

## North Mississippi improves trauma, neurosurgery patient outcomes by using Quality Manager



### ***Baldrige Quality Award winner reduces LOS, increases staff satisfaction, produces savings of \$1.4 million for Medicare patients***

***Using Quality Manager and the philosophy of “care-based management of cost,” North Mississippi Medical Center thoroughly investigated its trauma and neurosurgery patient populations, identified root causes, and engaged a team of clinicians across departments to improve processes and treatment protocols. Net results included improved patient outcomes, increased staff satisfaction, reduced length of stay (LOS) and a savings of more than \$1.4 million for Medicare patients alone.***

*“Through the data provided in Quality Manager, I was able to partner with physicians and clinical staff in the trauma and neurosurgery departments. We worked as a team to identify areas for improvement and make treatment and process changes based on real patient data. Now, having witnessed this successful collaboration, other teams of clinicians are proactively enlisting the Quality Department in the same, constructive way.”*

**Bill Ricketts, RN**  
**Surgical Services Outcomes Manager**  
**North Mississippi Medical Center**

With 650 beds, North Mississippi Medical Center is the flagship of the third-largest rural healthcare system in the United States. Headquartered in Tupelo, North Mississippi Health Services is a diversified regional healthcare

organization that serves 22 counties in north Mississippi and northwest Alabama. Recognized by leading industry organizations for its quality patient care, North Mississippi has received numerous awards including the 2006 Malcolm Baldrige National Quality Award in the healthcare category. Other awards include the 2006 Nightingale Award, Hospital of the Year (100 beds or more) in Mississippi; 100 Most Wired Hospitals and Health Systems: 2002–2007; VERISPAN Top 100 Integrated HealthCare Network: 2002–2007; H&HN 25 Most Wireless: 2004–2006; American Hospital Association McKesson Quest for Quality Prize® in 2005.

A Premier customer for more than seven years, North Mississippi leverages the reporting tools in Quality Manager to collect, aggregate, and analyze Joint Commission/CMS Core Measure data, identify areas for clinical outcomes improvement, and implement process changes that directly impact patient care.

#### **UNCOVERING THE ROOT CAUSES OF OUTCOMES**

During a routine review of Medicare data, Bill Ricketts, a registered nurse and surgical services outcome manager, discovered that North Mississippi’s craniotomy patients had significant variances in outcomes. Intrigued by the data and the pending opportunity to improve efficiencies,

**“I HAVE ALWAYS BEEN A PROponent OF CARE-BASED COST MANAGEMENT AND PREMIER ANALYTICS HAS HELPED VALIDATE THE SUCCESS OF THIS PHILOSOPHY. WE ARE PROUD OF OUR REPUTATION AS A LEADING HEALTHCARE FACILITY IN THE COUNTRY AND THE DATA AND ANALYSIS WE GET FROM QUALITY MANAGER WILL ENSURE WE ARE CONTINUING TO LOOK FOR WAYS TO MAINTAIN AND GROW THIS STATURE.”**

**— KENNETH DAVIS, M.D., CHIEF MEDICAL OFFICER, NORTH MISSISSIPPI HEALTH SERVICES**

Ricketts used Quality Manager to probe for more detailed information, including outcomes by DRG, diagnoses, and procedures. He found that neurosurgery patients were experiencing above-average complication rates and longer-than-expected LOS.

Ricketts' next step was to develop a plan to improve outcomes among the neurosurgery patients, including decreasing complication rates and LOS. He began discussing the preliminary data with the neurosurgery physicians and staff. Word of the data spread to other departments; physicians from the trauma department approached Ricketts to see if their patient data could be included in the analysis as well. A subsequent investigation of trauma patient outcomes revealed similar outcome patterns among the two populations.

Unexpectedly, the project had expanded beyond the initial analysis of craniotomy patients. Following the Premier process improvement methodology, Ricketts created a physician-empowered proactive interdisciplinary team of clinical staff from both the trauma and neurosurgery departments called the Trauma-Neurosurgery-Team (T-N-T).

Comparing its trauma data with data from the national trauma database, the team found that North Mississippi's patients had a higher incidence of Acute Respiratory Distress Syndrome (ARDS). Further analysis in Quality Manager (often referred to as “drill-downs” by product users) revealed that respiratory compromise was one of the top 10 complications in the patient population. The team reviewed data and processes related to ventilator use, physical therapy consults, swallowing studies, co-morbid conditions, tracheostomy timing, and other treatments and procedures. A targeted chart review looked at pulmonary consult timing, and an additional analysis was done in Quality Manager to study the impact it had on outcomes.

Simultaneously, the T-N-T began reviewing evidence-based literature to ensure that the trauma and neurosurgery departments were utilizing best practices.

The T-N-T uncovered areas for process improvement, including incorporation of the latest evidence-based practices. Proposed changes included:

- ▶ Instituting pulmonary consults earlier in the care process
- ▶ Elevating the head of bed for patients on ventilators
- ▶ Performing tracheostomy procedures within seven days of ventilation, if patient determined to need long-term ventilator support
- ▶ Ensuring patients are fed (enterally via a gastric tube or parenterally) within three days of being placed on a ventilator
- ▶ Developing a “weaning bundle” to encourage early ventilator weaning

### **REDUCED COMPLICATIONS AND LOS**

Once complication causes were identified and process improvements were in place, North Mississippi staff began to see dramatic improvements. First, the success of the Trauma-Neurosurgery-Team (T-N-T) helped initiate cultural change and the acceptance of using data to improve patient outcomes.

According to Ricketts, “Physicians have become hungry for more and more data. They're now using risk-adjusted data as personal ‘physician report cards’ to improve individual outcomes in addition to departmental outcomes.”

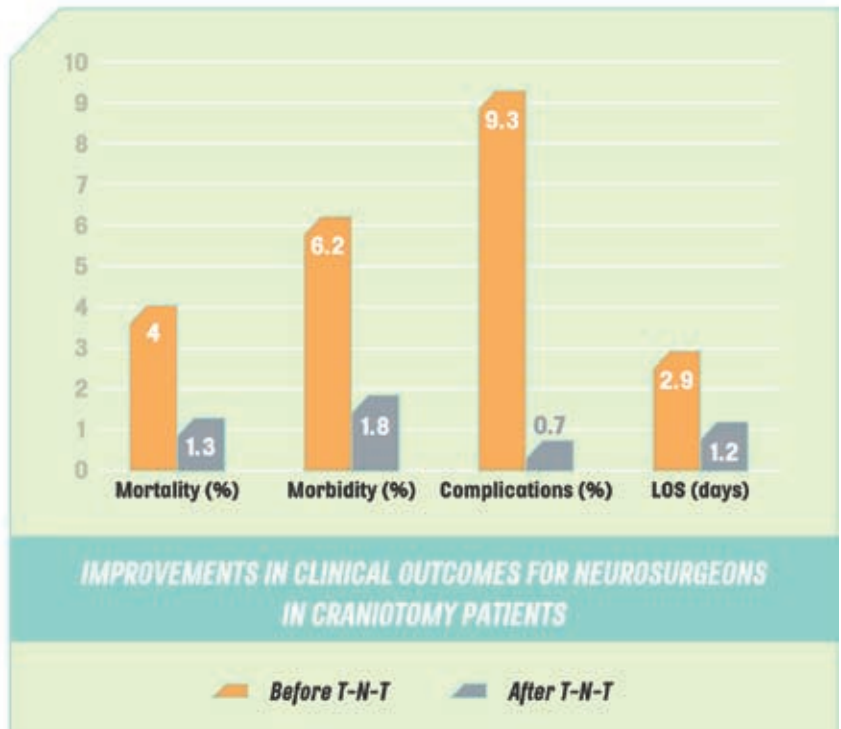
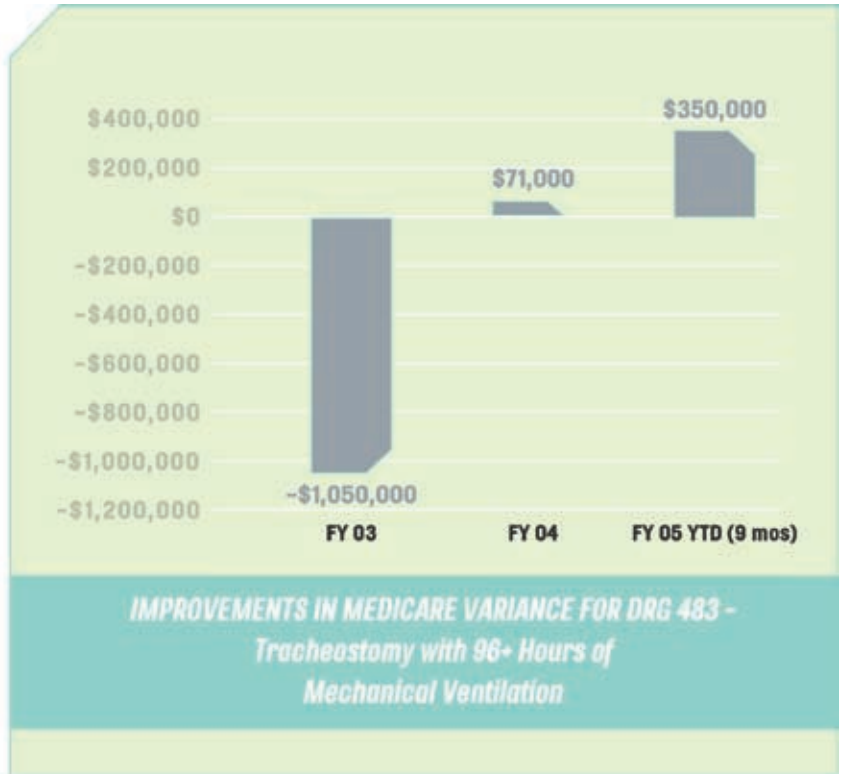
In addition, the T-N-T's proactive team approach helped to decrease LOS for tracheostomy ICU patients. LOS dropped from an average of 25.8 days to 17.5 days, contributing to

significant savings. “Previously, we were losing \$1.05 million a year to treat our tracheostomy Medicare patients. We’ve completely turned this around. Now revenue in this area is more than \$350,000 annually.”

Trauma patient LOS improved to 4.5 days, 1.1 days better than hospitals in the National Trauma Data Bank. Also, risk-adjusted complications for trauma patients were reduced by 7 percent.

Last, craniotomy patient LOS has decreased from 9 days to 6.5 days, and the risk-adjusted complications for neurosurgeons plummeted from 9 percent to 0.5 percent above expected, despite increased patient severity.

Because the project was so successful, the use of Premier data and a team approach to process improvement has been rolled out across other cross-functional teams, including the Tracheostomy and Congestive Heart Failure teams.





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