

Project Title: Closing the Feedback Loop to Improve Diagnostic Quality
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Organization: University of Alabama at Birmingham
Mechanism: RFA: HS07-002: Ambulatory Safety and Quality Program: Enabling Quality through Health IT (EQM)
Grant Number: R18 HS 017060
Project Period: 11/07 – 08/09
AHRQ Funding Amount: \$998,509
Summary Status as of: December 2008

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Synthesis and Dissemination

Summary: This project was initiated in September 2007 and has completed the first half of the grant period. This project is developing ways to close the loop of outpatient diagnosis in an effort to improve the quality of diagnostic and therapeutic decisionmaking in ambulatory settings. The project is developing automated processes for proactive follow-up and ongoing rapid feedback to physicians to measure the quality of diagnoses and medication prescribing (clinic settings only). The project includes two health care settings: three ambulatory clinics (United Cerebral Palsy of Greater Birmingham, University of Alabama at Birmingham-Huntsville Family Practice, and the University of Alabama at Birmingham-HIV Clinic) and one emergency department (ED) setting (Shands-Jacksonville Emergency Medicine Department). These sites all have different electronic health records (EHRs) from which data will be extracted to include a proprietary EHR, the Certification Commission for Healthcare Information Technology (CCHIT) certified WorldVista EHR VOE/1.0, and the CCHIT-certified Allscripts Touchworks version 10.2.4.46, EHR. In the ED study, the systems are the CCHIT-certified McKesson Horizon Patient Folder and a proprietary ED system (Xpress Charts) that provides a computer-generated paper template customized according to the patient's chief complaint.

The two health care settings involve two different interventions. The clinic site intervention is an interactive voice response (IVR) system that has been designed to collect follow-up data on patients who are treated on an outpatient basis and a system to provide feedback to physicians on patient health status and medication adherence. The feedback report will be provided using an interface between the EHR and a database that can be integrated with a variety of systems. The ED intervention is an automated follow-up and feedback report to the ED physicians on the final diagnoses of patients who were admitted to the hospital compared to their initial ED diagnoses.

In addition, providers' responses to the feedback will be assessed as well as provider satisfaction with the feedback process. For all settings, outcomes assessed include impact on diagnostic and therapeutic quality, extent of adoption of the IVR and ED feedback systems, and use of the feedback by physicians for quality improvement. For the clinic sites, additional outcomes assessed include patient satisfaction and impact on health care costs.

Specific Aims

- Develop a system within three different ambulatory electronic medical record systems in three different types of ambulatory settings that includes: 1) pro-active follow up of patients' response

to treatment (including medication adherence and adverse events) and 2) feedback to health care providers. **(Ongoing)**

- Assess the impact of automating the follow-up/feedback system. Impact will be measured in terms of: 1) diagnostic quality, 2) prevention of adverse events, 3) patient satisfaction with their clinical care, and 4) health care costs. **(Upcoming)**
- Develop and evaluate an automated system for feedback to emergency medicine physicians of the concordance between their diagnoses and patients' final diagnostic outcomes. **(Ongoing)**

2008 Activities: Dr. Berner and her team made significant progress on the interventions designed for the two health care settings: clinics and ED. In the clinic settings, a patient consent process, patient follow-up protocols, physician feedback format and protocols, and the documentation of physician response as a result of the feedback were developed. This included developing and receiving Institutional Review Board (IRB) approval for the data collection tool used during patient follow-up, the initial patient screening card, and informational materials accompanying the screening card. The baseline follow-up/feedback processes are being implemented and results analyzed in preparation for automation. The development, pilot testing, and refinement of automated methods linked to the EHR were also completed. These included developing processes for the data extraction from the EHR to populate the data collection form prior to patient follow-up, electronic capture of follow-up patient interview data, collection of post-interview data, and export of standard files for data analysis. A data dictionary was also developed for the sites to export data from their systems in the same format.

In the ED setting, a process was developed to merge a patient's ED diagnosis with the final hospital discharge diagnosis and provide feedback to the physician along with pilot testing of ways to automate the process. In addition, the team developed a protocol for adjudicating differences between a patient's ED and hospital discharge diagnoses, and a process of developing and evaluating an adjudication method for differences between the ED and hospital discharge diagnoses.

Preliminary Impact and Findings: Publicly available findings will be disseminated closer to the end of the project.

Selected Outputs

Berner E. Closing the Feedback Loop to Improve Diagnostic Quality. Diagnostic Error in Medicine Conference; May 2008. AHRQ and American Medical Informatics Association (AMIA).

Berner E. Closing the Feedback Loop to Improve Diagnostic Quality. Health Information Technology/Patient Safety Conference; September 2008. AHRQ.

Data Collection Tool: includes data elements necessary to collect prior to follow-up and during follow-up.

Patient Screening Tool: to identify patients that volunteer to be part of the study.

Grantee's Most Recent Self-Reported Quarterly Status: The project is slightly delayed because the procedures and data collection forms required another round of IRB approval due to a change in process at one of the clinics. IRB approval was achieved, and a full completion of the project is expected. In addition, one of the clinics decided to install the Clinician Documentation/Notification Application (CDNA) in use at another facility versus developing their own. The installation is taking longer than expected, but the project team is working closely with the site to assure progress. The project is somewhat under spent by five to twenty percent due to the project delays associated with baseline data collection and implementation of the automation process. Full use of the budget is expected by the end of the project.

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

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