

Collaborative development of a standardized trauma admission set

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Abstract

Patients with severe injuries require the complex integration of care between medicine, nursing, and allied health services. Increasing patient volumes, clinic visits, and a regional directive to improve patient flow have added pressure for all members of the trauma team from the emergency department to the wards and to the outpatient clinics. With increasing workload, concerns emerged regarding the lack of consistency in practice. The decision was made to develop a process to standardize and improve the admission process for trauma patients. After a lengthy collaborative process, an assessment booklet, order set and medication administration record (MAR) were developed and implemented in a large tertiary care facility.

Introduction

Patients with severe injuries require the complex integration of care between medicine, nursing and allied health services. The injuries represent extremely common causes of preventable morbidity and mortality, and these patients are especially prone to developing complications (Hemmila et al., 2007; Reicks, Thorson, Irwin, & Byrnes, 2010). This, coupled with care teams composed of various levels of expertise within each discipline and a fast-paced teaching facility, increases opportunities for delays in diagnosis, missed injuries, limited resources, errors in care, and communication issues.

Background and problem

At our inner city, tertiary care facility, more than 2,600 patients annually present to the emergency department with a Canadian Trauma and Acuity Scale (CTAS) score of 1–3 and, of these, more than 700 patients are admitted to the trauma unit. This does not include the “off service” patients who are admitted from the emergency department to other surgical wards within the facility, or those who are seen by the trauma team, but admitted under other surgical services with single organ system injuries. While it is the Acute Care Trauma Service (“Gold”) Team that assesses all major traumas brought into the emergency department, many other specialties are involved in the care of the patient, based upon patient needs.

Concerns with the lack of consistency in practice began to emerge from nursing and allied health professionals during team discharge rounds. Handwritten orders by physicians used unclear or contradictory terms such as “VSR” (vital signs

routine), or “C-Spine Precautions - AAT” (activity as tolerated). Pharmacists reported the need for frequent clarification of medication orders, consultants reported being called too early or too late, patients and families conveyed receiving mixed messages from all members of the team, and nurses expressed a desire for more consistent expectations, rather than relying on the experience or preference of the prescriber. At the same time, the physicians were exploring a process to standardize their assessments of trauma patients. A small team, led by a trauma surgeon and clinical nurse specialist (CNS), was assembled with the goal to improve trauma care, communication, patient safety and patient care outcomes, while reducing frustration among and between members of the trauma team, patients and families.

Analysis and resolution

Clear, effective communication between and among healthcare professionals and patients is fundamental to providing quality patient care, particularly within the often chaotic setting of a busy emergency department. Through a review of medico-legal cases involving trauma patients over a six-year period, the Canadian Medical Protective Association (CMPA, 2016) identified communication problems at all points of the patients’ care resulting in critical patient information not being shared. Poor communication flow may be due to a number of issues; the failure to review pre-hospital records; poorly communicated trauma history or important clinical information; a lack of coordination of care between physician specialties; delays in assessing patient deterioration; lack of communication with the patient and family; and inadequate or delayed reporting of diagnostic imaging reports. Absent or inadequate documentation posed additional communication gaps, creating doubts about the thoroughness of assessments, with lack of discharge instructions, and illegible notes being particularly problematic (Canadian Medical Protective Association, 2016).

Increasingly, attention is being paid toward standardizing the care of trauma patients. Standardized templates and continuous quality improvement strategies for assessment, order entry and documentation can simplify the care process, improve accuracy of assessments, improve patient safety, and benefit patient care outcomes (Barnes, Waterman, MacIntyre, Coughenour, & Kessel, 2010; Biffl, Harrington, & Cioffi, 2003; Reicks et al., 2010; Schedler & Neely, 1996; Zamboni et al., 2014). Missed injuries have been described as “the trauma surgeon’s nemesis” (Enderson & Maull, 1991). Likewise, pharmacists and nurses often find incomplete, illegible, and disorganized patient care orders that can in turn potentially lead to delays, errors, and sloppy, inefficient practices.

The two-part solution

To improve the trauma admission process, a two-part trauma suite composed of two separate, but related documents, was designed to standardize care of trauma patients. The first component, the assessment booklet, was developed to ensure capture of essential details of the patient's admission and as a teaching tool to remind prescribers of important admission components. The second component was a standardized order set with corresponding medication administration record (MAR). In addition, previously developed companion documents, such as spinal precautions, venous thromboembolism, patient controlled analgesia, smoking cessation, and alcohol withdrawal protocols, were referred to within the new standardized order set.

The assessment booklet is composed of a five-page initial assessment, followed by a three-page tertiary survey, and is completed by the trauma service team, on all trauma patients whether admitted or not. The primary survey follows the Advanced Trauma Life Support (ATLS) guidelines as outlined by the American College of Surgeons (American College of Surgeons, 2016) and is designed to recognize and immediately treat any life-threatening problems before proceeding to the secondary, head-to-toe examination facilitating diagnosis of all injuries before formulating a definitive management strategy (Figure 1). The tertiary survey is intended to minimize the risk of missed injury (Biffi et al., 2003; Hajibandeh, Hajibandeh, & Idehen, 2015), identify incidental imaging finding that require further follow up and ensure adherence to established protocols (such as deep venous thrombosis prophylaxis and tetanus administration for all trauma patients). All injuries after the initial resuscitation and any operative interventions are reviewed, and a comprehensive

review of the medical record, the patient, and a re-evaluation of the primary and secondary surveys and all investigations (especially final imaging reports) are required (Figure 2).

The second component of the trauma suite is the standardized order set and corresponding MAR. Standardized admission orders have been found to be beneficial in reducing omission of orders, improving thoroughness of orders, organizing patient care needs, communicating best practices, increasing efficiency of order transcription, and reducing transcription errors (Figure 3). Additionally, they have the potential to serve as an educational tool to modify practice, and can be used to facilitate computerized order entry (Elder, Lemon, & Costello, 2015; Harvey, Carol, 1990; Wentworth & Atkinson, 1996). The final component of the process was the development of a corresponding medication administration record (MAR) to reduce the risk of transcription errors.

The process

An initial draft of the order set was developed by the trauma surgeon and shared with the trauma physician team. The CNS then assembled a team of nursing educators from the trauma unit and emergency department, the trauma unit clinical resource nurses, pharmacists, physiotherapists, dietitians, social workers, and occupational therapists to review language within the order set to ensure it reflected the correct professional vernacular, was clear and based in evidence.

Prior to implementation, the trauma unit nurses assessed vital signs "routinely", which ranged anywhere from 1–12 hours, basing their information upon what was handed down from senior

Figure 1.

Figure 2.

nurses, rather than evidence. Standardized expectations for nursing assessment based on TNCC (Trauma Nursing Core Course) guidelines from the Emergency Nurses Association (Emergency Nurses Association, 2016) were included within the order set to ensure regular, hourly focused assessment of the patient while in the step-down unit, and every four hours upon admission to the ward. Improving pain management became another area of opportunity to improve practice, as patient satisfaction surveys conducted at our facility identified 80–90% of patients reporting moderate to severe pain during their admission. Analgesic orders were added based upon best evidence for pain management for the trauma patient. A bowel protocol, stress ulcer and venous thromboembolism prophylaxis, antiemetics, dietary orders, and orders for genitourinary care, spinal clearance, laboratory and radiographic investigations, as well as defined activity orders were added to the document. All generic names, ‘colloquial’ language, and abbreviations were removed; medications were listed using ‘tall-person’ (sic. Tall man) lettering (ISMP, 2016), with standard dosages included among the choices to be selected. Pre-existing standardized PCA (patient controlled analgesia) and spinal precautions, sepsis, and smoking cessation orders were referred to. A parallel process was occurring to address alcohol withdrawal, so the decision was made to exclude this from the order set.

After several months of revisions and edits, the order set and MAR were circulated to direct care providers from nursing, medicine, and all allied health disciplines to provide “outside eyes”. Drafts of the documents were tested by direct care providers using actual patients and amended based upon errors, inconsistencies, or difficulties identified. After more than 15 iterations, the documents were sent thru the facility approval process.

Figure 3.

Led by the trauma surgeon, the assessment booklet was developed based on a review of existing documents from centres across Canada and the United States, modified to fit our own unique local needs, and tested by residents. After review and input by the facility forms committee, the document was ready for implementation. The decision was made to roll the entire trauma suite out, as a package once the order set and MAR approval process was complete.

Implementation

Final copies of the new documents were ordered and a plan to provide global education was developed. The nursing educators provided individual orientation of the trauma suite to the unit staff. Posters and information about the impending changes were placed in high-traffic staff areas. On the “GO LIVE” date, an interdisciplinary Grand Rounds was presented to those involved in the care of the trauma patients. Focused support and reinforcement to use the documents was provided by the attending physicians and the educators. Education for the rotating trauma residents was provided by the trauma team physician assistant and the CNS for trauma. After the Grand Rounds presentation, editorial changes were made to both documents, as typos and small inconsistencies were identified by those in attendance despite copious revisions and multiple “eyes” on the documents.

Discussion


One month post implementation, a brief survey was circulated to staff who indicated the orders were clear, expectations were easy to understand, and fewer calls to clarify orders were made. Staff identified the MAR as the biggest area of concern and reported nearly missing medications, and not having enough space to document medication administration. Thus, a decision was made to suspend the use of the MAR until it could be revised.

There have been occasional ‘glitches’, but these have been quickly corrected. The documents are inconsistently used on new admissions arriving to the ward from the ICU or operating room. However, improvements have been noted with completion of the assessment booklets, including the tertiary survey on the ward.

Three months following implementation, the plan is to audit the use of the assessment booklet, and to measure the fidelity of the order set. Chart audits will be done to identify if staff are caring for patients based upon the new order set, or on their previous practice. A follow-up patient satisfaction survey will be conducted to determine if improvements have been made to pain management, and measures related to length of stay, DVT prophylaxis, and identification of missed injuries will be evaluated to identify any impact from standardization. Outcomes will be circulated to help staff understand the impact of their practice, and a regular audit process will be established to help sustain practice improvements. Finally, the new MAR will soon be ready for testing and review.

Conclusion

The trauma suite was developed to combine a standard assessment and a standard order set in order to improve the care of the trauma patient. Anecdotally, clearer expectations for assessment,

investigations, and treatment have helped to reduce the need for clarification, delays in treatment, length of stay, and improved multidisciplinary communication, ultimately improving the care and outcomes of the trauma patients. 

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“I am Emergency Nursing!”
Laurel Astle, SANE Coordinator, Saint John Regional Hospital, Saint John, NB



“I am Emergency Nursing!”
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