

Aggregating Non-Critical Trauma Patients on a Single Acute Care Unit

by

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Abstract

Care of the trauma patient historically has had a strong focus on clinical management during the resuscitative and critical phases of care. This is a review of a level I center creating a Trauma Care Unit (TCU), an inpatient unit dedicated to the care of the step-down and medical-surgical acuity trauma patient. This article will review some of the historical events leading to the creation of trauma systems. The primary discussion will be in relation to the creation of a trauma care unit along with some unique features of the unit compared to other medical-surgical units. The literature reviewed include the topics of communication and collaboration between healthcare team members, the need for dedicated step-down acuity patient care areas, the impact of having a multidisciplinary team managing patient care, and the long term impact of trauma on people. The primary article reviewed was a research project completed at the institution that opened the TCU. The study looked at the four intervals of time in relation to changes made to the trauma program that included adding nurse practitioners, opening the TCU, the addition of a trauma CNS, and lastly increasing the number of nurse practitioners on the service. The findings of the research were decreased ICU length of stay, decreased complications, improved outcomes of highly injured patients and all at a reduced cost.

Keywords: trauma unit, trauma outcomes, communication, collaboration.

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Chapter One

Introduction

Traumatic injury resulting in death has been a frequent occurrence since accurate statistics were first collected 150 years ago. In the early part of the 20th century traumatic death was preeminent in older children and young adults. The industrial revolution initially contributed to this followed by the introduction of the motor vehicle (Mock and Jurkovich 1999).

The American College of Surgeons (ACS) considers trauma to be a surgical disease (ACS, 2006). Trauma is deemed a disease where the patient has sustained injury either unintentionally or intentionally (ACS, 2006). The ACS took the lead in establishing the ground work for the trauma system in America. "The event itself is more than the trauma: it is the perceptual and contextual experience that needs to be incorporated into a person's essence" Richmond, Thompson et al. (2000, p 1341).

Currently trauma continues to be the leading cause of death in the 1-44 age range. Trauma resulted in 25,747 deaths in America in 2009 (ACS, 2009). Trauma is also the leading cause of years of life lost in America. The mortality rate as the result of trauma has decreased overall in recent decades. Motor vehicle death rates have significantly decreased but there has been an increase in intentional injury deaths primarily related to the use of firearms (Mock and Jurkovich 1999). Trauma is considered a public health burden incurring significant cost on a personal and societal level (Evans 2009).

The war in Korea led to America's laying the foundation for the trauma system as we know it today. Rapid evacuation of wounded soldiers from the front lines became a priority using helicopters to expedite the transport. Further experience and advancement

occurred during the war in Vietnam. Transport times fell from four hours during World War II to 27 minutes during the war in Vietnam. In addition organized medical teams and advanced equipment was made available to treat the wounded in Vietnam (Nathans, Brunet et al. 2004).

Additionally, trauma centers in the United States have been emerging and forming over the last forty years (Staman et al. 2006). Their purpose was to streamline the efficacy of transporting and treating those patients who have experienced traumatic injuries. A trauma system requires facilities and staff working in a coordinated manner within a defined geographic area (ACS, 2006). The primary focus of trauma systems has been the initial assessment and management of the patient in the resuscitation room. The next area of focus was the care of the patient in an intensive care unit if their condition required that level of ongoing care. The way trauma care is delivered varies from one trauma facility to another based on volume of trauma, trauma center level designation, and university affiliation (Staman, Devine et al. 2006).

Hospitals may receive the designation as a trauma center by differing agencies according depending on the established requirements of their geographical location. Trauma centers may receive center verification by county or state agencies or by the ACS Committee on Trauma (2006).

According to Nathans, Brunet, et al. (2004) a level I trauma center provides 24 hour service in large urban environments. There is a surgeon in-house 24 hours. The center also provides community education and prevention on trauma and performs research. A level II trauma center has a surgeon available at short notice and provides trauma care 24 hours daily. They act as a support for any level I centers in the

community. A level III trauma center must be able to provide initial care to trauma patients and have transfer agreements in place with facilities to provide higher levels of care. A surgeon must be promptly available for major trauma resuscitations. Level IV trauma centers are generally located in rural locations. They must have a physician available 24 hours daily but there are no requirements to have a surgeon or other specialist available. They will have transfer agreements in place to move patients to higher levels of care (Nathens, Brunet, et al. 2004).

The largest collection of trauma data is stored in the National Trauma Bank Data (NTBD). This data base managed by the ACS is published in an annual report. The goal of the information and reporting is to keep the medical community, public, and decision makers aware of the current state of the management of injured patients in America. It provides valuable information on epidemiology, injury control, research, education, acute care, and resource allocation (ACS, 2009).

The Injury Severity Score (ISS) developed by the American College of Surgeons stratifies the severity of injury of trauma patients. The scoring range is 1-75 with the higher the score indicating a greater risk of death. An ISS of 1-8 is minor, 9-15 is moderate, 16-24 severe, and greater than 24 as very severe (ACS, 2009). According to the ACS almost half of all trauma patients fall into the minor range and on fourth fall into the moderate range. They have noted that the median length of stay increases with each severity grouping (ACS, 2009).

This project has been undertaken to review the impact of one trauma center creating a nursing unit specifically for the care of the non-critical trauma patient. The hospital discussed is a community based nonprofit hospital which is designated as a level

I trauma center. The hospital has held that designation since 1984. It is a medical teaching center located on two campuses comprised of 700 licensed acute care patient beds. There are 3,000 employees and 1,300 physicians. The trauma center is located on the larger of the two campuses and is located in a large southern California city. There were 2,375 admissions to the trauma service in 2008 with 2,098 of those arriving by ambulance.

The first challenge under the old system of placing trauma patients on multiple units was for the medical team. The medical team consists of an attending physician, a resident, a group of three to four interns, and one or more nurse practitioners. Rounding on an average daily census of twenty-one trauma patients scattered throughout the hospital often took greater than two hours just for the daily group rounds. Follow up on the patients through the day required additional time for members of the team to physically assess the patients and write orders. This often led to delays in ordering diagnostic test or consults with other disciplines such as physical therapy, occupational therapy, and speech therapy. Then there was the follow up on those consultative notes which were hand written in the patient's chart. This system also limited the ability of the consulting service to have direct conversations with members of the medical team. This at times ended up in delays in discharging patients. In one study conducted on how physician and nurse communication they showed that increased communication time between the nurse and the medical team showed a decrease in the length of stay and cost for the patients (Vazirani, Hays, Shapiro & Cowan, 2005).

An additional area of improvement was in the trauma service. With the trauma patients mixed on other nursing units the trauma service was unable to pull patient satisfaction data specific to their patient population. There was general concern that with

the delays in service brought about by the physical logistics of seeing patients coupled with delays in discharge, that patient satisfaction was not optimal. By aggregating the trauma patients onto one unit a healthcare facility would be more likely to have patient satisfaction data that was a direct reflection of the service provided by the trauma team to this patient population.

A third focus of improvement by creating the Trauma Care Unit (TCU) was the nursing staff. While the nursing staff on the multiple nursing units provided good care to the trauma patients, trauma as a unique skill set was not part of their practice. There was not any mandated annual education required of nursing personnel that was specific to the care of the trauma patient. Many of the skills required to care for the trauma patient do not vary greatly from the general medical or surgical patient. However, the trauma service wanted to build a nursing staff that maintained an advanced understanding of the mechanisms of trauma, the management of real and potential injuries and the discharge planning of patients going to rehabilitation facilities or skilled nursing facilities. The nursing staff on the multiple units had limited direct contact with the members of the trauma medical team on a consistent basis because of the team constantly moving between the nursing units and responding to new traumas coming into the emergency room. Interprofessional relationships will improve the contributions of all the members of the team (Cole and Crichton 2006). The nursing staff was limited in their ability to build rapport with the medical team and vice versa. The effect of trauma on patients is often long lasting and extends well beyond their hospital stay. Trauma patients often define their lives as before and after the trauma (Richmond et al. 2000). Creating a nursing staff with a trauma focus and understanding of this concept was a goal to improve patient

satisfaction and outcomes of care. The staff of this unit would routinely receive education with a trauma focus.

Problem Statement

The problem lies in how to aggregate the trauma patients onto one unit that could manage both medical-surgical acuity and step down acuity trauma patients. There are a limited number of studies which document this practice in the trauma community. The trauma centers in the literature found still tended to have a unit in which they place their noncritical trauma patients that was mixed with non-trauma patient populations. The second challenge becomes how to adequately provide for both medical-surgical and step down levels of care on one unit.

Purpose Statement

The purpose of this project is to review the development of a TCU by a Level 1 trauma center. This includes the rationale for developing such a unit, and the basic operational elements of the unit. Additionally the project will cite data gathered in a research project that reviewed the impact that creating the TCU and its resultant changes had on the quality and cost of care at this specific trauma center. This data gives some indication of the impact of creating such a unit.

Chapter Two

Literature Review

A literature search performed using the key phrases *trauma unit* and *trauma outcomes* produced only a few low level quality studies. Primary literature sources used were CINAHL and EBSCO. The articles retrieved from these sources contain studies that are level VI to level IV evidence. There were limited manuscripts found related to hospitals creating diagnosis specific units. There were only two describing the creation of units for the care of trauma patients.

Creation of Trauma Units

Hilton, Madayag, and Shagoury (1993) reviewed one large university associated trauma center developing an intermediate care unit. A one month prospective review of trauma patients in the intensive care unit (ICU) demonstrated the need for at least two intermediate care beds. The review examined the patient needs for vasoactive drips, invasive monitoring, amount of nursing care required and respiratory treatments. Based on the review support was obtained to develop a Surgical Transitional Care Room (TCR) on this existing surgical ward. An education program developed for the nursing staff on that unit provided three didactic days and one clinical day. The nurse to patient ratio on the TCR was one registered nurse (RN) for two to three patients. For the rest of the surgical floor the ratio was one RN for four or five patients. The paper described the role of a multidisciplinary team and the importance of having advanced practice nurses (APNs) involved in the creation of a new unit. This is one of two articles found specifically describing the creation of a unit dedicated to caring for trauma patients.

Although this study is now 20 years old, it is notable and considered essential to this review.

Hums and Williams (2005) is the only other article which describes how one trauma center implemented its opening of a dedicated trauma care unit (TCU). This model consisted of a unit that managed the patient from admission to discharge. This placement was made regardless of acuity or severity of injury. The RN to patient ratio was one to one or one to two in the acute phase. This ratio can be adjusted to one RN for three patients as the condition of the patient improves. Initial education consisted of a three-month orientation that included critical care and trauma classes. Multidisciplinary rounds are held on a daily basis in this TCU. The group consisted of the Trauma medical director, TCU charge nurse, Trauma Program Manager (TPM), Trauma performance improvement nurse, social worker, case manager, dietician, pharmacist, chaplain, respiratory therapy, rehabilitation staff, and other members of the healthcare team. The summary indicated that nursing staff were able to maintain their trauma knowledge with ongoing trauma specific education and with trauma care specific competencies. Additionally these writers concluded that patients, families, nurses, and physicians benefited from centralizing resources and from the multidisciplinary collaborative approach to care Hums and Williams (2005).

Other Trauma-Related Studies

In a single ethnographic account Cole and Crighton (2006) studied the impact of human factors of the team including communication and collaboration. It was a single study looking at the how the roles of the trauma team interacted. The study used a focused ethnography method to observe the culture of a trauma team in a teaching facility

located in London, U.K. Semi-structured interviews of key personnel were conducted after six periods of observation. This research study found three main areas that impacted the function of the team. They were conflict within the group, communication, and the physical environment (Cole and Crichton 2006). They concluded that there should be role definition and development for the members of the trauma team. The authors determined that this development would lead to improved communication and collaboration.

A second study examined the long term effects experienced by trauma patients. The study was conducted by interviewing survivors of serious trauma 2.5 years after the injury. The mean ISS of the sample group was 13.5. The study was relevant to the purpose of this review because it underscores the need to create a nursing staff that had a heightened awareness of psychosocial needs of the trauma patient. Richmond et.al (2000) examined how patients dealt with life altering injuries and their possible near death experiences. Their research found that recovery often did not end with the resolution of injuries that were not considered disabling (Richmond et al. 2000). Survivors described their journey through the traumatic event as taking them “to a different place” in life (Richmond et al 2000, p. 1347)

A third related study done by Vazirani et al. (2005) examined the impact of adding multidisciplinary intervention focusing on the communication and collaboration among physicians and nurses. The study was conducted over a two year period. An intervention unit was created that was different from a control unit. This intervention unit entailed adding a nurse practitioner, a medical director, and conducting daily rounds on the unit. Feedback from nursing and physician staff obtained through surveys on collaboration and communication was obtained from personnel on both units including

physicians. This study showed that adding the nurse practitioner to the group made improvement in how physicians and nurses viewed the collaboration among the team. The nurse practitioner had more face to face time with the nursing staff (Vazirani, Hays et al. 2005).

The primary literature source of the impact of creating a unit dedicated to the care of trauma patients is from a research project completed at this facility. This study did a retrospective review of trauma patients over a four year period. During this period a series of changes were made on the service. The goal of the study was to show what, if any, effect these changes had on the outcomes of the trauma patient. The changes included the opening of this dedicated trauma unit, the addition of a dedicated clinical nurse specialist (CNS) on the unit and the addition of and subsequent increased coverage by dedicated nurse practitioners (N.P.s) Sise et al (2011).

The study performed by Sise et al. (2011) is the most relevant to the impact that the creation of this TCU had on the outcomes of care for trauma patients at this specific facility. This retrospective study reviewed four one-year intervals at the trauma center. The initial interval was utilized as the baseline for future comparisons. The second interval covered the addition of N.P.s to the trauma service providing coverage five days per week. The third interval included the opening of the dedicated TCU. The fourth and final interval covered the addition of a dedicated CNS and additional N.P.s to extend coverage to seven days per week. The study showed a decrease in the ICU length of stay (LOS), a decrease in the cost of care, and fewer complications over the four year period. These results occurred despite an increase in the number of geriatric patients, an increased patient volume, and an increase in injury severity, and blunt trauma injuries.

The Sise et al. (2011) study included 9,172 patients admitted during the four year review period. There was a 32.1% increase in the number of patients admitted annually during this period, going from 1,927 in year one to 2,546 in year four. LOS was calculated for all patients that survived to discharge. The review of LOS showed an overall increase in total LOS but a decrease in the ICU LOS. The total LOS went from 22.5 hours in year one to 26.8 in year four. The ICU LOS went from 39.5 hours in year one to 23.4 hours in year four

Summary of Review

The literature pertinent to this topic gave insight into the benefits of advanced development of a team approach to caring for a specific patient population. The literature did provide some background and insight into care of the trauma patient using a multidisciplinary approach to managing that care. Some authors addressed the benefits of streamlined communication and care planning through an advanced team approach. Addressing the long term needs of the trauma patient were addressed in one research study speaking to the benefits of a care team that has heightened awareness of these long term needs. The studies that addressed communication and collaboration within a team gave support to the need to create a unit dedicated to caring for a specific patient population.

Two of the studies discussed specifically creating a unit or environment focused on caring for trauma patients. Though neither were specifically medical-surgical level of care units, they do give evidence of the benefits of creating a service line unit for trauma patients.

The Sise et al (2011) article and research gave actual data and validation that the creation of this specific TCU had a positive impact on several levels. These included decreasing the ICU length of stay for trauma patients and contributing to a decrease in complications and an increase in the value of care provided for trauma patients.

A more recent literature search utilizing the key phrases *trauma unit* and *trauma outcomes* did not unveil any additional articles or research.

Chapter Three

Methodology

The decision to choose this topic for this project was initially based on personal experience. As the patient care manager responsible for opening the TCU and then the daily operations of the unit, this author saw a need to share the experience with others. In discussing the unit with others working in trauma, the uniqueness of this specific unit was recognized and it was determined that others in the trauma field might find the information useful in their own institutions.

The first step was performing a literature search for articles or research published on the creation of patient care units dedicated to the care of trauma patients. This search revealed very few articles on institutions creating such units. There were no current articles found with the most recent published in 2006.

In the process of development of this project, the trauma research department at the facility published a research project. This article provided substantial data on the impact of changes in the trauma service had on trauma patients at the facility. These changes included bringing nurse practitioners onto the service, then the expansion of N.P. coverage, opening the TCU, and the addition of a trauma CNS to the unit. The outcome of these changes based on the research was decreased ICU length of stay, fewer complications, improved outcomes of the severely injured, and provision of care at a lower cost per patient overall.

While this research project was published, it was felt that by incorporating it into this project with a direct link to the opening and development of unit and nursing staff would be of interest and benefit to other trauma nursing leaders in the community.

It was determined that the manuscript would be submitted to the *Journal of Trauma Nursing* as it is currently the most relevant publication for trauma nurses. Additionally, while attending the Society of Trauma Nurses annual conference early in the development of this project, this author was able to speak directly to the editor of the publication. She expressed interest and stated that this topic sounded very relevant to the field and for the type of articles they looked to publish.

The manuscript will need to convert to American Medical Association style as required by the publication. This will require some format changes, the majority of which involve the citations and the reference list.

Chapter Four

Manuscript

This manuscript will review the process of aggregating non critical trauma patients onto one unit that can manage both medical-surgical acuity and step down acuity patients, some reasons for creating such a unit, and some of the identified improved outcomes after opening the unit. There are few references in the trauma community documenting this practice; however its formation has sown many positive benefits. Many trauma centers have a unit where they place noncritical trauma patients but it is generally a mixed unit of medical-surgical patients. The second challenge is how to manage both levels of care on one unit. One aim of this project is to retrospectively evaluate the impact on patient outcomes after aggregating all noncritical trauma patients onto one nursing unit.

The primary literature source of the impact of creating a unit dedicated to the care of trauma patients is from a research project completed at this facility. This retrospective review evaluated the impact if any a series of changes made in the trauma program would have on the care provided to their patients. The changes included the opening of this dedicated trauma unit, the addition of a dedicated clinical nurse specialist (CNS) on the unit and the addition of and subsequent increased coverage by dedicated nurse practitioners (N.P.s) Sise et al (2011). A further review of this paper will be presented later in this manuscript.

Purpose

The purpose of this manuscript is to describe the development of a TCU by a Level 1 trauma center. This includes the rationale for developing such a unit, as well as

the basic operational elements of the unit. Additionally the authors will cite data gathered in a research project that reviewed the impact that creating the TCU and other resulting changes had on the quality and cost of care at this specific trauma center.

The setting is a community based nonprofit hospital which is classified as a level I trauma center. It has held that designation since 1984. The hospital is a medical teaching center. The facility is located on two campuses and is comprised of 700 licensed acute care patient beds. There are 3,000 employees and 1,300 physicians. The trauma center is located on the larger of the two campuses and is located in a large southern California city. There were 2,375 admissions to the trauma service in 2008 with 2,098 of those arriving by ambulance.

The TCU opened in February 2007 and is located on the tenth floor of the hospital. It is a 33 bed unit dedicated to the trauma patient population. There are twelve private rooms, nine semi-private rooms, and one three bed room that is designated as a direct observation room for patients requiring increased levels of care or observation by the nursing staff. One registered nurse, along with a patient care assistant staff this room. The nurse to patient ratio for the other beds is 1:4. This ratio is flexible and can go up to 1:5 or down to 1:3 based on the patient acuity and staffing needs of the unit.

There are 52 registered nurses (RNs) working between two twelve hour shifts on the unit. Twelve patient care assistants also work between two twelve hour shifts on the TCU to support patient care. Experienced RNs go through a three week orientation upon hire onto the unit. In addition they are required to obtain advanced cardiac life support certification within ninety days of hire. An eight hour basic trauma class within six months of hire is mandated. Additionally, all RNs are required to complete eight hours of

trauma specific education on an annual basis. The director of trauma services at the facility approves the trauma education hours. A nurse director, nurse manager, assistant manager, and a clinical nurse specialist provide additional support for the TCU.

The trauma department at the facility identified the opportunity to create a third designated area of care for trauma patients. This envisioned new unit was a medical-surgical and step down unit. This unit would be able to take direct admissions from the trauma resuscitation room or transfers from the intensive care unit. The patient would be able stay on this new unit until being discharged or transferred to another facility providing a lower level of care. The goal was to create a trauma service line. Prior to the trauma care unit opening, trauma patients that did not require critical care were placed in one of five medical-surgical units or on the direct observation or step down unit.

Source

A literature search was performed using the key phrases *trauma unit* and *trauma outcomes*. This search produced a few primarily low quality level studies. There were limited manuscripts found related to hospitals creating diagnosis specific units and a very small number of those describing the creation of units for the care of trauma patients.

Hilton, Madayag, and Shagoury (1993) reviewed one large university associated trauma center developing an intermediate care unit. A one month prospective review of trauma patients in the intensive care unit (ICU) demonstrated the need for at least two intermediate care beds. The review looked at the patient needs for vasoactive drips, invasive monitoring, amount of nursing care required and respiratory treatments. Based on the review support was obtained to develop a Surgical Transitional Care Room (TCR) on this existing surgical ward. An education program developed for the nursing staff on

that unit provided three didactic days and one clinical day. The nurse to patient ratio on the TCR was one registered nurse (RN) for two to three patients. For the rest of the surgical floor the ratio was one RN for four or five patients. The paper described the role of a multidisciplinary team and the importance of having advanced practice nurses (APNs) involved in the creation of a new unit.

Hums and Williams (2005) describe one trauma center that implemented a dedicated trauma care unit (TCU). The model utilized by this facility consisted of a unit that managed the patient from admission to discharge. This placement was made regardless of acuity or severity of injury. The RN to patient ratio was 1:1 or 1:2 in the acute phase. This ratio can be adjusted to one RN for three patients as the condition of the patient improves. Initial education of the nursing staff consisted of a three-month orientation that included critical care and trauma classes. Multidisciplinary rounds are held on a daily basis in this TCU. The group consisted of the Trauma medical director, TCU charge nurse, Trauma Program Manager (TPM), Trauma performance improvement nurse, social worker, case manager, dietician, pharmacist, chaplain, respiratory therapy, rehabilitation staff, and other members of the healthcare team. The summary indicated that nursing staff was able to maintain their trauma knowledge with ongoing trauma specific education and with trauma care-specific competencies. Additionally Hums and Williams (2005) concluded that patients, families, nurses, and physicians benefited from centralizing resources and from the multidisciplinary collaborative approach to care.

Cole and Crighton (2006) studied the impact of human factors of the team including communication and collaboration. It was a single study looking at the how the roles of the trauma team interacted. The study used a focused ethnography method to

observe the culture of a trauma team in a teaching facility located in London, U.K. Semi-structured interviews of key personnel were conducted after six periods of observation. This research study found three main areas that impacted the function of the team. They were conflict within the group, communication, and the physical environment (Cole and Crichton 2006). They concluded that there should be role definition and development for the members of the trauma team. It was believed that this development would lead to improved communication and collaboration.

A second study examined the long term effects experienced by trauma patients. The study was conducted by interviewing survivors of serious trauma 2.5 years after the injury. The mean ISS of the sample group was 13.5. It was relevant to the purpose of this review to underscore the need to create a nursing staff that had a heightened awareness of psychosocial needs of the trauma patient. Richmond, Thompson, Deatrlick & Kauder (2006) examined how patients dealt with life altering injuries and their possible near death experiences. Their findings suggested that recovery often did not end with the resolution of injuries that were not considered disabling (Richmond, Thompson et al. 2000). Survivors described their journey through the traumatic event as taking them “to a different place” in life (Richmond et al 2000, p. 1347).

The study performed by Sise et al. (2011) cites the most relevant data showing the impact that the creation of this TCU had on the outcomes of care for trauma patients at this specific facility. This is a retrospective study that reviewed four one-year intervals at the trauma center. The initial interval was utilized as the baseline for future comparisons. The second interval covered the addition of N.P.s to the trauma service providing coverage five days per week. The third interval included the opening of the dedicated

TCU. The fourth and final interval covered the addition of a dedicated CNS and additional N.P.s to extend coverage to seven days per week. The study showed a decrease in the ICU length of stay (LOS), a decrease in the cost of care, and fewer complications over the four year period. These results occurred despite an increase in the number of geriatric patients, an increased patient volume, and an increase in injury severity, and blunt trauma injuries.

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One significant observation in this study was the decrease in overall cost of care of trauma patients which was identified to occur in the third year of the review. This was the year that the TCU was added to the service line. There was a shift in the management of patients with a shorter length of stay in the ICU. The median cost for trauma survivors went from \$4,259 in year one to \$3,658 in year four.

An additional benefit of the creation of the TCU identified in the study was improved efficiency of the care provided. This was seen as the direct result of having a dedicated case manager and social workers for the patient population. Additionally, it created a nursing staff whose initial and ongoing education focused specifically on the care of the trauma patient. The Sise et al. (2011) study concluded that the opening of the

TCU, in addition to the other changes made to the service, reflected an overall reduction in the cost of caring for trauma patients with a decrease in the number of patients with complications.

Conclusion

Aggregation of trauma patients onto one unit has improved the efficiency in rounding by the medical team. The elimination of the need to round on patients housed on multiple units/floors has decreased the time it takes to perform bedside rounds. Additionally, the medical team now includes the TCU charge nurse and bedside nurse in bedside rounds. Feedback from nursing staff regarding being involved in these rounds has been very positive and is seen as collaborative and educational. This practice enhances their input in the plan of care and is viewed as valuable by the entire team.

TCU staff has had positive feedback about having the medical interns and N.P.s readily available on the same unit. With patients now aggregated on one unit they are consistently rounding and evaluating patients, meeting with families, and collaborating with other disciplines involved in patient care. Nurses on the TCU report a positive and collaborative relationship with the medical team.

While the dedicated CNS role did initially provide educational support on this unit the hospital recently restructured the educational system and CNS model. This new model did not include unit or department based CNS roles. Education on the TCU is now performed through a combination of on line self-learning modules and 1:1 or group education performed by members of the unit leadership team or staff members who serve as education facilitators.

As evidenced in the Sise et al (2011) research, the ICU length of stay has decreased with the changes made to the trauma service. With the consistent presence of the N.P.s on the TCU, they are able to work with the TCU charge nurse in planning and facilitating the transfer of care of trauma patients from the ICU to the TCU. This includes planning for staffing needs if patients will need increased nursing time and care. The TCU can then plan on adjusting staffing ratios to meet this higher acuity patient.

The TCU has enabled nursing leadership and educators on the unit to focus on the educational needs of the staff that are relevant to the care of the trauma patient. Nursing staff are required to obtain a minimum of eight continuing education units annually that are earned through conferences with a focus on or containing elements of caring for trauma patients. The nursing staff on the TCU are routinely surveyed by nursing leadership and educators to assess their needs for education specific to caring for the trauma patients. Local rehabilitation centers have been utilized to provide education to the staff. This education has included topics such as the rehabilitation process and the management of the traumatic brain injury patient.

The hospital utilizes an outside vendor to obtain patient satisfaction surveys. The TCU has consistently met or exceeded yearly patient satisfaction goals set for the hospital.

In summary, since opening the TCU at this facility, there has been documented decreased ICU length of stay and decreased cost of care for trauma patients. At the same time there was an overall decrease of cost in providing that care in addition to enhanced patient satisfaction.

Chapter Five

Discussion

The creation of a medical-surgical trauma unit dedicated to the care of trauma patients has led to improved continuum of care for the trauma patient at this institution. It has allowed nursing leadership to designate trauma-specific education for the staff in response to identified patient outcomes, unusual occurrences, patient satisfaction reports, and feedback from the staff themselves. Nurses and support staff report a strong feeling of collegiality with the medical team that includes the attending physicians, residents, interns, and nurse practitioners.

The Sise et al. (2011) study has strong implications that the creation of the TCU contributed to reducing complications and to improving the value of care provided to trauma patients in the institution. The unit allows the N.P.s to spend increased time on the unit and with the patients. These advanced practice nurses play an integral role in patient and family education, as well as providing role models to the staff nurses. The professional nursing staff reports a high level of satisfaction in having the N.P.s present on the unit and readily available to address patient needs or concerns. One goal recently discussed by the N.P.s is to develop formal educational opportunities for the TCU staff. With the loss of the CNS role on the TCU any trauma specific education has been provided informally by the N.P.s and through staff voluntary attendance at trauma specific conferences in the community.

One potential future research project or review could be the impact of a dedicated trauma nursing staff on the TCU in the care of the post traumatic brain injury patient. The Sise et al. (2011) study demonstrated a decreased length of stay in the ICU for the trauma

patient. A review of how these patients are managed once they are on the TCU could provide insight or opportunities for improvement in their management. It could also potentially identify some best practices in our current management of these patients.

The staff on the TCU have not been mandated or encouraged really to attend a Trauma Nursing Core Course (TNCC). This is a course overseen by the Emergency Nurses Association (ENA) that provides an intense two day course that includes both didactic and skills stations on the management and resuscitation of the acute trauma patient. This course has typically been viewed as essential for emergency department or trauma nursing staff responding to the initial management of the trauma patient. Participation in such a course would give the TCU staff an expanded understanding of the initial phase of the trauma patient which could be beneficial especially in light of the fact that approximately 75% of trauma patients are admitted directly to the TCU from the trauma resuscitation bay. This is also a potential future review that would include implementing staff going through the TNCC course and the potential impact on their ability to improve their management of the acute trauma patient.

Limitations of this review include inability to identify specific indicators or monitoring tools that would indicate the impact of the unit as a single change to the care provided to trauma patients at this institution. Available indicators such as patient satisfaction, staff satisfaction, and patient outcomes have many variables that affect them and cannot be solely attributed to the unit in and of itself.

In conclusion, feedback from the staff on the TCU, nursing leadership, and the medical team continues to be extremely positive regarding the environment created with the addition of the TCU. There are significant increased levels of collegiality and

collaboration reported between nursing, ancillary, and medical team members. The unit allows for quick identification of trauma patient specific care concerns and quick resolution or improvement in processes. The unit has brought the trauma program and service into a full service line program.

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