

## Colorado Associated Community Health Information Exchange

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<b>Organization:</b>	Denver Health and Hospital Authority
<b>Mechanism:</b>	RFA: HS07-002: Ambulatory Safety and Quality Program: Enabling Quality Measurement Through Health Information Technology (EQM)
<b>Grant Number:</b>	R18 HS 017205
<b>Project Period:</b>	January 2008 – June 2010, Including No-Cost Extension
<b>AHRQ Funding Amount:</b>	\$986,302
<b>Summary Status as of:</b>	June 2010, Completion of Grant

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**Target Population:** Chronic Care\*, Diabetes, Safety Net

**Summary:** The Colorado Associated Community Health Information Exchange (CACHIE) project designed, developed, and implemented an interoperable quality information system (QIS) for a collaborative network of seven community health centers (CHCs). The system permits real-time, synchronous quality reporting to inform patient care, quality interventions, health policy, and advocacy efforts. The QIS is foundational in nature, ultimately supporting many types of quality and safety analyses. The system compiled data elements from disparate electronic health record (EHR) systems into a common standardized data warehouse and built business intelligence programming to generate meaningful quality measures and reports at the patient, physician, practice, and population levels. The Certification Commission for Health Information Technology-certified pilot EHRs used in this project were NextGen and GE Centricity. An initial goal of the project was to support the development of a custom diabetes template to be integrated into the EHRs. The template content was to be jointly developed to allow the CHCs to document the information necessary to optimize the care of diabetic patients and report on quality processes and outcomes. A template for a second disease or condition was then to be developed based on the CHC needs and the learning experience from the diabetes template.

The project team worked with clinicians to develop consensus on the quality measures that would be required for diabetes and tobacco cessation reporting, along with the specification of those measures. They also gathered ancillary information that allows reports to be actionable for quality improvement. Although some CHC physician leaders had concerns regarding the need for templates in clinical care and the impact of template use on workflow, others were working on template development independent of this project. Due to the fact that the most active sites already had diabetes templates in place, the project did not take on the goal of template development. Baseline reporting and benchmarking, available via the QIS, assisted in identifying and supporting the need for future templates. Clinical reporting allowed providers and practices to “question the data,” a process required to uncover areas where guideline, appropriate care is not uniformly delivered. In circumstances where there was inaccurate or incomplete documentation, data extraction was more difficult or even impossible due to non-standard coding and storage.

The project team worked to establish a replicable process for quality report measurement and actionable report development in other clinical domains, using diabetes as the prototype. Clinicians and technical support staff shared the goals of creating and implementing a standard, efficient process for building

consensus around metrics and their definitions; documenting functional requirements; and sharing the lessons learned from quality improvement initiatives.

The QIS system standardized data using emerging national standard vocabularies. The system supports: 1) identification of best practices; 2) establishment of appropriate CHC benchmarks; 3) development, implementation, and evaluation of targeted quality improvement interventions; 4) use of clinical decision support systems; and 5) promotion of public policies to improve health and health services to low-income populations.

### Specific Aims:

- Obtain detailed business and technical requirements for development of: 1) a flexible, evidence-based, clinical template system that interoperates with commercially-available EHRs and 2) a timely and efficient quality information reporting system that aggregates and integrates multiple data sources within seven CHCs. **(Achieved)**
- Develop a system for reaching consensus among various CHCs on diabetes quality and actionable report measures. **(Achieved)**
- Extract data from two disparate EHRs, standardize to nationally-recognized vocabularies, and import into a shared data warehouse. **(Achieved)**
- Implement and deploy a business intelligence tool for self-service and static reporting. **(Achieved)**
- Guide, support, and evaluate each CHC practice to build capacity and monitor associated costs as they independently (i.e., without vendor support) implement an evidence-based guideline template. **(Not Achieved)**
- Evaluate the usability, utility, accuracy, and best methods for incorporating quality measure reporting as a feedback mechanism to providers and practice managers. **(Not Achieved)**

**2010 Activities:** The CACHIE project team worked to map and extract the required clinical data from the disparate EHRs, design and build the data warehouse and data marts, and select a business intelligence tool. In addition, the project team engaged with clinician leaders regarding quality measure development and detailed specifications about their implementation. White Cloud Analytics (WCA), a business intelligence firm that has expertise in the building of data cubes to support pre-designed and ad hoc reporting, provided the co-investigator team with an assessment of the database model's ability to support the desired analytic functions of the QIS. WCA provided report writing training to the CACHIE investigators, so they might better understand the nuances of data cube design to support queries. However, further cube building by WCA was not economically feasible. Standardized quality reporting for diabetes and tobacco cessation were accomplished, along with the creation of patient-tracking reports to supplement the quality reports. Project team meetings with the Colorado Department of Health Care Policy and Finance helped to better define the shared value of combining claims and EHR data for patient tracking and quality reporting.

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**Grantee's Most Recent Self-Reported Quarterly Status (as of June 2010):** At the end of the first quarter in 2010, the status of aims and milestones was reported as on track in some respects, but not others. While a progress report was not submitted at the end of the second quarter, the grantee retrospectively described progress as mostly on track.

**Impact and Findings:** The final report for this project is currently under review. Findings will be

disseminated upon approval of the final report.

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

**Business Goal:** Implementation and Use

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\* *AHRQ Priority Population*