

Project Title:	Electronic Prescribing and Electronic Transmission of Discharge Medication Lists
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Mechanism:	RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality through Clinician Use of Health IT (IQHIT)
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Summary Status as of:	December 2008

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: Implementation and Use

Summary: This project was initiated in September 2007 and has completed the first third of the grant period. This project consists of three studies designed to measure the impact of health information technology (health IT) on patient safety in the ambulatory setting. The first study is a multi-center before-and-after study measuring the effects on medication errors of transitioning from one electronic prescribing (e-prescribing) system to another, in this case from a home-grown to a vendor-based system. The second study is a qualitative study of physicians, which uses one-on-one-interviews and direct observation to understand variations in human-computer interactions with the new e-prescribing system and how user patterns or system features may influence medication errors. The third study is a randomized, controlled trial evaluating the effect of electronically transmitting discharge medication lists from the hospital to the ambulatory setting. The third study will consider the following outcomes: 1) medication discrepancies at the first ambulatory visit following discharge and 2) adverse drug events (ADEs) 30-days post-discharge.

These studies will yield important information on the effectiveness of two electronic interventions to decrease medication errors in the ambulatory setting. If effective, these interventions could be implemented and sustained in many other centers. The studies also have implications for institutions or practices that are transitioning from one electronic health record (EHR) to another. This project has the potential to reveal critical insights into why certain health IT interventions work (or do not) and how future interventions should be designed to align themselves better with physicians' workflow. If rates of errors vary greatly between commercial systems, there are potential policy implications for more stringent certification criteria of e-prescribing to ensure medication safety.

Specific Aims

- Measure the effects of transitioning from one e-prescribing system to another in the ambulatory setting on medication errors. **(Ongoing)**
- Measure the effects of transitioning from one e-prescribing system to another in the ambulatory setting on human-computer interactions. **(Ongoing)**
- Evaluate the impact of electronic transmission of medication lists at discharge from the hospital to the ambulatory setting on medication discrepancies at the first ambulatory visit following discharge. **(Ongoing)**
- Evaluate the impact of electronic transmission of medication lists at discharge from the hospital to the ambulatory setting on ADEs 30 days post-discharge. **(Ongoing)**

2008 Activities: For Study One, project investigators have nearly completed review of baseline prescription data and data 3 months after the implementation of the new e-prescribing system at one study site. The project team anticipates beginning prescription review at the second study site in the next quarter.

Two novel surveys have also been created to be administered to providers and key informants. These surveys are designed to measure associations between providers, office practices, e-prescribing systems, patients, and implementation strategies that may be influencing error rates. For Study Two, the project has developed a semi-structured interview guide and field observation guide for qualitative data collection and has begun data collection and analysis at one study site. These were developed in collaboration with Dr. Joan Ash, a nationally recognized expert in behavioral issues related to implementing clinical information systems. For Study Three, the project team anticipates that the electronic transmission of medication lists from the inpatient to the outpatient setting will be implemented next quarter. The project team is in the process of developing a patient survey tool to detect medication errors and adverse drug events.

Preliminary Impact and Findings: Not yet applicable.

Selected Outputs

None available.

Most Recent Self-Reported Quarterly Status: The project has been delayed in carrying out Studies One and Two because both study sites delayed implementation of the new e-prescribing systems. The project's research nurse is only part-time, so there are additional funds left on this budget line. However, under spending is not expected to affect the progress or quality of the grant. The under spent amount from the research nurse will be used for additional biostatistician support from the junior biostatistician.

Milestones: Progress is on track in some respects but not others.

Budget: Somewhat under spent, approximately 5 to 20 percent.