

Communication Between Teams and Multidisciplinary Rounds and Single Primary POC for Family Communication—Lessons Learned and Who's in Charge?

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Introduction

Polytrauma patients who sustain neurotrauma are among the most severely injured patients. Optimizing care of each injury must be prioritized within the context of the fragile nature of the neurologic injuries sustained to ensure that interventions do not create a risk of secondary brain/spinal cord injury.

The combination of neurologic and additional multisystem injury is not uncommon. Recent assessments from the Global War on Terrorism conflicts estimate that traumatic brain injury (TBI) occurs in approximately 60 % of service members who are evaluated for other blunt traumatic injuries [1]. Similar injury mechanisms likely occur in civilian motor vehicle injuries, although the number affected by this combination injury pattern is unknown. Despite the frequency and severity of these injuries, this combination is poorly represented in the litera-

ture and further research is needed to address epidemiology, outcomes, and best practices to care for this critically injured population.

The Role for Teamwork

Dating back to World War II, medical professionals identified that soldiers were surviving from increasingly complex injuries and living with greater disabilities than could be handled by a single-specialty provider [2, 3]. Therefore, individual providers sought others to collaborate in providing comprehensive care plans that could simultaneously address medical, psychological, and social needs [2]. This initial multidisciplinary concept consisted of a single physician managing and prioritizing the simultaneous input of various specialties [3], and over time this collaborative approach has been shown to improve patient outcomes [4]. Unfortunately, effective multi-specialty collaboration is not seamless. It requires planning, practice, and the commitment of those involved [2]. Specialty providers often practice within single departments with their own unique set of standards, bodies of research, methods of communication, and practice agenda. This isolation creates barriers leading to poor interdepartmental communication which is cited as one of the most common causes of patient care errors [5].

Consequently, healthcare providers have sought to improve multidisciplinary teamwork

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models to improve efficiency. For a common collaborative disease process, departments are often asked to identify the areas of overlap within their respective disciplines where there are shared elements of knowledge and skills, giving rise to the concept of interdisciplinary teams. For example, in the polytrauma patient, orthopedic surgery and general surgery may both require several operative interventions to complete care [6]. If this is identified early in the patient's treatment course, these two specialties can coordinate and share operative time thereby decreasing overall nil per os (NPO) status (affecting patient comfort and nutrition) and making the patient more available for treatment by other specialties (i.e., physical therapy, occupational therapy, and speech therapy) [6]. This model requires increased communication, often manifested in interdisciplinary team meetings. However, once interdepartmental trends are identified, care can be facilitated by establishing interdepartmental checklists, management guidelines, or a shared organized approach for rounding thereby reducing overall resource needs and streamlining care.

One example of this is the Brain Trauma Foundation's (BTF) "Guidelines for the Management of Severe Traumatic Brain Injury" [7]. In 1995, the BTF recognized that the care of the neurotrauma patient necessitates multiple specialties over the patient's longitudinal course. In an effort to improve outcomes, a unified, evidence-based approach was designed as an outline to care for the neurotrauma patient [7]. Several studies conducted by Level I and II trauma centers in the United States and Europe, have shown the merit of this collaboration, resulting in improvements in patient mortality, functional outcome scores, hospital length of stay, and overall cost when adherence to specific BTF guidelines have been documented [8–10].

The Brain Injury Guidelines (BIG) project is a recent attempt to develop collaborative practice guidelines. A cohort of acute care surgeons and neurosurgeons identified a population of patients with TBI that could be managed by acute care surgeons without the need for neurosurgical consultation [11]. Both retrospective and prospective

validation of BIG have shown no difference in 30-day outcomes; however, targeted research and better allocation of resources have shown a decrease in both ICU and hospital length of stay, as well as an estimated \$5,000 savings in hospital cost and \$7,000 savings in hospital charges per patient [12, 13].

Who Should Lead the Multidisciplinary Team?

It has been well-established that polytrauma patients have improved outcomes when evaluation and management occur by physicians within a trauma program that has been verified by the American College of Surgeons Committee on Trauma (ACS COT) [14–16]. The ACS COT has specific requirements for programs to qualify as an ACS verified trauma program [17]. Specifically, the ACS COT requires that in all Level I, II, and III trauma centers "The trauma surgeon must retain responsibility for the patient and coordinate all therapeutic decisions. Many of the daily care requirements can be collaboratively managed by a dedicated ICU team, but the trauma surgeon must be kept informed and concur with major therapeutic and management decisions made by the ICU team." [17].

With this criteria outlined, the polytrauma patient who sustains neurotrauma should therefore be managed primarily by a trauma surgeon. Recent literature has shown that whether neurotrauma is primarily managed by a neurosurgeon or an acute care/trauma surgeon using discretion to consult a neurosurgeon, the quality of care is similar [12, 13, 18–20]. Furthermore, while neurosurgeons are trained to provide neurotrauma care, their availability as a resource, is becoming increasingly scarce due to shortages in this physician specialty [21, 22]. This fact is even more concerning given the documented increased incidence of patients sustaining neurotrauma [21, 22].

In addition, having the trauma surgeon act as the primary multi-specialty manager for the combined neuro and polytrauma injured patient supports patient/family centered care. A common

need identified among patients/caregivers is for consistency of information regarding the plan of care for the day and longitudinally over the hospital course [1]. From the patient/caregiver perspective, it is critical that if several healthcare providers are relaying information, a clear message is communicated consistently [23]. Therefore, it has been recommended that a single provider be assigned to deliver information about treatment plans [24]. Although research is lacking in which discipline is best equipped to perform this task, trauma surgeons may be the most qualified since they already assume the lead role and are integrated in the care of the polytrauma patient throughout the duration of their hospital course.

Communication with the Patient/Caregiver

The involvement of the patient and his/her caregiver(s) has been shown to be critical for the successful treatment of patients sustaining both neurotrauma and polytrauma [1]. However, effective patient-provider communication is faced with many barriers. Often, the patient/caregiver does not have a medical or healthcare background. Moreover, the stress and emotions created by the acute change in the patient's overall health status will interfere with the patient/caregiver's ability to receive, process, and recall new information [23–26]. This mandates that information is transmitted in a clear and concise manner that is both sensitive and empathetic to the recipient [1]. This also highlights the aforementioned need for consistent and clear communication [23].

Recent studies have identified the type of information desired by patients and their caregivers [1]. In the acute phase of care, daily communication is considered ideal [23]. It is important to define all diagnoses and the prognosis for each [27, 28]. Patients/caregivers wish to hear both the best and worst case scenarios for physical, functional, behavioral, and cognitive outcomes [27, 28]. It is desired to know the

reasoning behind each diagnostic test, details of monitoring equipment, the purpose of any new medication and both short and long-term treatment plans [27, 28]. Caretakers require information on how their new role will affect their daily life and existing relationships [28]. Transitions of care including discharge from acute care to rehabilitative care, and again from rehabilitative care to home are important intervals to review and update the above information while at the same time providing anticipatory guidance for the next stage of care [23, 28]. Patients and their caregivers find it helpful to review this information again after a change in level of care to address any new problems or questions that arise [6, 26, 29]. Written material handouts are not considered an acceptable substitute for direct education and communication but can be utilized to reinforce education and discussion points [30].

Our Experience Building the Team

Walter Reed National Military Medical Center (WRNMMC) is a tertiary care military medical facility located in Bethesda, Maryland. Throughout the Operation Iraqi Freedom/Operation Enduring Freedom conflicts, WRNMMC functioned as the primary US based facility for neurotrauma patients with polytrauma, requiring a transformation from a 250 bed university-affiliated teaching hospital into an ACS COT verified trauma center [31]. Continuous monitoring of outcomes and process improvements drove the evolution of our multidisciplinary team into its current structure as an interdisciplinary team; a process that would not have been possible without a commitment to interdepartmental communication and respect.

WRNMMC holds multidisciplinary rounds twice a week. All providers involved in the care of polytrauma patients are invited to attend to discuss the current census of trauma patients. A large core staff is involved, including: a trauma attending, who facilitates the meeting; representatives from the surgical teams taking care of the patients (trauma, neurosurgery, orthopedic surgery, oral

maxillary facial surgery/otolaryngology); a provider each from the acute pain service, neurology, psychology; rehabilitation specialists from physical therapy, occupational therapy, speech therapy, nutrition, as well as a physical rehabilitation physician; involved social workers, and case managers; and both the administration and nursing staff to represent the operating room and all involved hospital wards.

To start an efficient discussion, the trauma attending will announce the patient of interest, and then list current prioritized active issues drawn from daily interaction of providers and written notes. The core staff will voice any concerns about the identified priorities or barriers. Examples include the coordination of operative time between services, a concern that psychological needs are hindering physical therapy advancements, or the acknowledgement that the patient's high pain control regimen may affect discharge planning. Next, an estimate is given regarding the expected hospital course (i.e., 2 weeks of operative therapy and 1 week of acute rehab prior to anticipated transfer to an appropriate rehabilitation facility), with an opportunity for discussion. Finally, the expected type of rehabilitation facility is offered, again with a chance for core staff to interject.

At the close of rounds, participants are given an opportunity to discuss any concerns unique to their specialty. Examples include failure to communicate changes in weight-bearing status in a timely/accurate manner to rehabilitation services or if nutritional services identifies that delays in operating room start times are prolonging NPO times and potentially affecting overall nutritional status. Representatives from different services can solve problems immediately or decide to collaborate after the meeting to find an appropriate solution.

While the multidisciplinary meeting covers detailed information, with practice, it flows efficiently. On average, approximately 20–40 patients are discussed in the span of 30–60 min. All participants exit the meeting with a global sense of the patient, the patient's priorities, and the plan of care.

Conclusion

Polytrauma patients with neurotrauma are the most critically injured patients who utilize multiple resources and require a number of specialty services during their continuum of care. Although additional research is needed to determine best practice models for the critically injured patient, the trauma surgeon functioning as the team leader to coordinate and manage the overall plan of care is supported by ACS COT. Having a specific provider drive the overall plan also facilitates patient/family centered care. Development of an interdisciplinary team provides an opportunity for a seamless transition from the acute care phase to the rehabilitation phase while encouraging open communication and mutual respect among the healthcare team members.

References

1. Friedemann-Sanchez G, Griffin JM, Rettmann NA, Rittman M, Partin MR. Communicating information to families of polytrauma patients: a narrative literature review. *Rehabil Nurs*. Official J Assoc Rehabil Nurses. 2008;33(5):206–13.
2. Strasser DC, Uomoto JM, Smits SJ. The interdisciplinary team and polytrauma rehabilitation: prescription for partnership. *Arch Phys Med Rehabil*. 2008;89(1):179–81.
3. Karol RL. Team models in neurorehabilitation: structure, function, and culture change. *Neuro Rehabil*. 2014;34(4):655–69.
4. Lancaster G, Kolakowsky-Hayner S, Kovacich J, Greer-Williams N. Interdisciplinary communication and collaboration among physicians, nurses, and unlicensed assistive personnel. *J Nurs Sch: an official publication of Sigma Theta Tau International Honor Society of Nursing/Sigma Theta Tau*. 2015.
5. Siegle P. Enhancing outcomes in a surgical intensive care unit by implementing daily goals tools. *Critical Care Nurse*. 2009;29(6):58–69.
6. Stinner DJ, Brooks SE, Fras AR, Dennis BM. Caring for the polytrauma patient: is your system surviving or thriving? *Am J Orthop*. 2013;42(5):E33–4.
7. Brain Trauma Foundation, American Association of Neurological Surgeons, Congress of Neurological Surgeons and the Joint Section on Neurotrauma and Critical Care. Guidelines for the Management of Severe Traumatic Brain Injury (3rd Edition). *J Neurotrauma*. 2007;24(s1).

8. Fakhry SM, Trask AL, Waller MA, Watts DD, Force INT. Management of brain-injured patients by an evidence-based medicine protocol improves outcomes and decreases hospital charges. *J Trauma*. 2004;56(3):492–9; discussion 9–500.
9. Palmer S, Bader MK, Qureshi A, Palmer J, Shaver T, Borzatta M, et al. The impact on outcomes in a community hospital setting of using the AANS traumatic brain injury guidelines. *American Association for Neurologic Surgeons. J Trauma*. 2001;50(4):657–64.
10. Vukic M, Negovetic L, Kovac D, Ghajar J, Glavic Z, Gopcevic A. The effect of implementation of guidelines for the management of severe head injury on patient treatment and outcome. *Acta Neurochir (Wien)*. 1999;141(11):1203–8.
11. Joseph B, Friese RS, Sadoun M, Aziz H, Kulvatunyou N, Pandit V, et al. The BIG (brain injury guidelines) project: defining the management of traumatic brain injury by acute care surgeons. *J Trauma Acute Care Surg*. 2014;76(4):965–9.
12. Joseph B, Aziz H, Sadoun M, Kulvatunyou N, Tang A, O'Keeffe T, et al. The acute care surgery model: managing traumatic brain injury without an inpatient neurosurgical consultation. *J Trauma Acute Care Surg*. 2013;75(1):102–5; discussion 5.
13. Joseph B, Aziz H, Pandit V, Kulvatunyou N, Sadoun M, Tang A, et al. Prospective validation of the brain injury guidelines: managing traumatic brain injury without neurosurgical consultation. *J Trauma Acute Care Surg*. 2014;77(6):984–8.
14. Sampalis JS, Lavoie A, Boukas S, Tamim H, Nikolis A, Frechette P, et al. Trauma center designation: initial impact on trauma-related mortality. *The Journal of trauma*. 1995;39(2):232–7; discussion 7–9.
15. Baker CC, Degutis LC, DeSantis J, Baue AE. Impact of a trauma service on trauma care in a university hospital. *Am J Surg*. 1985;149(4):453–8.
16. Demetriades D, Berne TV, Belzberg H, Asensio J, Cornwell E, Dougherty W, et al. The impact of a dedicated trauma program on outcome in severely injured patients. *Arch Surg*. 1995;130(2):216–20.
17. Committee on Trauma, American College of Surgeons. Resources for the Optimal Care of the Injured Patient. 2014. <https://www.facs.org/~media/files/quality%20programs/trauma/vrc%20resources/resources%20for%20optimal%20care%202014%20v11.ashx>.
18. Borczuk P, Penn J, Peak D, Chang Y. Patients with traumatic subarachnoid hemorrhage are at low risk for deterioration or neurosurgical intervention. *J Trauma Acute Care Surg*. 2013;74(6):1504–9.
19. Huynh T, Jacobs DG, Dix S, Sing RF, Miles WS, Thomason MH. Utility of neurosurgical consultation for mild traumatic brain injury. *Am Surg*. 2006;72(12):1162–5; discussion 6–7.
20. Klein Y, Donchik V, Jaffe D, Simon D, Kessel B, Levy L, et al. Management of patients with traumatic intracranial injury in hospitals without neurosurgical service. *J Trauma*. 2010;69(3):544–8.
21. Esposito TJ, Reed RL, 2nd, Gamelli RL, Luchette FA. Neurosurgical coverage: essential, desired, or irrelevant for good patient care and trauma center status. *Ann Surg*. 2005;242(3):364–70; discussion 70–4.
22. Harbrecht BG, Smith JW, Franklin GA, Miller FB, Richardson JD. Decreasing regional neurosurgical workforce—a blueprint for disaster. *J Trauma*. 2010;68(6):1367–72; discussion 72–4.
23. Bond AE, Draeger CR, Mandelco B, Donnelly M. Needs of family members of patients with severe traumatic brain injury. Implications for evidence-based practice. *Critical Care Nurse*. 2003;23(4):63–72.
24. Testani-Dufour L, Chappel-Aiken L, Gueldner S. Traumatic brain injury: a family experience. *J Neurosci Nurs*. 1992;24(6):317–23.
25. Morris KC. Psychological distress in carers of head injured individuals: the provision of written information. *Brain Inj*. 2001;15(3):239–54.
26. Paterson B, Kieloch B, Gmiterek J. 'They never told us anything': postdischarge instruction for families of persons with brain injuries. *Rehabil Nurs: The Official Journal of the Association of Rehabilitation Nurses*. 2001;26(2):48–53.
27. Ramritu PL, Croft G. Needs of parents of the child hospitalised with acquired brain damage. *Int J Nurs Stud*. 1999;36(3):209–16.
28. Junque C, Bruna O, Mataro M. Information needs of the traumatic brain injury patient's family members regarding the consequences of the injury and associated perception of physical, cognitive, emotional and quality of life changes. *Brain Inj*. 1997;11(4):251–8.
29. Aitken ME, Mele N, Barrett KW. Recovery of injured children: parent perspectives on family needs. *Arch Phys Med Rehabil*. 2004;85(4):567–73.
30. Holland D, Shigaki CL. Educating families and caretakers of traumatically brain injured patients in the new health care environment: a three phase model and bibliography. *Brain Inj*. 1998;12(12):993–1009.
31. Elster EA, Pearl JP, DeNobile JW, Perdue PW, Stojadinovic A, Liston WA, et al. Transforming an academic military treatment facility into a trauma center: lessons learned from operation Iraqi Freedom. *Eplasty*. 2009;9:e31.

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