

**Application for  
Nebraska Hospitals Quality Improvement  
“Quest for Excellence” Award**

**Submitted by:**

**Nemaha County Hospital**

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**Topic:**

**Quest for Excellence in the  
Care of Rural Trauma Patients**

**Category of Criteria:**

**Patient and/or Community Focus**

## Overview

Nemaha County Hospital (NCH) is a 20-bed Critical Access Hospital located in Auburn, Nebraska. In 2003, the State of Nebraska began offering trauma center designation at a variety of levels to hospitals in the state. With this option available, we began to research the need for basic level trauma center designation in this area. In doing so, we found ourselves agreeing with the following statement from the American Trauma Society (ATS): “Rural America is disproportionately affected by trauma with rural residents nearly twice as likely to die as a result of trauma than their urban counterparts. ...It is recognized that rural hospitals are a port of entry for many patients and they should have consistent high standards. This is an area that needs considerable attention, resources and support in order to reduce the disproportionately high rural death rate. ...Rural inhabitants are more often engaged in occupations with a high risk of injury such as farming and manufacturing. Approximately two-thirds of all fatal motor vehicle accidents occur in rural areas and rural trauma patients frequently have multiple severe injuries, co-existing disease, and less pre-hospital care.” The ATS also listed specific components of its vision for improved trauma care. One of these components was, “There will be consistent standards for rural and urban trauma services with the goal of every community having access to a consistent level of trauma care.”

These comments instantly created the desire to begin improvement of trauma patient care at this facility. At that time, the State of Nebraska had extended an opportunity to hospitals of eastern Nebraska to become certified as various levels of trauma centers, including basic level. Recognizing the impact for the hospital, its employees, its leadership, the pre-hospital Emergency Medical Services (EMS) personnel of the area, the physicians and, most importantly, the citizens of the area, work immediately began towards the goal of receiving the state

designation. Changes to improve trauma care in a rural hospital, including pre-hospital care, could literally mean the difference between life and death. Creation of a trauma team that combines pre-hospital personnel with physicians and hospital staff would enable delivery of consistent trauma care. That accomplishment would increase survival rates and streamline necessary patient transfers to higher level trauma centers. This not only effects life vs. death, but also the quality of life for trauma patients by enhancing the opportunities available during the “golden hour”. Time is a critical factor in trauma care. There is a golden hour immediately following the occurrence of an injury during which an effective trauma system has maximum impact. Trauma deaths cluster around three distinct times. With the level of medical care available today at designated trauma services, many of these deaths are preventable if timely care is provided.

### Methods

NCH applied the “Plan, Do, Study, Act” (PDSA) model to create this improvement. Several aspects of trauma care were addressed after a comprehensive look at the entire trauma process. Involved persons were given the necessary authority to take actions towards improvement. Each aspect was then studied to determine if improvement had been successfully achieved. If it had not, new action was taken until improvement was attained. This process occurred over a 12 month time frame. Stakeholders involved in this improvement process included the hospital, its employees, its leadership, the pre-hospital EMS personnel of the area, the physicians and the citizens of the area. This process to bring about improvements is ongoing, even after having attained the basic level trauma center designation.

Organizational buy-in was achieved through top-level support, team building and education. By involving all of the stakeholders in the development and implementation process, trauma designation became a hospital-wide project.

The hospital's Board of Directors and Medical Staff both signed resolutions of support for our efforts to improve care of NCH's trauma patients. Having secured their support, the Chief Executive Officer (CEO) gave primary responsibility for the effort to the Chief Nursing Officer (CNO). A trauma committee was developed which is multi-disciplinary in nature, including all of the area's pre-hospital EMS services, the Trauma Director (physician), the CNO, NCH's Certified Registered Nurse Anesthetist, the CEO, and the hospital's Lab Director, Radiology Director, Health Information Services Director, and Performance Improvement (PI) Director.

Education was a major initial component of the designation effort. All of the on-call ER physicians completed ATLS (Advanced Trauma Life Support) training and all of the hospital's nursing staff became certified in TNCC (Trauma Nursing Core Course). Education extended to the pre-hospital services which enabled them to provide better recorded information to the hospital as well as better and more consistent care to the patients. For instance, EMS agencies became educated about the importance of recording various times during their response to the call. They learned that doing so enables the State to track issues faced by rural area rescue squads, including the difficulty of reaching a scene quickly or transporting patients to the hospital within 20 minutes of having arrived at the scene. They have also been asked to improve documentation of vital signs and Glasgow Coma Scale numbers for each patient, which enables the hospital staff to better evaluate the patient's needs. Contacting the hospital from the scene to provide as much patient condition information as possible has enabled the hospital to have

personnel ready and waiting at the Emergency Room (ER) door for the patient's arrival via the rescue squad.

In trauma care, EMS providers, doctors and nurses are all taught about the "golden hour" following a traumatic event. During this time, the type and amount of care provided make dramatic differences in patient outcomes. Therefore, any measure that can be taken to decrease time between the event and physician care as well as the time between the event and higher level care are extremely valuable.

Nursing staff were educated about the need to monitor information received from EMS services prior to patient arrivals and follow newly established protocols for notification of the Trauma Team. They were also provided with the authority to contact medical helicopter services to alert them to possible transports prior to patient arrival and without physician's direction to do so.

New policies/procedures were implemented to ensure that ATLS protocols are followed in every trauma case. A trauma cart was set up to ensure that necessary equipment is easily accessible and close at hand when needed. Trauma Standing Orders were developed and are utilized for every trauma case, providing decision making support. Nursing representatives led these efforts through both formal and informal leadership positions in a climate that encouraged sharing of thoughts, ideas and concerns from everyone involved.

To help study the initial efforts to effect this positive overall change, mock traumas were held. During this time, one staff member was designated to be an observer during both drills and real cases. Doing so allowed for recognition of areas needing improvement and identification of processes that worked well.

The work environment was altered to be conducive to these changes. Quick reference guides were composed and posted for staff reminding them of Trauma Team Alert/Activation criteria, as well as phone numbers for all members of the Trauma Team for each day. ATLS protocols are posted in the ER for nurse and physician reference. This protocol is extremely important as it is an evidence-based process for trauma patient care. These protocols were incorporated into a special electronic form for trauma patients that links directly into each patient's electronic medical record.

A team environment was also cultivated by creating a spirit of unity rather than division. When issues concerning trauma care are noted, a finger is not pointed at any one member of the group, but rather the problems are addressed with "what could WE have done differently". Blame is not assigned. The team concept carries through to the PI process as well, with a member of the hospital staff, a member of the medical staff, and a representative of the area's EMS services working together to conduct the PI case reviews.

Results are measured using criteria established for the performance improvement studies of trauma. They are: 1. Death of the victim/patient; 2. EMS Service's Nebraska Ambulance & Rescue Service Information System documentation form not on the patient's chart; 3. Pre-hospital scene time greater than 20 minutes; 4. Glasgow Coma Score less than or equal to 8 and no definitive airway established; 5. Time from patient's admission to the ER until time of transfer is greater than 2 hours; and 6. The hospital's Trauma Team was activated.

Utilizing these criteria, various issues were identified during the 12-month effort. For instance, it was determined that pre-hospital personnel were not recording vital signs on every trauma case. Through the PI review and discussion, the EMS agencies have seen the importance of documenting patient vitals. Steadily, our area EMS workers have increased the number of

times vitals are recorded by 82%. By doing so, we have reached the target range of having pre-hospital vitals recorded greater than 90% of the time. The PI process also showed that patients were not always moving on to a higher level of care in an acceptable time frame. Now, 100% of cases requiring transfers to higher care facilities are on their way in two hours or less after patient arrival in the ER.

This environment has created a desire to improve skills at all levels. For instance, one-third of the EMS services are currently working for their IV initiation certifications. The hospital is initiating a regional ambulance transport service to be staffed with not only EMT's, but paramedics as well to provide better transport from the ER to higher level care facilities.

## Results

In June of this year, Nemaha County Hospital was granted designation as a basic level trauma center by the State of Nebraska. In so doing, NCH became the first hospital in its 22-county region of southeast Nebraska to have become a designated trauma center.

All of the actions taken, including those listed above, have provided an increased level of care to trauma patients on the scene of an event and at NCH. They have provided for a decrease in time between the traumatic event and their arrival at a higher level care facility. Both are key to maximizing the potential benefits available during the "golden hour". Attached to this application are the following examples of procedures, forms, system or process changes: Copy of the Trauma Performance Improvement (PI) Case Study form used to review each applicable trauma case and a copy of minutes from a Trauma Committee meeting.

## Lessons Learned

A few barriers were recognized during this process. One was a fear by EMS services that they would be criticized with all trauma cases being closely monitored. Another was the general uneasiness on everyone's part at having their role in trauma care watched carefully, as everyone wondered if a "blame free" culture truly would be "blame free". All of those involved experienced a natural resistance to change. Therefore, "change agents" were utilized through mentors to help ease everyone through the process. Involving everyone from the beginning of the effort through to the end was a key component to achieving certification. Feedback was encouraged throughout, which meant that meaningful change was able to be attained. The only aspect of the process that NCH would change is simply to have begun it sooner.

This effort is absolutely sustainable and portable. The NCH Trauma Committee continues to look for ways to improve, capitalizing upon the positive energy created during the 12-month process that has been completed. The EMS services are working to continue increasing their education levels. The hospital is forging ahead with participation in the regional ground transport service while continuing to monitor PI studies for the trauma program. These actions have made this program and its subsequent changes all sustainable in nature.

Having followed the State's guidelines for certification, this effort can be conducted by any willing hospital. The idea is of such great value that NCH has every hope that other hospitals will follow in its footsteps and improve care of trauma patients.