

# Administration of Emergency Medicine



## A PROSPECTIVE COHORT STUDY OF MEDICATION RECONCILIATION USING PHARMACY TECHNICIANS IN THE EMERGENCY DEPARTMENT TO REDUCE MEDICATION ERRORS AMONG ADMITTED PATIENTS

Sarah Wallace Cater, MD,\* Matthew Luzum, MD,\* Allison E. Serra, MD, MPH,\* Meredith H. Arasaratnam, SCD,\*  
Debbie Travers, PHD,\* Ian B. K. Martin, MD, FACEP,\*† Trent Wei, BS,\* and Jane H. Brice, MD, MPH\*

\*Department of Emergency Medicine, University of North Carolina, Chapel Hill, North Carolina and †Department of Medicine, University of North Carolina, Chapel Hill, North Carolina

Reprint Address: Jane H. Brice, MD, MPH, Department of Emergency Medicine, CB# 7594, University of North Carolina, Chapel Hill, NC 27599-7594

**Abstract—Background:** The collection of a complete, verified medication history is essential to patient safety. The involvement of clinical pharmacists has been shown to improve the completeness and accuracy of medication histories; however, to our knowledge, involvement of pharmacy technicians has not been studied. **Objective:** Our aim was to determine whether verification of medication histories by pharmacy technicians in the emergency department (ED) would result in fewer errors in inpatient medication regimens compared to verification by the admitting physician team. **Methods:** We performed a prospective cohort study of adult ED patients admitted for continuing care. In the intervention group, medication reconciliation was performed by pharmacy technicians in the ED before the creation of physician admitting orders. In the control group, pharmacy technicians conducted their history taking later, after admission. Initial admitting orders were then compared to the pharmacy technicians' medication reconciliation taken before admission (intervention group) or after admission (control group). Medication discrepancies

were classified and determined to be justified or unjustified. Unjustified discrepancies were rated for harm potential. **Results:** In our cohort of 113 intervention and 75 control subjects, the mean age was 55 years (standard deviation [SD] 16 years); 96 patients (51%) were male. In the intervention group, 566 changes to home medications were observed on admission; 352 (62%) were unjustified. Among controls, 406 changes to home medications were observed; 228 (56%) were unjustified. This difference was not statistically significant ( $p = 0.0586$ ). The rate of unjustified medication changes per patient was likewise not significantly different (3.14 [SD 2.98] in interventions vs. 3.17 [SD 2.81] in controls;  $p = 0.9570$ ). The rate of medical errors did not differ between study groups, nor did severity ratings of unjustified changes. **Conclusions:** Medication reconciliation by pharmacy technicians in the ED did not lead to a significant reduction in unjustified medication discrepancies. © 2015 Elsevier Inc.

**Keywords—**medication reconciliation; patient safety; quality improvement; pharmacy technician; medical errors

Matthew Luzum and Allison E. Serra contributed equally to this work.

Partially funded by an National Institute of Diabetes and Digestive and Kidney Diseases Short Term Research Training Grant (STRT).

This study was approved by the Institutional Review Board of the University of North Carolina.

## INTRODUCTION

Unintentional medication discrepancies on hospital admission are common, occurring in up to 67% of inpatients (1). Such discrepancies include interruption of regularly used medications, inconsistent dosing or

frequency of a home medications, and provision of incorrect medications that differ from those normally prescribed (2). A proportion of these medication discrepancies represent errors that have the potential to cause patient harm. As a result, the Joint Commission has made medication reconciliation an important element of its National Patient Safety Goals for hospital accreditation since 2004 (3). Medication reconciliation is the process of systematically identifying the medications a patient is taking at home and comparing them with newly ordered medications in the hospital.

The collection of a complete, verified medication history is essential to the process of medication reconciliation and the prevention of unintentional medication discrepancies. However, obtaining an accurate medication history can be challenging, especially for patients admitted from the emergency department (ED). In these cases, existing difficulties are compounded by extra handoffs, the involvement of multiple health professionals, and transfer of patient care to several different areas of the hospital.

It has been shown that formal medication reconciliation in the ED by a clinical pharmacist before patient transfer reduces prescribing errors compared to standard history taking by junior specialty house staff on the receiving ward (4). Few studies have evaluated the extent to which pharmacy technicians, who represent a much lower cost to hospitals, can perform in a similar capacity. Likewise, no study has qualitatively examined the ability of pharmacy technicians to reduce medication errors of significant vs. insignificant severity.

In this study, our primary objective was to determine whether verification of medication histories by pharmacy technicians in the ED improved medication reconciliation. We hypothesized that patients whose medication histories were verified by pharmacy technicians in the ED would have fewer errors in their initial inpatient medication regimen compared to patients whose home medications were verified by the admitting physician team, and that these errors would be of lower clinical significance. We also sought to identify and describe the information sources utilized in formal history taking by pharmacy technicians in the ED.

## METHODS

### *Study Design, Setting, and Population*

We performed a prospective cohort study of adult (age older than 17 years) ED patients being admitted to University of North Carolina (UNC) Hospitals for continuing care. UNC Hospitals is a public, academic medical center located in Chapel Hill, North Carolina, USA. It has 805 beds and an ED annual census of 73,469 (5). Subjects

for this study were identified using the ED's computerized tracking system from June 1 through August 1, 2008. We excluded patients who were institutionalized (i.e., living in a nursing home, group home, or psychiatric facility), medically unstable, mentally incapacitated without a guardian present, non-English-speaking or foreign citizens, or suspected to be under the influence of drugs or alcohol. This study was approved by the Institutional Review Board of the University of North Carolina.

### *Study Protocol*

The intervention group consisted of patients for whom a pharmacy technician was able to obtain a formal medication history before the creation of admission orders. The control group represented patients for whom admission orders were created before pharmacy technician history taking, or who were admitted during a time when no pharmacy technician was present in the ED. During the study period, pharmacy technicians were available for history taking from 8:00 am to 6:00 pm each day.

For patients in the control group who were admitted without pharmacy technician history taking in the ED, the admitting physician team took the medication history before creating admission orders. The day after admission, a pharmacy technician assigned to the patient's admitting area performed further medication history verification and reconciliation as needed. Therefore, pharmacy technicians interviewed all patients to produce a verified medication list; however, whether this list was available to the admitting team before the creation of their initial orders varied between the intervention and control groups.

### *Measures: Production of the Verified Medication Lists*

To produce a verified medication list, pharmacy technicians conducted a comprehensive interview with patients or their caregivers, eliciting the names of all medications, including prescriptions, over-the-counter medications, vitamins, herbal remedies, and investigational drugs. Sources of information potentially reviewed were: prescription bottle labels, self-prepared medication lists, consultation with family members, telephone consultation with local pharmacies, and telephone consultation with primary care providers and other physicians. If a patient was previously hospitalized at UNC Hospitals or cared for by a UNC-affiliated outpatient physician, electronic discharge summaries and outpatient medication lists were also reviewed. At the conclusion of this process, a finalized home medication list was entered into the patient's electronic medical record.

A study research assistant was present at each pharmacy interaction with an intervention group patient to record which resources were interrogated and to obtain a

Download English Version:

<https://daneshyari.com/en/article/3246955>

Download Persian Version:

<https://daneshyari.com/article/3246955>

[Daneshyari.com](https://daneshyari.com)