

## The success of the implementation of the CPOE in a friendly Hospital

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### Introduction

Several reports have shown that information technology (IT) improves the quality, safety and efficiency of health care. Initiation for change is usually difficult for fear of failure and adaptation to change and this usually rises with the presence of obstacles that might hinder the process. Such obstacles are the cost and the complexity of the IT implementation. The health care payment policies that funds quantity of services rather than its quality is another obstacle (1).

Computer provider order entry (CPOE) is a process by which a clinician with order writing authority sits at a computer to directly enter patient care orders (2).

Since patient's safety is the utmost concern for any health facility, adopting the Computerized Provider Order Entry (CPOE) would help in the integration of the gaps in the health care system. For instance if the pharmacist would like to know if this particular patient has allergy, and it was not written on an ordinary prescription, the CPOE would for example alert the prescriber to jot down any allergies. Another hindrance to acquire the CPOE is the cost; however as evidence has shown IT systems provide discipline with quality control thus reducing medical errors (3).

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### **The advantages of the CPOE**

- Authentication of the identity of prescriber and his privileges.
- Evidence based therapy
- Ability to collate information and data and thus be used for analysis and research
- Designing new guidelines according to the available data

Other important advantages of the CPOE is the removal of the possibility of the illegible handwritten prescriptions. The CPOE can provide the clinician with an alert of a certain medication allergy that the patient might have as well as an alert to the drug-drug interactions. Additionally, the CPOE can provide an advice on how to tackle these allergies and interactions. The dosage of the medication can be automatically calculated and tailored to the patient's physical parameters, laboratory parameters, and previous dosing history. An important example is an alert to physicians when there is a teratogenic drug that might be prescribed to a pregnant patient. The CPOE will send an alert to the prescriber that this medication carries a serious teratogenic risk to the patient. Another advantage is that can link a serious adverse drug reaction in patients for example with high liver enzymes and thiazolidinediones (4).

### **Safety at the point of ordering**

CPOE can be set to have order menus organized by pharmacological class or clinical indication which are essential in medications such as looks alike, sounds alike medications (4).

### **Alerts on the CPOE**

A set of alerts can be set on the CPOE, such as

- drug-allergy alert
- drug-drug interaction alert

- drug-laboratory result alert (e.g., digoxin level, lithium level, theophylline level, INR, creatinine)
- drug-monitoring laboratory test alert (e.g., LFTs with statins, TSH with amiodarone, electrolytes with angiotensin converting enzyme inhibitors)
- drug-diagnosis alert (e.g., pregnancy, G6PD deficiency)
- drug-diet interaction (including NPO, TPN)
- individual dose checking
- cumulative dose checking
- physical incompatibilities (e.g., calcium and ceftriaxone)
- preventative health clinical reminders (4)

Therefore, if we weigh the benefits and the risks on one side and the cost on the other, it would translate on long term cost effectiveness. Medication errors are among the most common medical errors, harming at least 1.5 million people every year; this had been calculated to cost the hospitals alone around \$ 3.5 billion a year for treating drug-related injuries. Medical errors and adverse drug effects remain a major concern for health care providers and administrators (5).

## **Conclusion**

For a successful commencement of such a program, the management needs to involve stakeholders during design, ensure data quality, and implement adequate security and privacy. CPOE will improve patient care and safety, will reduce medical errors and will improve the financial health of the hospital. The success of the implementation depends upon the interactions among the hospital administration, medical staff and clinical support services (6). Therefore, Friendly Hospital when engaged in such a development process will enhance the quality and care provided to its patients and will take eventually a lead in promoting such a system.

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