

CASE STUDY



North Mississippi Medical Center

650-bed hospital with a level-II trauma center

Utilizing CareScience Quality Manager and the philosophy of “care-based management of cost,” North Mississippi Medical Center was able to thoroughly investigate their trauma & neurosurgery patient populations, identify root causes, and engage a team of clinicians across departments to improve processes and treatment protocols. The end results included improved patient outcomes, increased staff satisfaction, reduced length of stay (LOS), and a savings of over \$1.4 million for Medicare patients alone.

North Mississippi Medical Center

North Mississippi Medical Center, a 650-bed hospital, is the flagship facility for the third largest rural healthcare system in the country. Headquartered in Tupelo, North Mississippi Health Services offers care to 28 counties within the state, as well as patients in nearby counties of Alabama. Recognized by leading industry organizations for its quality patient care, North Mississippi has received numerous awards, including the American Hospital Association McKesson Quest for Quality Prize®.

A CareScience customer for more than seven years, North Mississippi leverages the reporting tools in the CareScience Care Management Suite of products to collect, aggregate, and analyze JCAHO/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 service line outcomes manager—discovered

that North Mississippi’s craniotomy patients had significant variances in their outcomes. Intrigued by the data and the pending

“Through the data provided in CareScience 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 pro-actively enlisting the Quality Department in the same, constructive way.”

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

opportunity to improve efficiencies, Ricketts used the CareScience 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.



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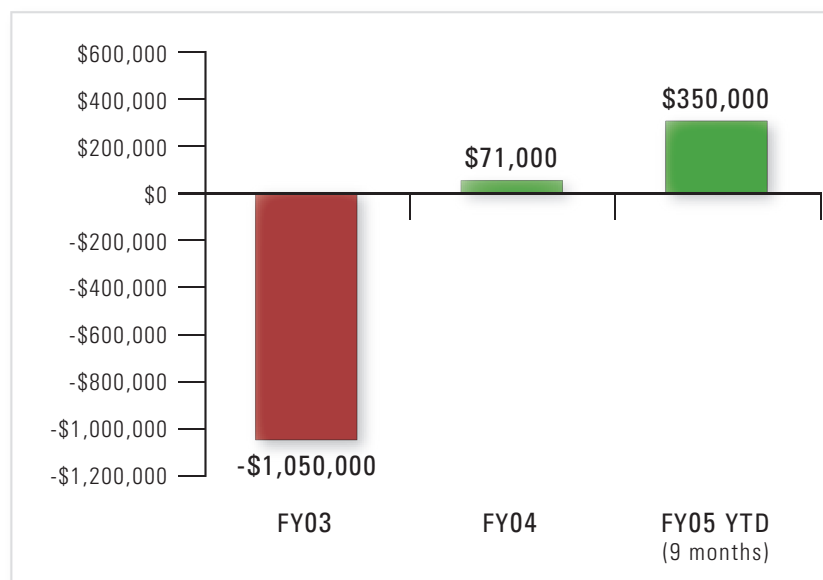
Ricketts' next step was to develop a plan to improve outcomes among the neurosurgery patients, including decreasing complication rates and LOS. He began discussing the preliminary data with the neurosurgery physicians and staff. Word of the data spread to other departments in the hospital and physicians 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 both populations.

Unexpectedly, the project had expanded beyond the initial analysis of craniotomy patients. Following the CareScience 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).

The team compared their own trauma data with data from the national trauma database. They found that North Mississippi's population had a higher incidence of Acute Respiratory Distress Syndrome (ARDS). Further analysis in the CareScience Quality Manager (often referred to as "drilldowns" by the product's users) revealed that respiratory compromise was one of the top 10 complications in this patient population. Logically, the team began to review data & processes related to ventilator use, physical

Improvements in Medicare Variance for DRG 483 (Tracheostomy with 96+ Hours of Mechanical Ventilation)





therapy consults, swallowing studies, co-morbid conditions, tracheostomy timing, and other treatments and procedures. A targeted chart review was conducted to investigate pulmonary consult timing, and additional analysis was done in CareScience Quality Manager to study the impact of that 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, which included incorporating the latest evidence-based practices. Some of the proposed changes included:

- Instituting pulmonary consults earlier in the care process
- Elevating the head-of-bed for patients on ventilators
- Performing tracheostomy procedures within 7 days of ventilation, if patient determined to need long term ventilator support
- Ensuring patients are fed (enterally via a gastric tube or parenterally) within 3 days of being placed on a ventilator.
- Developing a “weaning bundle” to encourage early ventilator weaning

Reduced Complications and LOS

Once the causes of complications 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 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.”

“I have always been a proponent of care-based cost management and CareScience technology 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 the Care Management Suite will ensure we are continuing to look for ways to maintain and grow this stature.”

Kenneth Davis, MD
Chief Medical Officer
North Mississippi Health Services

Additionally, the proactive team approach of the T-N-T helped to decrease LOS for tracheostomy ICU patients. The LOS for these patients 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 in treating our tracheostomy Medicare patients. We’ve completely turned this around and, now, revenue in this area is more than \$350,000 annually.”

Trauma patient LOS improved to 4.5 days, which is 1.1 days better than hospitals in the

CareScience Care Management Suite

The CareScience Care Management Suite helps provider organizations take advantage of the vast data resources that often remain inaccessible or underutilized. With a deeper understanding and insightful analysis of your clinical and financial data, you can:

- Pinpoint opportunities for care process improvement.
- Identify the cause of care process deficiencies.
- Develop measurable plans to improve care processes.
- Monitor your improvement initiatives to ensure success.

For more information please visit www.carescience.com



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National Trauma Data Base. Also, risk-adjusted complications for trauma patients were reduced by 7%.

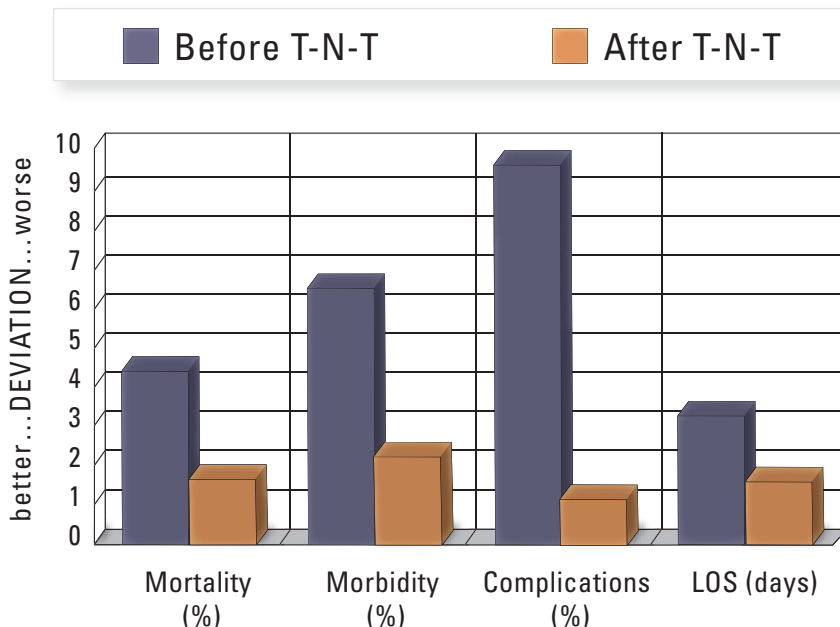
Lastly, LOS for craniotomy patients has decreased from 9 days to 6.5 days, and the risk-adjusted complications for neurosurgeons have plummeted from 9% to 0.5% above expected despite increased

patient severity.

Because the project was so successful, the use of CareScience 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 at North Mississippi Medical Center.

Craniotomy Outcomes

Neurosurgeons (Risk-Adjusted)



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