Project Title:	Standardization and Automatic Extraction of Quality Measures in an Ambulatory Electronic Medical Record (EMR)
Principal Investigator:	McColm, Denni, M.B.A.
Organization:	Citizens Memorial Hospital District and Citizens Memorial Healthcare Foundation (CMH)
Mechanism:	RFA: HS07-002: Ambulatory Safety and Quality Program: Enabling Quality Measurement through Health IT (EQM)
Grant Number:	R18 HS 017094
Project Period:	09/07 – 08/09
AHRQ Funding Amount:	$889,681
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: Implementation and Use

Summary: This project was initiated in September 2007 and has completed the first half of the grant period. This project establishes the standardization efforts necessary for data capture of 72 of the Physician Quality Reporting Initiative (PQRI) quality measures in an ambulatory electronic medical record (EMR) system. It also demonstrates the efficiency and accuracy of using a data extraction and reporting expert to perform quality measurement in 15 primary care, certified rural health clinics and specialty physician practices operated or affiliated with Citizens Memorial Healthcare (CMH). CMH is standardizing and integrating data capture for quality of care measurement into the normal documentation of care within the EMR. The standardization effort includes both tools and processes for physician documentation, medication prescription ordering, and collection and recording of allergies. Workflow analysis is being performed to examine existing processes and to design new, standard processes for implementation. Proven adoption strategies are also being used to assist providers in learning and adapting to the changes in processes. The research also includes a measure of the number of consensus quality measures that can be captured in "extractable" formats from the ambulatory EMR and a comparison of the automatic data extraction with the G-code quality reporting method currently used by CMH. The evaluation includes comparisons of before and after standardization of tools and processes, and comparisons of both methodologies used simultaneously in a standardized environment.

CMH's EMR vendor partner is Certification Commission for Healthcare Information Technology (CCHIT) certified LSS Data Systems. LSS collaborates with Zynx Health, Inc., on evidence-based medicine and content delivery to promote quality measurement. The Institute for Health Metrics (IHM) is CMH's expert quality extraction vendor.

Specific Aims

- Establish the standardization efforts that will need to be adopted by vendors and their ambulatory clients in order to facilitate access to quality measures. **(Ongoing)**
- Demonstrate the efficiency and accuracy of utilizing an expert data partner and extraction tools to automate quality measurement as compared to the abstraction and G-code method by analyzing the accuracy and cost associated with both forms of quality measurement and reporting. **(Ongoing)**

2008 Activities: The new design for care documentation includes changes to care documentation, health maintenance, medication reconciliation and prescriptions, allergy capture, and ambulatory care ordering processes. Allergy tracking was converted from a system in which allergies were manually maintained

and linked to a new version of allergy maintenance where First Data Bank's database will update the allergies and links to medications quarterly. To perform the conversion, all national drug code (NDC) identifiers were required to be updated. The software provider is developing two health maintenance functionality changes to allow users to document the reason/exclusion for "skipping" a recommended test or treatment and to enter numeric lab results obtained from outside the CMH system for health maintenance. Configuration and testing of ambulatory ordering processes continue. Creation of favorite lists, pick lists, and order groups have been developed to streamline physician ordering during a visit. Training of clinicians on the new processes began in September, and it is anticipated that training will continue throughout the project timeline to achieve full utilization of the system. The Institute for Health Metrics has automated nightly data extraction from the CMH system. Database setup has been expanded to include all types of extracted data including the custom queries relevant to PQRI exclusion and the initial monthly report design. Coding for quality measures continued throughout the year to use the abstraction method as a comparison to the extraction method. The comparison of methods will begin after the new care design is fully implemented; the data mapping, validation, and extraction has begun. In addition, PQRI measures to be extracted have been updated for the added and discontinued 2009 measures. Finally, the development of a PQRI toolkit with categories of measures is underway. The toolkit will allow physician practices to rapidly implement and revise quality measures following a proven format.

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

Selected Outputs

McColm D. Automated Quality Data Extraction and Analysis. MUSE (Medical Users Software Exchange) International Conference, May 2008.

AHRQ 2008 Annual Conference presentation: Enabling Quality Measurement through Health IT: Standardization and Automatic Extraction of Quality Measures in an Ambulatory Electronic Medical Record (EMR). (PowerPoint® File, 1.4 MB; Web Version).

Grantee's Most Recent Self-Reported Quarterly Status: The project is meeting 80 to 99 percent of its milestones.

Milestones: Progress is mostly on track.

Budget: Spending is roughly on target.