

# Trauma Education Report

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## Background:

Education is fundamental to ensuring a competent workforce delivers quality care to the injured. *The Resources for the Optimal Care of the Injured Patient 2014* authored by the American College of Surgeons - Committee on Trauma (ACS-COT), devotes an entire chapter to trauma education stating “All verified trauma centers must engage in public and professional education.” Failure to demonstrate that engagement is considered a Type II critical deficiency for facilities. A Type II critical deficiency means that an essential requirement is missing or deficient. The authors of the Trauma Administrative Rules similarly recognized the role of education in part by requiring in Rule 325.129(u) that the Bureau of EMS, Trauma and Preparedness (BETP) “Conduct an accurate assessment of the training and education needs and resources of trauma care personnel throughout the state”. The State of Ohio report *HB 138 Special Projects #7: Evaluating Trauma Education* states “The literature shows that improved knowledge, skill performance and test scores in trauma care have been associated with participation in trauma education programs....Furthermore, research throughout the evolution of EMS and trauma systems has demonstrated a relationship between provider attendance in education courses and reduced mortality and morbidity in critical trauma patients.”<sup>1</sup>

This report endeavors to describe trauma education in Michigan. It includes a summary of an education assessment conducted in 2015, describes a variety of trauma education opportunities that have taken place, and considers the potential needs and gaps in trauma education in Michigan.

It is not possible to fully capture every trauma related educational opportunity that partners, stakeholders, educational institutions, interest groups and others sponsor or conduct. This report is intended to provide preliminary information for discussion and is not to be considered definitive. It should be noted that trauma system development began in earnest with the passage of funding in 2012. With system development came a renewed interest in trauma education and addressing guidelines related to trauma education.

## The Education Assessment:

Education is a constant ongoing process, therefore any kind of assessment must be considered a point in time measure. In 2015, the Bureau of EMS, Trauma & Preparedness Trauma Section conducted a survey of emergency medical services (EMS) agencies, trauma medical directors, trauma registrars, trauma program managers, and simulation centers in order to gain a better

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<sup>1</sup> Ohio State Board of Emergency Medical Services, (2003, November). *HB 138 Special Projects #7: Evaluating Trauma Education*. Retrieved from [http://www.ohiopublicsafety.com/links/ems\\_seven\\_reports\\_trauma%20ed.pdf](http://www.ohiopublicsafety.com/links/ems_seven_reports_trauma%20ed.pdf)

understanding of trauma education in Michigan. The survey attempted to gather preliminary data on the kinds of trauma related courses that were being offered, class size, type of student, and barriers to education. This was an effort in part, to address the Administrative Rule charge to “conduct an accurate assessment of the training and education needs and resources of trauma care personnel throughout the state.” There was a 38% response rate overall to the survey which is not statistically reliable, but the results did provide some insight into the current status of trauma education in the state.

#### *Trauma Medical Director Assessment:*

A total of 34 trauma medical directors responded to the “Trauma Medical Director Education Assessment”. Nearly half of the respondents were from primarily rural areas and 56% of the respondents were from non-verified trauma facilities (by either the American College of Surgeons or the state).

Twenty-nine percent of the respondents reported that their institutions offered Advanced Trauma Life Support (ATLS) courses. One-half of those that offer ATLS offer at least 3 courses per year. Eighty percent of respondents required to take ATLS had done so. When asked if a sufficient number of ATLS courses were offered each year, 82% responded “yes”. Those that reported “no” to the question indicated that availability of qualified instructors, insufficient number of enrollees, and course overhead costs were the primary barriers to providing ATLS courses. All respondents reported that persons from outside of their institution were allowed to attend ATLS course offerings. Barriers the trauma medical directors reported that may have prevented their fellow physicians from obtaining and/or maintaining ATLS certification include reluctance to take unpaid time off, travel time to training sites, lack of interest and lack of financial support from administration (in that order).

#### *Trauma Program Manager Assessment:*

The “Trauma Nursing Education Assessment” was sent to an identified contact in each acute care hospital in Michigan. There were 70 respondents. Approximately 76% of the responses came from the trauma program manager while the other 24% were completed by an emergency department nurse. The 8 trauma regions were represented in the responses.

Seven of the hospitals that responded stated that they require that staff take the Advanced Trauma Care Nurses course. Fifty-seven facilities or approximately 81% of the respondents stated their facility required Trauma Nursing Core Course certification of emergency department nurses while 16 or approximately 25% require the same certification of the intensive care unit nursing staff. More than half of the respondents reported that their facility was willing to become a training site for the Trauma Nursing Core Course.

#### *Trauma Registrar Assessment:*

There were 106 trauma registrars that responded to the “Trauma Registry Education Assessment”. More than half of the total responses came from registrars based in southeast Michigan. More than half of the responses also came from facilities that were not verified at the time of the survey. Thirty percent of the respondents came from facilities that plan to seek Level IV verification. Approximately 70% of the respondents hold a Registered Health Information

Technician (RHIT) certification while 42% hold certification in Certified Specialist in Trauma Registries.

Sixty-five percent of the respondents reported that they had been trained in their facility's trauma registry software and 39% were trained in the State of Michigan's Trauma Registry (ImageTrend®). Image Trend is a web based software application and data entry either by uploading data or direct entry is a requirement to participate in the state trauma system. Approximately 70% of the registrars who responded to the survey had completed a trauma registrar course in the past and 66% reported attending the Association for the Advancement of Automotive Medicine's (AAAM) Injury Scaling Course for the Abbreviated Injury Scale (AIS). Approximately 67% of the respondents reported completing ICD-10 training.

#### *EMS Agency Assessment:*

The "EMS Trauma Education Assessment" was sent electronically to each licensed EMS agency in Michigan. A total of 106 agencies responded to the assessment (75% were licensed as Advanced Life Support). The 8 trauma regions were represented in the responses.

A total of 73% of respondents stated that their medical control authority (MCA) did not have approved protocols in place which require EMS providers maintain either Prehospital Trauma Life Support or International Trauma Life Support certification as a condition of practice. A majority of those MCAs which require providers maintain a trauma certification accept either course. Of those agencies in MCAs where trauma certification is required, 20% stated there were not sufficient courses available.

When responding to questions about barriers to obtaining and maintaining trauma certification the respondents cited cost of course and materials, local availability of courses, failure to schedule courses during work hours, and availability of instructors. Other barriers mentioned included lack of equipment, limited resources, and conflicts with other required certifications. Nearly 76% of respondents stated that their agency would consider becoming a trauma certification training site if the necessary resources were available (instructor pool, equipment, etc.). Eighty-five percent of the respondents reported that EMS trauma training is conducted by the EMS agency with 20% being conducted by the local hospital(s). EMS personnel rely on their EMS agency (70%) to provide orientation on new trauma related policies, procedures, and protocols as opposed to the local MCA, local hospital, or other education sites.

#### *Simulation Center Assessment:*

A total of 10 simulation centers responded to the "Trauma Simulation and Training Assessment". Of those reporting, 67% provided Trauma Nursing Core Courses (TNCC), 50% were involved in Advanced Trauma Life Support (ATLS) courses, and 33% conducted Advanced Trauma Care for Nurses (ATCN) courses. Other trauma care courses the simulation centers were involved in included Rural Trauma Team Development (RTTD), Trauma Care After Resuscitation (TCAR), and Pre-hospital Trauma Life Support (PHTLS). Course enrollment for all programs averaged 10-20 persons.

The biggest barrier to conducting courses was reported to be an inability to find qualified instructors. Scheduling and lack of enrollment were the other most commonly reported barriers to providing the courses. Course cost was not reported as a barrier.

## Bureau of EMS, Trauma & Preparedness Supported Courses:

As the statewide trauma system began to develop, the Bureau of EMS, Trauma & Preparedness identified gaps in education supported by the assessments described above and anecdotal accounts from partners and stakeholders. As a result several education initiatives were implemented with partners and stakeholders including: Prehospital Trauma Life Support for pre-hospital providers, Trauma Program Development course, Trauma Registrar training, and The Abbreviated Injury Scaling Course. The focus was to support the newly developed and still forming trauma system, and the necessity of providing early education for the healthcare staff engaged in developing the trauma program in their region or facility.

**Trauma Program Development Course.** A Trauma Program Development Course was developed in partnership with the Michigan Trauma Coalition and was held April 14, 2015 at Lansing Community College West. The course was developed to provide new trauma program managers/coordinators basic information on how to set up a trauma program. Topics included trauma center criteria for designation, developing a trauma program, EMS collaboration, and data management and performance improvement. There were 114 registrants for the program. The overall evaluations were positive. One attendee responded on the evaluation, “Apparently the State and all involved want us to succeed.”



**Trauma Registrar Course.** A Trauma Registrar course was held on March 15, 2016 at Lansing Community College West. The course was developed to address basic data collection and provide an overview of the trauma registry. It mirrors topics covered in the American Trauma Society’s Trauma Registrar Course. The speakers for the program were experienced Michigan trauma registrars, the State Epidemiologist/Registrar and Trauma Section staff. The course addressed an ACS-COT verification requirement that “Trauma registrars should receive initial training when they start the job. They must attend or have previously attended two courses within 12 months of being hired: (1) the American Trauma Society’s Trauma Registrar Course or equivalent provided a state program.....” There were 110 registrants for the course. Thirty-six respondents completed course evaluations. Overall the responses were positive (strongly agree-neutral). Comments generally focused on the ImageTrend® workshop held at the end of the conference day that acknowledged the challenges of trying to address the spectrum of learners in a computer lab setting.

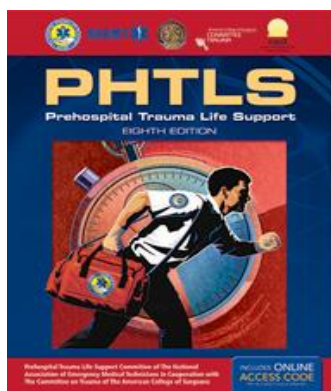


**Association for the Advancement of Automotive Medicine (AAAM) Abbreviated Injury Scale (AIS©) course.** Injury severity scales are used to set priorities for treatment, to predict or manage injury outcomes and to compare groups on injury outcomes and treatment. AAAM developed and owns the right to the Abbreviated Injury Scale. The AIS© incorporates current medical terminology and provides an internationally accepted tool for ranking injury severity. Being trained to measure and report injuries is a requirement for Level I, II and III trauma registrars and preferred for Level IV trauma

registrars. Resources for Optimal Care of the Injured Patient 2014 - The Trauma Registry Section states that registrars from Level I, II and III facilities must attend, or have previously attended the AAAM Injury Scaling course within 12 months of being hired. The AIS course is offered online or in person. Students work independently and need to participate in weekly live sessions over a 4 week period. In partnership with AAAM, 25 scholarships were made available starting in March 2016 for the online course. Staff from Michigan facilities involved in trauma program development who needed training in AIS© were invited to participate. Scholars had until September 30, 2017 to take and complete the course. Twenty-three scholarships were awarded, 11 students passed the course, 5 students did not pass the course and 7 course results are pending. AIS© coding manuals, (70 total) were also purchased and distributed to those who needed the coding information but were not planning on attending the course.



**ImageTrend®.** ImageTrend® trainings were held in Lansing, Gaylord, Sault Ste. Marie and Baraga in April 2014. A total of 89 were registered to attend. The trainings were supported by the Trauma Section. Similar trainings were also held in 2012. The topics included Trauma Registry 101, ImageTrend® registry overview for system users, facility set up, data exchange, report writing and additional features.

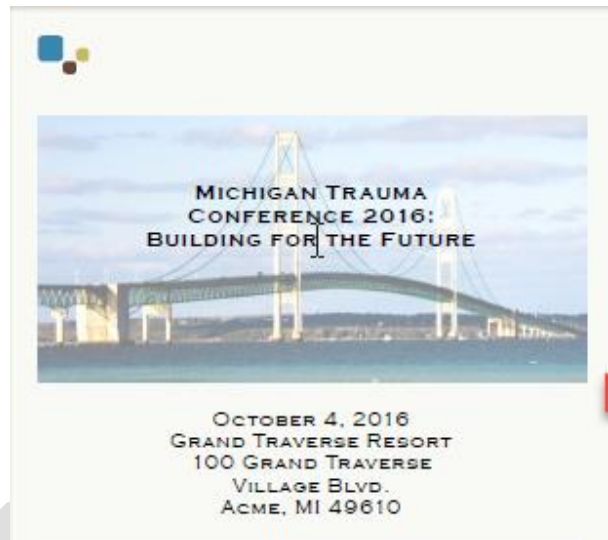


**Pre-hospital Trauma Life Support (PHTLS) Courses.** Pre-hospital Trauma Life Support is a pre-hospital trauma education program. It was developed by the National Association of Emergency Medical Technicians in cooperation with the American College of Surgeons to promote critical thinking in addressing multi-system trauma and provide the latest evidence-based treatment practices. A review of PHTLS courses in the state over the past 4 years indicated that few PHTLS courses had been conducted in rural areas of the state. To date 6 PHTLS courses have been held in rural areas throughout the state. A total of 125 students attended the courses and 11 students indicated they would be interested in becoming PHTLS instructors.

The course evaluations indicated the information was useful and would be put into practice.



**State Trauma Conference:** *Michigan Trauma Conference 2016: Building for the Future* was held in Traverse City on October 4. There were 259 attendees. The conference covered topics such as: tourniquet use, rural trauma care in Montana, Matter of Balance program for elderly falls, PTSD in trauma staff and more. There were 124 evaluations completed. In response to the statement “Overall I am satisfied with this educational activity and benefited greatly from this information”, 84 responded that they agree or strongly agree.



## || TRAUMA EDUCATION

### **Michigan Trauma System Development**

**Projects:** The Bureau of EMS, Trauma and

Preparedness (BETP) is committed to supporting partners and stakeholders in the trauma system to enhance their efforts in system building. BETP approved one-time funding to support system development in the following categories: Injury Prevention, Performance Improvement, **Trauma Education** and Trauma Infrastructure. Applicants interested in Trauma Education could apply for an award to support education which ranged from \$5,000 to \$25,000. A total of 43 trauma education projects were awarded which, if successful, will have trained 1,503 trauma care providers.

### **Partner Supported Education:**

Trauma partners and stakeholders are actively engaged in supporting trauma education in Michigan. The following is by no means an inclusive description of trauma education in Michigan nor does it address the myriad of educational opportunities available online, through individual professional organizations, learning institutions, etc. The purpose is solely to demonstrate the variety of educational opportunities that have at some time in the recent past been made available in the state. A complete list of where, how often and what level of participation each course had is beyond the scope of this document.

**Advanced Trauma Life Support (ATLS):** The ATLS course was introduced in 1980. This two day course is designed to teach physicians a concise approach to assessing and managing multiple-injured patients. The ATLS program provides participants with a safe, reliable method for immediate management of the injured patient and the basic knowledge necessary to assess the patient's condition rapidly and accurately, resuscitate and stabilize the patient according to priority, determine if the patient's needs exceed a facility's capacity, arrange appropriately for the patient's inter-facility transfer, assure that optimum care is provided and that level of care does not deteriorate at any point during the evaluation, resuscitation or transfer process. The

ACS-COT website section titled **ATLS Future Course(s)** noted that there were 8 planned ATLS courses in Michigan from September 8 through October 28, 2016.

**Advanced Trauma Care Nursing (ATCN):** Advanced Trauma Care for Nurses is an advanced course designed for the registered nurse interested in increasing his/her knowledge in management of the multiple trauma patient. The ATCN course is taught concurrently with ATLS. The nurse participants audit the ATLS lectures. During the ATLS skill and testing stations, the nurses are separated from the physician group and directed through ATCN skill stations. ATCN Skill stations include:

- Initial Assessment and Management
- Airway and Ventilatory Management
- Pediatric Trauma
- Hemorrhagic Shock
- Musculoskeletal & Spinal Trauma
- Head Trauma

The Skill Stations are based on an interactive "hands-on scenario-based approach" to adult education. The practical testing stations allow the ATCN students to demonstrate the application of ATLS and ATCN information on a moulaged patient. The Society of Trauma Nurses website listed 5 ATCN courses from March through October 2016.

**Trauma Nursing Care Course (TNCC):** Trauma Nursing Care Course is a two day course developed by the Emergency Nurses Association. The purpose is to provide a systematic approach to initial assessment of the trauma patient and hands-on skill stations in order to practice real life situations. Five online modules of complete case studies take the care giver through an entire sequence of care. There are 49 TNCC courses scheduled throughout Michigan from July through December according to the TNCC website. There are currently 10 TNCC courses scheduled in Michigan for November of 2016 through 2017.

**Trauma Care After Resuscitation (TCAR):** Trauma Care After Resuscitation is a two day course specifically designed for acute care, critical care, and perioperative nurses. TCAR covers a wide range of pathophysiologic and nursing concepts and is designed to be a broad, core-level program rather than an advanced or specialty-specific course. The focus of the course content is the post-resuscitative phase shifting from initial resuscitation to recovery, ongoing management, complication prevention and reintegration. The information may also be applicable to other staff who interact with the hospitalized trauma patient. A similar course is offered that is specific to the pediatric population titled Pediatric Care after Resuscitation (PCAR).

**Trauma Conferences:** Trauma conference and injury prevention symposiums have been held throughout Michigan for years. In 2012 the first annual Pediatric Trauma Conference was held. The Detroit Trauma Symposium is the oldest running trauma conference in the country.

**Additional Educational Opportunities:** The Michigan Trauma Coalition has supported the Trauma Center Association of America Trauma Center Finance and Business Planning Course, Pophrey Consulting Registrar Training, and the Trauma Outcome and Performance Improvement Course (TOPIC).



## Discussion:

Supporting and understanding the ongoing needs for trauma education in Michigan is a continuous process. The state of Ohio report *House Bill 138 Special Projects #7* mentioned earlier substantiated that trauma courses improve clinical abilities. It discussed issues related to the need for consistent state standards, need to utilize newer technology, and suggested that assisted learning technologies would be useful. The report was published in 2003 however, those recommendations are still applicable today. Trauma education remains an imperative, the challenges to provide consistent, quality, ongoing education are persistent, and that attention and resources must be committed to address the issues. In Michigan, 13 years later those recommendations are still applicable.

### **Possibilities:**

- There is significant interest in trauma education and training. Partners and stakeholders should capitalize on this desire to maintain competency.
- Efficiencies can be explored by combining educational offerings, and tracking and supporting programs with the best outcomes and pass rates, etc.
- Conferences could be organized geographically on a rotation so plans can be made well in advance for attendance.
- Explore using data more robustly to drive training needs.
- Address rural trauma care training and specialized needs.
- Capitalize on best practices.
- Consider how technical innovations can be harnessed to provide education.
- Harnessing the talented Michigan trauma community to develop and support ongoing education.

### **Challenges:**

- Constant movement in the healthcare industry (including staff) make training necessary, challenging and potentially less of a priority.
- No centralized repository for education offerings.
- Provincial vs system approach to education.
- Challenges related to identifying staff, presenters and organizers for trainings as well as space and equipment requirements.
- Harnessing information modalities effectively, including information overload.
- Lack of recognition for additional certification and training.
- Financial issues: covering for staff trainings, overtime, ROI.
- Ensuring that evidenced based training engages workers and crosses generational divides.
- Developing a tool that accurately captures educational opportunities, gaps and needs.
- Resources needed to continue to assess the learning environment, gaps and needs.

## Summary:

Michigan trauma care providers, partners and stakeholders have demonstrated their commitment to ongoing education. The Bureau of EMS, Trauma and Preparedness is prepared to support learning opportunities. The Michigan trauma community embraces the understanding that learning and education is ongoing, never ending. As the system matures and headwinds appear, diligence and an unshakable commitment to education will ensure a competent workforce delivers exceptional care. To quote Abigail Adams “Learning is not attained by chance, it must be sought for with ardor and attended to with diligence.”