The Role of the Nurse Practitioner in Level II Trauma at Nationwide Children's Hospital

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ABSTRACT
Most institutions undoubtedly value the role of nurse practitioners (NPs) in a variety of specialties. The NPs derive diagnostic decision-making skills from their educational training, which is rooted in the medical model, and through patient-centered, diagnostic reasoning and care planning. Ultimately, NPs provide cost-effective yet comprehensive medical care complemented by a holistic nursing approach. The trauma department at Nationwide Children's Hospital, Columbus, Ohio, has set forth a goal to have all trauma patients either discharged or admitted within 3 hours of arrival to the emergency department. This article is designed to evaluate the efficacy of NP response to level II trauma transfers and the attempt to improve length of stay. Evaluation of the available data does in fact demonstrate that when the NP is available to respond to the level II transfers, the patient length of stay is significantly decreased.

KEY WORDS
Level II, Nurse, Practitioner, Trauma, Trauma transfer

The specialty of trauma surgery is one in evolution. The American College of Surgeons Committee on Trauma has outlined rigorous standards for providing high-quality care to trauma patients. These standards mandate rapid evaluation of the trauma patient by an attending surgeon, coordination of the patients with multiple injuries throughout the hospital stay, and adjudication of all system-related issues through a thoughtful and effective performance-improvement program. It is unclear exactly when nurse practitioners (NPs) were introduced to trauma programs. What is clear is that since this introduction, more trauma programs are utilizing NPs in various capacities. Subsequently, they have become a valued member of the trauma team at many facilities.

The NPs derive diagnostic decision-making skills from their educational training, which is rooted in the medical model, and through patient-centered, diagnostic reasoning and care planning. Ultimately, NPs provide cost-effective yet comprehensive medical care complemented by a holistic nursing approach. For this reason, the NP has become an essential member to trauma programs, particularly those that may be challenged by complex patient needs and decreased manpower.

Nationwide Children's Hospital (NCH) is a stand-alone pediatric hospital and level I trauma center. Accreditation as a level I trauma center was obtained in 1991 and has been maintained since that time. The first NP was introduced to the surgical/trauma service in 2002 only covering Monday through Friday from 6:00 AM to 3:00 PM. In 2003, 3 additional NPs were introduced to the service to extend coverage hours to include weekday evening hours until 2:00 AM and 12-hour weekends until 7:00 PM. The role of the surgical/trauma NP at the NCH is a broad role and has grown extensively over the past 7 years. Currently, the service includes 7 NPs (5 full-time and 2 part-time) to better fill the hours of needed coverage and to keep up with the demands of our increasing patient population. The NP provides ongoing care to patients in the following populations: trauma, surgical, burn, and nonaccidental trauma.

At the NCH, we constantly strive to provide our trauma population with high-quality, efficient, and cost-effective care throughout the continuum of their hospital stay. This process begins upon arrival to our emergency department (ED). An ongoing concern for the trauma
service has been the length of stay (LOS) in the ED for level II trauma alerts. A patient labeled as a level II alert has evidence of significant injury or mechanism of injury that will require a team approach for resuscitation and treatment. These patients may have uncertain status; their condition may be stable on arrival only to deteriorate quickly. The trauma department at the NCH has set forth a goal to have all trauma patients either discharged or admitted within 3 hours of arrival to the ED. In July 2009, the decision was made to officially involve the NP as first responders to level II trauma transfers (indicating that the patient has been initially evaluated and transferred from another hospital) because these patients were spending multiple unnecessary hours in the ED waiting for trauma physician evaluation. This was not only problematic because it created a delay in patient care but it also put the ED in a position to make decisions regarding patient disposition that may not necessarily be in the best interest of the patient. In theory, level II trauma transfers are more likely to be admitted to the hospital than scene-run level II trauma transfers because they have been sent from an outside facility for higher level of care on the basis of an injury that has already been identified.

As previously mentioned, at the NCH, the NP is a first responder to level II trauma alerts. Initially, the patient is managed by the ED staff physician with input from the NP. The role for the NP is to review all paperwork that arrives with the patient, including physical examination findings, radiological examinations, and laboratory results. The NP also ensures that all radiological testing that arrives with the patient is sent to the NCH radiology department to be interpreted by a radiologist; thus, reducing unnecessary additional radiation exposure. The NP then requests any additional laboratory tests and/or testing to be completed, completes a head-to-toe secondary survey, and determines the most appropriate plan of care for the patient. The NP then calls the on-call attending surgeon or in-house trauma fellow with a report and a plan of care. At that time, a decision to admit, observe, or discharge is made.

When significant changes are made to hospital protocols, an ongoing evaluation must take place to ensure that patients are receiving quality care in a timely manner. The surgical/trauma NPs at the NCH have recently requested an efficacy review on level II trauma; these numbers were solely based on the patient time spent in the ED. That being said, since July 2009, the length of time in the ED for the level II trauma transfers has significantly decreased. In the first quarter (January-March), the average ED LOS was 3 hours 21 minutes; in the second quarter (April-June), the average ED LOS was 3 hours 19 minutes; in the third quarter (July-September), the average ED LOS was 3 hours; and in the fourth quarter (October-December), the average ED LOS was 2 hours 35 minutes. Overall, the average quarterly ED LOS for level II trauma transfers has decreased a total of 46 minutes throughout 2009. Figure 1 represents a graph that shows the trend of how the NP involvement has decreased the LOS in the ED for the level II trauma patients.

The goal disposition of trauma patients has been set to be either admitted to the hospital or discharged from the ED within 3 hours. The threshold that has been set forth by the trauma department to have all level II trauma patients either admitted or discharged within the 3-hour allotted time was set at 55%. In the first quarter of 2009, only 46% of all level II trauma patients were either admitted or discharged within the allotted time and in the second quarter of 2009, this average was only 36%, making the first half of the year average at 41%. With the implementation of the NPs becoming first responders in the level II trauma transfers, the quarterly percentage dramatically increased to 61% of the patients achieving the goal threshold in the third quarter and further increased to 73%, placing the second half average at 67%. The percentage for 2008 (the entire year) was only 39%.

Figure 2 shows a graph that represents the ED LOS by quarter in 2009. With our implementation of the NP as first responders for all level II trauma transfers, the question arose as to how other facilities were utilizing their NPs in the trauma setting. A questionnaire was created.
and sent to NPs who are members of the Society of Trauma Nurses via LISTSERV. The questions included what involvement the NP has in the trauma bay with admitted trauma patients and the average LOS for their trauma patients in general. Unfortunately, only 6 responses were received from NPs. Of these, 4 NPs were employed by level I trauma centers, the remaining 2 were employed by level II centers. Four facilities were adult, 1 was pediatric, and the other was both adult and pediatric. The NCH is a level I pediatric facility. All 6 centers respond in some form to trauma alerts. In one center, the NPs perform procedures in the trauma bay but are required to be certified as RN First Assist. Four of the 6 centers assist with procedures, and the sixth center does not perform any procedures. The respondents reported that the ED LOS for level I patients within their centers ranged from 2 hours to 2 hours 40 minutes. The reported ED LOS for the level II trauma patients ranged from 3 hours 45 minutes to 5 hours.

At the NCH, the NPs are first responders only to level II trauma transfer patients and are first responders to level I trauma patients on an as-needed basis in the evenings and at night to assist the on-call trauma surgeon/fellow with procedures, order and interpret diagnostic and laboratory tests, coordinating admission, and completing a history and physical examination. The NPs manage the inpatient trauma patients from admission to discharge, with the exception of the pediatric intensive care unit. The average hospital LOS for level II trauma transfers is 3 days and 5 days for level I traumas.

As mentioned earlier in this article, the NPs work an average of 20 hours a week on weekdays and 12 hours on the weekend. This gives limits to the validity of the NP role. What has also occurred starting in July 2009 is that the residents have been instructed to respond more rapidly than before. With this in mind, the authors of this article will obtain institutional review board approval to evaluate all level II traumas for the year 2010 to determine the NP response versus the resident response to these traumas.

In conclusion, surgery/trauma NPs at the NCH have proven to decrease level II trauma ED LOS since involvement in July 2009. In the future, the NCH would welcome further evaluation of the surgery/trauma NPs with regard to overall care along the trauma continuum both in the inpatient and outpatient settings. It is anticipated that results would be similar to previous studies involving trauma patients cared for by an NP, which demonstrate increased continuity of care, increased patient/parent satisfaction, decreased residency workload, and increased quality documentation.3

After looking at the results and analyzing the responses to the questionnaires, we have asked ourselves “Where do we see ourselves in five years, or even in one year?” Although the NP role has tremendously grown in the past 7 years, there is still much more room for the service to grow.

REFERENCES
