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Hospital Commitment

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 5-1	A decision by a hospital to become a trauma facility requires the commitment of the institutional governing body and the medical staff. Documentation of administrative commitment is required from the governing body and the medical staff.	I
III	ACS, CD 5-1	Because the trauma PI program crosses many specialty lines, it must be empowered to address events that involve multiple disciplines and be endorsed by the hospital governing body as part of its commitment to optimal care of the injured patients.	I
III	ACS, CD 5-1	There must be adequate administrative support to ensure evaluation of all aspects of trauma care.	I
III	ACS, CD 5-2	The (administrative) support must be reaffirmed continually (every 3 years) and must be current at the time of verification.	II
III	ACS, CD 5-3	The (medical staff) support must be reaffirmed continually (every 3 years) and must be current at the time of verification.	II
III	ACS, CD 5-4	The trauma program must involve multiple disciplines and transcend normal departmental hierarchies.	II

Trauma Systems

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 1-3	Meaningful involvement in state and regional trauma system planning development, and operation is essential for all designated trauma centers and participating acute care facilities within a region.	II
III	ACS, CD 1-1	The individual trauma centers and their health care providers are essential system resources that must be active and engaged participants. The best possible care for patients must be achieved with a cooperative and inclusive program that clearly defines the role of each facility within the system.	II
III	ACS, CD 1-2	They must function in a way that pushes trauma facility-based standardization, integration, and PI out to the region while engaging in inclusive trauma system planning and development.	II
III	ACS, CD 16-10	Sufficient mechanisms must be available to identify events for review by the trauma PI program. Issues that must be reviewed will revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life-threatening injuries (ATLS); and (3) transfer decisions.	II
III	ACS, CD 15-1	The foundation for evaluation of a trauma system is the establishment and maintenance of a trauma registry. Trauma registry data must be collected and analyzed by every trauma facility.	II
III	ACS, CD 5-21	There must be a method to identify the injured patients, monitor the provision of health care services, make periodic rounds, and hold formal and informal discussions with individual practitioners.	I

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The Role of a Trauma Facility in a Trauma System

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 2-1	This trauma facility must have an integrated, concurrent performance improvement (PI) program to ensure optimal care and continuous improvement in care.	I
III	ACS, CD 2-3	The trauma facility must be able to provide the necessary human and physical resources (physical plant, and equipment) to properly administer acute care consistent with their level of verification.	II
III	ACS, CD 5-25, CD 6-8, CD 9-16, CD 7-11, CD 11-62, CD 11-13	In Level I, II, III trauma facilities, there must be a multidisciplinary trauma peer review committee chaired by the trauma medical director, and representatives from general surgery, and liaisons from orthopedic surgery, emergency medicine, ICU, and anesthesia must be identified and participate actively in the trauma PI program with at least 50 percent attendance at multidisciplinary trauma peer review committee.	II
III	ACS, CD 2-18	Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured.	II
III	ACS, CD 2-13	Well defined transfer plans are essential. Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies.	II
III	ACS, CD 2-19	A PI program must have audit filters to review and improve pediatric and adult patient care,	II
III	ACS, CD 2-2	Surgical commitment is essential for a properly functioning trauma facility.	I
III	ACS, CD 2-5	Through the trauma PI program and hospital policy, the trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review.	II
III	ACS, CD 2-23	Any adult trauma facility that annually admits 100 or more injured children younger than 14 years must fulfill the following additional criteria demonstrating their capability to care for injured children; trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body.	II
III	ACS, CD 2-24	There must be a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PI program,	II
III	ACS, CD 2-25	For adult trauma facilities annually admitting fewer than 100 injured children younger than 14 years, these resources are desirable. These hospitals, however, must review the care of their injured children through their PI program.	II
III	ACS, CD 16-1	Trauma centers must have a PI program that includes a comprehensive written plan outlining the configuration and identifying both adequate personnel to implement that plan and an operational data management system.	II

Pre-Hospital Care

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 3-2	The protocols that guide pre-hospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies and basic and advanced pre-hospital personnel.	II
III	ACS, CD 3-7	When a trauma facility is required to go on bypass or to divert, the center must have a system to notify dispatch and EMS agencies. The facility must do the following: 1. Prearrange alternative destinations with transfer agreements in place. 2. Notify other facilities of divert or advisory status. 3. Maintain a divert log. 4. Subject all diverts and advisories to performance improvement procedures	II

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Inter-Hospital Transfers

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 4-1	Direct physician to physician contact is essential. Direct contact of the physician or midlevel provider with a physician at the receiving hospital is essential.	II
III	ACS, CD 4-3	All transfers must be evaluated as part of the receiving trauma facility's performance improvement (PI) process and feedback should be provided to the transferring facility**.** The PI program includes evaluating transport activities.	II
III	ACS, CD 4-2	The decision to transfer an injured patient to a specialty care facility in an acute situation must be based solely on the needs of the patient and not on the requirements of the patient's specific provider network (for example, a health maintenance organization or a preferred provider organization) or the patient's ability to pay.	II
III	ACS, CD 8-5	For all patients being transferred for specialty care, such as burn care, microvascular surgery, cardiopulmonary bypass capability, complex ophthalmologic surgery, or high-complexity pelvic fractures, agreements with a similar or higher-qualified verified trauma facility should be in place. If this approach is used, a clear plan for expeditious critical care transport, follow-up, and performance monitoring is required. If complex cases are being transferred out, a contingency plan should be in place and must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the patient • Transfer agreements with similar or higher-verified trauma facilities • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support • Monitoring of efficacy of the process by the PI program	II
III	ACS, CD 11-78	Level III trauma facilities that do not have dialysis capabilities must have a transfer agreement in place.	II

Trauma Program Manager (TPM)/Coordinator

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 2-17	TPM is knowledgeable and involved in trauma care, working with TMD with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking	II
III	ACS, CD 5-1	The trauma medical director and the trauma program manager must have the authority and be empowered by the hospital governing body to lead the program	I
III	ACS, CD 5-22	The TPM must have administrative abilities, show evidence of educational preparation, and clinical experience in the care of the injured patients.	II

Trauma Medical Director (TMD)

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 2-17	A TMD and TPM knowledgeable and involved in trauma care must work together with guidance from the trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking.	II
III	ACS, CD 11-87	The trauma program must also demonstrate appropriate orientation, and credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director.	II
III	ACS, CD 3-4	The trauma director must be involved in the development of the trauma center's bypass (diversion) protocol.	II
III	ACS, CD 5-5	The TMD must be a current board-certified general surgeon (or a general surgeon eligible for certification by the American Board of Surgery according to current requirements) or a general surgeon who is an American College of Surgeons Fellow with a special interest in trauma care and must participate in trauma call.	I
III	ACS, CD 5-6	The TMD must be current in Advanced Trauma Life Support (ATLS).	II
III	ACS, CD 5-9	The TMD must have the authority to manage all aspects of trauma care.	II
III	ACS, CD 5-10	The TMD must chair and attend a minimum of 50% of the multidisciplinary trauma peer review committee meetings.	II
III	ACS, CD 5-11	The TMD, in collaboration with the TPM, must have the authority to correct deficiencies in trauma care and exclude from trauma call the trauma team members who do not meet specified criteria.	II

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Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 5-11	In addition, the TMD must perform an annual assessment of the trauma panel providers in the form of Ongoing Professional Practice Evaluation (OPPE) and Focused Professional Practice Evaluation (FPPE) when indicated by findings of the PI process.	II
III	ACS, CD 5-11	The trauma medical director must have sufficient authority to set the qualifications for the trauma service members, including individuals in specialties that are routinely involved with the care of the trauma patient.	II
III	ACS, CD 5-11	Moreover, the trauma medical director must have authority to recommend changes for the trauma panel based on performance review.	II
III	ACS, CD 5-12	The TMD must have the responsibility and authority to ensure compliance with the above requirements and cannot direct more than on trauma facility.	II

General Surgery

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 2-8	The maximum acceptable response time is 30 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time.	I
III	ACS, CD 2-12	A level III trauma center must have continuous general surgical coverage.	II
III	ACS, CD 3-5	The trauma surgeon must be involved in the decision regarding bypass (diversion) each time the facility goes on bypass.	II
III	ACS, CD 5-17	Injured patients may be admitted to individual surgeons, but the structure of the program must allow the trauma director to have oversight authority for the care of these patients.	II
III	ACS, CD 6-1	General surgeons caring for trauma patients must meet certain requirements, as described herein. These requirements may be considered to be in four categories: current board certification, clinical involvement, performance improvement, and patient safety and education.	II
III	ACS, CD 6-2	Board certification or eligible for certification by the American Board of Surgery according to current requirements or the alternate pathway is essential for general surgeons who take trauma call in Level I, II, III trauma facilities.	II
III	ACS, CD 6-3	Alternate Criteria for non-Board-Certified surgeons in a Level I, II, or III trauma facility.	II
III	ACS, CD 6-4	Trauma surgeons must have privileges in general surgery.	II
III	ACS, CD 6-7	For Level I, II, III trauma facilities, the attending surgeon is expected to be present in the operating room for all operations. A mechanism for documenting this presence is essential.	II
III	ACS, CD 6-8	Each member of the group of general surgeons must attend at least 50 percent of the multidisciplinary trauma peer review committee meetings.	II
III	ACS, CD 6-9	All general surgeons on the trauma team must have successfully completed the Advanced Trauma Life Support (ATLS) course at least once.	II

Emergency Medicine

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-86	Advanced practitioners who participate in the initial evaluation of the trauma patients must demonstrate current verification in ATLS.	II
III	ACS, CD 2-8	It is expected that the physician or midlevel provider will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PI program must demonstrate the physician's presence is in compliance at least 80% of the time.	I
III	ACS, CD 7-1	The emergency departments of Level I, II, III trauma facilities must have a designated emergency physician director supported by an appropriate number of additional physicians to ensure immediate care for injured patients.	I
III	ACS, CD 7-4	In institutions in which there are emergency medicine residency training programs, supervision must be provided by an in-house attending emergency physician 24 hours per day.	II
III	ACS, CD 7-5	These roles and responsibilities must be defined, agreed on, and approved by the director of the trauma service.	II
III	ACS, CD 7-6	Board certification or eligibility for certification by the appropriate emergency medicine board according to current requirements or alternate pathway is essential for physicians staffing the emergency department and caring for trauma patients in Level I, II, III trauma facilities.	II
III	ACS, CD 6-3	Alternate criteria for Non-Board-Certified Emergency Medicine Physicians in a Level I, II, III Trauma Facilities.	II

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Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 7-7	Emergency physicians on the call panel must be regularly involved in the care of injured patients.	II
III	ACS, CD 7-9	A designated emergency physician liaison must be available to the trauma director for PI issues that occur in the emergency department.	II
III	ACS, CD 7-11	The emergency medicine liaison on the multidisciplinary trauma peer review committee must attend a minimum of 50 percent of the committee meetings.	II
III	ACS, CD 7-14	In Level I, II, III trauma facilities, all board-certified emergency physicians or those eligible for certification by an appropriate emergency medicine board according to current requirements must have successfully completed the ATLS course at least once.	II
III	ACS, CD 7-15	Physicians who are certified by boards other than emergency medicine who treat trauma patients in the emergency department are required to have current ATLS status.	II

Neurosurgery

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 8-5	A formal published contingency plan must be in place for times in which a neurosurgeon is encumbered upon the arrival of a neurotrauma case. The contingency plan must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the neurotrauma patient • Transfer agreements with a similar or higher-level verified trauma facility • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support • Monitoring of the efficacy of the process by the PI program	II
III	ACS, CD 8-6	If one neurosurgeon covers two centers within the same limited geographic area, there must be a published backup schedule. In addition, the performance improvement process must demonstrate that appropriate and timely care is provided.	II
III	ACS, CD 8-7	A Level III trauma facility must have a plan approved by the trauma medical director that determines which types of neurosurgical injuries may remain and which should be transferred.	II
III	ACS, CD 8-8	These transfer agreements must exist with appropriate Level I and Level II trauma facilities.	II
III	ACS, CD 8-9	In all cases, whether patients are admitted or transferred, the care must be timely, appropriate and monitored by the PI program.	I
III	ACS, CD 8-10	Board certification or eligibility for certification by an appropriate neurosurgical board according to the current requirements or the alternate pathway is essential for neurosurgeons who take trauma call in Level I, II, III Trauma facilities.	II
III	ACS, CD 6-3	Alternate Criteria for Non-Board Neurosurgeons in Level I, II, and III Trauma Facilities	II
III	ACS, CD 8-13	Level III facilities with any emergent neurosurgical cases must also have the participation of neurosurgery on the multidisciplinary trauma peer review committee	II
III	ACS, CD 11-68	Intracranial pressure monitoring equipment must be available in Level I and II trauma facilities and in Level III trauma facilities with neurosurgical coverage that admit neurotrauma patients.	I

Orthopedics

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-72	Level III trauma facilities must have the availability and commitment of orthopaedic surgeons.	I
III	ACS, CD 9-4	Level I, II, and III trauma facilities must have an orthopaedic surgeon who is identified as the liaison to the trauma program	I
III	ACS, CD 9-2	Operating rooms must be promptly available to allow for emergency operations on musculoskeletal injuries, such as open fracture debridement and stabilization, external fixator placement, and compartment decompression.	I
III	ACS, CD 9-11	Level III facilities vary significantly in the staff and resources that they can commit to musculoskeletal trauma care, but they must have an orthopaedic surgeon on call and promptly available 24 hours a day.	II
III	ACS, CD 9-12	If the orthopaedic surgeon is not dedicated to a single facility while on call, then a published backup schedule is required.	II
III	ACS, CD 9-15	The orthopaedic service must participate actively with the overall trauma PI program and multidisciplinary trauma peer review committee.	II

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Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 9-16	The orthopaedic liaison to the trauma PI program must attend a minimum of 50 percent of the multidisciplinary trauma peer review committee meetings.	II
III	ACS, CD 9-17	Board certification or eligibility for certification by an appropriate orthopaedic board according to current requirements, or the alternate pathway is essential for orthopaedic surgeons who take trauma call in Level I, II, and III trauma facilities.	II
III	ACS, CD 6-3	Alternate Criteria for Non-Board-Certified Orthopaedic Surgeons in a Level I, II, III Trauma Facility.	II

Anesthesiologists

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-1	Anesthesiology services are critical in the management of severely injured patients and must be available within 30 minutes for **emergency operations**.	I
III	ACS, CD 11-2	Anesthesiology services are critical in the management of severely injured patients and must be available within 3- minutes for **managing airway problems**.	I
III	ACS, CD 11-3	In Level I, II, III trauma facilities, a qualified and dedicated physician anesthesiologist must be designated as the liaison to the trauma program.	I
III	ACS, CD 11-7	In Level III hospitals, in-house anesthesia services are not required, but anesthesiologists or CRNAs must be available within 30 minutes.	I
III	ACS, CD 11-8	In Level III trauma centers without in-house anesthesia services, protocols must be in place to ensure the timely arrival at the bedside by the anesthesia provider within 30 minutes of notification and request.	I
III	ACS, CD 11-9	Under these circumstances, the presence of a physician skilled in emergency airway management must be documented.	I
III	ACS, CD 11-12	In Level I, II, III trauma facilities participation in the trauma PI program by the anesthesia liaison is essential.	II
III	ACS, CD 11-13	The anesthesiology liaison to the trauma program must attend at least 50 percent of the multidisciplinary peer review meetings, with documentation by the trauma PI program.	II

Internal Medicine

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-74	In a Level III facility, internal medicine specialists must be available on the medical staff.	II

Operating Room

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-17	In Level III trauma facilities, an operating room must be adequately staffed and available within 30 minutes.	I
III	ACS, CD 11-18	If an on-call team is used, the availability of operating room personnel and the timeliness of starting operations must be continuously evaluated by the trauma PI process, and measures must be implemented to ensure optimal care.	II
III	ACS, CD 11-19	All trauma facilities must have rapid fluid infusers, thermal control equipment for patients and resuscitation fluids, intraoperative radiologic capabilities, equipment for fracture fixation, and equipment for bronchoscopy and gastrointestinal endoscopy.	I
III	ACS, CD 11-20	Level I, II, and III trauma facilities must have the necessary equipment to perform a craniotomy. Only Level III trauma facilities that do not offer neurosurgery services are not required to have craniotomy equipment.	I
III	ACS, CD 11-24	At Level I, II, and III trauma facilities, a PACU with qualified nurses must be available 24 hours per day to provide care for the patient if needed during the recovery phase.	I
III	ACS, CD 11-25	If this availability requirement is met with a team on call from outside the hospital, the availability of the PACU nurses and compliance with this requirement must be documented by the PI program.	II
III	ACS, CD 11-26	The PACU must have the necessary equipment to monitor and resuscitate patients, consistent with the process of care designated by the institution.	I

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ICU

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-53	In Level II, and III trauma facilities, a surgeon must serve as co-director or director of the ICU and be actively involved in, and responsible for, setting policies and administrative decisions related to trauma ICU patients.	II
III	ACS, CD 11-54	In Level II and III facilities, the ICU director or co-director must be a surgeon who is currently board certified or eligible for certification by the current standard requirements.	II
III	ACS, CD 11-56	In Level III trauma facilities, physician coverage of the ICU must be available within 30 minutes, with a formal plan in place for emergency coverage.	I
III	ACS, CD 11-58	In Level I, II, and III trauma facilities, the trauma surgeon must retain responsibility for the patient and coordinate all therapeutic decisions.	I
III	ACS, CD 11-59	Many of the daily care requirements can be collaboratively managed by a dedicated ICU team, but the trauma surgeon must be kept informed and concur with major therapeutic and management decisions made by the ICU team.	I
III	ACS, CD 11-61	There must be a designated ICU liaison to the trauma service.	II
III	ACS, CD 11-62	The ICU liaison must attend at least 50 percent of the multidisciplinary peer review meetings, with documentation by the trauma PI program	II
III	ACS, CD 11-65	At Level I, II, and III trauma facilities, qualified critical care nurses must be available 24 hours per day to provide care for patients during the ICU phase.	I
III	ACS, CD 11-66	The patient to nurse ratio in the ICU must not exceed two to one.	II
III	ACS, CD 11-67	The ICU must have the necessary equipment to monitor and resuscitate patients.	I

Radiology

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-29	Conventional radiography must be available in all trauma facilities 24/7.	I
III	ACS, CD 11-30	Computed tomography (CT) must be available in Levels I, II, and III trauma facilities 24 hours per day.	I
III	ACS, CD 11-28	The trauma facility must have policies designed to ensure that trauma patients whom may require resuscitation and monitoring are accompanied by appropriately trained providers during transportation to, and while in, the radiology department.	II
III	ACS, CD 11- 32	In Level I, II, and III trauma facilities, qualified radiologists must be available within 30 minutes in person or by teleradiology for the interpretation of radiographs.	I
III	ACS, CD 11-34	In Level I, II, and III trauma facilities, diagnostic information must be communicated in a written or electronic form and in a timely manner.	II
III	ACS, CD 11-35	Critical information deemed to immediately affect patient care must be verbally communicated to the trauma team in a timely manner.	II
III	ACS, CD 11-36	The final report must accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretations.	II

Lab and Blood Bank

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-80 ACS, CD 11-81	24-hour availability of a laboratory capable of: ・Standard analysis of blood, urine and other body fluids, including micro sampling ・Blood typing and cross matching	I
III	ACS, CD 11-84	Must have a massive transfusion protocol developed collaboratively between the trauma service/program and the blood bank.	I
III	ACS, CD 11-83	In Level III facilities, the blood bank must have an adequate supply of packed red blood cells and fresh frozen plasma available within 15 minutes.	I
III	ACS, CD 11-85	Coagulation studies, blood gas analysis, and microbiology studies must be available 24 hours per day.	I

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Additional required services

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-76	In Level III centers, there must be a respiratory therapist on call 24 hours per day.	I
III	ACS, CD 12-3	Physical therapy must be provided in Level I, II, III trauma facilities.	I
III	ACS, CD 12-4	Social services must be provided in Level I, II, and III trauma facilities.	II

Burn Patients

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 14-1	Trauma facilities that refer burn patients to a burn center must have a written transfer agreement with the referral burn center.	II

Trauma Team Activation

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 5-13	The criteria for a graded activation must be clearly defined by the trauma facility, with the highest level of activation including the six required criteria listed in Table 2 Trauma hospitals shall have a trauma team activation protocol/policy to include: • Lists of all team members • Response requirements for all team members when a trauma patient is enroute or has arrived • The criteria for a graded activation must be clearly defined by the trauma center, with the highest level of activation including the six identified, required criteria (Table 2) • The person(s) authorized to activate the trauma team. • Protocols that guide pre-hospital trauma care	II
III	ACS, CD 5-15	The trauma team must be fully assembled within 30 minutes	II
III	ACS, CD 5-15 ACS, CD 5-14	All trauma team activations must be categorized by the level of response and quantified by number and percentage, as shown in Table 2 (Optimal Care of the Injured Patient).	II
III	ACS, CD 3-1	The trauma program must participate in the training of prehospital personnel, the development and improvement of prehospital care protocols, and performance improvement programs.	II
III	ACS, CD 3-2	The protocols that guide prehospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies, and basic and advanced prehospital personnel.	II

Trauma Registry

Level	Criteria and Source	Description of Criteria	Type
III	MI, CD 1-1	All healthcare facilities with an emergency center shall participate in data submission.	I
III	MI, CD 1-2	All data which meets inclusion criteria, as defined in the most current version of "National Trauma Data Standard: Data Dictionary", is submitted electronically into the State Trauma Registry (ImageTrend). Twelve months of data must be submitted into the State Trauma Registry prior to applying for designation as a Michigan trauma facility for the first time.	I
III	MI, CD 1-3	To maintain designation as a Michigan Trauma facility, data is to be submitted electronically into the State Trauma Registry quarterly by the following dates: January 15, April 15, July 15, October 15	I
III	MI, CD 1-4	Each healthcare facility is required to designate a person responsible for trauma registry activities. This person should have minimal training necessary to maintain the registry. This need not be a dedicated position.	I
III	ACS, CD 15-1	The trauma facility must demonstrate that all trauma patients can be identified for review. Registry data must be collected and analyzed.	II
III	ACS, CD 15-2	Finally, these data must be collected in compliance with the National Trauma Data Standard (NTDS) and submitted to the National Trauma Data Bank (NTDB) every year in a timely fashion so that they can be aggregated and analyzed at the national level.	II

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Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 15-3	The trauma PI program must be supported by a registry and a reliable method of concurrent data collection that consistently obtains information necessary to identify opportunities for improvement.	II
III	ACS, CD 15-3	The trauma registry is essential to the performance improvement (PI) program and must be used to support the PI process.	II
III	ACS, CD 15-4	Furthermore, these findings must be used to identify injury prevention priorities that are appropriate for local implementation.	II
III	ACS, CD 15-5	All trauma facilities must use a risk stratified benchmarking system to measure performance and outcomes.	II
III	ACS, CD 15-6	Trauma registries should be concurrent. At a minimum, 80 percent of cases must be entered within 60 days of discharge.	II
III	ACS, CD 15-7	Registrar 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 by a state trauma program; (2) the Association of the Advancement of Medicine's Injury Scaling Course.	II
III	ACS, CD 15-8	The trauma program must ensure that appropriate measures are in place to meet the confidentiality requirements of the data.	II
III	ACS, CD 15-9	One full-time equivalent employee dedicated to the registry must be available to process the data capturing the NTDS data set for each 500-750 admitted patients annually.	II
III	ACS, CD 15-10	Strategies for monitoring data validity are essential.	II
III	ACS, CD 16-4	To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources.	II
III	ACS, CD 16-5	All process and outcome measures must be documented within the trauma PI program's written plan and reviewed and updated at least annually.	II
III	ACS, CD 16-11	Once an event is identified, the trauma PI program must be able to verify and validate that event.	II
III	ACS, CD 16-6	Mortality Review: All trauma related mortalities must be systematically reviewed and those mortalities with opportunities for improvement identified for peer review. 1. Total trauma-related mortality rates. Outcome measures for total, pediatric (younger than 15 years), and geriatric (older than 64 years) trauma encounters should be categorized as follows: a. DOA (pronounced dead on arrival with no additional resuscitation efforts initiated in the emergency department) b. DIED (died in the emergency department despite resuscitation efforts). c. In-Hospital (including the operating room) 2. Mortality rates by Injury Severity Scale (ISS) subgroups using Table 1. (Optimal Care of Injured Patients)	II

Disaster Plan

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 20-4	All hospitals must have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent.	II
III	ACS, CD 2-22	The facility must participate in regional disaster management plans and exercises.	II
III	ACS, CD 20-1	Trauma facilities must meet the disaster-related requirements of the Joint Commission.	II
III	ACS, CD 20-2	A surgeon from the trauma panel must be a member of the hospital's disaster committee.	II
III	ACS, CD 20-3	Hospital drills that test the individual hospital's disaster plan must be conducted at least twice a year, including actual plan activations that can substitute for drills.	II

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Solid Organ Procurement

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 21-1	The trauma facility must have an established relationship with a recognized OPO.	II
III	ACS, CD 21-2	A written policy must be in place for triggering notification of the regional OPO.	II
III	ACS, CD 21-3	It is essential that each trauma center have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death.	II

Performance Improvement and Patient Safety

Level	Criteria and Source	Description of Criteria	Type
III	MI, CD 2-3	Have a written performance improvement plan, which addresses the following: 1. Have a process of event identification and levels of review which result in the development of corrective action plans, and methods of monitoring, re-evaluation, risk stratified benchmarking must be present and this process must be reviewed and updated annually 2. Problem resolution, outcome improvements and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, re-evaluation, benchmarking and documentation 3. All criteria for trauma team activation have been determined by the trauma program and evaluated on an ongoing basis in the PI process. 4. The PI program identifies and reviews documents, findings, and corrective action on the following five (5) audit filters: • Any system and process issue • Trauma deaths in house or in emergency department • Any clinical care issues, including identifying and treatment of immediate life threatening injuries • Any issues regarding transfer decision • Trauma team activation times to trauma activation In addition, have a policy in place to review issues that revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care including identification and treatment of immediate life threatening injuries (ATLS); and (3) transfer decisions.	I
III	MI, CD 2-1	Demonstrate participation in the regional trauma network performance improvement as described in the Regional Trauma Networks work plans. Minimally, this includes demonstrating that the healthcare facility is participating in regional data collection, analysis and sharing. A brief description of planned or ongoing participation in the Regional Trauma Network performance improvement initiatives must be submitted with the designation application.	I
III	ACS, CD 5-25	The peer review committee must be chaired by the TMD.	II
III	ACS, CD 16-15	Each member of the committee must attend at least 50 percent of all multidisciplinary trauma peer review committee meetings.	II
III	ACS, CD 16-16	When the general surgeons cannot attend the multidisciplinary trauma peer review meeting, the trauma medical director must ensure that they receive and acknowledge the receipt of critical information generated at the multidisciplinary peer review meeting to close the loop.	II

Level III Criteria Quick Reference Guide

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 16-2	Problem resolution, outcome improvements, and assurance of safety ("loop closure") must be readily identifiable through methods of monitoring, reevaluation, benchmarking, and documentation.	II
III	ACS, CD 16-3	The trauma PI program must integrate with hospital quality and patients safety effort and have a clearly defined reporting structure and method for provision feedback.	II
III	ACS, CD 2-18	Peer review must occur at regular intervals to ensure that the volume of cases is reviewed in a timely fashion.	II
III	ACS, CD 2-8 ACS, CD 2-9	Trauma surgeon response to the emergency department. Trauma surgeon on-call response for the highest level of activation must be continuously monitored and variances documented and reviewed for reason for delay, opportunities for improvement and corrective actions. The minimum threshold is within 30 minutes. Response times will be tracked from patient arrival. An 80 percent attendance threshold must be met for the highest level activations. The criteria must be monitored by its PI program.	I
III	ACS, CD 5-16	Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI program process to determine their positive predictive value in identifying patients who require the resources of the full trauma team.	II
III	ACS, CD 5-18	Programs that admit more than 10% of injured patients to non-surgical services must review all non-surgical admissions through the trauma PI process.	II
III	ACS, CD 15-1	The PI program must be supported aby a reliable method of data collection that consistently obtains the information necessary to identify opportunities for improvement.	II
III	ACS, CD 5-13	Trauma team activation criteria. Criteria for all levels of TTA must be defined and reviewed annually. Minimal acceptable criteria for the highest level of activation include the following (additional institutional criteria may also be included): 1. Confirmed systolic blood pressure less than 90 mmHG at any time in adults and age-specific hypotension in children. 2. Gunshot wounds to the neck, chest, or abdomen. 3. Glasgow Coma Scale Score less than 8, with mechanism attributed to trauma. 4. Transfer patients receiving blood to maintain vital signs. 5. Intubated patients transferred from the scene or patients with respiratory compromise or obstruction, including intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients who are intubated at another facility and are now stable from a respiratory standpoint) 6. Emergency physician's discretion	II
III	ACS, CD 16-8	Transfers to a higher level of care within the institution. These transfers must be routinely monitored, and cases identified must be reviewed to determine the rationale or transfer, adverse outcomes, and opportunities for improvement.	II
III	ACS, CD 2-18	Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured.	II
III	ACS, CD 3-3	Rigorous multidisciplinary performance improvement is essential to evaluate overtriage and undertriage rates to attain the optimal goal of less than 5 percent undertriage.	II
III	ACS, CD 3-6	The trauma facility must not be on bypass (diversion) more than 5 percent of the time.	II
III	ACS, CD 7-3	Occasionally, in a Level III trauma facility, it is necessary for the physician to leave the emergency department for short periods to address in-house emergencies. Such cases and their frequency must be reviewed by the performance improvement (PI) program to ensure that this practice does not adversely affect the care of patients in the emergency department.	II
III	ACS, CD 7-8	A representative from the emergency department must participate in the prehospital PI program.	II
III	ACS, CD 7-10	Emergency physicians must participate actively in the overall trauma PI program and the multidisciplinary trauma peer review committee.	II
III	ACS, CD 9-13	The PI process must review the appropriateness of the decision to transfer or retain major orthopaedic trauma cases.	II
III	ACS, CD 11-6	The availability of anesthesia services and delays in airway control or operations must be documented by the hospital performance improvement process.	II
III	ACS, CD 11-27	The PI program, at a minimum, must address the need for pulse oximetry, end-tidal carbon dioxide detection, arterial pressure monitoring, pulmonary artery catheterization, patient rewarming, and intracranial pressure monitoring.	II

Level III Criteria Quick Reference Guide

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 11-37	Changes in interpretation between preliminary and final radiology reports, as well as missed injuries, must be monitored through the PI program.	II
III	ACS, CD 11-47	In Level III facilities, if the CT technologist takes call from outside the hospital, the PI program must document the technologist's time of arrival at the hospital.	II
III	ACS, CD 11-57	In Level III trauma facilities, the PI program must review all ICU admissions and transfers of ICU patients to ensure that appropriate patients are being selected to remain at the Level III facility vs. being transferred to a higher level of care.	II
III	ACS, CD 11-60	For all levels of trauma facilities, the PI program must document that timely and appropriate ICU care and coverage are being provided.	II
III	ACS, CD 11-60	In all Level I, II and III trauma facilities, the timely response of credentialed providers to the ICU must be continuously monitored as part of the PI program	II
III	ACS, CD 11-69	Trauma patients must not be admitted or transferred by a primary care physician without the knowledge and consent of the trauma service, and the PI program should monitor adherence to this guideline.	II
III	ACS, CD 5-16	Trauma surgeon response time to other levels of TTA, and for back-up call response, should be determined and monitored. Variances should be documented and reviewed for reason for delay, opportunities for improvement, and corrective actions.	II
III	ACS, CD 5-16	Response parameters for consultants addressing time-critical injuries (for example, epidural hematoma, open fractures, and hemodynamically unstable pelvic fractures) must be determined and monitored.	II
III	ACS, CD 5-16	The emergency physician may initially evaluate the limited-tier trauma patient, but the center must have a clearly defined response expectation for the trauma surgical evaluation of those patients requiring admissions.	II
III	ACS, CD 16-7	Rates of undertriage and overtriage must be monitored and reviewed quarterly	II
III	ACS, CD 9-14 ACS, CD 3-4 ACS, CD 4-3	Acute transfers out. All trauma patients who are diverted or transferred during the acute phase of hospitalization to another trauma center, acute care hospital, or specialty hospital (for example, burn center, re-implantation center, pediatric trauma center) or patients requiring cardiopulmonary bypass or when specialty personnel are unavailable must be subjected to individual case review to determine the rationale for transfer, appropriateness of care, and opportunities for improvement. Follow up from the center to which the patient was transferred should be obtained as part of the case review.	II
III	ACS, CD 8-9	Must monitor appropriate neurosurgical care at Level III trauma facilities.	II
III	ACS. CD 11-4 ACS, CD 11-7 ACS, CD 11-16 ACS, CD 11-18	Availability of the anesthesia service: • In-house anesthesia service (emergency department, intensive care unit, floor, and post-anesthesia care unit) must be available for the care of trauma patients • Operating room delays involving trauma patients because of lack of anesthesia support services must be identified and reviewed to determine the reason for delay, adverse outcomes, and opportunities for improvement.	II
III	ACS, CD 11-16 ACS, CD 11-18 ACS, CD 11-25	Response times of operating room and post-anesthesia care unit personnel when responding from outside the trauma center must be routinely monitored.	II
III	ACS, CD 11-16 ACS, CD 11-18	Delay in operating room availability must be routinely monitored. Any case that is associated with a significant delay or adverse outcome must be reviewed for reasons for delay and opportunities for improvement.	II
III	ACS, CD 11-32 ACS, CD 11-37	Rate of change in interpretation or radiologic studies should be categorized by RADPEER or similar criteria (describe process/scoring metric used).	I
III	ACS, CD 11-29, CD 11-37, CD 11-46	Response times of computed tomography technologist (30 minutes)/magnetic resonance imaging (60 minutes) technologist/Interventional radiology team (30 minutes) when responding from outside the trauma facility must be monitored.	I
III	ACS, CD 16-9	Solid organ donation rate must be monitored.	II
III	ACS, CD 16-10	Sufficient mechanisms must be available to identify events for review by the trauma PI program.	II
III	ACS, CD 16-12	There must be a process to address trauma program operational events.	II
III	ACS, CD 16-13	Documentation (minutes) reflects the review of operational events, and when appropriate, the analysis and proposed corrective actions.	II
III	ACS, CD 16-14	Mortality data, adverse events, and problem trends, and selected cases involving multiple specialties must undergo multidisciplinary trauma peer review.	II
III	ACS, CD 16-17	The multidisciplinary trauma peer review committee must systematically review mortalities, significant complications, and process variances associated with unanticipated outcomes, and determined opportunities for improvement.	II

Level III Criteria Quick Reference Guide

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 16-18	When an opportunity for improvement is identified, appropriate corrective actions to mitigate or prevent similar future adverse events must be developed, implemented, and clearly documented by the trauma Pi program.	II
III	ACS, CD 16-19	An effective performance improvement program demonstrates through clear documentation that identified opportunities for improvement lead to specific interventions that result in an alteration in conditions such that similar adverse events are less likely to occur.	II

Outreach and Education

Level	Criteria and Source	Description of Criteria	Type
III	ACS, CD 17-1	The trauma facility must engage in public and professional education.	II
III	ACS, CD 18-2	There must be someone in a leadership position that has injury prevention as part of his or her job description.	II
III	ACS, CD 18-1	Must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data.	II
III	MI, CD 3-1	Participate in coordinating and implementing Regional Trauma Network injury prevention work plans and initiatives.	I
III	ACS, CD 18-3	Universal screening for alcohol use must be performed for all injured patients and must be documented. Brief intervention of alcohol and use is required.	II
III	ACS, CD 17-4	In Level I, II, and III trauma facilities, the hospital must provide a mechanism to offer trauma-related education to nurses involved in trauma care.	II
III	ACS, CD 6-9 ACS, CD 7-14 ACS, CD 11-86	The successful completion of ATLS course, at least once, is required for all general surgeons, emergency medicine physicians, and midlevel providers on the trauma team.	II

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Hospital Commitment	Documentation of administrative commitment is required from the governing body and the medical staff. **CD 5-1** Trauma facilities must be able to provide the necessary human and physical resources (physical plant and equipment) to properly administer acute care consistent with their level of verification. **CD 2–3** This support must be reaffirmed continually (every 3 years) and must be current at the time of verification. **CD 5–2, CD 5-3** The trauma program must involve multiple disciplines and transcend normal departmental hierarchies. **CD 5-4**	**CD 5-1** The governing board provides a written letter of resolution, indicating the facility's commitment to the hospital's trauma program and desire to provide the resources necessary to become and sustain a level III trauma hospital designation. **CD 5-1** The medical staff board provides a written letter of resolution, indicating the medical staffs' commitment to the hospital's trauma program and desire to participate as necessary to become and sustain a level III trauma hospital designation. **CD 5-4** Hospital organizational chart must include the Trauma Service/Department. Team members must include appropriate representative from all disciplines that provide care to the trauma patient.			
Trauma System	Meaningful involvement in state and regional trauma system planning development, and operation is essential for all designated trauma facilities and participating acute care facilities within a region. **CD 1-3** The individual trauma facilities and their health care providers are essential system resources that must be active and engaged participants. The best possible care for patients must be achieved with a cooperative and inclusive program that clearly defines the role of each facility within the system. **CD 1-1** They must function in a way that pushes trauma facility-based standardization, integration, and PI program out to the region while engaging in inclusive trauma system planning and development. **CD 1-2**	**CD 1-3** The trauma facility staff must demonstrate participation in regional and/or state trauma organizations. Examples are state advisory committees, MCOT, state registry committees, and state EMS committees. Examples of regional committees would be injury prevention, trauma advisory, and EMS committees. **CD 1-1, CD 1-2** The trauma facility must demonstrate engagement in communication with other facilities within their region, and outside of their region. This can be achieved through feedback letters to sending hospitals on patient transfers, feedback to EMS agencies on patient transports, and engaging in conversations with receiving hospitals on patient outcomes. Being a resource for other healthcare providers in your region, providing educational events to all stakeholders in your region.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma System (continued)	Sufficient mechanisms must be available to identify events for review by the trauma PI program. Issues that must be reviewed will revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life-threatening injuries (ATLS); and (3) transfer decisions. **CD 16-10** The foundation for evaluation of a trauma system is the establishment and maintenance of a trauma registry. Trauma registry data must be collected and analyzed by every trauma facility. **CD 15-1** There must be a method to identify the injured patients, monitor the provision of health care service, make periodic rounds, and hold formal and informal discussions with individual practitioners. **CD 5-21** A surgeon must serve as co-director or director of the ICU and be actively involved in, and responsible for, setting policies and administrative decisions related to trauma ICU. This surgeon must be board certified or eligibility for certification by the current standard requirements. **CD 11-53, CD 11-54** Physician coverage of the ICU must be available within 30 minutes, with a formal plan in place for emergency coverage. **CD 11-56** The surgeon must retain responsibility for the patient and coordinate all therapeutic decisions. **CD 11-58** Internal medicine specialists must be available on medical staff. **CD 11-74**	**CD 16-10** Develop a process that will identify events to be reviewed through PI. All patients that meet these three criteria should be reviewed every month with PI program. Comprehensive audit filters (all of ACS and State of Michigan audit filters) should capture any patient's that fall into these three categories. **CD 15-1** Must have registrar and registry system. Data is entered on all trauma patients that meet criteria. Quarterly data submission is required. This data will support PI program and injury prevention program. **CD 5-21** Maintain documentation of rounding, and methods used to identify trauma patients in your facility. **CD 11-53, CD 11-54** Maintain documentation of ICU meeting attendance, and minutes. Minutes of meetings must reflect the surgeon's active participation. Maintain documentation of surgeon's board certification. **CD 11-56** Have a written policy for ICU physician coverage, along with a written backup plan. **CD 11-58** Documentation in the patient's medical record should demonstrate the surgeon's role in coordinating all therapeutic decisions, and events. **CD 11-74** Have published on call schedule.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma System (continued)	Many of the daily care requirements can be collaboratively managed by a dedicated ICU team, but the trauma surgeon must be kept informed and concur with major therapeutic and management decisions made by the ICU team. **CD 11-59** The PI program must document that timely and appropriate ICU care and coverage are being provided. **CD 11-60** The timely response of credentialed providers to the ICU must be continuously monitored as part of the PI program. **CD 11-60** The PI program must review all ICU admissions and transfers of ICU patients to ensure that appropriate patients are being selected to remain at the Level III facility vs. being transferred to a higher level of care facility. **CD 11-57** Qualified critical care nurses must be available 24 hours per day to provide care for patients during the ICU phase. **CD 11-65** The patient to nurse ratio in the ICU must not exceed two to one. **CD 11-66** There must be an ICU liaison to the trauma service. This liaison must attend 50 percent of the multidisciplinary peer review meetings, with documentation by the PI program. **CD 11-61, CD 11-62** The ICU must have the necessary equipment to monitor and resuscitate patients. Intracranial pressure monitoring equipment must be available with neurosurgical coverage that admits neurotrauma patients. **CD 11-67, CD 11-68** Physical therapy and social services must be provided. **CD 12-3, CD 12-4**	**CD 11-57** All ICU admits and transfers are included in audit filters and reviewed monthly at multidisciplinary peer review meeting. **CD 11-65** Have published schedule demonstrating 24 hour care. **CD 11-66** Have staffing plan demonstrating nurse to patient ration of 2:1. **CD 11-61** Documentation of minutes, attendance record should support this. **CD 12-3, CD 12-4** Must have a published schedule or staffing plan.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
The Role of a Trauma Facility in a Trauma System	The trauma facility must have an integrated, concurrent performance improvement (PI) program to ensure optimal care and continuous improvement in care. **CD 2-1**	**CD 2-1** Hospital must have the capabilities to treat trauma patients through equipment, human and physical resources and well defined transfer plans. This is demonstrated through the documentation of the care of the patient, policies, and protocols, as well as through a strong PI program.			
	The trauma facility must be able to provide the necessary human and physical resources (physical plant, and equipment) to properly administer acute care consistent with their level of verification. **CD 2-3**	**CD 2-3** Multidisciplinary peer review committee and operational committee should demonstrate through the meeting minutes that issues regarding infrastructure are being addressed with loop closure			
	Any adult trauma facility that annually admits 100 or more injured children younger than 14 years must fulfill the following additional criteria demonstrating their capability to care for inured children: Trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body. **CD 2-23**	**CD 2-23** Data and documentation along with evidence of credentials must be maintained.			
	There must be a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PI program. **CD 2-24**	**CD 2-24** This criteria is required only if CD 2-23 has been met.			
	For adult trauma facilities annually admitting fewer than 100 injured children younger than 14 years, these resources are desirable. These hospitals, however, must review the care of their injured children through the PI program. **CD 2-25**	**CD 2-25** All pediatric trauma activations, pediatric trauma admits, and pediatric trauma transfers must be reviewed by the peer review committee.			
	It is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient's arrival. The PI program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time. **CD 2-8**	**CD 2-8** Surgeon response times must be an audit filter in order to monitor for compliance.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
The Role of a Trauma Facility in a Trauma System (continued)	Must have continuous general surgical coverage **CD 2-12** Well defined transfer plans are essential. Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies. **CD 2-13** The facility must participate in regional disaster management plans and exercises. **CD 2-22** Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured. **CD 2-18** A PI program must have audit filters to review and improve pediatric and adult patient care. **CD 2-19**	**CD 2-12** Must show published call schedule. **CD 2-18, CD 2-19** Trauma service must set regular multidisciplinary peer review meetings, with a set agenda, in order to review resuscitations, trauma systems issues, provider issues, and recommendations for improvement. All audit filters are review and evaluated at this meeting.			
Pre-hospital Trauma Care	The protocols that guide pre-hospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies and basic and advanced pre-hospital personnel. **CD 3-2** When a trauma facility is required to go on bypass or to divert, the center must have a system to notify dispatch and EMS agencies. The facility must do the following. • Prearrange alternative destinations with transfer agreements in place • Notify other facilities of divert or advisory status • Maintain a divert log • Subject all diverts and advisories to performance improvement procedures. **CD 3-7**	**CD 3-2** The protocols that guide pre-hospital care for trauma patients must be collaboratively developed by all stakeholders. **CD 3-7** Documentation must show all of the required information in CD 3-7. The PI program must discuss, and show in the minutes, every occurrence of the hospital going on bypass or diversion along with any and all affected trauma patients.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Pre-hospital Trauma Care (continued)	The trauma director must be involved in the development of the trauma facility's bypass (diversion) protocol. **CD 3-4** The trauma surgeon must be involved in the decision regarding bypass (diversion) each time the center goes on bypass. **CD 3-5** The trauma program must participate in the training of pre-hospital personnel, the development, and improvement of pre-hospital care protocols, and performance improvement and patient safety programs. **CD 3-1** The trauma center must not be on bypass (diversion) more than 5 percent of the time. **CD 3-6** Rigorous multidisciplinary performance improvement is essential to evaluate over triage and under triage rates to attain the optimal goal of less than 5 percent under triage. **CD 3-3**	**CD 3-4** Bypass and diversion policy must have Trauma Medical Director's approval and signature. **CD 3-5** Bypass and diversion policy must state that the trauma surgeon on call is notified of a trauma diversion. The surgeon will make the decision to divert the patient or not. Only the trauma surgeon can make this decision. **CD 3-1** Documentation must demonstrate any type of participation in pre-hospital care protocols, PI, etc. **CD 3-6** Maintain bypass and diversion log. **CD 3-3** Over triage and under triage should be an audit filter.			
Inter-hospital Transfers	Direct physician to physician contact is essential. **CD 4-1** All transfers must be evaluated as part of the receiving trauma facility's performance improvement and patient safety (PI) process and feedback should be provided to the transferring center **CD 4-3**	**CD 4-1** Transfer protocols must be developed that required physician to physician communication. **CD 4-3** Establish a transfer protocol that is approved by the TMD and monitored by PI program which includes: • Anatomical and physiological characteristics identifying a patient in need of transfer • List of transfer services w/ contact information • List of supplies/equipment that will accompany patient • List of records/documentation that will accompany patient • Personnel needed to accompany patient All transfers are to be reviewed through PI program. Develop a process to provide feedback to transferring facilities and a process to disseminate feedback from receiving facilities to staff, physicians, EMS, etc.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Inter-hospital Transfers (continued)	Decision to transfer an injured patient to a specialty care facility in an acute situation must be based solely on the needs of the patient and not on the requirements of the patient's specific provider network or the patient's ability to pay. **CD 4-2** Trauma patients must not be admitted or transferred by a primary care physician without the knowledge and consent of the trauma service and PI must monitor this to show adherence to guideline. **CD 11-69** In trauma facilities that do not have dialysis capabilities must have a transfer agreement in place. **CD 11-78** All patients being transferred for specialty care, such as burn care, microvascular surgery, cardiopulmonary bypass capability, complex ophthalmologic surgery, or high complexity pelvic fractures, agreements with similar or higher-qualified verified trauma center should be in place. If this approach is used, a clear plan for expeditious critical care transport, follow up, and performance monitoring is required. If complex cases are being transferred out, a contingency plan should be in place and must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the patient • Transfer agreements with similar or higher-verified trauma centers • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support • Monitoring of the efficacy of the process by the PIPS program. **CD 8-5**	**CD 4-2** Documentation in patient's medical record indicates the reason for transfer. **CD 11-78** Have transfer agreements for dialysis patients. **CD 8-5** 1. Write specific exclusion criteria for your facility. Write the specific injuries in a protocol that your facility will have to transfer out to a level of higher care. 2. Develop transfer guidelines and agreements to higher level of care facilities. These guidelines and agreements are placed in the exclusion criteria protocol. 3. All of these cases are reviewed at the multidisciplinary peer review committee.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Program Coordinator/ Manager (TPM)	TPM is knowledgeable and involved in trauma care, working with TMD with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking. **CD 2-17** The TPM must have administrative abilities, show evidence of educational preparation, and clinical experience in the care of the injured patients. **CD 5-22**	**CD 2-17** 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. The TPM does not have to be dedicated full time to the trauma program. **CD 5-22** Job description should contain these requirements. Requirements can be more specific in job description as prescribed by your facility.			
Trauma Program Medical Director (TMD)	A TMD and TPM knowledgeable and involved in trauma care must work together with guidance from the trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking. **CD 2-17** The trauma program must also demonstrate appropriate orientation, and credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director. **CD 11-87** Trauma program medical director must be a current board-certified (or a general surgeon eligible for certification by the American Board of Surgery according to current requirements) or a general surgeon who is an American College of Surgeons Fellow with a special interest in trauma care and must participate in trauma call. **CD 5-5** The trauma hospital medical director shall be current in ATLS. **CD 5-6** The TMD must have authority to manage all aspects trauma care. **CD 5-9**	**CD 2-17** Trauma Medical Director must work closely with Trauma Program Manager. This is evidenced through minutes, memos, documentation containing loop closure. **CD 11-87** Develop an organized, comprehensive orientation program that includes specific trauma training for mid-level practitioners. All mid-levels that care for trauma patients must have this orientation as well as a documented annual review of these skills. **CD 5-5, CD 5-6** Maintained documentation of board certifications, and ATLS completion.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Program Medical Director (TMD) (continued)	The TMD, in collaboration with the TPM, must have authority to correct deficiencies in trauma care and exclude from trauma call the trauma team members who do not meet specified criteria. **CD 5-11** The TMD must chair and attend a minimum of 50% of the multidisciplinary trauma peer review committee meetings. **CD 5-10** The TMD must perform an annual assessment of the trauma panel providers in the form of OPPE, and FPPE when indicated by the findings of the PI process. **CD 5-11** The TMD must have the responsibility and authority to ensure compliance with the above requirements and cannot direct more than one trauma facility. **CD 5-12** Injured patients may be admitted to individual surgeons, but the structure of the program must allow the trauma director to have oversight authority for the care of these patients. **CD 5-17**	**CD 5-11** This will be demonstrated through meeting minutes, as well as loop closure. Any issues, problems, or recommendations should be documented in the minutes with a follow up or loop closure. **CD 5-11** Maintain this documentation. **CD 5-17** Staff must be educated on the role of the trauma director. Documentation in the patient's record will demonstrate when the trauma director is overseeing the care, issue, questions, etc.			
General Surgery	The successful completion of the ATLS® course, at least once, is required in all levels of trauma centers for all general surgeons, on the trauma team. **CD 17-5** General surgeons caring for trauma patients must meet certain criteria. Criteria may be considered in four categories: current board certification, clinical involvement, performance improvement and patient safety, and education. Trauma surgeon must have privileges in general surgery. **CD 6-1, CD 6-4** Board certified or eligible for certification by the American Board of Surgery according to current requirements or the alternative pathway is essential for general surgeons who take trauma call. **CD 6-2, CD 6-3**	**CD 17-5** Maintain documentation of each general surgeon and the date of ATLS completion. **CD 6-1, CD 6-4, CD 6-2, CD 6-3** Maintain this documentation.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
General Surgery (continued)	The attending surgeon is expected to be present in the operating room for all operations. A mechanism for documenting this presence is essential. **CD 6-7** All general surgeons on the trauma team must have successfully completed the ATLS course at least once. **CD 6-9** Through the trauma PI program and hospital policy, the trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review. **CD 2-5** Each member of the general surgeon group must attend at least 50 percent of the multidisciplinary trauma peer review meetings. **CD 6-8**	**CD 6-9** Maintain documentation of this. **CD 2-5** Maintain documentation of this.			
Emergency Medicine	If the emergency department provider is Board Certified in emergency medicine then the provider must take ATLS at least once**.** **CD 17-5** Rates of under triage and over triage can be calculated after the potential cases identified have been reviewed and validated. These rates must be monitored and reviewed quarterly. **CD 16–7** Advanced practitioners who participate in the initial evaluation of the trauma patients must demonstrate current verification in ATLS. **CD 11-86**	**CD 17-5** Maintain documentation for ATLS certification, or Board certification. **CD 11-86** Must maintain documentation for ATLS certification for these advanced practitioners.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Emergency Medicine (continued)	It is expected that the physician or mid-level provider will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PI program must demonstrate that the physician's presence is in compliance at least 80 percent of the time. **CD 2-8**	**CD 2-8** This (response times of ED provider) must be an audit filter in the PI to be reviewed by PI program.			
	Alternate criteria for non-board-certified emergency medicine physicians must be followed if the emergency physician is not board certified. **CD 6-3**				
	Have a designated emergency physician director supported by an appropriate number of additional physicians to ensure immediate care of injured patients. **CD 7-1**	**CD 7-1** Must have a published work schedule, with a backup call schedule/protocol.			
	Occasionally the emergency physician leaves the emergency department for in house emergencies. These occurrences must be reviewed by the PI program. **CD 7-3**	**CD 7-3** Maintain a log of when the ED physician leaves the department to care for in house patients. This log must be reviewed at multidisciplinary peer review committee.			
	In institutions in which there are emergency medicine residency training programs, supervision must be provided by an in-house attending emergency physician 24 hour/day. The roles and responsibilities must be defined, agreed on, and approved by the director of the trauma service. **CD 7-4, CD 7-5**	**CD 7-4, CD 7-5** Have residents training program, roles, and responsibilities written in a protocol, or policy. Develop specific roles and responsibilities for residents that care for the trauma patient.			
	Board certification or eligibility for certification by the appropriate emergency medicine board according to current requirements or the alternate pathway is essential for physicians staffing the emergency department and caring for the trauma patients, and must have completed ATLS at least once. **CD 7-6, CD 6-3, CD 7-14**	**CD 7-6, CD 6-3, CD 7-14** Maintain documentation for all ED providers.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Emergency Medicine (continued)	A representative for the emergency department must participate in the PI program. **CD 7-8** A designated emergency physician liaison must be available to the trauma director for PI issues that occur in the emergency department. **CD 7-9** Emergency physicians must participate actively in the overall trauma PI program and the multidisciplinary trauma peer review committee. The liaison on the multidisciplinary peer review committee must attend a minimum of 50 percent of the committee meetings. **CD 7-10, CD 7-11**				
Anesthesia	If anesthesia is not in-house, protocols must be in place to ensure the timely arrival at the bedside by the anesthesia provider within 30 minutes of notification and request. **CD 11-8** If anesthesia is not in-house, the presence of a physician skilled in emergency airway management must be documented. **CD 11-9** In-house anesthesia services are not required, but anesthesiologists or CRNAs must be available within 30 minutes for emergency operations, and managing airway problems. **CD 11-1, CD 11-2, CD 11-7** The availability of anesthesia services and delays in airway control or operations must be documented by the PI process. **CD 11-6** A qualified and dedicated physician anesthesiologist must be designated as the liaison to the trauma program. The anesthesia liaison's participation in the trauma PI is essential. **CD 11-12**	**CD 11-8** Must have written protocols requiring this response from anesthesia. **CD 11-9** Physicians not trained in emergency airway management must have documentation of obtaining training for these skills. Such as "an emergency airway course." **CD 11-1, CD 11-2, CD 11-7** Must have written protocols requiring this response from anesthesia. **CD 11-6** These cases must be reviewed at the multidisciplinary peer review meetings. **CD 11-12** Anesthesiologist must be a member of the multidisciplinary peer review committee.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Anesthesia (continued)	The anesthesiology representative to the trauma program must attend at least 50 percent of the multidisciplinary peer review meetings, with documentation by the trauma PI program. **CD 11-13**	**CD 11-13** This is documented in the meeting attendance records.			
Orthopedic	Level III facilities must have an orthopaedic surgeon on call and promptly available 24 hours a day. **CD 11-72, CD 9-11** If the orthopaedic surgeon is not dedicated to a single facility while on call, then a published backup schedule is required. **CD 9-12** Board certification or eligibility for certification by an appropriate orthopaedic board according to current standard requirements, or the alternate pathway is essential for orthopaedic surgeons who take trauma call. **CD 9-17, CD 6-3** Operating rooms must be promptly available to allow for emergency operations on musculoskeletal injuries. **CD 9-2** Must have an orthopaedic surgeon who is identified as the liaison to the trauma program. **CD 9-4** The orthopaedic service must actively participate with the overall trauma PI program and the multidisciplinary trauma peer review committee. The liaison to the multidisciplinary peer review committee must attend a minimum of 50 percent of the meetings. **CD 9-15, CD 9-16** The PI program must review the appropriateness of the decision to transfer or retain major orthopaedic trauma cases. **CD 9-13**	**CD 11-72, CD 9-11** Must have published call schedule. **CD 9-12** Must have a published back up schedule. **CD 9-17, CD 6-3** Must have documentation of board certifications. **CD 9-2** Develop an internal process that expedites the OR room, and OR team. This process must be written in a protocol, or policy. **CD 9-4** Must have orthopedic surgeon as a member of the multidisciplinary peer review committee. **CD 9-15, CD 9-16** This must be documented in the meeting's attendance record. **CD 9-13** Major orthopedic cases should be reviewed at multidisciplinary peer review meetings.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Neurosurgery	Board certification or eligibility for certification by an appropriate neurosurgical board according to the current standard requirements or the alternate pathway is essential for neurosurgeons who take trauma call. Or alternate criteria for non-board certified neurosurgeons. **CD 8-10, CD 6-3** If one neurosurgeon covers two facilities within the same limited geographic area, there must be a published backup schedule. The performance improvement process must demonstrate that appropriate and timely care is provided. **CD 8-6** Must have a plan approved by the trauma medical director that determines which types of neurosurgical injuries may remain and which should be transferred. **CD 8-7** In all cases, for admitted or transferred injured patients, the care must be timely, appropriate, and monitored by the PI program. **CD 8-9** Transfer agreements must exist with appropriate level I and level II trauma facilities. **CD 8-8** A formal, and published, contingency plan must be in place for times in which a neurosurgeon is encumbered upon the arrival of a neurotrauma case. The plan must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the neurotrauma patient • Transfer agreements with a similar or higher-level verified trauma facility • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing support • Monitoring of the efficacy of the process by the PI program **CD 8-5**	**CD 8-10, CD 6-3** Maintain documentation of board certifications. **CD 8-6** Must be able to show a published back up schedule. **CD 8-7** Have a written plan or protocol that specifically addresses an exclusion and inclusion list of injuries.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Operating Room	An operating room must be adequately staffed and available within 30 minutes. **CD 11-17** If an on-call team is used, the availability of operating room personnel and the timeliness of starting operations must be continuously evaluated by the trauma PI process and measures must be implemented to ensure optimal care. **CD 11-18** Must have necessary operating room equipment for the patient populations they serve. All trauma centers must have rapid fluid infusers, patient thermal control equipment, resuscitation fluids, intraoperative radiologic capabilities, equipment for fracture fixation, and equipment for bronchoscopy and GI endoscopy. **CD 11-19** If neurosurgical services are provided, the facility must have necessary equipment to perform craniotomy. **CD 11-20**	**CD 11-17** Protocols and policy includes OR staff required response times. **CD 11-18** This could be included as an audit filter in order to monitor timeliness of OR on call team.			
Post Anesthesia Recovery	A PACU with qualified nurses must be available 24 hours a day to provide care for the patient if needed during the recovery phase. **CD 11-24** If this availability requirement is met with a team on call from outside the hospital, the availability of the PACU nurses, and compliance with this requirement must be documented by the PI program. **CD 11-25** The PACU must have necessary equipment to monitor and resuscitate patients. **CD 11-26** The PI program, at a minimum, must address the need for pulse oximetry, end-tidal CO detection, arterial pressure monitoring, pulmonary artery catheterization, patient rewarming, intracranial pressure monitoring. **CD 11-27**	**CD 11-24** Published schedule and staffing plan must demonstrate 24 hour coverage. **CD 11-25** Can include this as an audit filter in order to monitor compliance			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Radiology	Conventional radiography must be available in all trauma facilities 24/7 **CD 11-29**	**CD 11-29** Published schedule must show that conventional radiology is available 24/7.			
	Qualified radiologists must be available within 30 minutes in person or by teleradiology for the interpretation or radiographs. **CD 11-32**				
	Diagnostic information must be communicated in a written or electronic form and in a timely manner. **CD 11-34**	**CD 11-34** Internal process must demonstrate this as well as the patient's medical record.			
	Critical information deemed to immediately affect patient care must be verbally communicated to the trauma team in a timely manner. **CD 11-35**				
	The final report must accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretations. **CD 11-36**				
	Changes in interpretation between preliminary and final reports, as well as missed injuries, must be monitored through the PI program. **CD 11-37**				
	Must have policies that ensure the trauma patients who may require resuscitation and monitoring are accompanied by appropriately trained providers during transportation to, and while in the radiology department. **CD 11-28**	**CD 11-28** Policy must demonstrate that trained providers are transporting patients to radiology. The policy can specify what trauma injuries require a trained staff member to transport.			
	Computed tomography must be available 24/7. If the CT technologist takes call outside the hospital, the PI program must document the technologist's time of arrival at the hospital. **CD 11-30, CD 11-47**	**CD 11-30** This can be an audit filter in order to monitor compliance.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Lab and Blood Bank	24-hour availability of a laboratory capable of: • Standard analysis of blood, urine and other body fluids, including micro sampling • Blood typing and cross matching **CD 11-80, CD 11-81** Coagulation studies, blood gas analysis, and microbiology studies must be available 24 hours per day. **CD 11–85** Must have a massive transfusion protocol developed collaboratively between the trauma service/program and the blood bank. **CD 11-84** Blood Bank must have adequate supply of packed red blood cells and fresh frozen plasma available within 15 minutes. **CD 11-83**	**CD 11-80, CD 11-81** Ensure lab has these capabilities, along with policy and procedures. **CD 11-84** Inventory number of O negative units in-house. Ensure access to a blood bank. Written policy and protocol on obtaining blood from blood bank for emergent use on trauma patient. Develop a policy that notifies lab of trauma patient arrivals (for trauma activations). This policy should state the process of running blood to patient within 15 minutes. Develop a policy specific to Massive Transfusion for trauma patients. The implementation of the Massive Transfusion policy must also be an audit filter to review through PI program.			
Respiratory Therapy	There must be a respiratory therapist on call 24 hours per day. **CD 11-76**				
Burn Patients	Trauma facilities that refer burn patients to a designated burn center must have a written transfer agreement with the referral burn center. **CD 14-1**	**CD 14-1** Have written transfer agreement with a specific burn center.			
Trauma Team Activation	The criteria for a graded activation must be clearly defined by the trauma facility, with the highest level of activation including the six required criteria listed in Chapter 5; Table 2 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014". **CD 5-13** Trauma health care team, including surgeons, emergency physicians, and medical directors for EMS agencies develop trauma activation protocols. EMS agencies and hospital personnel must then be educated on these protocols. **CD 3-1, CD 3-2**	**CD 5-13** If your trauma activation policy contains additional criteria, beyond the six state required criteria, then these specific, additional, criteria must be included in the monthly performance improvement data. This will ensure the validity of these criteria. For example, additional criteria for your institution may be to initiate a trauma activation for all ground level falls in patients the age of > 70 years old. These patients must be reviewed in the monthly performance improvement. **CD 3-1, CD 3-2** Develop the trauma activation protocols in collaboration with physicians, medical director for EMS agencies. Provide education to all surgeons, emergency physicians, and EMS personnel on these protocols. Ensure trauma activation billing codes are implemented, following current MCR rates and guidelines. (Medicare)			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Team Activation (continued)	Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI process to determine their positive predictive value in identifying patients who require the resources of the full trauma team. **CD 5-16** Trauma surgeon response time to other levels of TTA, and for back-up call response, should be determined and monitored. Variances should be documented and reviewed for reason for delay, opportunities for improvement, and corrective actions. **CD 5-16** Response parameters for consultants addressing time-critical injuries (for example, epidural hematoma, open fractures, and hemodynamically unstable pelvic fractures) must be determined and monitored. **CD 5-16** The trauma team must be fully assembled within 30 minutes **CD 5-15** The emergency physician may initially evaluate the limited-tier trauma patient, but the facility must have a clearly defined response expectation for the trauma surgical evaluation of those patients requiring admission. **CD 5-16**	**CD 5-16** If your trauma activation policy contains additional criteria, beyond the six state required criteria, then these specific, additional, criteria must be included in the monthly performance improvement data. This will ensure the validity of these criteria. For example, additional criteria for your institution may be to initiate a trauma activation for all ground level falls in patients the age of > 70 years old. These patients must be reviewed in the monthly performance improvement data Multi-tiered activation system could consist of three levels of trauma activation. • Level I activation would indicate emergent care required. All hospital resources are needed to resuscitate the patient. This patient would be the most critical trauma patient. • Level II activation would indicate urgent care required. Most of the hospital resources are necessary to resuscitate the patient. Not all of the hospital resources are utilized for this patient. • Level III activation would indicate a trauma that is easily treated with the resources offered within the emergency department. **CD 5-15** Hospital must develop an activation system that pages out all members of the trauma team for trauma activations. Trauma team arrival times must be monitored in monthly PI. For example, the surgeon arrival time within 30 minutes for all trauma activations would be included in monthly PI data.			
Trauma Registry	All healthcare facilities with an emergency center shall participate in data submission. **MI-CD 1-1** All data which meets inclusion criteria, as defined in the most current version of "National Trauma Data Standard: Data Dictionary", is submitted electronically into the state trauma registry (ImageTrend). Twelve months of data must be submitted into ImageTrend prior to applying for designation as a Michigan trauma facility for the first time. **MI-CD 1-2**	**MI-CD 1-1** Must submit data into state trauma registry system/data bank. **MI-CD 1-2** Must follow the inclusion criteria as defined in the Data Dictionary. This data is entered electronically into the State Trauma Registry. Twelve months of data must be entered before applying for designation.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Registry (continued)	To maintain designation as a Michigan Trauma facility, data is to be submitted electronically into the state trauma registry quarterly by the following dates: January 15, April 15, July 15, October 15 **MI-CD 1-3** Each healthcare facility is required to designate a person responsible for trauma registry activities. This person should have minimal training necessary to maintain the registry. This need not be a dedicated position. **MI-CD 1-4** The trauma facility must demonstrate that all trauma patients can be identified for review. Registry data must be collected and analyzed. **CD 15-1** The trauma PI program must be supported by a registry and a reliable method of concurrent data collection that consistently obtains information necessary to identify opportunities for improvement. **CD 15-3** These findings must be used to identify injury prevention priorities that are appropriate for local implementation. **CD 15-4** All trauma facilities must use a risk stratified benchmarking system to measure performance and outcomes. **CD 15-5** To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources. **CD 16-4** All process and outcome measures must be documented within the trauma PI program's written plan and reviewed and updated at least annually. **CD 16-5**	**MI-CD 1-3** Data must be submitted electronically into ImageTrend quarterly. **MI-CD 1-4** Must have a person with the responsibilities of entering data into the state trauma registry. **CD 15-1, CD 15-3** Identify a trauma data registrar and implement a trauma registry. Obtain access to ImageTrend or other trauma data registry system used in-house. Data must be directly entered or uploaded from another registry system into the state trauma registry as required. PI program is supported by this trauma registry data. **CD 15-5** Must use a risk stratified benchmarking system to measure performance and outcomes. **CD 16-4, CD 16-5, CD 16-11** Must use a risk stratified benchmarking system to measure performance and outcomes. To achieve this, the trauma program must use clinical practice guideline, protocols and algorithms from evidenced based resources. All processes and outcome measures must be included in the PI written plan and reviewed annually. All events must be identified, verified, and validated by the PI program and documented.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Registry (continued)	Once an event is identified, the trauma PI program must be able to verify and validate that event. **CD 16-11** Strategies for monitoring data validity are essential. **CD 15-10** The registrar must submit the required data elements to the NTDB. **CD 15-2** The trauma registry should be concurrent. At a minimum, 80 percent of cases must be entered within 60 days of discharge. **CD 15-6** Registrars 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 by a state trauma program; and (2) the Association of the Advancement of Automotive Medicine's Injury Course. **CD 15-7** The trauma program must ensure that appropriate measures are in place to meet the confidentiality requirements of the data. **CD 15-8** One full time equivalent employee dedicated to the registry must be available to process the data capturing the NTDS data set for each 500-750 admitted patients annually. **CD 15-9**				

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement	Submit a performance improvement plan to the State of Michigan based on standards that are incorporated by reference to Administrative Rule 325.135 and the American College of Surgeons on Trauma "Resources for the Optimal Care of the Injured Patient 2014". The six Michigan criteria are listed below. 1. Have a written performance improvement plan which addresses the following: a. Have a process of event identification and levels of review which result in the development of corrective action plans, and methods of monitoring, re-evaluation, risk stratified benchmarking must be present and this process must be reviewed and updated annually. b. Problem resolution, outcome improvements and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, re-evaluation, benchmarking and documentation. c. All criteria for trauma team activation have been determined by the trauma program and evaluated on an ongoing basis in the PI process. d. Identifies and reviews documents, findings and corrective actions on the Audit filters shown on column to the right. This includes Michigan and ACS audit filters.	Develop PI plan which is supported by facility's data that has been entered in the state trauma registry. The plan must demonstrate levels of review (i.e. trauma coordinator, trauma medical director, peer review, administration). Documentation must demonstrate resolution and loop closure. The plan must include the five specific State of Michigan criteria. The plan must include Michigan audit filters as well as the ACS audit filters. **Michigan Audit Filters:** 1. Any system and process issues 2. Trauma deaths in house or in the emergency department 3. Any clinical care issues, including identifying and treatment of immediate life threatening injuries 4. Any issues regarding transfer decision 5. Trauma team activation times to trauma activation **ACS Audit Filters:** 1. General surgeon response times to trauma activation 2. If the CT technologist takes a call from outside the hospital, the technologist's arrival to the hospital is documented 3. Anesthesiology services availability (within 30 minutes) after notification for **emergency operations** 4. Anesthesiology services availability (within 30 minutes) after notification for **managing airway problems** 5. Radiologists availability (within 30 minutes), in person or by teleradiology, when requested for the interpretation of radiographs. 6. Changes in interpretation between preliminary and final reports, as well as missed injuries are monitored 7. Operating room adequately staffed and available within 30 minutes of a call 8. If an on-call team is used, the availability of operating room personnel and the timeliness of starting operations are continuously evaluated and measures implemented to ensure optimal care 9. Over triage and under triage rates must be monitored and reviewed quarterly 10. Trauma patients admitted or transferred by a primary care physician without the knowledge and consent of the trauma service are monitored 11. Appropriateness of the decision to transfer or retain major orthopedic trauma cases			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Demonstrate participation in the regional trauma network performance improvement as described in the Regional Trauma Network work plan. Minimally, this includes demonstrating that the healthcare facility is participating in regional data collection, analysis and sharing. A brief description of planned or ongoing participation in the Regional Trauma Network performance improvement initiatives must be submitted with the designation application. **MI-CD 2-1** The timely response of credentialed providers to the ICU must be continuously monitored as part of the PI program. **CD 11-60** An effective performance improvement program demonstrates through clear documentation that identified opportunities for improvement lead to specific interventions that result in an alteration in conditions such that similar adverse events are less likely to occur. **CD 16–19**	12. All pediatric trauma admits, pediatric trauma activations 13. Timely response of credentialed providers to the ICU 14. If the trauma surgeon admits more than 10% of injured patients to non-surgical services, all non-surgical admissions are reviewed 15. Occasionally, it is necessary for the physician to leave the emergency department for short periods to address in-house emergencies. Such cases and their frequency are reviewed to ensure this practice does not adversely affect the care of patients in the emergency department 16. Bypass and diversion events 17. Organ donation rate reviewed annually 18. A process to address trauma program operational events 19. The multidisciplinary trauma peer review committee must systematically review mortalities, significant complications, and process variances associated with unanticipated outcomes and determine opportunities for improvement **CD 11-60** All ICU admitted trauma patients must be included as an audit filter.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Trauma surgeon response to the emergency department. Trauma surgeon on-call response for the highest level of activation must be continuously monitored and variances documented and reviewed for reason for delay, opportunities for improvement and corrective actions. The minimum threshold is within 30 minutes. Response times will be tracked from patient arrival. An 80 percent attendance threshold must be met for the highest level activations. **CD 2-8** Trauma team activation criteria. Criteria for all levels of TTA must be defined and reviewed annually. Minimal acceptable criteria for the highest level of activation include the following (additional institutional criteria may also be included): 1. Confirmed systolic blood pressure less than 90 mmHG at any time in adults and age-specific hypotension in children. 2. Gunshot wounds to the neck, chest, or abdomen. 3. Glasgow Coma Scale Score less than 8, with mechanism attributed to trauma. 4. Transfer patients receiving blood to maintain vital signs. 5. Intubated patients transferred from the scene or patients with respiratory compromise or obstruction, including intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients who are intubated at another facility and are now stable from a respiratory standpoint) 6. Emergency physician's discretion **CD 5-13** It is essential that each trauma facility have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death. **CD 21-3**	**CD 2-8** The response time for the trauma surgeon's arrival to the emergency department is an audit filter. Response times for all trauma activations are reviewed through PI program. The policy may be written with quicker response times for higher level trauma activations. All variances to trauma surgeons' response times to trauma activations are reviewed with corrective action, and loop closure. **CD 5-13** Develop a Trauma Team Activation (TTA) policy. This TTA is implemented to activate appropriate staff for incoming trauma patients. The highest level of TTA must, at a minimum, incorporate the six listed criteria. This policy is reviewed annually and documentation shows this annual review (committee meeting minutes). **CD 21-3** Written protocols that identify clinical criteria and confirmatory tests for the diagnosis of brain death.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Transfers to a higher level of care within the institution. These transfers must be routinely monitored, and cases identified must be reviewed to determine the rationale or transfer, adverse outcomes, and opportunities for improvement. **CD 16-8** Once an event is identified, the trauma PI program must be able to verify and validate that event. **CD 16-11** Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured. **CD 2-18** Facilities with any emergent neurosurgical cases must also have the participation of neurosurgery on the multidisciplinary peer review committee. **CD 8-13** There must be a process to address trauma program operational events **CD 16-12** The trauma PI program must integrate with hospital quality and patient safety effort and have a clearly defined reporting structure and method for provision feedback. **CD 16-3** Must have a multidisciplinary trauma peer review committee chaired by the TMD and representatives from general surgery, and liaisons from orthopedic surgery, neurosurgery, emergency medicine, ICU, and anesthesia. These identified members must participate actively in the trauma PIPS program with at least 50 percent attendance at the multidisciplinary peer review meetings. **CD 5-25, CD 6-8, CD 6-9**	**CD 16-8** All transfers must be tracked, documented, and reviewed through PI. **CD 16-11** All events must be identified, verified, and validated by the PI program and documented. **CD 2-18** Trauma service must set regular multidisciplinary peer review meetings, with a set agenda, in order to review resuscitations, trauma systems issues, provider issues, and recommendations for improvement. All audit filters are reviewed and evaluated at this meeting. **CD 6-9** The 50 percent attendance level is for the specific physician liaison and may not be met by the attendance of multiple different providers in a specialty. This is the actual attendance rate and does not include excused absences or other reasons for nonattendance.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Must have a PI program that includes a comprehensive written plan outlining the configuration and identifying both adequate personnel to implement that plan and an operational data management system. **CD 16-1** The PI program must be supported by a reliable method of data collection that consistently obtains the information necessary to identify opportunities for improvement. **CD 15-1** The processes of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present. **CD 2-17** Problem resolution, outcome improvements, and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, reevaluation, benchmarking, and documentation. **CD 16-2** The trauma medical director and the trauma program manager must have the authority and be empowered by the hospital governing body to lead the program. **CD 5-1** The TMD's responsibility extends far beyond the technical skills of surgery. The TMD must have authority to manage all aspects of trauma care. **CD 5-9** The TMD must have authority to recommend changes for the trauma panel based on performance review. **CD 5-12**	**CD 2-17** Levels of review could be 1-reviewed by TMP, 2-reviewed by TMD. 3-reviewed by peer review committee, 4-reviewed by administration **CD 16-2** All outcome resolutions, loop closures must be documented in the meeting minutes.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Mortality data, adverse events and problem trends, and selected cases involving multiple specialties must undergo multidisciplinary trauma peer review. This effort must include the participation and leadership of the trauma medical director (**CD 5-10**); the group on general surgeons on the call panel (chapter 5); the liaisons from emergency medicine, orthopaedics, neurosurgery, anesthesia, critical care, and radiology (**CD 6-8, CD 7-11, CD 9-16, CD 11-13, CD 11-61**). These liaisons must be identified and participate actively in the trauma PIPS program with at least 50 percent attendance at multidisciplinary trauma peer review committee. **CD 16-14** When general surgeons cannot attend the multidisciplinary trauma peer review meeting, the trauma medical director must ensure that they receive and acknowledge the receipt of critical information generated at the multidisciplinary peer review meeting to close the loop. **CD 16-16** Documentation (minutes) reflects the review of operational events, and when appropriate, the analysis and proposed corrective actions. **CD 16-13** Sufficient mechanisms must be available to identify events for review by the trauma PI program. **CD 16-10** PI must be empowered to address events that involve multiple disciplines and be endorsed by the hospital governing body as part of its commitment to optimal care of injured patients. **CD 5-1** When an opportunity for improvement is identified, appropriate corrective actions to mitigate or prevent similar future adverse events must be developed, implemented, and clearly documented by the trauma PI program. **CD 16-18**	**CD 16-14** Meeting minutes must be sent to all committee members not in attendance.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Mortality Review: all trauma–related mortalities must be systematically reviewed and those mortalities with opportunities for improvement identified for peer review. 1.) Total trauma-related mortality rates. Outcome measures for total, pediatric (younger than 14 years), and geriatric (older than 64 years), trauma encounters should be categorized as follows: a. DOA (upon arrival with no additional resuscitation) b. Died (in ED with resuscitation) c. In-hospital (including the OR) 2.) Mortality rates by Injury Severity Scale (ISS) subgroups using Table 1 in Chapter 16 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014." **CD 16-6** Acute Transfer out. All trauma patients who are diverted or transferred during the acute phase of hospitalization to another trauma center, acute care hospital, or specialty hospital (examples are burn center, pediatric center) or patients requiring cardiopulmonary bypass, or when specialty personnel are unavailable must be subjected to individual case review to determine the rationale for transfer, appropriateness of care, and opportunity for improvement. Follow up from the center to which the patient was transferred should be obtained as part of the case review. **CD 4-3, CD 3-4** Trauma center bypass hours must be routinely monitored, documented, and reported, including the reason for initiating the diversion and must not exceed 5 percent. **CD 3-6**				

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	Availability of anesthesia service. • Protocols must be in place that require anesthesiologists and CRNAs be available within 30 minutes for emergency operations, and managing airway problems • Operating room delays involving trauma patients because of lack of anesthesia support services must be identified and reviewed to determine the reason for delay, adverse outcomes, and opportunities for improvement. **CD 11-1, CD 11-2, CD 11-7, CD 11-8** Response times for computed tomography technologist (30 minutes). Technologist/interventional radiology team (30 minutes) when responding from outside the trauma facility. These times must be routinely monitored and any case that exceeds the institutionally agreed upon response time or is associated with a significant delay or an adverse outcome must be reviewed for reason or delay and opportunities for improvement Diagnostic interpretation must be communicated in a written or electronic form and in a timely manner. **CD 11-32, CD 11-34, CD 11-35, CD 11-36** All trauma patients determined brain dead according to the institution's policy should be referred to the local/regional organ procurement agency. **CD 21-1, CD 21-2, CD 21-3**				
Outreach and Education	There must be someone in a leadership position that has injury prevention as part of his or her job description. **CD 18-2** Must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data. **CD 18-1**	**CD 18-2, CD 18-1** Injury prevention needs to be written into a leadership position's job description. This person may be the trauma program manager, the ED manager, etc. This person must document all injury prevention activities, as well as an injury prevention plan based on local registry data.			

Level III Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Outreach and Education (continued)	Must engage in public and professional education. **CD 17-1** The hospital must provide a mechanism to offer trauma-related education to nurses involved in trauma care. **CD 17-4** The successful completion of ATLS course, at least once, is required for all general surgeons, emergency medicine physicians, and midlevel providers on the trauma team. **CD 6-9, CD 7-14, CD 11-86** Participate in coordinating and implementing Regional Trauma Network injury prevention work plans and initiatives. **MI-CD 3-1** Universal screening for alcohol use must be performed for all injured patients and must be documented. Brief intervention of alcohol and use is required. **CD 18-3**	**CD 17-1** Maintain records and documentation of any public and professional outreach/education. An example is bicycle helmet safety, children car seat education, participation in regional advisory education subcommittee events. **MI-CD 3-1** The facility's injury prevention plan must incorporate the regional injury prevention plan. Each region's injury prevention plan is developed and written by the RTAC subcommittee. **CD 18-3** Develop a universal screening of alcohol tool. This must be documented on all injured patients in the medical record. Brief intervention should be documented in the medical record when necessary.			
Disaster Plan	All hospitals must have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent. **CD 20-4** Trauma facility must meet disaster related requirements of the Joint Commission. **CD 20-1** A surgeon from the trauma panel must be a member of the hospital's disaster committee. **CD 20-2** Hospital drills that test the hospital's disaster plan must be conducted at least twice a year, including actual plan activations that can substitute for drills. **CD 20-3** The facility must participate in regional disaster management plans and exercises. **CD 2-22**	**CD 20-4** Review the hospital disaster plan. TPM and risk management must review JACHO disaster plan and update in regard to trauma systems. **CD 2-22** Document trauma service participation in regional disaster plans and exercises.			

Pre-Review Questionnaire (PRQ) for Michigan Level III Trauma Facility

This pre-review questionnaire allows site reviewers to have a preliminary understanding of the trauma care capabilities and performance of the hospital and medical staff before beginning the review. Please use this document to gather the hospital data. Please note, the site review team MAY ask for further documentation to substantiate information on any question that is answered with a "yes."

Complete each section of the PRQ, please write legibly and attach additional pages if necessary. Ensure all attachments are included and labeled appropriately. See, "General Information and Instructions" at the back of the PRQ for details and definitions. A checklist has been provided to assist in compiling the PRQ and supporting documents. The PRQ must be submitted no later than 45 days prior to the scheduled site visit. Keep a copy of the PRQ for reference during the site visit.

The information used to complete the site review report will be considered in both the verification and designation determinations. The data submitted may be used for analysis by MDCH EMS AND TRAUMA SERVICES DIVISION and may not be used for any purpose other than the intended. The reporting period is defined as 12 months and cannot be earlier than 15 months prior to the date of application. There must be 12 months of data in the State Trauma Registry, Image Trend, to schedule a site review. Ongoing data submission (quarterly) is a requirement for designation.

The PRQ can be submitted electronically. Note, put hospital name and date in the subject line and email to traumadesignationcoordinator@michigan.gov. Alternatively, the PRQ can be faxed to 517-241-9458. Put Attn: Verification/Designation Coordinator and hospital name and date on the cover letter.

Once the PRQ is received by the State Trauma Verification/Designation Coordinator, the contact person that was listed on the "Request for Verification" will receive electronic confirmation of receipt.

Please answer ALL questions completely. Do not use abbreviations.

Type of Review:

- ☐ Verification
- ☐ Re-Verification

Level of Review:

- ☐ Level III Trauma Facility

Reporting time frame for this document:
(*Twelve months of data must be submitted into the State Trauma Registry prior to applying for designation as a Michigan trauma facility for the first time. The twelve month time frame must start no earlier than fifteen months from the date of application*) (MI-CD 1-2)

Date Range: From month/year _____to: _____month/year

I. HOSPITAL INFORMATION

A. Demographics

1. Name of Hospital_____
2. Hospital Address_____
3. City, State, ZIP_____
4. Trauma Region: _____

B. General Information

Trauma Care Provider	Total Number of Providers
General Surgeons	
Emergency Physicians	
Orthopedic Surgeons	
Anesthesiologists	
Mid- Level Practitioners (Nurse Practitioners, Advanced Practice Nurses, Physician Assistants)	
Other Physician Specialty (Family Practice, Internal Medicine, Hospitalists, Pediatricians, Neurosurgeons)	
Certified Registered Nurse Anesthetists	

C. Hospital Commitment

1. Trauma facilities must provide the necessary human and physical resources (plant and physical) to properly administer acute care consistent with the level of verification. Documentation of this is demonstrated by providing a commitment to Level III trauma care. A sample of this commitment is provided in ***Appendix #1***. Please obtain a signature from the Chairperson of the hospital board (CD 5-1 & CD 2-3). (***Label as Attachment #1***)

2. The individual trauma facility and their health care providers are essential system resources. They must be active and engaged participants. Documentation of this commitment is demonstrated by providing a medical staff resolution. A sample of this resolution is provided in ***Appendix #2*** (CD 5-1). (***Label as Attachment #2***)

D. Regional Activities/Michigan Criteria

1. Michigan's Trauma System Administrative Rules outline trauma facility responsibilities to ensure a regionalized, accountable and coordinated trauma system. This work is supported by the American College of Surgeons Committee on Trauma, "Meaningful involvement in state and regional trauma system planning, development, and operation is essential for all designated trauma facilities and participating acute care facilities within a region" (CD 1-3).

   Failure to meet the Michigan Criteria outlined in the Administrative Rules will result in a Type I critical deficiency.

   Please respond to the following questions regarding participation in the regional trauma system:

   A. Does the hospital trauma program staff participate in the state and/or regional trauma system planning, development, or operation? (CD 1-3) (Yes) (No)

   B. Is the facility submitting data to the state trauma registry? (MI-CD 1-1) (Yes) (No)

   C. Is the facility participating in regional injury prevention planning and initiatives? (MI-CD 3-1) (Yes) (No)

   D. Is the facility participating in regional performance improvement as described in the Regional Trauma Network work plan*? (MI-CD 2-1) (Yes) (No)

   **The Regional Trauma Network work plan for your region can be found at www.michigan.gov/traumasystem under the individual region heading.*

II. PRE-HOSPITAL SYSTEM

A. EMS

1. The protocols that guide pre-hospital trauma care must be established by emergency physicians and medical directors for EMS agencies, with advice from the trauma health care team, including surgeons, and basic and advanced pre-hospital personnel. (CD 3-2)

   Does the trauma program participate in the following Medical Control Authority activities?

   A. Pre-hospital protocol development (Yes) (No)
   B. EMS Training which could consist of case reviews/patient follow-up, facility sponsored classes and continuing education (Yes) (No)

2. If 'Yes', briefly describe and provide one example.

III. TRAUMA PROGRAM*

A. Trauma Staff

Complete the section below. Note if not applicable.

Trauma Manager Name: _____

Trauma Medical Director Name: _____

Injury Prevention Staff Name: _____

Trauma Registrar Name: _____

Other: _____

Attach position descriptions for the Trauma Manager and Trauma Medical Director (***Label as Attachment #3***)

**Be prepared to discuss the Trauma Program: how roles interact on a daily basis, and how issues and problems are handled.*

1. Does the trauma program have a method to identify the injured patients, monitor the provision of health care services, make periodic rounds, and hold formal and informal discussions with individual practitioners? (CD 5–21) (Yes) (No)

B. Trauma Medical Director (TMD)

1. Please complete the credentials section for the Trauma Medical Director (TMD) on ***Appendix #3***. (CD 5-6)

2. Does the trauma medical director participate in trauma call? (CD 5-5) (Yes) (No)

3. A trauma service represents the primary structure for providing care for injured patients. The service includes personnel and other resources necessary to ensure the appropriate and efficient provision of care. Does the trauma medical director in collaboration with the TPM have sufficient authority to correct deficiencies in trauma care and exclude from trauma call the trauma team members who do not meet specified criteria? (CD 5-11) (Yes) (No)

4. Injured patients may be admitted to individual surgeons, but the structure of the program should allow the trauma director to have oversight authority for the care of trauma patients. Does the structure of the trauma program allow the TMD to have oversight authority for the care of injured patients who may be admitted to individual physicians? (CD 5-17) (Yes) (No)
   - If 'No', please explain:

5. The TMD should identify representatives from orthopedic surgery, anesthesiology, emergency medicine, neurosurgery (neurosurgery is optional), and other appropriate disciplines to determine which physicians from their disciplines are qualified to be members of the trauma program and on-call panel. Does the TMD perform an annual assessment of the trauma on call panel providers when indicated by findings of the PI process? (CD 5-12) (Yes) (No)

6. Does the trauma director have the authority to remove members from and/or appoint members to the trauma panel based on an annual review? (CD 2-5) (Yes) (No)
   - If 'Yes', briefly describe mechanism:

   - Briefly describe the TMD's reporting structure (may attach flow chart):

7. The TMD's responsibility extends far beyond the technical skills of surgery. Does the TMD have the authority to manage all aspects of trauma care? (CD 5–9) (Yes) (No)

8. Does the TMD perform an annual assessment of the trauma panel providers in the form of Ongoing Professional Practice Evaluation (OPPE) and Focused Professional Practice Evaluation (FPPE) when indicated by findings of the PI process? (CD 5-11) (Yes) (No)

9. Does the TMD have the responsibility and authority to ensure compliance with the above requirements? (CD 5-12) (Yes) (No)

10. Does the TMD direct more than one trauma center? (CD 5-12) (Yes) (No)

11. Does the trauma medical director and trauma program manager work together with guidance from the trauma peer review committee to identify events; develop corrective action plans; and ensure methods of monitoring, reevaluation, and benchmarking? (CD 2–17) (Yes) (No)

C. Surgeons/Trauma Service

1. Does the facility have continuous general surgical coverage? (CD 2–12) (Yes) (No)

2. Do all of the trauma panel surgeons have privileges in general surgery? (CD 6-4) (Yes) (No)

3. Complete the credentialing section for all general and trauma surgeons providing care for trauma patients on ***Appendix #4***. (CD 6-2, 6-10)

D. Emergency Physicians and Mid-level Providers

1. Does the facility have an internal medicine specialist available on the medical staff? (CD 11–74) (Yes) (No)

2. Does the trauma program demonstrate appropriate orientation, credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director? (CD 11–87) (Yes) (No)

E. Trauma Program Manager/Coordinator (TPM/C)

1. How long has the trauma program coordinator been in this position?
   - Months/Years _____ _____

2. In addition to administrative ability, does the TPM have evidence of educational preparation and clinical experience in the care of injured patients? (CD 5-22) (Yes) (No)

F. Trauma Activation

1. Does the facility have a multilevel activation response that addresses the minimum requirements listed below? (CD 5-13) (Yes) (No)
    - Confirmed blood pressure less than 90 mm Hg at any time in adults and age specific hypotension in children
    - Gunshot wounds to the neck, chest, or abdomen or extremities proximal to the elbow/knee
    - Glasgow Coma Scale score less than 9 with mechanism attributed to trauma
    - Transfer patients from other hospitals receiving blood to maintain vital signs
    - Intubated patients transferred from the scene or patients who have respiratory compromise or are in need of an emergent airway (Includes intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients intubated at another facility who are now stable from a respiratory standpoint)
    - Emergency physician's discretion

2. Attach the facility's activation policy (***Label as Attachment #4***). (CD 5-16)

3. Fill in the following:

Statistics for activation levels (current year)		
Level	Number of activations	Percent of total activations
Highest		
Intermediate		
Lowest		
Total		

4. Who has the authority to activate the trauma team? (Circle all that apply)
    a. EMS
    b. ED Physician
    c. ED Nurse
    d. Surgeon

5. The highest level of activation is communicated by: (Circle all that apply)
    a. group pager
    b. telephone page
    c. other

6. Which trauma team members respond to each level of activation? (Check all that apply)

	Activation Level		
Responder	Highest	Intermediate	Lowest
General Surgeon			
Emergency Physician			
Emergency Department Nursing			
Laboratory Technician			
Radiology Technician			
Anesthesiologist or CRNA			
Scribe			
Other			

7. Is the trauma team available for response to the highest level of activation within 30 minutes? (CD 5–15) (Yes (No)

Using the data collected from the date range listed on page 2 complete the following:

8. What is the total number of trauma patients seen but not admitted by the facility? _____

9. What is the total number of trauma patients **admitted** to the facility? _____

10. What is the total number of trauma patients transferred to a higher level of trauma care from the facility? _____

11. What is the total number of trauma deaths at the facility? _____

12. The emergency physician may initially evaluate the limited-tier trauma patient. Does the facility have a clearly defined response expectation for the trauma surgical evaluation of those patients requiring admission? (CD 5-17) (Yes) (No)

G. Trauma Transfer

1. Is there a process and documentation of direct contact of the physician or mid-level with a physician at the receiving hospital? (CD 4-1) (Yes) (No)

2. Is the decision to transfer an injured patient to a specialty care facility in an acute situation based solely on the needs of the patient and not on the requirements of the patient's specific provider network (for example, a health maintenance organization or a preferred provider organization) or the patient's ability to pay? (CD 4–2) (Yes) (No)

3. Have transfer plans between all possible transfer facilities been developed? (CD 2-13) (Yes) (No)

4. Have written transfer agreements with burn facilities been developed? (CD 14-1) (Yes) (No)

5. Trauma Transfers:

Number of Trauma Transfers	Air	Ground	Private Vehicle	Total
Transfers In				
Transfers Out				

6. If complex cases are being transferred out, does the facility have a contingency plan in which includes the following (CD 8-5):
   a. A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the patient. (Yes) (No)
   b. Transfer agreements with similar or higher-verified trauma centers. (Yes) (No)
   c. Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support. (Yes) (No)
   d. Monitoring of the efficacy of the process by the PI programs. (Yes) (No)

7. A very important aspect of inter-hospital transfer is an effective PI program that includes evaluating transport activities. Is the facility performing a PI review of all transfers? (CD 4–3) (Yes) (No)

8. Does the trauma facility have a transfer agreement in place with a facility capable of dialysis? (if the facility does not have dialysis available) (CD 11–78) (Yes) (No)

9. Provide information on the facility's criteria that are used to prompt identification and consideration of transfer for patients who require a higher level of care and are reviewed in the PI program on ***Appendix #5***.

H. Trauma/Hospital Statistical Data

Tables should not include dead on arrivals and direct admits.

1. Total Trauma Admissions by Service:

Service	Number of Admissions
General Surgery (non-trauma)	
Trauma Surgery	
Other Surgical Specialties	
Non-Surgical	

2. Injury Severity Score/Mortality/General Surgery:

ISS	Total Number of Admissions	Number of Deaths from Total Trauma Admissions	Number Admitted to General Surgery	Number Admitted to Trauma Service
0-9				
10-15				
16-24				
> or = 25				
Total				

3. Are patients with isolated hip fractures included in your registry data? (Yes) (No)

I. Trauma Diversion

1. When a trauma facility is required to divert, the facility must have a system to notify dispatch and EMS agencies. (CD 3-7). Does the hospital do the following when on diversion?

   a. Prearrange alternative destinations with transfer agreements in place? (Yes) (No)
   b. Notify other facilities of divert status? (Yes) (No)
   c. Maintain a divert log? (Yes) (No)
   d. Review all diversions in PI program? (Yes) (No)

2. Does the facility have a diversion protocol? (Yes) (No)
   - ***Have diversion log available for site visit.***

3. Is the trauma director involved in the development of the trauma facility's diversion protocol? (CD 3–4) (Yes) (No)

4. Is the trauma surgeon involved in the decision regarding diversion each time the facility goes on diversion? (CD 3–5) (Yes) (No)

5. Has the facility gone on trauma diversion during the previous year? (Yes) (No)

6. Has the facility gone on diversion less than 5% of the time in the past year? (CD 3-6) (Yes) (No)

IV. HOSPITAL RESOURCES

A. Emergency Department (ED)*

1. Does the emergency department have a designated emergency physician director supported by an appropriate number of additional physicians to ensure immediate care for injured patients? (CD 7-1) (Yes) (No)

2. In institutions where there are emergency medicine residency training programs, is supervision provided by an in-house attending emergency physician 24 hours per day? (CD 7–4) (Yes) (No)

3. Are the roles and responsibilities of the emergency medicine residents defined, agreed on, and approved by the director of the trauma service? (CD 7–5) (Yes) (No)

4. Are the emergency physicians on the call panel regularly involved in the care of injured patients? (CD 7–7) (Yes) (No)
   - *May be required to provide a copy of the call panel at the site review visit.*

5. Provide information about the emergency department liaison to the trauma program on ***Appendix #6***.

6. List all emergency physicians and mid-level providers (Physician Assistants, Nurse Practitioners, and Advance Practice Nurses) currently participating in the initial resuscitation and evaluation of trauma patients on ***Appendix #7***.

Have a copy of the ED trauma flow sheet and trauma protocols available on site at the time of the review. An example of a trauma flow sheet can be found at www.michigan.gov/traumasystem.

B. Neurosurgery

1. Does the facility have a plan approved by the trauma medical director that determines which types of neurosurgical injuries may remain and which should be transferred? (CD 8–7) (Yes) (No)

2. Are all neurotrauma cases, whether patients are admitted or transferred, monitored by the PI program for the timeliness and appropriateness of care? (CD 8–9) (Yes) (No)

3. Does the facility have transfer agreements with appropriate Level I and Level II trauma facilities for neurotrauma patients? (CD 8–8) (Yes) (No)

If the facility has neurosurgery providers, please complete questions 5-8. If not, skip to the next section.

4. Does your facility have a formal, published contingency plan in place for times in which a neurosurgeon is encumbered upon the arrival of a neurotrauma case? (CD 8–5) (Yes) (No)
   The contingency plan must include the following:
   a. A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the neurotrauma patient. (Yes) (No)
   b. Transfer agreements with a similar or higher-level verified trauma center. (Yes) (No)
   c. Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support. (Yes) (No)
   d. Monitoring of the efficacy of the process by the PI program. (Yes) (No)

5. If one neurosurgeon covers two centers within the same limited geographic area, does the facility have a published backup schedule? (CD 8-6) (Yes) (No)

6. Does the performance improvement process demonstrate that appropriate and timely care is provided by neurosurgery? (CD 8–6) (Yes) (No)

7. Provide information about the neurosurgery liaison to the trauma program on ***Appendix #8***.

8. Board certification or eligibility for certification by the current standard requirements or the alternate pathway is essential for neurosurgeons who take trauma call. (CD 8–10). Please complete the credentialing section for all neurosurgery providers on the trauma call panel on ***Appendix #9***.

C. Orthopedic Surgery

1. If the orthopedic surgeon is not dedicated to a single facility while on call, is there a published backup schedule? (CD 9-12) (Yes) (No)

2. Provide information about the orthopedic liaison to the trauma program on ***Appendix #10***. (CD 9-4)

3. Level III facilities vary significantly in the staff and resources that they can commit to musculoskeletal trauma care, but they must have an orthopedic surgeon on call promptly available 24 hours a day. List all orthopedic surgeons taking trauma call on ***Appendix #11*****.** (CD 9-11)
    - *May be required to provide call/backup schedule at the site review visit.*

V. COLLABORATIVE CLINICAL SERVICES

A. Radiology

1. Does the trauma facility have policies designed to ensure that trauma patients who may require resuscitation and monitoring are accompanied by appropriately trained providers during transportation to, and while in, the radiology department? (CD 11–28) (Yes) (No)

2. Is conventional radiography available 24 hours per day? (CD 11-29) (Yes) (No)

3. Is computed tomography (CT) available 24 hours per day? (CD 11-30) (Yes) (No)

4. Diagnostic information must be communicated in a written or electronic form in a timely manner. (CD 11-34) How is diagnostic information communicated to the trauma team?
    - Please Describe:

5. Critical information deemed to immediately affect patient care must be verbally communicated to the trauma team in a timely manner. How is critical information communicated to the trauma team? (CD 11-35)
    - Please Describe:

6. Do final reports accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretations? (CD 11-36) (Yes) (No)

B. Anesthesiology and CRNAs

1. Provide information about the anesthesia liaison to the trauma program on ***Appendix #12*.** (CD 11-3)

2. In Level III facilities, in-house anesthesia services are not required. Does the facility have anesthesiologists or CRNAs available within 30 minutes? (CD 11-7) (Yes) (No)

3. If the facility does not have in-house anesthesia services, are protocols in place to ensure the timely arrival at the bedside by the anesthesia provider within 30 minutes of notification and request? (CD 11–8) (Yes) (No)
    - If 'Yes', please describe:

    - Under these circumstances, the presence of a physician skilled in emergency airway management must be documented (CD 11–9).

C. Operating Room

1. Does the facility have an operating room that is adequately staffed and available within 30 minutes? (CD 11-17) (Yes) (No)
    - If 'No', what is the number of teams on call and what is the expected response time?

2. Level III trauma facilities should have the necessary operating room equipment for the patient populations they serve (CD 11-19). Check the OR equipment below the facility has:
    - ☐ Rapid fluid infusers
    - ☐ Intraoperative radiologic capabilities
    - ☐ Equipment for fracture fixation
    - ☐ Equipment for bronchoscopy and gastrointestinal endoscopy

3. Is the attending surgeon expected to be present in the operating room for all operations, and does your facility have a mechanism for documenting this presence? (CD 6–7) (Yes) (No)

4. Are operating rooms promptly available to allow for emergency operations on musculoskeletal injuries, such as open fracture debridement and stabilization, external fixator placement, and compartment decompression? (CD 9–2) (Yes) (No)

5. Level III trauma facilities that provide neurosurgical services must have the necessary equipment to perform a craniotomy***** (CD 11–20). If the facility provides neurosurgery, is there craniotomy equipment? (Yes) (No)
    ****Only Level III trauma facilities that do not offer neurosurgery services are not required to have craniotomy equipment.***

D. PACU

1. Does the PACU have qualified nurses available 24 hours per day (in-house or on-call) to provide care during the recovery phase for trauma patients if needed? (CD 11-24) (Yes) (No)

2. Does the PACU have the necessary equipment to monitor and resuscitate patients consistent with the process of care designated by the institution? (CD 11-26) (Yes) (No)

E. Intensive Care Unit (ICU)

1. In Level III trauma facilities, a surgeon who is currently board certified or eligible for certification by the current standard requirements, must serve as co-director or director of the ICU and be actively involved in, and responsible for, setting policies and administrative decisions related to trauma ICU patients. Who is the surgical director (and co-director) of the ICU? (CD 11-53 & CD 11-54)
   Name:
   Name:

2. Does the facility have physician coverage of the ICU available within 30 minutes, with a formal plan in place for emergency coverage? (CD 11-56) (Yes) (No)

3. Does the trauma surgeon retain responsibility for the trauma patient admitted to ICU, and coordinate all therapeutic decisions? (CD 11–58) (Yes) (No)

4. Many of the daily care requirements can be collaboratively managed by a dedicated ICU team. Is the trauma surgeon kept informed and in agreement with major therapeutic and management decisions made by the ICU team regarding admitted trauma patients? (CD 11–59) (Yes) (No)

5. Are qualified critical care nurses available 24 hours per day to provide care for patients during the ICU phase? (CD 11-65) (Yes) (No)

6. Is there a designated ICU liaison to the trauma service? (CD 11–61) (Yes) (No)

7. Does the patient-to-nurse ratio in the ICU exceed two to one? (CD 11–66) (Yes) (No)

8. Does the ICU have the necessary equipment to monitor and resuscitate patients? (CD 11–67) (Yes) (No)

9. If your facility admits neurotrauma, is there intracranial pressure monitoring equipment available? (CD 11–68) (Yes) (No)

F. Respiratory Services

1. Is a respiratory therapist on call 24 hours per day? (CD 11–76) (Yes) (No)

G. Clinical Laboratory and Blood Bank

1. Does your facility have a massive transfusion protocol developed collaboratively between the trauma service and the blood bank? (CD 11-84) (Yes) (No)
    - *If 'Yes', attach the protocol* (***Label as Attachment #5***)

2. Is the blood bank capable of blood typing and cross matching? (CD 11-81) (Yes) (No)

3. Are laboratory services available 24 hours per day for the standard analysis of blood, urine, and other body fluids, including micro-sampling when appropriate? (CD 11-80) (Yes) (No)

4. Does the facility have the ability to perform coagulation studies, blood gas analysis, and microbiology studies available 24 hours per day? (CD 11-85) (Yes) (No)

5. Does the facility's blood bank have an adequate supply of packed red blood cells and fresh frozen plasma available within 15 minutes? (CD 11-83) (Yes) (No)

H. Rehabilitation Service

1. Which of the following services does the hospital provide? (Circle all that apply)
    a. Physical therapy (CD 12-3)
    b. Social services (CD 12-4)

I. Pediatrics

1. Does the facility annually admit 100 or more injured children younger than 14 years of age? (CD 2-23) (Yes) (No)

    a. If yes, does the facility have a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PI program? (CD 2-24) (Yes) (No)

2. If the facility admits less than 100 injured children younger than 14 years per year, is the care of the injured children reviewed through the PI program? (CD 2-25) (Yes) (No)

3. Fill out the Tables 1 and 2 below. *Note only include pediatric totals for patients under 14 years of age.*

Table 1 – Pediatric Trauma Admissions

Service	Number of Admissions
Pediatric	
Orthopedic	
Neurosurgical	
Other Surgical	
Non-Surgical	
Total Pediatric Trauma Admissions	

Table 2 – Pediatric Injury Severity and Mortality

ISS	Total number of pediatric admissions	Number of deaths from Total pediatric trauma admissions	Percent mortality from total pediatric trauma admissions	Number admitted to pediatric service	Number Admitted to Non-Surgical
0-9					
10-15					
16-24					
>25					
Total					

J. Organ Procurement Activities

1. Does the facility have an established relationship with a recognized Organ Procurement Organization (OPO)? (CD 21–1) (Yes) (No)

2. Does the facility have a written policy in place for triggering notification of the regional OPO? (CD 21–2) (Yes) (No)

3. Does the facility have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death? (CD 21–3) (Yes) (No)

K. Disaster Plan

1. Does the facility participate in regional disaster management plans and exercises? (CD 2–22) (Yes) (No)

2. Does the facility meet the disaster-related requirements of the Joint Commission? (CD 20–1) (Yes) (No)

3. Is a surgeon from the trauma panel a member of the hospital's disaster committee? (CD 20–2) (Yes) (No)

4. Are hospital drills that test the facility's disaster plan conducted at least twice a year, including actual plan activations that can substitute for drills? (CD 20–3) (Yes) (No)

5. Does the facility have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent? (CD 20–4) (Yes) (No)

L. Trauma Equipment

Site reviewers will review available equipment during the site visit.

VI. TRAUMA REGISTRY

Ongoing, accurate data collection and analysis is crucial to trauma system development, performance improvement, and injury prevention. The American College of Surgeons requires trauma registries and analysis by every trauma center. Michigan requires data collection to be designated. For the purposes of this document trauma patients are defined by trauma registry inclusion criteria. For more information on inclusion criteria, see the NTDS Inclusion Criteria flow chart on ***Appendix #13***.

1. What trauma registry software does the hospital use? _____

2. Is trauma registry data collected and analyzed using the minimum data collection set (National Trauma Data Bank)(CD 15-1) (MI-CD 1-1) (Yes) (No)

3. Is the trauma registry data submitted to the State Registry? (MI-CD 1-2) (Yes) (No)

    - Date of most recent data submission (mm/dd/yyyy): _____

4. Is there a process in place to submit data quarterly? (MI-CD 1-3) (Yes) (No)

5. Does the trauma program ensure that trauma registry confidentiality measures are in place? (CD 15-8) (Yes) (No)
    - If 'Yes', please explain:

6. Trauma registries should be concurrent. At a minimum, does your registry have 80 percent of cases entered within 60 days of discharge? (CD 15–6) (Yes) (No)

7. Does the facility demonstrate that all trauma patients can be identified for review? (CD 15-1) (Yes) (No)

8. Has your trauma registrar attended or previously attended two courses within 12 months of being hired (CD 15–7):
    a. The American Trauma Society's Trauma Registrar Course or equivalent provided by a state trauma program (Yes) (No)
    b. The Association of the Advancement of Automotive Medicine's Injury Scaling Course (Yes) (No)

9. One full-time equivalent employee dedicated to the registry must be available to process the data capturing the NTDS data set for each 500–750 admitted patients annually (CD 15–9). Does the facility have a full time employee dedicated to the trauma registry? (Yes) (No)

10. The information provided by a trauma registry is only as valid as the data entered. Does the facility have strategies for monitoring data validity? (CD 15–10) (Yes) (No)

VII. PERFORMANCE IMPROVEMENT

A. Performance Improvement (PI) Program

All trauma facilities shall develop and have in place a performance improvement process. An effective performance improvement program demonstrates through clear documentation that identified opportunities for improvement lead to specific interventions that result in an alteration in conditions such that similar events are less likely to occur (CD 16-19). Sufficient mechanisms must be available to identify events for review by the PI program (CD 16-10).

1. Does the facility have a written PI plan* that addresses the criteria in questions 2-4 below?** (Yes) (No)

Plan needs to be available for reviewers.

****Use Appendix #14 to summarize your responses to questions 2, 3, and 4 below by submitting an example of process improvement, loop closure, and risk stratified benchmarking.***

2. The processes of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present. Please submit an example of the process the facility uses to identify PI problems, and how they are tracked, documented and discussed. (CD 2-17) ***See Appendix #14***

3. Problem resolution, outcome improvements, and assurance of safety ("loop closure") must be readily identifiable through methods of monitoring, reevaluation, benchmarking, and documentation. Please submit an example of how loop closure (resolution) is achieved and who is responsible for both system and peer review issues. (CD 16-2) ***See Appendix #14***

4. Describe the plan for using a risk stratified benchmarking system to measure performance and outcomes using registry data. (CD 15-5) ***See Appendix #14***

5. Are all process and outcome measures documented within the trauma PI program's written plan reviewed and updated at least annually? (CD 16–5) (Yes) (No)

6. Are the protocols that define pre-hospital trauma care established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies, and basic and advanced pre-hospital personnel? (CD 3-2) (Yes) (No)

7. Does the trauma program participate in the training of pre-hospital personnel, the development and improvement of pre-hospital care protocols, and performance improvement programs? (CD 3-1) (Yes) (No)

8. Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI process to determine their positive predictive value in identifying patients who require the resources of the full trauma team. Are all criteria for trauma team activation that have been determined by the trauma program evaluated on an ongoing basis in the PI process? (CD 5–16) (Yes) (No)

9. Are changes in radiology interpretation monitored through the PI program? (CD 11-37) (Yes) (No)

10. Does the PI program review all ICU admissions and transfers of ICU patients to ensure that appropriate patients are being selected to remain at the Level III facility vs. being transferred to a higher level of care? (CD 11-57) (Yes) (No)

11. Does the facility's PI program integrate with the hospital quality and patient safety effort and have a clearly defined reporting structure and method for provision of feedback? (CD 16-3) (Yes) (No)

12. Does the trauma program use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources? (CD 16-4) (Yes) (No)

13. For Level III trauma facilities, it is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. Is the maximum acceptable response time of 30 minutes for the highest level of activation, tracked from patient arrival? (CD 2-8) (Yes) (No)

14. Does the PI program demonstrate that the surgeon's presence at trauma activations is in compliance at least 80 percent of the time? (CD 2–8) (Yes) (No)

15. Is there emergency physician participation with the pre-hospital PI program? (CD 7-8) (Yes) (No)

16. Is a designated emergency physician liaison available to the trauma director for PI issues that occur in the emergency department? (CD 7–9) (Yes) (No)

17. Do emergency physicians participate actively in the overall trauma PI program and the multidisciplinary trauma peer review committee? (CD 7–10) (Yes) (No)

18. Does the orthopedic service participate actively with the overall trauma PI program and the multidisciplinary trauma peer review committee? (CD 9–15) (Yes) (No)

19. Is the availability of anesthesia services and the absence of delays in airway control or operations documented by the hospital performance improvement process? (CD 11–6) (Yes) (No)

20. If the PACU availability requirement is met with a team on call from outside the hospital, is the availability of the PACU nurses and compliance with this on call requirement documented by the PI program? (CD 11–25) (Yes) (No)

21. Does the PI program address the need for pulse oximetry, end-tidal carbon dioxide detection, arterial pressure monitoring, pulmonary artery catheterization, patient rewarming, and intracranial pressure monitoring in all trauma patients? (CD 11–27) (Yes) (No)

22. Is the trauma registry used to support the PI process? (CD 15–3) (Yes) (No)

23. Does peer review occur at regular intervals to ensure that the volume of cases is reviewed in a timely fashion? (CD 2–18) (Yes) (No)

B. Audit Filters

Fundamental to the performance improvement process is monitoring and measuring the outcome of specific processes or procedures. Another name for process and outcomes measures is audit filters. Audit filters require defined criteria and metrics. Appendix #15 has an Audit Filter Tool to help track and measure system and facility metrics.

1. Does the PI program identify, review, and document findings and corrective actions on the following audit filters? Check yes or no depending on whether the facility is tracking the audit filter. ***See Appendix #15 for Audit Filter Tool.***

   a) Trauma team activation times to trauma activation, including consultants. (CD 2-8, 5-14, 5-15) Y____N____

   b) General surgeon response times to trauma activation. (CD 5-15, 2-8, 5-16, 2-9) Y____N____

   c) If the CT technologist takes a call from outside the hospital, the technologist's arrival to the hospital is documented. (CD 11-47) Y____N____

   d) Anesthesiology services availability (within 30 minutes) after notification for **emergency operations**. (CD 11-1) Y____N____

   e) Anesthesiology services availability (within 30 minutes) after notification for **managing airway problems.** (CD 11-2) Y____N____

   f) Radiologists availability (within 30 minutes), in person or by teleradiology, when requested for the interpretation of radiographs. (CD 11-32) Y____N____

   g) Changes in interpretation between preliminary and final reports, as well as missed injuries are monitored. (CD 11-37) Y____N____

   h) Operating room adequately staffed and available within 30 minutes of a call. (CD 11-17) Y____N____

   i) If an on-call team is used, the availability of operating room personnel and the timeliness of starting operations are continuously evaluated and measures implemented to ensure optimal care (CD 11-18). Y____N____

   j) Over triage and under triage (CD 16-7, 3-3) Y____N____
      1. What are the over triage ____% and under triage ___% rates for the reporting year?

   k) Any issues regarding transfer decisions? (CD 4-3) Y____N____
      1. All trauma transfers (CD 4-3, 8-8, 8-9) Y____N____
      2. Transfer to a level of higher care within the hospital (CD 16-8) Y____N____

l) Trauma patients admitted or transferred by a primary care physician without the knowledge and consent of the trauma service are monitored. (CD 11-69) Y____N____

m) Appropriateness of the decision to transfer or retain major orthopedic trauma cases. (CD 9-13) Y____N____

n) All pediatric trauma admits, pediatric trauma activations. (CD 2-19, 2-25) Y____N____

o) Timely and appropriate ICU care and coverage is provided. (CD 11-60) Y____N____

p) Timely response of credentialed providers to the ICU. (CD 11-56, 11-60) Y____N____

q) If the trauma program admits more than 10% of injured patients to non-surgical services, all non-surgical admissions are reviewed. (CD 5-18) Y____N____

r) Occasionally, it is necessary for the physician to leave the emergency department for short periods to address in-house emergencies. Such cases and their frequency are reviewed to ensure this practice does not adversely affect the care of patients in the emergency department. (CD 7-3) Y____N____

s) Bypass and diversion events (CD 3-4, 3-5, 3-6, 3-7) Y____N____

t) Organ donation rate reviewed annually. (CD 16-9) Y____N____

u) A process to address trauma program operational events. (CD 16-12, 16-13). Y____N____

v) The multidisciplinary trauma peer review committee must systematically review mortalities, significant complications, and process variances associated with unanticipated outcomes and determine opportunities for improvement. (CD 16-17) Y____N____

2. All trauma-related mortalities must be systematically reviewed and those mortalities with opportunities for improvement identified for peer review. (CD 16-6, 16-17)

1. Total trauma-related mortality rates. Outcome measures for total, pediatric (younger than 15 years), and geriatric (older than 64 years) trauma encounters should be categorized as follows:
    a. DOA (pronounced dead on arrival with no additional resuscitation efforts initiated in the emergency department).
    b. DIED (died in the emergency department despite resuscitation efforts).
    c. In-hospital (including operating room).
    d. Mortality rates by Injury Severity Scale (ISS) subgroups using the mortality table on the next page.

Mortality Table

ISS	Number Admitted to Trauma Service	Number of Mortalities	Percentage Mortality	Number Admitted to Non-Trauma Service
0-9				
10-15				
16-24				
>/= 25				
Total				

C. Multidisciplinary Trauma Committee

1. Does the trauma facility's PI program have a multidisciplinary trauma peer review committee chaired by the TMD with representatives from general surgery, orthopedic surgery, emergency medicine, ICU**,** and anesthesia, and neurosurgery (should be optional)? (CD 6–8, CD 5-25) (Yes) (No)

2. Do the following trauma team members attend a minimum of 50% of the multidisciplinary trauma peer review committee meetings? Check Yes or No on the table below.

Trauma Team Member	Yes	No
Trauma Medical Director (CD 5-10)		
Each member of the group of general surgeons (CD 6-9)		
Emergency Medicine Representative or designee (CD 7-11)		
Orthopedic Liaison (CD 9-16)		
Anesthesiology Representative (CD 11-13)		
ICU Liaison (CD 11-62)		

3. Does the multidisciplinary trauma peer review committee meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured (CD 2–18) (Yes) (No)

4. Does the trauma medical director ensure and document dissemination of information and findings from the peer review meetings to the general surgeons? (CD 16-16) (Yes) (No)

5. Does mortality data, adverse events and problem trends, and selected cases involving multiple specialties undergo multidisciplinary trauma peer review? (CD 16–14) (Yes) (No)

6. When an opportunity for improvement is identified, are appropriate corrective actions to mitigate or prevent similar future adverse events developed, implemented, and clearly documented by the trauma PI program? (CD 16-18) (Yes) (No)
    a. Examples of corrective actions include the following:
        - Guideline, protocol, or pathway development or revision.
        - Targeted education (for example, rounds, conferences, or journal clubs)
        - Additional and/or enhanced resources
        - Counseling
        - Peer review presentation
        - External review or consultation
        - Ongoing professional practice evaluation
        - Change in provider privileges

VIII. EDUCATION ACTIVITIES/OUTREACH PROGRAMS

1. Is the trauma facility engaged in public and professional education? (CD 17-1) (Yes) (No)

2. Is there an injury prevention/public trauma education program based on local/regional trauma registry and epidemiologic data? (CD 18–1) (Yes) (No)

3. The facility must provide a mechanism for trauma-related education to nurses involved in trauma care (CD 17-4). Check the certifications below that are required for the nursing staff (may choose more than one):
    - ☐ Trauma Nursing Core Course (TNCC)
    - ☐ Advanced Trauma Care for Nurses (ATCN)
    - ☐ Emergency Nursing Pediatric Course (ENPC)
    - ☐ Trauma Care After Resuscitation (TCAR)
    - ☐ Certified Emergency Nurse (CEN)
    - ☐ Other _____

IX. PREVENTION

A. Alcohol Screening and Intervention for Trauma Patients

1. Is universal screening for alcohol performed on all admitted trauma patients documented? (CD 18-3) (Yes) (No)

2. What is the mechanism for providing brief intervention? (Check all that apply)
    - ☐ Positive screens are referred to trauma nurse/nurse practitioner/physician assistant/social worker
    - ☐ Hospital staff responsible for screening provides intervention for positive screens
    - ☐ Positive screens are referred to on-site consult service (psychiatry or psychology or substance abuse counselor)
    - ☐ Other (If other was selected, please describe)

B. Injury Prevention

1. Does the trauma facility have someone in a leadership position that has injury prevention as part of his or her job description? (CD 18-2) (Yes) (No)

2. Is the trauma registry used to identify injury prevention priorities that are appropriate for local implementation (CD 15-4)? (Yes) (No)

3. Please describe how the facility is participating in the Regional Trauma Network injury prevention work plan. See www.michigan.gov/traumasystem to access the work plan. (MI-CD 3-1) (CD 18-1)

X. TRAUMA PROGRAM STRENGTHS AND OPPORTUNITIES

1. Please provide a brief description (250 characters or less) of your trauma program strengths.

2. Please provide a brief description (250 characters or less) of your trauma program opportunities for improvements.

XI. SURVEY QUESTIONS

1. Does the facility have inpatient rehabilitation or a transfer agreement to an approved rehabilitation facility? (Yes) (No)

2. Does the facility have acute spinal cord management in-house or a transfer agreement with regional acute spinal cord injury rehabilitation center? (Yes) (No)

Appendix #1 – Sample of a Trauma Facility Commitment to Level III Trauma Care

WHEREAS, traumatic injury is the leading cause of death for Michigan residents between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Michigan Statewide Trauma System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the board of directors of [HOSPITAL] resolve to provide the resources necessary to achieve and sustain a level [III or IV] trauma hospital designation.

IN WITNESS THEREOF, I have hereunto subscribed my name this [DAY] day of [MONTH], [YEAR].

_____

Chairman of the Board

Appendix #2 - Medical Staff Resolution

WHEREAS, traumatic injury is the leading cause of death for Michigan residents between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Michigan Statewide Trauma System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the medical staff of [HOSPITAL] resolves to support the hospital's trauma program and to participate with initiatives in the furtherance of the standards published by the Michigan Statewide Trauma System for level [III or IV] trauma hospitals.

IN WITNESS THEREOF, I have hereunto subscribed my name this [DAY] day of [MONTH], [YEAR].

_____

Chief of Staff

Appendix #3 - Trauma Medical Director

1. Name:
2. Medical School:
3. Year Graduated:
4. Type of Residency:
5. Post Graduate Training Institution (Residency):
6. Year Completed:
7. Board Certified (or a general surgeon eligible for certification by the American Board of Surgery according to current requirements) or a general surgeon who is an American College of Surgeons Fellow with a special interest in trauma care? (Yes) (No)
    - Year:
    - Specialty:

8. List added qualifications/certifications giving the Specialty and date received:

9. Current in ATLS? (Yes) (No)
    - *Documentation will be required at site visit.*

Appendix #4 - Trauma Surgeons

Name	Board Certification S=American Board of Surgery OS=Osteopathic Surgery CC=Critical Care PS=Pediatric Surgery	Frequency of trauma calls per month (Days)	Number of trauma patients admitted per year	Number of Operative Cases per year	Number of trauma patients admitted per year ISS>15	ATLS taken at least once (Exp. Date)	ATLS Current (Check)	Alternate Pathway* (Check)

Appendix #4 - Trauma Surgeons (continued)

Name	Board Certification S=American Board of Surgery OS=Osteopathic Surgery CC=Critical Care PS=Pediatric Surgery	Frequency of trauma calls per month (Days)	Number of trauma patients admitted per year	Number of Operative Cases per year	Number of trauma patients admitted per year ISS>15	ATLS taken at least once (Exp. Date)	ATLS Current (Check)	Alternate Pathway* (Check)

* *General surgeons who have trained outside the United States or Canada may be eligible to participate in the trauma program through an alternate pathway procedure. For a current description of alternate pathway criteria for general surgery recognition see the Alternate Criteria Table on www.michigan.gov/traumasystem.*

Appendix #5 – Trauma Transfer Guidelines

Check the criteria below that the facility uses to prompt identification and consideration of transfer for patients who require a higher level of care and are reviewed in the trauma PI program.

Michigan Administrative Rules Criteria

1. Central nervous system:
    - ☐ Depressed skull fracture
    - ☐ Penetrating injury/open fracture, with or without cerebrospinal fluid leak
    - ☐ GSC < 14 or deterioration
    - ☐ Spinal cord injury or cerebral vascular injury
2. Chest:
    - ☐ Major chest wall injury or pulmonary contusion
    - ☐ Wide mediastinum or other signs suggesting great vessel injury
    - ☐ Cardiac injury
    - ☐ Patients who may require prolonged ventilation
    - ☐ Flail chest/multiple rib fractures
3. Pelvis/Abdomen:
    - ☐ Unstable pelvic ring disruption
    - ☐ Pelvic fracture with shock or other evidences of continuing hemorrhage
    - ☐ Open pelvic injury
    - ☐ Intra-abdominal visceral injury
    - ☐ Acetabular injury
4. Major Extremity Injuries:
    - ☐ Fracture/dislocation with loss of distal pulses
    - ☐ Open long-bone fractures
    - ☐ Extremity ischemia
    - ☐ Compartment syndrome
5. Multiple-system injury:
    - ☐ Head injury combined with face, chest, abdominal, or pelvic injury
    - ☐ Burns with any combination of multi-system, injury including inhalation injury
    - ☐ Multiple long-bone fractures
    - ☐ Injury to more than two body regions
6. Comorbid Factors for consideration:
    - ☐ Age > 55
    - ☐ Children < 5 years
    - ☐ Cardiac or respiratory disease
    - ☐ Insulin-dependent diabetes
    - ☐ Morbid obesity
    - ☐ Pregnancy
    - ☐ Immunosuppression
    - ☐ Liver or renal insufficiency

Appendix #5 - Trauma Transfer Guidelines (continued)

7. Secondary deterioration (late sequelae) as a result of trauma:
    - ☐ Prolonged mechanical ventilation > 48 hours
    - ☐ Sepsis
    - ☐ Single or multiple organ system failure (deterioration in central nervous, cardiac, pulmonary, hepatic, renal, or coagulation systems).
    - ☐ Major tissue necrosis/soft tissue injury

American College of Surgeons Criteria (CD 8-5)

- ☐ Burn care
- ☐ Microvascular surgery
- ☐ Cardiopulmonary bypass capability
- ☐ Complex ophthalmologic surgery
- ☐ High-complexity pelvic fractures

Appendix #6 - Emergency Medicine Liaison to Trauma Program

1. Name:
2. Medical School:
3. Year Graduated:
4. Post Graduate Training Institution (Residency):
5. Year Completed:
6. Board Certification (Specify Boards and Year Completed):
7. ATLS Certified? (Yes) (No)

Appendix #7 – Emergency Physicians and Mid-Level Providers

Please list all emergency physicians and mid-level providers** (Physician Assistants, Nurse Practitioners, and Advance Practice Nurses) currently participating in the initial resuscitation and evaluation of trauma patients. (CD 7-6, 7-14, 1-15)

****Mid-level providers should be identified as PA, NP, or APN, and include any locum tenens.**

Name	Credentials i.e. MD, DO, PA, NP, APN	Board Certified (Physician) (Check)	ATLS Current (Exp. Date)	ATLS Taken One (Date)	No ATLS Course Taken (Check)	Alternate Pathway* (Check)

Appendix #7 – Emergency Physicians and Mid-Level Providers (continued)

Name	Credentials i.e. MD, DO, PA, NP, APN	Board Certified (Physician) (Check)	ATLS Current (Exp. Date)	ATLS Taken Once (Date)	No ATLS Course Taken (Check)	Alternate Pathway* (Check)

* *Emergency physicians who have trained outside the United States or Canada may be eligible to participate in the trauma program through an alternate pathway procedure. For a current description of alternate pathway criteria for general surgery recognition see the Alternate Criteria Table on www.michigan.gov/traumasystem.*

Appendix #8 - Neurosurgeon Liaison to Trauma Program

1. Name:

2. Medical School:

3. Year Graduated:

4. Post graduate training institution (Residency):

5. Year Completed:

6. Fellowship:

7. Year Completed:

8. Is this neurosurgeon certified by the American Board of Neurological Surgery? (Yes/No)
   - If 'Yes', year of certification.

Appendix #9 – Neurosurgery

Name	Board Certification If "NOT" board certified within 5 years of completion of residency/fellowship the surgeon must apply for the "Alternate Pathway" through ACS	Frequency of trauma calls per month (Days)	Number of trauma patients admitted per year	Number of Trauma Craniotomies per year	Alternate Pathway*

* *Neurosurgeons who have trained outside the United States or Canada may be eligible to participate in the trauma program through an alternate pathway procedure. For a current description of alternate pathway criteria for general surgery recognition see the Alternate Criteria Table on www.michigan.gov/traumasystem.*

Appendix #10 - Orthopedic Liaison to Trauma Program

1. Name:
2. Medical School:
3. Year Graduated:
4. Post graduate training (Residency):
5. Year completed:
6. Type of Fellowship:
7. Year completed:
8. Is the Orthopedic liaison to the trauma program certified by the American Board of Orthopedic Surgery? (Yes/No)
    - If 'Yes', year of certification:

Appendix #11 – Orthopedic Surgery

Name	Board Certification If "NOT" board certified within 5 years of completion of residency/fellowship the surgeon must apply for the "Alternate Pathway" through ACS	Frequency of trauma calls per month (Days)	Number of trauma patients admitted per year	Alternate Pathway*

* *Orthopedic surgeons who have trained outside the United States or Canada may be eligible to participate in the trauma program through an alternate pathway procedure. For a current description of alternate pathway criteria for general surgery recognition see the Alternate Criteria Table on www.michigan.gov/traumasystem.*

Appendix #12 - Anesthesia Liaison to Trauma Program

1. Name:
2. Medical School:
3. Year graduated:
4. Post graduate training institution (residency):
5. Year:
6. Fellowship:
7. Year completed:
8. Is this anesthesiologist certified by the American Board of Anesthesiology? (Yes) (No)
    a. Year Certified:

PLACEHOLDER – Put in Appendix #13 NTDS Inclusion Criteria PDF doc when convert to PDF

Appendix #14 – Performance Improvement Plan

1. The process the facility uses to identify PI problems, and how they are tracked, documented and discussed.

2. An example of how loop closure (resolution) is achieved and who is responsible for both system and peer review issues

3. The plan for using a risk stratified benchmarking system to measure performance and outcomes using registry data. *See example in the "General Information & Instructions" at the back of this PRQ.*

Appendix #15 – Audit Filter Tool

On the audit filters below, please check yes or no to indicate whether the facility is tracking the filters or not. Refer to page 19 of this document for further details on audit filters.

(A) Trauma related deaths. The following data should be captured for each patient: list elapsed time, ED admission time, Mechanism of Injury (MOI), age, transport mode, Glasgow Coma Scale (GSC), Revised Trauma Score (RTS), Abbreviated Injury Scale (AIS), International Classification of Diseases-9 (ICD-10), Current Procedural Terminology codes (CPT), and Injury Severity Score (ISS) for all trauma deaths in house or in emergency department (CD 16-6).

Trauma Related Deaths			
Filter	**Yes**	**No**	**Not Available**
Total time from initial injury to time of death			
ED Admission Time			
Mechanism of Injury			
Patient Age			
Transport Mode			
Glasgow Coma Scale			
Revised Trauma Score (RTS)			
AIS			
ICD-9			
CPT			
Injury Severity Score (ISS)			

(B) Tracking general surgeon response times to trauma activation, Emergency provider response time to trauma activation, and trauma team activation times to trauma activation, including consultants (CD 5-15, CD 2-8, CD 11-60, CD 5-16).

Response Times Monitored for Trauma Activation			
Filter	**Yes**	**No**	**Not Applicable**
General Surgeon			
Emergency Department Physician			
Trauma Team Members			

(C) All pediatric trauma admits and pediatric trauma activations (CD 2-19).

Pediatric Trauma Patients			
Filter	**Yes**	**No**	**Not Available**
Pediatric trauma admits			
Pediatric trauma activations			

General Information and Instructions

I. HOSPITAL INFORMATION

1. For the purposes of this document hospitals seeking verification will be referred to as trauma facilities.

C. Hospital Commitment

Requested Documents:

Trauma Facility Commitment to Level III Trauma Care – The hospital's administrative structure must support the trauma program. Documentation of administrative commitment is required from the governing body and the medical staff (CD 5–1). This support must be reaffirmed continually (every 3 years) and must be current at the time of verification (CD 5–2). Administrative support of the trauma program helps provide adequate resources for the optimal care of injured patients. The participation of an administrator helps ensure that the written commitment to the trauma program is aligned with optimal multidisciplinary trauma care. See Appendix #1 for a sample.

Medical Staff Resolution – Medical staff commitment ensures that the members of the medical staff support the trauma program by their professional activities. This support includes a current written commitment acknowledging the medical staff's willingness to provide enough specialty care to support the optimal care of injured patients. The support must be reaffirmed continually (every 3 years) and must be current at the time of verification (CD 5–3). See Appendix #2 for a sample.

Surgical Commitment – Although surgical commitment is often difficult to measure objectively, it is recognized in a number of ways, including having a surgeon who is the full-time director of the trauma program, surgeons who take an active role in all aspects of caring for injured patients, surgical participation in the trauma PIPS program, and surgeons who take an advocacy role for injured patients. Surgical leadership in promoting the trauma program to the community, hospital, and other colleagues also is easily recognized. This commitment is a valuable resource that is integral to a successful trauma program (CD 2-2).

D. Michigan Criteria/ACS Criteria/Critical Deficiencies

Certain criteria are fundamental to establishing and maintaining a trauma facility. These criteria have been identified as critical in nature and the failure of the healthcare facility to meet these criteria is considered a "critical deficiency" (CD). If a Type I deficiency or more than three Type II deficiencies are present at the time of the initial in-state verification visit a facility will not be recommended for designation as a Michigan trauma facility. There are two categories of critical deficiencies that must be met; one category is the **Michigan Criteria** which is derived from the Statewide Trauma System Administrative Rules 325.125-325.138 filed with the Secretary of State on October 2009. The second category of criteria outlined in the PRQ is based on the **American College of Surgeons Committee on Trauma (ACS)** Resources for Optimal Care of the Injured Patient 2014.

1. **Michigan Criteria:**
   Michigan criterion are noted throughout the document and preceded by a reference number Ex: MI-CD 1, MI-CD 2, MI-CD 1-2 etc. Not meeting these requirements is considered a Type I critical deficiency. References for these critical deficiencies can be found www.michigan.gov/traumasystem.

2. **ACS Criteria:**
   American College of Surgeons criteria are noted throughout the document and are preceded by a reference number CD 5-13 etc. Not meeting these requirements is considered a Type I or Type II critical deficiency. References for these critical deficiencies can be found at https://www.facs.org/quality-programs/trauma/vrc/resources.

II. PRE-HOSPITAL SYSTEM

A Medical Control Authority (MCA) in Michigan is a hospital or group of hospitals that operate a service that treats patients 24 hours a day 7 days a week. The Medical Control Authority may include a group of hospitals in a county or region operating under one agency staffed by personnel from out the hospital setting. Hospitals in the MCA may agree to confer their oversight responsibilities to an executive director. There are currently 62 MCA's in Michigan.

1B. For the purposes of this document EMS Education refers to any interaction between the trauma facility staff and the EMS providers for the purposes of improving trauma care in the injured patient. This may include case reviews, trauma courses such as Pre-Hospital Trauma Life Support (PHTLS), offering EMS continuing education, joint exercises and drills.

III. TRAUMA PROGRAM

A. Trauma Staff

At a minimum, all trauma facilities should have a Trauma Program Manager/Coordinator (TPM/C) and a Trauma Medical Director (TMD).

- The TPM is most commonly is a nurse, with trauma/emergency care experience.
- The TMD is a physician on staff who has a role in leadership for the trauma program and acts as a liaison for trauma care.
- Injury prevention staff can be a nurse or other personnel involved in injury prevention activities.
- Other staff includes a Trauma Registrar, research personnel or administrative assistants.

G. Trauma Transfer

4. Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of hospitals and medical transport agencies (CD 2-13). Transfer agreements to facilities with higher levels of care, capacity, and burn facilities are crucial. A burn facility is typically a hospital which specializes in the treatment of severe burn injuries. The highest level being hospital designated as burn centers by the American Burn Association and the American College of Surgeons.

For additional resources, see the ACS book, "Resources for Optimal Care of the Injured Patient 2014", Chapter 4.

I. Trauma Diversion

Hospital Trauma Diversion: A trauma facility may re-route a trauma patient to an alternate trauma care facility if one or more of its essential trauma resources are currently functioning at maximum capacity, or is otherwise unavailable, in order to serve the best interest of the trauma patient.

Trauma Bypass: Pursuant to the trauma triage guidelines in this protocol, the EMS provider may bypass the nearest trauma care facility in order to transport the trauma patient to a trauma care facility whose resources are more appropriate to the patient's injury.

IV. HOSPITAL RESOURCES

A. Emergency Department

Education requirements for trauma care providers:

- Mid-level providers who are involved in the initial evaluation or resuscitation of a trauma patient must be current in Advanced Trauma Life Support (ATLS). If the trauma patient is a hand off, after initial evaluation, to an admitting service who utilizes mid-levels, then these mid-level providers are not required to be current in ATLS.
- The Trauma Medical Director must be current in ATLS.
- General surgeons treating trauma patients must have taken ATLS once.
- Emergency Medicine physicians who are board certified in emergency medicine must have taken ATLS once.
- Physicians who work in the emergency department and are board certified in something other than emergency medicine, for example family practice, internal medicine, etc. al, must be current in ATLS.

General surgeons who have trained outside the United States or Canada may be eligible to participate in the trauma program through an alternate pathway procedure. For a current description of alternate pathway criteria for general surgery recognition see the Alternate Criteria Table on www.michigan.gov/traumasystem.

B. Neurosurgery

Be prepared to discuss back up call schedules and decisions to admit vs. transfer.

C. Orthopedic Surgery

Be prepared to discuss back up call schedule, required OR equipment and decision to admit vs. transfer.

V. COLLABORATIVE CLINICAL SERVICES

A. Radiology

Facilities often need to transfer patients to higher levels of definitive care. It is recommended that imaging protocols be acceptable to both sending and receiving facilities to reduce and prevent the unnecessary repetition of radiographic studies. Level I and Level II facilities must be able to read images from referring centers.

C. Operating Room

All required resources will be reviewed during the site visit. Staff availability and response times (if not in house) are required to be documented and reviewed through your performance improvement process. This includes loop closure for any delays.

G. Laboratory

All required resources will be reviewed during the site visit. (DO NOT include equipment list with this document).

VI. PERFORMANCE IMPROVEMENT

Performance improvement process focuses on structure, process and outcomes evaluations. Improvement efforts identify root causes of problems, intervene to eliminate these causes and take steps to correct the process. This process must be implemented for facility and regional performance improvement.

A strong PI program must address the following:

- Process improvement contains a detailed audit of all trauma related deaths, major complications and transfers
- A multi-disciplinary trauma peer review committee that includes all members of the trauma team
- Participation in the trauma system data management system
- The ability to follow up on corrective actions to ensure performance improvement activities
- The hospital participates in the regional performance improvement activities
- Practice Guidelines, protocols, algorithms, derived from evidenced validated resources are used to stratify benchmarking and measure performance improvement

4. Some examples that might be used to show how the trauma registry data is used to measure performance and outcomes by a risk stratified benchmarking system:
    1. Under triage and Over triage:
        a. Potential over triage and under triage cases should be identified and reviewed monthly.
        b. Using the Cribari Method to measure under and over triage rates.
        c. Using the Matrix Method provided by the ACS in the Optimal Care of the Injured Patient 2014, Chapter 3 – Page 6-7 and Chapter 16 - Page 7. Tolerating an over triage rate of up to 25-35% and keep under triage <5%.

2. Inter-facility transfer times:
    a. Transferred trauma patients with an ISS greater than 15 and transfer time (ED admit to definitive hospital admit) greater than 6 hours for rural place of injury. Tolerating 0%.
3. Trauma patients who die with a probability of survival (TRISS) >50%. TRISS score for trauma patients using physiologic measures collected at the Level III hospital.
    a. TRISS score obtained by entered data into the trauma registry for calculation or using online TRISS calculator.
    b. Obtain baseline percentage and work toward reducing.
4. Trauma patients with an ISS greater than 15 who are discharged from non-trauma centers.
    a. Establish acceptable range.

For additional resources, see the ACS book, "Resources for Optimal Care of the Injured Patient 2014", Chapters 15 and 16.

X. TRAUMA PROGRAM STRENGTHS AND WEAKNESSES

Use this section to honestly assess the strengths and opportunities the trauma program has addressed over the past year and what the expectations for the future are. Consider developing two to three measurable objectives to track and report on.

XI. SURVEY QUESTIONS

These questions are for informational purposes only and will not affect the designation determination.

PRQ Level III Checklist

Before submitting the PRQ, ensure the following has been completed:

- ☐ All questions on the PRQ are complete
- ☐ Appendix #3 - Complete with Trauma Medical Director information
- ☐ Appendix #4 – Trauma Surgeon table complete
- ☐ Appendix #5 – Criteria for transfer guidelines checked.
- ☐ Appendix #6 – Complete with Emergency Medicine Liaison information
- ☐ Appendix #7 – Emergency Physician and Mid-Level Provider table complete
- ☐ Appendix #8 – Complete with Neurosurgeon Liaison information (if applicable)
- ☐ Appendix #9 – Neurosurgery table complete (if applicable)
- ☐ Appendix #10 – Complete with Orthopedic Liaison information
- ☐ Appendix #11 – Orthopedic Surgeon table complete
- ☐ Appendix #12 – Complete with Anesthesia Liaison information
- ☐ Appendix #14 – Examples to PI questions
- ☐ Appendix #15 – Audit filters complete
- ☐ The following attachments are included:
  - ☐ Trauma Facility Commitment to Level III Trauma Care – Signed by Chair of the Board, labeled as Attachment #1
  - ☐ Medical Staff Resolution – Signed by Chief of Staff, labeled as Attachment #2
  - ☐ Position descriptions for Trauma Program Manager and Trauma Medical Director, labeled as Attachment #3
  - ☐ Hospital's activation policy, labeled as Attachment #4
  - ☐ If applicable, the hospital's massive transfusion protocol, labeled as Attachment #5

Level IV Criteria Quick Reference Guide

Hospital Commitment

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 5-1	Documentation of administrative commitment is required from the governing body and the medical staff.	I

Trauma Systems

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 1-3	Meaningful involvement in state and regional trauma system planning development, and operation is essential for all designated trauma centers and participating acute care facilities within a region.	II
IV	ACS, CD 1-1	The individual trauma facilities and their health care providers are essential system resources that must be active and engaged participants.	II
IV	ACS, CD 1-2	They must function in a way that pushes trauma facility-based standardization, integration, and PI out to the region while engaging in inclusive trauma system planning and development.	II
IV	ACS, CD 11-87	The trauma program must also demonstrate appropriate orientation, credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director.	II
IV	ACS, CD 16-10	Sufficient mechanisms must be available to identify events for review by the trauma PI program. Issues that must be reviewed will revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life-threatening injuries (ATLS); and (3) transfer decisions.	II
IV	ACS, CD 16-11	Once an event is identified, the trauma PI program must be able to verify and validate that event.	II
IV	ACS, CD 1-1	The best possible care for patients must be achieved with a cooperative and inclusive program that clearly defines the role of each facility within the system.	II
IV	ACS, CD 15-1	The foundation for evaluation of a trauma system is the establishment and maintenance of a trauma registry. Trauma registry data must be collected and analyzed by every trauma center. Must be able to identify that all trauma patients can be identified for review.	II

The Role of a Trauma Facility in a Trauma System

Level	Criteria/Source	Description of Criteria	Type
IV	ACS, CD 2-1	This trauma center must have an integrated, concurrent performance improvement (PI) program to ensure optimal care and continuous improvement in care.	I
IV	ACS, CD 2-3	The trauma facility must be able to provide the necessary human and physical resources (physical plant, and equipment) to properly administer acute care consistent with their level of verification.	II
IV	ACS, CD 2-18	Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured.	II
IV	ACS, CD 2-19	A PI program must have audit filters to review and improve pediatric and adult patient care.	II
IV	ACS, CD 2-20	Because of the greater need for collaboration with receiving trauma facilities, the level IV facility must also actively participate in regional and statewide trauma system meetings and committees that provide oversight.	II

Pre-Hospital Care

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 3-2	The protocols that guide pre-hospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies and basic and advanced pre-hospital personnel.	II
IV	ACS, CD 2-21	The level IV facility must also be the local trauma authority and assume the responsibility for providing training for pre-hospital and hospital based providers.	II
IV	ACS, CD 3-7	When a trauma facility is required to go on bypass or to divert, the facility must have a system to notify dispatch and EMS agencies. The facility must do the following: 1. Prearrange alternative destinations with transfer agreements in place. 2. Notify other facilities of divert or advisory status. 3. Maintain a divert log. 4. Subject all diverts and advisories to performance improvement procedures	II

Level IV Criteria Quick Reference Guide

Inter-Hospital Transfers

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 2-13	Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies. Collaborative treatment and transfer guidelines reflecting the facilities' capabilities must be developed and regularly reviewed, with input from higher-level trauma centers in the region**.** Well defined transfer plans are essential.	II
IV	ACS, CD 4-1	Direct physician to physician contact is essential. Direct contact of the physician or midlevel provider with a physician at the receiving hospital is essential.	II
IV	ACS, CD 4-3	All transfers must be evaluated as part of the receiving trauma facility's performance improvement (PI) process and feedback should be provided to the transferring facility.	II

Trauma Program Manager (TPM)/Coordinator

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 2-17	TPM is knowledgeable and involved in trauma care, working with TMD with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking.	II

Trauma Medical Director (TMD)

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 2-17	The TMD and the TPM knowledgeable and involved in trauma care must work together with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking.	II
IV	ACS, CD 5-1	The trauma medical director and the trauma program manager must have the authority and be empowered by the hospital governing body to lead the program.	II
IV	ACS, CD 11-87	The trauma program must also demonstrate appropriate orientation, and credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director.	II

General Surgery

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 2-8	The maximum acceptable response time is 30 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time. **Note: This CD refers to trauma facilities that have trauma surgeons on their trauma team 24/7.**	I
IV	ACS, CD 17-5	The successful completion of the ATLS® course, at least once, is required in all levels of trauma facilities for all general surgeons, on the trauma team.	II

Emergency Medicine

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 2-14	Must have 24 hour physician coverage by a physician or midlevel provider.	II
IV	ACS, CD 2-15	Emergency department must be continuously available for resuscitation with coverage by a registered nurse and physician or midlevel provider, and it must have a physician director.	II
IV	ACS, CD 2-16	The emergency department providers must maintain current ATLS certification as part of their competencies if the provider is not Board Certified in Emergency Medicine.	II
IV	ACS, CD 17-5	If the emergency department provider is Board Certified in emergency medicine then the provider must take ATLS at least once.	II
IV	ACS, CD 11-86	Advanced practitioners who participate in the initial evaluation of the trauma patients must demonstrate current verification in ATLS.	II
IV	ACS, CD 2-8	It is expected that the physician or midlevel provider will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PI program must demonstrate that the physician's presence is in compliance at least 80 percent of the time.	I

Level IV Criteria Quick Reference Guide

Radiology

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 11-29	Conventional radiography must be available in all trauma facilities 24/7.	I

Lab and Blood Bank

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 11-80 ACS, CD 11-81	24-hour availability of a laboratory capable of: ・Standard analysis of blood, urine and other body fluids, including micro sampling ・Blood typing and cross matching	I
IV	ACS, CD 11-84	Must have a massive transfusion protocol developed collaboratively between the trauma service/program and the blood bank.	I

Burn Patients

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 14-1	Trauma facilities that refer burn patients to a burn center must have a written transfer agreement with the referral burn center.	II

Trauma Team Activation

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 5-13	The criteria for a graded activation must be clearly defined by the trauma facility, with the highest level of activation including the six required criteria listed in Chapter 5; Table 2 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014." Trauma facilities shall have a trauma team activation protocol/policy to include: • Lists of all team members • Response requirements for all team members when a trauma patient is enroute or has arrived • The criteria for a graded activation must be clearly defined by the trauma center, with the highest level of activation including the six identified, required criteria (Table 2) • The person(s) authorized to activate the trauma team. • Protocols that guide pre-hospital trauma care	II
IV	ACS, CD 3-2	Trauma health care team, including surgeons, emergency physicians, and medical directors for EMS agencies develop trauma activation protocols. EMS agencies and hospital personnel must then be educated on these protocols.	II
IV	ACS, CD 5-16	Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI process to determine their positive predictive value in identifying patients who require the resources of the full trauma team.	II
IV	ACS, CD 5-15	The trauma team must be fully assembled within 30 minutes. All trauma team activations must be categorized by the level of response and quantified by number and percentage, as shown in Chapter 5; Table 2 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014".	II

Level IV Criteria Quick Reference Guide

Trauma Registry

Level	Criteria and Source	Description of Criteria	Type
IV	MI, CD 1-1	All healthcare facilities with an emergency center shall participate in data submission. Submit data on patients who meet trauma inclusion criteria as defined in the most current version of the American College of Surgeons National Trauma Data Bank, "National Trauma Data Standard: Data Dictionary."	I
IV	MI, CD 1-2	All data which meets inclusion criteria, as defined in the most current version of "National Trauma Data Standard: Data Dictionary", is submitted electronically into the State Trauma Registry (ImageTrend). Twelve months of data must be submitted into the State Trauma Registry prior to applying for designation as a Michigan trauma facility for the first time.	I
IV	MI, CD 1-3	To maintain designation as a Michigan Trauma facility, data is to be submitted electronically into the State Trauma Registry quarterly by the following dates: January 15, April 15, July 15, October 15	I
IV	MI, CD 1-4	Each healthcare facility is required to designate a person responsible for trauma registry activities. This person should have minimal training necessary to maintain the registry. This need not be a dedicated position.	I
IV	ACS, CD 15-1	The trauma facility must demonstrate that all trauma patients can be identified for review. Registry data must be collected and analyzed.	II
IV	ACS, CD 15-3	The trauma registry is essential to the performance improvement and patient safety (PI) program and must be used to support the PI process.	II
IV	ACS, CD 15-5	All trauma facilities must use a risk stratified benchmarking system to measure performance and outcomes.	II
IV	ACS, CD 15-6	Trauma registries should be concurrent. At a minimum, 80 percent of cases must be entered within 60 days of discharge.	II
IV	ACS, CD 15-8	The trauma program must ensure that appropriate measures are in place to meet the confidentiality requirements of the data.	II
IV	ACS, CD 15-10	Strategies for monitoring data validity are essential.	II
IV	ACS, CD 16-4	To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources.	II
IV	ACS, CD 16-5	All process and outcome measures must be documented within the trauma PI program's written plan and reviewed and updated at least annually.	II

Disaster Plan

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 20-4	All hospitals must have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent	II
IV	ACS, CD 20-1	Trauma facilities must meet the disaster-related requirements of the Joint Commission.	II
IV	ACS, CD 20-3	Hospital drills that test the individual hospital's disaster plan must be conducted at least twice a year, including actual plan activations that can substitute for drills.	II
IV	ACS, CD 2-22	The facility must participate in regional disaster management plans and exercises.	II

Level IV Criteria Quick Reference Guide

Performance Improvement and Patient Safety

Level	Criteria and Source	Description of Criteria	Type
IV	MI, CD 2-3	Have a written performance improvement plan, which addresses the following: 1. Have a process of event identification and levels of review which result in the development of corrective action plans, and methods of monitoring, re-evaluation, risk stratified benchmarking must be present and this process must be reviewed and updated annually 2. Problem resolution, outcome improvements and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, re-evaluation, benchmarking and documentation 3. All criteria for trauma team activation have been determined by the trauma program and evaluated on an ongoing basis in the PI process. 4. The PI program identifies and reviews documents, findings, and corrective action on the following five (5) audit filters: • Any system and process issue • Trauma deaths in house or in emergency department • Any clinical care issues, including identifying and treatment of immediate life threatening injuries • Any issues regarding transfer decision • Trauma team activation times to trauma activation In addition, have a policy in place to review issues that revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care including identification and treatment of immediate life threatening injuries (ATLS); and (3) transfer decisions.	I
IV	MI, CD 2-1	Demonstrate participation in the regional trauma network performance improvement as described in the Regional Trauma Network work plan. Minimally, this includes demonstrating that the healthcare facility is participating in regional data collection, analysis and sharing. A brief description of planned or ongoing participation in the Regional Trauma Network performance improvement initiatives must be submitted with the designation application.	I
IV	ACS, CD 15-1	The PI program must be supported by a reliable method of data collection that consistently obtains the information necessary to identify opportunities for improvement.	II
IV	ACS, CD 11-60	The timely response of credentialed providers to the ICU must be continuously monitored as part of the PI program.	II
IV	ACS, CD 2-8	Trauma surgeon response to the emergency department. Trauma surgeon on-call response for the highest level of activation must be continuously monitored and variances documented and reviewed for reason for delay, opportunities for improvement and corrective actions. The minimum threshold is within 30 minutes. Response times will be tracked from patient arrival. An 80 percent attendance threshold must be met for the highest level activations.	I
IV	ACS, CD 2-17	The process of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present.	II
IV	ACS, CD 5-16	Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI program process to determine their positive predictive value in identifying patients who require the resources of the full trauma team.	II

Performance Improvement and Patient Safety

Level	Criteria and Source	Description of Criteria	Type

Level IV Criteria Quick Reference Guide

IV	ACS, CD 5-15	In Level III and IV trauma facilities, the team must be fully assembled within 30 minutes.	II
IV	ACS, CD 5-13	Trauma team activation criteria. Criteria for all levels of TTA must be defined and reviewed annually. Minimal acceptable criteria for the highest level of activation include the following (additional institutional criteria may also be included): 1. Confirmed systolic blood pressure less than 90 mmHG at any time in adults and age-specific hypotension in children. 2. Gunshot wounds to the neck, chest, or abdomen. 3. Glasgow Coma Scale Score less than 8, with mechanism attributed to trauma. 4. Transfer patients receiving blood to maintain vital signs. 5. Intubated patients transferred from the scene or patients with respiratory compromise or obstruction, including intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients who are intubated at another facility and are now stable from a respiratory standpoint) 6. Emergency physician's discretion	II
IV	ACS, CD 21-3	It is essential that each trauma facility have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death.	II
IV	ACS, CD 16-8	Transfers to a higher level of care within the institution. These transfers must be routinely monitored, and cases identified must be reviewed to determine the rationale or transfer, adverse outcomes, and opportunities for improvement.	II
IV	ACS, CD 16-11	Once an event is identified, the PI program must be able to verify and validate that event.	II
IV	ACS, CD 2-18	Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured.	II
IV	ACS, CD 2-8	It is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 15 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time.	I
IV	ACS, CD 15-3	The trauma PI program must be supported by a registry and a reliable method of concurrent data collection that consistently obtains information necessary to identify opportunities for improvement.	II
IV	ACS, CD 15-4	Furthermore, these findings must be used to identify injury prevention priorities that are appropriate for local implementation.	II

Outreach and Education

Level	Criteria and Source	Description of Criteria	Type
IV	ACS, CD 17-1	The trauma facility must engage in public and professional education.	II
IV	ACS, CD 18-2	There must be someone in a leadership position that has injury prevention as part of his or her job description.	II
IV	ACS, CD 18-1	Must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data.	II
IV	ACS, CD 3-1	The trauma program must participate in the training of pre-hospital personnel, the development and improvement of pre-hospital care protocols, and PI programs.	II
IV	MI, CD 3-1	Participate in coordinating and implementing Regional Trauma Network injury prevention work plans and initiatives.	I
IV	ACS, CD 18-3	Universal screening for alcohol use must be performed for all injured patients and must be documented. Brief intervention of alcohol and use is required.	II

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Hospital Commitment	Documentation of administrative commitment is required from the governing body and the medical staff. **CD 5-1** Because the trauma PI program crosses many specialty lines, it must be empowered to address events that involve multiple disciplines and be endorsed by the hospital governing body as part of its commitment to optimal care of the injured patients. There must be adequate administrative support to ensure evaluation of all aspects of trauma care. **CD 5-1** This support must be reaffirmed continually (every 3 years) and must be current at the time of verification. **CD 5–2, CD 5-3**	Two resolutions are required. One from the hospital board and one from medical executive board. **CD 5-1** The governing board provides a written letter of resolution, indicating the facility's commitment to the hospital's trauma program and desire to provide the resources necessary to become and sustain a level IV trauma hospital designation. **CD 5-1** The medical staff board provides a written letter of resolution, indicating the medical staffs' commitment to the hospital's trauma program and desire to participate as necessary to become and sustain a level IV trauma hospital designation. Contact your facility's risk manager, or administrative office for a "resolution" form. A sample of a resolution is on Appendix #2 in the PRQ.			
Trauma System	Meaningful involvement in state and regional trauma system planning development, and operation is essential for all designated trauma facilities and participating acute care facilities within a region. **CD 1-3** The individual trauma facilities and their health care providers are essential system resources that must be active and engaged participants. **CD 1-1** They must function in a way that pushes trauma facility-based standardization, integration, and PI program out to the region while engaging in inclusive trauma system planning and development. **CD 1-2**	**CD 1-3** The trauma facility staff must demonstrate participation in regional and/or state trauma organizations. Examples are state advisory committees, MCOT, state registry committees, state EMS committees. Examples of regional committees would be injury prevention, trauma advisory, and EMS committees. **CD 1-1, CD 1-2** The trauma facility must demonstrate engagement in communication with other facilities within their region and outside of their region. This can be achieved through feedback letters to sending hospitals on patient transfers, feedback to EMS agencies on patient transports, engaging in conversations with receiving hospitals on patient outcomes, being a resource for other healthcare providers in your region, and providing educational events to all stakeholders in your region.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma System (continued)	The trauma program must also demonstrate appropriate orientation, credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director. **CD 11-87** Sufficient mechanisms must be available to identify events for review by the trauma PI program. Issues that must be reviewed will revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life-threatening injuries (ATLS); and (3) transfer decisions. **CD 16-10** Once an event is identified, the trauma PI program must be able to verify and validate that event. **CD 16-11** The best possible care for patients must be achieved with a cooperative and inclusive program that clearly defines the role of each facility within the system. **CD 1-1** The foundation for evaluation of a trauma system is the establishment and maintenance of a trauma registry. Trauma registry data must be collected and analyzed by every trauma facility. The trauma center must demonstrate that all trauma patients can be identified for review. **CD 15-1**	**CD 11-87** Have a written orientation program available, which should include skill maintenance documentation as well. The credentialing process should follow the hospital's credentialing process already in place. Annual review should be documented for each provider. **CD 16-10** Develop a process that will identify events to be reviewed through PI. All patients that meet these three criteria should be reviewed every month with PI program. Comprehensive audit filters (all of ACS and State of Michigan audit filters) should capture any patient's that fall into these three categories. **CD 1-1** The hospital and trauma service should have a clear understanding of what patients are admitted and what patients are transferred out. In addition, the hospital should have clear transfer plans with other hospitals in their region. **CD 15-1** Must have a designated data collection person and state registry system. Data is entered on all trauma patients that meet criteria. Quarterly data submission is required. This data will support the PI program and injury prevention program.			
The Role of a Trauma Facility in a Trauma System	This trauma facility must have an integrated, concurrent performance improvement (PI) program to ensure optimal care and continuous improvement in care. **CD 2-1** The trauma facility must be able to provide the necessary human and physical resources (physical plant, and equipment) to properly administer acute care consistent with their level of verification. **CD 2-3**	**CD 2-1, CD 2-3** Hospital must have the capabilities to treat trauma patients through equipment, human and physical resources and well defined transfer plans. This is demonstrated through the documentation of the care of the patient, policies, and protocols, as well as through a strong PI program.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
The Role of a Trauma Facility in a Trauma System (continued)	Multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured. **CD 2-18** A PI program must have audit filters to review and improve pediatric and adult patient care. **CD 2-19** Because of the greater need for collaboration with receiving trauma facilities, the Level IV trauma facility must also actively participate in regional and statewide trauma system meetings and committees that provide oversight. **CD 2-20**	**CD 2-18, CD 2-19** Trauma service must set regular multidisciplinary peer review meetings, with a set agenda, in order to review resuscitations, trauma systems issues, provider issues, and recommendations for improvement. All audit filters are reviewed and evaluated at this meeting. Facility must have documentation of their involvement in any statewide trauma meetings, as well as regional trauma meetings. Maintain a log of meetings, dates, attendees from your facility, etc.			
Pre-hospital Trauma Care	The protocols that guide pre-hospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies and basic and advanced pre-hospital personnel. **CD 3-2** The level IV facility must also be the local trauma authority and assume the responsibility for providing training for pre-hospital and hospital based providers. **CD 2-21** When a trauma facility is required to go on bypass or divert, the facility must have a system to notify dispatch and EMS agencies. The facility must do the following: • Prearrange alternative destinations with transfer agreements in place • Notify other facilities of divert or advisory status • Maintain a divert log • Subject all diverts and advisories to performance improvement procedures **CD 3-7**	**CD 3-2** The protocols that guide pre-hospital care for trauma patients must be collaboratively developed by all stakeholders. **CD 2-21** Must provide the education to pre-hospital providers on the Level IV center's activation systems, trauma systems, etc… Maintain documentation of all education provided to pre-hospital providers, such as speaking at the UP EMS conference. Loop closure, such as memos, to pre-hospital providers for educational purposes should be well documented in meeting minutes. **CD 3-7** Documentation must show all of the required information in CD 3-7. The PI program must discuss, and show in the minutes, every occurrence of the hospital going on diversion, along with any and all affected trauma patients.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Inter-hospital Transfers	Transfer guidelines and plans between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies. Collaborative treatment and transfer guidelines reflecting the facilities' capabilities must be developed and regularly reviewed, with input from higher-level trauma facilities in the region**.** Well defined transfer plans are essential. **CD 2-13** Direct physician to physician contact is essential. Direct contact of the physician or midlevel provider with a physician at the receiving hospital is essential. **CD 4-1** All transfers must be evaluated as part of the receiving trauma facility's performance improvement and patient safety (PI) process and feedback should be provided to the transferring facility. **CD 4-3**	**CD 2-13** Establish a transfer protocol that is approved by the trauma medical director and monitored by PI program which includes: • Anatomical and physiological characteristics identifying a patient in need of transfer • List of transfer services w/ contact information • List of supplies/equipment that will accompany patient • List of records/documentation that will accompany patient • Personnel needed to accompany patient **CD 4-1** Transfer protocols must be developed that required physician to physician communication. **CD 4-3** All transfers are to be reviewed through PI program. Develop a process to provide feedback to transferring facilities. Develop a process to disseminate feedback from receiving facilities to staff, physicians, EMS, etc.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Program Coordinator/Manager (TPM)	TPM is knowledgeable and involved in trauma care, working with TMD with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking. **CD 2-17**	**CD 2-17** 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. The TPM does not have to be dedicated full time to the trauma program.			
Trauma Program Medical Director (TMD)	The TMD and the TPM knowledgeable and involved in trauma care must work together with guidance from trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking. **CD 2-17** The trauma medical director and the trauma program manager must have the authority and be empowered by the hospital governing body to lead the program. **CD 5-1** The trauma program must also demonstrate appropriate orientation, and credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director. **CD 11-87**	**CD 2-17** Trauma Medical Director must work closely with the Trauma Program Manager. This is evidenced through minutes, memos, documentation containing loop closure.			
General Surgery	The maximum acceptable response time is 30 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time. **CD 2-8** The successful completion of the ATLS® course, at least once, is required in all levels of trauma facilities for all general surgeons, on the trauma team. **CD 17-5**	**CD 2-8** **Note: This CD refers to trauma facilities that have trauma surgeons on their trauma team (24/7).** Response time is tracked from patient arrival rather than from notification or activation. An 80 percent attendance/ threshold must be met for the highest-level activations. This should be an audit filter. **CD 17-5** Maintain documentation of each general surgeon and the date of ATLS completion			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Emergency Medicine	Must have 24 hour physician coverage by a physician or midlevel provider. **CD 2-14** Emergency department must be continuously available for resuscitation with coverage by a registered nurse and physician or midlevel provider, and it must have a physician director. **CD 2-15** The emergency department providers must maintain current ATLS certification as part of their competencies if the provider is not Board Certified in Emergency Medicine. **CD 2-16** If the emergency department provider is Board Certified in emergency medicine then the provider must take ATLS at least once. **CD 17-5** Advanced practitioners who participate in the initial evaluation of the trauma patients must demonstrate current verification in ATLS. **CD 11-86** It is expected that the physician or midlevel provider will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PI program must demonstrate that the physician's presence is in compliance at least 80 percent of the time. **CD 2-8**	**CD 2-14** Provide published schedule showing physician or mid -level provider availability 24/7 for ED coverage. **CD 2-15** Must have a schedule of nursing and physician 24/7 coverage. Identify a Medical director for the emergency department that is a physician. **CD 2-16, CD 17-5** Maintain documentation for ATLS certification, or Board certification. **CD 11-86** Must maintain documentation for ATLS certification for these advanced practitioners. **CD 2-8** This (response times of ED provider) must be an audit filter in the PI to be reviewed by PI program.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Radiology	Conventional radiography must be available in all trauma centers 24/7. **CD 11-29**	**CD 11-29** Published schedule must show that conventional radiology is available 24/7.			
Lab and Blood Bank	24-hour availability of a laboratory capable of: • Standard analysis of blood, urine and other body fluids, including micro sampling • Blood typing and cross matching **CD 11-80, CD 11-81** Must have a massive transfusion protocol developed collaboratively between the trauma service/program and the blood bank. **CD 11-84**	**CD 11-80, CD 11-81** Ensure lab has these capabilities, along with policy and procedures. **CD 11-84** Inventory number of O negative units in-house. Ensure access to a blood bank. Written policy and protocol on obtaining blood from blood bank for emergent use on trauma patient. Develop a policy that notifies lab of trauma patient arrivals (for trauma activations). This policy should state the process of running blood to patient within 15 minutes. Develop a policy specific to Massive Transfusion for trauma patients. The implementation of the Massive Transfusion policy must also be an audit filter to review through PI program.			
Burn Patients	Trauma facilities that refer burn patients to a burn center must have a written transfer agreement with the referral burn center. **CD 14-1**	**CD 14-1** Have written transfer agreement with a specific burn center.			
Trauma Team Activation	The criteria for a graded activation must be clearly defined by the trauma facility, with the highest level of activation including the six required criteria listed in Chapter 5; Table 2 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014". **CD 5-13** Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI process to determine their positive predictive value in identifying patients who require the resources of the full trauma team. **CD 5-16**	**CD 5-16, CD 5-13** If your trauma activation policy contains additional criteria, beyond the six state required criteria, then these specific, additional, criteria must be included in the monthly performance improvement data. This will ensure the validity of these criteria. For example, additional criteria for your institution may be to initiate a trauma activation for all ground level falls in patients the age of > 70 years old. These patients must be reviewed in the monthly performance improvement data. The activation policy should specify when the team must be assembled, who is to respond and how they are to be notified. The policy should build upon existing facility-specific internal operating procedures, staffing resources and established minimum state criteria.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Team Activation (continued)	Trauma facilities shall have a trauma team activation policy that includes: • Lists of all team members • Response requirements for all team members when a trauma patient is enroute or has arrived • The criteria for a graded activation must be clearly defined by the trauma center, with the highest level of activation including the six identified, required criteria (Table 2) • The person(s) authorized to activate the trauma team. • Protocols that guide pre-hospital trauma care Trauma health care team, including surgeons, emergency physicians, and medical directors for EMS agencies develop trauma activation protocols. EMS agencies and hospital personnel must then be educated on these protocols. **CD 5-13, CD 3-2** The trauma team must be fully assembled within 30 minutes. **CD 5-15** All trauma team activations must be categorized by the level of response and quantified by number and percentage, as shown in Chapter 5; Table 2 of the ACS' "Resources for the Optimal Care of the Injured Patient, 2014". **CD 5-15**	Most trauma facilities have a multi-tiered trauma team activation protocol. Even though facilities may have different nomenclature to identify various activation levels, the intent is that there will be levels commensurate with "full" and "limited" activation levels described in Table 3, Chapter 5. The limited activation criteria should be based on high-risk mechanisms of injury. The field triage decision scheme, as outlined in Figure 1, Chapter 3, should be used. **CD 5-13** Establish a trauma team activation policy which includes activation criteria, responders and roles. Activation criteria must include the six state required criteria for highest level of activation : • Confirmed blood pressure less than 90 mm Hg at any time in adults and age specific hypotension in children • Gunshot wounds to the neck, chest, or abdomen or extremities proximal to the elbow/knee • Glasgow Coma Scale score less than 9 with mechanism attributed to trauma • Transfer patients from other hospitals receiving blood to maintain vital signs • Intubated patients transferred from the scene or patients who have respiratory compromise or are in need of an emergent airway (Includes intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients intubated at another facility who are now stable from a respiratory standpoint) • Emergency physician's discretion **CD 3-2** Develop the trauma activation protocols in collaboration with physicians, medical director for EMS agencies. Provide education to all surgeons, emergency physicians, and EMS personnel on these protocols. Ensure trauma activation billing codes are implemented, following current MCR rates and guidelines. (Medicare) **CD 5-15** Trauma facilities must develop an activation system that pages out all members of the trauma team for trauma activations. Trauma team arrival times must be monitored in monthly PI. For example, the surgeon arrival time within 30 minutes for all trauma activations would be included in monthly PI data.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Registry	All healthcare facilities with an emergency center shall participate in data submission. **MI-CD 1-1**	**MI-CD 1-1** Must submit data into state trauma registry system/data bank.			
	All data which meets inclusion criteria, as defined in the most current version of "National Trauma Data Standard: Data Dictionary", is submitted electronically into the State Trauma Registry (ImageTrend). Twelve months of data must be submitted into the State Trauma Registry prior to applying for designation as a Michigan trauma facility for the first time. **MI-CD 1-2**	**MI-CD 1-2** Must follow the inclusion criteria as defined in the Data Dictionary. This data is entered electronically into the State Trauma Registry. Twelve months of data must be entered before applying for designation.			
	To maintain designation as a Michigan Trauma facility, data is to be submitted electronically into the State Trauma Registry quarterly by the following dates: January 15, April 15, July 15, October 15. **MI-CD 1-3**	**MI-CD 1-3** Data must be submitted electronically into ImageTrend and submitted to the State of Michigan quarterly.			
	Each healthcare facility is required to designate a person responsible for trauma registry activities. This person should have minimal training necessary to maintain the registry. This need not be a dedicated position. **MI-CD 1-4**	**MI-CD 1-4** Must have a person with the responsibilities of entering data into the state registry.			
	The trauma facility must demonstrate that all trauma patients can be identified for review. Registry data must be collected and analyzed. **CD 15-1**	**CD 15-1, CD 15-3** Identify a designated data collection person and implement a trauma registry. Obtain access to ImageTrend or other trauma data registry system used in-house. Data must be directly entered or uploaded from another registry system into the state trauma registry as required. PI program is supported by this trauma registry data.			
	The trauma registry is essential to the performance improvement and patient safety (PI) program and must be used to support the PI process. **CD 15-3**				
	All trauma facilities must use a risk stratified benchmarking system to measure performance and outcomes. **CD 15-5**	**CD 15-5** Must use a risk stratified benchmarking system to measure performance and outcomes.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Trauma Registry (continued)	Trauma registries should be concurrent. At a minimum, 80 percent of cases must be entered within 60 days of discharge. **CD 15-6** The trauma program must ensure that appropriate measures are in place to meet the confidentiality requirements of the data. **CD 15-8** Strategies for monitoring data validity are essential. **CD 15-10** To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources. **CD 16-4** All process and outcome measures must be documented within the trauma PI program's written plan and reviewed and updated at least annually. **CD 16-5**	**CD 16-4, CD 16-5** Must use a risk stratified benchmarking system to measure performance and outcomes. To achieve this the trauma program must use clinical practice guideline, protocols and algorithms from evidenced based resources. All processes and outcome measures must be included in the PI written plan and reviewed annually. All events must be identified, verified, and validated by the PI program and documented.			
Performance Improvement	Submit a performance improvement plan to the State of Michigan based on standards that are incorporated by reference to Administrative Rule 325.135 and the ACS "Resources for the Optimal Care of the Injured Patient 2014". The standards include: 1. Have a written performance improvement plan which addresses the following: a. Have a process of event identification and levels of review which result in the development of corrective action plans, and methods of monitoring, re-evaluation, risk stratified benchmarking must be present and this process must be reviewed and updated annually. b. Problem resolution, outcome improvements and assurance of safety (loop closure) must be readily identifiable through methods of monitoring, re-evaluation, benchmarking and documentation.	Develop PI plan which is supported by facility's data that has been entered in the state trauma registry. The plan must demonstrate levels of review (i.e. trauma coordinator, trauma medical director, peer review, administration). Documentation must demonstrate resolution and loop closure. The plan must include the five specific State of Michigan criteria. The plan must include Michigan and ACS audit filters. **Michigan Audit Filters:** 1. Any system and process issues 2. Trauma deaths in house or in the emergency department 3. Any clinical care issues, including identifying and treatment of immediate life threatening injuries 4. Any issues regarding transfer decision 5. Trauma team activation times to trauma activation **Additional Michigan Audit Filters:** 1. Trauma patients with more than one inter-hospital transfer prior to definitive care 2. Ground transport trauma patients with an ED RTS less than or equal to 5.5 and scene transport times (scene departure to ED arrival) greater than 20 minutes 3. Trauma patients with EMS scene times (EMS scene arrival to EMS scene departure) greater than 20 minutes			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	c. All criteria for trauma team activation have been determined by the trauma program and evaluated on an ongoing basis in the PI process. d. The PI program identifies and reviews documents, findings, and corrective action on the following audit filters: • Any system and process issue • Trauma deaths in house or in emergency department • Any clinical care issues, including identifying and treatment of immediate life threatening injuries • Any issues regarding transfer decision • Trauma team activation times to trauma activation **Rule 325.135, MI-CD 2-3** 2. Have a policy in place to review issues that revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care including identification and treatment of immediate life threatening injuries (ATLS); and (3) transfer decisions. Demonstrate participation in the regional trauma network performance improvement as described in the Regional Trauma Network work plan. Minimally, this includes demonstrating that the healthcare facility is participating in regional data collection, analysis and sharing. A brief description of planned or ongoing participation in the Regional Trauma Network performance improvement initiatives must be submitted with the designation application. **MI-CD 2-1** The PI program must be supported by a reliable method of data collection that consistently obtains the information necessary to identify opportunities for improvement. **CD 15-1**	**Additional Michigan Audit Filters continued:** 4. Transferred trauma patients with an ISS greater than 15 and transfer time (ED admit to definitive hospital admit) greater than 6 hours for rural place of injury or 4 hours for urban place of injury 5. Trauma patients with an ISS > 15 and ED time (ED admit to ED discharge) greater than 2 hours. 6. Trauma patients who die with a probability of survival (TRISS) >50% 7. Trauma patients transported by EMS without an associated ambulance report in the medical record 8. Trauma patients 14 years of age or younger (children) who either had an ED GCS less than or equal to 8, intubation, or ISS greater than 15 and not transferred to a regional pediatric trauma center 9. Pediatric Trauma Patients 10. General surgeon response times to trauma activation 11. 11.Bypass and diversion events 12. All “other” criteria that requires trauma team activation **ACS Audit Filters:** 1. All trauma deaths in house or in the emergency department 2. All pediatric trauma admissions 3. General surgeon response times to trauma activation 4. Emergency provider response time to trauma activation 5. Trauma team response times to trauma activation 6. All bypass and diversion events 7. All trauma transfers			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	The timely response of credentialed providers to the ICU must be continuously monitored as part of the PI program. **CD 11-60** Trauma surgeon response to the emergency department. Trauma surgeon on-call response for the highest level of activation must be continuously monitored and variances documented and reviewed for reason for delay, opportunities for improvement and corrective actions. The minimum threshold is within 30 minutes. Response times will be tracked from patient arrival. An 80 percent attendance threshold must be met for the highest level activations. **CD 2-8** The process of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present. **CD 2-17** Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PI program process to determine their positive predictive value in identifying patients who require the resources of the full trauma team. **CD 5-16** In Level III and IV trauma facilities the team must be fully assembled within 30 minutes. **CD 5-15**	**CD 2-8** The response time for the trauma surgeon's arrival to the emergency department is an audit filter. Response times for all trauma activations are reviewed through PI program. The policy may be written with quicker response times for higher level trauma activations. All variances to trauma surgeons' response times to trauma activations are reviewed with corrective action and loop closure. Any additional criteria that your facility includes in the trauma activation must be included in your PI program. **CD 5-15** All trauma activations are reviewed and reported on to committee			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance improvement (continued)	Trauma team activation criteria. Criteria for all levels of TTA must be defined and reviewed annually. Minimal acceptable criteria for the highest level of activation include the following (additional institutional criteria may also be included): 1. Confirmed systolic blood pressure less than 90 mmHG at any time in adults and age-specific hypotension in children. 2. Gunshot wounds to the neck, chest, or abdomen. 3. Glasgow Coma Scale Score less than 8, with mechanism attributed to trauma. 4. Transfer patients receiving blood to maintain vital signs. 5. Intubated patients transferred from the scene or patients with respiratory compromise or obstruction, including intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients who are intubated at another facility and are now stable from a respiratory standpoint) 6. Emergency physician's discretion **CD 5-13**	**CD 5-13** Develop a Trauma Team Activation (TTA) policy. This TTA is implemented to activate appropriate staff for incoming trauma patients. The highest level of TTA must, at a minimum, incorporate the six listed criteria. This policy is reviewed annually and documentation shows this annual review (committee meeting minutes).			
	It is essential that each trauma facility have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death. **CD 21-3**	**CD 21-3** Written protocols that identify clinical criteria and confirmatory tests for the diagnosis of brain death.			
	Transfers to a higher level of care within the institution. These transfers must be routinely monitored, and cases identified must be reviewed to determine the rationale or transfer, adverse outcomes, and opportunities for improvement. **CD 16-8**	**CD 16-8** All transfers must be tracked, documented, and reviewed through PI.			
	Once an event is identified, the trauma PI program must be able to verify and validate that event. **CD 16-11**	**CD 16-11** All events must be identified, verified, and validated by the PI program and documented.			

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Performance Improvement (continued)	For Level IV trauma centers, it is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time. **CD 2–8** The trauma PI program must be supported by a registry and a reliable method of concurrent data collection that consistently obtains information necessary to identify opportunities for improvement. **CD 15-3** Furthermore, these findings must be used to identify injury prevention priorities that are appropriate for local implementation. **CD 15-4** The trauma facility must engage in public and professional education. **CD 17-1**	**CD 2-8** Response time is tracked from patient arrival rather than from notification or activation. An 80 percent attendance/threshold must be met for the highest-level activations. This should be an audit filter. **CD 17-1** Maintain records and documentation of any public and professional outreach/education. An example is bicycle helmet safety, children car seat education, participation in regional advisory education subcommittee events.			
Outreach and Education	There must be someone in a leadership position that has injury prevention as part of his or her job description. **CD 18-2** Must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data. **CD 18-1** The trauma program must participate in the training of pre-hospital personnel, the development and improvement of pre-hospital care protocols, and performance improvement programs. **CD 3-1**	**CD 18-2, CD 18-1** Injury prevention needs to be written into a leadership position's job description. This person may be the trauma program manager, the ED manager, etc. This person must document all injury prevention activities, as well as an injury prevention plan based on local registry data.			

Level IV Trauma Designation Work Plan

Program Component	Criteria Description	Action Required	Responsible person(s)	Targeted Deadline	Complete √
Outreach and Education (continued)	Participate in coordinating and implementing Regional Trauma Network injury prevention work plans and initiatives. **MI-CD 3-1** All verified trauma facilities must engage in public and professional education. **CD 17-1** Universal screening for alcohol use must be performed for all injured patients and must be documented. Brief intervention of alcohol and use is required. **CD 18-3**	**MI-CD 3-1** The facility's injury prevention plan must incorporate regional SMART objectives. The regional injury prevention plans were developed and written by the RTAC subcommittees. **CD 18-3** Develop a universal screening of alcohol tool. This must be documented on all injured patients in the medical record. Brief intervention should be documented in the medical record when necessary.			
Disaster Plan	All hospitals must have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent. **CD 20-4** Trauma facilities must meet the disaster-related requirements of the Joint Commission. **CD 20-1** Hospital drills that test the individual hospital's disaster plan must be conducted at least twice a year, including actual plan activations that can substitute for drills. **CD 20-3** The facility must participate in regional disaster management plans and exercises. **CD 2-22**	**CD 20-4** Review the hospital disaster plan. TPM and risk management must review JACHO disaster plan and update in regard to trauma systems. **CD 2-22** Document trauma service participation in regional disaster plans and exercises.			

Pre-Review Questionnaire (PRQ) for Michigan Level IV Trauma Facility

This pre-review questionnaire allows site reviewers to have a preliminary understanding of the trauma care capabilities and performance of the hospital and medical staff before beginning the review. Please use this document to gather the hospital data. Please note, the site review team MAY ask for further documentation to substantiate information on any question that is answered with a "yes."

Complete each section of the PRQ, please write legibly and attach additional pages if necessary. Ensure all attachments are included and labeled appropriately. See, "General Information and Instructions" at the back of the PRQ for details and definitions. A checklist has been provided at the end of the document to assist in compiling the PRQ and supporting documents. The PRQ must be submitted no later than 45 days prior to the scheduled site visit. Keep a copy of the PRQ for reference during the site visit.

The information used to complete the site review report will be considered in both the verification and designation determinations. The data submitted may be used for analysis by MDCH EMS AND TRAUMA SERVICES DIVISION and may not be used for any purpose other than the intended. The reporting period is defined as 12 months and cannot be earlier than 15 months prior to the date of application. There must be 12 months of data in the State Trauma Registry, Image Trend, to schedule a site review. Ongoing data submission (quarterly) is a requirement for designation.

The PRQ can be submitted electronically. Note, put hospital name and date in the subject line and email to traumadesignationcoordinator@michigan.gov. Alternatively, the PRQ can be faxed to 517-241-9458. Put Attn: Verification/Designation Coordinator and hospital name and date on the cover letter.

Once the PRQ is received by the State Trauma Verification/Designation Coordinator, the contact person that was listed on the "Request for Verification" will receive electronic confirmation of receipt.

Please answer ALL questions completely. Do not use abbreviations.

Type of Review:

- ☐ Verification
- ☐ Re-Verification

Level of Review:

- ☐ Level IV Trauma Facility

Reporting time frame for this document:
(*Twelve months of data must be submitted into the State Trauma Registry prior to applying for designation as a Michigan trauma facility for the first time. The twelve month time frame must start no earlier than fifteen months from the date of application*) (MI-CD 1-2)

Date Range: From month/year _____to: _____month/year

I. HOSPITAL INFORMATION

A. Demographics

1. Name of Hospital_____
2. Hospital Address_____
3. City, State, ZIP_____
4. Trauma Region: _____

B. General Information

Trauma Care Provider	Total Number of Providers
General Surgeons	
Emergency Physicians	
Anesthesiologists	
Mid-Level Practitioners (Nurse Practitioners, Advanced Practice Nurses, Physician Assistants)	
Other Physician Specialty (Family Practice, Internal Medicine, Hospitalists, Pediatricians, Orthopedic Surgeons)	
Certified Registered Nurse Anesthetists	

C. Hospital Commitment

1. Trauma facilities must provide the necessary human and physical resources (plant and physical) to properly administer acute care consistent with the level of verification. Documentation of this is demonstrated by providing a commitment to Level IV trauma care. A sample of this commitment is provided in ***Appendix #1***. Please obtain a signature from the Chairperson of the hospital board (CD 5-1 & CD 2-3). (***Label as Attachment #1***)

2. The individual trauma facility and their health care providers are essential system resources. They must be active and engaged participants. Documentation of this commitment is demonstrated by providing a medical staff resolution. A sample of this resolution is provided in ***Appendix #2*** (CD 5-1). (***Label as Attachment #2***)

D. Michigan Criteria

1. Michigan's Trauma System Administrative Rules outline trauma facility responsibilities to ensure a regionalized, accountable and coordinated trauma system. This work further is supported by the following statement from the American College of Surgeons Committee on Trauma, "Meaningful involvement in state and regional trauma system planning, development, and operation is essential for all designated trauma facilities and participating acute care facilities within a region" (CD 1-3).

   Failure to meet the Michigan Criteria outlined in the Administrative Rules will result in a Type I critical deficiency.

   Please respond to the following questions regarding participation in the regional trauma system:

   A. Does the facility's trauma program staff participate in the state and/or regional trauma system planning, development, or operation? (CD 1-3) (Yes) (No)

   B. Is the facility submitting data to the state trauma registry? (MI-CD 1-1) (Yes) (No)

   C. Is the facility participating in regional injury prevention planning and initiatives? (MI-CD 3-1) (Yes) (No)

   D. Is the facility participating in regional performance improvement as described in the Regional Trauma Network work plan*? (MI-CD 2-1) (Yes) (No)

**The Regional Trauma Network work plan for your region can be found at www.michigan.gov/traumasystem under the individual region heading.*

II. PRE-HOSPITAL SYSTEM

A. EMS

1. The protocols that guide pre-hospital trauma care must be established by emergency physicians and medical directors for EMS agencies, with advice from the trauma health care team, including surgeons, and basic and advanced pre-hospital personnel. (CD 3-2)

   Does the trauma program participate in the following Medical Control Authority activities?

   A. Pre-hospital protocol development (Yes) (No)

   B. EMS Training which could consist of case reviews/patient follow-up, facility sponsored classes and continuing education (Yes) (No)

2. If 'Yes', briefly describe and provide one example.

III. TRAUMA PROGRAM*

A. Trauma Staff

Complete the section below. Note if not applicable.

Trauma Manager Name: _____

Trauma Medical Director Name: _____

Injury Prevention Staff Name: _____

Trauma Data Entry Staff Name: _____

Other: _____

Attach position descriptions for the Trauma Manager and Trauma Medical Director (***Label as Attachment #3***)

Be prepared to discuss at the site review the Trauma Program: how roles interact on a daily basis, and how issues and problems are handled.

B. Trauma Medical Director (TMD) (may also be the Emergency Department Director)

1. Please complete the credentials section for the Trauma Medical Director (TMD) on ***Appendix #3***.

2. Is there an annual review by the Trauma Medical Director of all trauma advanced practitioners addressing appropriate orientation, credentialing processes and skill maintenance?* (CD 11-87)
   (Yes) (No)

You may be asked to show documentation of this process at the site visit.

3. Does the trauma medical director and trauma program manager/coordinator work together with guidance from the trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking? (CD 2–17) (Yes) (No)

C. Physicians and Mid-Level Providers

1. List all physicians and mid-level providers (Physician Assistants, Nurse Practitioners, and Advance Practice Nurses) currently participating in the initial resuscitation and evaluation of trauma patients as well as admitting trauma patients to the hospital on ***Appendix #4***.

D. Trauma Program Manager/Coordinator (TPM/C)

1. How long has the trauma program coordinator been in this position?
   - Months/Years _____ _____

E. Trauma Activation

1. Does the facility have a multilevel activation response that addresses the minimum requirements listed below? (CD 5-13) (Yes) (No)
   - Confirmed blood pressure less than 90 mm Hg at any time in adults and age specific hypotension in children
   - Gunshot wounds to the neck, chest, or abdomen or extremities proximal to the elbow/knee
   - Glasgow Coma Scale score less than 9 with mechanism attributed to trauma
   - Transfer patients from other hospitals receiving blood to maintain vital signs
   - Intubated patients transferred from the scene or patients who have respiratory compromise or are in need of an emergent airway (Includes intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients intubated at another facility who are now stable from a respiratory standpoint)
   - Emergency physician's discretion

2. Attach the facility's activation policy (***Label as Attachment #4***). (CD 5-16)

3. Fill in the following:

Statistics for activation levels (reporting year)		
Level	Number of activations	Percent of total activations
Highest		
Intermediate		
Lowest		
Total		

4. Who has the authority to activate the trauma team? (Circle all that apply)
   a. EMS
   b. ED Physician
   c. ED Nurse
   d. Surgeon
   e. Midlevel

5. The highest level of activation is communicated by: (Circle all that apply)
   a. Group pager
   b. Telephone page
   c. Other

6. Which trauma team members respond to each level of activation? (Check all that apply)

	Activation Level		
Responder	Highest	Intermediate	Lowest
General Surgeon			
Emergency Physician			
Emergency Department Nursing			
Laboratory Technician			
Radiology Technician			
Anesthesiologist or CRNA			
Scribe			
Mid-level			
Other			

7. Is the physician or mid-level provider in the emergency department within 30 minutes for the highest trauma activation tracked from the patient arrival? (CD 5–15). (Yes) (No)

Using the data collected from the date range listed on page 2 complete the following:

8. What is the total number of trauma patients seen by your facility? _____

9. What is the total number of trauma patients admitted to your facility? _____

10. What is the total number of trauma patients transferred to a higher level of trauma care from your facility? _____

11. What is the total number of trauma deaths at your facility? _____

F. Trauma Transfer

1. Is there a process and documentation of direct contact of the physician or mid-level provider with a physician at the receiving hospital? (CD 4-1) (Yes) (No)

2. Does the facility have input from, feedback to, and adequate communication with the personnel responsible for the transport process and the referring hospital? (CD 4-3) (Yes) (No)

3. Have transfer guidelines and plans between all possible transfer facilities been developed? (CD 2-13) (Yes) (No)

4. Have written transfer agreements with burn facilities been developed? (CD 14-1) (Yes) (No)

5. Trauma Transfers:

Number of Trauma Transfers	Air	Ground	Private Vehicle	Total
Transfers Out				

6. A very important aspect of inter-hospital transfer is an effective PI program that includes evaluating transport activities. Is your facility performing a PI review of all transfers? (CD 4–3) (Yes) (No)

7. Provide information on the facility's criteria that are used to prompt identification and consideration of transfer for patients who require a higher level of care and are reviewed by the trauma PI program on ***Appendix #5***.

G. Trauma/Hospital Statistical Data

Tables should not include Dead on Arrivals and direct admits.

1. Total Trauma Admissions by Service:

Service	Number of Admissions
General Surgery	
Other Surgical Specialties	
Non-Surgical	

2. Injury Severity Score/Mortality/General Surgery:

ISS	Total Number of Admissions	Number of Deaths from Total Trauma Admissions	Number Admitted to General Surgery
0-9			
10-15			
16-24			
> or = 25			
Total			

3. Are patients with isolated hip fractures included in your registry data? (Yes) (No)

H. Trauma Diversion

1. When a trauma facility is required to divert, the facility must have a system to notify dispatch and EMS agencies. (CD 3-7). Does your hospital do the following when on diversion?
   a. Prearrange alternative destinations with transfer agreements in place? (Yes) (No)
   b. Notify other facilities (hospitals, 911, dispatch, etc.) of divert status? (Yes) (No)
   c. Maintain a divert log? (Yes) (No)
   d. Review all diversions in PI program? (Yes) (No)

2. Does the facility have a diversion policy? (Yes) (No)
   - *If 'Yes', please send the policy as an attachment. (**Label as Attachment #5**)*

3. Has the facility gone on trauma diversion during the previous year? (Yes) (No)
   - *Information regarding diversion date, length of time, and reason for occurrence should be documented on **Appendix #6**.*

IV. HOSPITAL RESOURCES

A. Emergency Department (ED)*

1. Does your emergency department have a physician director? (CD 2-15) (Yes) (No)

2. Does the emergency department have coverage by a registered nurse and physician or midlevel provider continuously available for resuscitation? (CD 2-15) (Yes) (No)

3. Check the certifications required for ED nursing staff (may choose more than one):
   - ☐ Trauma Nursing Core Course (TNCC)
   - ☐ Advanced Trauma Care for Nurses (ATCN)
   - ☐ Emergency Nursing Pediatric Course (ENPC)
   - ☐ Other _____

Have a copy of the ED trauma flow sheet and trauma protocols available on site at the time of the review. An example of a trauma flow sheet can be found at www.michigan.gov/traumasystem.

B. Radiology

1. Is conventional radiography available 24 hours per day? (CD 11-29) (Yes) (No)

C. Clinical Laboratory and Blood Bank

1. Does the facility have a massive transfusion protocol developed collaboratively between the trauma service/program and the blood bank? (CD 11-84) (Yes) (No)
   - *If 'Yes', attach the protocol* (**Label as Attachment #6**)

2. Is the blood bank capable of blood typing and cross matching? (CD 11-81) (Yes) (No)

3. Are laboratory services available 24 hours per day for the standard analysis of blood, urine, and other body fluids, including micro-sampling when appropriate? (CD 11-80) (Yes) (No)

D. Other Protocols, Policies and Procedures

1. Are there written protocols for declaration of brain death? (CD 21-3) (Yes) (No)

2. Does the facility have a written disaster plan described in the hospital's policy and procedure manual? (CD 20-4) (Yes) (No)

E. Trauma Equipment/Resources

Site reviewers will review available equipment and resources during the site visit.

V. TRAUMA REGISTRY

1. What trauma registry software does the hospital use? _____

2. Is trauma registry data collected and analyzed using the minimum data collection set (National Trauma Data Bank)(CD 15-1) (MI-CD 1-1) (Yes) (No)

3. Is the trauma registry data submitted to the State Registry? (MI-CD 1-2) (Yes) (No)

- Date of most recent data submission (mm/dd/yyyy): _____

4. Is there a process in place to submit data quarterly? (MI-CD 1-3) (Yes) (No)

VI. PERFORMANCE IMPROVEMENT

A. Performance Improvement (PI) Program

All trauma facilities shall develop and have in place a performance improvement process. An effective performance improvement program demonstrates through clear documentation that identified opportunities for improvement lead to specific interventions that result in an alteration in conditions such that similar events are less likely to occur. (CD 16-10).

1. Does the facility have a written PI plan* that addresses the criteria in questions 2 and 3?** (Yes) (No)

Plan needs to be available for reviewers.
****Use Appendix #6 to summarize your responses to questions 2 and 3 below by submitting an example of process improvement and loop closure.***

2. The processes of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present. Please submit an example of the process the facility uses to identify PI problems and how they are tracked, documented and discussed. (CD 2-17) ***See Appendix #7***

3. Problem resolution, outcome improvements, and assurance of safety ("loop closure") must be readily identifiable through methods of monitoring, reevaluation, benchmarking, and documentation. Please submit an example of how loop closure (resolution) is achieved and who is responsible for both system and peer review issues. (CD 16-2) ***See Appendix #7***

4. Are all process and outcome measures documented within the trauma PI program written plan and reviewed and **updated at least annually**? (CD 16–5) (Yes) (No)

5. Are all criteria for trauma team activation that have been determined by the trauma program evaluated on an ongoing basis in the PI process? (CD 5–16) (Yes) (No)

B. Audit Filters

Fundamental to the performance improvement process is monitoring and measuring the outcome of specific processes or procedures. Another name for process and outcomes measures is audit filters. Audit filters require defined criteria and metrics. Appendix #7 has an Audit Filter Tool to help track and measure system and facility metrics. The trauma system is in development and some facilities are in the early stages of audit filter tracking and performance improvement. To assist in prioritizing, the audit filters that are bolded are the required audit filters for this verification/designation cycle.

1. Does the PI program identify, review, and document findings and corrective actions on the following audit filters? Check yes or no depending on whether the facility is tracking the audit filter. ***Bolded MUST be included. See Appendix #8 for Audit Filter Tool.***

   a. **Does the facility have a policy in place to review issues that revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life-threatening injuries (ATLS®); and (3) transfer decisions? (CD 16-10)** **Y____N____**

   b. **All trauma deaths in house or in emergency department (CD 16-6) (Audit Filter A)** **Y____N____**

   c. **Any clinical care issues, including identifying and treatment of immediate life threatening injuries? (CD 16-10)** **Y____N____**

   d. **Any issues regarding transfer decisions? (CD 16-10) (Audit Filters B, C, D, E, F)** **Y____N____**
      1. **All trauma transfers (CD 2-13, CD 4-3, CD 16-8)** **Y____N____**
      2. **Transfer to a level of higher care within the hospital (CD 16-8)** **Y____N____**

   e. **Trauma team activation times to trauma activation, including consultants (CD 5-15, CD 2-8) (Audit Filter G)** **Y____N____**

   f. All pediatric trauma admissions, and all pediatric trauma activations (CD 2-19) Y____N____

g. General surgeon response times to trauma activation (**Only applies to Level IV trauma facilities that have trauma surgeons on their trauma team**) (CD 5-15, CD 11-60, CD 2-8, CD 5-16, CD 2-9) Y____N____

h. Emergency provider response time to trauma activation (CD5-15, CD 11-60, CD2-8) Y____N____

i. Bypass and diversion events (CD 3-7) Y____N____

VII. EDUCATION ACTIVITIES/OUTREACH PROGRAMS

1. Is the trauma facility engaged in public and professional education? (CD 17-1) (Yes) (No)

2. Is there an injury prevention/public trauma education program based on local/regional trauma registry and epidemiologic data? (CD 18–1) (Yes) (No)

VIII. PREVENTION

A. Alcohol Screening and Intervention for Trauma Patients

1. Is universal screening for alcohol performed on all admitted trauma patients documented? (CD 18-3) (Yes) (No)

2. What is the mechanism for providing brief intervention? (CD 18-3) (Check all that apply)
   - ☐ Positive screens are referred to trauma nurse/nurse practitioner/physician assistant/social worker
   - ☐ Hospital staff responsible for screening provides intervention for positive screens
   - ☐ Positive screens are referred to on-site consult service (psychiatry or psychology or substance abuse counselor)
   - ☐ Other (If other was selected, please describe)

B. Injury Prevention

1. Does the trauma facility have someone in a leadership position that has injury prevention as part of their job description? (CD 18-2) (Yes) (No)

2. Please describe how the facility is participating in the Regional Trauma Network injury prevention work plan. See www.michigan.gov/traumasystem to access the work plan. (MI-CD 3-1)

IX. TRAUMA PROGRAM STRENGTHS AND OPPORTUNITIES

1. Please provide a brief description (250 characters or less) of your trauma program strengths.

2. Please provide a brief description (250 characters or less) of your trauma program opportunities for improvements.

ADDENDUM

I. SURVEY QUESTIONS

1. Does the facility have inpatient rehabilitation or a transfer agreement to an approved rehabilitation facility? (Yes) (No)

2. Does the facility have acute spinal cord management in-house or a transfer agreement with regional acute spinal cord injury rehabilitation center? (Yes) (No)

II. NETWORK AUDIT FILTERS

The following audit filters will be monitored by the Regional Trauma Networks in the future. Is the following data readily available?

1. Ground transport trauma patients with an ED Revised Trauma Score (RTS) less than or equal to 5.5 and scene transport times (scene departure to ED arrival) greater than 20 minutes list (and sort by) transport mode, EMS agency, scene to hospital transport time, injury county, mechanism of injury (MOI), ISS, and outcome for each patient meeting these criteria.

Ground transport trauma patients with an ED RTS less than or equal to 5.5 and scene transport times (scene departure to ED arrival) greater than 20 minutes			
Filter	**Yes**	**No**	**Not Available**
Transport Mode			
EMS Agency			
Scene to hospital time			
Injury County			
Mechanism of Injury			
ISS			
Patient Outcome			

2. Trauma patients who die with a probability of survival (TRISS) >50%. (TRISS score for trauma patients using physiologic measures collected at the first presenting hospital): list age, MOI, transport mode, ISS, outcome, length of stay (LOS), and TRISS for patients meeting criteria.

Trauma patients who die with a probability of survival (TRISS) >50%			
Filter	**Yes**	**No**	**Not Available**
Mechanism of Injury			
Transport mode			
ISS			
Outcome			
Length of stay			
TRISS			

Appendix #1 – Sample of a Trauma Facility Commitment to Level IV Trauma Care

WHEREAS, traumatic injury is the leading cause of death for Michigan residents between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Michigan Statewide Trauma System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the board of directors of [HOSPITAL] resolve to provide the resources necessary to achieve and sustain a level [III or IV] trauma hospital designation.

IN WITNESS THEREOF, I have hereunto subscribed my name this [DAY] day of [MONTH], [YEAR].

_____

Chairperson of the Board

Appendix #2 – Sample of a Medical Staff Resolution

WHEREAS, traumatic injury is the leading cause of death for Michigan residents between the ages of 1 and 44 years; and

WHEREAS, [HOSPITAL] strives to provide optimal trauma care; and

WHEREAS, treatment at a trauma hospital that participates in a standardized system of trauma care can significantly increase the chance of survival for victims of serious trauma; and

WHEREAS, participation in the Michigan Statewide Trauma System will result in an organized and timely response to patients' needs, a more immediate determination of patients' definitive care requirements, improved patient care through the development of the hospital's performance improvement program and an assurance that those caring for trauma patients are educationally prepared:

THEREFORE; BE IT RESOLVED that the medical staff of [HOSPITAL] resolves to support the hospital's trauma program and to participate with initiatives in the furtherance of the standards published by the Michigan Statewide Trauma System for level [III or IV] trauma hospitals.

IN WITNESS THEREOF, I have hereunto subscribed my name this [DAY] day of [MONTH], [YEAR].

_____

Chief of Staff

Appendix #3 - Trauma Medical Director

1. Name:
2. Medical School:
3. Year Graduated:
4. Type of Residency:
5. Post Graduate Training Institution (Residency):
6. Year Completed:
7. Board Certified: (Yes/No)
   - Year:
   - Specialty:

8. List added qualifications/certifications giving the Specialty and date received:

9. Date of ATLS : (CD 17-5) (mm/dd/yyyy)

** MDCH reserves the right to review certifications.*

Appendix #4 – Physician and Mid-Level Providers

Please list all physicians* and mid-level providers** (Physician Assistants, Nurse Practitioners, and Advance Practice Nurses) currently participating in the initial resuscitation and evaluation of trauma patients as well as admitting trauma patients to the hospital.

***Information on physicians should include specialty (Emergency, Family Practice, etc.) and if they are Board Certified or not.**
****Mid-level providers should be identified as PA, NP, or APN, and include any locum tenens**

Name	Credentials i.e. MD, DO, PA, NP, APN	Specialty (Physician) (Check)	Board Certified (Physician) (Check)	ATLS Current (Exp. Date)	ATLS Taken Once (Date)	No ATLS Course Taken (Check)

Appendix #4 – Physician and Mid-Level Providers (continued)

Name	Credentials i.e. MD, DO, PA, NP, APN	Specialty (Physician) (Check)	Board Certified (Physician) (Check)	ATLS Current (Exp. Date)	ATLS Taken Once (Date)	No ATLS Course Taken (Date)

** MDCH reserves the right to review certifications.*

Appendix #5 – Trauma Transfer Guidelines

Check the criteria below that the facility uses to prompt identification and consideration of transfer for patients who require a higher level of care and are reviewed by the PI program.

Michigan Administrative Rules Criteria

1. Central nervous system:
    - ☐ Depressed skull fracture
    - ☐ Penetrating injury/open fracture, with or without cerebrospinal fluid leak
    - ☐ GSC <14 or deterioration
    - ☐ Spinal cord injury or cerebral vascular injury
2. Chest:
    - ☐ Major chest wall injury or pulmonary contusion
    - ☐ Wide mediastinum or other signs suggesting great vessel injury
    - ☐ Cardiac injury
    - ☐ Patients who may require prolonged ventilation
    - ☐ Flail chest/multiple rib fractures
3. Pelvis/Abdomen:
    - ☐ Unstable pelvic ring disruption
    - ☐ Pelvic fracture with shock or other evidences of continuing hemorrhage
    - ☐ Open pelvic injury
    - ☐ Intra-abdominal visceral injury
    - ☐ Acetabular injury
4. Major Extremity Injuries:
    - ☐ Fracture/dislocation with loss of distal pulses
    - ☐ Open long-bone fractures
    - ☐ Extremity ischemia
    - ☐ Compartment syndrome
5. Multiple-system injury:
    - ☐ Head injury combined with face, chest, abdominal, or pelvic injury
    - ☐ Burns with any combination of multi-system, injury including inhalation injury
    - ☐ Multiple long-bone fractures
    - ☐ Injury to more than two body regions
6. Comorbid Factors for consideration:
    - ☐ Age > 55
    - ☐ Children < 5 years
    - ☐ Cardiac or respiratory disease
    - ☐ Insulin-dependent diabetes
    - ☐ Morbid obesity
    - ☐ Pregnancy
    - ☐ Immunosuppression
    - ☐ Liver or renal insufficiency
7. Secondary deterioration (late sequelae) as a result of trauma:
    - ☐ Prolonged mechanical ventilation > 48 hours
    - ☐ Sepsis
    - ☐ Single or multiple organ system failure (deterioration in central nervous, cardiac, pulmonary, hepatic, renal, or coagulation systems).
    - ☐ Major tissue necrosis/soft tissue injury

Appendix #6 - Trauma Diversion

List dates, length of time, and reasons in the last year that your facility has been on diversion to trauma patients. Diversion is the term used when your facility is not able to care for the trauma victim. It may be for various reasons: the system is overwhelmed (disaster scenario), ICU full, surgeon unavailable, etc.

Date of Occurrence	Length of Diversion Minutes/Hours/Days	Reason for Diversion

Appendix #7 – Performance Improvement Plan

1. Please submit an example of the process the facility uses to identify PI problems, and how they are tracked, documented and discussed. (CD 2-17).

2. Please submit an example of how loop closure (resolution) is achieved and who is responsible for both system and peer review issues. (CD 16-2)

Appendix #8 – Audit Filter Tool

On the audit filters below, please check yes or no to indicate whether the facility is tracking the filters or not. Refer to page 10 of this document for further details on audit filters.

(A) Trauma related deaths. The following data should be captured for each patient: list elapsed time, ED admission time, Mechanism of Injury (MOI), age, transport mode, Glasgow Coma Scale (GSC), Revised Trauma Score (RTS), Abbreviated Injury Scale (AIS), International Classification of Diseases-9 (ICD-9), Current Procedural Terminology codes (CPT), and Injury Severity Score (ISS) for all trauma deaths in house or in emergency department (CD 16-6).

Trauma Related Deaths			
Filter	**Yes**	**No**	**Not Available**
Total time from initial injury to time of death			
ED Admission Time			
Mechanism of Injury			
Patient Age			
Transport Mode			
Glasgow Coma Scale			
Revised Trauma Score (RTS)			
AIS			
ICD-9			
CPT			
Injury Severity Score (ISS)			

(B) Trauma patients with more than one inter-hospital transfer prior to definitive care: list all trauma transfers, any issues regarding transfer decisions, and transfer to a level of higher care within the hospital (CD 2-13, CD 4-3, CD 16-8, CD 16-10).

General Trauma Transfer Information			
Filter	**Yes**	**No**	**Not Available**
Multiple transfers before definitive care			
Transfer to a higher level of care within the facility			

(C) Trauma patients with EMS scene times (EMS scene arrival to EMS scene departure) greater than 20 minutes: list EMS agency, transport mode, scene time, scene procedures (oxygen, CPR, fluids), trauma type, injury zip code (injury county), ISS, and outcome for patients meeting criterion.

Trauma patients with EMS scene times (EMS scene arrival to EMS scene departure) greater than 20 minutes			
Filter	**Yes**	**No**	**Not Available**
EMS Agency			
Transport Mode			
Scene time			
Scene Procedures (CPR, Fluids, Intubation)			
Trauma type			
Injury county			
ISS			
Patient Outcome			

Appendix #8 – Audit Filter Tool (continued)

(D) Transferred trauma patients with an ISS greater than 15 and transfer time (ED admit to definitive hospital admit) greater than 6 hours for rural place of injury or 4 hours for urban place of injury: list definitive hospital, urban or rural place of injury, transfer time, MOI, ISS, and outcome for patients meeting criteria.

Transferred trauma patients with an ISS greater than 15 and transfer time (ED admit to definitive hospital admit) greater than 6 hours for rural place of injury or 4 hours for urban place of injury			
Filter	**Yes**	**No**	**Not Available**
Definitive Hospital			
Urban/Rural location			
Transfer time			
Mechanism of Injury			
ISS			
Patient Outcome			

(E) Trauma patients with an ISS greater than 15 and ED time (ED admit to ED discharge) greater than 2 hours: list patient transfer (yes or no), MOI, and ED time for patients meeting criteria.

Trauma patients with an ISS > 15 and ED time (ED admit to ED discharge) greater than 2 hours			
Filter	**Yes**	**No**	**Not Available**
Transfer			
Mechanism of Injury			
ED Time			

(F) Trauma patients transported by EMS without an associated EMS report in the medical record: list percentage of missing run reports by transport mode and EMS agency.

Trauma patients transported by EMS without an associated ambulance report in the medical record			
Filter	**Number/Percent**	**Number/Percent**	**Not Available**
Number of missing run reports for the reporting period			
Percentage of missing run reports by mode (air/ground)			
Percentage of missing run reports by agency			

(G) Tracking general surgeon response times to trauma activation, Emergency provider response time to trauma activation, and trauma team activation times to trauma activation, including consultants (CD 5-15, CD 2-8, CD 11-60, CD 5-16).

Response Times Monitored for Trauma Activation			
Filter	**Yes**	**No**	**Not Applicable**
General Surgeon			
Emergency Department Physician			
Trauma Team Members			

Appendix #8 – Audit Filter Tool (continued)

(H)* Pediatric trauma patients (14 years of age or younger) who either had an ED GCS less than or equal to 8, intubation, or ISS greater than 15 and not transferred to a regional pediatric trauma center list hospital, age, ED GCS, ISS, MOI, LOS, and transport mode for each patient meeting criteria.

Pediatric trauma patients (14 years of age or younger) who either had an ED GCS less than or equal to 8, intubation, or ISS greater than 15 and not transferred to a regional pediatric trauma center			
Filter	**Yes**	**No**	**Not Available**
Age			
ED Glasgow Coma Scale			
ISS			
Mechanism of Injury			
Length of Stay			
Transport mode			

(I)* All pediatric trauma admits and pediatric trauma activations (CD 2-19).

Pediatric Trauma Patients			
Filter	**Yes**	**No**	**Not Available**
Pediatric trauma admits			
Pediatric trauma activations			

These audit filters should be monitored but not required for current verification/designation.

General Information and Instructions

I. HOSPITAL INFORMATION

For the purposes of this document hospitals seeking verification will be referred to as trauma facilities.

C. Hospital Commitment

Requested Documents:

Trauma Facility Commitment to Level IV Trauma Care – The hospitals administrative structure must support the trauma program. Documentation of administrative commitment is required from the governing body and the medical staff (CD 5–1). Administrative support of the trauma program helps provide adequate resources for the optimal care of injured patients. The participation of an administrator helps ensure that the written commitment to the trauma program is aligned with optimal multidisciplinary trauma care. See Appendix #1 for a sample.

Medical Staff Resolution – Medical staff commitment ensures that the members of the medical staff support the trauma program by their professional activities. This support includes a current written commitment acknowledging the medical staff's willingness to provide enough specialty care to support the optimal care of injured patients. See Appendix #2 for a sample.

D. Michigan Criteria/ACS Criteria/Critical Deficiencies

Certain criteria are fundamental to establishing and maintaining a trauma facility. These criteria have been identified as critical in nature and the failure of the healthcare facility to meet these criteria is considered a "critical deficiency" (CD). If a Type I deficiency or more than three Type II deficiencies are present at the time of the initial in-state verification visit a facility will not be recommended for designation as a Michigan trauma facility. There are two categories of critical deficiencies that must be met; one category is the **Michigan Criteria** which is derived from the Statewide Trauma System Administrative Rules 325.125-325.138 filed with the Secretary of State on October 2009. The second category of criteria outlined in the PRQ is based on the **American College of Surgeons Committee on Trauma (ACS).** Resources for Optimal Care of the Injured Patient 2014.

1. **Michigan Criteria:**
   Michigan criterion are noted throughout the document and preceded by a reference number Ex: MI-CD 1, MI-CD 2, MI-CD 1-2 etc. Not meeting these requirements is considered a Type I critical deficiency. References for these critical deficiencies can be found www.michigan.gov/traumasystem.

2. **ACS Criteria:**
   American College of Surgeons criteria are noted throughout the document and are preceded by a reference number CD 5-13 etc. Not meeting these requirements is considered a Type I or Type II critical deficiency. References for these critical deficiencies can be found at https://www.facs.org/quality-programs/trauma/vrc/resources.

II. PRE-HOSPITAL SYSTEM

A Medical Control Authority (MCA) in Michigan is a hospital or group of hospitals that operate a service that treats patients 24 hours a day 7 days a week. The Medical Control Authority may include a group of hospitals in a county or region operating under one agency staffed by personnel from out the hospital setting. Hospitals in the MCA may agree to confer their oversight responsibilities to an executive director. There are currently 62 MCA's in Michigan.

1B. For the purposes of this document EMS Education refers to any interaction between the trauma facility staff and the EMS providers for the purposes of improving trauma care in the injured patient. This may include case reviews, trauma courses such as Pre-Hospital Trauma Life Support (PHTLS), offering EMS continuing education, joint exercises and drills.

III. TRAUMA PROGRAM

A. Trauma Staff

At a minimum, all trauma facilities should have a Trauma Program Manager/Coordinator (TPM/C) and a Trauma Medical Director (TMD).

- The TPM is most commonly is a nurse, with trauma/emergency care experience.
- The TMD is a physician on staff who has a role in leadership for the trauma program and acts as a liaison for trauma care.
- Injury prevention staff can be a nurse or other personnel involved in injury prevention activities. This is not a required role.
- Other staff could include data collection personnel or administrative assistants.

C. Physicians and Mid-Level Providers

Education requirements for trauma care providers:

- Mid-level providers who are involved in the initial evaluation or resuscitation of a trauma patient must be current in Advanced Trauma Life Support (ATLS). If the trauma patient is a hand off, after initial evaluation, to an admitting service who utilizes mid-levels, then these mid-level providers are not required to be current in ATLS.
- The Trauma Medical Director must be current in ATLS.
- General surgeons treating trauma patients must have taken ATLS once.
- Emergency Medicine physicians who are board certified in emergency medicine must have taken ATLS once.
- Physicians who work in the emergency department and are board certified in something other than emergency medicine, for example family practice, internal medicine, etc. al, must be current in ATLS.

F. Trauma Transfer

4. Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies (CD 2-13). Transfer agreements to facilities with higher levels of care, capacity, and burn facilities are crucial. A burn facility is typically a hospital which specializes in the treatment of severe burn injuries. The highest level being hospital designated as burn centers by the American Burn Association and the American College of Surgeons.

For additional resources, see the ACS book, "Resources for Optimal Care of the Injured Patient 2014", Chapter 4.

H. Trauma Diversion

Hospital Trauma Diversion: A trauma facility may re-route a trauma patient to an alternate trauma care facility if one or more of its essential trauma resources are currently functioning at maximum capacity, or is otherwise unavailable, in order to serve the best interest of the trauma patient.

Trauma Bypass: Pursuant to the trauma triage guidelines in this protocol, the EMS provider may bypass the nearest trauma care facility in order to transport the trauma patient to a trauma care facility whose resources are more appropriate to the patient's injury.

IV. HOSPITAL RESOURCES

B. Radiology

Rural facilities often need to transfer patients to higher levels of definitive care. It is recommended that imaging protocols be acceptable to both sending and receiving facilities to reduce and prevent the unnecessary repetition of radiographic studies. Level I and Level II centers must be able to read images from referring centers.

C. Laboratory

All required resources will be reviewed during the site visit. (DO NOT include equipment list with this document).

G. Trauma/Hospital Statistical Data

Dead on Arrival (DOA) – pronounced Dead on Arrival with no additional resuscitation efforts initiated in the emergency department.

V. TRAUMA REGISTRY

Ongoing, accurate data collection and analysis is crucial to trauma system development, performance improvement, and injury prevention. The American College of Surgeons requires trauma registries and analysis by every trauma center. Michigan requires data collection to be designated. For the purposes of this document trauma patients are defined by trauma registry inclusion criteria. The trauma registry inclusion criteria include:

- ICD-9 discharge diagnosis 800.00 – 959.9
- Excluding 905-909 (late effects of injury)
- Excluding 910-924 (blisters, contusions, abrasions, insect bites)
- Excluding 930-939 (foreign bodies)
- Excluding drowning, unless consequence of MVC
- Excluding strangulation/asphyxiation
- Excluding poisoning or drug overdose

VI. PERFORMANCE IMPROVEMENT

Performance improvement process focuses on structure, process and outcomes evaluations. Improvement efforts identify root causes of problems, intervene to eliminate these causes and take steps to correct the process. This process must be implemented for facility and regional performance improvement.

A strong PI program must address the following:

- Process improvement contains a detailed audit of all trauma related deaths, major complications and transfers
- A multi-disciplinary trauma peer review committee that includes all members of the trauma team
- Participation in the trauma system data management system
- The ability to follow up on corrective actions to ensure performance improvement activities
- The hospital participates in the regional performance improvement activities
- Practice Guidelines, protocols, algorithms, derived from evidenced validated resources are used to stratify benchmarking and measure performance improvement

For additional resources, see the ACS book, “Resources for Optimal Care of the Injured Patient 2014”, Chapters 15 and 16.

IX. TRAUMA PROGRAM STRENGTHS AND WEAKNESSES

Use this section to honestly assess the strengths and opportunities the trauma program has addressed over the past year and what the expectations for the future are. Consider developing two to three measurable objectives to track and report on.

ADDENDUM

I. SURVEY QUESTIONS

These questions are for informational purposes only and will not affect the designation determination.

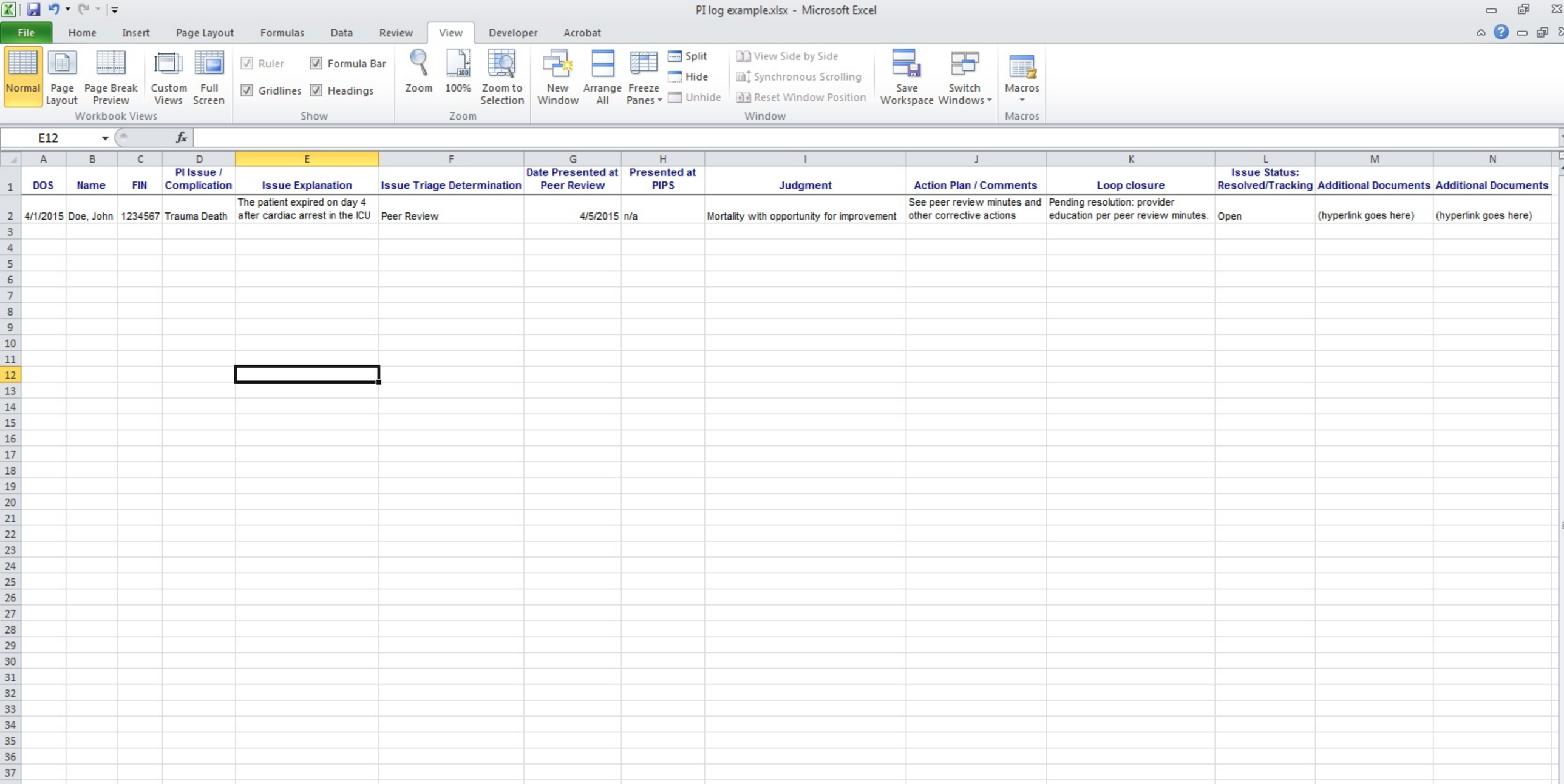
II. NETWORK AUDIT FILTERS

A Regional Trauma Network is an organized group comprised of the local MCA's within a region, which integrates into existing regional emergency preparedness regions. The Regional Trauma Network is the governing body, ultimately responsible for decisions, policy, procedure and any subcommittee work related to trauma. The Regional Trauma Networks were established to provide system oversight of the trauma care provided in each region of Michigan. The audit filters in this section will be monitored by the Regional Trauma Network in the future.

PRQ Level IV Checklist

Before submitting the PRQ, ensure the following has been completed:

- ☐ All questions on the PRQ are complete
- ☐ Appendix #3 - Complete with Trauma Medical Director information
- ☐ Appendix #4 – Staff information table complete
- ☐ Appendix #5 – Trauma transfer criteria that applies is checked
- ☐ Appendix #6 - Trauma diversion table complete
- ☐ Appendix #7 - Examples to questions 1 and 2
- ☐ Appendix #8 – Bolded audit filters complete
- ☐ The following attachments are included:
  - ☐ Trauma Facility Commitment to Level IV Trauma Care – Signed by Chair of the Board, labeled as Attachment #1
  - ☐ Medical Staff Resolution – Signed by Chief of Staff, labeled as Attachment #2
  - ☐ Position descriptions for Trauma Manager and Trauma Medical Director, labeled as Attachment #3
  - ☐ Hospital's activation policy, labeled as Attachment #4
  - ☐ If applicable, the hospital's diversion policy, labeled as Attachment #5
  - ☐ If applicable, the hospital's massive transfusion protocol, labeled as Attachment #6


PI log example.xlsx - Microsoft Excel
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Developer
Acrobat
Normal
Page Layout
Page Break Preview
Custom Views
Full Screen
Workbook Views
Ruler
Formula Bar
Gridlines
Headings
Show
Zoom
100%
Zoom to Selection
Zoom
New Window
Arrange All
Freeze Panes
Split
Hide
Unhide
View Side by Side
Synchronous Scrolling
Reset Window Position
Window
Save Workspace
Switch Windows
Macros
Macros
E12
DOS
Name
FIN
PI Issue / Complication
Issue Explanation
Issue Triage Determination
Date Presented at Peer Review
Presented at PIPS
Judgment
Action Plan / Comments
Loop closure
Issue Status: Resolved/Tracking
Additional Documents
Additional Documents
4/1/2015
Doe, John
1234567
Trauma Death
The patient expired on day 4 after cardiac arrest in the ICU
Peer Review
4/5/2015
n/a
Mortality with opportunity for improvement
See peer review minutes and other corrective actions
Pending resolution: provider education per peer review minutes.
Open
(hyperlink goes here)
(hyperlink goes here)

System PI Tracking

PI Issue	Date introduced	Where Introduced	Classifications	Discussion and Mitigation	Follow-up Date	Notes / Date instituted / Outcome	Re-evaluation/ Loop Closure
Questions regarding weaning protocol after patient still on sedation when weaning expected to occur.		NP brought to TPM, meeting established with respiratory dept	Impact: No harm Type: communication incompl info; airway management; delegation of tasks Domain: ICU care; therapeutic; phys/resid/MLP System: communication of guidelines Human: practitioner knowledge base	Meeting held with respiratory care director and supervisor to review guideline and establish alterations for trauma patients. Also discussed types of services available, those desired as program grows. Includes start of use of EndoClear product to clear ETT of secretions, availability of using volume targeted therapy, use of ETCO2 monitoring, BALs and Vigeleo.		Revised weaning protocol approved by critical care committee and training of respiratory care staff began.	Nov 14, new protocol fully implemented for trauma patients.

Peer Review Tracking

Pt ID	PI Issue	Date introduced	Where Introduced	Classifications	Discussion and Mitigation	Follow-up Date	Notes / Date instituted / Outcome	Re-evaluation/ Loop Closure
XXXXXXX	ETOH referrals		Wkly PI	Type: communication	1. Order required for SW to see patients. Need to include this info in resident trauma orientation packet. 2. Hospital policy on nursing documentation requires dependent habits questions. If positive they initiate CIWA but consult is not automatic order		Automatic order for SW triggers with elevated CIWA score. Re-education of nursing staff by unit managers.	Ongoing

Trauma PIPS
April 7th, 2015

1. Call to Order
2. Trauma Dashboard Review
3. Prevention and Outreach Update
4. Old Business
    a. Door to Head CT PI Project
    b. MTQIP PI project
    c. Activation Billing
    d. MTQIP coordinator
5. Discussion Topics
    a. State of Michigan trauma banding project
    b. Orange Book education requirement changes
    c. Proposed policy change: Peds activation criteria
6. Questions and Open Discussion
7. Next meeting June 3rd, 8am, H1224
8. Adjournment

Trauma Center
Trauma Peer Review Minutes

Multidisciplinary Attendees:

Trauma:
Orthopedics:
Neurosurgery:
Pediatrics:
Lab/Blood Bank:
Risk Management:
EMS:
Burn:
Emergency Medicine:
Radiology:
Pediatric Surgery:
Anesthesiology:
Nursing:

1. Patient: __, __- year-old male **MR #_____ / Trauma #_____**
Date of admit: **Date of death:**
ISS: **TRISS:** **Autopsy:**
Donor: **MOI:**

The patient's hospital course was fairly complicated. In overview, the patient was transferred as a type 2 trauma from the Regional Hospital, after a fall down approximately 9 stairs. Multiple consults were obtained upon the patient's arrival including Orthopedic Surgery for multiple fractures on face and Neurosurgery for intracranial bleeding. It was noted that the patient did have an implanted cardiac defibrillator, so Cardiology was also consulted and an echo done surely after the patient's arrival demonstrated a poor ejection fraction of x percent and the patient was noted to be in A-Fib and amiodarone drip was started. The patient required intubation due to acute desaturation. Over the same time period, it was noted that the patient's creatinine was also starting to rise and he eventually became anuric, so CRT was started, due to poor heart function, the patient did eventually required additional milrinone and multiple pressors to maintain cardiac output and blood pressure. He continued on milrinone and pressors until later during the course of the hospital stay, when he was eventually able to be weaned off of this medication. However, due to the patient's arrhythmia, he was unable to be removed from amiodarone. The patient did undergo bedside PEG tube placement and tracheostomy. The patient's CRT was stopped due to frequent filter clots and plans for SLED were made. On XX/XX/XXXX the patient's CRT was restarted as the patient did not tolerated this period of time without CRRT, on that same day his heart rate became erratic and his blood pressure dropped. He was at that time given bolus amiodarone as well as calcium chloride, and D15 insulin. He did stabilize initially. However, the patient's wife elected to move the patient to comfort care only after speaking with Palliative Care. The patient was placed on comfort care measures and passed away at 1357 hours.

PI Issues	Discussion	Determination	*Recommendations / Action & Loop Closure Status
1. Septic Shock, MSOF (9519)	an EF of 10-20%. Injuries were catastrophic for this 70-year-old man.	Non-preventable, disease related	***Loop Closure:*** *******No action required.* ***Closed.***
2. Pneumonia (3008)	Pneumonia is suspected to be due to aspiration. The sputum cx showed GNR. He also had multiple rib fractures. This patient was not eligible for an epidural catheter (rib fxs) d/t being on Plavix. Family declined the use of the On-Q pump. VAP precautions utilized appropriately per documentation. Once pt was on ventilator; he was unable to be weaned off. In the geriatric patient with the presence of 3 or more rib fractures has been associated with increased mortality, ICU and hospital length of stay.	Potentially preventable, provider related	***Loop Closure:*** ******* *Providers on case counseled; complications in geriatric patients--increase morality. Geriatric PMG approved at January Trauma Systems meeting. Education provided on Practice management guideline during residency check out rounds on (date) and nursing grand rounds (date)* ***Closed.***
3. UTI, early (6003)	Any UTI is a “never event”. This patient developed the UTI in the first 72 hours post admission. The foley was inserted at Regional Medical Center.	Preventable, provider related	***Loop Closure:*** ******* *Regional Medical Center notified of this pt developing early UTI* ***Closed.***
5. Trauma death (9815)	The injuries were catastrophic for this 70-year-old man.	Non-preventable, disease related	***Loop Closure:*** *******No action required.* ***Closed.***

2. Patient: __, __- year-old male **MR #_____ / Trauma #_____**
Date of admit: **Date of death:**
ISS: TRISS: **Autopsy:**
Donor: **MOI:**

Motor vehicle accident on (date) resulting in multiple fractures including comminuted, spiral left femoral, sternum with retrosternal hematoma, left scapula, sacrum, and left 4-7 ribs. Pt was initially seen in Big City, USA. Due to lack of resources at their hospital, he was transfer to hospital X. This patient has an extensive medical history including: HTN, atrial fibrillation, hypothyroidism & dyslipedemia. Home meds: aspirin 81 mg p.o. daily, B12 injection monthly, levothyroxine 50 mcg 1 daily, simvastatin 40 mg 1 daily, and diclofenac 75 mg p.r.n. Pt was admitted to the SICU. Cardiology was consulted d/t orthopedic surgery required for this femur fracture. They did clear him for OR; however, the anesthesia attending did not think he would survive the case and it was canceled. Anesthesiology did relay/discuss this information with the Orthopedic Attending and the patient's family. The Trauma Attending was not made aware of this decision. Pt was taken to the OR 3 days later for repair of the femur fracture. During the OR case his renal status declined and his base deficit went from 0.9 to 6.1. He ended up required CRRT and his renal failure was resolved on (date).

PI Issues	Discussion	Determination	*Recommendations / Action & Loop Closure Status
1. Lack of pre-hospital immobilization (9901)	Rural community hospital did not have the resources needed for a patient of this body habitus. The transferring provider did have the proper equipment for immobilization.	Unacceptable provider related.	***Loop Closure:*** **Spoke to ED staff post peer review, ED staff provider did use towel rolls, for neck just forgot to document.* ***Closed.***
2. Pneumonia (3008)	Patient has significant pulmonary history, including recurrently pneumonia. The patient was being treated for this prior to admission.	Non-preventable, disease related	***Loop Closure:*** *******No action required* ***Closed.***
3. Respiratory failure (3015)	Poor mobility due to body habitus. Pt admitted with preexisting pneumonia. Patient was given "On-Q pump" to management rib fracture pain thereby increasing ease of breathing.	Potentially preventable, provider related.	***Loop Closure:*** ******* *Create Bariatric PMG to include each body system.* ***Pending.***

4. Delay to OR (9003)	This issue is d/t lack of Staff to Staff communication. See below.	Unacceptable, provider related	***Loop Closure:*** ***** *Provider counseled by Dr. Anesthesia.* ***Closed.***
5. Error in Communication -Staff to Staff communication (9904)	The attending anesthesiologist that preformed the pre-op assessment decided that it was not safe to take the patient to the OR. He relayed this to the orthopaedic surgeon and the patients family; however, he did not inform the trauma attending.	Unacceptable, provider related	***Loop Closure:*** ***** *Provider counseled by Dr. Anesthesia.* ***Closed.***
6. Error in treatment - Under resuscitation in the OR (9904)	Anesthesiology reviewed case carefully prior to peer review and agree that patient was under resuscitation in the OR.	Preventable, provider /systems related	***Loop Closure:*** ****Complete literature search on "Endpoints of trauma resuscitation"* **Set up meeting w/ Trauma surgeon, Dr. Anesthesia, and staff* ***Open.***
7. Renal failure (6001)	This is a result of under resuscitation in the OR. He was placed on CRRT for a short period of time. The patient's renal failure resolved.	Preventable, provider related	***Loop Closure:*** ****Complete literature search on "Endpoints of trauma resuscitation"* **Set up meeting w/ Trauma surgeon, Dr. Anesthesia, and staff* ***Open.***
8. Decubitus Ulcers (stage 2 to un-stageable) (6505)	Coccyx/buttock. Wound Team was consulted and recommendation carried out. Pt extremely difficult to turn due to body habitus.	Preventable, provider related	***Loop Closure:*** ***** *Create Bariatric PMG and include proper bed, skin assessment and early intervention.* ***Pending.***

9. Decubitus Ulcer (stage 2) (6503)	Right heel. Wound Team was consulted and recommendation carried out. He was placed in a off-lifting boot. This pressure wound did not advance.	Preventable, provider related	***Loop Closure:*** ***** *Create Bariatric PMG and include proper bed, skin assessment and early intervention.* ***Pending.***

This information is peer review pursuant to the Hospital Risk Management and Performance Improvement Plans and is protected by State 12-345 and State 12-789. This information should not be disclosed to any person or entity for any reason other than for purposes directed under the Hospital Policies and Procedures, including the Risk Management and Performance Improvement Plans.

Trauma Service
Weekly Patient Review

Registry # _____ **Patient Name** _____ Age _____

Admit Date _____ Discharge Date _____ MOI _____ Activation Level ____

Injuries: _____

Procedures: _____

Issues:

□ Admit Srv	□ Blood	□ Death	□ Dx Delay	□ Nursing
□ GSW non-OP	□ Inc EMS	□ Late Neuro OR	□ Late Ortho OR	□ Complications
□ MD Delay	□ Non Fx Fix	□ OR Delay	□ Readmit	
□ Reintub	□ Return OR	□ Transfer Delay	□ UnderTriage	
□ TransferOut-Ad	□ TransferOut-Ped			

Discussion_____

Action Plan (including responsible person(s)

_____ **Signature:** _____ **Review Date**: _____

Trauma Code I Criteria:

Trauma Code I **MUST** be called for a patient with **ANY** of the following criteria:

1. **Confirmed** systolic blood pressure <90 at any time in adults, and age-specific hypotension in children, with mechanism attributable to trauma.

2. Gunshot wounds to the neck, chest, abdomen, or extremities proximal to elbow or knee.

3. GCS < 8 with mechanism attributable to trauma.

4. Trauma patients transferred from other hospitals who are receiving blood to maintain vital signs.

5. Any trauma patient intubated on scene whether arriving from scene of injury or transferring facility.

6. Trauma patients with respiratory compromise or obstruction:
    a. **Includes:** intubated patients who are transferred from another facility with ongoing respiratory compromise.
    b. **Excludes:** patients intubated at another facility that are currently stable from a respiratory stand point.

7. Hanging victims that meet any of the other 6 criteria listed above.

8. Trauma patients who have had cardiac arrest at any point prior to their arrival at MidMichigan Medical Center-Midland.

A Trauma Code I may be activated for additional reasons not listed above by the Emergency Department Physician and/or the Trauma/General Surgeon.

Trauma Code II Criteria:

A Trauma Code II Activation **MUST** be called for a patient who meets **ANY** of the following criteria:

1. Patients who met trauma code 1 criteria upon arrival to a referring facility that no longer meet code 1 criteria upon transfer to Midland.
2. Ejection from any motorized vehicle or animal.
3. Severe burns TBSA >9% with or without additional trauma.
4. Amputation, degloving, or crush injury proximal to wrist or ankle.
5. New onset paralysis s/p traumatic injury.
6. Mechanism suspicious for severe injury (examples: MVC > 35mph, MVC with extensive vehicle damage)
7. Auto vs Motorcycle
8. Auto vs Pedestrian
9. Auto vs. Bicycle
10. Fall from >15 feet
11. Fall down flight of stairs with high suspicion of injury
12. Death of passenger in same compartment of vehicle.
13. 2 or more proximal extremity fractures, open fractures, and/or pelvic fractures
14. Electrical burns (including lightning injuries)
15. Suspicion of inhalation injury
16. Geriatric patients with multi-system injuries ($\geq$ 65 years old)
17. Anticoagulant patient falls with altered mentation from baseline
    a. At physician discretion if baseline mentation is unknown.
18. Positive seatbelt sign.

A Trauma Code II may be activated for additional reasons not listed above by the Emergency Department Physician and/or the Trauma/General Surgeon.

ST. JOSEPH MERCY OAKLAND
SAINT JOSEPH MERCY HEALTH SYSTEM

Trauma Resuscitation
Team Member Roles and Responsibilities

Trauma Medical Lead

- ED Physician* – responsible for patient care until Attending Trauma Surgeon arrives
  - Head of Bed; manage C-spine, airway
  - Guide resuscitation (in concert with Senior Resident) until Trauma Surgeon arrives*
- Trauma Surgeon (Alpha Response – *must arrive at bedside within 15 minutes of trauma activation)*
  - Responsible for resuscitation upon arrival
- Senior Resident (PGY 3, 4, or 5)
  - Guide resuscitation (in concert with ED physician) until Trauma Surgeon arrives**
  - Assign roles to Trauma Team- Primary survey, procedures, order entry
  - Facilitate the "EMS Timeout"
  - Communicate orders to the Team

**ED physician responsible for patient care until hand off to attending trauma surgeon or patient leaves ED*
***ED physician and senior surgical resident communicate and work together to guide the overall resuscitation*

Primary RN

- A-B-C-D of TNCC (Position on side of monitor if injury allows)
  - Maintain airway
  - Administer O_2 – Apply pulse-ox
  - Assist with placing of Chest tube if needed
  - Place Leads/connect to monitor
  - Vital Signs – place NIBP
  - Pulses—Apical and peripheral
  - Neuro checks with pupil checks and GCS
  - Comfort/Pain control – non-pharmacological and pharmacological
  - Blood Infusion

RN/MEDIC – Opposite side of bed from Primary RN

- IV insertion
- Lab draw
- Infuse IV crystalloid
- Level I Rapid Infuser set up
- Circulate

Scribe RN

- Trauma Assessment Flow Sheet – Hard copy except for following information to be placed on intake form
  - ***Ht. Wt. Allergies and Chief Complaint on Intake Form (electronically)***
- Report from EMS
- Document – orders – notes
- Crowd Control

HUC

- Calling to arrange tests, etc.
- Crowd control (if HUC in Trauma Bay***)

Residents 1 and 2

- Central IV Access
- Log-rolling
- Assist with patient care per Trauma Lead
- Order entry to continue by resident not at bedside

***HUC is not required to be in Trauma Bay

Trauma Activation Log example.xlsx - Microsoft Excel

File | Home | Insert | Page Layout | Formulas | Data | Review | View | Developer | Acrobat

Normal | Page Layout | Page Break Preview | Custom Views | Full Screen — Workbook Views
Ruler | Formula Bar | Gridlines | Headings — Show
Zoom | 100% | Zoom to Selection — Zoom
New Window | Arrange All | Freeze Panes | Split | Hide | Unhide | View Side by Side | Synchronous Scrolling | Reset Window Position — Window
Save Workspace | Switch Windows
Macros — Macros

G11 | 55M

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Date**	**Time**	**FIN #**	**Pt Name**	**Level**	**Pre-Hospital Notification**	**Age/Gender**	**MOI**	**Main Injuries**	**Dispo**	**Billing Date**	**Billed by**	**Comments**
2	1/2/2015				2	Yes	60F	MVC	None	d/c-home	1/5/2015		
3	1/2/2015				2	Yes	70F		**Upgrade to code 1**				
4	1/2/2015				1	Yes	70F	Burn	Facial burns	admit-trauma	1/5/2015		
5	1/2/2015				1	Yes	unknown	MVC	facial fxs, ptx, rib fxs, SAH	admit-trauma	1/5/2015		
6	1/2/2015				2	Yes	22M	MVC	pulm contusions,	admit-trauma	1/5/2015		
7	1/2/2015				2	Yes	4F	Ped vs Auto	tibial plateau fx, clavicle fx	transfer-covenant	1/5/2015		
8	1/3/2015				2	Yes	94M	Fall	SDH	admit-trauma	1/5/2015		
9	1/3/2015				2	Yes	69F	MVC	Femur, fibula fx	admit-trauma	1/5/2015		
10	1/4/2015				2	Yes	62M	Snowblower accident	hand inj	transfer-Beaumont	1/5/2015		
11	1/4/2015				2	Yes	55M	MVC	c-spine fx, rib fxs	admit-trauma	1/5/2015		
12	1/5/2015				2	Yes	51M	MVC	None	d/c-home	1/6/2015		
13	1/6/2015				1	Yes	N/A	MVC	Died in route				
14	1/6/2015				2	Yes	31M	MVC	head lac	d/c-home	1/7/2015		
15	1/7/2015				2	Yes	90M	Fall	SDH chronic	admit-trauma	Not Billed		Documentation does not support charge.
16	1/9/2015				1	Yes	17M	Ped vs Auto	SDH, SAH, EDH, Skull/facial fx	admit-trauma	1/12/2015		
17	1/9/2015				2	Yes	52F	MVC	None	d/c-home	1/12/2015		
18	1/9/2015				2	Yes	46M	MVC	None	medical admit	1/12/2015		admitted for pneumonia
19	########				2	Yes	48F	MVC	odontoid fx	admit-trauma	1/12/2015		
20	########				1	Yes	86F	Fall	sdh	admit-trauma	1/20/2015		
21	########				2	Yes	68F	MVC	None	d/c-home	1/22/2015		
22	########				2	Yes	64M	Fall	skull fx, sdh, sah	admit-trauma	1/22/2015		
23	########				2	Yes	20M	MVC	None	d/c-home	1/23/2015		
24	########				2	Yes	33F	Fall down stairs	None	d/c-home	1/26/2015		
25	########				2	Yes	58M	Fall	Concussion	admit-trauma	1/27/2015		
26	########				1	Yes	72F	MVC	PTX, ribs, sternum, calc, CPR	admit-trauma	1/27/2015		
27	########				2	No	39M	MVC	None	d/c-home	N/A		
28	########				2	Yes	58F	Fall	Sz	admit-medicine	2/2/2015		medical admission

Trauma Resuscitation

Emergency Department

☐ MidMichigan Medical Center-Clare ☐ MidMichigan Medical Center-Gladwin
☐ MidMichigan Medical Center-Gratiot ☐ MidMichigan Medical Center-Midland

Time:	Pulse:	B/P:	RR:	SpO2:	Temp:	Height	Weight

Age:_____ Sex: ☐ Male ☐ Female

Allergies: _____

Trauma Code ☐ I ☐ II Paged: _____

Patient Arrival Time: _____

Trauma Sign-In

	Name (Please Print)	Time of Arrival
*Trauma Surgeon		
*ED Attending		
*Anesthesia / CRNA		
*Primary Nurse		
*Scribe Nurse 1		
ED Tech		
Secondary Nurse		
Trauma PA		
Laboratory		
Respiratory		
Radiology		
Security		
Other:		
Other:		

* Mandatory for Code I

Mechanism of Injury

Time of Injury: _____

☐ Auto Accident ☐ Auto vs. ☐ Bicycle ☐ Pedestrian

☐ Other _____ Speed _____

☐ Driver ☐ Passenger Seatbelt: ☐ Yes ☐ No ☐ Airbag

☐ Frontseat ☐ Backseat ☐ Ejected ☐ Rollover

☐ Motorcycle vs. _____ Helmet: ☐ Yes ☐ No

☐ Bicycle vs. _____ Helmet: ☐ Yes ☐ No

☐ Assault ☐ Blunt ☐ Penetrating ☐ Stabbing ☐ Gunshot

Weapon _____

☐ Fall (Distance) _____

☐ Other (Narrative) _____

Pre-Hospital

Mode Arrival: ☐ EMS ☐ Air ☐ Private Auto

Transfer: ☐ Yes ☐ No From: _____

O_2 ☐ NC ☐ NRB ☐ Airway ☐ Bagged ☐ CPR

☐ ET # _____

☐ Cervical Collar ☐ Backboard

☐ Splint ☐ IV site/gauge

Tetanus: ☐ Unknown ☐ Up to date

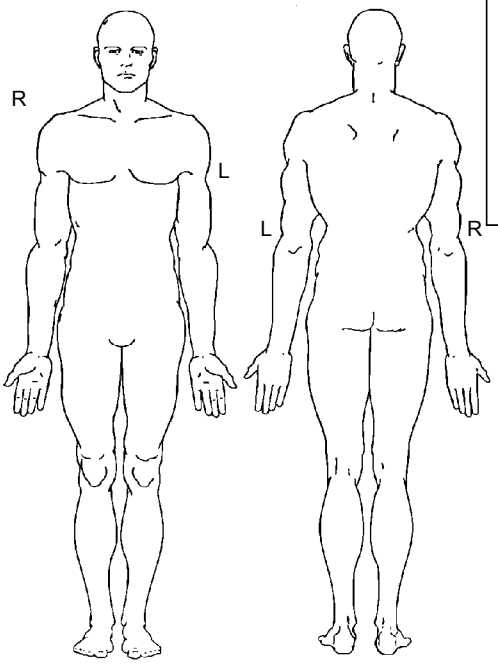
☐ ETOH use ☐ Drug use _____

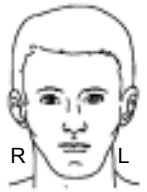
Medications ☐ None

Past Medical Hx

☐ No significant Hx

Identify by Number





1. Laceration
2. Abrasion
3. Hematoma
4. Bruise
5. Deformity
6. Open Fracture
7. GSW
8. Stab
9. Burn
10. Amputation
11. Pain

ED Nursing Notes

A = Airway ☐ Patent ☐ ETT ☐ NC ☐ NRB ☐ Simple Mask

☐ O_2 _____ L/Min O_2 SAT % _____

B = Breathing

☐ Normal ☐ Labored ☐ Abnormal

C = Circulation

Pulse ☐ Normal ☐ Absent Location _____

☐ CPR

Cap Refill ☐ Normal ☐ Delayed ☐ None

☐ External Hemorrhage, Location _____

Additional Notes _____

_____

_____

D = Disability Loss of Consciousness + / - PERRLA _____

Pupil Status Key - mm Scale R _____ **L** _____

Best Eye Opening:	
Eyes open spontaneously	4
Eyes open in response to voice	3
Eyes open in response to pain	2
No eye opening response	1
Best Verbal Response:	
Orientated (e.g., to person, place, time)	5
Confused, speaks but is disoriented	4
Inappropriate, but comprehensible words	3
Incomprehensible sounds but no words are spoken	2
None	1
Best Motor Response:	
Obeys command to move	6
Localizes painful stimulus	5
Withdraws from painful stimulus	4
Flexion, abnormal posturing of extremities	3
Extension, abnormal posturing of extremities	2
No movement or posturing	1
Total	

E = Expose and Warm

☐ Clothes Removed Time: _____

Warming: ☐ Blankets ☐ Bair Hugger ☐ Radiant Heat

Time Started: _____ ☐ Warm Fluid

G = Give comfort, notify / bring in family

Family Notified: ☐ Yes ☐ No

Contact Name/Relation _____ Time: _____

Family Present: ☐ Yes ☐ No Who? _____

H = Head to toe assessment Head / Neck

☐ Normal ☐ Ear / Nose Drainage

☐ Deviated Trachea: ☐ R ☐ L

H = Head to toe assessment, Cont.

☐ JVD ☐ Distracting Injury: ☐ Yes ☐ No

☐ Other _____

☐ C. Collar Applied Time: _____

Chest

☐ Normal ☐ Labored

☐ Symmetrical ☐ Asymmetrical

☐ SubQ Emphysema ☐ Flail

☐ Other _____ (wounds)

Lung Sounds ☐ Clear to Auscultation

☐ Equal Bilaterally

☐ Diminished: ☐ R ☐ L

☐ Absent: ☐ R ☐ L

☐ Other _____

Heart Tones

☐ Normal ☐ Distant/Muffled

Abdomen

☐ Normal ☐ Rigid ☐ Distended ☐ Tender

☐ Flank Pain: ☐ R ☐ L

☐ Bowel Sounds: ☐ Present ☐ Absent

Skin

☐ Warm ☐ Cool ☐ Pink ☐ Pale ☐ Dry

☐ Dusky ☐ Diaphoretic ☐ Cyanotic ☐ Clammy

Extremities

☐ Moves all Extremities

☐ Deformities: _____

☐ Unable to assess deformities

Pulses: (✓ at least one central & one peripheral)

	Present	*Absent*	*Strength*	*Side*
Central				
Carotid	☐	☐		☐ R ☐ L
Femoral	☐	☐		☐ R ☐ L
Peripheral				
Radial	☐	☐		☐ R ☐ L
Posterior Tibial	☐	☐		☐ R ☐ L
Pedal	☐	☐		☐ R ☐ L

I = Inspect Posterior - Log roll time: _____

☐ Normal ☐ Deformities _____

☐ Rectal Tone: ☐ Deferred ☐ Normal ☐ Decreased ☐ Absent

☐ Step Offs: _____

☐ Backboard Removed by _____

Time _____

☐ C-Collar Removed by _____

Time _____

VS Record

Time	T	P	BP	R	SaO_2	GCS	Initials

IV Sites

Time:_____ Site:_____ Gauge:_____

Time:_____ Site:_____ Gauge:_____

Central Line:

Time:_____ Site:_____ Gauge:_____

Type:_____ By:_____

Arterial Line:

Time:_____ Site:_____ Gauge:_____

Type:_____ By:_____

Catheter:

Time:_____ Type:_____

Size:_____ Outpatient:_____

Chest Tube

Time Inserted/Location _____

Drainage _____

Time Inserted/Location _____

Drainage _____

Thoracotomy: Time:_____ By:_____

Fast Scan: Time:_____ ☐ + ☐ - By:_____

Ventilator/Intubation: ☐ Oral ☐ Nasal Tube size:_____

Lip line:_____ End cap color change: ☐ Yes ☐ No

Auscultation: ☐ + ☐ - By:_____

Vent. Settings:_____

Gastric Tube: ☐ Oral ☐ Nasal Size:_____ Time:_____

Medication / IV / Blood & Blood Products

Start/Stop	Medication/Dose	Route	Site	Number	Initials
	Tetanus 0.5 ml Lot #:_____ Expiration Date:_____				

Date	Time	Nursing Documentation
	Activation Stop Time: _____	

Signature	Print Name	Title	Initials

Intake			Output		
Fluid	Amount	N/A	Fluid	Amount	N/A
Field			Urine		
IV			NG		
Blood			Chest Tube		
Lavage			Right Chest		
Other			Left Chest		
			Lavage		
Intake Total			Output Total		

Disposition:

Admit: ☐ Med/Surg ☐ PCU ☐ ICU ☐ Observation ☐ Discharge

OR: ☐ Yes ☐ No Time: _____

Transfer: ☐ Yes ☐ No Destination: _____

Patient Label

PRE- HOSPITAL NOTIFICATION REPORT
TRAUMA ACTIVATION LOG (2/4/15)

Date: _____ Time of EMS call: _____ Age: _____

Gender: ___Male ___ Female Conveying Unit # _____ ETA: _____

Trauma Code Level: _____ Call Received by (PRINT)_____

Notification: _____ ED Attending ____ Operator _____Sent via Perfect Serve

ACTIVATE LEVEL I:

Response: 15 minutes

____ GSW to torso/neck. Torso includes chest, abdomen, buttock and groin.
____ GCS < 9
____ Systolic BP < 90 at any time or age specific in kids
____ Intubated or airway compromised
____Transfers with blood transfusion to maintain vitals
____Transfer of patients meeting any of the above criteria
____Emergency Physician Discretion

NOTES:
Vitals:
BP _____
P _____
R _____
GCS _____
LOC __*Yes* __No
*How long? ____

PerfectServe Script includes:
Age
Gender
Mechanism/cause (GSW, MVC, pedestrian, motorcycle, stab, etc)
SBP
GCS
ETA

ACTIVATE LEVEL 2:

Response: 20 minutes resident/attending
max 2 hrs for attending

____ MVC > 55mph w/ major car deformity or intrusion > 12 inches
____ Ejection from motor vehicle
____ Prolonged Extrication time (>20 min)
____ Death in same passenger compartment
____ MVC/ Bicycle, Pedestrian, motorcycle run over, thrown, or with significant impact (> 20 mph)
____ FALL > 20 ft
____ Fall on Anticoagulants GCS 9-13
____ All **STAB** wounds to head, neck, torso. Torso includes chest, abdomen, buttock and groin.
____ Flail chest or multiple rib fractures
____ Two or more long bone fractures (humerus/femur)
____ Amputation proximal to wrist or ankle
____ Focal neurological deficits or **GCS ≤ 12** *after traumatic injury*
____ Pregnancy > 20 weeks, *ALSO Notify OB*
____ BURN > 20% TBSA
____Any trauma transfer in from another facility for definitive care
____ **Extremes of Age**
<5 years
>70 years
_____Emergency Physician Discretion

ACTIVATE LEVEL 3:

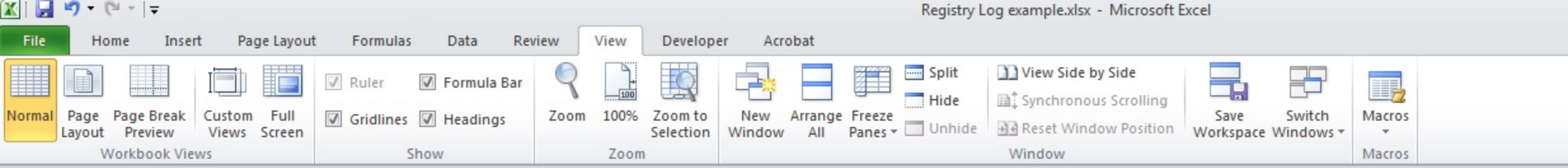
Response: 30 minutes resident
max 2 hrs for attending
No trauma flow sheet needed.
Do not need to go to trauma bay.

____Age 50 years or older with trauma related mechanism who is on ASA or anticoagulants even with no obvious external signs of injury
____Any other condition that requires evaluation by a trauma surgeon and/or based on Emergency Physician Discretion
____Any patient who sustained trauma and is being considered for admission to a non-surgical service

CONSULT: by Physician
Use for incidental or delayed findings.

_____Any patient found to have injury after initial workup for any other reason within 7 days of injury

UPGRADE TO APPROPRIATE LEVEL:
Any trauma patient with new findings of instability warranting immediate response from the trauma team



O10

	A	B	C	D	E	F	G	H	I
1	**Name**	**FIN**	**Date**	**Admit/Transfer/Death**	**Referring Hospital**	**Admission Service**	**Diagnosis**	**TPM review?**	**Comments**
2	*Insert Name*			Admit	N/A	Trauma	Contusions, Abrasions	No	Needs More Information
3	*Insert Name*			Death	N/A	N/A	Base Skull Fracture w/extension to occipital condyles, Ant.,Inf.,and Lat. Right occipital condyle displacement and cervical cord relative to base of brain, multiple Contusions,	No	Expired
4	*Insert Name*			Admit	N/A	Family Practice	Right Subcapital Hip Fracture	No	
5	*Insert Name*			Admit	N/A	Hospitalist	Right Femoral Neck Fracture	No	
6	*Insert Name*			Admit	N/A	Hospitalist	Right Hip Intertrochanteric Femur Fracture	No	
7	*Insert Name*			Admit	N/A	Hospitalist	Left Femur Fracture	No	
8	*Insert Name*			Admit	N/A	Hospitalist	Scalp Laceration, Right Femoral Neck Fracture	No	
9	*Insert Name*			Admit	N/A	Trauma	Bilateral Mandible Fracture	No	
10	*Insert Name*			Admit	N/A	Trauma	Right Hip Fracture, Right Humerus Fracture, HI, Facial	No	
11	*Insert Name*			Admit	N/A	Hospitalist	Right Intertrochanteric Hip Fracture	No	
12	*Insert Name*			Admit	Facility name	Trauma	Left Occipital Skull Fracture, Scalp Contusion	No	
13	*Insert Name*			Admit	N/A	Trauma	Subdural Hematoma	Yes	
14	*Insert Name*			Admit	N/A	Hospitalist	Left Hip Fracture	No	
15	*Insert Name*			Admit	N/A	Hospitalist	Right Intertrochanteric Femur Fracture	No	
16	*Insert Name*			Admit	N/A	Hospitalist	Right Medial and Lateral Malleoli Fracture	No	
17	*Insert Name*			Admit	N/A	Hospitalist	Left Hip Fracture, Posterior Scalp laceration	No	
18	*Insert Name*			Admit	N/A	Hospitalist	Right Distal Femur Fracture	No	
19	*Insert Name*			Admit	N/A	Hospitalist	Right Hip Fracture	No	
20									
21									
22	Transfer								
23	*Insert Name*			Transfer	N/A	N/A	Pneumothorax	No	Peds
24	*Insert Name*			Transfer	N/A	N/A	Subarachnoid Hemorrhage	No	Peds
25	*Insert Name*			Transfer	N/A	N/A	Right hand Lacerations and Crush Injury	No	Microvascular
26	*Insert Name*			Transfer	N/A	N/A	Concussion	No	Peds (pt request)
27	*Insert Name*			Transfer	N/A	N/A	Concussion, Abrasion to frontal area and Left periorbital	No	Peds
28									

H16

	A	B	C	D	E	F	G	H	I	J	K
1	Date	Name	Account	Category	Diagnosis	ER Physician	Accepting Hospital	Accepting Physician	Transportation Mode(pv, ems service)	Reason for Transfer	Problems associated with the transfer arrangments
2	1/2/15			surgical	Loss of hand, bleeding, loss of neuro/vas hand function		UOM-ER		EMS	Microvascular Surgeon	
3	1/2/15			Peds ICU	MVA/ risk of worsening symptoms		Covenant-ER		EMS	Pediatric ICU	
4	1/215			Medical	L pulmonary contusion		UOM-ER		EMS	Respiratory failure, death	
5	1/3/15			Medical	Ventriculomegally		UOM		EMS	Higher level of Care	
6	1/3/15			surgical	Drug OD-17 year old		Covenant		EMS	higer level of monitoring -pediatric	
7	1/5/15			Medical	neutropenic, pneumonia		Mott-ED		EMS	peds heme/oncology	
8	1/6/15			Medical	UTI, Bradycardia Hypoglycemia, CP		Covenant		EMS	Peds ICU	Pt is minor no family or guardian present-DHS contacted.
9	1/7/15			Medical	Syncope		UOM		EMS	risk of deterioation	
10	1/9/15			medical	Pneumonia/ lung disease		UOM		EMS	PF care continually change	
11	1/9/15			surgical	Lumbar back pain		St. Mary of Michigan		ems	S/p fall-neurologist	
12	1/10/15			Medical	Resp Distress/Hypoxia		Covenant		EMS	Pediatric ICU	
13	1/10/15			surgical	Buttock Absess		UOM-Childrens		private car	Pediatric surgical care-follow up	
14	1/15/15			surgical	AAA leaking		UOM		UOM-helicopter	AAA-	
15	1/16/15			surgical	AAA		Covenant		EMS	AAA-	
16	1/16/15			Medicalt	Suicidal Ideation		Owasso		EMS	Specialized Care	
17	1/18/15			Medical	Seizures		Hurley		EMS	Consult Pediatric Neurology	
18	1/22/15			surgical	Acute Renal Failure, Thrombus, angina esma		Henry Ford-sicu		ems	Vascular Surgery	
19	1/23/15			medical	ETOH Poisioning PICU		Covenant ED		ems	PICU	
20	1/25/15			surgical	Multiple facial lacerations 2nd to dog bite		Covenant		EMS	Peds	
21	1/26/15			surgical	L 4-5 discitis-lumbar neuropath		Covenant		EMS	Continuity of Care	
22	1/28/15			medical	CVA		St. Joe's Pontiac		helicopter	Stroke intervention	
23	1/28/15			medical	fever, chest wall cellulitis, spesis		UOM-Ed		ems	continutiy of care	
24	1/30/15			surgical	Constipation		UOM		ems	Continuity and higher level of care	
25											
26											
27											
28											
29											

OPERATING ROOM & ANESTHESIA SERVICES CALL LOG FOR URGENT AND EMERGENT SURGERIES
Time called and arrived need to be noted for all procedures done during on-call hours (nights & weekends) including non-elective add-ons.

DATE	*REASON* L1 – Level 1 Activ L2 – Level 2 Activ Add-on	NAME (printed)	Signature	Time called or pager went off	TIME ARRIVED	Response Time	Surg? Yes No	If Surgery OR Start Time
		Nurse						
		Anesthesiologist						
		Anesth Resid						
		Nurse						
		Anesthesiologist						
		Anesth Resid						
		Nurse						
		Anesthesiologist						
		Anesth Resid						
		Nurse						
		Anesthesiologist						
		Anesth Resid						
		Nurse						
		Anesthesiologist						
		Anesth Resid						

Sample Trauma Budget
Worksheet

		Annual $	Comments
Staffing	Trauma Program Manager/Coordinator		1.0 FTE
	Trauma Registrar		1.0 FTE for every 500-750 registry entries
	Trauma Medical Director		0.3-0.5 FTE
	Trauma Administrative Assistant		0.5-1.0 FTE
	Trauma Mid-level Providers		Optional
	Injury Prevention Coordinator		Optional
	Staffing TOTAL		
PURCHASED SERVICES			
Contracted Personnel	**Trauma Surgeon on-call**		
	6060 TOTAL		
SUPPLY EXPENSES			
Misc General	Food for committee meetings		Coffee and bagels for monthly trauma meetings, & TNCC 2 day courses offered at least twice yearly
	Food TOTAL	**$0**	
Office Supplies	Trauma service office supplies		Copy paper, printer cartridges, etc. First year needs higher to include equipment (computers, phones, fax/copier, etc)
	7400 TOTAL	**$0**	
OTHER OPERATING EXPENSES			
Purchased Maint-Softw	Trauma registry annual fee		Must have trauma registry and submit annually to NTDB - initial cost $10,000-$12,000 unless State registry can be used or subsidized by State.
	8042 TOTAL	**$0**	
Dues	Trauma Centers of America		Beneficial to belong at least initially. Annual fee. They are the only national trauma resource on finance, salaries, etc.
	State Trauma Coalition if applicable		Can provide networking, resources and in-state education.
	ACS Consult or Verificaiton Visit		every 3 years
	plus, ACS Dinner & other expenses x2		every 3 years
	8310 TOTAL	**$0**	
Travel	National Conf TPM and IPC		1-2 out of town per year - EAST and/or STN, State COT, local trauma symposiums/conferences.
	8315 TOTAL	**$0**	
Education	TNCC Courses for ED and ICU nurses		32 staff/yr at $200 each. Required by ACS for FT - ICU and ED nurses
	TNCC Instructor pay reimbursement		Daily pay for instructors at $250/day each Requires 4-5 instructors per course.
	Trauma education for nursing staff		If funds available, this allows covering registration at local trauma related conferences like TCAR, PCAR, etc
	Trauma education Trauma Registrar		New Orange Book will require AIS and ATS or other trauma registrar course within one year for all new trauma registrars.
	Injury Prevention materials		Educational materials needed to support community programs.
	8320 TOTAL	**$0**	
		$0	**Operational costs**

MidMichigan Health
UNIVERSITY OF MICHIGAN HEALTH SYSTEM

Trauma Program Newsletter

MidMichigan Medical Center-Midland

Issue 3 Spring 2014

The Initial Management of Severe Traumatic Brain Injury

Thomas J. Veverka, MD, FACS
Trauma Medical Director

In This Issue:

As we progress in our development into a more mature trauma center, we all need to become more knowledgeable and comfortable with our initial management of patients with severe traumatic brain injury. As we all know, these injuries frequently involve the young, and aggressive and thorough management can help to optimize the neurologic function of the patient for years to come.

There are approximately 1.7 million TBI per year in the U.S., 75% of which are considered mild. Fifty-two thousand die each year from TBI and 275,000 are hospitalized. TBI is a contributing factor in 30.5% of all injury-related deaths and total costs (direct medical and indirect societal) was estimated at $76.5 billion for the year 2000 in the U.S.

As with all injured patients arriving in our emergency department, ATLS provides an excellent framework for initial evaluation and management. For a patient with a GCS of 3-8, immediate intubation is required. In this scenario, obvious severe primary structural damage to the brain has already occurred, and the entire focus moving forward is to avoid secondary injury. These secondary insults, hypotension, hypoxemia, hypocarbia, fever, and hyperglycemia have all been shown to worsen long-term outcomes. In addition, data suggests that ongoing agitation will trigger subsequent programmed neuronal cell death, so adequate sedation (without inducing hypotension) is a key element of care.

After establishing a stable airway and initiating resuscitation, a thorough patient evaluation searching for concomitant injuries, especially those involving ongoing blood loss thus threatening hemodynamic stability, must be carried out. Obviously, physical examination will have its limitations and full radiologic assessment is almost always necessary, but a patient with hypotension unresponsive to resuscitative efforts is assumed to be hemorrhaging and belongs in the OR for hemorrhage control. The patient with hemoperitoneum and a ruptured spleen can get a head CT post-operatively. As referenced in last

quarter's newsletter, reversal of anticoagulation can't be emphasized strongly enough. And early and consistent communication with the neurosurgeon on call is vital as well as with whomever is running the trauma service/critical care.

For the patient who has been stabilized and thoroughly evaluated and is now being admitted to the neurotrauma intensive care unit, close attention to a few details can prove critical. First of all, do not over-resuscitate with isotonic crystalloid solutions. Consider 3% NaCl where appropriate. Hyponatremia will only worsen brain swelling. If intracranial pressure (ICP) monitoring has been established, discuss a target cerebral perfusion pressure (CPP = MAP - ICP) with the neurosurgeon as well as measures to minimize cerebral edema (elevating the head of the bed, osmotic diuretics, etc.) On the other hand, if ICP monitoring has not been initiated, I will initially assume an ICP of 20 (normal < 10), and to maintain a CPP of 60 the mean arterial pressure will need to be maintained at 80. If you have determined that fluid resuscitation has been adequate, the addition of a vasopressor may be appropriate to reach the target MAP. I prefer norepinephrine. An arterial line is extremely helpful.

Ventilator management requires close scrutiny over the first 24 hours due to a large flux in physiologic demands in the patient. Neurosurgical guidelines recommend keeping the PaO2 > 100 over the first 24-48 hours, and I usually target the PaCO2 at 35. The amount of minute ventilation needed (tidal volume times rate) to maintain a PaCO2 of 35 will change considerably over the first 12 hours as the patient's physiologic demands settle down after the acute trauma. This will require frequent ABG's or end-tidal CO2 monitoring to avoid hyperventilation as a low PaCO2 results in cerebral vasoconstriction and poor perfusion to already-injured brain.

If the patient develops a fever, be aggressive with providing acetaminophen, ibuprofen, and cooling blankets to bring the temperature down to 98.6 F. And sedate, sedate, sedate. I find that Fentanyl has much less hemodynamic effect (hypotension) than Propofol, although both may be needed. Remember, neuromuscular blockade is rarely indicated and should never be initiated without adequate sedation. Monitor and control blood sugars but do not overtreat and cause hypoglycemia. Keeping the blood sugar less than 180 is fine.

This article is only a bare outline of the issues we need to watch closely and address in our patients. I again stress the importance of coordinating care with the neurosurgeon, and I definitely expect a call if I am running the service regardless of the hour.

Click to view:

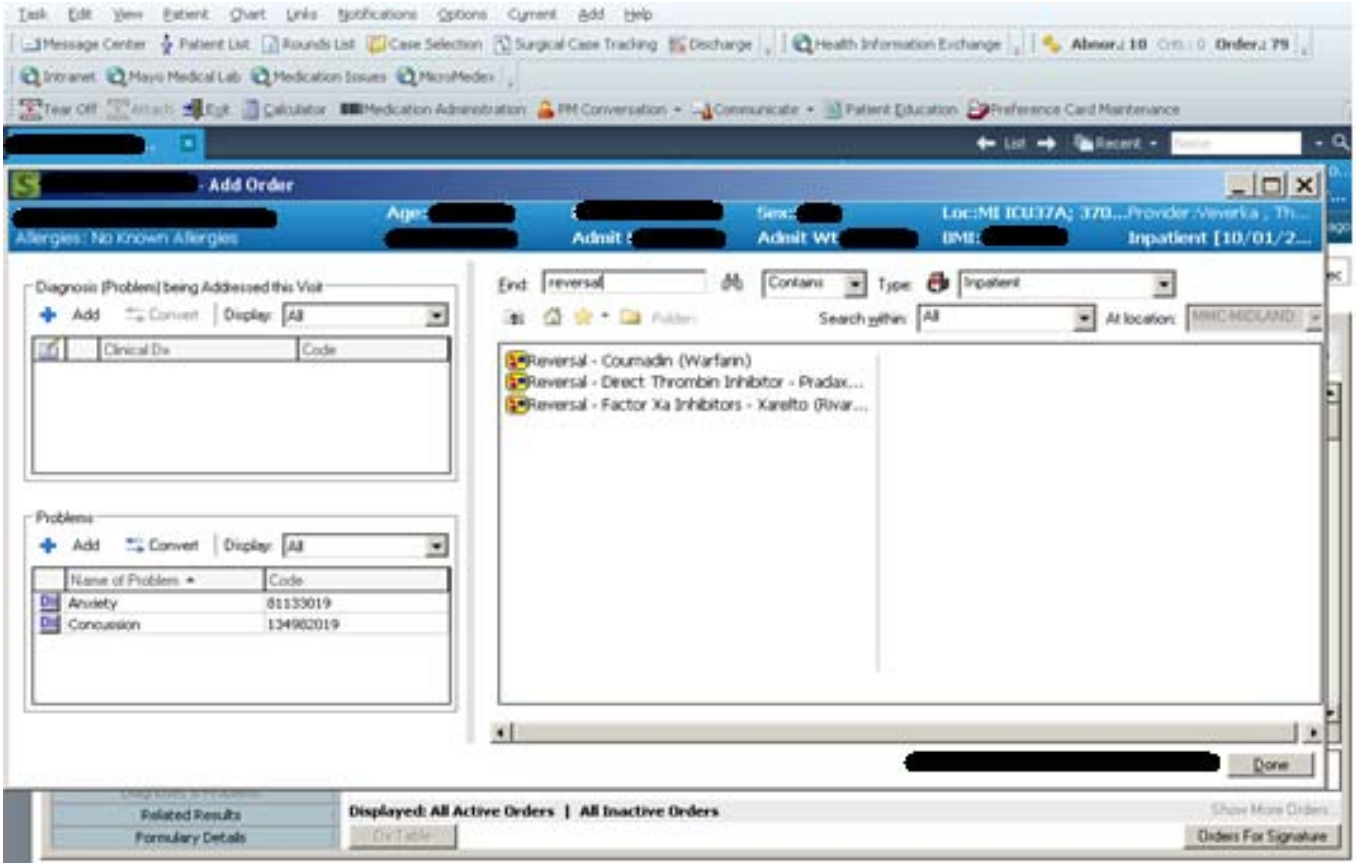
Midland Daily News article announcing our trauma verification

Midland Daily News article about seat belt usage

Clip of WMCU interview with Tom Wood about trauma verification

REMINDER:

To order any of the reversal PowerPlans search for "Reversal" in the add order screen



Restraint Usage and Ejection in the MVC Victim

By: Tom Wood, RN BSN
Trauma Program Manager

A standard part of any initial assessment for motor vehicle crash victims is getting the details of the accident. This includes whether the patient was restrained or unrestrained, ejected or remained in the vehicle, amount of damage/intrusion to the vehicle, and other details including airbag deployment. But why is any of this information important and what does it have to do with trauma care? Let's take a look at 2 key pieces of information: restraint usage and ejection.

The hallmark safety feature of a car is the seatbelt and knowing whether or not a MVC patient was wearing one is important. This information should be communicated during the EMS report to the Emergency Department. Unrestrained MVC patients are more likely to be severely injured than those who are restrained across all age ranges. This is a very basic fact that pretty much all trauma care providers know but it is interesting to note that our 2013 Midland data follows course. Of MVC patients that came to Midland that were either admitted, transferred for a higher level of care, or died in the ED,

those who were known to be unrestrained had a 30% higher mean injury severity score (ISS) than those who were known to be restrained (13.0 unrestrained vs. 10.0 restrained). This pattern continues when measured by overall length of stay and ICU length of stay. Unrestrained drivers admitted to our facility had a mean overall length of stay of 6.8 days compared to 3.5 for those who were restrained. When ICU admission is required, the unrestrained patient stays in the unit a mean of 5.7 days vs. 2.9 days for the restrained driver. So what does this all mean when it comes to actually caring for patients? Well, unrestrained drivers should be treated with a high suspicion of injury. Being unrestrained does not automatically warrant trauma activation but the need for activation should be thoroughly considered. Suspicion of polytrauma should be high so an accurate ATLS/TNCC based assessment should be performed to assess all systems. The trauma team needs to communicate to ensure that the patient is able to flow smooth from the trauma bay, to CT, to X-ray, through disposition.

Ejection is most common in rollover accidents with unrestrained occupants. In a study of rollover crashes conducted by the National Highway Traffic Safety Administration (2011), 40% of rollover occupants were ejected. Of those ejected, 87% were known to be unrestrained. A majority (60%) of ejected occupants went out through a side window during that rollover. Side window ejection is important to note because it can lead to partial ejection resulting in the vehicle rolling on top of the patient. The likelihood of injury in the ejected victim is high. Research published in the Journal of Trauma showed that ejected patients have higher LOS, higher ISS, more injuries per anatomic region, a higher number of severe injuries in the head and neck region, and worse outcomes than those not ejected (Analysis of motor vehicle victims admitted to a level I trauma center, 2011). If a patient is found ejected on scene this information must be relayed in the initial EMS report to the ED. These patients should be assumed to be significantly injured until proven otherwise and are almost certain to require trauma activation. Activation should occur prior to patient arrival to mobilize resources and expedite care. Suspicion for head and spinal cord injury should be high and need to be thoroughly assessed in the "disability" portion of the primary ATLS/TNCC survey. Abnormal findings should guide radiologic exam and specialty consultation should occur as soon as possible for severe injuries.

The above information likely comes as no surprise to those who frequently care for MVC victims. As we all know, each accident is different and injuries vary person to person. Details of how the MVC occurred can help clue the trauma team in to potential injuries and provide some focus in a hectic resuscitation.

References

Analysis of motor vehicle victims admitted to a level I trauma center. (2011). *Journal of Trauma*, 854-859.

Rollover Data Special Study Final Report. (2011). *Nathional Highway Traffic Safety Adminstration*.

Injury Prevention

Left: VIP Speakers Mary Kunz, Nick Cramer (front) and Sam Howell (back row) join students and Principal Dee Yarger (top left) for a photo after a ThinkFirst for Teens assembly at Farwell High School.
Right: VIP Speaker Sam Howell and his mother Maureen, a former trauma nurse, explain Sam's injuries to a 9th grade Midland High health class. Sam suffered a traumatic brain injury after crashing his car into a tree while reaching for his cell phone.

Kelli has been busy in Midland and our surrounding communities. She has put her first group of senior citizens through "A Matter of Balance" training which is designed to prevent falls in the elderly. Courses take place over several weeks and she is booked at multiple sites throughout 2014. Additionally, Kelli has been providing the region with the ThinkFirst program (pictured above). ThinkFirst uses Voices for Injury Prevention (VIP) speakers to explain how injuries occur, how they affect the body, and how they can be prevented. Lastly, the trauma injury prevention program was able to fit over 300 children with free bicycle helmets in 2013.

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Medical
l 2014.

If you are unable to fill out the Survey Monkey (https://www.surveymonkey.com/s/WTL6YNF), please fill out this form and return to Tom Wood.

Name: _____

Department: _____

1) Immediate intubation is required in the presence of which finding?

A) Confusion
B) GCS 3-8
C) Obvious head trauma
D) GCS < 15

2) Assuming an ICP of 20, to achieve a CPP of 60 the MAP must be maintained at what?

A) 50
B) 60
C) 70
D) 80

3) A majority of ejected MVC victims are ejected through where?

A) Side window
B) Windshield
C) Moon roof
D) Back Windshield

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Total ED Patients Seen by Trauma	83												83
Admissions	42												42
Surgical Admissions	40 | 42 95%												40 | 42 95%
Non-Surgical Admissions	2 | 42 5%												2 | 42 5%
All Trauma Transfers	4												4
Deaths	0												0
Level I-Adult	0												0
Level II-Adult	89												89
Level III/Consult	10												10
Trauma Service Eval:	99 | 125 79%	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	0 | 0	99 | 125 79%
Surgeon Level-1 (15 min Response Time)	NA												
Anesthesia Level-1 (15 min Response Time)	NA												
Under Triage	0												
Emergent OR Cases	1												
PI Attendance													
Emergency	80%												
Orthopedics	70%												
Neurosurgery	60%												
Anesthesia	88%												
ED Diversion Hrs/%	0.00 | 0.0%												

TRAUMA TRANSFERS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Neuro Transfers													
Ortho Transfers													
Peds Transfers	2												
Burns Transfers	2												
Ophthalmology													
Other Transfers													
TOTAL TRANSFERS	4	0	0	0	0	0	0	0	0	0	0	0	4

Benchmarks:
Medicine Admissions <10%/ Review for Appropriateness
Surgical Service Admissions: 90%
Attendance: >50%
Trauma Service Evaluation: 60%
Under Triage: <10%
OR Cases Month/OR in 30 Minutes

Trauma Program Dashboard

FY 2014	Goals	July	August	September	Q1 Total	Change vs FY14	October	November	December	Q2 Total	YTD Change vs FY14	January	February	March	Q3 Total	YTD Change vs FY14	April	May	June	Q4 Total	FY15 Total	Projected FY 15	FY 14
Stats																							
# of patients into registry																							
Total # of activations																							
Code 2 Activations																							
Code 1 Activations																							
Code 1 Response < 15 min																							
Timely Response to Code 1 % (month)	**≥ 80%**																						
Timely Response to Code 1 % (Year)	**≥ 80%**																						
ADMISSIONS:																							
Trauma Service																							
Orthopedic Services																							
Medicine																							
Other Surgical Specialties Specialty																							
Raw NSA rate	**≤ 10%**																						
Adjusted NSA Rate																							
Total transferred																							
% transferred out																							
Transfers in																							
% of admissions transferred in																							
Inpatient admissions																							