

Trauma Education and Prevention



Richard Sidwell, MD^{a,b,*}, Maher M. Matar, MD, MHA, FRCSC^c,
Joseph V. Sakran, MD, MPH, MPA, FACS^d

KEYWORDS

- Trauma education • ATLS • Injury prevention • Motor vehicle safety
- Motorcycle safety • Helmet safety

KEY POINTS

- Advanced Trauma Life Support (ATLS) is the worldwide standard for the initial management of the trauma patient, teaching a safe, common approach to this care.
- Rural Trauma Team Development Course teaches providers at small facilities how to apply the principles of ATLS in their own environment, emphasizing teamwork and communication.
- Surgical skills for trauma are taught in 3 courses, each targeting surgical trainees and attending surgeons to help them acquire and maintain the technical skills necessary for life-saving treatment.
- Motorcycle helmet laws have consistently resulted in reductions in serious injury and death owing to motorcycle crashes. Helmet law repeal has repeatedly shown increases in serious injury.

TRAUMA EDUCATION

Injury is now recognized as a disease that carries a significant public health burden. The care of the severely injured patient spans many domains—prehospital, emergency room, operating room, intensive care unit, inpatient hospitalization, and postdischarge rehabilitation. Although definitive care may occur at specialized trauma centers, the initial care after injury begins in the field and may continue at a hospital

^a Trauma Services, The Iowa Clinic / Iowa Methodist Medical Center, 1200 Pleasant Street Des Moines, IA 50309, USA; ^b Department of Surgery, University of Iowa Carver College of Medicine, 375 Newton Road, Iowa City, IA 52242, USA; ^c Department of General surgery, The University of Ottawa Trauma and Acute Care Surgery, The Ottawa Hospital, 1053 Carling Avenue CPC, Suite 330 Ottawa, ON, K1Y 4E9, Canada; ^d Division of Acute Care Surgery and Adult Trauma Services, Department of Emergency General Surgery, Johns Hopkins Hospital, 1800 Orleans Street, Sheikh Zayed Tower/ Suite 6107B Baltimore, MD 21287, USA

* Corresponding author. Trauma Services, The Iowa Clinic / Iowa Methodist Medical Center, 1200 Pleasant Street Des Moines, IA 50309.

E-mail address: rsidwell@iowaclinic.com

without trauma specialization. Because of the time critical nature of severe injury, it is important that providers across the various domains of care have training and experience in trauma management.

In the latter portion of the 20th century, and especially over the past 15 years, educational gaps and needs in trauma management have been recognized. This gap has spawned the development of multiple educational products, each targeting a specific aspect of trauma care. This article describes selected trauma educational courses, including the educational gap being filled, the target audience for each, and an assessment of effectiveness. Preference has been given to describe courses that are relevant for physicians, especially surgeons.

Advanced Trauma Life Support

Advanced Trauma Life Support (ATLS) has become the worldwide gold standard for trauma education. The story of the genesis of ATLS is well-known.¹ Dr James Styner, an orthopedic surgeon in Lincoln, Nebraska, was involved in a private plane crash on February 17, 1976. Although his wife was killed in the crash, he and his 4 children survived and first received treatment at a rural hospital. Believing that the initial care was not adequate, Dr Styner observed, “When I can provide better care in the field with limited resources than my children and I received at the primary facility, there is something wrong with the system and the system has to be changed.” Modeled after Advanced Cardiac Life Support, ATLS was then born.

The pilot ATLS course was presented in Auburn, Nebraska, in 1978.² After this pilot program, the ATLS course was taken up by the American College of Surgeons to promulgate the course with the intent of teaching physicians an approach to the initial care of an injured person. After 37 years, ATLS has literally spanned the globe. Presently in the 9th edition, with the 10th edition set for release in 2017, more than 1 million students have been educated in more than 60 countries worldwide.³

ATLS is a 2- or 3-day course (most commonly 2 days) that teaches knowledge and techniques for evaluating and managing injured persons.⁴ The program is presented through a combination of interactive lectures, surgical skill instruction (surgical airway, chest tube placement, focused assessment with sonography for trauma, optional diagnostic peritoneal lavage), case-based skill stations, and small group discussions. It provides a common language and approach, allowing providers—whether they frequently or infrequently treat trauma patients—to have a shared mental of the organization of the care. Specifically, the course aims to enable participants to³:

1. Demonstrate the concepts and principles of the primary and secondary assessment
2. Establish management priorities
3. Initiate primary and secondary management
4. Demonstrate the skills necessary to assess and manage critically injured patients

Efforts to examine the effectiveness of the ATLS education have looked at 2 areas: retention of knowledge (educational outcome) and improvement in patient outcomes (trauma mortality). Hundreds of papers have been published in this regard. The educational impact is undeniable. Participants have improvement in knowledge and organization of trauma management, practical skills, and identification of management priorities.⁵ Retention in knowledge seems to decrease after 6 months, reaching a nadir at 2 years. The gained understanding of organizational skills and management priorities persists for up to 8 years.

There are many contributing components to mortality after injury, so it is difficult to precisely study the specific effect of ATLS education. A Cochrane Database review⁶

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