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Impact of Mobile Device Based Software on Prescription Orders: A Quasi-Experimental Study in Iran

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Abstract

Background:
One way to reduce medical errors associated with physician orders is the computerized physician's order entry (CPOE) software. The present study aimed to determine the mobile device based CPOE impact on reducing prescription orders in a hospital (as the first research in Iran).

Methods: We conducted a before and after prospective study in 2 intensive care unit (ICU) wards (as intervention and control wards), at the largest tertiary public hospital, in the south of Iran, during 2015 to 2016. All prescription orders were validated by 2 clinical pharmacists and an ICU physician. We compared the rates of ordering errors in medical orders during 2 phases: 1 before (manual ordering) and 2 after implementation of CPOE on mobile devices. A standard checklist was used for data collection. For data analysis, SPSS version 21 as well as descriptive and analytical tests such as McNemar, Chi-square test, and logistic regression were used.

Results: We detected 98 prescription errors in 3045 prescribed orders after CPOE implementation on mobile devices (3.0) versus 345 in manual prescription phase (19.1). The use of mobile device based CPOE decreased the prescription errors from 19% to 3% ($P = 0.001$). There were no differences in the control ward. More errors occurred in the morning shift ($P < 0.001$) and 3 types of errors, such as illegible orders, lack of writing the drug form, and route were significantly reduced in the intervention ward ($P < 0.05$). On the other hand, the CPOE increased 3 types of errors ($P < 0.001$).

Conclusion: The use of mobile device based CPOE significantly reduced the prescription errors. Nonetheless, it is necessary to be more cautious in the use of the system. It is recommended that CPOE should be used to improve the quality of delivered services in hospitals.

Keywords: Computerized Physician Order Entry; Mobile Device; Prescription Error