

The Bettering Lives Utilizing Electronic Systems Project: Improving Diabetes Outcomes in Mississippi with Health Information Technology

Principal Investigator:	Fox, Karen, Ph.D.
Organization:	Delta Health Alliance, Inc.
Mechanism:	RFA: HS07-006: Ambulatory Safety and Quality Program: Improving Quality Through Clinician Use of Health Information Technology (IQHIT)
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Project Period:	September 2007 – September 2011, Including No Cost Extension
AHRQ Funding Amount:	\$1,163,573
Summary Status as of:	December 2010

Target Population: Adults, Chronic Care*, Diabetes

Summary: The prevalence and incidence of diabetes in the U.S. are reaching epidemic proportions, especially in Mississippi. The Delta Health Alliance (DHA), which has sponsored the Delta Diabetes Project (DDP) over the past several years, initiated the Bettering Lives Utilizing Electronic Systems (BLUES) Project in September 2007 to determine whether utilization of health information technology (IT) in diabetes management would enhance delivery of health care and improve health outcomes of patients. The project examines the cost-effectiveness of using well-designed, comprehensive health IT in diabetes management practices at several ambulatory clinics in Mississippi. Additionally, the study looks at the impact of the health IT on clinical outcomes, medication management, and timeliness of care.

The BLUES project uses the Allscripts Electronic Health Record (EHR), a system that is certified by the Certification Commission for Health Information Technology. The research and measurement module of the EHR enables users to easily query patient records to review key clinical performance indicators. Data is centralized from different databases to combine information related to patient demographics, clinical outcomes, reported laboratory values, and medication history. An important capability of the EHR for this project is the system's ability to integrate and maximize the effectiveness of third-party technologies that aid diabetic care.

Four diabetes management clinics that employ the same model of diabetes care are participating in this study: two in an urban setting and two in a rural setting. One of the sites in each setting utilizes the health IT system, while the other does not. The timeline for this project coincides with independent plans to implement EHRs at these sites, which provides an invaluable opportunity to compare similar practices of health care providers and the health outcomes of their patients with and without use of a comprehensive health IT system.

Various data analysis methods are being used to measure the progress toward attaining the project aims. For example, clinician use of the various components of the EHR are being modeled as a continuous measure (percent or proportion) rather than a strict yes or no binary measure, and a mixed model analysis of covariance will be used to analyze the measure, controlling for fixed (clinic, time) and random (patient)

effects. Individual generalized estimating equations are being used to model changes over time in the proportion of patients that access various components of the Patients Interactive Module. Lastly, a multivariate model is being used to investigate and measure changes from baseline to end-of-study.

Specific Aims:

- Implement an EHR system in two existing diabetes management clinics, focusing on integration of the EHR into clinician workflows. **(Achieved)**
- Evaluate the impact of the EHR system on clinical processes of care and patient outcomes. **(Ongoing)**
- Produce and distribute a generalizable, replicable model of care for implementing an integrated health IT system for diabetes management care throughout the United States. **(Ongoing)**

2010 Activities: The DHA continued its legal, administrative, and technical work implementing an EHR system that is integrated into clinicians' workflow at clinics in Jackson and Greenville, Mississippi. The research team met regularly via conference call throughout the year to review chart-pull progress, preliminary results, and protocols. This ongoing communication helped identify potential protocol and/or quality issues, including the discovery that some research assistants were pulling overlapping charts at the comparison sites. This discovery prompted a more strenuous review of the data, which identified the exact number of charts each clinic needed to provide in each time period to maintain the integrity of the study. Those charts were collected by year's end and the data were entered into the database. Subsequently, the database was reviewed by the co-investigator and the data were cleaned again.

The team began to prioritize variables to be reviewed based on the research questions that are being considered. Analysis has begun but results have not yet been compiled. Preliminary reports are being run from EHR sites and are being used to test the EHR reporting process.

Some extenuating circumstances impacted the project timeline, requiring that a no-cost extension be utilized. The Jackson Medical Mall Internal Medicine Clinic changed ownership in August 2010. Management of the clinic now falls under Jackson-Hinds Comprehensive Healthcare, rather than the University of Mississippi Medical Center. This change in ownership limited access to the charts for a short period of time, but chart abstractions resumed shortly after. As mentioned above, all chart abstractions, including abstractions to replace duplicate charts, were completed by December 31, 2010. Notification of the change in ownership also required an institutional review board amendment be made, and a related amendment to request a HIPAA waiver to review medical records without patient authorization.

Numerous presentations on the BLUES project were made throughout the year, including; 1) a poster presentation at the Agency for Healthcare Research and Quality Health IT Grantee and Contractor Conference in June 2010; 2) a presentation of preliminary data at the American Health Information Management Association Symposium in July 2010; and 3) a presentation of updated data at DHA's EHR-Telemedicine Summit in November 2010.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010): The project was granted a 12-month no-cost extension due to delays in data collection described above. Progress is on track to achieve all the aims and milestones set forth in the project. Below-budget spending at year's end provided the resources to maintain the project staff allocations during the extension period.

Preliminary Impact and Findings: Due to the delays in data collection with the comparison sites, analysis has begun but findings are not available at this time. Preliminary reports from the EHR sites are

being used to test the EHR reporting process.

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: Implementation and Use

* *AHRQ Priority Population*