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ORAL & POSTER PRESENTATION ABSTRACTS – Research

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R19	Darcy L Day, RN, BSN, CCRN, CEN, CN IV	<i>Use of a Massive Transfusion Protocol (MTP) at a Geographically Isolated Trauma Center</i>
R20	Bonnie F McCracken, RN, BSN, MSN, NP-C	<i>Utilization of Flexion Extension Films in the Clearance of the Cervical Spine in Blunt Trauma Patients when the CT scan is Negative</i>

Evidence-Based Practice - E1

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

A Level I Trauma Center Internal Campaign to Increase Safe Driving by Staff

Authors:

[Debbie Couillard, RN](#); Stephanie Power, LMSW; Pamela Ferguson, PhD; Samir Fakhry, MD, FACS

Background & Purpose:

Trauma consistently ranks as the number one cause of death in patients ages 1-44 years, and South Carolina has a higher-than-average rate of motor vehicle (MV) fatalities (4th highest state in 2009) and a lower-than-average use of seat belts (81.5% in 2010). The aim of this internal campaign was to determine the attitudes and adherence to MV standards in our Level I trauma center (TC), to improve employee MV safety, and to have employees serve as role models for our community.

Study/Project Design:

This was a before-and-after evaluation of an internal campaign to increase employee MV safety.

Setting:

The campaign took place in a Level I TC.

Sample:

Approximately 2000 employees participated in each of the surveys, and 2000 drivers were observed, with both being convenience samples.

Procedures:

The Injury Prevention Coordinator (IPC) and the Trauma Program Manager developed and implemented a campaign consisting of several high visibility events (ie, signs, information booths, articles, intranet reminders, employee orientation presentation), in addition to the ongoing safety messages and events normally provided by the IPC. A survey was sent out initially to all hospital employees concerning MV safety knowledge and habits, and observations of seat belt use by drivers were conducted outside employee parking garages. A 3 month campaign was then conducted to increase MV safety awareness. A repeat survey and observation were then done. A year later another observation was conducted. Pre- and post-campaign surveys and observations were compared to look for evidence of change.

Findings/Results:

The survey participants reported higher seat belt usage pre-campaign (always use by 93%) than the observed state usage (82%), but with no reported change post-campaign. In fact, there was almost no change in any of the responses post-campaign. However, observed seat belt use pre-campaign was 79%, the immediate post-campaign usage was significantly higher at 87% (confidence intervals for the difference between 2 independent proportions, $p < .05$) and this increased usage was maintained one year after the campaign at 89%. It is unknown how many of the pre- and post-campaign survey respondents and observed drivers were the same, nor how many of them saw or participated in some part of the campaign.

Discussion/Conclusions/Implications:

A relatively simple campaign of visual reminders and informational events appears to have had a sustained positive effect on seat belt use among employees of a Level I TC. This effect should decrease traumatic injury among employees, who ideally serve as a model for the community. Additional evidence is needed to show a causal effect, to determine what parts of the campaign have the most impact, and why survey responses were unchanged.

Evidence-Based Practice - E2

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Challenges Implementing an Intimate Partner Violence Screening Program

Authors:

[Suzanne Day, RN, BSN, MA](#); Mary Pugh, MSN, FNP-BC; Floresha K. Redmond, MSW-LCSW; Debra Thacker, RN, MSN; Jolene Fox, RN

Background & Purpose:

Several published studies have demonstrated that domestic violence is the leading cause of serious injury and death in women of child bearing age in the United States. To expand identification of abuse victims, the trauma program adopted procedures for intimate Partner Violence (IPV) screening in admitted trauma patients. The purpose of this study was to design, implement, and test the use of an IPV protocol. Established performance improvement (PI) principles were applied.

Study/Project Design:

An IPV screening process was implemented. Problems were identified and adjustments made.

Setting:

An ACS verified Level one adult trauma center in the Western US.

Sample:

Non-psychiatric admitted trauma patients, over 18 years of age, with a stay longer than 48 hours, who verbally agreed were eligible.

Procedures:

After obtaining verbal agreement to participate, a four question Partner Violence Screen, developed by (Feldhaus) was used to identify patients for inclusion. The screen was related to history of abuse and current safety. If abuse was found, a 28 item IPV questionnaire was utilized. The questionnaire items were computerized and patient responses entered into the medical record. Based on the answers, needs were assessed and specific counseling was provided. At discharge, additional resources were offered. Compliance was monitored throughout implementations. When inadequate, staff gave input to determine causes and possible solutions.

Findings/Results:

A total of 1,048 patients met inclusion during the study period: October 25, 2010 to September 30, 2011. Compliance was 6% in 2010. The low compliance was attributed to delays in start-up, lack of time and resources. While staff felt ensuring patient safety and providing adequate discharge resources was essential, screening was perceived as burdensome. Evening, weekend and holiday's had insufficient coverage. Therefore, admissions less than 48 hrs were excluded. Weekly audit results were given to management. In July of 2011, an additional social worker was hired. By September 2011, the compliance had improved to 42%. Fifty percent of positive screens had non-abuse mechanisms of injury. Therefore, half were identified through screening. There were four positive screens due to data entry errors. As a result automatic defaults were eliminated. Thirty-three percent of positive screens were not given the questionnaire to complete the process. Feedback was provided to staff as education.

Discussion/Conclusions/Implications:

Time, increased workload, and lack of resources were initial barriers to screening. Abuse cases identified by screening were positive motivators for staff. Changes in PI feedback improved compliance. Future recommendations include: add additional resources in order to provide universal screening regardless of length of stay, change process to screen for all types of abuse, start the process in the emergency department. Abuse is known to be under-reported and a frequent reason for trauma admissions. Clinicians at this institution support screening as important to quality clinical care.

Evidence-Based Practice - E3

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Charge Nurse Empowerment Demonstrates Improved Unit Flow and Patient and Staff Satisfaction

Authors:

[Sue Fishel Ramzy, RN, BSN](#); Lynn Gerber Smith, RN, MS; Theresa DiNardo, RN, MS, CCRN

Background & Purpose:

A Level One trauma intake unit developed a unique charge nurse role to improve poor nurse satisfaction scores, inefficiencies in patient flow and increased length of stay. Morale suffered and was evident in high vacancy and turnover rates. Potential admissions were lost and patient satisfaction scores were below the unit's target. The nurse manager conducted a needs assessment and designed leadership education, training, and team building for a role that became unique to the unit. The initiative of a charge nurse role was designed in complete collaboration with direct patient care nurses.

Study/Project Design:

A two year analysis examined the pre and post implementation of the charge nurse initiative.

Setting:

Trauma intake unit in a Level One Trauma Center in a large urban academic medical center.

Sample:

All staff nurses in the trauma intake unit were included. The pilot included 8 charge nurses and later expanded to 16 charge Nurses.

Procedures:

A unit needs assessment revealed that the charge nurse should be more available and should not be responsible for a patient assignment. Staff surveys based on annual peer review identified the 8 RNs that had the highest scores for competence, reliability, helpfulness to others and role model characteristics: this group became the first charge nurse cohort. The core group was educated on leadership skills and the expectations of an authentic leader. Individuals strengths were explored and each leader received mentorship prior to implementation. Team building sessions within the group were conducted in order to ensure consistent implementation of this new charge nurse role. The group participates in a critical appraisal of the role quarterly and staff evaluates each charge nurse annually.

Findings/Results:

After implementation of the charge nurse initiative, unit admissions increased by 8 percent and length of stay decreased dramatically from 12 hours to 5.9 hours. When compared to similar units around the country, patient scores are consistently in the 99th percentile. The nursing turnover rate is less than 2 percent, and the vacancy rate is zero. An increase in patient admission numbers and acuity levels has justified a change to the RN budget from 29 RN FTEs in 2009 to 35.05 FTEs in 2011. Staff satisfaction now scores in the 95th percentile for like units nationally. The improved flow has allowed this unit the capacity to accept "off service critical boarders", to be a holding unit for patients who suddenly need a higher level of care and to accept complex transfers from outside trauma hospitals. This ability further increases the safety and efficiency of the entire hospital.

Discussion/Conclusions/Implications:

A retrospective assessment of the charge nurse initiative clearly shows that proper definition of the role, along with extensive leadership education and skills development led to effective implementation. The charge nurse role is now responsible for the direct care of the staff nurses, physicians, families, visitors and resource personnel. This core group has now expanded to 16 charge nurses. The current charge nurse group is currently assessing other opportunities for improvement and implementing additional unit quality initiatives such as enhanced RN/MD communication.

Evidence-Based Practice - E4

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Crew Resource Management in the Trauma Resuscitation Area

Authors:

[Amy E. Krichen, RN, BSN, CEN](#) and Keith D. Clancy, MD, MBA, FACS

Background & Purpose:

CRM demonstrates positive outcomes in safety. Standardizing skills and communication allows for consistency in processes and intentionally decrease variability. Applications of controlled setting principles have not been studied in the trauma resuscitation setting. We developed and implemented a TR-specific CRM program. TR CRM goals focused on optimizing an environment of care and safety, providing structure for communication, incorporating ATLS/ATCN principles, and enhancing collaboration. Pre/Post evaluation demonstrated an increase in safety initiatives and perception of safety importance.

Study/Project Design:

Staff questionnaires and CATS Assessment Tools were utilized for pre/post comparison.

Setting:

Community teaching hospital with Level-1 trauma designation.

Sample:

324 staff members attended training. The multidisciplinary team included all first-responders to the TRA for trauma team activations.

Procedures:

A multidisciplinary group was challenged to implement the CRM principles in the TRA. The team began with a literature search including best practices for CRM implementation and trauma-specific initiatives. We reviewed the established OR CRM and adapted modules that were applicable for the TRA venue. Final modules were divided into areas of expertise within the group: 1) Why CRM, 2) Shared Mental Model and Hand-Offs, 3) Effective Team Communication and Leadership and 4) Performance Improvement. The final product proposal developed into a three hour long presentation. The sessions were offered to all staff attending the TRA with the intention of multidisciplinary discussion. Multiple sessions were offered to accommodate various scheduling needs.

Findings/Results:

Staff completed pre/post survey evaluating safety perceptions. Team Leader identifies self to team, pre 28.9% and post 80% (P <0.001). TL assigns role to team members, pre 37.4% and post 80% (P <0.001). Accurate information obtained from EMS, pre 88.9% and post 100% (P <0.003). TL communication before patient arrives, pre 27% and post 74% (P <0.001). Pre-arrival briefing is important, pre 91.7% and post 98% (P <0.04). Staff will speak up if they see something that may affect patient care, pre 63.7% and post 83.5% (P <0.001). CATS Assessment Tool and direct observation results: Briefing, pre = 40% and post = 89% (P <0.001) ; Verbalizing Plan of Care, pre = 44% and post = 89% (P <0.001); Establishing TL, pre = 12% and post 82% (P <0.001); Assigning Role, pre = 4% and post = 89% (P <0.001); ED Providing Patient Summary to Trauma Team, pre = 48% and post = 84%; (P <0.0021) Cross Monitoring, pre = 16% and post = 87% (P <0.001) ; Verbalizing Updates, pre = 8% and post = 71% (P <0.007).

Discussion/Conclusions/Implications:

CRM programs can be successfully implemented in the TR arena. Adaptation of the established CRM principles to the TR environment can enhance safety initiatives, collaboration and teamwork Multidisciplinary approach is essential. Future steps would include evaluation of potential or near-miss situations that were avoided as a result of CRM and evaluation of adverse or sentinel event statistics post-implementation.

Evidence-Based Practice - E5

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Development of a Multidisciplinary Pediatric Traumatic Stress Screening Program

Authors:

Matthew D. Jandrisevits, PhD; [Kristin Braun, RN, MS](#); Cinda Werner, RN, MS, and Linda Perez, RN

Background & Purpose:

Many young trauma patients experience significant traumatic stress symptoms associated with injuries. Pediatric Trauma centers across the United States are often the first to provide care for young people with injuries. As a result, there has been a move among many Pediatric Trauma centers to promote early identification of traumatic stress symptoms among young people through screening trauma patients. The objective of the current project is to describe the coordinated, multidisciplinary implementation of a traumatic stress screening program for young trauma patients.

Study/Project Design:

A multidisciplinary team selected the Screening Tool for Early Predictors (STEPP) screen.

Setting:

Pediatric Level 1 trauma center.

Sample:

Admitted trauma patients 8 years old or older, who were a trauma activation or admitted to the general surgery service.

Procedures:

Positive screens are followed by administration of created teaching sheets identifying child traumatic stress symptoms. Additionally, positive screens trigger a formal psychology consultation for further assessment, and initial treatment, of a patient's traumatic stress symptoms. Community treatment resources are provided to both the youth and their caregivers.

Findings/Results:

As a result of this collaborative effort, between May 2010 to September 2010, approximately 60 STEPP screens were successfully performed clinically on trauma patients by the multidisciplinary team members. This resulted in an additional 20 psychology consultations and provided an opportunity for staff to discuss traumatic stress to both the patients and families.

Discussion/Conclusions/Implications:

Given that this screening protocol is clinically viable, the multidisciplinary team is currently developing applied research targets which would systematically assess program outcomes, including successful facilitation of follow-up outpatient trauma-focused psychotherapy for this population.

Evidence-Based Practice - E6

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Oral Presentation - Thursday, April 12 - 11:00 AM - 12:10 PM

Abstract Title:

Development of a Non-Transfer Protocol for Stable, Mild, Isolated Traumatic Brain Injured (TBI) Patients at a Level 3 Trauma Center

Authors:

[Shelly J. Almroth, RN, BSN](#); Paula M. Hanson, RN, BSN and Pamela Bourg, RN, MS, FAEN

Background & Purpose:

Patients with mild isolated traumatic brain injury (TBI) who have C.T. findings for small intracranial hemorrhage (tSAH) have typically required transfer to higher level of care. Neurosurgical consultation is mandatory. Purpose of this study was to evaluate the safety of admitting to a Level 3 Trauma Center (tSAH) patients without automatic transfer to Level 1 center. Patients who only require consultation and observation for stable non operative lesions are included. Previous studies, in conjunction with Level 1 Center demonstrated transfer to trauma center may have been unnecessary.

Study/Project Design:

Retrospective review of selected TBI patients' clinical data 5/2007-7/2010.

Setting:

Level 3 trauma facility, 40 bed, 550 trauma admissions in rural setting in a resort community.

Sample:

Convenience sample of 57 patients meeting guideline protocol for non-transfer.

Procedures:

Patients with mild TBI (GCS 13-15) and C.T. findings of minimal SAH, punctuate, or superficial cerebral contusion or minimal intra-parenchymal hemorrhage or small subdural hemorrhage without mass effect. Linear skull fractures with GCS of 15 may be admitted who are negative for ICH. Patients must be free of coagulopathy and were admitted to the trauma surgeon. PACS system was available to Level 1 neurosurgeons. Simultaneous viewing by providers allowed real time consultation. Transfer/admission decision made at that time. Systematic approach to detailed neurologic assessment was implemented. Facility CNS lead efforts to ensure all staff understood early warning signs of changes in neurological assessment.

Findings/Results:

3 years post implementation, there were 54 patients who met the criteria for admission. 54 patients were discharged to home without any neurologic sequelae. There was no in-hospital deterioration. Average ISS was 9.1, average age was 42.6, and average LOS was 1.8. The criteria to keep patients at the Level 3 are strict and the patients were monitored closely. During the same time period, 122 patients with identical ICD-9 codes were transferred to a higher level of care. Prior to the implementation of this protocol, all of these patients were transferred. Post implementation, there was nearly a 50% reduction of transferred head injured patients which kept EMS resources in our community. Cost savings for patients who were admitted to Level 3 center was approximately \$7000.00 which includes ground transportation and re-evaluation at Level I center. There was improved patient satisfaction of being able to stay in home community and/or avoiding disruption of a vacation in a resort.

Discussion/Conclusions/Implications:

Our user friendly protocol has proven successful within our facility. Compliance with the protocol has been positive. The technology with the PACS system was key for the protocol success. Our experience supports that in isolated (tSAH) in the mild TBI population did not require transfer to a higher level trauma center. Our experience has been similar to other studies that demonstrated avoidance of unnecessary transfer saved money and resource utilization. Further investigation via a questionnaire is underway to determine if there were any sequelae that occurred status post discharge.

Evidence-Based Practice - E7

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Hospital Acquired Pressure Ulcers Associated with Cervical Collar Use in Trauma Patients: A Care Delivery Redesign

Authors:

Jennifer Grell, BSN, RN; Christy Stehly, BS and [Patti Trapani, RN, CCRN](#)

Background & Purpose:

Hospital acquired pressure ulcers (HAPUs) resulting from cervical collar use is a severe and preventable occurrence that can significantly impact patient safety, length of stay and hospital costs. Limited research on this complication highlights the need for a redesign of clinical practice. A Performance Improvement initiative identified an increase in HAPUs that led to review in our Trauma Intensive Care Unit (ICU).

Study/Project Design:

Literature review; ten year retrospective review; Electronic survey.

Setting:

Adult Level I Trauma Center Critical Care Units.

Sample:

N=55 trauma patients with ICU stay \geq 1 day who developed a HAPU

Procedures:

A multidisciplinary task force was formed to address the identified issue. A confidential electronic survey was distributed to trauma ICU nurses assessing current nursing practice for care of patients immobilized by cervical collars. Descriptive statistics were analyzed with SPSS.

Findings/Results:

The survey demonstrated a variance in the clinical care for this patient population. In 10 years, 55 patients with an ICU stay \geq 1 day developed a HAPU. Two patients were excluded based on inability to access medical records. Twelve of 53 patients (23%) developed occipital HAPUs. Of the 12 patients with occipital HAPUs, 9 (75%) were related to a cervical collar. The average age of these patients was 50 years, 88% male vs. 12% female. Average hospital length of stay (HLOS) = 36 days, ILOS = 19.5 day and ISS = 30. Two (0.2%) of the 9 patients had comorbidities of diabetes and hypertension.

Discussion/Conclusions/Implications:

Cervical collar use does not come without risks. Implications for the nursing profession include a redesign of clinical care using an evidenced-based approach. Key elements are guidelines for trauma patients with a cervical collar, education of nursing staff regarding proper sizing and fit of collars, accurate documentation of cervical collar interventions and appropriate under head support head is required. The nursing profession has a responsibility to avoid preventable conditions. Through constant re-evaluation of practice, nurses can have a significant impact on quality patient care.

Evidence-Based Practice - E8

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Implementation of a Trauma Nurse Team Lead (TNTL) Model: Champions for Trauma

Authors:

[Susan Cox, RN, MS, CPEN, PHN](#); LesleyAnn Carlson, RN, MS; Judy Bergman, RN, MS; Renee Douglas, RN; Lisa McDonough, RN, BSN; Lori Ninberg, RN, BSN

Background & Purpose:

Trauma resuscitation care is especially complex and challenging in pediatric trauma centers where the number of severely injured, acute status patients is relatively small. Skills maintenance, familiarity with resuscitation equipment and procedures, comfort with team dynamics and team communication all appear to degrade when large numbers of nurses rotate infrequently through trauma nurse roles. The purpose of this project was to explore the effectiveness of creating a model where a limited number of self selected nurses were designated and assigned to a new "trauma nurse team lead" (TNTL) role.

Study/Project Design:

Analysis pre- and post development and implementation of the new trauma nurse team lead role.

Setting:

ACS verified Level I Pediatric Trauma Center with approximately 1100 trauma patients annually.

Sample:

Sample size of trauma resuscitation nurses (TRNs) pre-implementation = 110. TNTLs post implementation = 52.

Procedures:

Pre trauma service satisfaction survey, May, 2010. Project concept and vision introduced to the ED and transport staff nurses at routine staff meetings by the ED, Trauma and Transport leadership. Volunteers solicited to develop the role description and process. Optimal number of nurses needed to adequately staff for 2 trauma resuscitation nurses 24 hours daily determined by leadership team. Call for volunteers resulted in good response from staff. Decision made to include all ED Charge Nurses in role made by ED Director. Role implemented January 1, 2011. Evaluation included: TNTL generated emails pre and post project; number of patients per TNTL post implementation compared with number of patients per trauma nurse pre implementation and pre/post survey (10/11) result comparison.

Findings/Results:

Prior to this project there were 100 nurses from the ED and 11 transport nurses rotating through the role of resuscitation nurse. In 2010 65 of the ED nurses function as TRN for 46% of our trauma patients and the 11 transport nurses were TRNs for 53% of the patients. ED averaged 8 patient/RN and Transport 50/RN. In 2011, so far, 41 ED nurses have occupied the TNTL role 63% of the time and 9 transport nurses have been TNTLs 37% of the time. ED average 12 patient/RN and transport 32/RN. Prior to this project there were no staff directed emails advocating for changes in the trauma room equipment, setup or systems. After implementation, TNTLs began sending emails to each other suggesting improvements in the way the room was arranged or in processes and forms. By written pre and post survey, there was a 7% improvement in the satisfaction with current position by all ED nurses and a 4% improvement in team members understanding of roles and responsibilities. 2012 data will be analyzed.

Discussion/Conclusions/Implications:

Implementation of a self selected trauma nurse team lead role has resulted in positive changes on our trauma team. The project and processes are still relatively new and evolving but appear to be promising as a strategy for scaling down the primary responders to the trauma room in a way that engages the nurses and leaders in a collaborative process and established the groundwork for self directed team. It also increases the responders exposure to trauma patients, equipment and the environment. Inclusion of the charge nurse team will be reevaluated.

Evidence-Based Practice - E9

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Improving Outcomes In The Geriatric Hip Fracture Population by Developing a Joint Commission Disease Specific Certified Program

Authors:

[Kindra McWilliam-Ross MSN, APRN, ACNS-BC](#)

Background & Purpose:

Hip fracture is a injury that results in substantial morbidity, mortality and expense. Our hospital developed a Multidisciplinary Care Model for these patients. This program was initiated in 2009 as a response to the many challenges faced. The hip fracture service is a comprehensive program whose goal is to improve the health of the patients by providing quality care to those experiencing a hip fracture in accordance with established, evidenced based, clinical practice guidelines that enable the geriatric patient to achieve the optimal level of recovery.

Study/Project Design:

We began the program in may 2009 and all performance measure have improved.

Setting:

Community Hospital 710 bed level II trauma center.

Sample:

We included age 60 and older, ground level fall, excluded active cancer and perprosthetic fracture, there are around 300 patients a year.

Procedures:

The Steering Committee oversees the program and is responsible for written protocols involving the care and treatment of patients. Standardized pre- and postoperative order sets, based on best practice, were with the expectation of usage of these order sets on all hip fracture patients in the program. All new research and development reported in the literature is reviewed in this committee and applied to the program if applicable. In addition, the committee monitors and reviews all performance measures including volume, cost, length of stay, time in ED, time to medical clearance, time to OR, DVT prophylaxis/acquired, order set usage, Prealbumin, vitamin D, nutrition consult, readmission, mortality, Foley removal by POD #2, osteoporosis screening, daily confusion assessment method.

Findings/Results:

Within the first year of formalizing the Hip Fracture Program we were able to Decrease patient care costs by 15%, Decrease length of stay by 28%, Decrease mortality by 0.5%, Increase post operative hip fracture order set use 53.8%, Time to OR was reduced 7.3 hours. THFW became the first hospital in Texas to be Joint Commission (JC) Hip Fracture certified awarded in the first quarter of 2010. The implementation of this model of care has resulted in nursing staff empowerment, multidisciplinary collaboration, and nursing education. This program empowered the frontline nursing staff in the care they provide to the hip fracture patient by giving them a voice through council activity. Lessons learned were: we realized the need to develop a delirium protocol, a reduction in INR protocol and an osteoporosis and Vitamin D protocol.

Discussion/Conclusions/Implications:

Through nursing leadership along with the collaboration of a multidisciplinary team the hip fracture program was created, nurtured, and grown into a comprehensive evidence-based, protocol driven patient care approach. It is through the collaboration of team that we were able to drive significant positive change and increase optimal patient outcomes. This process has moved our institution forward in reaching our goals of providing quality evidence-based care, and fostering teamwork among, physicians, nursing leadership, nursing staff, and the patient to achieve an optimal outcome in these patients

Evidence-Based Practice - E10

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Oral Presentation - Thursday, April 12 - 11:00 AM - 12:10 PM

Abstract Title:

Level II Trauma Center Initiative to Decrease Falls in a Senior Living Facility

Authors:

[Kathleen M. Phelan MS, RN, CEN, TNS](#)

Background & Purpose:

According to the CDC, each year one in every three adults age 65 and older falls. Falls can cause injuries that include hip fractures, head traumas, and increase risks of early death. In 2009, there were 2.2 million nonfatal fall injuries among older adults that were treated in EDs, with more than 581,000 patient hospitalizations. Falls are the number one trauma related admission at this Level II trauma center. The goal of this project was to identify the geographic location of the most frequent falls and implement a fall prevention program to decrease the number of falls at that location.

Study/Project Design:

Data was collected six months before and after implementation of a fall prevention program.

Setting:

The setting was a Senior Living Facility (SLF) in the trauma center's service area.

Sample:

This was a convenience sample of 186 residents aged 65 and over that reside in a Senior Living Facility.

Procedures:

The trauma registry was queried for the location of the highest volume of falls, which revealed local SLFs. A literature search was done to identify an evidenced based fall prevention program for older adults. Matter of Balance (MOB) falls management program was selected. The trauma center hosted an instructor training course so specially trained trauma nurses could teach the evidenced based program. The SLF in the trauma center's service area with the highest number of falls was identified as the initial site to teach the fall management program. Thirteen SLF residents with history of recent falls enrolled in the program. Fall related hospital admissions from the SLF were measured. Expansion of MOB programs to other sites would occur if data supported a decrease in falls.

Findings/Results:

As a measurement of program effectiveness we evaluated the number of fall related admissions. There was a 45% decrease in fall related hospital admissions six months after program completion. The SLF also reported a 77% decrease in falls and a 100% decrease in ambulance transports for MOB participants during the first three months post program. The MOB fall management program led to a decrease in the number of fall related hospital admissions and a decrease in falls for program participants. Lessons learned from implementation of the MOB program was the initial reluctance of SLFs to have an outside agency bring a program into their facility. Collaboration with the SLF regarding the benefits of a falls management program is essential to implement the program. Challenges also included SLF's hesitancy to release fall data, selection of appropriate program participants and difficulties with data collection. Scheduling post program meetings with the SLF is crucial for gathering data.

Discussion/Conclusions/Implications:

This project was initiated to decrease the number of falls in the older adult population. Identification of an evidenced based falls management program and implementation can lead to a decrease in falls. Engaging older adults and senior living facilities can be challenging. Next steps are to try to sustain the results by continued engagement with fall prevention awareness at the SLF and to teach MOB programs at additional SLFs. On-going exercise activities to maintain strength and balance post MOB program is an area for future development.

Evidence-Based Practice - E11

Poster - Available for viewing beginning 11:00 AM Thursday, April 1 , 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Matching Resources and Patient Acuity in a Revised Triage Activation Protocol Leads to Improved Utilization and Outcome

Authors:

[Theresa Snavely, RN BSN](#); Patricia Palubinsky, RN BSN; Pamela Nichols, RN BSN

Background & Purpose:

Monitoring of the rapid identification and access to appropriate resource allocation of critically injured trauma patients is a critical indicator of trauma performance. UT of the severely injured may result in preventable mortality or morbidity from delays in definitive care. The purpose of this study was to evaluate the effectiveness of two key system enhancements - revisions of triage activation criteria and the presence 24 hour in-house Trauma Surgeon, by examining their impact on UT.

Study/Project Design:

Pre/post protocol revision study of injured trauma patients recorded in trauma databases.

Setting:

Rural Level 1 Trauma Center, 500 bed academic medical center.

Sample:

Pre/post study of protocol revision, 3,707 trauma admissions over 3 and a half year period (2008-2011).

Procedures:

Cribari grids were utilized to identify those patients appropriately triaged, over triaged, and UT based on American College of Surgeon definitions. TTA criteria were moved from Level 2 TTA to Level 1 TTA April 2010. In addition, trauma surgeons were brought in-house on a 24 hour basis (January 2010).

Findings/Results:

UT significantly improved from 22-26% pre revisions to 8-10% post revisions period, while over triage rose from 6% to 11%. Trauma surgeon presence on arrival of all TTA changed from 61% to 95% in the post change period. Level 1 TTA increased from 18% to 26%, Level 2 TTA remained unchanged at 50%, and Level 3 TTA declined from 8% to 2% of all TTA.

Discussion/Conclusions/Implications:

A revised Triage Activation Protocol incorporating evidence-based guidelines and in-house Trauma Surgeons has reduced UT and improved timely oversight and patient safety of critically injured patients. Resuscitation paradigms need continuous revision, education and monitoring of variances to result in optimal care.

Evidence-Based Practice - E12

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Moving A Trauma Center: What Does It Take?

Authors:

[Pamela W. Bourg, RN, MS, FAEN](#) and Elizabeth V. Dunn, RN, BSN, CEN

Background & Purpose:

American healthcare industry is in the midst of construction boom. This boom presents opportunity to use evidence base planning and implementation to positively impact care of trauma patient. The purpose of this project is to demonstrate the planning, implementation and evaluation of the move of urban trauma center from 120 year old campus to 21st century campus.

Study/Project Design:

Data from similar moves was reviewed. Planning was undertaken. Pre/post move results were recorded.

Setting:

Urban ACS verified high activity high volume Level 1 community trauma center.

Sample:

Convenience sample of hospital employees directly connected to providing trauma services: RNs, MDs and the other allied health.

Procedures:

A comprehensive move plan for entire hospital was developed. Specific trauma center processes were identified and a list of milestones was created with specific trauma elements. Vital aspects included: coordinating furniture, computers, medical equipment, supplies for trauma rooms, trauma activations at new location, and training with new equipment. Additional challenges were working with pre-hospital agencies, public awareness and closing the current location and opening new location without a break in service. Mock training days with trauma activations, including EHR utilization, were utilized to test all aspects of care. A patient and physician move sequence checklist was developed.

Findings/Results:

A post-assessment of what went right with move was determined. Many complex processes were very successful such as closing and opening of the trauma center ED and OR with no breaks of service, and finishing the patient transport 2 hours ahead of schedule. This project enabled us to clearly define trauma processes which improved the entire staff response to trauma patients and empowered all disciplines to work more cohesively together. There were no unexpected incidents during the move process as a result of the planning. A viewing room for major trauma resuscitations has proven invaluable as a teaching opportunity, specifically for first responders to witness further resuscitation efforts. Additionally, other professional students can also learn by watching the trauma team in action. State and national reviewers evaluated the hospital within 30 days of move and declared it exemplary.

Discussion/Conclusions/Implications:

Lessons learned from other facilities that had undergone a location move were invaluable. The established staff brought a wealth of historical clinical depth, maturity and team relationships. This move challenged us to examine our way of doing things in a way that no other influence had before. Further studies regarding our processes will be undertaken in this post-implementation phase to determine impact on patient care. The spaces in our new hospital have been described as "a very healing" by our patients, their families and staff.

Evidence-Based Practice - E13

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Nursing Empowerment: Transforming Emergency Department Compliance with Hospital Documentation Policy

Authors:

[Kimberly Broughton-Miller, MSN, APRN-C](#); Michelle Frisbie, MSN, APRN; Karina Pentecost, MSN, APRN; Jodi Wojcik, MSN, APRN; Chrissi Doyle, RN

Background & Purpose:

The purpose of this study is to improve compliance of the hospital documentation policy. A routine chart audit revealed inadequate and inconsistent documentation on the Trauma resuscitation flow sheet. In response to this finding the current policy was redistributed among all Emergency Department nurses. Initially there was no improvement following the dissemination of the policy. A change in culture was then initiated involving both administration and the bedside nurse. Nursing as a whole was empowered to tackle the responsibility of peer chart auditing.

Study/Project Design:

Evidence based, Quality improvement project.

Setting:

An Academic Regional Level 1 Trauma Center.

Sample:

All Emergency Department Nurses, approximately 68 nurses, employed at an Academic Regional Level 1 Trauma Center.

Procedures:

A systematic chart review, of over 637 charts, was conducted using a Chart Audit Tool. The findings revealed severe documentation deficiencies. Kanter's Theory of Empowerment was used to implement a change agent in the emergency department's documentation practice. Nursing empowerment was achieved by allowing greater access to information, education, and support of peer growth. Nurses performed chart reviews and provided real time feedback to their colleagues.

Findings/Results:

When nurses were given the autonomy to perform peer to peer audits with immediate feedback, and education, the compliance to hospital policy significantly increased. Most audited areas showed a 20-40 % improvement, while a number of noted areas improved by as much as 60%. These results continue to be monitored and early data show sustainability of compliance. Empowerment as a group attribute, proved to be a far more effective tool than individualized education. This strategy led to ownership of the issue by nursing staff resulting in a dramatic improvement in compliance. A truly empowering environment for nurses was used to foster mutual professional relationships, increase communication and collaboration to achieve organizational goals.

Discussion/Conclusions/Implications:

Empowerment as a group attribute, proved to be a far more effective tool than individualized education. This strategy led to ownership of the issue by nursing staff resulting in a dramatic improvement in compliance. A truly empowering environment for nurses was used to foster mutual professional relationships, increase communication and collaboration to achieve organizational goals.

Evidence-Based Practice - E14

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Reducing Catheter Associated Urinary Tract Infections: A Nursing Process Improvement Project

Authors:

[Paul Thurman, RN, MS, ACNPC, CCNS, CCRN, CNRN](#); Rebecca Gilmore, RN; Karen McQuillan, RN, MS, CNS-BC, CCRN, CNRN

Background & Purpose:

Catheter Associated Urinary Tract Infection (CAUTI) is the most common healthcare associated infection (HAI), 36% of all HAIs, each costing \$862 - \$1007. CAUTI is the leading cause of secondary hospital acquired bloodstream infections with an associated mortality of approximately 10%. CAUTI's are complications fundamentally linked to nursing care making it a measure of performance for nursing. The CAUTI rate for the ICU's at the Trauma Center of 18.7/1000 urinary catheter days for fiscal year 2010 significantly exceeded the CDC benchmark.

Study/Project Design:

Evidence-based practice project to reduce CAUTI was started in June 2010.

Setting:

A level 1 trauma center at a 757-bed academic medical center.

Sample:

All trauma patients admitted after July 2010.

Procedures:

The most important intervention is to remove the urinary catheter as soon as possible. Several papers endorsed the use of nurse driven urinary catheter removal protocols. A nurse driven urinary catheter removal protocol was designed using the 2009 CDC's Guidelines for the Prevention of CAUTI with 2 exclusion criteria specific for trauma patients' presence of a urinary tract injury/surgery and/or consultation by urology service. It was felt the presence of these criteria warranted a physician decision to remove the catheter. The protocol was submitted for review by trauma nursing and medical leadership and approved. A pre-checked order sentence urinary catheter removal protocol was written into the admission and transfer power plans for all trauma patients.

Findings/Results:

Although there has not been a dramatic improvement in the CAUTI rate (15.1/1000 urinary catheter days FY11) since adoption of the protocol there has been a 17% reduction in the number of urinary catheter days. The STC CPC continues its CAUTI campaign, Urine Control (You're in Control) which is multi-faceted including education about CAUTI, the urinary catheter removal protocol and the performance of random audits to determine compliance with the protocol. The education consists of a PowerPoint presentation, Catheter Associated Urinary Tract Infections: A Burning Issue which was presented at the competency marathon for intermediate and critical care staff. In addition, a roving cart (decorated with flames as though it were burning) was used for inservice education and return demonstration of catheter care. Each participant received an atomic fireball to simulate the burning sensation of a urinary tract infection. Each unit's CAUTI rates are discussed in the presentation.

Discussion/Conclusions/Implications:

In today's climate of pay for performance, patient care outcomes will be closely scrutinized. A nurse driven protocol for early catheter removal can decrease catheter days. It is hoped the catheter is removed early preventing a patient from being infected lowering costs and possibly saving a life.

Evidence-Based Practice - E15

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Reduction of Central Line Associated Bloodstream Infections in an Academic Teaching Institution

Authors:

[Wanda Gillespie, RN, CIC](#); Jennifer Emunds, RN, MSN; Steven Whitney, RN, CCRN; Rebecca Walker, RN, CIC

Background & Purpose:

In 2007, Hospital Epidemiology, Patient Care Services and Hospital Administration committed to decreasing hospital acquired central line-associated bloodstream infections. In 2009 Hospital Administration assigned responsibility for oversight and coordination of the National Patient Safety Goal (NPGS Prevention of Central Line Associated Bloodstream Infections (CLABSIs) to the BSI Prevention Workgroup. This workgroup was formed to achieve best practice with primary goals to reduce central line infection rates by 50% within 12 months.

Study/Project Design:

Initiatives began 3rd quarter of 2007 and were fully implemented by 4th quarter of 2010.

Setting:

Academic Teaching Medical Center for a tertiary care hospital to include a Shock Trauma Unit.

Sample:

Patients with central lines inserted and maintained while in the hospital, as well as hospital staff who insert and maintain central lines.

Procedures:

A proposal was sent to the Hospital Infections Committee to implement a dedicated Vascular Access Team and endorsed. Also proposed was mandatory certification of all central lines, also endorsed. Lines not certified are to be removed within 24 hours. The Vascular Access Teams conduct surveillance on all central lines daily to help ensure proper maintenance and necessity. A certified line would be one placed by a qualified inserter and observed by someone not assisting in the procedure to ensure all bundle elements were followed with documentation of process. Education was also a large part of the prevention of CLABSIs. Educators developed unit specific educational tools to enhance hospital-wide efforts.

Findings/Results:

After the implementation of the Institutes for Healthcare Improvement 5 million lives campaign in our intensive care units in 2007 followed by the National Patient Safety Goals in 2009, ongoing unit specific education - with strong emphasis on asepsis and scrub the hub, and in 2010 initiation of line certification training and education and the Vascular Access Team, central line associated bloodstream infections in the STU dropped from above the 50th percentile, which it has been running for the past several quarters, to below the 25th percentile with a full 282 calendar days passing without a CLABSI in 2010. With the full support of administration, staff are empowered to "stop the line" if unsafe insertion practices are observed. That along with minimizing the number of staff who manipulate the dressing/lines and increasing central line care education for all staff have shown to decrease the overall CLABSI numbers for the Shock Trauma Unit.

Discussion/Conclusions/Implications:

While education plays a key role in the prevention of CLABSIs, ensuring all staff are compliant with evidence based policy and practice is paramount in reducing the risk of infection. Administrative support was crucial in the implementation of all initiatives. Our Emergency Medicine Department declared itself a leader by mandating all faculty complete Central Line Bundle training prior to it being mandatory. As the hospital continues to educate staff in the care of central lines it is becoming less of a challenge as the continued support from faculty and administration grows.

Evidence-Based Practice - E16

Oral Presentation - Thursday, April 12 - 11:00 AM - 12:10 PM

Abstract Title:

Referral Hospital/EMS Communications: A Performance Improvement Initiative from a Level I Academic Trauma Center

Authors:

[Jennifer Haynes, RN, MSN/MHA](#); Lisa Murtaugh, RN, MHA; Kathleen Mohr, RN, BS

Background & Purpose:

Communication to referral hospitals and EMS agencies regarding patient outcomes is critical to assist in staff education and performance improvement. The lack of feedback inhibits growth and change. Thus, a follow-up initiative was implemented by a Level I Academic Trauma Center to increase regional educational opportunities, develop performance and quality measures, and improve participation at regional trauma meetings. By providing feedback to referral agencies, relationships with our stakeholders were cultivated which improved participation and attendance at quarterly Regional Advisory Committee.

Study/Project Design:

This project is a before-and-after comparison of a new initiative which includes a survey sample.

Setting:

Level I Academic Trauma Center and its Regional Advisory Committee (RAC) stakeholders.

Sample:

Thirty-six stakeholders from regional hospitals and EMS providers were surveyed. Also, RAC attendance rosters were reviewed from April 2009-July 2011.

Procedures:

During outreach visits to hospitals and EMS agencies, concerns were voiced to the Level I Trauma Center regarding the lack of feedback and communication on referral patients. A list of PI and physician contacts at each facility or EMS agency was compiled. A form letter was developed to thank the hospital or EMS agency for the patient referral and provide feedback. The letter included the patient's history and physical as well as a tertiary survey. After a consultation with risk management, HIPAA compliance was ensured by sending all letters via secure email. This initiative began July 1, 2010 with the goal to provide feedback within one week of the patient's admission. The recipient was informed this information was provided strictly for their review and to be used for internal PI.

Findings/Results:

Follow-up letters are signed by the Trauma Medical Director, including contact information for additional questions. The initiative has been discussed at each RAC meeting to elicit comments, problems, or concerns. Qualitative data was obtained from personal interviews, email feedback, and a formal survey of RAC stakeholders. Quantitative data was gathered via retrospective and concurrent review of attendance records and compared one year pre and post implementation. Comparative analysis of attendance records, both pre and post initiative, showed a 23% increase in RAC attendance. With 58% of the RAC stakeholders responding to a formal survey, data indicated their perceived enhancement in performance improvement processes, training programs, peer review and communications within their own facilities.

Discussion/Conclusions/Implications:

The results of our study reinforce the belief that timely communication is essential to quality improvement and enhanced teamwork. In an engaged, mature regional trauma system, improved collaboration between EMS and hospital systems will ultimately impact patient care.

Evidence-Based Practice - E17

Oral Presentation - Thursday, April 12 - 11:00 AM - 12:10 PM

Abstract Title:

Rural Trauma Outreach: Making it Happen

Authors:

[Amanda Soychak, RN, BSN, NREMT-P](#); Pamela Bourg, RN, MS, FAEN; Ray Coniglio, RN, MSN

Background & Purpose:

Injuries in rural areas have twice the mortality rate of urban areas. A Canadian study suggests that interventions targeting provider education and policy development improve trauma care in rural environments. The Affordable Care Act targets attention to healthcare in rural areas. The purpose of the project was to improve trauma care in rural facilities by providing education and support in securing trauma center designation and enhancement of overall care of the injured patient. Complex networking with preconceived pathways of care and building collegial relationships was paramount.

Study/Project Design:

Analysis pre and post implementation of resources to link rural facilities with referral facilities.

Setting:

State with urban, suburban, rural and frontier health centers.

Sample:

Convenience sample with an integrated system consisting of 14 Level I-V trauma centers and selected non-system rural trauma centers.

Procedures:

A private not for profit system, employed a trauma outreach RN coordinator to work with rural trauma centers to coordinate educational offerings (RTTDC, TNCC), peer and chart reviews, implementation of consultative radiological services and preparation for trauma center designation. Additionally, mentoring of trauma nurse coordinators and medical directors was provided. Resources within the system essential to the project were identified. Efforts included site visits by invitation and offering of available resources. Consultative sessions provided review of facility capabilities and allowed for identification of needed resources. Outreach success will be evaluated by facility designation review, number of participants and facilities reached and independent center success.

Findings/Results:

In the last 18 months, 6 consultative/mock reviews at level 4 facilities were done. All were successful at state designation without deficiencies. Of the 6 facilities, 3 facilities were previously under plans of correction. Transmission of radiological studies electronically allowed for expedited transfers of critically ill patients. Level 1 trauma surgeon consultation improved QI processes at all facilities reviewed. Courses provided included 93 total participants from 17 facilities and 25 counties with 4 states and 1/3 of the primary state counties represented. There was a 10% increase in referrals from rural centers to the level 1 trauma center from FS 2009 to FS 2010 with no major patient care related issues. Relationships were established and resources provided that promoted a seamless process of transfer for the injured patient into a system of multiple trauma centers capable of caring for various levels of injury.

Discussion/Conclusions/Implications:

Many rural facilities do not have the resources available to develop quality trauma care programs and connection to a system of trauma centers closes this gap. Relationships have been key. Personal site visits by key personnel were very valuable. Our systems approach to preventing and treating trauma, sharing best practices, maximizing efficiencies and streamlining communications has been essential. Collaboration between trauma professionals in the urban and rural settings has been key to achieving the success of this project.

Evidence-Based Practice - E18

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Standardization of Trauma Team Resuscitations Improves Trauma Patient Throughput in the Emergency Department

Authors:

[Carol Immermann, RN, BSN](#); Debra Anderson RN; John Osborn; Donald Jenkins MD

Background & Purpose:

Trauma team resuscitations are assumed to be standardized and orderly with all team members following the familiar primary and secondary assessments model as taught in such courses as Advanced Trauma Life Support (ATLS) and Advanced Trauma Care for Nurses (ATCN). While these courses teach an orderly approach to care in the trauma bay this is not always reflected in the real life setting. Inefficient teams may inadvertently affect patient outcomes in a negative manner. The purpose of this process improvement initiative was to improve the function of the resuscitation team in the trauma bay.

Study/Project Design:

Data from registry Jan 2008 to Jan 2010. Times to CT and OR decreased significantly.

Setting:

ACS verified Level 1 Trauma Center.

Sample:

Included in the process improvement project were all disciplines who respond to trauma team activations.

Procedures:

An analysis of patient throughput was chosen as a measure to demonstrate process improvement. Specifically time to CT and time to OR were chosen as measurable elements as these would provide objective data for trauma bay length of stay. The assumption is an inefficiently functioning team causes undue delays in patient throughput. An action plan was developed addressing issues hindering team function. The first step was an agreement by all surgeons that resuscitations would be standardized. Education was then given teaching the accepted algorithm for all resuscitations to trauma team members. Monthly trauma video reviews reinforced this standardized process. Quarterly Simulation Center team training likewise reinforced the process. Team performance was a priority for all.

Findings/Results:

498 top tier team activations occurred during the study period, 262 pre and 236 post. 227 patients went to CT from the trauma bay in the pre standardization period, compared to 186 post. The average and median time to CT decreased significantly. 22 patients went directly to the operating room in the pre-PI period, compared to 36 post. The average and median time to the OR also decreased significantly. Time to CT (min) Time to OR (min) Period n MEAN STDEV MEDIAN n MEAN STDEV MEDIAN Pre 227 28.76 14.27 25 22 40.14 18.90 38 Post 186 27.15 15.92 23 36 28.36 17.35 24.5 p-value 0.01 0.007 0.04 0.007 Findings were statistically significant.

Discussion/Conclusions/Implications:

Standardizing the team response appears to have benefited the trauma patient by decreasing time to the CT scanner and the OR. This demonstrates earlier recognition and quicker management of serious injury. Also observed was increased staff satisfaction with fewer grievances regarding care variations. Video Review meetings included more open dialogue with members having a clear understanding of the trauma care algorithm. The focus on team dynamics has unified the multidisciplinary trauma team. Further studies are currently in progress analyzing other methods for measuring team function.

Evidence-Based Practice - E19

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

STARS Program: US Air Force Partners With Local Trauma Center to Maintain Trauma Skills in Military Medical Professionals

Authors:

[Allison Andersen, MSN, RN, CCNS](#)

Background & Purpose:

In the deployed environment, Air Force (AF) nurses care for a high proportion of trauma and burn patients. The stateside mission of an Air Force medical center, however, rarely includes these specific capabilities. In order to provide the best possible care for those in harm's way, there is a need for continuous trauma training for Air Force personnel between deployments. A partnership with the local Level I trauma center was forged in five US cities to meet this need. This presentation describes one city's experience with the Sustainment of Trauma and Resuscitative Skills Program (STARS-P).

Study/Project Design:

Skill data was collected following week-long rotations and compared to annual gap analyses.

Setting:

AF nurses worked in the freestanding Trauma Resuscitation ED, Trauma ICU, and Burn Care Units.

Sample:

8 active duty AF nurses participated in the pilot group: 4 Emergency RNs, 4 Critical Care. All are bachelors prepared with 2-15 years of experience.

Procedures:

Experiences were selected from required readiness skills that must be maintained for deployment purposes. These skills include everyday nursing procedures, as well as trauma and battlefield resuscitation, and must be demonstrated every 24 months regardless of nursing specialty. Based on feedback from returning deployers, the current method of didactic review was replaced with STARS-P; hands-on at the local Level 1 trauma center. Each nurse spent 3 weeks over 6 months completing rotations through 4 units. All are oriented to hospital policies and procedures prior to arrival. These nurses care for patients who are injured or burned in the local area alongside their seasoned trauma nursing colleagues. They function fully as registered nurses on the unit and care for patients independently.

Findings/Results:

Of the eight nurses who started the pilot program, six completed it. Each cared for patients at a higher acuity than what is seen at the AF medical center. Of the group of required readiness skills, 92% of skills and procedures were accomplished during the three rotations. In addition, 17% of core readiness skills, and 29% of specialty skills which are either not available or available in low volume at the AF medical center were completed during STARS-P. Overwhelmingly positive feedback was noted from the trauma staff as well as the AF staff. The AF nurses rated the experience as very valuable and appreciated the exposure to the trauma process as they prepared to deploy.

Discussion/Conclusions/Implications:

Through this successful partnership, Air Force nurses are able to maintain trauma skills between deployments in a way that doesn't require travel expense and additional family separation. In this location, STARS-P will be expanding to include other specialty areas of the hospital and other nursing and physician specialties in the future.

Evidence-Based Practice - E20

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

The Benefits of Advanced Practitioner Incorporation into a Level 1 Pediatric Trauma Program

Authors:

[Jill M. Reiter, NP](#); Terri A. Bergeron, RN; John B. Osborn, MS; D. Dean Potter, MD; Donald H. Jenkins, MD; Mark S. Mannenbach, MD; Martin D. Zielinski

Background & Purpose:

Advanced practitioners (AP) provide continuity of care and service untenable with the mandated decrease in surgical resident workload. We hypothesize that staffing a dedicated AP onto a pediatric trauma service enhanced patient care and decreased costs.

Study/Project Design:

Retrospective study; data collected Feb. 1, 2008 - Jan. 31, 2009 and Feb. 1, 2009 - Jan. 31, 2010

Setting:

The study took place in a level 1 pediatric trauma center.

Sample:

Four hundred sixty one patients were included in the study with an average age of 7.1 years (range 5 days to 14 years).

Procedures:

The study compared all trauma patients less than 15 years of age admitted 12 months prior to and 12 months following the employment of a dedicated pediatric trauma service-specific AP. Overall, there was a 5.9% penetrating rate with a 52% hospital transfer rate. The most common admitting pediatric services included: trauma (n=175, 38%), orthopedics(n=160, 35%), and neurosurgery(n=38, 8%). There were 232 patients(62% male) in the 1st time period and 229 (62% male) in the 2nd. There was no difference in Injury Severity Score (ISS; 7 vs 7, p=0.689), Trauma Injury Severity Score (TRISS; 0.98 vs 0.98, p=0.730), pediatric intensive care unit (PICU) admission rate (29% vs 27%, p=0.634), mortality (2% vs 1%, p=0.46) or follow-up (82% vs 83%, p=0.126).

Findings/Results:

Compared to the 1st period, there were fewer admissions to a medical service (0.4% vs 9.3%, p<0.0001) and a greater rate of tertiary survey completion (93% vs 46%, p<0.001). The average duration of hospital and PICU stay for all pediatric trauma patients was equivalent (2.4 vs 2.9 days; p=0.510 and 1.7 vs 2.5 days, p=0.320, respectively) with a hospital cost reduction of 1% (absolute reduction of \$81 per patient, p=0.993). Of those patients admitted to the pediatric trauma service, there was an equivalent hospital duration of stay (3.0 vs. 4.9 days, p=0.280), but a decrease in PICU duration of stay (0.8 vs 2.1 days, p=0.002) coinciding with a hospital cost reduction of 20% (absolute reduction of \$2,258 per patient; p=0.089).

Discussion/Conclusions/Implications:

The incorporation of a single AP onto a pediatric trauma service coincided with improvement of patient care and an economically, albeit not statistically, significant decrease in hospital costs. As the educational needs of the resident workforce changes, further hiring of APs may continue to be associated with improved patient care and decreased costs.

Evidence-Based Practice - E21

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

The Dangers of Moped Riding: A Public Health Problem?

Authors:

[Cynthia J Mastropieri, RN, MSN, CCRN](#); Karen Wiles, RN and Donna Joyner, RN, BNS

Background & Purpose:

Use of moped cycles began in WWI. Moped popularity has increased due to higher gasoline prices; crowded city streets; limited parking spaces and economical reasons. The behavior of operators has become aggressively noncompliant with traffic laws, subsequently endangering moped operators and the public community. Major risk factors of moped riders involve riding while intoxicated, not wearing a helmet and failing to observe traffic regulations. Furthermore, mopeds are a means of transportation for many with DUI infractions. This abstract will describe the epidemiology of moped injuries.

Study/Project Design:

The study design was a retrospective analysis of trauma registry data.

Setting:

The setting was a level I adult and pediatric trauma and teaching center.

Sample:

The sample size consisted of trauma patients with injuries from mopeds from 2007 to September 2011.

Procedures:

A retrospective analysis of trauma registry data was analyzed to determine the characteristics of injuries due to mopeds. Data collected and analyzed included demographics, injury severity score (ISS), diagnoses, procedures, length of stay and outcomes.

Findings/Results:

There were 251 moped injuries identified. The mean age was 43 with a range of 9 to 73 years. The gender was 90% males. Helmets were worn in 71% of the cases. The trauma team was activated for 18% of the patients. Forty-three percent of the patients had a positive alcohol level and 22% had a positive screen for illicit drugs. Thirty-one percent were admitted to the ICU and 15% were admitted to the operating room. The trauma service admitted 85% of the patients. The mean ISS was 13 with a range of 0-66. Fifty-three percent had skeletal fractures and 19% had severe brain injury. The mean length of stay was 8.61 days with a range of 1-69 days. The discharge disposition included home for 75% of the patients, rehabilitation for 6% and a mortality of 6%.

Discussion/Conclusions/Implications:

Injuries from mopeds are causing serious morbidity and mortality increasing the cost of healthcare. Non-compliance of moped operators may be putting the public health community at risk. Regulations and enforcement are inconsistent across the US. Education through community leaders and healthcare advocates should be directed at increasing awareness of the dangers of mopeds to decrease morbidity and mortality and costs related to these injuries. Government and law enforcement agencies need to standardize and enforce moped regulations to protect the public health community.

Evidence-Based Practice - E22

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Using Trauma Registry Data to Describe the Epidemiology of Injury in Georgia

Authors:

[Rana Bayakly, MPH](#), Danlin Luo, PhD; Renee Morgan, EMT-P; Marie Probst, CSTR; Patrick O'Neal, MD

Background & Purpose:

Injury is the leading cause of death among people 1 to 44 years of age. A trauma registry is an integral component of a Comprehensive Injury Control Program. Trauma registry data can be used to monitor injury trends, describe injury epidemiology, and inform programs to prevent trauma-related injuries.

Study/Project Design:

A descriptive study using the Georgia Trauma Registry Central Site data from 2005 to 2009.

Setting:

Data reported by the 18 designated trauma centers to the Georgia Trauma Registry Central Site.

Sample:

A total of 62,077 trauma-related injuries were reported in Georgia during 2005-2009.

Procedures:

The trauma epidemiologist merged, edited, and consolidated trauma data from all quarters during 2005 to 2009. Data were analyzed using standard descriptive methods, measures of association, and significance with SAS statistical software (9.2).

Findings/Results:

Leading causes of trauma injuries were motor vehicle trauma (45.0%), falls (24.6%), firearms (8.2%), struck by or against (6.3%), other transport (4.5%) and cut/pierce (3.7%). Trauma-related injuries occurred most frequently among males and females in the age group 17-28. Motor vehicle and firearm injury rates peaked among age group 17-28 years; fall-related injury rates peaked in several age groups (<10, 44-64, and 76+ years). Males had significantly higher rates of firearm-related injuries (and were more likely to be admitted to the hospital) than females (10.7% vs. 2.7%, $p < 0.0001$). Females were more likely to be admitted for motor vehicle (51.4% vs. 42.0%, $p < 0.0001$) and fall (31.1% vs. 21.6%, $p < 0.0001$)-related injuries than males. Case-fatality rates were highest among firearm-related trauma injuries (20.7%); in addition, Black males (8.4%) had significantly ($p < 0.0002$) higher fatality rates than White (7.3%) and Hispanic (5.8%) males.

Discussion/Conclusions/Implications:

Almost 70% of trauma-related injuries in Georgia during 2005-2009 were due to motor vehicle accidents and falls; the highest case-fatality rates were seen among patients with firearm-related injuries. Young adults were at highest risk of motor vehicle- and firearm-related injuries while the risk of fall-related injuries varied by age group (indicating the need for different fall prevention strategies by at-risk groups). This study shows that trauma registry data enhance knowledge of the causes of injury in Georgia and is valuable to inform injury prevention programs in Georgia.

Evidence-Based Practice - E23

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Ventilator Associated Pneumonia Prevention In The Traumatically Injured Patient: Beyond the Bundle!

Authors:

[Cindy Umbrell, MSN, RN, CNS, CCRN](#)

Background & Purpose:

Ventilator associated pneumonia (VAP) is the most significant nosocomial infection impacting morbidity and mortality in critically ill patients. Precursors to VAP include poor neurological function, often seen in the traumatically injured patient; prolonged ventilator dependent days; frank or silent aspiration due to prolonged recumbent position for tests; procedures or operations; and, poor oral health. Despite implementing the Institute for Health Care Improvement (IHI) VAP prevention bundle in 2005 and VAP rates consistently below national benchmarks, there was opportunity to improve.

Study/Project Design:

In 2008, an evidenced-based project which expanded the IHI VAP prevention bundle was initiated.

Setting:

The project occurred in an academic, community Magnet hospital, with a Level 1 trauma center.

Sample:

Bundle interventions have been applied to all ventilated patients, with appropriate modifications for pediatrics and neonates.

Procedures:

In 2008, mouth care using chlorhexidine 0.12% solution was initiated every 12 hours to reduce the bacterial load in the oral cavity within all the adult intensive care units. In 2009, a newly designed sub-glottal suction port endotracheal tube with a conical cuff design was implemented to reduce the incidence of silent aspiration and the occurrence of late VAPs. Other strategies include a daily bath with 2% chlorhexidine disposable cloths to reduce skin flora; emptying the gut prior to procedures to reduce the risk of aspiration; insuring glycemic control between 90-140 mg/dl; early mobility to promote muscle strength and early liberation from mechanical ventilation; virtual rounds by remote ICU nurses to assure proper head of bed elevation; and, root cause analysis of each VAP occurrence.

Findings/Results:

The hospital VAP rate has steadily declined from 5.7 (2006) to 1.4 (2010). Within the 14 bed trauma ICU, the VAP rate went from 7.1 (2006) to 1.7 (2010). These rates meet the Magnet Recognition Program's requirement that VAP rates for the majority of the units, the majority of the time, exceed (are better than) the national database mean (the National Healthcare Safety Network). Implementing the IHI bundle was an initial lesson that a multifaceted, evidence-based VAP prevention strategy would yield positive results and prompted us to be diligent in our expanded strategies. Another lesson learned was that a multidisciplinary team consisting of all stakeholders (nurses, physicians, respiratory therapists, anesthetists, and infection control practitioners) and roles (direct care practitioners, managers, and educators) positively impacts results.

Discussion/Conclusions/Implications:

We believe there is no single "silver bullet" to reduce VAPs; rather, a comprehensive, continuous campaign hits the target, to include: evidence based guidelines; ongoing education using a variety of methods; interprofessional stakeholder engagement and accountability; leadership commitment and oversight; and, use of a root cause analysis form, developed by the trauma ICU nurses, to review each VAP case. Our next steps and recommendations include concurrent monitoring of guideline action items accompanied by transparent results reporting and, emphasis upon head of bed elevation management.

Evidence-Based Practice - E24

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Trauma Interdisciplinary Group for Research: An approach to Improving Trauma Outcomes through Evidence-Based Practice

Authors:

Elizabeth NeSmith, PhD, RN; Regina Medeiros, DNP, RN, Colville Ferdinand, MD, FACS and Michael Hawkins, MD, FACS

Background & Purpose:

Trauma is an interdisciplinary enterprise yet our research efforts only minimally reflect that. Existing trauma research groups are lead either by physicians or public health experts with limited inclusion of basic scientists and other care providers on the trauma team, such as nurses and allied health professionals. Even fewer groups include all of these professionals. The purpose of this presentation is to describe a successful interdisciplinary and translational trauma research group and the collaborative outcomes that resulted.

Study/Project Design:

Interdisciplinary recruitment, formal meetings, and written mission, vision, and outcomes statements.

Setting:

Level I verified trauma center and research-intensive health sciences university in the Southeast.

Sample:

Basic and clinical scientists, nurses, physicians, respiratory therapists, rehabilitation specialists, nutritionists, pharmacists, and case managers

Procedures:

Individuals from research and all areas of clinical practice began meeting regularly and attending quarterly networking sessions. Meetings focused on a review of individual projects to acclimate members to the diversity of scholarship and opportunities for collaboration. Basic scientists visited intensive care units to observe clinical manifestations of health conditions they were studying. Clinicians visited basic science laboratories to observe biologic samples collected from their patients being processed. Group goals were to create new collaborative projects focused on interdisciplinary input and participation; implement and disseminate translational research projects to improve trauma outcomes; and increase research group membership to include national and international collaborators.

Findings/Results:

Two grant applications have been funded from the National Institutes of Health. The principal investigator is a nurse and sub-investigators are basic and clinical scientists and physicians. A new translational grant application is in development, lead by a basic scientist with nurses, a clinical nutritionist, a pharmacist, a trauma surgeon, an orthopedist, and an endocrinologist. A performance improvement project is being implemented using community-based-participatory methods in which stake-holders contributed ideas to improve trauma care across the continuum. Four manuscripts have been published. Three abstracts have been presented at international conferences, all with an interdisciplinary team of authors. A PhD/DNP research partnership model is being presented at an international conference.

Discussion/Conclusions/Implications:

Through a shared interest in improving patient outcomes the group was able to cultivate an environment of mutual professional respect that lead to a unified mission, vision and goals. Strengths include increased interdisciplinary and translational research output. Challenges include learning the unique professional language and sub-culture of interdisciplinary members.

Research - R1

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Anticoagulation Reversal in the Head Injured Trauma Patient

Authors:

[Laurie Flowers, RN, MSN CCRN, CCNS](#); Daneen Mace-Vadjunec, RN, BSN; Barbara Hileman, BA

Background & Purpose:

Anticoagulation/antiplatelet medications are increasingly prescribed, warfarin being the most frequent. They are commonly used to treat the elderly, an increasing population already at risk for head injuries. Major complications of anticoagulant/antiplatelet therapy include, but are not limited to anticoagulation-associated intracranial hemorrhage, traumatic brain injury, and higher mortality rates. This study assesses the consistency of anticoagulation reversal in relation to the outcomes of head injured patients.

Study/Project Design:

Retrospective chart review of an updated anticoagulation reversal policy.

Setting:

Community Level I trauma center.

Sample:

Head injured patients 18 years old on warfarin, aspirin, Pradaxa, and/or Plavix admitted 10/1/2010 to 09/30/2011, identified by Trauma Registry.

Procedures:

A retrospective chart review of 465 patients, conducted to assess the use of anticoagulant/antiplatelet medications, consistency of anticoagulation reversal, time to normalized INR, and outcomes. At the time of this study the only reversal protocol active was for warfarin, the focus of this study. Variables included: demographics, mechanism of injury, hospital length of stay, type and number of home medications, discharge disposition, units of plasma received, route and dose of vitamin K, admit and discharge GCS. Data were analyzed with Microsoft Excel and SPSS 17.0 statistical programs. Analysis included descriptives, frequency tables, and chi-square. Statistical significance was established with an $\hat{I}\pm$ of 0.05.

Findings/Results:

Of the 465 patients reviewed, 147 were on warfarin, 316 on aspirin, 96 on plavix, and 2 on pradaxa. Of the warfarin patients, 83 sustained head injuries (5 severe, GCS \leq 8; 3 moderate, GCS 9-12; and 75 mild, GCS \geq 13). Forty were males and 43 females, the average age was 77 (40-97) and 90% were Caucasian (8% African American, 1% Hispanic). Falls accounted for the vast majority of injuries (88%, 73), 10% (8) vehicle related, 1% (1) assault, and 1% (1) other. The average time to correct the INR was 2320 minutes. The reversal protocol was followed in 41% of the patients. However, the INR was corrected in 52% of patients due to partial adherence to protocol (i.e. either vitamin K or thawed plasma). Ten patients expired, the reversal protocol was followed on 50% of those patients, 3 did not have the INR corrected, 1 did not have thawed plasma, and 5 had no vitamin K. No statistical significance was established, likely due to the low number of deaths for comparison.

Discussion/Conclusions/Implications:

Although no one can predict what could have happened if the patients had been reversed, perhaps their outcome could have been different. In anticoagulated/antiplatelet patients presenting with a head injury, there is an increase in morbidity and mortality, it is in the patients' best interest for institutions to develop reversal protocols for all prescribed anticoagulation and antiplatelet medications especially with new antiplatelet agents entering the market.

Research - R2

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Cerebral Vascular Accident: Is Trauma a Risk Factor?

Authors:

Jason Smith, MD; [Jodi Wojcik, MSN, APRN-C](#); Kimberly Broughton-Miller, MSN, APRN-C; Karina Pentecost, MSN, APRN-BC and Michelle Frisbie, MSN, APRN-C

Background & Purpose:

Acute traumatic injury has been shown to produce a prothrombotic state. Does this state predispose trauma patients to increased risk for cerebrovascular accident (CVA)?

Study/Project Design:

A case controlled retrospective analysis of trauma admissions from 2008 to 2010.

Setting:

A Regional Academic Level 1 Trauma Center.

Sample:

64 patients were identified with CVA from 7633 trauma admissions. 14,121 patients admitted during the same time frame were used as the control.

Procedures:

A case controlled retrospective analysis of trauma admissions from 2008 to 2010. Controlling for non-injury related CVA identified 41 of the 64 patients. Also controlled for known CVA risk factors such as Age, Hypertension, Atrial Fibrillation, Diabetis, and Tobacco use. Univariate and multivariate analysis was performed.

Findings/Results:

The overall rate of trauma patients was 0.8% for CVA. Trauma related CVA patients had more CVA risk factors, higher mortality and required more Skilled Nursing Facility placement compared to ISS matched non-CVA trauma controls. Trauma patients were 1.6 times more likely to develop a non-injury related CVA than med/surg controls. Trauma CVA patients tended to be younger and have higher 6 month post-CVA functional assesment compared to control med/surg patients.

Discussion/Conclusions/Implications:

Trauma appears to be an independent risk factor for CVA. Trauma patients that suffer a CVA have a higher risk of death and higher risk of SNF placement compared to ISS matched controls. CVA prophylaxis may be warranted in select patients.

Research - R3

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Community Gun Safety in Central Pennsylvania

Authors:

[Christina Wargo, MSN](#); Deborah Erdmand, MSN; Jill Ann Smith Gray, RN

Background & Purpose:

The National Center for Health Statistics, U.S. preliminary data, for deaths from injury by firearm in 2009 report 31,228 for all ages. Ages under 1 year to 24 are estimated at 6,629 (21.2%) 1. Preliminary data for 2008, from the same source, reports 23% of deaths from firearms for the same age group 2. Firearm deaths in 2007, in the United States, represented 17.1% of all injury deaths reported. Age adjusted data comparing 2007 with 2006 is 10.2 deaths per 100,000 population and remains constant between both years 3. The International Collaborative Effort (ICE) reporting data from 1993 to 19.

Study/Project Design:

Qualitative survey study designed to evaluate gun safety behavior.

Setting:

Rural Central Pennsylvania school setting from 2008 through 2010.

Sample:

A convenience sample of 250 adults responding to a Head Start intake meeting. 58 adults agreed to complete the study.

Procedures:

On receiving 1,000 gun locks from the American Trauma Society, local organizations were contacted for a needs assessment. Literature was reviewed and similar studies identified. The local Head Start program expressed concern regarding gun safety for low income families and agreed to provide access to adults taking part in the intake process for pre-school. The trauma center provided IRB approval, the Center for Research Design assisted in the development of the survey tools, and 4 Head Start programs were scheduled. All completed surveys were entered into an excel data sheet and logged by a return phone number for 12 month follow-up.

Findings/Results:

52% of the sample was female, 36% male, and 12% unknown, respondent did not answer question. The majority of the sample was Caucasian (98%), most people were 50 and under (83%), the largest proportion had some college education (40%), and median number of children in the household was 2, with a range of 0-6. Interestingly, 53 (91%) people in the original sample stated that they would be willing to take a post-test, yet only 15 (28%) of those who said they would take the post-test, actually filled out the second survey. Individuals were allowed more than one response option for the question concerning where they kept their guns, as well as the question asking type of guns owned and that asking how guns were used. There was a statistically significant relationship between first and second responses regarding keeping guns in a closet. In addition, the difference between pre- and post-test for the leaving guns unattended item and using a gun lock item were significant - at post-test.

Discussion/Conclusions/Implications:

Overall, this small study in a rural area with a small socioeconomic group identified positive trends in behavioral change as it relates to gun safety storage. Incidentally the nurses involved in the study benefitted from the education to explore firearm safety for patients and families seeking care in a level 1 trauma program. Recommendations would include repeating the study design with a larger sample population, expanding to a broader socioeconomic group, and comparing urban versus rural settings.

Research - R4

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Do As I Say (and Not as I do): Distracted Driving Behaviors of Adults While Children are in the Car

Authors:

[Linda Roney, MSN, RN-BC, CPEN](#); Pina Violano, MSPH, RN-BC, CCRN, PhD (c); Greg Klaus, RN, CEN;
Rebecca Lofthouse, MS, RN

Background & Purpose:

In 2010, 863 pediatric trauma patients were evaluated at Yale-New Haven Children's Hospital. Many had injuries that resulted from a vehicular crash yet our patients are too young to drive. To date, there is no known research published regarding the distracted driving behaviors of adults using cell phones while children are in their cars. The primary aims of the current study were to investigate whether drivers engage in distracted driving activities with children in the car and whether having a child in the car make drivers less likely to engage in distracted driving activities.

Study/Project Design:

A descriptive quantitative research design was used to explore the distracting driving behaviors.

Setting:

Three large pediatric practices in Connecticut agreed to serve as the setting for this research.

Sample:

This was a convenience sample of 539 adults (18+ years, have a driver's license, own a cell phone and drive children).

Procedures:

Potential participants were approached by a member of the research team and invited to complete a brief survey while they visited one of three pediatric practices. A 16-question survey was developed to address the variables explored in this study. Once data collection commenced, the McNemar's and Wilcoxon signed-rank tests were used to assess significant differences between the distracted driving behaviors engaged in by participants while driving alone/with other adults in the car and those while driving children.

Findings/Results:

Only about one-third of the sample used a bluetooth device often or always. More than 80% of respondents reported that they have used a cell phone in some way while driving children, however they were significantly less likely to do so with a child in the car when compared with their own behaviors while driving alone/with another adult in the car ($p < 0.0001$). With children in the car, respondents were also less likely to do specific behaviors associated with cell-phone use ($p < 0.001$), such holding cell phone in hand, reading/sending texts or e-mails anytime while driving on the road, and surfing the Internet while driving.

Discussion/Conclusions/Implications:

Our study showed that a large majority of people use cell-phone while driving, with about a quarter using it in-hand, which is prohibited by law. Transporting a child was associated with fewer such reported behaviors, however this protective effect was not overwhelming in magnitude. Trauma centers should partner with communities to provide educational activities to raise awareness among adults of this potentially dangerous practice.

Research - R5

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Does Grade of Trauma Team Leader Improve Process and Outcome?

Authors:

[Elaine Cole, RN, MSc, BSc](#); Anita West, RN; Ross Davenport, MRCS, BSc, PhD; Karim Brohi, FRCS FRCA

Background & Purpose:

Regional trauma systems specify that an attending grade doctor is available 24/7 to lead the trauma team. This has financial and resource implications resulting in many centers using resident team leaders. There is a lack of contemporary evidence to support the need for attending team leaders. A report on major trauma in the UK noted worse outcomes with resident team leaders. The objective of this study was to compare senior Emergency Department residents with attending trauma team leaders, assessing the effect of seniority on time based performance measures and patient outcomes.

Study/Project Design:

We conducted a retrospective study of prospectively collected data.

Setting:

An urban Level 1 Trauma Center where the trauma team is led by an ED attending or a resident.

Sample:

All adult (age >16 years) trauma team activations over a two-year period. All patients with an Injury Severity Score >15 were included (n=579).

Procedures:

Data collected included: grade of doctor, patient age and gender, mechanism of injury, injury severity score (ISS), day and time of arrival, base deficit and systolic blood pressure. Shock was defined as SBP of <90mmHg or BD >6mmols/L on first measurement in the ED. Processes of care measured were: time to FAST, time to CT scan and time to hemorrhage control (operative intervention or angio-embolisation). Patient outcomes measured were: mortality, critical care unit length of stay (LOS) and total hospital LOS.

Findings/Results:

Residents led 126 (22%) of the trauma teams. Choice of team leader was dictated by attending availability rather than severity of injury. Significant differences in times to diagnostics or haemorrhage control were only seen in patients presenting with shock. Compared with residents, attending grade team leaders were significantly more likely to achieve targets for diagnostic imaging (FAST <15mins: 97% attendings vs. 33% residents, $p<0.01$; CT scan <60mins: 76% attendings vs. 50% residents, $p<0.01$) and haemorrhage control (surgery or angiography <60mins: 82% attendings vs. 54% residents, $p<0.001$). There was no significant difference in mortality (attendings 25% vs. residents 27%). Critical care LOS was also the same for both (attendings median 5 days vs. residents median 5 days). Multivariate analysis controlling for variables including age, admission physiology and injury severity showed no independent effect of seniority of team leader on time to diagnostics or total hospital stay.

Discussion/Conclusions/Implications:

Attending team leaders improve team performance, resulting in faster times to processes of care. The greatest benefit seems to be for shocked patients. However seniority did not affect outcome. There are financial implications in 24-hour attending rosters but there are also significant savings if processes are improved throughout the ED. Prospective research is needed with more sensitive patient outcomes, e.g. morbidities. On the basis of performance improvement, attending trauma team leaders can be considered an appropriate performance indicator for measuring the quality of ED trauma care.

Research - R6

Oral Presentation - Thursday, April 12 - 1:30 PM - 2:30 PM

Abstract Title:

Effect of a Goal-Directed Massive Transfusion Protocol on Blood Components Used at a Community Level II Trauma Center

Authors:

[Janet Howard, RN, MSN](#); Scott Thomas, MD, FACS; Mark Walsh, MD, FACEP; Edward Evans, BA, CCP

Background & Purpose:

Aggressive blood resuscitation, consisting of blood components with minimal crystalloids, has been shown to reduce deaths from hemorrhage. A goal-directed massive transfusion protocol (MTP) is desirable to appropriately manage blood product and staff resources. Clinical triggers can prompt initiation while point-of-care thromboelastography and platelet aggregometry can help identify specific coagulation deficits to minimize transfusion of unnecessary blood products. This project was undertaken to evaluate the success of a goal-directed massive transfusion protocol implemented in August 2010.

Study/Project Design:

A retrospective, comparative review of pre- and post-implementation of a revised MTP.

Setting:

The project was carried out at a community-based, ACS-verified Level II trauma center.

Sample:

Twenty patients treated under the MTP from June 2009 - July 2011. The sample included 10 in the pre- and 10 in the post-implementation periods.

Procedures:

The first Massive Transfusion Protocol was instituted at our Level II trauma center in 2002, and evolved over the next several years. In June 2010, a two year old version of the MTP was again revised by a multidisciplinary task force. The group reviewed the evidence-based literature and revised the protocol to include clinical triggers, early engagement of the perfusionist, and point-of-care thromboelastography and platelet aggregometry. Adaptation of blood bank processes and reeducation of the staff followed the revision. The protocol was implemented in August 2010. The retrospective chart review included details about demographics, mechanism and severity of injury, activation level, vital signs, lab and thromboelastography results, blood components transfused, and hospital outcome.

Findings/Results:

Analysis focused on 1) utility of clinical triggers to identify the need for massive transfusion, and 2) calculation of crystalloids and the ratio of blood components under the revised MTP. The revised MTP requires two or more clinical triggers for initiation. All 10 patients in the post-revision period met either 4 or 5 clinical triggers, most commonly SBP less than 90 mm Hg and base deficit greater than -6. The amount of crystalloids and the ratio of blood components administered were compared for the two groups. The ten patients treated during the pre-revision period received an average of 8977 cc crystalloid and a total of 356 units of blood products during the first 24 hours post-injury. The percentages were RBCs 57%, plasma, 27%, platelets 11%, and cryoprecipitate 5%. The ten patients in the post-revision period received an average of 8044 cc crystalloid and a total of 428 units of blood products. The percentages were RBCs 62%, plasma, 24%, platelets 10%, and cryoprecipitate 4%.

Discussion/Conclusions/Implications:

The revised goal-directed MTP required only two or more triggers, while all 10 post-revision patients met 4 or 5 clinical triggers. As a result of the review, the protocol was revised again in October 2011 to require 4 or more clinical triggers. Patients must meet the 3 physiologic triggers and at least one anatomic trigger. The revised protocol relies on point-of-care thromboelastography and platelet aggregometry performed by a perfusionist to guide transfusion. The similar proportions of blood products in the two periods was surprising while the reduction in average crystalloids encouraging.

Research - R7

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Establishing an Injury Prevention Program to Address Penetrating Trauma in Youth

Authors:

[Elizabeth A. Kramer, BSN, RN](#); Kenneth Davis Jr., MD; Timothy A. Pritts, MD

Background & Purpose:

According to the Centers for Disease Control and Prevention, violence was the second leading cause of death for those aged 10-24 in 2010. Youth lack knowledge on weapons, how to cope with confrontation, and what to do if a crime is observed. We developed a prevention program to address specific behaviors and actions that are linked to youth violence and accidental penetrating injuries. We hypothesized that initiation of this educational program would increase knowledge about behavior around weapons, change potential behavior regarding confrontation, and improve communication.

Study/Project Design:

An 11 question survey was given at the start and end of a three week violence prevention program.

Setting:

This program was based out of a local youth club summer program that serves ages 6-19 years.

Sample:

The first day of the program we had 82 participants. The last day we had 87 participants.

Procedures:

This program was held once weekly for three weeks. A survey regarding violence was passed out prior to the first session. The first day contained sessions focused on why everyone should be concerned about penetrating violence in order to improve themselves and the community. The second session focused on the medical aspects of penetrating trauma and what happens from the time the individual is injured until the time they leave the hospital. We had a victim of violence (a past patient from our hospital) speak during week one and two to share their experience. The third session included a review of the topics that had previously been discussed, repeat administration of the survey, and a social event.

Findings/Results:

All questions involved categorical data answers and were analyzed using Chi-square testing to compare pre- versus post- intervention groups. When reviewed, we found the answers to several questions differed between the pre- and post- intervention groups. In response to "Would you ever touch a weapon?" there was a decrease from yes=28% to yes=11% (pre vs. post; $p<0.05$). When the question "Has anyone ever held a weapon to you" was asked, there was a decrease from yes=21% to yes=7% (pre vs. post; $p<0.05$). There was a trend towards increased positive response to the question "Would you tell a grownup you trust if you see a weapon?" (yes= 88% vs. 93%, pre vs. post; $p=NS$). There was an increase from yes=82% to yes=93% (pre vs. post; $p<0.05$) when the question "Would you tell the police if you saw someone shot or stabbed" was posed.

Discussion/Conclusions/Implications:

Our data suggests that a brief educational program about penetrating trauma given at a local youth club summer program led to altered responses to scenarios involving weapons or penetrating trauma. Education in this population yielded an increase in knowledge of behavior around weapons, how to cope during a confrontation, and an increase in consideration of communication to police and trusted adults. Violence prevention is beneficial when a multidisciplinary approach is taken including health professionals, community leaders, victims and peers.

Research - R8

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Geriatric Trauma Patients in the Emergency Department: Length of Stay, Intensity of Care, and Post ED Destination

Authors:

Eleanor Gates, RN, MSN; [Doris Warner, RN, MSN](#); Meg Bourbonniere, PhD, RN; Patricia Williams, CPC, CSTR; Cnythia Line, PhD

Background & Purpose:

Research on emergency department length of stay (EDLOS) suggests that increased LOS may result in worse patient outcomes and increased overall LOS. Additional research suggests that increased age may not only result in lower intensity of care for some patients but might also increase EDLOS. For geriatric trauma patients, intensity of care and EDLOS may be different from non-geriatric patients. Given the nature of geriatric traumatic injury, it is important to understand if improvements can be made in geriatric trauma services.

Study/Project Design:

A retrospective descriptive study utilizing the hospital's trauma registry data was completed, including patient demographics, injury information, EDLOS, post ED destination information, and consultations during ED stay. Patient aged 65 and older were compared to patients less than 65 years of age.

Setting:

This study was conducted at a large urban hospital with a level I trauma center.

Sample:

Five years of data (2006-2010) were culled from the hospital's trauma registry. Preliminary data analysis was completed for two years of data (n= 1,997). Preliminary data analysis included descriptive statistics and independent samples Mann-Whitney U test.

Procedures:

Patients were divided according to age (<65 years and 65+ years) to create two groups for comparative analysis. Preliminary data analysis included descriptive statistics and independent samples Mann-Whitney U test.

Findings/Results:

Among trauma patients analyzed, nearly two-thirds (62.8%) were <64 years of age. The post-ED destination for patients also differed by age group with patients <64 years of age moving to step down/intermediate units (39%), followed by operating rooms (22.2%). For patients >65 years of age, patients moved to step down/intermediate units (51%), followed by ICU/critical care units (30.3%). The average EDLOS for patients <64 years of age 405.66 minutes compared to 495.79 for patients >65 years of age. Interestingly, average time from ED admission to ED Neurosurgery consult was longer by almost 10 minutes for patients <64 years of age, but time from ED admission to ED orthopedics consult was nearly 10 minutes longer for patients >65 years of age. An independent sample Mann-Whitney U Test was conducted only for patients who received a neurosurgery or orthopedics consult in the ED. Results indicated a significant difference across the age groups for average EDLOS.

Discussion/Conclusions/Implications:

Preliminary analysis for two years of data indicates there may be significant differences in average EDLOS by age. Differences in EDLOS are important as they can affect patient outcomes, patient satisfaction, and patient flow management in the hospital.

Research - R9

Poster - Available for viewing beginning 11:00 AM Thursday, April 12 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

High-Fidelity Human Simulation as Part of Teen Trauma Prevention Program

Authors:

[J. Lynn Zinkan, MPH, RN](#); Amber Q. Youngblood, BSN, RN; Geni Smith, RN; Marjorie Lee White, MD, MPPM, MEd; Walter Tyson Parker, MSIII; Griffin Guice, M

Background & Purpose:

The CDC reports motor vehicle collisions as the number one cause of teen deaths in the United States. Despite a variety of current prevention efforts, teen drivers continue to have the highest rates of crashes, injuries, and fatalities of any age. The Trauma Prevention Program is a one-day education experience offered to adolescents sentenced to the program for misdemeanor driving offenses by a county district court judge. The program provides teens with educational experiences aimed at influencing their decision-making prior to engaging in risky driving behaviors.

Study/Project Design:

Post intervention qualitative survey.

Setting:

Level I pediatric trauma center.

Sample:

Convenience sample of 124 subjects ages 16-20 years from April 2009-April 2011. Average age was 17.3 +/- 0.9 years and 64% were male.

Procedures:

A four question, open-ended survey was completed by all participants. A qualitative data analysis of the questionnaire results was conducted using color-coding to identify different themes that emerged from responses given.

Findings/Results:

After viewing the simulation, 40% reported they plan to drive more cautiously, with more awareness, and without distractions; 15% reported they plan to stop the use of cell phone or text messages while driving; and 21% reported they will wear seatbelts in the future. Twenty percent of responses in one question and 16% in another commented on not wanting to put their parents or themselves through the pain and suffering of a motor vehicle crash, and 33% commented on the importance of the healthcare team. When asked one thing in the simulation that made an impression, 46% reported not wanting to experience medical procedures such as urinary catheter or endotracheal tube.

Discussion/Conclusions/Implications:

The fact that participants reported wanting to change driving behaviors such as driving without distractions, no texting, and using seatbelts while driving, indicates an understanding of the important concepts the program tries to convey. The reported themes of putting themselves in the situation and emphasis on the medical team and equipment may show that the participants are better able to imagine themselves in a trauma situation. Further research is needed to determine if this experience deters them from high risk driving.

Research - R10

Oral Presentation - Thursday, April 12 - 1:30 PM - 2:30 PM

Abstract Title:

Implementing Traumatic Stress Screening and Prevention in Pediatric Trauma Care: A Multicenter Nursing Study

Authors:

[Susan Rzucidlo, MSN, RN](#); Marie Campbell, RN, MEd, MS, CPC; Grace Good, RN, BSN, MAR; Nancy Kassam-Adams, PhD

Background & Purpose:

Historically trauma care and research has focused on care for the physical injuries. Recovery can also be affected by how the injured child and family cope with the psychological impact of injury and treatment. The majority of hospitalized injured children who develop posttraumatic stress (PTS) symptoms are undiagnosed and untreated. Nurses are in a unique position to screen for PTS as part of routine assessment during the acute phase of care post injury. Nurses have the skill set necessary to facilitate appropriate intervention for children and families who are at higher risk or symptomatic.

Study/Project Design:

Descriptive study of systematic screening for PTS risk and prevention in nursing care.

Setting:

Multicenter study in five Level I / II Pediatric Trauma Centers across a large northeastern state.

Sample:

226 admitted pediatric trauma patients over 7 years of age and their parents were screened and 185 nurses received education and completed surveys.

Procedures:

Nurses received training regarding PTS screening and prevention, and completed surveys about their knowledge and sense of efficacy in this area in their practice. A core study group obtained verbal consent to participate. Injured children and their parents were assessed for current PTS symptoms and risk for persistent PTS using a brief screening tool. Those who screened at risk received a further assessment using the D-E-F protocol evaluating children's distress, availability of emotional support, and family needs. Results of screening and assessment were used to guide nursing care and referrals to other providers such as child life and social work. Children and families received materials and referrals on coping with injuries after discharge

Findings/Results:

24% of children screened were found to be at higher risk for persistent PTS symptoms. 7% of parents screened had significant PTS symptoms themselves. Among families where child or parent was at higher risk, the DEF assessment found additional concerns for 84% (Distress), 50% (Emotional support) and 59% (Family needs). With one in four children at risk for ongoing PTS symptoms and many had additional concerns that, if unaddressed, could hamper their emotional recovery. Early post injury screening was validated for inclusion in the acute care phase after injury. The majority of nurses surveyed felt confident in their ability to implement screening and secondary prevention within patient care. Educational materials and referrals to providers during the hospitalization were evaluated and were found to compliment care for prevention of medical traumatic stress. Implementation of the multicenter study fostered evaluation of the implementation of screening and interventions in varied setting.

Discussion/Conclusions/Implications:

Studies suggest that severity of injury or trauma is not predictive of which children or families develop PTS, so systematic screening for all patients is essential. This study evaluated the feasibility and utility of a brief, systematic assessment by nursing staff in the trauma setting, to identify children and parents at risk for PTS. Results of screening can guide nursing care for at-risk children or parents prior to discharge. Implementing best practices in screening, assessment, and secondary prevention appears to be within the comfort zone and skill set of pediatric trauma nurses.

Research - R11

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Increasing Injury Prevention Knowledge Among Children Through an Interactive Pedestrian Safety Education Exhibit

Authors:

[Catherine Rains, MPH](#); Anyah Land, MPH; and Nicole Kozma, MPH

Background & Purpose:

Unintentional injuries are the highest cause of emergency room visits at a level one trauma center. In response, the hospital outreach department created an interactive exhibit to teach children aged four to eight about pedestrian and bicycle safety, and stranger and stray animal awareness. The goal of the program is to increase children's knowledge about these topics.

Study/Project Design:

This program is a pretest posttest single group design.

Setting:

The interactive walk-on pedestrian safety exhibit travelled to 19 elementary schools in spring 2011.

Sample:

Of the 2,544 participants, a convenience sample of 1,101 children in kindergarten through second grade completed the pre and post test.

Procedures:

The interactive walk-on exhibit teaches children about walking in crosswalks, avoiding strangers, crossing train tracks, wearing bike helmets and seatbelts, and what to do if a stray dog approaches or chases them. The exhibit incorporates state knowledge standards for decision making, communication, health and safety to be appealing to school administrators. Students from randomly selected classes received pre-tests prior to coming to the exhibit and were given a post-test as they left the exhibit to assess knowledge gained on the exhibit. Results from pre and post tests were analyzed using SPSS 19.0. Results were weighted by grade. Paired t-test was used to compare pre and post test scores for total score as well as each individual question.

Findings/Results:

Knowledge increased 10.25 percent (p-value less than 0.05).

Discussion/Conclusions/Implications:

This intervention is an effective way to teach students about pedestrian safety -- potentially preventing injury in this population. To justify costs, schools must have a minimum number of children participate. This is a barrier for some schools. This was addressed by expanding to target third through fifth grade students; a population not reached with the current model. Topics address most common injuries for this age group: playground/sports, water, motor vehicle and bicycle safety along with recognizing fire, burn and poison hazards. Pre and post testing is underway with this age group.

Research - R12

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Patient and Family Caregiver Adjustment and Coping During Transition to Home Following Moderate to Severe Brain Injury

Authors:

[Sonya Canzian, RN, MHScN](#); Jane Topolovec-Vranic, PhD; Jayne Dabbs, RN; Brittany Rosenbloom, BAHons; Linda Yetman, RN, PhD; Diane Duff, RN, PhD

Background & Purpose:

Over 20,000 Canadians are hospitalized annually as a result of a traumatic ABI. Defined as damage to the brain that occurs after birth, ABI can be caused by traumatic or non-traumatic injury leading to temporary or permanent impairment, partial or functional disability, or psychosocial maladjustment. Due to the complex and profound effect that an ABI has on an individual, the majority of patients with ABI are returned to the care of a family caregiver (FCG). The aim of this study was to gain insight into stressors, challenges and barriers to adaptation following discharge to home.

Study/Project Design:

Interviews with ABI patients and FCGs in a longitudinal qualitative prospective exploratory study.

Setting:

Community setting post discharge from an inpatient acute care or rehabilitation centre.

Sample:

Participants included both survivors of moderate to severe non-stroke related ABI and their primary FCGs following discharge home.

Procedures:

Interviews commenced following discharge home from an acute-care hospital or rehabilitation facility. Participants received in-depth interviews with a study coordinator weekly for six weeks, biweekly for an additional six weeks and then monthly for the last three months. A grounded theory approach was employed to discover the salient concerns of individuals post moderate to severe ABI and their FCG to explore the process of adaptation during the initial 6-month period post discharge, discover how they each come to understand and deal with the complex post injury effects following discharge to home, and to determine possible differences in patient and FCG needs across different geographical areas (rural versus urban). All analyses were conducted with NVIVO9 software.

Findings/Results:

Six FCG/patient dyads and one patient participated in the study. Analysis from all interviews revealed distinct phases during the transition period which are associated with both cognitive and psychological changes and adjustment for participants. Discharge to home was difficult and many participants highlighted the need for educational tools during the inpatient period to support the transition. Data coded from FCG interviews exposed five major categories throughout the six months of data collection: adapting to changes in daily life (or routine); experiencing an ongoing rollercoaster of emotions and its psychological implications; frustrations with navigating the Canadian medico-legal system; adapting to altered support networks and isolation; and experiencing distorted familial relationships. Four major themes from ABI patient data included: happiness to be home; acknowledging injury occurrence; lacking work or purpose and boredom; and difficulties with interpersonal communication.

Discussion/Conclusions/Implications:

A substantial amount of rich and valuable information was discovered about the experience for ABI survivors and their FCG following discharge from inpatient care. The knowledge gained from this study provides a deeper understanding of the overwhelming personal life changes and significant emotional and psychological stressors during the first six months following discharge home and identifies the need for greater pre-discharge education and/or interventions to address the complex nature of the ABI population and the strains related to the sequelae of recovery and transition to home.

Research - R13

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Simplified, Evidence-Based Trauma Team Activation Criteria At A Level II Trauma Center

Authors:

[Linda Casey, RN, MN](#); Matthew J. Martin, MD; Marlin Causey, MD; Ryan Lehmann, DO

Background & Purpose:

The purpose of trauma triage is to identify patients that require trauma care and to match their injury acuity and anticipated resources with an adequate facility and appropriate level of resources. We sought to examine the results of a newly implemented simplified trauma triage system at our level 2 center, and the impact on over-triage, under-triage and mis-triage.

Study/Project Design:

This was a prospective observational study from April 2010 through May 2011.

Setting:

A Level 2 trauma center in the Northwest of the United States.

Sample:

During this time, 204 patients were treated through the trauma system.

Procedures:

Data was collected on demographics, vital signs and triage variables, injuries, interventions, and outcomes. The rates of over, under, and mis-triage were calculated based on the need for urgent interventions and compared with the previously used triage system. Focused detailed analysis of all under-triaged patients was also performed. Staff satisfaction with the new system was collected and analyzed.

Findings/Results:

During this time, 204 patients were treated through the trauma system with 16% requiring urgent intervention. In comparison to the prior triage criteria, the over-triage rate was significantly reduced from 79% to 39% ($P < 0.001$). The under triage rate was not significantly different (1.2% vs 3.9%, $P = 0.67$) with the new triage system. There was no major morbidity or mortality in the under-triaged cohort, and none required an emergent operative intervention. Staff preferred the simplified triage system, and noted improvements in resource management and triage accuracy versus the old system.

Discussion/Conclusions/Implications:

Institution of a new simplified 2-tiered system for in-hospital trauma triage and trauma team activation resulted in a major reduction in over-triage without significant under-triage. Staff satisfaction with trauma coverage was also significantly improved.

Research - R14

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Ski Injuries in Older Adults Treated By A Level 1 Trauma Center

Authors:

[Shawnie. Holt, Student](#); Janet Cortez, RN, MS; Blaine Winters, DNP, ACNP-BC; Russell Wilshaw, RN, MS; Linda S. Edelman, PhD, RN

Background & Purpose:

The objective of this research is to describe the types, and outcomes, of falls from ski related injuries resulting in admission to a Level 1 Trauma Center. Falls in older adults are already a leading cause of injury and death. We conducted a study of trauma service admissions occurring to adults 50 years and older that had fallen. Here we describe a secondary analysis of traumatic falls that were related to ski accidents.

Study/Project Design:

A retrospective descriptive study using the trauma registry; this study is a secondary analysis.

Setting:

A Level 1 Trauma Center located in an urban setting surrounded by a large rural frontier area.

Sample:

1270 adults 50 years and older admitted to the trauma service from 2007-2010 with injuries resulting from falls. Nearly 17% were ski related injuries.

Procedures:

Data from individuals whose injury description was directly related to a ski accident was included in this study. Data was analyzed in categories of demographics, area of geographic residence (region, state, county), injury location, trauma descriptions, procedures and outcomes. Descriptive statistical analysis was performed using SPSS.

Findings/Results:

Of the 213 ski related injuries, 54% occurred to individuals from the Western United States, the majority being from Utah (28%) and California (17.2%). Most injuries occurred in neighboring county ski resorts and patients were transferred directly to the trauma service. The majority of injuries (60%) occurred to men. 72% of the injured skiers had a least one fracture. 75.6% of patients received one or more procedures; the majority receiving x-rays (57%). The average hospital length of stay was 3.1 ± 0.2 days and a large majority were discharged home (86.3%).

Discussion/Conclusions/Implications:

The results of this study will guide in the development of discharge protocols that facilitate these active older fall patients returning to pre-injury recreation level and quality of life. Discharge planning must also take into account the probability that individuals with traumatic ski injuries are from out of state. Injury prevention programs targeting older skiers are warranted.

Research - R15

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Today's Portable Technology in Trauma Care: Off the Shelf 3g Smart Phone Use on the Trauma Team

Authors:

[Alice Magno, RN](#); Dan Judkins, RN; Arvie Webster, RN; Paul Bowlby, RN; Bellal Joseph, MD; Peter Rhee MD

Background & Purpose:

In the setting of a Level I Trauma Center handling and transferring of patient information between members of a Trauma team in a fast and coordinated manner is of paramount importance. An ideal communication tool would enable the Trauma team to communicate directly, rapidly, and securely. The use of 3G Smart phones enabled with high definition cameras, touch screens, multiple messaging platforms, and medical management applications in combination with high speed mobile broadband cellular network would allow such objectives to be achieved. An additional benefit is the ability for its use in documents.

Study/Project Design:

This was a user assessment survey after implementing smart phones as part of trauma activations.

Setting:

The study occurred at our level one Trauma Center.

Sample:

We surveyed 50 members of our Trauma team that were directly involved in the acute care of patients who presented to our Trauma Center.

Procedures:

A questionnaire was developed to assess device efficiency, ability to facilitate communication, physician response, and effects on patient care as well as its role as a teaching tool. Thirty-one questions were asked and answers were recorded on a 5-point Likert scale that ranged between strongly disagree to strongly agree.

Findings/Results:

Survey response rate was 90%. The majority reported that 3G smart phones improved speed (97%) and reliability (86%) of communication, improved coordination of Trauma team members (91%), reduced staff frustration (89%), and resulted in faster (84%) and better (85%) patient care; and were an effective teaching tool (77%). In addition, the overwhelming majority of respondents did not consider this method as a violation of HIPPA (93%).

Discussion/Conclusions/Implications:

Smart phones were found to be beneficial for communication, patient management, follow up care, as well as teaching. In fact, 93% of the respondents believed that all facilities with a busy Level I trauma center should have some form of wireless communication. However, rules and regulations should be employed to govern their use in order to secure the safety and secrecy of patient information and patient privacy.

Research - R17

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Oral Presentation - Thursday, April 12 - 1:30 PM - 2:30 PM

Abstract Title:

Trauma Resuscitation Charting Using the Electronic Health Record: How Does This Impact the Completeness of Nursing Documentation?

Authors:

[Lynn Eastes, RN, MS, ACNP-BC](#); Pamela Bilyeu, RN, BSN; Dawn Brand, MS

Background & Purpose:

Many trauma centers have implemented electronic health records (EHR) for inpatient documentation. Most trauma centers have avoided use of EHR during the fast-paced trauma resuscitations. Electronic documentation has even been discouraged by some trauma accrediting bodies. The objective of this study was to determine if documenting electronically during trauma resuscitations has resulted in improvement or degradation of the completeness of the data recorded by the trauma nursing staff.

Study/Project Design:

This is a retrospective study comparing pre-EHR to post-EHR records.

Setting:

This study was completed in an urban academic Level 1 Trauma Center.

Sample:

Authors used SPSS to generate a random listing of 100 pre-electronic documentation (PRE) charts and 100 post-electronic documentation (POST) records.

Procedures:

The authors identified forty "critical" data points, such as serial vital signs, trauma team arrival times, Glasgow coma score, primary and secondary physical exam, etc. These data points were used in the audit of 100 (PRE) and 100(POST) records. Data were analyzed using a chi square.

Findings/Results:

There were statistically significant differences ($p \leq 0.05$) in the completeness of documentation of 17 of the 40 "critical" data points between the PRE and POST groups. There were statistically significant improvements in the POST documentation of 10 of 40 data points and degraded performance in 7 data points. Improvements were seen in the documentation of patient arrival time, team arrival times, tetanus history and secondary assessment (face, head, neck, chest, abdomen, rectal exam, and genitourinary exam, and response to pain medications. Degradation was noted in the documentation of serial vital signs, Glasgow Coma Scale at 1 hour, intake and output totals, and disposition/ time out of the department. Twenty-three (58%) of the criteria showed no difference between the PRE and POST resuscitation documentation periods.

Discussion/Conclusions/Implications:

This study demonstrates that degradation of completeness occurred in only 18% of the 40 critical resuscitation documentation data points after implementation of the EHR. Degradation of serial vital sign documentation is perplexing because vital signs are automatically "validated" into the EHR by the recording nurse. There have, however, been periods of time when the monitors were not functioning properly, and this could account for this deficit. GCS recording at one hour is another deficit that we are working to address through education and possible installation of "reminder" pop-ups.

Research - R18

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Trauma Team Activation for Mechanistic Criteria in Pediatric Patients; Do Any Stand Out

Authors:

[John Recicar, MBA, MHA, RN](#); Jukie Duke; Todd Nick; Mallik Rettiganti; Andy McCracken; Todd Maxson

Background & Purpose:

The CDC outlines in its trauma field triage criteria several mechanistic criteria for transport to a trauma center. This has allowed trauma centers across the county to utilize a tiered response system to meet the level of severity of injury and appropriately utilize resources. Pediatric patient over-triage rates using mechanistic criteria are greater than that of adult patients despite not being severely injured when meeting these criteria.

Study/Project Design:

This is a retrospective cohort study.

Setting:

State Verified Level I Pediatric Trauma Center.

Sample:

All patients who had the mechanism of injury of motor vehicle crash were enrolled.

Procedures:

The patients were further subdivided into the categories of those aged 15 or less and those who met any of the 5 mechanistic criteria: greater than 18 inches of intrusion on any site or > 12 inches on the occupant side, ejection (partial or complete) from the vehicle, death of an occupant in the same compartment, roll-over greater than 90 degrees and impact speed of greater than 40 mph. The need for trauma team intervention was established by receiving an urgent procedure within one hour of arrival or admission to the PICU. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and the odds ratios (OR) for each of the combinations of the predictors vs. outcomes were evaluated.

Findings/Results:

Two hundred seventy one of the 413 patients entered into the trauma registry met the entry criteria into the study with an average age of 7.4 years. Sixty eight percent of the patients who met mechanistic criteria were activated while 32 percent of activated patients required intervention within the first hour or admission to the PICU. As a whole at our center, mechanistic criteria alone did not predict the need for TTA (OR=1.65) (P=0.16) using treatment outcomes and injury scores. However, intrusion > 18 inches (OR=4.23) was statistically significant individually but had very small numbers to and may not be representative based on the sample size.

Discussion/Conclusions/Implications:

Meeting the CDC mechanistic criteria of a motor vehicle crash requires a trauma team activation but the mobilization of the team was unnecessary and required the utilization of a large number of resources based on treatment outcomes and injury scores within our center. However, when the mechanistic criteria were measured individually, some showed statistical significance and varied from the adult criteria which would lend itself to a multicenter trial to acquire significant subject numbers to either prove or disprove our findings.

Research - R19

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Abstract Title:

Use of a Massive Transfusion Protocol (MTP) at a Geographically Isolated Trauma Center

Authors:

[Darcy Day, RN,BSN,CCRN,CEN](#)

Background & Purpose:

Background: Best trauma resuscitation practice remains unclear. Advanced Trauma Life Support guidelines(2008)recommend 2 liters of crystalloid initially followed by red blood cells(RBC), then later plasma(PLAS)and platelets once labs confirm coagulopathy. Damage Control Resuscitation (DCR), supports earlier transfusion of PLAS in increased ratios to RBCs. (Brakenberg) A large number of recent studies show improved survival with DCR, often facilitated with use of a massive transfusion protocol (MTP). This study reports recent MTP use for trauma patients at a geographically isolated trauma center.

Study/Project Design:

Study Design: Descriptive, retrospective.

Setting:

Setting: Regional Level II trauma center, approx 1000 activated traumas/year, 7/1/2008-6/30/2010.

Sample:

Sample: 2013 screened. 46 met shock/Injury Severity Score (ISS); 1 subject missing shock/ISS data but met traditional MT definition of >10 RBC/24hr.

Procedures:

Procedures: Research and Institutional Review Committee permission obtained. Trauma activations identified from ED records and screened for shock criteria: Systolic blood pressure < 90 in ED or field, or Base deficit > 5 mmol in ED. ISS obtained from trauma registry (inclusion > 15). Electronic medical records used for demographics, injury data, initial management, vital sign and lab data, transfusions, outcome, and documentation of MTP. Subjects dying within 3 hrs from ED presentation excluded. Data entered into Excell spreadsheet, version 2007. Analysis consisted of use of our MTP in relation to mortality at 6 hrs, 24 hrs, and outcome at 30 days. When initiated the MTP is specific for 6 units of PLAS only; RBCs, platelets and additional PLAS units not specific and require further orders.

Findings/Results:

Results: Mortality at 30 days 11 subjects (23%) with 4 subjects (36%) dying in the first 6 hrs after ED admit. 44 subjects required emergency surgery/angiography (93%). MTP implemented fully for 12 subjects (26%); implemented more than one hr after admission for 7 subjects (15%); not fully implemented for 10 subjects (21%); not implemented for 23 subjects (49%). Mean time from ED arrival to PLAS request recorded by blood bank if MTP fully implemented was 20 min versus 74 min if MTP not implemented. Mortality if MTP fully implemented 1 subject (9%); if implemented greater than 1 hr from ED arrival or not fully implemented 4 subjects (36%); if not implemented 6 subjects (55%). 13 subjects in the MTP not implemented group met the traditional trauma definition of massive transfusion: > 10 RBC x 24 hours. (Mitra) Two subjects in this subset died.

Discussion/Conclusions/Implications:

Discussion: Consistent with DCR literature, the MTP was underutilized during the study period, possibly affecting mortality. Uncontrolled hemorrhage is the leading cause of preventable death from trauma, with 80% of these deaths occurring in the first 4-6 hrs. (Holcolmb) Coagulopathy is an independent risk factor for death. (Brohi) Ongoing evaluation of recent practice is important to improve trauma care and outcome. The MTP was revised near the end of data collection, and this study supports the need for revision. Trauma RNs directly perform resuscitation and need to understand DCR concepts.

Research - R20

Poster - Available for viewing beginning 11:00 AM Thursday, April 12, 2012 until 2:15 PM Friday, April 13, 2012

Oral Presentation - Thursday, April 12 - 1:30 PM - 2:30 PM

Abstract Title:

Utilization of Flexion Extension Films in the Clearance of the Cervical Spine in Blunt Trauma Patients when the CT scan is Negative

Authors:

[Bonnie McCracken, NP](#); David Wisner, MD; Eric Klineberg, MD

Background & Purpose:

Both the NEXUS and EAST use flexion extension films in their algorithms to clear the cervical spines of potential injuries in blunt trauma patients. The hypothesis was the majority of flexion extension films do not adequately meet the criteria required to clear a cervical spine of injuries especially in the patient with a negative CT scan of the neck. In order to obtain the F/E film, the patient must be awake and cooperative. The film must show the C7T1 junction and have more than 30 degrees of motion in order to be adequate for the purpose of assuring there is no ligamentous injuries.

Study/Project Design:

Retrospective chart review was done on trauma pts with neg CT scans and F/E films done for a pain.

Setting:

Level I trauma Center.

Sample:

1000 blunt trauma patients.

Procedures:

Patients were required to have a negative cervical spine CT and flexion extensions in their evaluation for potential cervical spine injuries. All the flexion extensions films were viewed for adequacy- whether the C7T1 junction was adequately viewed. All films meeting this criteria for adequacy were then reevaluated with the assistance of an orthopedic spine surgeon. Each film was measured for the degree flexion and extension to insure 30 degrees of change in motion was present in order to determine the film was adequate in motion. This was then compared with the radiological reading on the patient. Treatment, follow up and potential missed injuries were evaluated in this study.

Findings/Results:

Nexus and EAST utilize the use of flexion extension films in the awake and alert patients in their algorithm for cervical spine clearance. The flexion and extension must be adequate and normal if they are to be used in clearing the patient of potential ligamentous injuries. This study showed in a Level 1 trauma hospital 80% of the films did not meet the criteria for being adequate and normal. Although this study does not propose an answer to what the protocol should be for cervical spine clearance, it does show we are using a study which is not informative or adequate in answering the important question of cervical spine clearance.

Discussion/Conclusions/Implications:

Further studies need to be done to establish a protocol for the clearance of cervical spine studies in awake and alert trauma patients with cervical spine tenderness. Additionally it is important to know what your radiological department considers an adequate film and does it match the criteria your department believes is being used.