

**MEDICATION DISPENSING ERRORS IN URBAN PHARMACIES: IMPLEMENTING BAR CODE TECHNOLOGY**

Mohsen Masoumi¹, Mohammad Reza Hasibian², Hasan Vakili-Arki¹, Zhila Taherzadeh³, Ehsan Nabovati⁴, Saeid Eslami^{2,3,5,6,*}

1: Student Research Committee, Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

2: Department of Medical Informatics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

3: Targeted Drug Delivery Research Center and Neurogenic Inflammation Research Center, School of Pharmacy Mashhad, University of Medical Sciences, Mashhad, Iran

4: Health Information Management Research Center, Kashan University of Medical Sciences, Kashan, Iran

5: Pharmaceutical Research Center, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

6: Department of Medical Informatics, Academic Medical Center, Amsterdam, The Netherlands

Correspondence:

Saeid Eslami. Pharmaceutical Research Center, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran; Department of Medical Informatics, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; Department of Medical Informatics, Academic Medical Center, Amsterdam, The Netherlands
Tel: +98.51-380022429, Fax: +98.51-38827048, E-mail: EslamiS@mums.ac.ir

TYPE OF ARTICLE: CONFERENCE ABSTRACT**ABSTRACT**

Introduction: The importance of patient safety draws attention to reduce and prevent the medication errors and lead to do lots of effort using information technology systems. Using bar code technology in the pharmacy could reduce dispensing errors, but data about its effect are limited. The aim of this study was to evaluate the frequency of medication dispensing errors in pharmacies, equipped/non-equipped with a barcode scanning system.

Methods: This research was a prospective and quasi-experimental “post intervention with equivalent control group” study carried out in two community pharmacies in Mashhad, Iran, from January to February 2015. In a pharmacy, a barcode scanning system was used for recognizing medication (Pharmacy A), while such a system was not used in the other one (Pharmacy B). The study population consisted of all the received prescriptions in both pharmacies during a period of two months. The number of relevant transcriptions, prescription filling, and pharmacist action errors (wrong strength, wrong dispensing form, wrong medicine, wrong quantity, omission errors) were assessed. The traveled distance for preparing the prescriptions and the patient waiting time also were considered as outcomes.

Results: A total of 2386 and 900 paper prescriptions were received by Pharmacy A and Pharmacy B, respectively. There were 211 (7/7%) dispensing errors in Pharmacy A and 113 (10%) dispensing errors in the Pharmacy B ($p < 0/05$). In Pharmacy A, most error or deficiencies in all prescriptions found in quantity (4.44%) followed by medicine (2.26%), strength (1.09%), omission (0.67%), and dispensing form (0.38%). In Pharmacy B, the frequencies of the errors in all prescriptions vary in the same order, ranging from 5.78% for the wrong quantity, to 4.89% for wrong medicine, to 1.78% for wrong strength, and to 0.11% for wrong dispensing form. No case with omission error was found in pharmacy B.

There were statistical significant differences between the two pharmacies in term of “wrong medicine” and the “omission error” ($p < 0.05$). The percentages of transcription, prescription filling, and pharmacist action errors in proportion of all prescriptions of Pharmacy A were calculated at 3.81%, 4.86%, and 0.17%; in Pharmacy B 6.67%, 5.56%, and 0.33%, respectively ($p = 0.005$, $p = 0.418$, $p = 0.385$, respectively). The errors rate related to medicine were detected at 12.9% in the pharmacy A and 30% in pharmacy B ($p = 0.013$). The traveled distance per

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each medicine item during the prescription filling process was 4.4 and 1.5 meters in Pharmacy A and B, respectively.

Conclusion: Using a barcode scanning system in a pharmacy did not remove all medication errors, but it was associated with reduction of dispensing errors and could improve patient safety.

KEYWORDS: Barcode scanning system, Dispensing errors, Pharmacy, Patient safety