

Identifying discrepancies in electronic medical records through pharmacist medication reconciliation

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Abstract

Objectives: To describe the types and causes of medication discrepancies in the electronic medical record identified by pharmacist medication reconciliation during outpatient medical visits and to identify patient characteristics associated with the presence of discrepancies.

Design: Observational case series study.

Setting: Indigent primary care clinic in Pittsburgh, PA, from April 2009 to May 2010.

Patients: 219 adults presenting for follow-up medical visits and self-reporting medication use.

Intervention: Medication reconciliation as part of patient interview and concurrent chart review.

Main outcome measures: Frequency, types, and reasons for medication discrepancies and demographic variables, patient knowledge, and adherence.

Results: Of 219 patients interviewed, 162 (74%) had at least one discrepancy. The most common type of discrepancy was an incorrect medication documented on the chart. The most common reasons included over-the-counter (OTC) use of medications and patients not reporting use of medications. The presence of one or more medication discrepancies was associated with the use of three or more medications. Patient factors such as gender, age, and race were not associated with discrepancies. Patients able to recall the strength for more than 75% of their medications had fewer discrepancies, while knowledge of the medication name, indication, or regimen had no association with discrepancies.

Conclusion: Pharmacists play a critical role in identifying discrepancies between charted medication lists and self-reported medication use, independent of adherence. Inaccuracies in charted medications are frequent and often are related to use of OTC therapies and lack of communication and documentation during physician office visits. Knowledge of patient-related variables and other reasons for discrepancies may be useful in identifying patients at greatest risk for discrepancies and interventions to prevent and resolve them.

Keywords: Medication reconciliation, medication therapy management, drug use review, ambulatory care, errors, medication safety, medication adherence.

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Medication reconciliation is a process of collecting an accurate list of all medications that a patient is taking, including name, dosage, frequency, and route of administration.¹ Reconciliation involves comparing the patient's self-reported current list of medications with physician orders, medication labels, or discharge orders from inpatient or long-term care and clarifying any discrepancies. Medication reconciliation continues to be a key initiative for improving patient care across all health care settings.² An Institute of Medicine report cites that medication-related problems account for more than 2 million serious adverse events and as many as 7,000 deaths annually.³ The highest rates of medication errors occur at the "interfaces of care," specifically when a patient changes practice settings or practitioners.^{1,2} Therefore, performing medication reconciliation at all transitions of care is critical.

In 2005, the Joint Commission cited medication reconciliation as National Patient Safety Goal (NPSG) 8, which states that health care entities must accurately and completely reconcile medications across the continuum of care; this led inpatient care centers to begin implementing medication reconciliation processes.² In 2009, the Joint Commission discontinued

factoring attainment of this goal into accreditation decisions; however, surveyors continue to evaluate and discuss these processes during on-site surveys.² The decision was made, in part, because the organizations encountered difficulties in achieving the complex requirements under NPSG 8, and a period of time was necessary for further refinement of expectations.^{2,4} Although accredited ambulatory care centers have likely developed and implemented medication reconciliation processes as a result of NPSG 8, anecdotal evidence suggests and supports that many ambulatory care environments have not adopted the use of pharmacists in these processes and that implementation of medication reconciliation processes is not required for accreditation through the National Committee for Quality Assurance. The accuracy and consistency of medication reconciliation that occurs in these settings also is unclear. Although ambulatory care is a growing practice area for pharmacists, it can be expected that overall, in most practices, medication reconciliation is rarely conducted by pharmacists.

Ketchum et al.⁵ emphasize the need for a multidisciplinary approach to medication reconciliation as a means to make the process more efficient and to provide for collaborative implementation. Research conducted by Varkey et al.⁶ demonstrated that involving nurses and pharmacists in the medication reconciliation process resulted in a significant reduction in the number of discrepancies upon admission and discharge. Other studies conducted in the inpatient setting have demonstrated that pharmacist involvement in medication reconciliation results in a reduction in medication errors, discrepancies, and costs.^{7,8}

In addition, legislation allowing pharmacists to bill for medication therapy management (MTM) services further supports the drive for pharmacist-directed medication reconciliation programs. A medication therapy review is defined as "a systematic process of collecting patient-specific information, assessing medication therapies to identify medication-related problems, developing a prioritized list of medication-related problems, and creating a plan to resolve them."⁹ This is an essential first step in the provision of MTM services. Milone et al.¹⁰ found the process of medication reconciliation effective for identifying patients as candidates for MTM; 40.7% of 122 medication reconciliation visits resulted in MTM services.

Bayoumi et al.¹¹ conducted a systematic review of all medication reconciliation studies performed in a primary care setting. Their results demonstrated a lack of quality evidence supporting the effectiveness of medication reconciliation and a need for additional research. In a study conducted by Bedell et al.,¹² 76% of patients in an outpatient practice had medication discrepancies, the majority of which involved medications not recorded as being taken by the patient. In this study, age and number of medications were both predictors of discrepancy. Peyton et al.¹³ described a pharmacist-led medication reconciliation intervention to improve medication accuracy. The number of records with medication discrepancies were only modestly improved by the intervention (85.6% before vs. 81.1% after). The authors suggested that use of technology such as electronic medical records (EMRs) as a potential solution for

At a Glance

Synopsis: Through pharmacist medication reconciliation in an ambulatory care setting, the investigators sought to determine the types of and reasons for medication discrepancies between patient self-report and medications listed in electronic medical records (EMRs). A total of 219 patients were interviewed, 162 (74%) of whom had at least one discrepancy. Having an incorrect medication documented on the chart was the most common type of discrepancy. Use of OTC medications was the most common reason for discrepancies, followed by changes made by outside physicians without communication between providers and patients failing to report a medication that was listed as active in the EMR. Patients who were knowledgeable of the dosage for more than 75% of their medications had fewer discrepancies.

Analysis: *These results indicate that despite the potential for improvements with use of EMRs, medication discrepancies continue to exist. Considering the impact that pharmacists have previously demonstrated on improving the medication reconciliation process, they must continue to play an active role on the health care team despite the use of technology. Compared with other health care providers, pharmacists are better equipped to identify medication discrepancies during medication reviews in a primary care setting. This important medication reconciliation role is a potential means by which the pharmacy profession can continue to establish a role in the patient-centered medical home.*

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