

Project Title:	A Rural Healthcare Information Technology Cooperative to Promote Clinical Improvement
Principal Investigator:	Huck, Jacqueline, R.N., M.P.H.
Organization:	Rural Healthcare Quality Network (RHQN)
Mechanism:	RFA: HS04-012: Demonstrating the Value of Health Information Technology (THQIT)
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Summary Status as of:	August 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: Implementation and Use

Summary: This completed study was intended to foster awareness and use of clinical practice guidelines for acute myocardial infarction (AMI) and community acquired pneumonia (CAP) in rural hospitals in Washington State. It adapted AMI and CAP guidelines to make them more relevant to rural practice, examined clinicians' attitudes and practices regarding best practice guidelines and information technology (IT) for quality improvement in small rural hospitals, and evaluated the use and impact of an Internet-based IT intervention designed to improve adherence to guidelines. Data were gathered from nurses and physicians at the participating hospitals through in-person interviews and Web and mail surveys. The interviews and questionnaires included items about leadership support for quality improvement, hospital environment, attitudes toward best practice guidelines, use of the computer to perform professional tasks, and computer literacy. Most staff felt that best practice guidelines improve the quality of care. Guidelines were perceived as improving response time; serving as reminders, especially in instructing temporary staff or for treating conditions rarely seen in rural hospitals; and delivering evidence-based care. Nurses, in particular, perceived potential increased autonomy through the use of clinical practice guidelines that would include standing orders and protocols for actions that they could perform without previous physician approval. Each participating hospital was invited to send staff to a quality improvement workshop hosted by the Rural Healthcare Quality Network (RHQN). These workshops were interactive and presented in a "train-the-trainer" format. Once the Rural Health Information Technology Consortium (RHITC) Web site had been completed, each participating hospital received training via videoconference on how to access the site, complete data entry, initiate online discussion, retrieve evidence-based articles, complete self-education tests, and obtain free Continuing Medical Education (CME) and nursing education credits. They were also trained in retrieving their data reports, which were completed by the subgrantee, the American Institutes for Research (AIR).

Specific Aims

- Design a Web site that would serve as an intervention to improve adherence to best practice guidelines. **(Achieved)**
- Develop a survey to measure practitioner attitudes regarding best practices. **(Achieved)**
- Implement educational programming to improve knowledge of and adherence to best practices for AMI and CAP. **(Achieved)**

- Evaluate the process and outcomes of the intervention on the knowledge, attitudes, and behavior of nurses, physicians, and hospital administrators working at critical access hospitals in Washington. (**Achieved**)

2008 Activities: All hospitals began Quality Improvement plans. Data were collected from all sites and analyzed. It appeared that, while a number of hospitals participating in this study were not fully engaged or were not able to implement quality improvement initiatives in their institutions for a variety of reasons, there were several hospitals that were committed to overcoming the barriers they faced. These hospitals proceeded with pursuing quality improvement and demonstrating excellence in the care they provide to their patients.

Preliminary Impact and Findings: Of the four components of the intervention Web site—library resources, training resources, staff-to-staff communications, and the repository of quality measures data on guidelines adherence—hospital staff were mainly interested in the data repository. After intervention, there were substantial, statistically significant ($p < 0.05$) improvements in several selected quality measures. These results were based on comparing pre-intervention performance to post-intervention performance for overall AMI and CAP opportunity scores as well as individual guidelines. The amount of improvement varied by region within the State of Washington (east vs. west), but both regions saw substantial improvements. Improvement was measured using ‘opportunity’ scores—that is, the number of instances where the guidelines were met, divided by the total number of opportunities to apply the guidelines. The Overall AMI opportunity score increased by 16 percentage points (52 percent to 68 percent) among eastern hospitals, and 5 percentage points (55 percent to 60 percent) among western hospitals. Both regions experienced significant improvements in the rate at which they met several individual AMI guidelines, including giving aspirin and beta blockers at arrival, and the eastern hospitals improved the rate at which they gave an EKG within 10 minutes and the frequency of collecting cardiac enzymes.

The overall CAP opportunity score increased by 25 percentage points (from 67 percent to 92 percent) among eastern hospitals, and 9 percentage points (from 79 percent to 88 percent) in the western hospitals. By the post-intervention period, both regions were meeting the oxygenation assessment guideline for 100 percent of patients. Across both regions combined, these hospitals significantly improved the percentage of eligible patients receiving smoking cessation counseling (from 25 percent to 77 percent) and the percentage of eligible patients receiving influenza vaccinations (from 1 percent to 22 percent); and the eastern hospitals significantly increased the percentage of eligible patients receiving Pneumococcal vaccinations (from 1 percent to 20 percent).

Process changes such as creating or modifying standing orders sets and treatment protocols occurred in most of the participating hospitals and are expected to have a greater impact on improving quality in the future. Thus, with attention and persistence, many of the identified barriers can be overcome in critical access hospitals with limited resources. Due to a number of delays, dedicated efforts by hospitals to improve performance on the selected quality measures did not truly start until the final 9 to 12 months of the grant.

Barriers remain for the widespread use of IT and the implementation of clinical practice guidelines in small rural hospitals in Washington State. These barriers are related to attitudes toward and experience with guidelines and the use of computers in clinical care. Although improving, there remains a significant opportunity for further improvement. It is recommended that only those hospitals that are willing to commit the energy and resources needed to participate in national or statewide research projects be included in research projects with a quality improvement component.

Selected Outputs

Tool: Clinician Survey regarding attitudes toward best practices for AMI and CAP, as well as the role of computers in the workplace.

Measures: Adapted measures for AMI and CAP best practice guidelines suitable for small rural hospitals.

Web portal (Sharepoint) for QI focused on AMI and CAP.

Grantee's Most Recent Self-Reported Quarterly Status: This project has been completed. Although intervention did not lead to implementation of best practice guidelines to the desired extent, some cultural and procedural changes were made.

Milestones: Progress is mostly on track.

Budget: Spending is roughly on target.