



## Electronically Prescribing: A New Policy in Iranian Hospitals

Mohammad Khammarnia<sup>a \*</sup>, Fatemeh Setoodehzadeh<sup>b</sup>

<sup>a</sup> Assistant Professor of Health Care Management, Health Promotion Research Center, Zahedan University of medical Sciences, Zahedan, Iran.

<sup>b</sup> Assistant Professor of Health Policy, Health Promotion Research Center, Zahedan University of medical Sciences, Zahedan, Iran.

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### Abstract

Medication Errors (MEs) as one of the most important medical errors in hospitals are common, expensive, and sometimes harmful to patients. Several strategies, such as Computerized Provider Order Entry (CPOE) and wristband barcoding are used for decreasing MEs. The role of new technologies is emphasized in the policies and planning in the health system in Iran. Worldwide, CPOE is a new technology to improve patients' care and safety, increase patients' satisfaction and user productivity, decrease MEs and costs in hospitals. This system appears as an effective tool in reducing MEs. Elimination of eligibility errors, ensuring completeness in prescribing fields, and reduction in transcription errors are other benefits of CPOE system. CPOE has been implemented in Namazi Teaching Hospital and had impressive impact on the reduction of MEs. The use of this system is changing to a policy in hospitals in Iran and it is emphasized in the vision of Iran for 1404.

*Key words:* CDSS, CPOE, Hospital, Iran, Medication error, Shiraz

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Corresponding Author: Mohammad Khammarnia,  
Assistant Professor of Health Care Management, Health  
Promotion Research Center, Zahedan University of  
medical Sciences, Zahedan, Iran.  
Tel: (+98)54-33295717  
E-Mail: m\_khammar1985@yahoo.com  
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patients' safety [1] and it could occur in any healthcare organization e.g., hospital, health center, laboratory, clinic, and etc.[2] Medication Errors (MEs) as one of the most important medical errors in hospitals are common, expensive, and sometimes harmful to patients [3]. Many of MEs and mistakes occur during the ordering process and it leads to illegible prescriptions[4]. In many cases illegible orders result in mistake by other clinical staff, such as pharmacists,

### 1. Introduction

#### 1.1 . The Importance of Problem

It is well known that medical errors in delivery of healthcare are a major threat to

nurses and et al., while most of them are preventable [5]. Prescription errors occur in up to 40% of medication orders written for hospital patients [6]. ME leads to longer hospital stays, increased medical costs, permanent disability, and even death of patients [7].

According to the studies, the hospitals in Iran suffer from ME and it is one of the main causes of increasing complaints in the hospitals and prolongation of hospitalization [8-10]. In addition, ME in Iran's hospitals is high and it is the most important error in health care services. In this regards, Saghafi found that "73% of prescribing orders were incomplete and did not have all six parameters (name, dosage form, dose and measuring unit, administration route, and intervals of administration)" [11]. Moreover, Gharekhani indicated that more than 85% of patients experienced medication error and the rate of medication errors was 3.5 errors per patient [12]. The causes of ME are varied; however, illegible prescription, not writing the drug form and drug dose by physicians are the important causes of ME in the hospitals in Iran [13]. Several strategies, that more of them are new technologies, such as Computerized Provider Order Entry (CPOE) and wristband barcoding are used for decreasing MEs. The role of new technologies is emphasized in the policies and planning in the health system in Iran.

## *1.2. The Role of New Technologies in the Health System in Iran*

The Twenty Year Vision Document is worthwhile step in directing the activities to attain development in Iran. One of the important high lights of the document is paying particular attention to science and technology in 1404. Based on the vision of Iran for 1404, the health system could achieve more goals with available resources using of these technologies. That is why; use of information technology in the health sector is increasing. Moreover, based on this plan, Ministry of Health and Medical Education in Iran should use electronic health profile and new technologies for delivery better services, including prevention, screening, monitoring, assessment and evaluation, and providing services to rural regions. The use of these technologies results in decreasing cost, saving time, and increasing quality of care in the health system [14]. Moreover, information technology application in health and medical information has many benefits for patients, employees, and health managers [5]. In this regards, a strategy for reducing medication errors and the harm resulting from these errors is use of CPOE [16].

## **2. Materials and Methods**

### *2.1 CPOE System*

CPOE is a new technology to improve patients' care and safety, and decrease MEs and costs in hospitals [5]. CPOE system allows physician to prescribe patients' services electronically, eliminate the need for

handwritten paper orders, and achieves cost savings through increased efficiency in hospitals [17]. This system appears as an effective tool in reducing MEs. Elimination of eligibility errors, ensuring completeness in prescribing fields, and reduction in transcription errors are other benefits of CPOE system [5]. Moreover, the other benefits of CPOE are process standardization and improvement in documentation quality [18]. The importance of CPOE has been confirmed by some studies [19, 20].

In addition, CPOE system with embedded Clinical Decision Support System (CDSS) can significantly reduce certain types of prescription errors and yield substantial long-term savings to society [21].

This system is running in many hospitals in the world (development and developing countries); however, CPOE is not done comprehensively in Iran in the last decade.

### 3. Results and Discussion

The results of searching in the hospitals in Iran showed that Namazi Teaching Hospital is the only public hospital in Iran which uses CPOE in prescription orders. The CPOE is running in Namazi Teaching Hospital from October 2015 until now. Moreover, the results of this implementation showed that MEs decreased from 19% to 3% through CPOE and many of errors, especially illegible orders, lack of writing the drug form and route were decreased by this software in the hospitals [22].

The Use of localized system (e.g. CPOE) in hospitals could increase the usability; in addition, the system is friendly for users and it finally could increase the quality of services. After CPOE implementation in the hospital, many of hospitals requested to attain this system in Iran.

Therefore, we could say that the use of CPOE in Iranian hospitals is changing to a policy and hospital managers and policymakers in Medical Universities should pay more attention to this policy.

### 4. Conclusion

Since CPOE has impact on ME and its benefits have been shown in all studies, especially in Iran and based on the vision of Iran for 1404; therefore, it is needed that CPOE system, as a new technology, to be implemented in hospitals for increasing quality of services.

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