Tennessee Rural Hospital Patient Safety Demonstration Project

Overview

The Tennessee Rural Hospital Patient Safety Demonstration Project has enhanced the capabilities of small rural hospitals to improve patient safety. The program focused on patient safety areas that are significant to rural hospitals and sensitive to their structure and processes.

Health care quality improvement in the area of patient safety is critical to the viability of rural hospitals. National hospital patient safety initiatives promoted by purchasers and others do not always consider the unique characteristics of small rural hospitals. BlueCross BlueShield of Tennessee partnered with the Tennessee Hospital Association in this demonstration project to test the feasibility, cost and impact of implementing a set of patient safety interventions in rural hospitals. The innovative collaborative program maximized the combined resources and knowledge of the program participants to develop an organizational structure to promote patient safety improvements in rural hospitals statewide.

The Tennessee Rural Hospital Patient Safety Demonstration Project is a collaborative effort involving multiple stakeholders including the Tennessee Hospital Association, eight small rural hospitals, the Tennessee Quality Improvement Organization (Q-Source), and the rural health research team from the University of Southern Maine, University of Minnesota and University of North Dakota, as well as other technical consultants.

Project Activities

This project began January, 2005 and will be completed in April of 2007. The goal of the program is to improve patient safety in small rural facilities by strengthening their capacity to implement priority patient safety interventions. The project achieved this goal by establishing, demonstrating and evaluating a process and methodology for assessing the status of hospital patient safety programs and for providing technical assistance tools and resources to assist hospitals in the implementation of organizational and clinical changes designed to prevent errors and improve safety. The Tennessee Rural Hospital Patient Safety Demonstration Project tested the feasibility, cost, and impact of implementing a set of patient safety interventions within a group of eight rural hospitals.

Participating hospitals completed a self-assessment tool to identify and prioritize rural hospital patient safety interventions. These hospitals are now implementing three patient safety interventions: assessment of patient safety culture and implementation of a safety culture plan; development and implementation of emergency room protocols; and use of personal digital assistant devices (PDAs) by clinicians at the point-of-care, to decrease medication errors. The research team evaluated the short-term impact of implementation on the organizational and clinical systems of the participating facilities. It also identified critical prerequisites and tools necessary for implementation of effective patient safety programs in small rural hospitals.

A consortium of university-based rural health research centers identified a set of patient safety interventions that a majority of small rural hospitals could readily implement and that rural
hospitals, purchasers, consumers and others would find relevant and useful.\textsuperscript{1} The study identified a set of 26 priority interventions based on a comprehensive review of the literature, analysis of secondary data, and deliberations of a national, expert panel, as well as survey of rural hospital administrators and clinical quality improvement staff in 29 hospitals.

Administrative teams from each of the participating hospitals in the Tennessee Rural Hospital Patient Safety Demonstration reviewed these priority interventions, and through a self-assessment process, ranked these interventions in terms of correct status of implementation, internal value, external value, and feasibility.

\textit{Three interventions were chosen from this ranking process.}

\textbf{Patient Safety Culture Intervention}

\textit{Goal: Develop and implement a comprehensive patient safety program that sets measurable objectives, provides patient safety educational initiatives for employees, and includes a system for reporting and responding to errors. The system should include protocols for root cause analysis, and an annual report discussing errors, the response to errors, and the programs initiated to prevent future errors.}

All rural hospitals should promote a culture of safety, and develop and implement a comprehensive patient safety program. The hospital board should receive, on a regular basis, patient safety information that shows benchmarks and trends over time.

Hospitals participating in the demonstration project completed three rounds of the AHRQ Patient Safety Culture Survey tool over the project period. The survey is intended to help each hospital assess the extent to which it emphasizes the importance of patient safety, facilitates open discussion of error, encourages error reporting, and creates an atmosphere of continuous learning and improvement. Each participating hospital learned to use the tool, database, and results to measure the impact of safety culture improvement activities.

After each round of the surveying, the results were shared at both the individual hospital and the aggregate project level and compared to the AHRQ benchmarks. Presentation of the results was modeled at the group level and then each hospital shared their individual results with their boards, staff and community. The hospitals developed action plans based on the areas of weaknesses identified in the survey. At monthly conference calls and quarterly face-to-face meetings, project participants shared their activities and resources as they worked on various improvement activities. The Tennessee Hospital Association, Q-Source, Blue Cross Blue Shield of Tennessee and the research team all provided technical assistance, resources, and structure to this process.

Significant improvement from baseline occurred in 10 out of 12 of the dimensions of patient safety culture in the AHRQ survey. In particular, the group focused on improvement activities such as error/event reporting, non-punitive response to error, and open communication. The hospitals embarked on new quality and safety improvement techniques such as leadership walk-arounds, medication management tools, hand-off reviews, patient safety staff trainings and orientation sessions, and new strategies to increase event reporting and feedback. The hospitals also took their new focus on patient safety directly to the community through newspaper articles and information to patients and families. The results of the AHRQ survey are presented on page 3.

## AHRQ Culture Survey
Tennessee Hospitals

### Comparison of Composite Scores for 12 AHRQ Dimensions

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>March 2005</th>
<th>Dec 2006</th>
<th>AHRQ Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Perceptions of Safety</td>
<td>56%</td>
<td>69%</td>
<td>56%</td>
</tr>
<tr>
<td>Frequency of Events Reported</td>
<td>51%</td>
<td>69%</td>
<td>52%</td>
</tr>
<tr>
<td>Supervisor/Manager Expectations &amp; Actions Promoting Patient Safety</td>
<td>72%</td>
<td>80%</td>
<td>71%</td>
</tr>
<tr>
<td>Organizational Learning, Continuous Improvement</td>
<td>76%</td>
<td>77%</td>
<td>71%</td>
</tr>
<tr>
<td>Teamwork Within Areas</td>
<td>68%</td>
<td>83%</td>
<td>74%</td>
</tr>
<tr>
<td>Communication Openness</td>
<td>50%</td>
<td>67%</td>
<td>61%</td>
</tr>
<tr>
<td>Feedback &amp; Communication about Error</td>
<td>53%</td>
<td>68%</td>
<td>52%</td>
</tr>
<tr>
<td>Non-punitive Response to Error</td>
<td>35%</td>
<td>50%</td>
<td>43%</td>
</tr>
<tr>
<td>Staffing</td>
<td>46%</td>
<td>52%</td>
<td>50%</td>
</tr>
<tr>
<td>Hospital Management Support for Patient Safety</td>
<td>72%</td>
<td>78%</td>
<td>60%</td>
</tr>
<tr>
<td>Teamwork Across Hospital Areas</td>
<td>60%</td>
<td>64%</td>
<td>53%</td>
</tr>
<tr>
<td>Hospital Handoffs &amp; Transitions</td>
<td>48%</td>
<td>49%</td>
<td>48%</td>
</tr>
</tbody>
</table>

*Significantly different from March 2005 survey*

Use of Information Technology at the Point-of-Care through Personal Digital Assistant Devices (PDA’s) Intervention

Goal: Implement 100% use of PDA devices by prescribers.

Essential drug information should be readily available in useful form and considered when ordering, dispensing, and administering medications. Access to computerized drug information systems should include current protocols, guidelines, dosing scales and checklists for high-alert drugs, and information about herbal and alternative medicines.

In this intervention activity, participating hospitals identified appropriate clinical staff to receive a PDA device and requisite training. Project funds covered the cost of the 130 PDAs, software, training, and technical assistance. These devices were pre-loaded with a drug database (Epocrates) software program that enables the user to quickly check drug information such as dosing, drug-drug interactions, adverse reactions, as well as formulary and pricing information. In addition, the software provides many clinical tools including diagnostics such as lab reference values, clinical tables and guidelines, symptom assessment, disease and condition compendium, medical calculators and tools. A team of research staff, a key health care provider association and medical librarians from a State University trained the PDA users. Ongoing technical assistance was provided, including site visits, technical assistance conference calls, and ‘listserve’ communications. In the participating rural hospitals, the enthusiasm for this intervention has been quite high and project staff is very encouraged by the willingness of clinicians to embrace this new technology. For many physicians in the project, this was their first experience with clinical support software, and for some, a ‘gateway’ use of technology. Following the success of the initial training, project funds were tapped to train a second round of PDA users, primarily nursing staff. The hospitals reported significant interest in point-of-care technology via handhelds at nursing stations, hospital pharmacies, emergency departments, off-site clinics, and at the bedside.

Clinical researchers at the Brigham and Women’s Hospital in Boston2 surveyed over 3500 PDA users with Epocrates software. Improved patient care outcomes through prevention of adverse drug events and medication errors was reported in the survey. The Tennessee project researchers obtained permission to use the same survey instrument to measure the impact of the PDA intervention with the newly trained physicians. The results of the Tennessee survey indicate a significant positive impact of the intervention with increases in practice efficiency, provider knowledge, improved drug-related decisions and preventable adverse drug events. Results are highlighted below:

- Majority (71%) of the clinicians reported not using a PDA prior to the project period.
- Half of the clinicians now report using Epocrates at least twice a day.
- 95% reduced their use of prior sources of information (primarily text references).
- Information found more quickly – over 80% said that they were able to locate information in a minute or less. Traditional sources of information required significantly more time and 44% reported saving at least one minute per patient encounter.
- Increased clinician drug knowledge base (83%).
- Clinicians reported improved ability to inform patients (93%).
- 89% felt that Epocrates contributed to improved drug-related decisions.
- Use of the software affected clinical decisions at least once per week (75%).

• At least one Adverse Drug Event was prevented per week (65%).
• 9 out of 10 providers expected to increasingly incorporate Epocrates into their practice workflow.

Emergency Room Protocols Intervention

Goal: Ensure that emergency room care protocols (e.g., standardized protocols for trauma, drug therapy for cardiovascular incidents, and antibiotics for pneumonia) are readily accessible and consistently used with pre-established links to trauma experts and other specialists for real time consultation.

Protocols should be updated and accessible for consistent application in emergency departments. Electronic copies may be made available on the hospital computer network or low-tech option such as color-coded, laminated copies.

Participating hospitals completed an inventory of current ER protocols in their own facilities and the QIO compiled the inventory on a CD for all participants to share. The QIO provided technical assistance for this intervention through sharing of best practices and coaching of intervention plans and activities. All eight facilities worked in their own teams to decide which protocols to adopt, adapt, approve or implement. A number of the hospitals indicated some resistance to change from nurses and physicians, but found “buy-in” through the review process and ED staff “champions”. Participants reported substantial benefit in standardizing treatment regardless of shift in order to reduce staff variances, improve patient flow, hand-offs and transfers. It was noted that protocols become even more necessary at small facilities as the frequency of certain clinical events is less likely. Staff education concerning the protocols and an ongoing update process were two areas addressed. As small rural hospitals, coordination with parent hospital system protocols and transfer hospitals takes significant effort to achieve. Many of the project hospitals intend to address this important next step. Emergency department protocols are a long-term investment in patient safety and improvement and the collaborative process with hospital systems, emergency medical services, and transfer hospitals.

Evaluation of Project Process

The overall evaluation of the demonstration program will provide a detailed summary of the planning and implementation of the patient safety interventions at each rural hospital participating. The evaluation will also document the activities and perceptions of key staff members. Each hospital completed a phone interview at the onset of the interventions and toward the end of the implementation period with the CEO and key staff responsible for patient safety, to collect information on:

• Prior hospital involvement with patient safety activities
• Reasons for hospital participation in program
• Description of how the interventions were selected and action steps taken to support their implementation
• Key factors that facilitated or hindered progress
• Technical assistance necessary to support the implementation process (e.g., from Quality Improvement Organization (QIO), hospital association, etc.)
• Level of involvement of medical, nursing, and administrative staff with patient safety interventions
• Issues related to the measurement, collection, analysis and reporting of relevant patient safety data
• Initial impact on organizational and clinical care processes
• Sustainability of institutional capacity developed in patient safety area
• Level of networking with other participating hospitals
• Lessons learned (including challenges and successes) and future plans related to patient safety
• Advice for other rural hospitals considering participation in patient safety activities

Project Evaluation

Phone interviews were completed with key participants from the Health Care Provider Association, QIO and other relevant entities. In addition, on-site visits at three of the participating hospitals were completed to collect more detailed information (e.g., cost, staffing, MIS implications, link to hospital strategic plans) on the implementation of the specific patient safety interventions at each of the hospitals. For each of the hospitals visited, a written case study will provide details on the implementation of specific patient safety interventions. These case studies will be included in the final report to be disseminated broadly to rural hospitals and policymakers throughout the U.S. who are interested in patient safety interventions.

Early Lessons Learned

• Providing project and process structure, transparent action steps, and attention to timeline were keys to the success of the initiative.
• The size of the working group was large enough to gain economies of scale, yet small enough for productive and collaborative efforts.
• Financial grant support enabled technical assistance, implementation of new technology, and group processes.
• Small rural hospitals can produce significant change in short periods of time.

The Tennessee Rural Hospital Patient Safety Demonstration Project is designed for replication in rural hospitals in any state. Dissemination activities are underway through regional, state and national forums and several publications are in development. The Demonstration Project has forged some unusual alliances. Blue Cross Blue Shield of Tennessee has promoted the cooperation and open exchange of ideas between the participants of the project. The participation of Blue Cross Blue Shield in this program demonstrates how health plans in other states can leverage relationships with providers, hospital associations and quality organizations to promote hospital patient safety improvement through collaborative initiatives.