

## Closing the Feedback Loop to Improve Diagnostic Quality

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<b>Principal Investigator:</b>	Berner, Eta, Ed.D.
<b>Organization:</b>	University of Alabama at Birmingham
<b>Mechanism:</b>	RFA: HS07-002: Ambulatory Safety and Quality Program: Enabling Quality Through Health Information Technology (EQM)
<b>Grant Number:</b>	R18 HS 017060
<b>Project Period:</b>	November 2007 – August 2011, Including No-Cost Extension
<b>AHRQ Funding Amount:</b>	\$998,509
<b>Summary Status as of:</b>	December 2010

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**Target Population:** Adults, Cerebral Palsy, HIV/AIDS

**Summary:** Determining whether a diagnosis is correct in an outpatient setting may be very difficult. A surrogate measure of diagnostic quality is whether the diagnosis appropriately resolves the reason for the patient's visit when new complaints or diagnoses arise during the visit. The proposed system focuses on mitigating the harm from an initial diagnosis that does not resolve the patient's underlying problem. The hypothesis is that harm can be prevented or mitigated by providing rapid feedback to the physician, thereby closing the diagnostic loop.

The project is developing automated processes for proactive followup and ongoing rapid feedback to physicians in two types of outpatient settings: three ambulatory clinics – the University of Alabama at Birmingham (UAB)-Huntsville Family Practice, the UAB-HIV Clinic, and United Cerebral Palsy (UCP) – and one emergency department (ED) setting (Shands-Jacksonville). The ambulatory sites all have different electronic health records (EHRs). The EHRs are the Certification Commission for Health Information Technology (CCHIT)-certified WorldVista EHR (UCP), the Touchworks EHR (UAB), and a non CCHIT-certified proprietary EHR (UAB-HIV). 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 to the patient's chief complaint.

Different interventions are used at each type of site. The clinic site intervention is an interactive voice response (IVR) system that collects followup data for a feedback report to physicians on patient health status and medication adherence. The feedback report uses an interface between the EHR and a database that can be integrated with a variety of systems. The ED intervention is an automated followup and feedback report to the ED physicians on the final diagnoses of patients who were admitted to the hospital as compared to their initial ED diagnoses.

Providers' responses to the feedback, their satisfaction with the feedback process, the impact on diagnostic and therapeutic quality, response to use of the IVR and ED feedback systems, and the use of the feedback by physicians will be assessed as outcome measures. For the clinic sites, additional assessments include patient satisfaction and impact on health care costs.

### Specific Aims:

- Develop a system within three different ambulatory EHR systems in three different types of ambulatory settings that includes proactive followup of patients' response to treatment (including

medication adherence and adverse events) and feedback to health care providers. **(Achieved)**

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

**2010 Activities:** The development of the feedback system in each setting was completed and feedback was provided to physicians in each of the active study sites. The IVR system was developed and implemented to collect feedback data from two sites, the UAB HIV clinic and the Huntsville Family Medicine clinic. The IVR was adapted to use the voice of one of the project interviewers so that the patients would hear a familiar voice. Since the patients in the second clinic did not know their interviewer, the team used the same voice but customized the recordings for the clinic. Using the IVR, they completed data collection from patients in both clinics; the information was then fed back to their physicians.

The process for providing feedback to emergency medicine physicians was begun. It was initially done by having project staff meet directly with the residents. However, despite being well-received, that process did not progress as expected due to challenges with scheduling the sessions and that patient charts were not always available at the meeting locations. The team is working on other strategies to provide feedback in a more feasible manner.

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**Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010):** The project is progressing well with data collection and manuscript development. Most aims are on track and budget spending is roughly on target.

**Preliminary Impact and Findings:** Within the two participating ambulatory clinics, a comparison of baseline with one week followup showed that approximately 85 percent are as better by one week as by three weeks. Patient satisfaction surveys showed no significant differences in overall satisfaction between baseline and one week followup. Patients were very positive to the idea of followup and the 46 who reported being called were positive about the actual phone call and had higher overall satisfaction.

Within the ED substudy, the overall rate of dissonance was approximately 10 percent of cases, ranging from 7.7 to 13.8 percent. The ED was the source of the discrepancy in two-thirds of cases, the remainder equally divided between inpatient services and coding errors. There was no evidence for association of dissonance with acuity, as measured by triage class, admitting service, specialty, admission diagnosis, age, race, or gender. There was no evidence for association with ED length of stay, boarding time, or hospital length of stay. There was no evidence of association with resident or attending physician.

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**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