having a CPOE (First in a Five-Part Series)

Source: Wikipedia

In the past, physicians have traditionally hand-written or verbally communicated orders for patient care, which are then transcribed by various individuals (such as unit clerks, nurses, and ancillary staff) before being carried out. Handwritten reports or notes, manual order entry, non-standard abbreviations and poor legibility lead to errors and injuries to patients, according to a 1999 Institute of Medicine (IOM) report. A follow up IOM report in 2001 advised the use of electronic medication ordering, with computer- and internet-based information systems to support clinical decisions. This is what CPOE is all about.

What is CPOE?

Computerized physician order entry (CPOE), is a process of electronic entry of medical practitioner instructions for the treatment of patients (particularly hospitalized patients) under his or her care. These orders are communicated over a computer network to the medical staff or to the departments (pharmacy, laboratory, or radiology) responsible for fulfilling the order. CPOE decreases delay in order completion, reduces errors related to handwriting or transcription, allows order entry at point-of-care or off-site, provides error-checking for duplicate or incorrect doses or tests, and simplifies inventory and posting of charges. Although manufacturers use the term Computerized Physician Order Entry, a more accurate term would be Computerized Prescriber Order Entry or Computerized Pharmacist Order Entry. Order Entry is in the domain of the pharmacist because it is the pharmacist's responsibility to verify any entry into the system concerning the use of medications within the hospital or health care system. Order clarification requests will be enhanced by improved communication and collaboration amongst the health care team.



Features of CPOE Systems

Features of the ideal computerized physician order entry system (CPOE) include:

- Ordering

  Physician orders are standardized across the organization, yet may be individualized for each doctor or specialty by using order sets. Orders are communicated to all departments and involved caregivers, improving response time and avoiding scheduling problems and conflict with existing orders.

- Patient safety features

  The CPOE system allows real-time patient identification, drug dose recommendations, adverse drug reaction reviews, and checks on allergies and test or treatment conflicts. Physicians and nurses can review orders immediately for confirmation.

- Intuitive human interface

  The order entry workflow corresponds to familiar "paper-based" ordering to allow efficient use by new or infrequent users.

- Regulatory compliance and security

  Access is secure, and a permanent record is created, with electronic signature.

- Portability

  The system accepts and manages orders for all departments at the point-of-care, from any location in the health system (physician's office, hospital or home) through a variety of devices, including wireless PCs and tablet computers.

- Management

  The system delivers statistical reports online so that managers can analyze patient census and make changes in staffing, replace inventory and audit utilization and productivity throughout the organization. Data is collected for training, planning, and root cause analysis for patient safety events.

- Billing

  Documentation is improved by linking diagnoses (ICD-9-CM or ICD-10-CM codes) to orders at the time of order entry to support appropriate charges.

- Patient-centered decision support

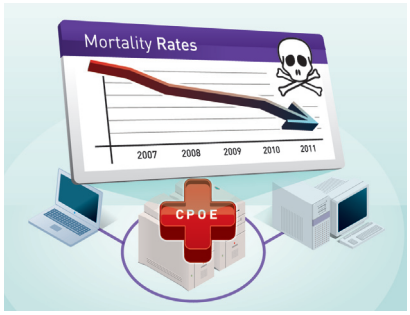
  The ordering process includes a display of the patient's medical history and current results and evidence-based clinical guidelines to support treatment decisions. Often uses medical logic module and/or Arden Syntax to facilitate fully integrated Clinical Decision Support System (CDSS).

Benefits of Having CPOE

Prescribing errors are the largest identified source of preventable hospital medical error. A 2006 report by the Institute of Medicine estimated that a hospitalized patient is exposed to a medication error each day of his or her stay. Studies of computerized physician order entry (CPOE) has yielded evidence that suggests the medication error rate can be reduced by 80%, and errors that have potential for serious harm or death for patients can be reduced by 55%, and other studies have also suggested benefits. CPOE/e-Prescribing systems can provide: automatic dosing alerts (for example, letting the user know that the dose is too high and thus dangerous) and interaction checking (for example, telling the user that 2 medicines ordered taken together can cause health problems). In this way, specialists in pharmacy informatics work with the medical and nursing staffs at hospitals to improve the safety and effectiveness of medication use by utilizing CPOE systems.

Study correlates CPOE with decreased mortality rates

May 03, 2010 | Molly Merrill, Associate Editor



STANFORD, CA – Researchers at Lucile Packard Children's Hospital and Stanford University School of Medicine are saying a new study shows – for the first time – that using a computerized physician order entry system can significantly decrease hospital-wide mortality rates.

A CPOE system that was launched at Packard Children's in 2007 was correlated with a 20 percent decrease in mortality rates at the hospital over an 18-month period, according to the study, which was published in *Pediatrics*.

Researchers say CPOE can provide doctors with crucial data and suggestions that can help guide clinical decisions. "We've seen a 20 percent improvement in the time from order to administration for 'stat' [immediate] medications," said lead author Christopher Longhurst, MD, medical director of clinical informatics at Packard Children's and assistant clinical professor of pediatrics at Stanford. "This can have life-saving consequences."

"Prior to our report, no hospital or medical institution has shown that CPOE can be implemented and actually have an associated decline in mortality," said Longhurst. "But what we found is that CPOE implementation was statistically correlated with fewer patient deaths. As you can imagine, this is very meaningful."

Longhurst and his colleagues, made up of a team of eight researchers from Packard Children's, Stanford and Harvard University, reviewed nearly 100,000 discharges from Packard Children's from Jan. 1, 2001, through April 30, 2009. They compared the observed mortality with the expected mortality, which was generated from a database of 42 tertiary-care, not-for-profit pediatric hospitals similar to Packard Children's.

The result of their analysis was a finding of two fewer deaths per 1,000 discharges at Packard Children's in the period after CPOE was implemented, a total of 36 lives over 18 months.

Researchers noted that other patient care initiatives at the hospital may also have contributed to this important change. Longhurst emphasized that the new results show a correlation, not a cause and effect. "Our implementation of CPOE was executed superbly, but in addition, we were simultaneously making other advances in patient care," he said. "These included process and workflow changes, adjustments in ICU staffing, the rollout of Rapid Response Teams, the implementation of a nursing residency and more, all in the face of rising acuity in the hospital."

"Simply purchasing a fancy and expensive electronic medical records system in and of itself is not likely to make much of a positive impact on quality or patient safety," added Paul Sharek, MD, medical director of quality management and chief clinical patient safety officer at Packard Children's. "What provides the real opportunities for improving care is using this technology to support best practice, such as displaying relevant blood test results at the time physicians are ordering medications, or allowing practice guidelines to be immediately available to physicians at the time of order entry," said Sharek, who is an assistant professor of pediatrics at the medical school, and the study's senior author.

Mark Del Beccaro, MD, a pediatrics professor and vice chair for clinical affairs at Seattle Children's Hospital, who was not involved in this study, said he welcomed the new findings. Seattle Children's Hospital implemented CPOE in 2003. "Three years later a study of the effects showed mortality rates at our institution held steady," Del Beccaro said. "As the evolution and maturity of these systems and their benefits are being realized, there has been soft evidence that they improve patient safety. The Packard Children's report is the first I am aware of to show that you can potentially affect mortality by putting CPOE in place. This is an important study, and we hope others can realize these benefits."

This article is taken from Healthcare IT News' site.

Medical Event

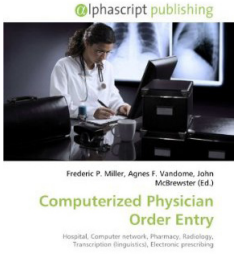
HOSPITAL BUILD ASIA 2012
EXHIBITION & CONGRESS

Hospital Build Asia Singapore

Date of Event : 09 – 11 May 2012
Place of Event : Marina Bay Sands Expo and Convention Center
10 Bayfront Avenue – Singapore

For further information, please visit www.hospitalbuildasia.com

Book Review



Computerized Physician Order Entry

Editor:

Frederick P. Miller, Agnes F. Vandome, John McBrewster

Publisher:

Alphascript Publishing

Computerized Physician Order Entry (CPOE) is one of the main components of any Electronic Health System (EHS). It has been used in United States and other countries for more than 30 years. Research continues to discover the advantages and disadvantages of CPOE.

This book is a compilation of articles taken from Wikipedia. The editors have not modified or extended the original text. The topics of the articles are components which are related to CPOE such as pharmacy, radiology, electronic prescribing and health informatics. Each article stands alone and is not directly related to another. But the book summarizes each article in clear and easy to understand language, citing numerous other texts, articles, studies or journals about EHR.

Electronic prescribing is the subject of one article. Typically, a doctor logs on to the system and selects a drug, taking into account the patient's medication list and known allergies to avoid potential adverse drug reactions. Once the doctor has made a decision, the order is then automatically transmitted to the pharmacy computer.

The benefits and the risks of CPOE are also clearly defined. CPOE enables a patient's care provider to enter an order for a medication or any procedure such as a clinical laboratory or radiology test directly into the computer instead of onto a paper chart. The system then transmits the order to the appropriate department or individual, so it can be actioned.

The most advanced implementations of CPOE systems also provide real-time clinical decision support, such as suggestions for dosage and alternative medications, duplicate therapy warnings, and drug-drug and drug-allergy interaction checking. CPOE systems can also help reduce errors related to poor handwriting or transcription of medication orders, with consequential benefits. But as one article notes, a lack of user experience of a system may prove to be too slow in an emergency situation.

The book does not explain the technical side of CPOE, but it is an excellent introduction to the topic. Since CPOE uses a computer network, the article about computer networks may be helpful to those not familiar with the world of informatics worlds. It explains network terminology and how computer networks function.

This book is recommended reading for doctors, nurses or anyone wanting to know something about CPOE and EHR. It is also suitable introductory text for EHR developers. The downside to the book is the small fonts and poor quality printing, plus the absence of an index.

Reviewer: Mitrais in-house reviewer

Mitrais Updates

Mitrais' Soft-Opening Bandung Office

Mitrais, an international IT company with its development centre in Bali, has opened a second development centre in Bandung, the capital of West Java, so it can access the large pool of skilled and talented IT graduates from the city's specialist universities.

The new office will also support the implementation of the Mitrais Medical Suite (MMS) at the four hospitals that comprise the Santo Borromeus hospital group.

Bandung is known as "student city" because more than 64,000 students graduate each year. More than 29,000 of those graduate in IT-related disciplines from leading universities such as Bandung Institute of Technology (ITB), Telkom Institute of Technology (IT Telkom), Maranatha Christian University and University of Parahyangan (UNPAR).

The new Mitrais office, in a four storey building able to house up to 90 people, was opened in February, 2011.

About Mitrais

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Mitrais, with more than 300 staff and offices in Sydney, Singapore, Bali, Jakarta and Bandung, is developer of the Mitrais Medical Suite (MMS). MMS comprises a portfolio of medical and administrative applications for hospitals, clinics and enterprises offering employee health services. MMS applications can be supplied separately or as one fully integrated system. The system has been written with interoperability and the Electronic Medical Record (EMR) at its core. MMS uses both SNOMED and MIMS and has been designed so that it can easily be hosted as a Software as a Service (SaaS) solution. Mitrais also undertakes bespoke software development for the health industry. For further information visit www.mitraismedical.com

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