

**Project Title:** Tulare District Hospital Rural Health Electronic Medical Record Consortium

**Principal Investigator:** Davison, Rod

**Organization:** Tulare Local Healthcare District

**Mechanism:** RFA: HS04-011: Transforming Health Care Quality through Information Technology (THQIT)

**Grant Number:** UC1 HS 015096

**Project Period:** 09/04 – 09/08, Including No-Cost Extension

**AHRQ Funding Amount:** \$1,500,000

**Summary Status as of:** September 2008, Conclusion of Grant

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**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

**Business Goal:** Implementation and Use

**Summary:** At the time the grant was awarded, Tulare District Hospital (TDH), operated by the Tulare Local Healthcare District, was a 112-bed acute care hospital, employing approximately 500 staff members. Annually, the hospital cared for 27,600 emergency room visits, 59,000 outpatient visits, and 2,300 outpatient surgical procedures. Of the hospital's patients, 66 percent are on Medicaid or Medicare, and 12 percent are uninsured. The service area of the hospital is a primary care Health Profession Shortage Area (HPSA) and serves a medically underserved population (MUP). TDH is the only hospital in Tulare and the surrounding rural areas. Prior to commencement of the project, Tulare District Hospital had established an extensive technology infrastructure, consisting of a gigabit backbone network (3Com Core and Switches); a new AS/400 supporting the information technology (IT) applications already in place; six IBM X-series servers that drove all the personnel files, the Intranet, e-mail, and various software applications; Novel and UNIX servers for clinical systems for the pharmacy and the lab; and additional servers for a remote radiology system and the new cardiac catheterization lab. Hospital leadership recognized that resistance to change was a potential obstacle to the successful implementation of the electronic medical record at the hospital. Another obstacle faced by TDH was the training of staff members in the use of the IT system. Surveys of staff were conducted in June 2005, summer and fall 2007, and summer 2008; the initial survey provided an assessment of staff attitudes toward computer technology and its role in health care. Subsequent surveys focused on staff assessment of specific IT modules with the intention of surveying staff several months after the introduction of each module. The staff survey in summer 2007 assessed the current charting methods and staff's expectations for the planned Patient Care Documentation module. In fall 2007, the staff were asked about their experiences with the electronic medication administration record (eMAR) module. Finally, in summer 2008 staff were asked about their experience with the recently installed Patient Care Documentation module. Quantitative data and methods were used to understand the impact of the IT system on medication errors, patient safety, and hospital finances.

### Specific Aims

- Successfully deploy a fully integrated EMR system using proven health IT practices to reduce medical error and improve overall patient safety at TDH. **(Achieved)**
- Provide private physicians and local clinic physicians the opportunity to use computerized provider order entry (CPOE) to reduce medication errors. **(Achieved, though participation in the system was low)**

- Provide private physicians and clinics in the hospital's service area the opportunity to access patient information remotely via a fully integrated EMR. **(Ongoing\*)**
- Evaluate and analyze data resulting from health IT implementation at TDH in order to assess the extent health IT contributes to measurable and sustainable improvements in patient safety and quality of care in rural hospitals. **(Achieved)**

*\* This aim was not completed prior to scheduled conclusion of the grant (September 2008) yet, as other sources of funding have been secured, it is still targeted for completion.*

**2008 Activities:** All major system components had been launched by the end of 2007. In 2008, data collection was finished, staff surveys were completed, and results were analyzed.

**Preliminary Impact and Findings:** Tulare District Hospital had a number of successes with the ambitious IT project. Many IT systems were implemented in a short period of time and on a limited budget. Larger hospitals have invested much more money only to abandon the investment. The difficulties faced by TDH during the grant arose for four reasons. First, the implementation plan may have been too aggressive for the time period of the grant. Second, the implementation team did not have consistent clinical leadership or staff input. Third, the executive leadership of the hospital completely changed, and the hospital faced one year of interim leadership during the grant. Finally, the vendor did not have fully functional products in the timeline promised. While health IT has promised to improve the quality of patient care, research supporting this potential is limited. At TDH, there is no evidence that the IT system, as implemented thus far, has had any benefit to patients. In fact, there is some indication that the disruption caused by the Patient Care Documentation system, combined with the near-simultaneous firing of the Chief Nursing Officer, may have temporarily led to more patient care errors. As TDH moves forward, it is important for leaders to develop strategies to ensure a smooth transition to an electronic medical record. One key strategy will be to increase nurse staffing during the implementation period, so that patient care activities are not deferred while staff deal with the demands of learning the new system. The experience of this first grant provides guidance specific to TDH about how to move forward over the next several years.

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### **Selected Outputs**

Spetz J, Keane D. Evaluating success: strategies and challenges for understanding IT implementations in a rural hospital. *J Healthc Inf Manag*, 2009 Winter;23(1):62-7.

eMAR Survey. Keane D, Spetz J. Unique survey developed for this study. 2007. San Francisco, CA: University of California, San Francisco.

Patient Care Documentation Follow-Up Survey. Keane D, Spetz J. Unique survey developed for this study. 2008. San Francisco, CA: University of California, San Francisco.

Patient Care Documentation Training Survey. Keane D, Spetz J. Unique survey developed for this study. 2007. San Francisco, CA: University of California, San Francisco.

Survey of Staff Readiness to Adopt Health IT. Keane D, Spetz J. Unique survey developed for this study. 2005. San Francisco, CA: University of California, San Francisco.

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**Grantee's Most Recent Self-Reported Status:** The grant has been completed. Most major system components remain in place, although their level of use varies. TDH is interested in continuing to develop and use EHRs in the future. Some project aims were infeasible due to technology constraints. The EHR

project did not demonstrably improve medical errors or hospital finances, but it has received positive feedback, and the improvements in care may manifest once the system is more familiar.

**Milestones:** Progress is mostly on track.

**Budget:** Spending is roughly on target.