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| Project Title: | Regional Approach for Transforming Healthcare Quality through Information Technology (THQIT) in Rural Settings |
| Principal Investigator: | Richards, Francis |
| Organization: | Weis Center for Research, Geisinger Clinic |
| Mechanism: | RFA: HS05-013: Limited Competition for AHRQ Transforming Healthcare Quality through Information Technology (THQIT) |
| Grant Number: | UC1 HS 016162 |
| Project Period: | 09/05 – 09/09, Including No-Cost Extension |
| AHRQ Funding Amount: | \$1,499,999 |
| Summary Status as of: | December 2008 |

Strategic Goal: To develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

Business Goal: Implementation and Use

Summary: The Regional Approach for Transforming Healthcare Quality through Information Technology (THQIT) in Rural Settings project addresses the relatively low adoption of health information technology (IT) in rural areas due to factors such as cost, culture, technical expertise, and regulatory concerns. As part of this project, Geisinger Health System has teamed up with two local hospitals to develop the Keystone Health Information Exchange (KeyHIE), a regional HIE that provides caregivers with access to region-wide clinical information, including pre-existing electronic health records (EHRs) and lab results. The implementation of KeyHIE is designed to expand health IT in rural areas, primarily by leveraging health IT investment already made to provide incremental but important functionality that supports wider access to information, communications, and demonstration of the value of health IT. KeyHIE and the other aspects of the regional HIE will be evaluated using the following criteria: 1) number of users accessing the regional exchange system per participating organization, 2) number of patient records accessed through the regional exchange system, and 3) analysis of surveys completed by clinicians to identify system usability concerns and determine whether clinicians are more likely to access regional information for certain patient conditions.

The implementation of a regional HIE will lead to more effective triage in rural emergency departments, better informed clinicians, and better coordination and higher quality of care. This project will also achieve the following main objectives: 1) improve access to existing clinical information by rural health care providers, 2) improve communications between primary care providers and specialists, and 3) lay the foundation for a regional network that supports information sharing among rural hospitals and providers and creates an environment that encourages the adoption of health IT.

Specific Aims

- Improve transparency and consistency across on-file medical records. **(Achieved)**
- Implement Keystone Health Information Exchange (KeyHIE), the regional HIE that provides caregivers with access to region-wide clinical information. **(Ongoing)**
- Implement Community Lab Interfaces. **(Ongoing)**
- Implement Community Portals. **(Ongoing)**
- Administer surveys and measure use of the information by clinicians. **(Ongoing)**

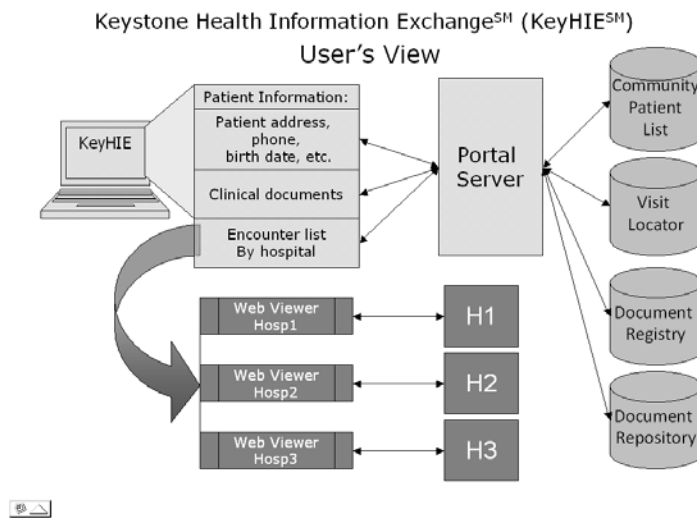
2008 Activities: In 2008, the regional HIE was expanded to 10 participating organizations, and the program to clean up duplicate medical records was successfully completed. A Community Lab Interface survey was administered to determine how well the lab interface has met the needs of the clinicians using the system. The Community Portals portion of the project also moved forward despite an initial delay. Assessments of the rate of regional exchange use, the data integrity for the Community Master Patient Index, and the Medical Record Clean Up are also continuing. Participating organizations are also continuing to collect patient authorization forms.

Technical Model:

Much of the Exchange’s design was adapted from the Connecting For Health Common Framework, based on a shared master patient index (MPI); a record locator service (RLS); and federated access to clinical information, in which each organization retains control over its data. All organizations contribute to the exchange through their registration interface to a central interface engine that passes the information to the MPI and RLS. The MPI uses a probability-based matching algorithm to decide whether the patient already has a record in the database. If so, it links the new information to the existing record.

A physician queries the RLS to see if information about a particular patient exists at other participating institutions. If so, then the requester may contact the listed institution to request the clinical records, after satisfying the access requirements of that institution.

The RLS lists the facilities where the patient has received care. If the patient has signed an authorization form at one (or more) of the facilities, the RLS will include a one-line summary of the patient’s encounter(s) at that facility, including the service performed, the name of the attending physician, and a reason for the visit. If a facility has not gotten patient authorization, the information will be limited to the date of service and the name of the facility.



If a clinician decides that viewing the information at one or more participating facilities is likely to be useful, they can click on a link to that facility and launch the Web-based EHR viewer for that organization. Access to this facility’s EHR is based on a previous agreement between the clinician and the EHR owner.

Requiring clinicians to log onto many different EHRs using different user IDs and passwords is unacceptably burdensome to clinicians. To streamline this process we implemented a single sign-on tool that allows access to each facility’s EHR without requiring a separate log-in for each EHR. (Of course the clinician must still know how to find information in each different EHR.)

New capabilities allow participating organizations to share important clinical documents with those treating the patient. Discharge and other medical summaries will enable clinicians to quickly understand a patient's medical history. KeyHIESM has developed this document exchange based on the United States Health Information Technology Standards Panel (HITSP) and standards from Integrating the Healthcare Enterprise (www.ihe.net). This document registry and repository is hosted by GE Healthcare HIE Services and currently houses discharge summaries, history and physicals, and radiology reports. The system has been designed for future access by EHR systems, including continuity of care documents (CCDs) as required for EHR interoperability certification by the Certification Commission for Healthcare Information Technology (CCHIT).

Preliminary Impact and Findings: Use of the regional exchange by providers increased slightly in the last quarter of 2008, an indication that, despite problems previously cited with use of the system, there are still enough benefits to clinicians to warrant its use. The initial assumption was that emergency departments would have the greatest need to access regional information since little is known about patients when they arrive for treatment. However, the current system is still somewhat fragmented and of limited usefulness to this stakeholder group, and they do not have time to piece together information, even though it can be done more quickly through electronic means. Thus far, numerous reasons why many clinicians choose not to electronically access information from regional data sources have been identified, and the project's approach has been revised to address many of these issues. Preliminary analysis of the Community Lab Interface also estimates that cost-savings involved with the elimination of paper lab results is approximately \$1,854.48 per month in staff time previously spent on scanning paper.

Selected Outputs

Younkin J. Ensuring Privacy and Security of Health Information Exchange in Pennsylvania. Developed with the Pennsylvania eHealth Initiative. Publication planned for early 2009.

Sample Universal Authorization Form: This is the form patients are required to sign if they want to permit their health information gathered at a given organization to be shared with other providers involved in their care.

AHRQ 2008 Annual Conference presentation: Lessons Learned: Implementing a Low-Cost Structure Health Information Exchange ([PowerPoint® File](#), 3 MB; [Web Version](#)) Bethesda, MD, September 2008.

Grantee's Most Recent Self-Reported Quarterly Status: There have been delays in the implementation of the regional information exchange at the partner hospitals, due largely to the challenge of developing appropriate inter-institutional and vendor agreements. A 1-year, no-cost extension was requested to complete the document store implementation and evaluation. The achievement of milestones and budget expenditures has been impacted by this delay in the project.

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

Budget: Spending is roughly on target.