

Project Title: Improving Rural Health Care: Implementing Innovative Integration Solutions

Principal Investigator: Sims, Thomas R., M.S.

Organization: Mt. Ascutney Hospital and Health Center

Mechanism: RFA: HS05-013: Limited Competition for AHRQ Transforming Health Care Quality through Information Technology (TQHIT)

Grant Number: UC1 HS 016142

Project Period: 09/05 – 09/08, Including No-Cost Extension

AHRQ Funding Amount: \$792,324

Summary Status as of: September 2008, Conclusion of Grant

Strategic Goal: 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: Knowledge Creation

Summary: Mt. Ascutney Hospital, a member of the Dartmouth Hitchcock Alliance, a regional network of non-profit health care providers, is a community hospital with five locations and approximately 500 employees serving a population of 30,000 patients. Historically, the hospital and its alliance partners have suffered from communication deficiencies, where inpatient and outpatient care facilities are unable to communicate with each other's information systems. Mt. Ascutney Hospital has implemented numerous information systems over the years to satisfy user efficiency, support departmental operations, track patient safety and care, and provide required reporting data to internal and external entities. Multiple billing systems are in place to accommodate payer rules for care provision activities and claims submissions. Individual departments leverage ambulatory care systems to meet their needs for documentation and work flow. The inpatient units maintain numerous systems, including paper charts, to document their care and patient education activities. Patient demographic and insurance information are maintained in each of these systems, thereby requiring the patient to be registered and have their information verified at each encounter to accommodate the numerous systems and reporting requirements.

A proof of concept of an enhanced health information technology (IT) system was achieved as a result of an Agency for Healthcare Research and Quality planning grant (RFA HS04-010, grant P20 HS14896) awarded to Mt. Ascutney Hospital in 2004. Through this proof of concept, the software and technology that supports this solution without the need to replace existing information systems was extensively tested and selected for its user customization features, quick time to go-live, low cost of sustainability, and user defined database and cross-platform capabilities.

The project was divided into three year-long phases. First, implement the Provider Portal and the integration of data from two primary systems, the hospital information system (HIS), and the clinic electronic medical record (EMR) system, using a single sign-on and synchronized data. Second, integrate data from the picture archive communicating system (PACS) system and data retrieved from the portal, and integrate the Dartmouth Hitchcock Medical Center Clinical Information System (CIS) data and single sign-on to the CIS. Finally, evaluate, implement, and integrate other key internal and external systems deemed appropriate for the display and synchronization of data.

Specific Aims

- Achieve interoperability of critical and disparate internal and external legacy information systems to reduce redundancy of patient registration activities at each encounter. (**Achieved**)

- Provide a single view of critical user- and enterprise-defined data elements that support the continuum of care and organizational operations. **(Achieved)**
- Eliminate or reduce the costs and number of vendor-developed and -supported interfaces. **(Achieved)**
- Provide patient context, single sign-on access to multiple systems to reduce the amount of time and keystrokes required to login and search for additional patient information prior to or during a patient encounter. **(Achieved)**
- Facilitate efficient reporting of patient management and care outcomes. **(Achieved)**
- Implement a strategic information system that is parallel to other active or planned initiatives and can send and receive electronic data when necessary. **(Achieved)**
- Provide internal and remote read-only access to the provider portal. **(Achieved)**
- Incorporate an information security model consistent with systems and organizational policies for user access to data. **(Achieved)**

2008 Activities: In 2008, the third phase of the project was undertaken—the identification and incorporation of additional internal and external systems. This stage was modified to incorporate the PACS system that went live in October 2007. Work to identify rules for data synchronization continued with a minimal set of demographic data identified as feasible to update automatically across systems. Data feeds to the Blueprint CIS were initiated and tested to provide real-time admit, discharge, and transfer data, along with patient laboratory results to the CIS repository, as identified through the Blueprint project companion guide. This phase was also identified as the period to implement Secure Socket Layer security to enable Web-based access to the portal without the need for virtual private network connectivity.

Impact and Findings: The integration engine is an organizationally maintained utility that allows message development, transport, filtering, and tracking. When the basic legacy interfaces were initially routed through the engine, it eliminated any questions of where interface errors originated. The engine allows the identification and capture of errors within message feeds and can hold them until administratively corrected, or automatically correct them and continue their transmission. It also allows for the redirection and reformatting of existing feeds to be sent to additional receiving locations. User adoption is a key consideration for the success of health IT implementations. The existing impact on user adoption is the large number of information exchange activities and systems that providers will be expected to access and provide information to. In Vermont, there is also a statewide medication history project where information is provided by payers and pharmacies in a registry system. The CIS will provide information on chronic disease patients for provider decision support. Internal systems require provider interaction to document care resulting from their patient encounters. These competing projects employ the same metrics for user adoption and maintain expectations that providers will access those systems. Providers wonder how they can be expected to interact with all of these systems during patient encounters. Worse, they wonder what, if any, implications there will be if they do not access a system where pertinent information resides and an adverse event could have been prevented if those systems had been accessed. From a sustainability perspective, the only ongoing cost to Mt. Ascutney hospital for the products implemented for this project is an annual support fee that can be purchased at the individual organization's discretion.

Selected Outputs

This project has no outputs to date.

Grantee's Most Recent Self-Reported Quarterly Status: This project has been completed. Integrated health information systems have gone live at several sites, and because of favorable licensing contracts, these projects appear sustainable. Although substantive results have not been returned in the areas of

provider satisfaction and billing efficiency due to insufficient data, early indications suggest that implementation was a success.

Milestones: Progress is mostly on track.

Budget: On target.