

Interest of the Electronic Pharmaceutical Record as a Source for Medication Reconciliation at Hospital Admission in an Infectious Diseases Department

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ABSTRACT

Created by the French law of 30 January 2007, the Electronic Pharmaceutical Record (EPR) is a tool mainly used by pharmacists; it allows collecting data (medications delivered by a pharmacy) on patient's social insurance card, with secured access by pharmacists. In this study we evaluate the interest of the EPR in the process of medication reconciliation. During 3 months, enrolled patients were divided into 2 groups: group "EPR" if EPR was available, and group "no EPR" otherwise. 40 patients were included. Among them, 20 had an EPR. A total 23 unintentional discrepancies were detected. In the "no EPR" group 2 unintentional discrepancies were detected. In the "EPR" group, 21 unintentional discrepancies were detected (91% of total UD) including 20 detected by EPR associate or not with another source. Among these 20 UD, 10 would not have been detected in the absence of EPR (50%). EPR represents a very interesting source to detect medication errors, especially for patients for which limited information is available about their treatment.

INTRODUCTION

Medication reconciliation is an intervention that has been designed to guard against medication errors at transition points^[1]. The process consists in creating and documenting a comprehensive, complete and accurate list of current patient medications and reconciling this list with drugs prescribed at admission to identify and rectify discrepancies^[2]. Using multiple sources of information is essential to establish this exhaustive list^[3]. A new source of information has recently become available in hospital: the Electronic Pharmaceutical Record (EPR). Created by the French law of 30 January 2007^[4], the EPR is a tool mainly used by pharmacists; it allows collecting data on patient's social insurance card, with secured access by pharmacists. Since October 2012^[5], hospital pharmacists can access the EPR in France. It contains data on all medications delivered by a pharmacy over the last four months (date of drug dispensing, brand or generic name, dose and quantities delivered). However, the quantity and the quality of information available in this EPR must be studied. In the medicine department (48 beds), the medication reconciliation is based on all medications used by the patient prior to admission. This list is collected through various sources of information: patient's medical record (paper or computerized), previous hospital reports, contact with the general practitioner and/or pharmacist, interview with patient and/or family, patient's prescription, medications brought by the patient and EPR.

OBJECTIVE

The objective of this study was to evaluate the interest of the EPR as a source of information for medication reconciliation at hospital admission.

METHODS

This study was conducted from June 2016 to August 2016, at University Hospital Raymond Poincare. It enrolled patient over the age of 18 admitted to medicine department for less than 48 h. During this period, data were collected by pharmacy student

using the medication reconciliation form adapted from French Society of Clinical Pharmacy [6]. Medication reconciliations were performed within 48 hours after admission. A minimum of three sources was required to establish an exhaustive medication history. Per example, based on a self-made questionnaire, an interview could be conducted with patients to find out their medication history and know if patient had social insurance card. Student recorded pre-admission medicine use on the reconciliation form. This list was compared to the prescribed drugs at patient's admission. Discrepancies between prescriptions at admission and the medication history could be intentional (ID), when the prescription drug was justified by the clinical situation or unintentional (UD), considered to be medication errors. For UD, clinical pharmacist intervened with the prescriber to modify prescription if necessary. Enrolled patients were divided into 2 groups: group "EPR" if EPR was available, and group "no EPR" otherwise. Pharmacists compared UD rates on these 2 groups. We also recorded data into Microsoft Excel spreadsheets.

RESULTS AND DISCUSSION

40 patients (mean age 60 years) were included (M/F ratio=2.1). Among them, 25 could provide a social insurance card and 20 had an EPR. In mean, 3.9 sources were used in the group "EPR" and 2.8 in the group "no EPR". With a total of 310 medications reconciled, the average number of pre-admission medications was 8.7 in the group "EPR" and 6.7 in the group "no EPR". A total of 192 ID and 23 UD were detected by the pharmacist. In the "no EPR" group 2 UD were detected. In the "EPR" group, 21 UD were detected (91% of total UD) including 20 detected at least with the EPR and only one not detected with the EPR (**Table 1**). Among these 20 UD, 10 would not have been detected in the absence of EPR (50%). These 20 UD resulted from the omission of a drug prescribed at admission (n=10) or a dosage error (n=10) (**Table 1**).

Table 1. Patients characteristics.

Age (years); Mean (\pm SD)	61 (\pm 15)	59 (\pm 14)
Sex		
Male; n (%)	10 (50)	17 (85)
Female; n (%)	10 (50)	3 (15)
Number of source for medication history information; Mean (\pm SD)	3.8 (\pm 0.9)	2.8 (\pm 0.9)
Number of drugs at admission per patient; Mean (\pm SD)	8.7 (\pm 3.2)	6.9 (\pm 4.1)
Total discrepancies detected; n (%)	117 (54)	98 (46)
Intentional Discrepancies detected; n (%)	96 (50)	96 (50)
Unintentional Discrepancies detected; n (%)	21 (91)	2 (9)

This study evaluates the interest of the EPR as a source of information for medication reconciliation. In France, few hospitals have an access to the EPR; nearly one hundred use it frequently [7]. The EPR alone cannot be the only source of information used to obtain an exhaustive medication list at admission. The French Society of Clinical Pharmacy requires the use of at least three sources of information to have an optimized list [8] without preferential combinations of different sources. In this study EPR allowed to detect UD that would not have been discovered without this new source. Furthermore we observed that some patients had no EPR. In those cases, we informed the patient about the possibility to create an EPR on his social insurance card during his next visit to the pharmacy [9].

CONCLUSION

Despite some missing information (daily dose, length of treatment, pharmacy's contact), EPR represents - in addition to other data (patient interview, prescription) - a very interesting source to detect medication errors, especially for patients for which limited information is available about their treatment.

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