

Medication Reconciliation to Improve Quality of Transitional Care

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Organization:	Indiana University
Mechanism:	PAR: HS08-270: Utilizing Health IT to Improve Health Care Quality Grant (R18)
Grant Number:	R18 HS 018183
Project Period:	September 2009 – July 2012
AHRQ Funding Amount:	\$1,181,628
Summary Status as of:	December 2010

Target Population: Adults, Safety Net

Summary: Medication errors account for approximately 20 percent of all medical errors in the United States each year. This significant source of error can cause injury or even fatalities and can occur in all types of health care settings, including patient transitions between locations or care levels within a facility. Recent studies have shown that electronic medication reconciliation (MR) for hospitalized patients can decrease medication discrepancies and significantly improve outcomes in transitional and ambulatory care. Relatively little is known, however, about the extent to which MR systems improve clinical outcomes.

This study seeks to integrate an electronic MR system with an electronic prescribing (e-prescribing) system and modify an electronic health record (EHR) to incorporate medication reconciliation. The project is taking place within Wishard Health Services, a safety net provider for residents of Marion County, Indiana which includes Wishard Hospital and eight primary ambulatory care community health centers. This project has a technical and a clinical team, both of which Dr. Weiner is a member. The clinical team provides input and guidance for the technical team, which meets weekly to discuss and advance the system's development. Because the proposed system requires a formative evaluation, the initial system is being reviewed by a small group of physicians and nurses who are not part of the study teams.

The randomized study design allows for a controlled comparison of electronic MR and usual care. Participants include patients and their inpatient and ambulatory care providers. While the intervention is based in an emergency department and hospital, it targets transitional care and is meant to improve outcomes for both inpatient and ambulatory care. Providers are surveyed before and after the intervention regarding satisfaction with care, managing medications, and usefulness of local information systems in managing medications. Additional analysis will look at changes in the rates of adverse drug events, erroneous discrepancies, and omissions in a patient's medication list between the time of discharge and return to ambulatory care. Associations between interventions and outcomes will be summarized regarding factors related to payer, race, gender, and age. The study will inform the question of whether electronic facilitation of inpatient MR improves completion of MR and decreases the incidence of drug-related medical errors.

Specific Aims:

- Integrate an electronic medical reconciliation system with an e-prescribing system. **(Ongoing)**

- Modify an EHR system to incorporate medication reconciliation. **(Upcoming)**
- Conduct a randomized controlled trial of the medical reconciliation system. **(Upcoming)**
- Determine whether electronic facilitation alters medical reconciliation and the incidence of medication errors in ambulatory care. **(Ongoing)**

2010 Activities: Activities focused on developing the prototype for the MR system, which was operating in trial mode at the end of 2010. A working interface is expected to be completed in early 2011. Throughout the year, input on the prototype was sought from the project's clinical team and then tested with an additional group of physicians for further feedback. Multiple rounds of feedback led to several technical changes to the application, including a necessary performance enhancement to speed entry of medications by decreasing repetitive access to the network. Imported medication lists were updated so that Medicaid claims could be reflected. The application was finalized with the activation of a prompt that will appear at the time of discharge. The prompt is intended to remind providers to review pre-admission medication lists. A "wish list" of additional technical enhancements was also collected, based on feedback from early testers and users. For staff that rotates into the medicine service, training materials for using the system were developed.

The project team also designed and implemented a brief survey to ask physicians about satisfaction with local tools and resources for managing inpatient medications, ease of managing medications, and accuracy of medication lists as noted in medical records. Institutional review board approval for the survey was received in July 2010 and the survey was implemented in the fall to obtain baseline information from providers. The survey is being conducted both electronically and on paper to the providers who are rotating into the medicine service, whether they are in the control or intervention group. The study team has received approximately 130 surveys of an overall target of 200. The project team anticipates that some of the survey questions will not be applicable to some of the respondents, and may therefore exclude some of the results from the analysis. The goal is to include between 150-160 surveys in the analysis.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010): The grant team reports that progress is mostly on track in terms of aims and milestones. The budget is reportedly under-spent but the project team anticipates that spending will eventually catch up, as the delay is typically due to the lag time between when work is performed and when invoicing is received by the subcontractors. Dr. Weiner checks in monthly to ensure that invoices are paid in a timely manner.

Preliminary Impact and Findings: There has been much success in terms of technical development. In terms of who should be documenting the medication history and conducting medication reconciliation, a lack of consensus was observed about who could or should perform this task and therefore medical housestaff could benefit from training on the roles of physicians and pharmacists in this regard. The team has received input from different groups, including providers and pharmacists, about how reconciliation should be done. The project team hopes that bringing these groups together will lead to consensus about how and by whom reconciliation is done, which may in turn set an example for other institutions.

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

Business Goal: Knowledge Creation