

Level 3 Trauma Hospital Designation Criteria

June 6, 2023

1. Institution

- 1.1. The board of directors, administration and medical staff shall demonstrate a commitment to provide the resources and support necessary to sustain the trauma designation. This commitment shall be renewed with each application for designation.
- 1.2. The trauma program shall be established by the facility and shall be represented on the organizational chart, which may be within an existing department (e.g., emergency or surgery).

2. Medical Director

- 2.1. The trauma program medical director or medical advisor shall be a board-certified or board-eligible physician whose job description defines his or her authority, roles and responsibilities for the leadership of the trauma program, the trauma performance improvement process and tertiary case review.
- 2.2. If the trauma medical director is not a general surgeon, there must be a co-trauma medical director who is a board-certified or board-eligible general surgeon.
- 2.3. The trauma program medical director and co-medical director must meet the same trauma training requirements as the Emergency Physician.¹

3. Program Manager

- 3.1. The trauma manager/coordinator must be either a registered nurse or an allied health staff with emergency and trauma care experience. The manager/coordinator's job description must define his or her roles and responsibilities for the management and leadership of the trauma program and the trauma performance improvement process.
- 3.2. If the trauma program manager/coordinator is not a registered nurse, a registered nurse must assist with the review of trauma care provided in all areas of the hospital and function as a liaison between the trauma program and the nursing staff.
- 3.3. The program manager must have at least a portion of an FTE dedicated for trauma program responsibilities.

¹ There is no grace period for either ATLS or CALS training. The CALS lab component must, too, be re-taken before or during the month in which it is due.

4. Trauma Team Activation

- 4.1. The hospital must have a trauma team activation policy, protocol or guideline that includes:
 - A list of all team members expected to respond, which may include telemedicine providers.
 - The response time expectation for the team members.
 - The physiological and clinical indicators that, when met, require the activation of the trauma team.
 - The person(s) authorized to activate the trauma team.
- 4.2. The trauma team activation indicators must be readily available in locations where a trauma patient is likely to be initially encountered.
- 4.3. When a tier-one trauma activation criterion is met, the general surgeon must promptly communicate with the emergency department provider by telephone or in person. This communication must be documented in the medical record.

5. Tier-One Trauma Team Activation Criteria

- 5.1. When one of the following tier-one trauma activation criteria is met, the general surgeon and operating room team² must arrive at the hospital within 30 minutes of the patient's arrival:
 - Penetrating trauma to neck or torso
 - Evidence of hemorrhagic shock indicated by:
 - Systolic blood pressure ≤ 90 mmHg at any time or age-specific hypotension in pediatrics (see Age-Specific Hypotension table)

Table 1: Age-Specific Hypotension

Age	SBP (mmHg)	Age
< 1 yr.	≤ 70	< 1 yr.
1-10 yr.	$\leq 70 + [2 \times \text{age in years}]$	1-10 yr.

- Persistent tachycardia in a patient ≤ 14 years old (see Age-Specific Tachycardia table)

Table 2: Age-Specific Tachycardia

Age	HR
< 2 yr.	> 180
2-5 yr.	> 160
6-14 yr.	> 140

- Positive abdominal or cardiac FAST exam
 - Provider impression of hypoperfusion (consider absent distal pulses, agitation, anxiety, confusion, delayed capillary refill, diaphoresis, pallor, persistent heart rate >120 in a patient >14 years old, tachypnea)
- 5.2. When one of the following tier-one trauma activation criteria is met, the general surgeon must arrive at the hospital within 60 minutes of the patient's arrival unless the patient has been transferred:
 - Respiratory distress, airway obstruction or intubation
 - Sustained GCS ≤ 8 attributed to a traumatic mechanism

² The operating room team may be called off by the general surgeon after communicating with the emergency department provider.

- Arterial tourniquet indicated
- Pregnancy >20 weeks with vaginal bleeding or contractions attributed to a traumatic mechanism
- Discretion of the emergency department provider (for those patients not meeting any of the tier-one criteria)

6. General Surgeon Response (no TTA)

6.1. The general surgeon must respond and evaluate the patient within one hour of discovering any of the following conditions resulting from trauma, unless the patient has been transferred:

- Serum lactate >5.0 mmol/L
- Solid organ injury
- Fluid in the abdomen
- Untreated hemothorax or pneumothorax requiring thoracostomy
- Cardiac or major vessel injury

7. General Surgery

7.1. The operating room must be continuously available for emergent surgery.

7.2. A general surgeon must be continuously available, either on-site or on-call, and able to respond to the hospital within 30 minutes.

If the general surgeon on on-call off-site, a schedule identifying the general surgeon on-call must be readily available to the emergency department and operating room staffs.

7.3. The general surgeon's response to the resuscitation is required if the patient meets the minimum criteria for surgeon response or is otherwise required by hospital policy.

Eighty percent (80%) of the time the general surgeon response should meet the response time requirements of the trauma system.

7.4. The hospital must establish a written plan addressing:

- How the trauma patient will be managed should the usual surgical coverage be temporarily unavailable for any reason (e.g., the surgeon is already in surgery).
- How surgeon call will be covered when scheduled gaps in the usual coverage occur (e.g., vacations).

7.5. A surgeon must be present at all operative procedures performed in the operating room.

8. Emergency Medicine

8.1. An emergency physician must be continuously available, either on-site or on-call.

If the emergency department physician is off-site, an on-call schedule must identify the physician(s) covering the emergency department.

8.2. When called, the emergency physician must arrive in the emergency department within 15 minutes of the patient's arrival.

9. Anesthesia

9.1. An anesthesiologist or certified registered nurse anesthetist (CRNA) must be continuously available, either on-site or on-call.

10. Orthopaedic Surgery

10.1. If the hospital provides emergent orthopaedic surgery or admits patients for the care of surgical orthopaedic injuries, a schedule of the orthopaedic surgeon on-call must be maintained and accessible by emergency department and in-patient staff.

11. Post-Anesthesia

11.1. A registered nurse capable of recovering a post-anesthesia patient must be continuously available.

12. Respiratory Therapy

12.1. A respiratory therapist, registered nurse or other allied health professional trained in ventilator management must be continuously available.

13. Blood Bank

13.1. There must be an in-house blood bank stocked with type-O blood.

13.2. There must be a policy establishing a procedure for the emergent release of uncross-matched blood that ensures that uncross-matched blood can be released to the emergency department staff immediately. If the blood bank staff is off-site, the policy must include a provision to release uncross-matched blood to the emergency department staff in the absence of the blood bank staff.

14. Radiology

14.1. A computed tomography technician or technologist must be continuously available, either in-house or on-call.

14.2. A radiologist must be continuously available, either in-house or off-site.

15. Admission

15.1. All patients with conditions represented in Table 3 must be admitted by or receive a consultation from a surgeon if admitted.

Table 3: Mandatory Surgeon Admit or Consult

Hemothorax or pneumothorax requiring a thoracostomy
Sternum or scapula fracture
Pelvic fracture (not isolated rami fractures)
Three or more rib fractures
Pulmonary contusion

Significant fall:

- >15 feet
- >65 years old and fall from elevation or down stairs
- Pediatric (<10 years old): >2 x patient's height

15.2. A surgeon should be the admitting or consulting physician for all trauma patients admitted to the hospital for trauma care. The percentage of trauma patients admitted to a non-surgeon without a surgeon consultation may not exceed 20%.³

15.3. Consultations/evaluations must be performed within 18 hours of the patients' arrival.^{4,5}

15.4. The hospital must have a policy describing:

- The types of trauma patients considered for admission.
- The specialties responsible for admitting and providing consults.
- The expectations for monitoring patients for deterioration.
- The expectation that, in the event of deterioration, patients admitted for trauma care will arrive at definitive care within 120 minutes from the time deterioration is discovered.

15.5. Patients may be admitted only if, in the event of deterioration, emergent transfer would result in the patient arriving at the definitive care facility within 120 minutes from the time deterioration is discovered.⁶

16. Transfer

16.1. The hospital must have a policy directing the internal processes to emergently transfer a trauma patient from the emergency department or an in-patient area to definitive care that lists:

- The anatomical and physiological criteria that, when present, result in immediate transfer;
 - The criteria must include orthopaedic surgical conditions and must specifically address how time-sensitive orthopaedic conditions such as a threatened limb, compartment syndrome, dislocated knee and dislocated native hip (i.e., not arthroplasty) will be managed within one hour of discovery.
- The primary and alternate ground and aeromedical transfer services along with contact information.
- The supplies, records and personnel that will accompany the patient.

16.2. Designated trauma hospitals may not transfer adult or pediatric patients to undesignated hospitals.

³ Multi-system injury trauma cases should be admitted to the general surgeon. Single-system injury trauma cases may be admitted to a primary care physician if consultations are obtained from the appropriate surgeon (i.e., orthopaedic surgeon for isolated orthopaedic injuries, neurosurgeon for isolated neurological injuries and general surgeon for all other injuries). Traumatic injury cases exclusively orthopaedic in nature may be admitted to the orthopaedic surgeon.

⁴ Providers should exercise judgment in obtaining consults sooner if warranted by the injury mechanism or acuity.

⁵ The consultation/admission may be accomplished by the surgeon's appointed advanced practice provider on behalf of the surgeon.

⁶ Hospitals unable to meet this criterion due to their geographic distance from a definitive care hospital should contact trauma system staff to discuss a waiver.

- 16.3. Exception: Patients may be transferred to a Veterans Administration medical center when medically appropriate.
- 16.4. The hospital must have transfer agreements with trauma hospitals capable of caring for major trauma patients definitively, including agreements with at least two hospitals capable of caring for burn patients,⁷ and at least one agreement with a designated Level 1 or Level 2 Pediatric Trauma Hospital.

17. General Surgeon Training

- 17.1. General surgeons must have successfully completed ATLS and/or CALS (including the Benchmark Lab or Trauma Module Course) within the last four years. General surgeons must re-take their ATLS or CALS before or during the month in which it is due.⁸

18. Emergency Physician Training^{9,10}

- 18.1. 18.1 If the emergency physician is currently board-certified or board-eligible with an American Board of Emergency Medicine (ABEM)-approved¹¹ or American Osteopathic Board of Emergency Medicine (AOBEM) certification, then the physician is required to have successfully completed an ATLS or CALS course (including Benchmark Lab or Trauma Module Course) once.
- 18.2. If the emergency physician is not board-certified or board-eligible with an ABEM-approved or AOBEM certification, then the physician must have successfully completed ATLS and/or CALS (including the Benchmark Lab or Trauma Module Course) within the last four years. Emergency physicians must re-take their ATLS or CALS before or during the month in which it is due.¹²

19. Advance Practice Provider Training¹³

- 19.1. Advance practice providers must have successfully completed ATLS and/or CALS (including the Benchmark Lab or Trauma Module Course) within the last four years. Providers must re-take their ATLS or CALS before or during the month in which it is due.¹⁴

⁷ Burn injuries include thermal burns, chemical burns and frostbite.

⁸ There is no grace period for either ATLS or CALS training. The CALS lab component must, too, be re-taken before or during the month in which it is due.

⁹ This requirement does not apply to those who are called in to assist the attending provider during an unusual and rare event, such as an MCI.

¹⁰ Physicians scheduled to work in the emergency department as a second provider must meet the training requirements of the trauma system.

¹¹ Includes physicians board-certified in Pediatric Emergency Medicine by the American Board of Pediatrics

¹² There is no grace period for either ATLS or CALS training. The CALS lab component must, too, be re-taken before or during the month in which it is due.

¹³ This requirement does not apply to those who are called in to assist the attending provider during an unusual and rare event, such as an MCI.

¹⁴ There is no grace period for either ATLS or CALS training. The CALS lab component must, too, be re-taken before or during the month in which it is due.

20. Registered Nurse Training¹⁵

20.1. Registered nurses scheduled or expected to cover the emergency department must have successfully completed Trauma Nursing Core Course (TNCC), Comprehensive Advanced Life Support (CALS) Provider Course, Advanced Trauma Care for Nurses (ATCN), or in-house training that meets the following objectives:

- Identify the common mechanisms of injury associated with blunt and penetrating injuries.
- Describe and demonstrate nursing trauma assessment to identify typical injuries associated with common mechanisms of injury
- List appropriate interventions for injuries identified in the nursing assessment.
- Associate signs and symptoms with physiological changes in the patient.
- Describe the ongoing assessment to evaluate the effectiveness of interventions.
- Review the hospital's trauma admission and transfer policies.

20.2. **Effective January 1, 2024** If the hospital admits patients to treat an injury or to monitor the patient for deterioration, registered nurses assigned to patient floors where those patients are admitted must have successfully completed Trauma Nursing Core Course (TNCC), Comprehensive Advanced Life Support (CALS) Provider Course, Advanced Trauma Care for Nurses (ATCN), Trauma Care After Resuscitation (TCAR), Course in Advanced Trauma Nursing (CATN), or in-house training relating to the conditions treated or monitored that meets the following objectives:

- Identify the common mechanisms of injury associated with blunt and penetrating injuries.
- Describe nursing trauma assessment to identify typical injuries associated with common mechanisms of injury
- List appropriate interventions for injuries identified in the nursing assessment.
- Associate signs and symptoms with physiological changes in the patient.
- Describe the ongoing assessment to evaluate the effectiveness of interventions.
- Review the hospital's trauma admission and transfer policies.

21. Licensed Practical Nurse Training¹⁶

21.1. Licensed practical nurses scheduled or expected to cover the emergency department must have successfully completed Comprehensive Advanced Life Support (CALS) Provider Course, Advanced Trauma Care for Nurses (ATCN), an audit of Trauma Nursing Core Course (TNCC), or in-house training that meets the following objectives:

- Identify the common mechanisms of injury associated with blunt and penetrating injuries.
- Recognize common signs and symptoms of injuries.
- Identify data needed for the ongoing monitoring of a trauma patient.
- Demonstrate role-specific trauma care competencies.
- Examine the role-specific practice parameters for trauma care as defined by the hospital.
- Review the hospital's trauma admission and transfer policies.

¹⁵ This requirement does not apply to those who are called in to assist during an unusual and rare event, such as an MCI.

¹⁶ This requirement does not apply to those who are called in to assist during an unusual and rare event, such as an MCI.

21.2. **Effective January 1, 2024** If the hospital admits patients to treat an injury or to monitor the patient for deterioration, licensed practical nurses assigned to patient floors where those patients are admitted must have successfully completed Comprehensive Advanced Life Support (CALS) Provider Course, Rural Trauma Team Development Course (RTTDC), Trauma Care After Resuscitation (TCAR), an audit of a Trauma Nursing Core Course (TNCC), or in-house training relating to the conditions treated or monitored that meets the following objectives:

- Identify the common mechanisms of injury associated with blunt and penetrating injuries.
- Recognize common signs and symptoms of injuries.
- Identify data needed for the ongoing monitoring of a trauma patient.
- Describe role-specific trauma care competencies.
- Examine the role-specific practice parameters for trauma care as defined by the hospital.
- Review the hospital's trauma admission and transfer policies.

22. Performance Improvement Process

22.1. The hospital must establish a trauma performance improvement policy that:

- Establishes methods to identify and resolve clinical care and process issues that are inconsistent with industry standards and best practices for trauma care.
- Provides for the review or surveillance of trauma cases that meet the trauma registry inclusion criteria to identify potential clinical care and process issues.
- Establishes trauma performance improvement filters.
- Establishes the frequency of case finding and case review.
- Incorporates performance-related information received from receiving hospitals about patients transferred.
- Includes documentation of:
 - Performance improvement filters that fall out.
 - Findings from case reviews.
 - Actions undertaken to correct clinical care and process issues identified during case reviews.
 - Resolution of issues identified by surveillance or case review.

22.2. The scope of case review must include care provided in the emergency department, in-patient units and all areas and departments of the hospital that provide or affect trauma care.

22.3. Results of the trauma case reviews that identify opportunities to improve clinical care must be communicated with the medical providers.

22.4. Case finding must occur, at a minimum, every two weeks and primary case review¹⁷ must occur within two weeks of patients' discharge.

22.5. Medical director review of trauma cases must occur within one month of patients' discharge.

22.6. The hospital must establish and monitor performance improvement filters that include:

- General surgeon non-compliance with response time and communication requirements
- Emergency department provider non-compliance with on-call response times
- Trauma patient admitted to a non-surgeon without surgeon consult

¹⁷ "Primary case review" is typically the initial review completed by the trauma program manager.

- Trauma care provided by physicians who do not meet minimal educational requirements
 - Trauma team activation and length of stay before transfer >60 minutes
 - Met trauma transfer criteria and admitted locally
- 22.7. The trauma performance improvement process may be integrated with the hospital's quality improvement processes; but the trauma program leaders must retain oversight over the program's performance improvement initiatives. Potential clinical care issues referred to other bodies within the hospital or health system, such as peer review, or other organizations must be made available to the trauma program leadership.
- 22.8. The trauma program must monitor imaging-interpretation turnaround times and review missed diagnoses identified from over-read reports.

23. Provider Case Review

- 23.1. The hospital must establish a mechanism by which all physicians and advance practice providers that care for trauma patients review cases identified by the trauma program leaders in a committee format to identify opportunities to improve trauma care and prescribe remedies.
- 23.2. General surgeons, general surgical advance practice providers involved in trauma care, emergency department physicians and emergency department advance practice providers on staff must attend a minimum of 50% of the scheduled meetings.
- If liaisons attend as a representative of their disciplines, other members of the discipline must attend a minimum of 50% of their disciplines' case review meetings.

24. Multidisciplinary Case Review

- 24.1. The hospital must establish a mechanism whereby clinical disciplines involved in providing care for trauma patients review cases identified by the trauma program leaders in a committee format to identify opportunities to improve trauma care processes and prescribe remedies.
- 24.2. Emergency medicine, general surgery, orthopaedic surgery, neurosurgery, radiology, laboratory, blood bank and critical care disciplines must participate in multidisciplinary case review. Representatives from other surgical subspecialties, anesthesia, administration, nursing, emergency medical services and ancillary service personnel must also attend when required by the trauma program manager and the trauma medical director.

25. Diversion

- 25.1. The hospital must establish a policy that:
- Identifies the circumstances that may require trauma patients to be diverted to another hospital.
 - Lists the hospital personnel responsible for the decision to divert trauma patients.
 - Establishes the procedure to notify hospital departments, EMS agencies and other area hospitals of the need to divert trauma patients and when the need to divert patients has ended.

25.2. Instances in which the hospital implements divert status must be reviewed through the trauma performance improvement process.

26. Trauma Registry

26.1. The hospital must submit data as defined by the State Trauma Advisory Council within 60 days of the patients' discharge or transfer.

26.2. Data imported from other sources must be submitted in a manner and format that is acceptable to MDH.

27. Regional Trauma Advisory Committee

27.1. The hospital must actively participate in at least one Minnesota regional trauma advisory committee (RTAC) or subcommittee of a Minnesota RTAC.

Active participation is defined as attending at least 50% of the scheduled meetings.

28. Injury Prevention

28.1. The hospital must participate in community injury prevention activities.

29. Required Equipment¹⁸

29.1. Emergency Department

- Airway control and ventilation equipment
- Arterial tourniquet
- Pulse oximetry
- Suction devices and supplies
- EKG monitor and defibrillator
- Crystalloid IV fluids and administration sets
- IV catheters from 14-22 Ga.
- Drugs necessary for emergency trauma care
- Nasal gastric & oral gastric tubes
- Cervical collars
- Pediatric length-based resuscitation tape or reference manual
- Blanket warmer or overhead radiant heater
- Warming cabinet for IV fluids or inline IV fluid warmer
- Rapid IV fluid infuser system (may use pressure bag)
- Quantitative end-tidal CO₂
- Method to communicate with EMS
- Mechanism for IV flow-rate control
- Intraosseous needles and administration sets
- Supplies for surgical airway & thoracostomy
- Mechanism for pelvic stabilization

¹⁸ For pediatric sizes, ensure that there is one size for each age/size category of the length-based resuscitation tape or reference manual.

- Central lines (desired; not required)

29.2. Imaging Department

- Airway control and ventilation equipment
- Suction device and suction supplies

29.3. Operating Room

- Blanket warmer or other mechanism for thermoregulation
- Warming cabinet for IV fluids or inline IV fluid warmer
- X-ray capabilities including C-arm intensifier
- Rapid infuser system (may use pressure bag)

29.4. Post-Anesthesia Recovery

- Equipment for monitoring and resuscitation
- Pulse oximetry
- Blanket warmer or other mechanism for thermoregulation
- Warming cabinet for IV fluids or inline IV fluid warmer

29.5. Intensive Care Unit

- Equipment for monitoring and resuscitation
- Ventilator (transport ventilator is not sufficient)

29.6. In-patient Unit

- Equipment for monitoring and resuscitation

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