

## Medication Reconciliation to Improve Quality of Transitional Care

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<b>Organization:</b>	Indiana University
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**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 happens 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 is integrating an electronic MR system with an electronic prescribing (e-prescribing) system and modifying an electronic health record (EHR) to incorporate MR. The project is taking place within Wishard Health Services, a safety-net provider for residents of Marion County, Indiana that includes Wishard Hospital and eight primary ambulatory care community health centers. Dr. Weiner serves as a member of both the technical and clinical teams of the study. The clinical team provides input and guidance for the technical team, which meets weekly to discuss and advance the system's development.

A randomized study design allowed a controlled comparison of electronic MR and usual care. Participants included patients and their inpatient and ambulatory care providers. While the intervention was based in an emergency department and hospital, it targeted transitional care and was meant to improve outcomes for both inpatient and ambulatory care.

Participating providers were surveyed before the intervention began. With the completion of the randomized controlled trial, a second round of surveys has begun. Survey data is being collected on satisfaction with care, managing medications, and usefulness of local information systems in managing medications. Data analysis is looking 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 medication reconciliation system with an e-prescribing system. **(Achieved)**
- Modify an EHR system to incorporate medication reconciliation. **(Achieved)**
- Conduct a randomized controlled trial of the medication reconciliation system. **(Achieved)**
- Determine whether electronic facilitation alters medication reconciliation and the incidence of medication errors in ambulatory care. **(Ongoing)**

**2012 Activities:** The focus of activity was on surveying participating providers, training new users, completing the randomized controlled trial, and developing the storage database. Providers were surveyed before the intervention began; a second round of post-intervention surveys was administered in 2012. In addition, four focus group discussions were held to gain additional detailed feedback and discussion about medication management. Preliminary review of the survey and discussion analysis has indicated that participants value automated tools for managing medications because it is such a complex activity.

Meanwhile, the project team trained new users throughout the duration of the clinical trial, which was completed in 2012. Six training sessions were held and 49 providers were trained, with more than 800 uses of the intervention system logged at the end of the trial.

The study data are currently being stored in the Research Electronic Data Capture (REDCap) database, for which the project team piloted chart reviews and provided feedback to the data management group to finalize the REDCap model. Project staff reviewed a list of more than 1,000 medications to create groupings of records that identify the same drug. This was to prevent duplicate listings when drug orders are automatically imported from the EHR into the database on admission or discharge. The study team has also entered data into the REDCap system to complement automatically imported clinical data.

A training manual was developed to help reviewers collect and record the data elements. New reviewers were trained and granted access to both the EHR and REDCap systems for data entry. The data management team continues to update the REDCap drug database to reflect the study's needs and new drug information. The project team also continues to meet with the data management group to coordinate aspects of data acquisition on a regular basis.

After overcoming some technical barriers and working to increase the usage rate of the intervention, the progress of project activities is on track as last self-reported in the AHRQ Research Reporting System. Budget spending is on target and a 12-month no-cost extension is being used to complete data analysis.

**Preliminary Impact and Findings:** There are no project findings to date.

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**Target Population:** Adults, Safety Net

**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

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