

Level 3 Trauma Hospital Criteria

Institutional Organization	Hospital Commitment	The board of directors, administration, and medical, nursing and ancillary staff shall make a commitment to providing trauma care commensurate to the level at which the facility is applying for categorization and or is verified.
	Trauma Program	The trauma program shall be established by the facility with approval from the medical staff, board of trustees, and administration, and represented on an organizational chart. This may be in conjunction with an existing department; for example, emergency or surgery appropriate.
	Trauma Program Medical Director	Trauma program medical director shall be a board-certified or boards-in-progress physician with special interest in trauma care whose job description defines his/her role and responsibilities for trauma patient care, trauma team formation, supervision/leadership, and trauma training/continuing education and acts as the medical staff liaison for trauma care with out-of-hospital medical directors, nursing staff, administration, and higher level trauma hospitals.
		If the trauma medical director is not a general surgeon, there must be a co-trauma medical director who is a board-certified or boards-in-progress general surgeon.
		The trauma hospital medical director(s) must successfully completed ATLS® and/or CALS (including the Benchmark Lab or Trauma Module Course) every four years. ¹ The medical director(s) must re-take his/her ATLS or CALS before or during the month in which it expires. ²
Trauma Program Coordinator/Manager	This person shall be a RN with clinical experience in trauma care. Alternatively, other qualified allied health personnel with clinical experience in trauma care may be appropriate. It is expected that the Coordinator/Manager has allocated time for the trauma program.	

¹ For the initial designation only, hospitals may become designated after the medical providers successfully complete the CALS Provider Course only. They must then complete the Benchmark Lab or Trauma Module Course within one year of the Provider Course.

² 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 expires.

Institutional Organization	Trauma Team Activation Policy	<p>Trauma hospitals shall have a trauma team activation protocol/policy to include:</p> <ul style="list-style-type: none"> ▪ Lists of all team members ▪ Response requirements for all team members when a trauma patient is en route or has arrived ▪ The criteria, based on patient severity of injury, for activation of the trauma team and ▪ The person(s) authorized to activate the trauma team
		<p>The trauma team activation policy shall include both physiological and anatomical clinical indicators for when the ED physician is expected to be present in the ED within 15 minutes of EMS notification.</p>
		<p>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.</p>

Institutional Organization	Tier-One Trauma Team Activation Criteria	<p>When one of the following tier-one trauma activation criterion is met, the general surgeon and operating room team³ must arrive at the hospital within 30 minutes of the patient’s arrival:</p> <ul style="list-style-type: none"> ▪ Penetrating trauma to neck or torso ▪ Evidence of hemorrhagic shock indicated by: <ul style="list-style-type: none"> ▪ Systolic blood pressure ≤90 mmHg at any time (or age-specific hypotension in pediatrics) ▪ Persistent heart rate >120 (or age-specific tachycardia in pediatrics) ▪ Shock index ≥1 in adults (HR>SBP)⁴ ▪ StO₂ ≤70% in adults⁵ ▪ Positive abdominal or cardiac FAST exam⁵ ▪ Provider impression of hypoperfusion (consider absent distal pulses, agitation, anxiety, confusion, delayed capillary refill, diaphoresis, pallor, tachypnea) <table border="1" data-bbox="562 716 1018 865" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Age-Specific Hypotension</th> </tr> <tr> <th>Age</th> <th>SBP (mmHg)</th> </tr> </thead> <tbody> <tr> <td>2-10 yr.</td> <td>≤ 70 + [2 x age in years]</td> </tr> <tr> <td>≤ 1 yr.</td> <td>≤ 60</td> </tr> </tbody> </table> <table border="1" data-bbox="1066 716 1304 899" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Age-Specific Tachycardia</th> </tr> <tr> <th>Age</th> <th>HR</th> </tr> </thead> <tbody> <tr> <td>2-5 yr.</td> <td>>160</td> </tr> <tr> <td>< 2 yr.</td> <td>>180</td> </tr> </tbody> </table>	Age-Specific Hypotension		Age	SBP (mmHg)	2-10 yr.	≤ 70 + [2 x age in years]	≤ 1 yr.	≤ 60	Age-Specific Tachycardia		Age	HR	2-5 yr.	>160	< 2 yr.	>180	<p>When one of the following tier-one trauma activation criterion is met, the general surgeon must arrive at the hospital within 60 minutes of the patient’s arrival unless the patient has been transferred:</p> <ul style="list-style-type: none"> ▪ Respiratory distress, airway obstruction or intubation ▪ GCS ≤ 8 attributed to a traumatic mechanism ▪ Arterial tourniquet applied ▪ Pregnancy >20 weeks with vaginal bleeding or contractions ▪ Discretion of the emergency department provider (for those patients not meeting any of the tier-one criteria)
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³ The operating room team may be called off by the general surgeon after communicating with the emergency department provider.

⁴ Shock index = HR/SBP

⁵ All diagnostic assessments are not available at all trauma centers.

Clinical Capabilities	General Surgeon Response (without trauma team activation)	<p>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:</p> <ul style="list-style-type: none"> ▪ Serum lactate >5.0 mmol/L ▪ Solid organ injury ▪ Fluid in the abdomen ▪ Untreated hemothorax or pneumothorax requiring thoracostomy ▪ Cardiac or major vessel injury 					
	Trauma Admissions	<p>A surgeon should be the admitting or consulting physician for all trauma patients admitted to the hospital for trauma care. Patients with conditions represented in Table 1 must be admitted by or receive a consultation from a surgeon if admitted. The percentage of trauma patients admitted to a non-surgeon without a surgeon consultation may not exceed 10%.⁶ Consultations/evaluations must be performed within 18 hours of the patients' arrival.^{7,8}</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Table 1</caption> <thead> <tr> <th style="text-align: center;">Mandatory Surgeon Admit or Consult</th> </tr> </thead> <tbody> <tr> <td>Hemothorax or pneumothorax</td> </tr> <tr> <td>Pelvic fracture</td> </tr> <tr> <td>Two or more adjacent rib fractures</td> </tr> <tr> <td>Pulmonary contusion</td> </tr> <tr> <td>Significant fall: <ul style="list-style-type: none"> ▪ >15 feet ▪ >65 years old and fall from elevation or down stairs ▪ Pediatric (<10 years old): >2 x patient's height </td> </tr> </tbody> </table>	Mandatory Surgeon Admit or Consult	Hemothorax or pneumothorax	Pelvic fracture	Two or more adjacent rib fractures	Pulmonary contusion
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⁶ 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.

⁷ Providers should exercise judgment in obtaining consults sooner if warranted by the injury mechanism or acuity.

⁸ The consultation/admission may be accomplished by the surgeon's appointed advanced practice provider on behalf of the surgeon.

Clinical Capabilities	General Surgery	The operating room must be readily available for trauma care 24 hours/day.
		Local criteria may be established to allow the general surgeon to take call from outside the facility, but with clear commitment on the part of the facility and the surgical staff that the general surgeon will be available to the ED physician for consultation to assist in the decision for need of surgical interventions or transfer 24 hours/day.
		General surgeon response to the resuscitation is required if the patient meets the minimum criteria for surgeon response or is otherwise required by hospital policy. Eighty (80) percent of the time the general surgeon response should meet the response time requirements of the trauma system.
		The surgeon must also be available to care for trauma patients in the ICU. Compliance with this requirement and applicable criteria must be monitored by the trauma PI program.
		A formal plan must be in place indicating: <ul style="list-style-type: none"> ▪ 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)
	Surgeon must be present at all operative procedures performed in the operating room.	
	Emergency Medicine	Published and posted call schedules must specifically identify the physician/provider on call for the emergency department.
		24-hour coverage by a physician who is present at all emergency resuscitations. If the physician is off-site, his/her response to the hospital should be within 15 minutes of EMS notification. (See "Clinical Qualifications for further emergency physician details.)
	Anesthesia	May be covered by certified registered nurse anesthetist (CRNA).

Clinical Capabilities	Orthopaedic Surgery	Hospitals must have protocols that clearly define which orthopaedic surgical cases they can manage definitively and which cases require transfer to a facility able to definitively manage the patient's condition. The protocol must specifically address how time-sensitive orthopaedic conditions such as a threatened limb and compartment syndrome will be managed within one hour.
		If necessary, the same individual may cover both general surgery and orthopaedic surgery if he/she meets the clinical qualifications for each discipline.
	Post Anesthesia Recovery	RN available 24 hours/day
	Radiology	24-hour radiologist coverage required (may utilize in-house, on-call or tele-radiology resources).
		Radiology technician available or on-call 24 hours/day
		24-hour availability of computed tomography
	Respiratory Therapy	In-house or on-call 24-hour coverage. A nurse with specific in-house ventilator training may provide this coverage. Records of in-house CEUs must be maintained.
	Clinical Laboratory	Must have a comprehensive blood bank or access to community blood bank.
		24-hour availability of a laboratory capable of standard analysis of blood, urine and other body fluids, including micro sampling
		24-hour availability of a laboratory capable of: <ul style="list-style-type: none"> ▪ Blood typing and cross matching ▪ Coagulation studies ▪ Blood gas and pH determination ▪ Microbiology

Clinical Capabilities	Trauma Transfer	An age-specific, pre-determined, pre-written plan/protocol/flow chart that directs the internal process for rapidly and efficiently transferring a trauma patient to definitive care. The plan should address such things as: appropriate ground and air transport services, along with contact numbers and backup providers; and what supplies, records, personnel and/or other necessary resources will accompany the patient. Must also clearly identify the anatomical and physiological criteria that, if met, will immediately initiate transfer to definitive care.
		Designated trauma hospitals may not transfer adult or pediatric patients to undesignated hospitals. <i>Exception: Patients may be transferred to a Veterans Administration Medical Center.</i>
		When a trauma patient is transferred to designated trauma hospital in another state, the sending hospital must attempt to obtain information related to the final disposition of the patient, particularly whether or not the patient required another transfer from the receiving hospital for definitive care.
		The hospital must have the following transfer agreements with facilities capable of caring for major trauma patients: <ul style="list-style-type: none"> ▪ Hemodialysis ▪ Burn care ▪ Acute spinal cord injury <p>In the case of burn care, a second agreement is necessary in the event the primary burn facility lacks the capacity to receive the patient. A comprehensive transfer agreement with a level I or II trauma hospital may suffice if that trauma hospital has the required capabilities.</p>

Clinical Qualifications	General Surgeon	Must successfully complete ATLS® and/or CALS (including the Benchmark Lab or Trauma Module) every four years. ⁹ Surgeons must re-take their ATLS or CALS before or during the month in which it expires. ¹⁰
	Emergency Physician	If currently board certified with an American Board of Emergency Medicine (ABEM)-approved or American Osteopathic Board of Emergency Medicine (AOBEM) certification, then required to only have successfully completed an ATLS® or CALS course (including Benchmark Lab or Trauma Module) once. ¹¹ If not board certified with an ABEM-approved or AOBEM certification, then must successfully complete ATLS® and/or CALS (including the Benchmark Lab or Trauma Module Course) every four years. ⁹ Emergency physicians must re-take their ATLS or CALS before or during the month in which it expires. ^{10, 11}
	Other Medical Staff Covering Emergencies (e.g., advance practice providers)	Must successfully complete ATLS® and/or CALS (including the Benchmark Lab or Trauma Module Course) every four years. ⁹ Providers must re-take their ATLS or CALS before or during the month in which it expires. ^{10, 11} This requirement is for those who are regularly scheduled in the emergency department. It does not apply to those who are called in to back-up the attending physician during an unusual and rare event. (See <i>Performance Improvement</i> section.)
	Orthopaedic Surgeon	May be a surgeon with the ability to do orthopaedic surgery and who is credentialed by the hospital to do so.

⁹ For the initial designation only, hospitals may become designated after the medical providers successfully complete the CALS Provider Course only. They must then complete the Benchmark Lab or Trauma Module Course within one year of the Provider Course.

¹⁰ 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 expires.

¹¹ Physicians and advance practice providers scheduled to work in the emergency department as a second provider must meet the training requirements of the trauma system.

Clinical Qualifications	Registered Nurse Trauma Education	<p>Registered nurses responsible for emergency and/or critical care setting (i.e., ICU) must have successfully completed appropriate professional trauma education. (Example: Trauma Nursing Core Course (TNCC), Comprehensive Advanced Life Support (CALS) Provider Course, Advanced Trauma Care for Nurses (ATCN), Course in Advanced Trauma Nursing (CATN), or in-house training¹² that meets the following objectives:</p> <ul style="list-style-type: none"> ▪ Identify the common mechanisms of injury associated with blunt and penetrating trauma. ▪ Describe and demonstrate the components of the primary and secondary nursing assessment of the trauma patient. ▪ List appropriate interventions, based on the assessment findings, for recognized and suspected life-threatening and non-life-threatening injuries. ▪ Correlate signs and symptoms to specific pathophysiological changes as they relate to potential injuries. ▪ Describe the ongoing assessment and methods used to evaluate the effectiveness of the interventions. ▪ Examine the facility's specific criteria and protocols for admission or transfer of the trauma patient.
	Licensed Practical Nurse Trauma Education	<p>Licensed practical nurses that care for patients in the emergency and/or critical care setting (i.e., ICU) must have successfully completed appropriate trauma education. (Example: Comprehensive Advanced Life Support (CALS) Provider Course, Rural Trauma Team Development Course (RTTDC), audit of a Trauma Nursing Core Course (TNCC), audit of a Course in Advanced Trauma Nursing (CATN), or in-house training¹² that meets the following objectives:</p> <ul style="list-style-type: none"> ▪ Identify the common mechanisms of injury associated with blunt and penetrating trauma. ▪ Recognize common signs and symptoms of potentially life-threatening and non-life-threatening 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. ▪ Examine the facility's specific criteria and protocols for admission or transfer of the trauma patient.

¹² Contact the designation coordinator to have in-house curriculum approved before beginning any training. In-house training may be attended concurrently by both RNs and LPNs.

Performance Improvement		The PI process should review all cases when medical providers who do not normally provide emergency department coverage are called in to back-up the attending physician during a rare and unusual event.	
		The trauma PI program shall be consistent with medical staff and facility policies. All trauma hospitals shall work with the MDH in statewide PI activities	
		The PI process may be performed by the trauma hospital's trauma committee or by an appropriate PI standing committee.	
		If tele-radiology is utilized, this process shall be monitored and evaluated by the trauma PI program.	
	Performance Improvement Program		Trauma hospitals shall have a formal, trauma-related diversion policy and a mechanism established to review times and reasons for trauma-related diversion.
			<p>The trauma PI program shall consist of a formal policy that includes a minimum of the following:</p> <ol style="list-style-type: none"> 1. Defined population of trauma patients to be monitored 2. Set of indicators/audit filters to include: <ol style="list-style-type: none"> A. General surgeon non-compliance with response time and communication requirements B. Emergency department provider non-compliance with on-call response times C. Trauma patient admitted to a non-surgeon and no surgeon consult D. Trauma care provided by physicians who do not meet minimal educational requirements, i.e., ATLS® or CALS E. Trauma activation and length of stay before transfer >60 minutes F. Patient met trauma transfer criteria and admitted locally G. All trauma deaths H. Trauma patients transferred out I. Trauma patients received via transfer 3. Frequency of review 4. Multidisciplinary physician involvement 5. Standard of care 6. Demonstration of loop closure and resolution

Performance Improvement	Performance Improvement Program	The overall responsibility of concurrent and retrospective review of the care of trauma patients lies with the trauma program medical director/advisor and the trauma program coordinator/manager in conjunction with the trauma PI committee and the physician multidisciplinary peer review committee.
	Morbidity And Mortality Review	A mechanism shall be established by which all physicians caring for trauma patients are involved in confidential peer review of the care in accordance with facility and medical staff policy. These physicians will regularly review and discuss: <ul style="list-style-type: none"> ▪ Results of trauma peer review activities. ▪ Problematic cases including complications. ▪ All trauma deaths, identifying each death as non-preventable, possibly preventable, or preventable.* <p>The peer review process and minutes of this committee should be confidential and in accordance with facility and medical staff policy. Utilization of trauma registry data will facilitate the entire PI and peer review process.</p> <p><i>*The STAC has adopted standardized definitions based on industry standards. See the Trauma Hospital Resource Manual.</i></p>
		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.
	Multidisciplinary Trauma Review	Must have an established mechanism by which all those involved in caring for trauma patients are involved in a review of the care. In addition to attendance by emergency, general surgery, anesthesia, radiology and ICU staff; administration, nursing, radiology, lab, anesthesia and other ancillary personnel might attend.
	Trauma Registry	Collect trauma data using either the state Web-based system or an in-house program and submit the required data to the statewide trauma system within 60 days of the patients' discharge or transfer.
	Regional Trauma Advisory Committee	The trauma 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.

Prevention	Injury Prevention Activities	Coordination and/or participation in community prevention activities
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Equipment Capabilities Equipment must be available in sizes to care for trauma patients of all ages.	Emergency Department	Airway control and ventilation equipment Arterial tourniquet Pulse oximetry Suction devices Electrocardiograph/oscilloscope/defibrillator Standard IV fluids and administration sets Large bore IV catheters Drugs necessary for emergency care Nasal gastric & oral gastric tubes Spine immobilization boards and C-collars Pediatric length-based resuscitation tape Thermal control for patient and fluids/blood Rapid infuser system (may use pressure bag) End-tidal CO2 detector (may be disposable) Communications with EMS Mechanism for IV flow-rate control Intraosseous administration sets Supplies for surgical airway & thoracostomy Central lines (desired; not required)
	Operating Room	Thermal control for patient and fluids/blood X-ray capabilities including C-arm intensifier Rapid infuser system (may use pressure bag)
	Post Anesthesia Recovery	Equipment for monitoring and resuscitation Pulse oximetry Thermal control for patients and fluids/blood
	Intensive Care Unit	Equipment for monitoring and resuscitation Ventilator (transport ventilator is not sufficient)