**Short Communication**                                                                                    Open Access

# Impact of Computerized Physician Order Entry on Medication Errors and Cost

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The ultimate goal of healthcare delivery system is patient benefit and safety, likewise, the goal of prescribing pharmaceutical medication. Nevertheless, medication errors and complications are some of the malefactors for not achieving the goal. According to the Institute of Medicine, medical errors lead to 44.000 to 98.000 deaths in the United States annually [1]. Medication errors in hospitals are common, expensive, and at times unsafe to the patient. It is also responsible for 7,000 deaths per year in the United States. In a current study, adverse drug events occurring in hospital cost more than $ 3,000 on average and increase the length of stay by 3.1 days [1,2].

Medication errors can occur in all stages of the medication process, from prescribing, dispensing and administration of drugs. A number of risk factors associated with prescription errors have been reported, i.e., insufficient knowledge of drugs and their use in the context of a patient's condition, terminology factors (vague prescription, incorrect drug name, inappropriate dosage , inappropriate frequency, inappropriate duration, inappropriate route, or confusing abbreviation), and prescribing wrong drug or inappropriate drug selection (based on indications, contraindications, patient's allergies and other factors) [3,4].

Recent trends toward cost control, standardization, and availability of common medications have led to the execution of various entities of automation and technology. One of which is the Computerized Physician Order Entry (CPOE) system that was been recommended by several European and American institutions for reducing the number of medical errors [3,5].

Several benefits of CPOE are, namely, improved quality of care and patient care, decrease in medical errors, and improve the health of the general public. CPOE basically abolishes the need for handwritten paper orders and achieves cost savings through increased efficiency.

CPOE software also allows physicians to enter medical orders by computer and prescribe patient services electronically [6]. It often includes functionalities such as demographic data, medical history, medication history, diagnosis, drug dosage support, alerts about harmful interactions, allergy that result in clinical decision support, and may further reduce errors associated with hand-written prescriptions by decreasing the number of unreadable and , incomplete orders or wrong incorrect dosages and the increased efficiency of order processing through prompt transmission of orders to other hospital systems.

Computerized decision support associated with CPOE systems, such as displaying age specific dosing regimens to the patients, checking for doses above or below the recommended dose, warnings are flashed if current laboratory values indicate that the drug or regimen would be unsuitable for a particular patient and screening for allergies and drug–drug interactions may also improve the ordering process [7].

Medication errors have been the issue of many studies, however, investigations on the impact of the use of CPOE on medication errors arising at the diverse stages of medication delivery, i.e., prescription, dispensing and administration, were lesser.

After implementation of CPOE, a systematic review indicates that 23 of the 25 selected studies reported a 13-99% drop in the relative risk of medication errors, while one study found no change, and another resulted in a significant increase in the relative risk of medication errors. Other studies have reported of new errors or an increase in mortality related to implementation [7].

## References

1. Kohn LT(1999) To Err Is Human: Building a Safer Health System. Washington, DC: National Academy Press.
2. Hug BL, Keohane C, Seger DL, Yoon C, Bates DW, et al. (2012) The costs of adverse drug events in community hospitals. Jt Comm J Qual Patient Saf. 38: 120-126.
3. Alanazi MQ, Al-Jeraisy MI, Salam M (2015) Prevalence and predictors of antibiotic Prescription errors in an emergency department, Central Saudi Arabia. Drug Healthcare Patient Saf. 7: 1-9.
4. Menyfah Q Alanazi (2017) Drugs may be Induced Methemoglobinemia. Journal of Hematology & Thromboembolic Diseases. 5: 3
5. Smith J (2004) Building a Safer National Health System for Patients: Improving Medication Safety. Department of Health (UK).
6. Fabien Hernandez, Elyes Majoul, Carlota Montes-Palacios (2015) An Observational Study of the Impact of a Computerized Physician Order Entry System on the Rate of Medication Errors in an Orthopaedic Surgery Unit. PLOS ONE.
7. Ammenwerth E, Schnell-Inderst P, Machan C, Siebert U (2008) The effect of electronic prescribing on medication errors and adverse drug events: a systematic review. J Am Med Inform Assoc. 585-600.