Best Practices for EMS Time-Critical Diagnoses:

TRAUMA

WI ORH
Office of Rural Health

the PARAMEDIC foundation

Patient Care Policies and Procedures Toolkit

VISION STATEMENT

Deaths from heart attacks, stroke and trauma make up the largest collection of preventable deaths in the country. Each EMS agency can impact the care of these patients a great deal. To be successful in providing the highest standard of care to our patients and communities, we need to commit ourselves to a higher standard. We need to commit ourselves to becoming engaged partners in our respective systems of care. If we do this, we will provide greater value to our communities and the patients we serve.

INTRODUCTION

In 2016, the Office of Rural Health developed and delivered an assessment of EMS agencies related to patient care policies and practices titled, EMS Patient Care Assessment. The assessment focused on the care of patients with time critical diagnoses: stroke, STEMI, trauma and cardiac arrest. This was developed with experts in those areas. The assessment followed the model of a previous assessment of ambulance service management and leadership. For each patient care attribute in the STEMI Protocol Review, for example, there were five response options. Rather than the traditional "rate your agency on a 1 – 5 scale," the response options were in narrative form. The options represented a "ladder" of policies/practices, from lower capacity to high capacity, representing the gold standard in patient care for that attribute.

One goal of this format is to provide examples for agencies of what a high capacity EMS service's policy might look like regarding patient care. These can serve as a roadmap for improvement in order to become a high capacity agency. While the assessment itself can serve as this roadmap, it will also be useful to have a more detailed guide. The Patient Care Policies and Procedures Toolkit will explain why an agency may want to change their policies/practices and how they can implement them.

This document is divided into four systems of care. Each of these systems is then further divided into two primary subsections, the first being a workbook which serves as a "checklist" of completion for each of the corresponding policies and procedures manuals and the corresponding levels of achievement. Following each workbook is a development support section, again categorized by the systems' attributes. This section provides support information, links to helpful data and more detailed explanations into the development of these attributes' features.

TRAUMA
Policy and Procedures

The CDC and the National Trauma Institute identify that trauma accounts for nearly 41 million emergency department visits and 2.3 million admissions across the nation each year. It currently accounts for 30% of all "life years" lost in the US and is the leading cause of death for ages 1-46 years of age and the third leading cause of death overall. According to most recent NEMSIS data, traumatic injury accounts for 21.8% of all EMS practitioners' field impressions, ranking the highest out of collected data compared to any other impression.

Being able to recognize a patient's condition, their severity and what it is they need to survive is paramount. Therefore, it is imperative that agencies and its practitioners have the necessary tools and protocols to provide immediate interventions in the field as it relates to airway control and bleeding control. This should also emphasize a well-developed plan involving the integration of all trauma resources available to the system of care.

Gold Standard Objectives

1. **Attribute 1: Trauma Protocol**
   The agency will have adopted and vetted protocols for the care of patients based on RTAC (Regional Trauma Advisory Council) guidelines.
2. **Attribute 2: Protocol Review**
   The agency will have an adopted protocol review policy and system to review all care provided by the agency to the trauma patient, which includes representatives from the agencies operations team, administration and medical director on a regular basis.
3. **Attribute 3: Trauma Care Training**
   The agency conducts regular training (more than once a year) on trauma care in cooperation with other stakeholders e.g. hospitals, other responder based providers and staff.
4. **Attribute 4: Trauma Quality Assurance Policy**
   Agency has a QA/QI policy as it pertains to trauma cases, where they review all cases and collect data points as it pertains to those cases. These data points are then reviewed on a regular basis with the agency's medical director.
5. **Attribute 5: QA Review with System of Care**
   Agency's medical director or representative meets with the receiving trauma centers on a regular basis to review the trauma case data.

Attribute 1: Protocol Development

An up to date protocol that is specific to the treatment of trauma patients is important. Much of the treatment may be covered by various protocols, such as “bleeding control” or “shock management”, but the operations of handling a trauma patient should be outlined in the protocols separately.

Gold Standard

The agency will have adopted and vetted protocols for the care of patients based on RTAC (Regional Trauma Advisory Council) guidelines.

Create Current Trauma Protocol

1. **Set up** a meeting with the medical director to discuss the creation of trauma protocol.
2. **Review** local WI State Regional Trauma Advisory Council or WI State TTT guidelines.
3. **Draft** trauma protocol to address the following attributes:
   - **A.** Fastest possible recognition of a trauma
   - **B.** Appropriate treatment
   - **C.** Correct identification of closest and most appropriate destination facility
4. **Vet** protocol.
5. **Adopt** protocol. Sign off by medical director.
6. **Update** protocol every 2 years by reviewing with medical director, leadership and staff.

Attribute 2: Protocol Review

Agencies need to develop a trauma protocol review policy for any time the agency receives a complaint, identifies substandard performances, or realizes adverse patient outcomes.

Gold Standard

The agency will have an adopted protocol review policy and system to review all care provided by the agency to the trauma patient, which includes a representative from the agencies operations team, administration and medical director on a regular basis.

Adopt a Regular Review Process

1. **Identify** leadership and individuals (education manager, clinical coordinator, administration or specific person) responsible for protocols inside the agency.
2. **Draft** review policy containing the following attributes:
   - **A. Define** "issues" within operations and care.
   - **B. Define** the entry point for any incident into the review process.
     - o Receives a complaint
     - o Identifies substandard performance
     - o Experiences adverse patient outcomes
   - **C. Identify** the time for which a review should take place following the incident.
3. **Confirm** that a review of the protocol which relates to the reported issue gets reviewed during the process.
4. **Identify** the people who should review process and be sure to include this in policy.
5. **Ensure** review process includes common aspects that repeatedly need to be reviewed. These include but are not limited to:
   - **A.** Closest appropriate destination facility
   - **B.** Treatment in line with current and active WI RTAC guidelines

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6. **Add** a communication tree and education standard for assuring compliance of any changed aspects of the protocol during a review process.

7. **Include** staff in regular reviews with operations officer, medical director or administration. Add this into education standards or their job descriptions. Ensure staff are aware of when meetings are scheduled. Consider setting multiple meetings to ensure compliance with attendance. Scheduling the event on the same day or on a regular interval will help.

8. **Keep staff informed** of any changes to policy or protocol as it pertains to trauma care.

9. **Develop an assessment** for staff that will test them on any changes to protocols or policy.

10. **Review** protocol at least once every two years.

Attribute 3: Trauma Care Training

State regulatory agencies and the national standard through the NREMT requires continuing education hours in trauma. The importance for an EMS agency to be connected and engaged with providing continuing education to its practitioners is imperative.

Gold Standard

The agency conducts regular training (more than once a year) on trauma care in cooperation with other system of care stakeholders, e.g. hospitals, other responder based providers and staff.

Establish Trauma Training

1. **Identify** whether the agency has standards or expectations for training requirements and skill competencies for staff.
2. **Add** educational requirements instead of corrective actions alone into any review process or QA process as part of your PSES system for improvement.
3. **Set standard training** curriculum from vetted programs, search for instructors in the region, and create a priority list or outline for training. Receive medical director approval of training and write policy.
4. **Conduct** scheduled trainings for trauma care and operations less than once a year, but not in conjunction with an identified issue.
5. **Develop** an education calendar or procedure that creates clear communication to staff as to when and where these trainings are to take place.
6. **Outline** staff participation in trainings in the company handbook or a job description.
7. **Include** case reviews of agency trauma cases in education.

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8 **Include** Regional Trauma Council (RTAC) in training.

- **A.** Identify the closest trauma referring or receiving hospital and identify their capabilities.
- **B.** Identify a point person at each of the facilities who will engage with the agency on training events and case review.

9 **Develop** any agreements, contracts or procedures which will facilitate the transferring of trauma case information and protect sensitive material.

Attribute 4: Trauma Quality Assurance Policy

State regulatory agencies and the national standard through the NREMT requires continuing education hours in trauma. The importance for an EMS agency to be connected and engaged with providing CE to its practitioners is imperative.

Gold Standard

Agency has a QA/QI policy as it pertains to trauma cases, they review all cases and collect data points as it pertains to those cases. These data points are then reviewed on a regular basis with the agencies medical director.

Adopt a Quality Assurance Policy

1. **Review** process will include the involvement of the Regional Trauma Advisory Council.
   - **A.** Identify the closest trauma hospital and their capabilities.
   - **B.** Identify a point person at each of the facilities who will engage with the agency for case review.
   - **C.** Develop any agreements, contracts or procedures which will facilitate the transferring of stroke case information and protect sensitive material.
   - **D.** Add a "non-reprisal" section into your policy.
2. **Identify** the process for which trauma cases are selected for review.
   - **A.** Identify a point person or team that is responsible for pulling the cases for review.
   - **B.** Identify criteria for the selection of cases. This can be based on a specific percentage of trips, random selection, or even based on practitioners.

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3 **Identify** the data components that will be collected. Below are some examples.

- **A.** Estimated onset.
- **B.** On scene time (FMC to in route to destination)
- **C.** Arrival time at receiving facility.
- **D.** Appropriate destination facility.
- **E.** Trauma alert notification.

4 **Develop** a process for pulling all trauma cases for review. Adopt a process to consistently pull out trauma cases for review and capture data from these calls. Some options for this include:

- **A.** If your agency uses an electronic patient care reporting (ePCR) system, work with your vendor to see if there is a way to flag trips or pull reports electronically.
- **B.** Use the STEMI CARD located in the STEMI System of Care Development Support Manual and adapt it into a Trauma Card. Have staff attach these to each Trauma report after they finish their PCR.

5 **Develop** a feedback system for reviews. Develop a system or a process for getting information from the review process back to the practitioners. Conduct some reviews in person with the care team when necessary.

The involvement of the agency's medical director is important for success. At this level, the medical director must be engaged in the review process of trauma cases and have access to the collected data. To facilitate involvement, please consider the following:

- **A.** Engage in a conversation with the medical director about his/her responsibilities to the agency and these should be outlined in his/hercontract.
- **B.** Develop a secure, HIPAA compliant way to communicate data and case reviews to medical director instead of a face to face meeting.
- **C.** Work with the medical director and develop a calendar of review dates well in advance.
- **D.** Be prepared for reviews to maximize time.

Attribute 5: QA Review with System of Care

Developing a QA process for trauma cases should involve the Regional Trauma Advisory Council.

Gold Standard

Agency's medical director or representative meets with the receiving trauma centers on a regular basis to review the trauma case data.

Develop a QA process for Trauma Cases

1. **Identify** the hospital's point person for trauma review. This may be the same person identified in Attribute 3. The local hospital system may already have an internal feedback system in place for trauma QA review. If the facility is a certified trauma center, it is required to have one and usually is required to provide outreach to community stakeholders. This may be done through the local RTAC.
2. **Identify** the appropriate Regional Trauma Advisory Council (RTAC).

   The agency should consider any Business Associate Agreements (BAA) which identify the handling of PHI.
3. **Identify** the multi-agency clinical review team.
4. **Identify** the acceptable means of communication and the expectations for meetings with receiving hospitals.
5. **Relationships** need to exist with the receiving hospitals to receive feedback on trauma cases. The development of the pathways for communication and data sharing was identified. Build on those procedures and policy to obtain the following goals:

   A. 100% of all trauma cases are reviewed and receive hospital feedback.

   i. Create multiple avenues of communication to facilitate this. Regularly scheduled face-to-face meetings and a way to share PHI data electronically.

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B. In the absence of an existing one, develop a feedback form for the hospital which outlines the type of feedback desired, including opportunities for improvement. This would be a good place to include outcome data for patients.

C. Identify goals in conjunction with receiving hospitals. When meeting in person, discuss cases which accomplished the goals and which did not. Use root cause analysis or SWOT diagrams to identify strengths and opportunities for improvements.

6 **Engage** agency's and hospitals review team in quality assurance reviews to help improve patient care.

A. Identify a designee from the agency or the medical director who will facilitate these meetings.

B. Create a regular schedule for these case reviews with the receiving hospital.

C. Identify the agency's review team.

D. Within the review team, lay the ground rules for reviewing cases, stressing education and the building of a learning environment. A non-reprisal policy for staff, which was developed earlier in Attribute 4 can be a good foundation for this. Encourage open and honest feedback while preventing an environment for attacking practitioners.

TRAUMA
Protocol Guidance

Consider the following five areas when developing trauma protocols.

1. Hemorrhage control and shock management: Immediate treatment guidelines designed to maintain your patient's CAB (circulation, airway, breathing). It is important to address the proven methods for bleeding control, which concentrate on direct pressure to the hemorrhaging tissue. This does not mean generalized pressure to the surrounding area, but specifically placed pressure on the tissue and vessels which are bleeding. While this technique is the most successfully proven way to stop hemorrhage, other techniques like immobilization and elevation of the injury may also be used. Discuss the use of a tourniquet protocol in conjunction with bleeding control procedures. Be sure to consult with the medical director if this piece of equipment is not already in use. As with any bleeding, be aware of the signs of shock and be ready to treat for it.

2. Airway control and breathing: The primary goal for treatment in a trauma patient is to maintain perfusion of the tissue until definitive care can be given. To do this, practitioners will need to be able to identify threats to the patient's airway and be able to intervene when necessary to protect said airway. According to the TTT guidelines (link attached), if the airway cannot be managed with BLS maneuvers or non-visualized methods, then activating ALS Intercept for RSI intervention or transport to the closest location is warranted.

3. Assessment, triage and recognition: Another important aspect of trauma protocols should include guidance on appropriately triaging a patient's condition and recognizing the level of care they will need as it relates to their injury. Depending on an agency's location, for example, a patient suffering from significant burns may need to be transported to an entirely different location than say a pediatric patient suffering from a blunt injury. The TTT guideline offers a foundation for these principles, using an algorithm tree to help guide decisions. Use the same format in protocols to reduce error and confusion.

4. System of care identification and integration: Located in this document's toolbox are the most recent available listings and locations of all the hospitals in Wisconsin and their trauma level designations. It is important that

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trauma protocols be customized based on relevant geographical location. The term “the closest appropriate facility” is only advantageous when all practitioners understand the capabilities of the respective hospitals inside of their system of care. Be sure to identify the hospitals by name, with addresses and contact information inside of the trauma protocols. Agencies should also consider adding algorithms that pertain to the distribution of patients when faced with any kind of MCI. Work with regional hospitals to determine the best way to handle these situations. Hospitals can be taxed quickly when dealing with several significantly injured patients.

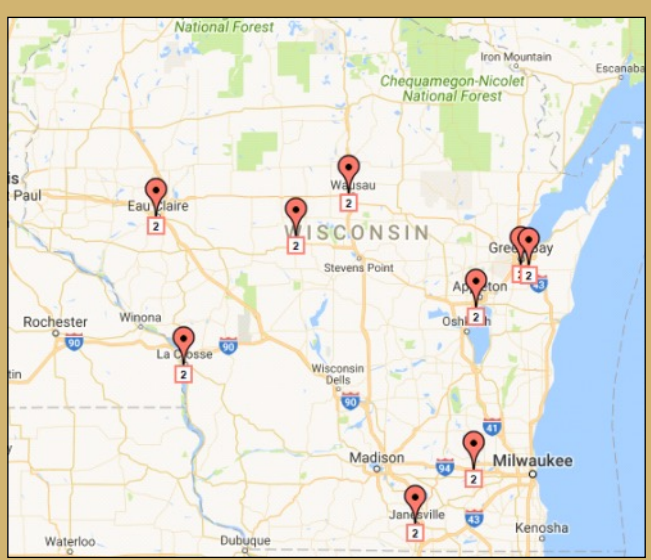
5. System Activation: Identify the hospitals inside the local trauma system, being sure to collaborate with those facilities and agree upon what each entity determines to be a trauma activation. We included designations for trauma level activation in this workbook, but we have experienced slight differences and variations from system to system. Many lower level trauma centers do not have surgeons present 24 hours a day, but have these teams on-call instead. Getting them the earliest possible alert will help improve TAKT times for patient care.

As referenced earlier, concepts in care are constantly changing as we learn more about our trade. As this document is being written, the use of MAST pants has come and gone, the benefits of the Trendelenburg position have been disproved, while tourniquets came, left and came back again. Acceptable blood pressure levels have changed and now backboards appear to be on the way out of favor. In addition to pre-hospital care being in a state of flux, hospital’s capabilities and system resources change as well.

It is imperative that an agency set up policies and practices which facilitate review of protocols. This review should take place with medical direction, administration, hospitals and other resources in the system of care. At a minimum, reviewing these protocols every two years or every odd year is an effective way of facilitating this process.

RESOURCES TOOLBOX: Trauma Hospitals

www.dhs.wisconsin.gov/trauma/counties/index.htm



TRAUMA
Training Guidance

An agency should be providing training opportunities for its staff on regular intervals to hone skills associated with the recognition of trauma patients and the correlated life threats. This includes practicing the interventions needed to protect the patient's airway, maintain perfusion and treat for shock. In addition to the individual components of trauma care, it is imperative that the agency be involved in the testing of trauma system's capabilities from time to time. Do this once a year in some fashion. Testing the system can be done in multiple ways. For instance, the agency and local hospitals can perform a table top exercise, testing the logistical, administrative and communication functions of MCI incidents. Try practicing a full-scale simulation too, involving as many of the system's components as possible. Both are valuable in testing the validity of the agency's standing protocols and operating procedures. These training events can reveal weaknesses in the agency, provide guidance on where to concentrate developmental efforts, and help build relationships.

To assist in developing a training program for trauma, we have included an outline that should serve as a solid foundation for any agency.

Suggested Trauma Training Outline:
Trauma Overview

- **Principles of Energy**
  - Newton's Laws
  - Potential and kinetic energy
  - Mechanism of injury and related injuries common with them
  - Blunt vs penetrating trauma
  - Collison types and associated injury patterns

- **Bleeding**
  - Anatomy of major and great vessels
  - Signs and symptoms of hemorrhage
  - Hemorrhage control
    - Splinting
    - Tourniquets
    - TIA (Transient Ischemic Attack)

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Soft-Tissue Injuries

- Burn anatomy
- Wounds and their types
- Crush syndrome

Face and Neck Injuries

- Understanding your local spinal clearing protocol if applicable
- Understanding the cranial nerves
- Treatment of patients with helmets

Trauma System Identification

- Identify all local hospitals and their respective capabilities
- Identify additional responder resources including Air and Ground EMS, Fire, Police.
- Review patient distribution procedures

RESOURCES TOOLBOX: Trauma Training, Tip For Success

Experience has shown us that simply providing educational events does not guarantee success. It is important to realize that the goal does not to just offer education, but that all staff engage, participate and improve. Engagement can be difficult if it is not already engrained into your agency's culture, so be sure to shape the rider's path by making these events consistent, easy to participate in and regular. Be sure to appeal to their emotions!

An additional note:

Early bleeding control can save a life. If the agency doesn't already do this, put on a bleeding control course for the community. Teaching others is sometimes the best way to learn. It will engage staff, show the community that the staff cares and will truly make a difference in the region.

Engage with the Regional Trauma Advisory Council and ask how the agency can help educate the public on trauma.

TRAUMA
Quality Assurance Policy and Review

The primary purpose of a policy is to create a mutual understanding of expectations, goals and purpose for the agency and other involved entities. This will decrease confusion, improve compliance and increase engagement. A well drafted policy also assists in creating accountability to a standard. It can help protect an agency and its practitioners legally in some circumstances. The mark of a high-quality service is that it has and maintains effective and relevant policies.

Provided in the appendix is an example of QA policy that any agency can use as a foundation if it does not have an existing one or if it needs to be reviewed.

The creation of a PSES system in collaboration with a PSO for additional legal protection can also be an asset. A non-reprisal policy which encourages practitioners to be open and honest about their care, even if it resulted in adverse outcomes to patients, is valuable too. This open and honest environment has been proven to improve systems of care.

An agency's QA policy should outline the data elements that the service will be assessing. Not only should this policy outline which data elements to record and review, but it should outline the agency's responsibility to report data to state and national data banks. The National Trauma Data Standard set by the American College of Surgeons is the current standard for these data elements. Agencies report these elements through NEMSIS data reporting. Confirm that these reporting practices occur.

RESOURCES TOOLBOX: Trauma Reporting, NTDS Data Elements

https://www.facs.org/quality-programs/trauma/ntdb/ntds/vendor-info

NEMSIS reporting can be difficult to do without an electronic ePCR reporting system. Electronic ePCR systems can pose roadblocks for many agencies. It could be because of financial reasons or the lack of IT support within the agency. If an agency does not currently perform patient care reports on an electronic reporting system, there are resources available via the WARDS system (Wisconsin Ambulance Run Data System) developed by ImageTrend. The links below can

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be used to learn more about WARDS and identifies contact information for the program.

Collaboration with the entire trauma system, such as hospitals and the RTAC, is imperative for system wide improvement. This may require Business Associate Agreements which outline the use, management and transferring of PHI material between agencies. As suggested in the example QA policy, setting regular times to meet with these entities is an effective way to ensure that meetings occur consistently.

RESOURCES TOOLBOX: Trauma Reporting, Wards Project
WARDS: www.emswards.org/default.cfm?page=login

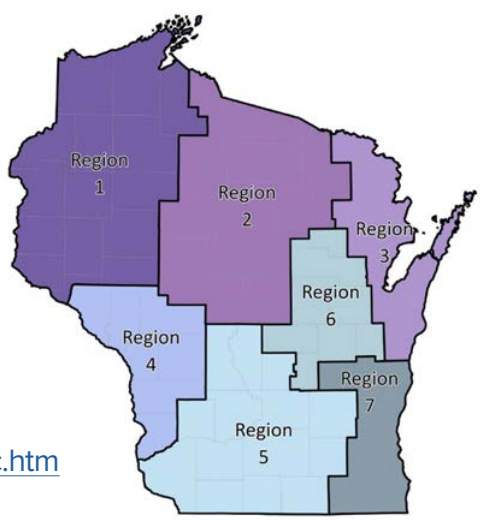
INITIAL USER CONTACT: Wisconsin EMS Section
dhsemssmail@dhs.wisconsin.gov or 608-266-1568

It is imperative to include local RTAC (Regional Trauma Advisory Council). Listed below are the responsibilities of RTAC as outlined by Wisconsin Statute DHS 118.06.

- Develop a regional triage and transport protocol
- Resolve conflicts concerning trauma care
- Develop and implement injury prevention strategies based on performance improvement findings
- Analyze local and regional trauma registry data.

Go to the listed website below to find the State Trauma Advisory Council (STAC). This resource will assist in determining the appropriate Regional Trauma Council for an agency. It will also share which members represent the selected RTAC, their contact information, meeting dates and even minutes from previous meetings. Reach out to RTAC for support and guidance.

www,dhs.wisconsin.gov/wish/injury-mortality/rtac.htm



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