Medication discrepancies associated with subsequent pharmacist-performed medication reconciliations in an ambulatory clinic

Ann M. Philbrick, Ila M. Harris, Jon C. Schommer, and Christopher J. Fallert

Abstract

Objective: To describe the number of medication discrepancies associated with subsequent medication reconciliations by a clinical pharmacist in an ambulatory family medicine clinic and the proportion of subsequent medication reconciliation visits that were associated with hospital discharge, long-term anticoagulation management, or both.

Methods: Data on medication reconciliations were collected over a 2-year time period in an ambulatory family medicine clinic for patients taking 10 or more medications.

Results: Medication reconciliation was performed 752 times for 500 patients. A total of 5,046 discrepancies were identified, with more than one-half deemed clinically important. A mean (± SD) of 6.7 ± 4.6 discrepancies per visit (3.5 ± 3.2 clinically important) were identified. The findings showed that the distribution of total discrepancies identified by pharmacist-performed medication reconciliation was significantly different over the course of subsequent medication reconciliations. However, the distribution of clinically important discrepancies was not significantly different; important discrepancies were as likely to be found in later reconciliations as in earlier ones. As subsequent medication reconciliation visits were performed, an increasing proportion consisted of post-hospital discharge visits, long-term anticoagulation managed by a clinical pharmacist, or both.

Conclusion: Patients with a recent hospital discharge, on long-term anticoagulation management, or both, were more likely to have multiple sessions with a clinical pharmacist for medication reconciliation. These findings can help identify patients for whom medication reconciliation is warranted.

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Medication reconciliation is an important tool for reducing medication errors such as omissions, duplications, dosing errors, and drug interactions; assessing medication adherence patterns[1–6]; and identifying patients for whom follow-up medication management services are warranted.[5] Pharmacist time is limited in ambulatory care settings, and identification and prioritization of patients who would benefit most from medication reconciliation and medication management services is important.

Objectives

The objectives of this study were to describe: (1) the number of medication discrepancies associated with subsequent medication reconciliations by a clinical pharmacist and (2) the proportion of subsequent medication reconciliation visits that were associated with (a) hospital discharge, (b) anticoagulation management, or (c) both. The findings can be useful for understanding the number of medication discrepancies found during subsequent medication reconciliation visits and the characteristics of patients who participate in subsequent visits.

Methods

This study was conducted from February 2009 through February 2011 at Bethesda Family Medicine Clinic in Saint Paul, MN, a training site for University of Minnesota Family Medicine residents. On average, the clinic sees 96 patients per day and serves a generally low-income and ethnically diverse population. Bethesda Family Medicine Clinic became a state-designated Health Care Home toward the end of this study, in December 2010.

Two clinical pharmacists each spend 2 days per week at the clinic, providing 4 days per week of clinical pharmacy services. The clinical pharmacists have a col-

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laborative practice agreement for anticoagulation management, which allows them to adjust warfarin doses based on laboratory results.

Study procedures have been reported in detail in this journal previously.[5] This study was given exempt status by the Institutional Review Board at the University of Minnesota–Twin Cities. Patients were seen by the clinical pharmacist for medication reconciliation if they were older than 18 years, had 10 or more medications on their electronic health record (EHR) medication list, and had not had a pharmacist-performed medication reconciliation in the prior 6 months. A medication reconciliation could be requested by a physician earlier than 6 months or in a patient with fewer than 10 medications if deemed necessary.

During medication reconciliation, the clinical pharmacist reviewed the medication list with the patient and/or caregiver and made corrections to the EHR medication list to resolve the discrepancies. Some of the discrepancies involved a discussion with the physician; for example, if the patient had stopped a medication, an alternate medication could be recommended and prescribed. The final medication list was updated to reflect what the patient was actually taking, and the list was provided to the patient. If patients were not knowledgeable about medications and did not have their medications or a written medication list with them, their pharmacy was called and dispensing records were reviewed. The clinical pharmacist communicated any important omissions, changes, and/or drug therapy recommendations to the provider verbally or by written note.

Demographic information was collected and patients' knowledge of medications subjectively assessed. Patients were determined to be knowledgeable if they could name and describe how they were taking most of their medications, somewhat knowledgeable if they required prompting by the pharmacist, and not knowledgeable if they were unable to state the medications they were taking, even after prompting by the pharmacist. Other information collected included whether the visit was subsequent to hospital discharge and if the patient's anticoagulation was managed by the clinical pharmacists.

The clinical importance of each discrepancy was based on the pharmacist's clinical judgment, but each pharmacist followed general guidelines. For example, discrepancies from short-term medications still on the list (e.g., antibiotics) and over-the-counter (OTC) medications (e.g., multivitamins, docusate) were not generally considered clinically important. Examples of clinically important discrepancies included dose discrepancies of important prescription medications (e.g., dose changed by specialist physician), omission of physician-prescribed medications (e.g., new medication started in the hospital), and prescribed medications discontinued by the patient (e.g., patient stopped medication because of adverse effects but did not inform their physician).

There were exceptions to these general guidelines. For example, OTC medications may have been considered clinically important if a patient on warfarin was taking OTC aspirin or ibuprofen. Likewise, a prescribed medication discontinued by the patient may not have been clinically important (e.g., discontinuation of seasonal allergy medication that was no longer needed).

Data were entered into IBM-SPSS for Windows statistical software, version 21. Frequencies, descriptive statistics, and cross tabulations were calculated for each variable to help identify miscoded data and outliers. Any findings that were not within the range of acceptable scores or any findings that were considered to be outliers were investigated to make sure they were indeed correct. Incorrect data entries were corrected. Because of the examination of groups of unequal size, Kruskal–Wallis analysis was used for comparing the distribution of total discrepancies and clinically important discrepancies among different medication reconciliation visits. The chi-square test was used for comparing the distribution of the proportion of visits related to hospital discharge, anticoagulation use, or both. For all statistical tests, a significance level of 0.05 was used.

Results

Clinical pharmacists performed medication reconciliation 752 times in 500 patients over a 2-year period. Of these patients, 170 (34%) participated in a second visit; 59 (35%) of those participated in a third visit; 15 (25%) of those participated in a fourth visit; 5 (33%) of those participated in a fifth visit; and 3 (60%) of those participated in a sixth visit.

Characteristics of the study participants reflect the population of the clinic. The mean age of the study participants was 55 years, 68% were women, 44% were white, 35% black, 10% Hmong, 5% other Asian, and 6% other. A total of 16% of the participants used an interpreter during their visit, 26% brought their medications to the visit, 25% brought a medication list, and 4% brought both their medications and a list. In all, 61% of participants were deemed knowledgeable about their medications, 22% somewhat knowledgeable, and 17% not knowledgeable.

A total of 5,046 total medication discrepancies were identified, with 2,629 (52%) of these determined to be clinically important. Fifteen patients had no discrepancies. The highest number of discrepancies found in a single patient at one visit was 30. The mean (± SD) number of discrepancies per visit was 6.7 ± 4.7, with 3.5 ± 3.2 of those determined to be clinically important. All discrepancies were addressed, either directly by the pharmacist, or after a discussion with the physician, and the updated EHR medication list reflected what medications the patient was actually taking.

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