Standards of Accreditation
PEDIATRIC LEVELS I-II

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TRAUMA
SYSTEMS
foundation

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Preface

Established by legislation in 1985, Pennsylvania Trauma Systems Foundation (PTSF) serves as the accrediting body for trauma centers, and creates Standards of Accreditation that mandate how hospitals must function in order to be recognized as accredited trauma centers in the Commonwealth of Pennsylvania. State legislation directs with few exceptions, that at a minimum the PTSF Standards must comply with the current American College of Surgeons Committee on Trauma (ACS-COT) guidelines for trauma centers also known as "Resources for the Optimal Care of the Injured Patient."

There have been multiple revisions of the ACS document, with the most recent being: "Resources for the Optimal Care of the Injured Patient: 2014," also referred to as the "Orange Book." The 2014 Orange Book focuses on the abiding principle that trauma systems are centric to patient safety and optimal outcomes. This includes the spectrum of care from injury-prevention through rehabilitation. Beginning with the 2014 Orange Book publication, the ACS instituted a "living document" philosophy, allowing for more timely updates and changes to the core content.

The Pennsylvania Standards of Accreditation are divided into separate documents for level I, II and III adult centers, level I and II pediatric centers and level IV adult centers. The task of oversight and maintenance of the PTSF Standards is the function of the PTSF Standards Committee, comprised of representatives from trauma centers and partnering organizations. On-going revisions will continue to be a collaborative process with final approval of all Standards by the PTSF Board of Directors.

It is the goal of the Standards Committee to maintain legally compliant, patient-outcome driven expectations. This aligns with the PTSF mission; "Optimal outcomes for every injured patient" and vision; "We are committed to zero preventable deaths from injury in Pennsylvania." Additional information and resources are located at www.ptsf.org.

- In the event that a hospital needs a temporary or permanent variance from a Standard, please refer to Policy AC-105: Applying for a Variance from a Standard.

- If at any time, an accredited center experiences an operational change, it must be communicated in a timely fashion. Please refer to Policy AC: 128 Notification Regarding Changes in Trauma Center Operations for Pursuing & Accredited Trauma Centers.

- Questions about the standards should be directed to PTSF staff members at 717-697-5512. Information is also available at www.ptsf.org, located in the Resources section under the Standards of Accreditation tab.

Commitment

1. There will be demonstrated commitment, both personal and institutional, by the institution's Board of Directors, administration, and clinical staff to treat any pediatric trauma patient presented to the institution for care.
   A. Hospitals that pursue accreditation as pediatric trauma centers must meet the same resource requirements as adult trauma centers, in addition to pediatric resource requirements.

2. Methods of demonstrating the commitment to the trauma system/center will include but are not limited to:
   A. A Board and Medical Staff resolution that the institution agrees to meet the Pennsylvania Trauma Systems Foundation (PTSF) Standards for Trauma Center Accreditation.
      i. This must be reaffirmed every three years.
      ii. Example of Board Resolution
   B. Participation in operations and integration of a statewide system including submission of patient care data to the PTSF for systems management, performance improvement and patient safety (PIPS) and operations research.
      i. All trauma centers will support and fully participate in the Pennsylvania Trauma Outcome Study (PTOS) as specified by the PTSF.
      ii. All trauma centers will support and fully participate in the Pennsylvania PA V5 Outcomes Central Site Repository as specified by the PTSF. (See Standard 6: PIPS for additional details)
      iii. All trauma centers will support and fully participate in the National Trauma Data Bank (NTDB) submission process.
   C. Established policies and procedures for the maintenance of the services essential to a trauma system/center as outlined in the Pediatric Standards for Trauma Center Accreditation.
   D. Assurance that all pediatric trauma patients will receive medical care commensurate with the level of the Institution's accreditation.
   E. Commitment of the Institution's financial, human, and physical resources as needed for the trauma program.
   F. Established priority admission for the pediatric trauma patient to the full services of the institution. This will include adequate resuscitation facilities and personnel, operating room availability, and intensive care unit availability.
   G. Established and maintained formal written transfer plans and protocols with other accredited/designated adult, pediatric and specialty trauma services such as burn and dialysis centers if appropriate.
      i. These plans must list patient criteria that exceed the capabilities of the trauma center and necessitate transfer.
      ii. Formal transfer plans must be reviewed internally at least every three years and updated as required by the terms of the agreements.
         a. The TPMD and TPM must be involved in the review of the transfer agreements.
      iii. There must be established trauma PIPS procedures to document and review all transfers-out cases.

3. The institution must be licensed by the Pennsylvania Department of Health.

4. The institution must be accredited by the Joint Commission OR by a recognized state or nationally based accrediting agency for acute care hospitals.

5. The institution will engage in meaningful involvement in state and regional trauma system planning, development and operation.
   A. Goals of this involvement are:
      i. Timely and appropriate access to care including specialized care (i.e. Burns, Pediatrics, Brain/Spinal Cord, Transplant, Microvascular).
      ii. Coordinated EMS utilization and response including inter-facility transport.
      iii. Integration with local, regional and state disaster preparedness programs.
      iv. Regional Performance Improvement initiatives spanning the entire continuum of care.
      v. Coordinated regional and statewide injury prevention initiatives.
      vi. Regional data collection for the assessment and improvement of overall trauma care within the trauma center's region.
      vii. Financial viability and avoidance of unnecessary duplication of expensive resources within a region.
   B. Methods of achieving these goals may include:
      i. Participation in state and regional advisory committees (i.e. PaCOT, PATNAC).
         a. In a region where no advisory council exists, Level I and II Trauma Centers assume the responsibility and oversight of the council. This includes making recommendations to hospitals, EMS and PTSF regarding issues which impact quality care.
         b. Leadership in state and regional medical audit committees (i.e. PIPS Committee, Regional PI meetings).
      ii. Regular collaboration with regional trauma advisory committees, EMS, or other agencies to promote the development of state and regional systems (i.e. PEHSC, Regional EMS Council).
      iii. Participation in medical and legislative education to promote and develop trauma systems.
      iv. Participation in state and regional trauma needs assessment and injury surveillance.
      v. Provision of technical assistance and education to hospitals within the region and their providers to improve system performance (i.e. RTTDC education to non-trauma centers).
      vi. Participation in PTSF Committees (i.e. Outcomes, Registry, Research, PIPS, Standards, Injury Prevention).

6. The institution will establish, within its organization, a defined pediatric trauma program including the clinical service. This concept embraces both administrative and physical attributes of the individual trauma center. By this means, successful functioning of the trauma program will be assured and its staffing and direction clearly defined.

7. The Trauma Program must involve multiple disciplines and transcend normal departmental hierarchies.

8. There will be evidence of strong communication links between the institution's administration, TPMD and TPM to coordinate both long and short term goals of the trauma program.

9. It is the responsibility of the TPMD in collaboration with the TPM and in association with the designated subspecialty liaisons to direct the trauma PIPS program and to integrate it into the institutions overall PIPS program.
   A. See PIPS Standard for additional details.

10. The Department of Nursing or designated representative of Nursing Leadership for the institution will maintain a formal relationship with the trauma program.

11. The following definitions/concepts are vital features of the trauma program and should be clearly integrated:
   A. Bed Capacity
   B. Intensive Care Unit
   C. Operating Room Capacity
   D. Proximity to supporting services (non-surgical services, nursing services, radiology, laboratory, etc.)
   E. Coordination of services including PIPS

12. Trauma Resuscitation Management guidelines must be in place. They must include at a minimum ATLS principles and c-spine clearance.

13. The institution will have a trauma activation policy.
    - A. This policy must be reviewed annually at a minimum.
    - B. This policy must include adequate personnel and defined role expectations as defined by the trauma program.
        - i. The highest level of response typically includes:
            - a. Anesthesiologist or CRNA
            - b. Chaplain or Social Worker
            - c. Critical Care Nurse
            - d. Emergency Department nurses
            - e. Emergency physician
            - f. General Surgeon
            - g. Laboratory Technician
            - h. Operating Room nurse
            - i. Radiology Technologist
            - j. Respiratory Therapist
            - k. Scribe
            - l. Security Officer
            - m. Surgical and Emergency Residents (if applicable)
    - C. There must be a policy defining the response time expectations for the attending surgeon / first responders.
        - i. The highest level of trauma activation requires the response of the full team within fifteen (15) minutes of the arrival of the patient.
        - ii. If the trauma center has other levels of activations the response time expectations for each level, including trauma consults, must be defined by the trauma program.

14. For centers whereby the highest-level activation is direct transport to the OR, the second highest activation would apply to the activation criteria.

15. The following criteria at a minimum must be included in the institutions activation criteria for highest level trauma alerts for patients with mechanism of injury attributed to trauma:
    - A. GCS <9 or GCS Motor </= 5 in motor (does not follow commands)
    - B. GCS deteriorating by 2 or more points
    - C. Intubated patients transferred from the scene
    - D. Penetrating injury to the head, neck, chest, abdomen or extremity proximal to the elbow or knee
    - E. Respiratory compromise:
        - i. In need of an emergent airway
        - ii. Intubated patients transferred from another facility with ongoing respiratory compromise (excluding transfer in intubated patients who are now stable from a respiratory standpoint)
    - F. Systolic blood pressure <90 at any time in a patient over 10 years of age
        - i. Systolic blood pressure <70 + (2x age in years) at any time in a patient age 10 or less
    - G. Transfer patient from another hospital receiving blood to maintain hemodynamic stability
    - H. Emergency Physician discretion

16. The following criteria should be considered for inclusion in the institution's trauma activation criteria at some level, for patients with mechanism attributed to trauma:
    - A. Amputation proximal to wrist or ankle
    - B. Anticoagulants or Bleeding Disorders
    - C. Automobile Crash- High Risk:
        - i. Death in same passenger compartment
        - ii. Ejection (partial or complete)
        - iii. Passenger with compartment intrusion, including roof, of >12 inches on occupant side or >18 inches any site
    - D. Automobile vs Pedestrian/Bicyclist thrown, run over or with significant (>20 mph) impact
    - E. Chest wall instability or deformity (flail chest)
    - F. Crushed, degloved, mangled or pulseless extremity
    - G. Falls
        - i. Adults: >20 feet (one story is equal to 10 feet)
        - ii. Pediatrics: >10 feet or 2-3 times the height of the child
    - H. GCS </= 13
    - I. Motorcycle crash >20 mph
    - J. Paralysis (spinal cord injury)
    - K. Partial or Full Thickness Burns ≥ 20% Total Body Surface Area (TBSA) – if not a designated Burn Center.
    - L. Pelvic fractures
    - M. Pregnancy >20 weeks
    - N. Skull Fracture (open or depressed)
    - O. Tourniquet utilization
    - P. Two or more proximal long-bone fracture (humerus or femur)
17. Trauma Activation Criteria reference: CDC Guidelines for Field Triage of Injured Patients: http://www.cdc.gov/mmwr/pdf/rr/rr6101.pdf

Table 1 Hospital Commitment

Resolved, that the XYZ Hospital Board of Directors (or other administrative governing authority) approves the establishment of a Level __ trauma center (or "applies for verification or reverification of a Level __ trauma center"). The Board commits to maintain the high standards needed to provide optimal care of all trauma patients. The multidisciplinary trauma performance improvement program has the authority to evaluate care across disciplines, identify opportunities for improvement, and implement corrective actions.

Medical Staff Support

Resolved, that the Medical Staff or Executive Committee of XYZ Hospital (or other governing body of the medical staff) supports the establishment of a Level __ trauma center (or "supports verification or reverification of a Level __ trauma center"). This statement acknowledges the commitment to provide specialty care as required to support optimal care of trauma patients. The multidisciplinary trauma performance improvement program has the authority to evaluate care across disciplines, identify opportunities for improvement, and implement corrective actions.

Physician Liaison Commitment

Resolved, that XYZ liaison and trauma surgeons acknowledge and commit to the criterion expectations for a Level __ trauma center. This includes but is not limited to credentialing, certification, continuing education, and adequate involvement in performance improvement. The multidisciplinary trauma performance improvement program has the authority to evaluate care across disciplines, identify opportunities for improvement, and implement corrective actions.

1. There will be demonstrated capacity and ability to immediately evaluate, stabilize, treat and if indicated transfer both uni-system and multi-system trauma patients.
   A. This must include adequate surgical and intensive care unit capabilities so as not to disrupt other key functions of the institution.
2. Upon re-accreditation, a minimum number of annual major uni-system/multi-system pediatric injury cases will have been treated:
   A. Level I – 200 PTOS qualified pediatric patients per year
   B. Level II – 100 PTOS qualified pediatric patients per year
3. Pediatrics is defined as a patient less than 15 years of age (14 or younger) for purposes of PTOS submission.
   A. Trauma Centers may define pediatrics for their individual institutional protocol purpose.
4. The trauma center must assess the clinical capabilities of the institution and have a protocol documented plan which explains the types of patients requiring transfer to a higher-level trauma center.
   A. Documented transfer plan must include:
      i. Process for the initiation of transfer, including roles and responsibilities of the referring facility and referral center (including responsibilities for requesting transfer and communication).
      ii. Process for selecting the appropriate facility based on patient injury (such as: burns, obstetrics and closest higher level facility).
      iii. Process for selecting the appropriate staffed transport service to match the patient's acuity level.
      iv. Process for patient transfer including informed consent.
      v. Plan for transfer of patient medical record and radiology studies.
      vi. Plan for transfer of copy of signed transport consent.
      vii. Plan for transfer of patient personal belongings.
      viii. Plan for provision of directions and referral institutions information to the family.
5. Early transfer or early burn patient referral is strongly considered for patients meeting the American Burn Association Criteria for Referral to a Burn Center.
   A. Institutions with an organized burn unit must use the established criteria of the American Burn Association.
   B. Institutions without a burn unit must have a transfer agreement with a burn center/hospital with a burn unit.
   C. American Burn Association Burn Center Referral Criteria:
      i. Partial-thickness burns of greater than 10% of the total body surface area
      ii. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
      iii. Third-degree burns in any age group
      iv. Electrical burns, including lightning injury
      v. Chemical burns
      vi. Inhalation injury
      vii. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
      viii. Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
      ix. Burned children in hospitals without qualified personnel or equipment for the care of children. Children with burns should be transferred to a burn center verified to treat children. In the absence of a regional pediatric burn center, an adult burn center may serve as a second option for the management of pediatric burns.
      x. Burn injury in patients who require special social, emotional or rehabilitative intervention.
6. There must be acute hemodialysis capability.

7. A policy(s) for admission of the trauma patient to the institution must be in place. This must include at a minimum: criteria for admission, most common units admitted to, non-trauma service admissions, and special populations such as pediatrics, burns, geriatrics and obstetrics if applicable.

8. Agreements with EMS agencies must be established to facilitate timely transportation for trauma patients requiring transfer out for all levels of anticipated care.

9. Trauma Center availability for stabilization and transfer of trauma patients must be maintained on a continuous, 24-hour basis. When the trauma center is unable to provide care:
   - A. The trauma surgeon must be involved in the decision regarding bypass/diversion every time the center begins and/or ends the event.
   - B. A log of event; including time, duration and cause, must be maintained.
   - C. The institution must notify the Public Safety Access Point (PSAP/911) Center when going on and when coming off of the event.
   - D. This information must be reported to the PTSF on an annual basis.
     - i. The maximum amount of time that a trauma center can be on diversion is five percent (5%) or four hundred thirty eight (438) hours per year.
   - E. The Trauma PIPS program must evaluate every bypass/diversion event at the trauma operations committee.
   - F. Diversion includes any circumstances where trauma patients who are typically accepted or admitted to the trauma center are not admitted. This includes both diversion of patients from the primary catchment area transported by emergency medical services (EMS), the inability to accept interfacility transfers and the transfer out of patients who would otherwise be admitted under normal circumstances.

10. Formal trauma specific protocols must be in place to assure:
    - A. The Emergency Department plan for an influx of trauma patients prior to the institution of the facility-wide disaster plan.
    - B. A facility-wide plan for traumatic disaster management. This disaster plan must include:
      - i. Plan to immediately mobilize qualified nursing resources from inpatient areas for initial multi-resuscitation efforts.
      - ii. Bypass protocols with neighboring trauma centers.
        - a. The Trauma Program Medical Director (TPMD) must be involved in the development and periodic review of the trauma center's bypass/diversion protocol.

11. The Trauma Center must meet the disaster related requirements of the Joint Commission, regardless if Joint Commission accredited.
    - A. Joint Commission resources

12. The institution must participate in disaster related planning activities.
    - A. A trauma surgeon, as designated by the TPMD, must participate on the hospital's disaster planning committee.
    - B. Hospital drills that test the individual disaster plan must be conducted at least twice per year.
      - i. Actual plan activations may substitute for drills

13. There will be a formal consultation process, to ensure appropriate twenty-four hour telephone consultation, with hospitals requesting the transfer of trauma patients. This process must include:
    - A. Access to the appropriate physician or subspecialist
      - i. Level I-III: Direct contact of the physician at the trauma center by a physician at the referring hospital.
      - ii. Level IV: Direct contact of the physician at the trauma center by a physician or advanced practitioner at the referring hospital.
    - B. Assistance with clinical triage and decision making.
    - C. Assistance with patient transfer arrangements when indicated.

Trauma Program Medical Director (TPMD)

1. The TPMD, in conjunction with the hospital's medical governing board or body, and in collaboration with the Trauma Program Manager (TPM) will have the oversight authority for all trauma patients and administrative authority and responsibility for the trauma program to affect all aspects of care for trauma including:
   A. An organizational chart, depicting the relationship between the TPMD, hospital governance, administration and other services.
   B. Development and evaluation of treatment protocols including but not limited to:
      i. Patient / Clinical Management Guidelines
      ii. Institution Diversion / Bypass Protocol
   C. Coordination of the Trauma PIPS peer-review process.
   D. Participating in the budgetary process for the trauma program.
   E. Determining and validating educational forums and submissions for CME requirements.
   F. Maintenance of an effective working relationship with the Trauma Program Manager.
   G. Cooperation with nursing administration to support the nursing needs of the trauma program.

Trauma Program Medical Director (TPMD)

2. Fundamental to the establishment and organization of the institution's trauma program is the recognition that the individual identified as accountable for the operation of the program must be qualified to serve in this capacity. The following indicators for the TPMD role must be present:
   - A. Full-time FTE and dedicated to the Trauma Program.
     - i. May not direct more than one trauma program.
   - B. The trauma medical director must be board certified or board eligible in general surgery or pediatric surgery.
     - i. If a board certified or board eligible general surgeon who is not board certified or board eligible in pediatric surgery serves as the pediatric TPMD, they must also:
       - a. Maintain Pediatric Advanced Life Support (PALS) certification
       - b. Have a written affiliation agreement with a pediatric TPMD who is board certified in pediatric surgery at an accredited Level I pediatric trauma center whose role is to assist with process improvement, guideline development, and complex case discussions
     - ii. Recognized Boards are those recognized by the American Board of Medical Specialties, American Osteopathic Association or Royal College of Physicians and Surgeons of Canada.
       - a. TPMDs with Board certification by any other governing board are not eligible for an alternate pathway.
   - C. Be credentialed by the hospital to provide trauma care.
   - D. Participation in the trauma call schedule including the resuscitation and/or surgery of multi-system trauma patients.
   - E. Evidence of qualifications including educational preparation and clinical expertise with trauma patients.
     - i. A minimum of four years of experience in the care of the acute trauma patient is required.
       - a. Fellowship can be included in years of experience.
       - b. Residency cannot be included in years of experience.
     - ii. In the event that a hospital needs a temporary or permanent variance from this standard please refer to Policy AC-105: Applying for a Variance from a Standard for additional details.
   - F. Attendance and participation in local, state, regional and national trauma related activities.
     - i. Level I: Must hold active membership in at least one national trauma organization and have attended at least one meeting during a three year period.
     - ii. Level II: Must hold active membership in at least one regional, state, or national trauma organization and have attended at least one meeting during a three year period.
     - iii. Membership in the Pennsylvania COT is not equivalent to membership in a national trauma organization.
   - G. Participation in trauma educational activities such as Advanced Trauma Life Support (ATLS) course; teaching at undergraduate, graduate and post-graduate levels; and training programs within the Department of Surgery.
   - H. Maintain ATLS Instructor Status
   - I. Evidence of external trauma related CME of twelve (12) hours annually or thirty-six (36) hours over three years.
     - i. Nine (9) of thirty-six (36) hours must be pediatric-specific CME.
     - ii. Not eligible for IEP
     - iii. Participation in the STN-TOPIC Course within one year of appointment.
       - a. Rural TOPIC is not an approved Performance Improvement process course for Level I-III trauma centers.
     - iv. If at a pursuing hospital undergoing an initial site survey, the TPMD must have at least 12 hours of trauma-related CME during the reporting period.
   - J. Chair and maintain 75% attendance at the Trauma PIPS:
     - i. Multidisciplinary Peer Review PI Meeting.
     - ii. Multidisciplinary Trauma Program Operational Meeting.

3. The TPMD, in conjunction with the chiefs of clinical services, will identify representatives from the following subspecialty areas to formally participate in the PIPS program:
   A. Anesthesia
   B. Emergency Medicine
   C. Critical Care – If critical care unit is not independently directed by a surgeon
   D. Neurosurgery
   E. Orthopedics
   F. Radiology
   G. Additional subspecialists as defined by the PIPS plan

4. The TPMD must have authority to:
   A. Ensure providers meet all requirements and adhere to institutional standards of practice.
   B. Recommend or removing trauma team privileges:
      i. The TPMD 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) as indicated by findings of the PIPS process.
         a. This includes responsibility and authority for determining each general surgeons ability to participate on the trauma panel
         b. For Surgical and Non-Surgical specialties, this may be done in conjunction with the respective division chiefs, trauma liaisons or department chairs.
   C. Correct deficiencies in trauma care, and/or exclude from trauma call those trauma team members who did not meet criteria, including across departments and other administrative units.

Trauma Program Manager (TPM)

1. There will be a Trauma Program Manager (TPM) who is responsible for monitoring, promoting and evaluating all trauma related activities associated with the trauma program in cooperation and conjunction with the TPMD.
   A. The organization must define the structural role of the TPM to include responsibility, accountability and authority.
2. The TPM must have an effective working relationship with the TPMD.
3. There must be a job description that defines sufficient authority and clearly outlines the responsibilities of the TPM. Qualifications and activities should include the following:
   A. Clinical Activities
   B. Educational Responsibilities
   C. Performance Improvement
   D. Leadership and Administrative Responsibilities
   E. Supervision of the Trauma Registry/Registrars and Performance Improvement Coordinator(s)
   F. Consultant and Liaison Activities
   G. Research (Level I)
   H. Community and National involvement in trauma care systems
4. The TPM must:
   A. Be a Full Time 1.0 FTE
   B. Be dedicated to the Trauma Program
   C. Be a Registered Nurse
   D. Have evidence of qualifications including educational preparation, certification and clinical experience in the care of injured patients.
   E. Co-Chair and maintain 75% attendance at the Trauma PIPS:
      i. Multidisciplinary Peer Review PI Meeting.
      ii. Multidisciplinary Trauma Program Operational Meeting
5. The TPM must have evidence of continuing education related to trauma care and the trauma system. This includes:
   A. Eight (8) hours of trauma-related continuing education annually
   B. A minimum of 50% of the required educational hours must be external
      i. 50% of the external hours may be met by visiting professors and invited speakers
   C. Participation in the STN-TOPIC Course within one year of appointment.
      i. Rural TOPIC is not an approved Performance Improvement process course for Level I-III trauma centers.
6. The TPM must:
   A. Attend and/or participate in local, regional, state and national trauma related activities.
   B. Level I: Participate in multidisciplinary trauma research.
7. The TPM in conjunction with the TPMD is responsible for determining and validating which educational forums are acceptable in fulfilling continuing education requirements.

Registry

1. The institution will maintain a Trauma Registry which will include, at a minimum, all of the data elements included in the Pennsylvania Trauma Outcome Study (PTOS)
   A. Refer to PTOS Manual found at www.ptsf.org – Trauma Registry – Resources
   B. Demographic Data
   C. Pre-hospital Data
   D. Process of Acute Care
   E. Clinical Data
   F. Outcome Data
   G. Final Anatomical Diagnoses
   H. Procedure Codes
   I. Payer Class
   J. Performance Improvement and Patient Safety Data
   K. Standard Report Utilization
2. There will be evidence of regular and active interface with the trauma program. The registry must be responsive to the needs of the TPMD, TPM and support the trauma program
   A. The trauma registry staff will maintain a formal relationship with the trauma program
3. A clearly identified person will have authority, responsibility and accountability for direction and maintaining the trauma registry and its data submission to the PTSF in a timely manner.
   A. The trauma registry, at a minimum, must maintain 85% of the cases submitted within 42 days of discharge.
      i. Refer to Policy TR-110 Timeliness of Submissions to the Central Site Policy
   B. Concurrent data abstraction is recognized as best practice.
4. The Trauma registry will have a staffing plan. This plan must:
   A. Include a workload analysis for all trauma programs supported that defines the personnel needs necessary to comply with PTOS data submission requirements.
   B. At a minimum, 1.0 FTE Pediatric Registrar FTE per every 500-750 pediatric trauma contacts, as defined by the institution, per year
      i. Trauma contacts at a minimum, must equal PTOS volume
5. The Trauma Registry staff will optimally have a core set of skill requirements including: anatomy and physiology, medical terminology, ICD-9/ICD-10 CM Coding, computer competency, database management and/or degree in health related field/allied health.
   A. Within one year of appointment, the Registrar will complete:
      i. Basic Trauma Registry Course
         a. The PTSF Basic Registry Course is available at https://www.elearningconnex.com/ptsf/
         b. ATS Trauma Registrar Course
         c. Other equivalent courses are acceptable based upon objectives.
         d. Previous completion of the PTSF Intermediate or Advanced Registrar Course fulfills this requirement.
      ii. The Association of the Advancement of Automotive Medicine (AAAM)~ Abbreviated Injury Scaling (AIS) Course corresponding to the AIS coding version utilized within the PTOS submission software.
         a. Registrars must complete an updated AIS Coding Course within 1 year of implementation of a new AIS coding version within PTOS.
6. The Trauma Registrar must have evidence of continuing education related to the trauma registry. This includes:
   A. Eight hours of continuing education per year.
      i. This requirement can be fulfilled by attendance at PTSF Registry Conferences, internal, external and/or online opportunities.
   B. Registrars maintaining a Certified Specialist in Trauma Registries (CSTR) certification are not required to maintain continuing education logs.

7. Trauma Registrar job responsibilities include but are not limited to: A. Committee work B. Database management C. Education D. Interface with outside agencies E. PIPS Participation i. Trauma Registry representation should be maintained at multidisciplinary conferences that deal with the review and analysis of trauma registry data F. Research G. Site Survey Preparation H. Technical Skills
8. There must be a plan for ensuring that the data entered into the trauma registry is accurate and reflects the observations made on the patient. (Inter Rater Reliability) A. This plan must reflect compliance with PTOS Operations Manual and definitions for data entry B. An example of an inter-rater reliability approach is to re-abstract a percentage of patient records
9. Data must be submitted to and in compliance with the National Trauma Data Bank (NTDB)
10. The trauma program must ensure that appropriate measures are in place to meet confidentiality requirements of the data.

1. The goals of the trauma performance improvement and patient safety (PIPS) program are to:
   A. Monitor the process and outcome of patient care including adverse and unexpected events.
   B. Ensure the quality and timely provision of such care.
   C. Improve the knowledge and skills of trauma care providers.
   D. Provide the institutional structure and organization to promote performance improvement and patient safety.

2. The PIPS program must be independent of, but integrated into the hospital's overall performance improvement (PI) program. This includes:
   A. A clearly defined reporting structure, as demonstrated by an organizational chart showing the trauma PI program and overall hospital PI program's relationship.
   B. A method for provision of feedback as demonstrated by a bidirectional flow of information between the trauma PI program and the hospital PI program.
      i. The trauma PI program must have a means to report events and actions to the hospital PI program so that events are aggregated across the organization.
      ii. The hospital PI program must provide feedback and loop closure to the trauma PI program.
   C. The trauma PI program must be empowered to identify opportunities for improvement and develop actions to reduce the risk of patient harm, irrespective of the department, service, or provider.
   D. Authority of the TPMD to set qualifications for the trauma service members, including individuals in specialties that are routinely involved in the care of trauma patients.
      i. The TPMD must have authority to recommend changes for the trauma panel based on the PIPS program. See TPMD Standard.

3. There must be a comprehensive written Performance Improvement Plan that includes:
   A. An organizational chart demonstrating the structure of the trauma PIPS process, with a clearly defined relationship to the hospital PI program.
   B. Authority and empowerment by the hospital governing body for the TPMD and TPM to lead the PI program and transcend service lines.
   C. Trauma credentialing requirements.
   D. Roles and responsibilities for PI.
   E. Event identification process encompassing all phases of care from prehospital care to hospital discharge.
      i. Process for verification and validation of events:
         a. Process for retrospective review.
         b. Process for concurrent review.
   F. Process for data collection, use of indicators, opportunities for improvement (OFI), hospital events, and audit filters, as defined in the PTOS Manual and/or the Outcomes Manual.
   G. Levels of review, congruent with the TOPIC curriculum, further defined by the PIPS plan:
      i. Primary: Typically TPM, Trauma PI Coordinator, Registry or designee
      ii. Secondary: Typically TPM, PI Coordinator and TPMD
      iii. Tertiary: Typically multidisciplinary forum
      iv. Quaternary: Typically hospital (high-level) committee, system level or external review
      v. Each level of review must be defined, including:
         a. Which cases are to be reviewed.
         b. Who performs the review.
         c. When cases can be closed or must be advanced to the next level of review.
   H. Analysis including forums and meetings.
      i. Multidisciplinary PIPS Committee must be defined, including specifying required members and responsibilities.
   I. Utilization of Pa V5 Outcomes to operationalize PI activities.

J. Classification of events: This includes determination of the effects of events based on an institutional defined system such as but not limited to: Pa V5 Outcomes Terminology, such as Dertermination and Acceptability.
   i. The full PI classification elements in Pa V5 Outcomes must be utilized in the classifications of all deaths at a minimum as defined in the Outcomes Manual.

K. Action plan development and implementation.

L. Process for reevaluation and determining issue resolution, improvements of outcomes and/or patient safety (loop closure).

M. The process for integrating/incorporating benchmark reports such as TQIP into the PI program.

N. An annual process for identification of priority areas for PI, based on audit filters, event reviews, and benchmarking reports. Annual priority focus areas must be data driven.

4. Benchmarking Data is required
   A. The submission to the PTSF Pa V5 Outcomes Central Site Repository is required (not risk-adjusted).
      i. Effective January 1, 2017, all death cases will be submitted.
      ii. Cases must be closed and submitted within 90 days of the death date.
         a. Cases may be updated and resubmitted if additional information is obtained after the initial submission, such as autopsy results. Resubmitted cases do not count against submission requirements.
      iii. Refer to Policy TO-100: Timeliness of Submission to the Outcomes Central Site Policy
   B. Submission to the National Trauma Data Bank (NTDB) is required. (Not risk-adjusted).
   C. Participation in risk-adjusted benchmarking is required.
      i. Pennsylvania Trauma Outcome Study (PTOS) participation is required.
      ii. TQIP participation is required by Level I, II and III Accredited Trauma Centers.
         a. Submission is optional for Pursuing Centers; however, participation is expected within the provisional (first) year after initial accreditation.
   D. Submission to the PA-TQIP Collaborative is required for (and limited to) Level I and II Accredited Trauma Centers.
   E. The trauma program must use the results to determine whether there are opportunities for improvement in patient care and registry data quality.

5. The PIPS plan must be reviewed annually.

6. The Pennsylvania Outcomes Performance Improvement software (Pa V5 Outcomes) must be utilized for all trauma related performance improvement activities.
   A. Documenting event identification, including effective use of audit filters.
   B. Documenting analysis and verification of identified events.
   C. Documenting corrective actions.
   D. Evidence of loop closure.
   E. Strategies for sustained improvement measured over time.

7. Issues that must be reviewed but are not limited to are:
   A. System and process issues such as documentation and communication.
   B. Clinical care, including identification and treatment of immediate life-threatening injuries (ATLS).
   C. Transfer decisions.
   D. Non-surgical trauma admissions.
      i. Non-surgical admissions (NSA) with trauma or other surgical consultations, with ISS ≤ 9, or without other identified opportunities for improvement may be closed in primary review.
      ii. NSA without trauma or other surgical consultation, with ISS > 9, or with identified opportunities for improvement must, at a minimum, be reviewed by the TPMD in secondary review.
      iii. The Trauma Program should consider utilization of the Nelson tool to review NSA.

8. There will be adequate trauma program personnel support to ensure evaluation of all aspects of trauma care and fully implement the PIPS plan.

9. There will be a 1.0 FTE dedicated to the PIPS function
   - A. This may be met by identifying one individual as the PIPS Coordinator or by combining other role responsibilities of various staff members who specifically have performance improvement components in their job description, as long as the minimal total FTE equals 1.0.
     - i. If multiple staff members comprise the PI role:
       - a. One individual must be identified as the PIPS Coordinator/Liaison
       - b. Clear job descriptions and delineations of responsibilities must be present.
       - c. All participants must maintain the standard requirements including specialized educational courses. The total continuing education hours; however, are not compounded. For example if an RN registrar is functioning as a part of the PI role, they must obtain the eight hours of continuing education, the required Registry Courses and TOPIC. They do not need sixteen hours of continuing education.
       - d. Any RN fulfilling any component of the PI Role/FTE must maintain 75% attendance at the Trauma PIPS meetings.
   - B. This individual(s) will be responsible for monitoring, promoting and evaluating all trauma-related PIPS activities and:
     - i. Be accountable and housed within the organizational structure of the Trauma Program, reporting directly to the TPM.
       - a. The job description of the PI Coordinator must include: responsibility, accountability and authority.
     - ii. Include evidence of qualifications including educational preparation, certification and clinical experience.
       - a. Registered Nurse (RN) licensure is required.
     - iii. Have evidence of continuing education related to trauma care and the trauma system.
       - a. Including Eight (8) hours of trauma-related continuing education per year.
       - b. Participation in the STN-TOPIC Course (or equivalent PI course) within one year of appointment.
     - iv. Attendance and/or participation in local, regional, state, and national trauma-related activities.
     - v. Maintain 75% attendance at the Trauma PIPS:
       - a. Multidisciplinary Peer Review PI Meeting.
       - b. Multidisciplinary Trauma Program Operational Meeting.

10. Additional PIPS support FTEs including job description/role responsibility assignments should be allocated based upon trauma contact volume.
    - A. Recommend additional 0.5 FTE allocation for every additional 500 trauma contacts above 500.

11. In trauma programs utilizing a Trauma Program Performance Improvement Medical Director or Trauma Program Associate Medical Director role, the following components must be maintained. This role is optional and not required.
    - A. A Physician with Board Certification/Board Eligibility in specialty field
    - B. A job description which defines roles and responsibilities
    - C. Inclusion in the PIPS plan
    - D. Demonstration of a collaborative working relationship with the TPMD, reflecting the TPMD has ultimate authority over the PIPS process
    - E. Evidence of external trauma related CME of twelve (12) hours annually or thirty-six (36) hours over three years (not exempt from maintaining a CME log)
      - i. Participation in the STN-TOPIC Course (or equivalent PI Course) within one year of appointment into this role
    - F. Maintain 75% attendance at the Trauma PIPS:
      - i. Multidisciplinary Peer Review PI Meeting
      - ii. Multidisciplinary Trauma Program Operational Meeting

12. A multidisciplinary forum for (PIPS) Peer review focus is required.
    A. The following aspects will be addressed and trended: deaths, transfers, morbidities, (PIPS) issues, systems issues, clinical management guideline issues, and provider specific issues- including specific morbidities and mortalities.
    B. The goal of this meeting is to have robust case discussion among multidisciplinary peers. The following participation is required:
        i. The TPMD, in collaboration with the TPM and Trauma PI Coordinator, will have the leadership role.
            a. The TPMD must chair this meeting.
            b. The TPMD, TPM and PI Coordinator (L I/II) must maintain 75% attendance.
        ii. All General Surgeons participating in trauma care must participate.
            a. General Surgeons must maintain 50% attendance.
            b. The TPMD must ensure that general surgeons who miss the meeting receive and acknowledge the receipt of critical information generated.
        iii. All Advanced Practitioners supporting the general surgical team and having a defined role in trauma care must participate.
            a. AP's must maintain 50% attendance.
        iv. Subspecialty liaisons must include:
            a. Anesthesia
            b. Emergency Medicine
            c. Critical Care – If critical care unit is not independently directed by a surgeon
            d. Neurosurgery
            e. Orthopedics
            f. Radiology
            g. Additional subspecialists as defined by the PIPS plan.
        v. The Subspecialist Liaisons must
            a. Maintain a minimum of 50% attendance.
                - This attendance benchmark may be met by the liaison and/or a second identified representative of the Subspecialty group.
                    - If this role is shared, both participants must meet the CME requirements.
                - Fifty percent is the actual attendance rate and does not include excused absences or other reasons for nonattendance.
                - Attendance must be monitored on a continual basis.
            b. It is the responsibility of the liaison to communicate critical information to the subspecialty group.
        vi. In Trauma Centers with both an Adult and Pediatric accredited program:
            a. There must be separate adult and pediatric trauma multidisciplinary PIPS meetings with distinct minutes.
            b. There must be a representative (TPMD or Designee) from the adult/pediatric program attend the other program's meeting and ensure dissemination of communication is sent to the other panel members.
        vii. Peer-review meeting attendance may be waived / pro-rated for military deployment, medical leave and missionary work. The center must provide documentation to support the excused absence. Vacation, patient care, illness and contracted-but not working that month, are not excused absences and may not be prorated. TPMD/Liaison providing a review of the meeting minutes to the absent provider cannot be counted as attendance at the meeting. Per Diem providers, providers rotating from another hospital, and Locum Tenens providers may not have attendance expectations prorated based on amount of call taken.
    C. Meeting minutes and attendance log must be maintained.

D. Meeting must be scheduled at regular intervals to assure that the volume of case review can occur in a timely fashion.
E. Attendance may be met through teleconferencing and/or videoconferencing as long as it facilitates active participation.

13. All cases of traumatic injury related mortality (dead on arrival, died in ED or inpatient, and withdrawal of life-sustaining care) must be reviewed and classified for potential opportunities for improvement.
    A. The best practice for review of traumatic injury related mortality is through tertiary review. At a minimum, all traumatic injury related mortalities must go through secondary review and mortalities with opportunities for improvement must go through tertiary review.
    B. Deaths must be categorized as:
        i. Event/mortality with an opportunity for improvement
            a. A death should be designated as "mortality with opportunity for improvement" if any of the following criteria are met:
                i. Anatomic injury or combination of severe injuries but may have been survivable under optimal conditions
                ii. Standard protocols were not followed, possibly resulting in unfavorable consequences
                iii. Provider care was suboptimal
            b. Event/mortality without an opportunity for improvement
            c. Undetermined opportunity for improvement
    C. Recommend reviewing patients discharged to hospice to ensure there were no opportunities for improvement in care that might have significantly changed the clinical course that ultimately led to the decision for hospice care.

14. If individual subspecialty services/departments have department and/or hospital based peer or case review meetings in addition to the required trauma PIPS peer-review meeting, those meeting minutes or outcomes must be made available to the PIPS program.

15. A multidisciplinary forum to address trauma program operational issues is required.
    A. The TPMD, in collaboration with the TPM and Trauma PI Coordinator, will have a leadership role.
        i. The TPMD, TPM and PI Coordinator must maintain 75% attendance.
        ii. In trauma programs utilizing a Trauma Program Performance Improvement Medical Director / Associate Medical Director, 75% attendance must be maintained.
    B. Attendees should include representatives from all phases of care provided to injured patients, including ancillary personnel, as defined by the PIPS plan.
    C. The focus must be on system/hospital related operational issues.
    D. Meeting minutes and attendance log must be maintained.
    E. This meeting must be scheduled at regular intervals to assure that issue discussion can occur in a timely fashion.

16. PIPS programs should provide education. This can be accomplished by a periodic trauma case review or didactic conference and should include appropriate disciplines.
    A. CME, CE and IEP's should be linked to the PIPS program.

17. Outside agencies (EMS, first responders, injury prevention, and disaster) and facilities (transferring and ancillary) should be engaged, as defined by the institution, in the PIPS process.

18. Completed pre-hospital and inter-facility patient care records – PCR must be sought, and when available, present for review by the trauma program as part of the PIPS process.

19. Complete anatomical diagnosis of injury is essential to assessment of quality of care. A post-mortem examination report (autopsy) should be sought, and when available, present for review in all trauma related deaths.

20. If the PIPS program identifies a patient occurrence not resolved at discharge, data/ information must be requested to provide loop closure and track patient outcomes.

21. The PIPS program will provide feedback to referring facilities including: A. Anatomical diagnosis, including ISS. B. Outcomes. C. Opportunities for improvement including but not limited to: i. Radiology issue for rescanning/reimaging due to inability to view films.
22. The PIPS program will seek feedback from facilities where patients are transferred to including: A. Anatomical diagnosis, including ISS. B. Outcomes. C. Opportunities for improvement.
23. The Trauma Program must develop, utilize and evaluate evidence based clinical practice/patient management guidelines, protocols and algorithms. A. Compliance with these guidelines must be monitored by PIPS. B. The required clinical guidelines are listed in Appendix D.
24. To ensure a culture of trust critical to improving overall quality and equitable trauma care across the state of Pennsylvania, PA Trauma centers submitting to the PA V5 Outcomes Central Site, PA TQIP Collaborative and PTOS must comply with confidentiality requirements established by the PTSF. A. These references are located on the PTSF web site: Performance Improvement.

PIPS Indicators

PI Program must monitor the following at a minimum

- Hospital Event and Audit Filters as defined by PTSF PTOS manual
- Trauma Center volumes
- Categorization of level of activation
- Compliance with Activation Criteria *annually
    - By level of response
- Over/Under triage trended rate *quarterly
    - Utilize Matrix Method at minimum
- Transfer In/Out
    - Appropriateness/Rationale of transfer
    - Timeliness of transfer
    - Follow-up communication
        - Compliance with sending and/or receiving follow-up
        - Outcome review
- Diversion Report
- Timeliness of submission to the PTSF Central Site Portal
- PIPS Meetings attendance
- Mortality
    - By ISS subgroup
    - Dead on Arrival: no resuscitation efforts in ED
    - Died in ED despite resuscitation efforts
    - Died in-hospital
    - Total Mortality Rate
    - Mortality Rate by age distribution
- Screening for substance abuse, brief intervention, and referral for treatment
- Level III and IV: Delays in care due to the unavailability of ED physician (specifically when covering in-house emergencies)
- Response time to trauma activations
    - Level I, II and III: Trauma Surgeon
    - Level IV: Emergency Physician
- Delay in response for emergent assessment
    - Anesthesiology
    - General Surgery
    - Neurosurgery
- Orthopedic Surgery
- Compliance with policies related to timely access to the OR for urgent surgical intervention
    - Operating Room availability
    - Operating Room & PACU: Back-up team response time and utilization
- Unplanned transfer to a higher level of care within the institution
- Delays in response to the ICU for patients with critical needs
- Timeliness of laboratory testing/blood availability
    - Turnaround time for Massive Transfusion Protocol (MTP) activations
- Delay in access to time sensitive diagnostic or therapeutic interventions
    - For example, if responding from outside center: CT, General Radiology, MRI
    - Interventional Radiology
- Radiology errors of interpretations or discrepancies between the preliminary and final reports

- Organ donation rate
- Adult Trauma Centers: Pediatric patients (Every)
  - Appropriateness of transfer or admission
  - Timeliness of care
  - Adequacy of care
  - Trauma Centers admitting more than 100 pediatric trauma patients annually requires a pediatric specific PIPS program

*The PI indicators should be monitored according to the level of accreditation.

Matrix Method

A method for calculating overtriage and undertriage rates

	Not Major Trauma	Major Trauma	Total
Highest level activation	A	B	C
Midlevel activation	D	E	F
No activation	G	H	I
Overtriage = $\frac{A}{C}$ x 100			
Undertriage = $\frac{(E+H)}{(F+I)}$ x 100			

Calculating Multidisciplinary Peer Review Meeting Attendance

Each mandatory participant must maintain minimum attendance requirements. Attendance must be monitored on a continual basis. All scheduled meetings must be included in the calculation of meeting attendance.

$$\frac{\text{\# of meetings attended}}{\text{\# of scheduled meetings}} \times 100 = \text{\% attendance}$$

Excused absences are limited to military deployment, medical leave, and missionary work, which requires supportive documentation. Absences due to vacation, patient care, and illness are not excused. Providers contracted but not working a particular month are not excused for the month not worked. Per Diem providers, providers rotating from another hospital, and Locum Tenens providers cannot have attendance expectations prorated based on amount of call taken. TPMD/Liaison providing a review of the meeting minutes to the absent provider cannot be counted as attendance at the meeting.

The number of scheduled meetings can be prorated if a participant started or left their position, was appointed, or unappointed as liaison, or had a contract start or end during the calendar year. In these situations, only those meetings after the start date or prior to the end date are included in the number of scheduled meetings.

Examples of how to calculate annual attendance:

1. A Locum Tenens contracted to work January to June is required to attend 3 meetings if there are 6 monthly meetings, even if they only work 1 of the months. If the same Locum Tenens has a 2nd separate contract at the same facility November to December, they would be required to attend 4 meetings of the 8 monthly meetings held during their contracts.
2. Hospital A has 1 Trauma Surgeon on medical leave for 4 months. As a replacement for this Trauma Surgeon, the staffing plan during the 4 months includes utilizing Trauma Surgeons from Hospital B. Each Trauma Surgeon from Hospital B will be required to attend 50% of the meetings at Hospital A, which is 2 of the monthly meetings during the 4-month timeframe.
3. A Health System requires all Trauma Surgeons to be credentialed at every hospital within the system, but each Trauma Surgeon is assigned to 1 Trauma Center. The Trauma Surgeons from Hospital A are not on call for Hospital B, and the staffing plan does not include utilization of Trauma Surgeons from the other Trauma Center. Trauma Surgeons credentialed but not on the primary trauma call roster are not expected to participate in multidisciplinary peer review committee meetings.
4. If Hospital A from example #3 has a change to their staffing plan on May 1st that includes Dr. Smith from Hospital B on the trauma call roster while also remaining on the trauma call roster for Hospital B, Dr. Smith would be expected to participate in 50% of meetings at Hospital A and 50% of meetings at Hospital B. Hospital A will begin tracking Dr. Smith's attendance beginning on his start date on the trauma call roster. Therefore, if both hospitals hold monthly meetings, Dr. Smith would be expected to attend 4 meetings at Hospital A and 6 meetings at Hospital B to meet the Standards.

Continuing Education Programs

1. The trauma PIPS program and registry data should drive and evolve into education.
   A. This should include age-related clinical competency as determined by the trauma program.
2. There will be formal programs in continuing education provided annually by the institution concerning the treatment of trauma patients of all ages to the following internal audiences:
   A. Physicians
   B. Registered Nurses
   C. Allied Health Personnel
3. For Level I and II Trauma Centers: There will be programs in continuing education provided by the institution concerning the treatment of trauma patients of all ages for each of the following external audiences. This may be fulfilled by multidisciplinary programs.
   A. The intended audience must include:
      i. Physicians
      ii. Registered Nurses
      iii. Allied Health Personnel
      iv. Pre-hospital Providers
4. Defined providers may participate in an Internal Educational Program (IEP) to meet the continuing education requirements.
   A. See Physician and Advanced Practitioner Standards for applicable providers.
   B. Examples of an IEP may include the following: in-services, case-based learning, educational conferences, grand rounds, internal trauma symposia and in-house publication dissemination of information gained from a local conference or an individual's recent publication (through trained analysis).
   C. IEP's should include presentations and discussions on a quarterly basis at a minimum.
   D. The total hours acquired through an IEP should be functionally equivalent to 12 hours of CME annually.
5. The TPMD and the TPM have ultimate authority to validate educational forums and submissions for CME requirements. This includes the approval of all contact hours.
6. New providers will have education requirements prorated based on start date/calendar year.
7. Level I trauma centers must provide or participate in at least one ATLS course annually.

1. The institution will demonstrate a leadership role and engage in trauma prevention programs. These programs must be: A. Internal and external to the institution. B. Reflective of the trauma trends identified through the institution's trauma registry and/or community needs. i. Implement at a minimum two programs that demonstrate outcomes annually that address one of the major causes of injury in the community as supported by trauma related data. C. Presented collectively with other institutions and organizations.
2. The institution must demonstrate evidence of a job description and salary support for a prevention coordinator. A. This position must be a separate person than the TPM. B. This position must directly report through the Trauma Program administrative structure. C. Minimum of 0.5 FTE dedicated to pediatric injury prevention and outreach is required.
3. The TPMD, or Trauma Surgeon Designee and the TPM must have a demonstrated role with injury prevention program planning and development.
4. The institute must demonstrate collaboration with, or participation in, national, state and local injury prevention programs.
5. The institution must provide a means of referral and access to the trauma centers injury prevention and educational resources.
6. The Clinical Staff must be familiar with and participate in trauma injury prevention education.
7. Trauma patients must undergo a screening for suspected or confirmed abuse. The institution must: A. Have a policy/procedure/guideline that defines the abuse screening and management of patients with suspected or confirmed child abuse, intimate partner violence, and sex trafficking. B. Report abuse in compliance with Pennsylvania law and hospital policy/procedure/guideline. C. Have child protective services available.
8. Providers participating in the care of the injured patients should have access to trauma-informed care training.
9. Screening for substance abuse (alcohol and drugs) must be performed and documented for 80% of all injured patients (PTOS) age 12 and greater with a hospital stay greater than 24 hours. A. The best practice for the Screening, Brief Intervention and Referral for Treatment (SBIRT) process is for all patients to be screened, regardless of length of stay. B. 80% of patients who have screened positive must receive a brief intervention by appropriately trained staff, and this intervention must be documented. i. At a minimum an intervention must be offered. C. Eligible patients must include at a minimum alive and participatory patients, regardless of trauma team activation level including non-activations, and regardless of admitting service.
10. The institution should have a plan to evaluate, support and provide services for Post-Traumatic Stress Disorder (PTSD). A. ACS Diagnostic Criteria and Questionnaire example
11. The institution should be involved in the Stop the Bleed initiative.

Table 1 Key Elements of an Effective Injury Prevention Program

- **Target the community:** Identify the primary causes of injury and death.
- **Work upstream:** Identify the root causes of injury and its contributing factors.
- **Choose preexisting proved or promising programs:** Understand that new program development, assessment, and implementation are complex and time-consuming.
- **Always partner with other organizations:** Make use of the fact that other trauma centers, prehospital providers, law enforcement agencies, schools, churches, and other organizations are interested and involved in community injury prevention efforts.
- **Embrace the media:** Learn to speak effectively, be prepared for the many opportunities that will arise, and allow trauma center leaders to become a reliable source of injury prevention information for local print and broadcast media.
- **Be politically savvy:** Realize that elected and appointed leaders can help if the trauma center understands their goals and the ways to work with them to create effective laws promoting prevention.
- **Do not forget the data:** Develop surveillance and monitoring tools to assess not only the available performance indicators of the trauma center's prevention efforts but also the prevention effectiveness.

Table 2 Suggested Recording and Reporting Elements for Trauma Center Prevention Activities

- Targeting of mechanism of injury or root cause of injury
- Date and location(s) of program event(s)
- Trauma center resources
- Personnel hours (paid and volunteered)
- Trauma center expenses
- Community partners and their personnel hours
- Other sources of financial support
- Media exposure
- Elected and appointed officials involved
- Public policy initiatives or legislation
- Number of community members reached with prevention message or service
- Available outcome data related to the prevention activity and its target

Research: Level I Trauma Centers Only

1. The institution will have a designated trauma research director.
   A. This may be the TPMD or a Trauma Surgeon who:
      i. Remains active in trauma care.
      ii. Demonstrates current (two years) involvement and commitment to research in trauma care.
2. The institution must have formal regularly scheduled trauma research meetings.
3. The institution must have an identifiable Institutional Review Board process, active research protocols and allied health professionals involved in extramural educational presentations and an adequate number of peer-review scientific publications.
4. Four (4) extramural educational presentations are required each year.
   A. These must be presented outside the institution.
   B. See Continuing Educational Programs Standard for additional details.
5. Methods of demonstrating the trauma center/ system involvement and commitment to research will include a combination of publications from:
   A. One (1) trauma or trauma related publication from the members of the general surgery trauma team.
   AND
   B. One from a minimum of three (3) of the twelve (12) listed below:
      i. Anesthesia
      ii. Basic Sciences
      iii. Cardiothoracic Surgery
      iv. Critical Care
      v. Emergency Medicine
      vi. Neurosurgery
      vii. Nursing
      viii. Orthopedics
      ix. Plastics/Maxillofacial Surgery
      x. Radiology
      xi. Rehabilitation
      xii. Vascular Surgery
   C. Trauma related articles authored by members of other disciplines or work done in collaboration with other trauma centers and in participation in multicenter investigations may be counted in the remainder of the articles.
6. Trauma Centers must produce a minimum total of:
   A. Twenty (20) trauma related publications within a three year (calendar) period.
   OR
   B. Ten (10) trauma related publications within a three year (calendar) period.
   AND
   C. Demonstrate compliance with four (4) of the seven (7) options:
      i. Leadership in major trauma organizations including membership in trauma committees of any regional and/or national trauma organization.
      ii. Peer-review funding for trauma research.
      iii. Dissemination of knowledge to include: review articles, book chapters etc.
      iv. Display of scholarly application of knowledge as evidence by case reports or reports of clinical series in journals included in Medline or PubMed.
      v. Participation as a visiting professor or invited lecturer at a regional or national conference.
      vi. Support of resident participation in institution-focused scholarly activity, including laboratory experiences, clinical trials and resident paper competition submission that were not published.
      vii. Mentorship of residents or fellows, as evidenced by development of a trauma fellowship program or successful matriculation of graduating residents into trauma fellowship programs.

Research: Level I Trauma Centers Only

7. Research guidelines include:
   A. Publications must appear in peer-review journals included in Index Medicus or Pub Med.
      i. Publications not included in these databases may be submitted to the PTSF for a standard variance request on a case-by-case basis.
   B. In combined Level I Adult and Pediatric Trauma Centers, one-half (50%) of the research requirements must be pediatric research. Similarly, the Adult Center may take credit for up to one-half (50%) of the required papers.
   C. A Level I trauma surgeon's research cannot be counted at another trauma center.
      i. Research conducted and completed prior to employment – but published after a change in employment – cannot be counted toward the new place of employment.
      ii. Research conducted but not completed prior to a change in employment may be counted at both trauma centers.
   D. Research completed by a consortium of hospitals can be counted at each hospital if data and trauma/registry program resources are utilized in the completion of the research project.

Physicians

1. The institution will credential each physician for the appropriate specialty, including trauma care.
   A. Compliance with these criteria and their appropriateness is essential and must be monitored by the trauma PIPS program.

2. Trauma call will be limited to those with demonstrated skills, commitment and experience.
   A. The TPMD, in conjunction with the hospital's medical governing board or body and in association with identified subspecialty liaisons will utilize the trauma PIPS program to determine each individual attending physician's ability to participate on the trauma team.
      i. This will be based on an annual review of each provider's performance in the trauma program.
      ii. Surgical privileges do not necessarily qualify a surgeon to care or consult on the care of the severely injured.
   B. Reappointment to the trauma admitting/consulting staff must be coordinated by the TPMD and based on the following criteria:
      i. Maintenance of good standing in the primary specialty.
      ii. Evidence of the required continuing medical education in trauma.
         a. Physicians who maintain Board Certification/Board Eligibility in their required specialty do not have to maintain additional continuing medical education.
            - Not applicable to the Trauma Program Medical Director
            - Not applicable to Physicians with an Alternate Pathway
            - Not applicable to the Trauma Program Performance Improvement Medical Director / Associate Medical Director
         b. The TPMD is responsible for determining if submitted CME is acceptable in meeting the trauma related requirements.
         c. CME credits obtained by completion of the ATLS course may be counted towards yearly CME requirement.
            - ATLS-Instructor hours may be counted as a maximum of ten (10) CME credits in a rolling three year period.
         d. Obtaining Board Certification and/or Re-Certification may count as thirty-three (33) hours of continuing education credit for the year that board certification/re-certification occurred.
         e. An Internal Educational Process (IEP) may be identified by the Trauma Program as a means of fulfilling CME requirements.
            - See Continuing Education Standard for details.
            - The IEP is not applicable to Liaisons
      iii. Documentation of attendance at multidisciplinary conferences, morbidity/mortality round and/or institution peer-review conferences that deal with the care of injured patients.
      iv. Satisfactory performance in managing trauma patients based on performance assessment and outcome analysis.

Physicians

3. Physicians at Pediatric Trauma Centers must be board certified/board eligible.
   A. Board certification/board eligibility in the appropriate specialty board is required for Anesthesiology, Emergency Medicine, General Surgery, Neurosurgery, Orthopedic Surgery and Radiology. See specific subspecialty areas for additional details.
      i. Other surgical and non-surgical specialties must be a board certified or board eligible physician with credentialled expertise (privileges at the institution through the institution's credentialing process for the specialty) in the specific specialty. See Other Surgical Specialties and Other Non-Surgical Specialties for additional details.
   A. All certifications must be maintained on a continuous basis.
   B. Recognized Boards are those recognized by the American Board of Medical Specialties, American Osteopathic Association or Royal College of Physicians and Surgeons of Canada.
      i. Providers with Board certification by any other governing board must apply for an Alternate Pathway per Policy AC-129: Process for Use of Non-Board Certified Physicians: Alternate Pathway.
      ii. Providers must be deemed board eligible by their appropriate Board. If no longer board eligible, that individual is unacceptable for inclusion on the trauma team until an alternate pathway is approved.
      iii. If at any time, a provider is not board certified/board eligible, it is recommended they maintain PALS and ACLS (or equivalent course) certification.

SUBSPECIALITY LIAISONS

4. Liaisons will be identified in the following areas: Anesthesiology, Emergency Medicine, Intensive Care Unit (If not surgically directed) Neurosurgical, Orthopedic, Radiology and other appropriate disciplines as defined by the Trauma Program, who will participate in the PIPS program. The Liaison will:
   A. Be a single identified person.
   B. Be Board Certified/Eligible in specialty and either Chief of the corresponding service or specifically designated by both the TPMD and the Chief of Service.
   C. Attend at least a 50% attendance at the multidisciplinary PIPS meeting.
      i. This attendance benchmark may be met by the liaison and/or a second identified representative of the Subspecialty Group.
         a. If this role is shared, both participants must meet the CME requirements.
      ii. Fifty percent is the actual attendance rate and does not include excused absences or other reasons for nonattendance.
      iii. Attendance must be monitored on a continual basis.
   D. Update specialty group on trauma related issues.

Physicians

ANESTHESIOLOGY

5. It is the responsibility of the institution to ensure that Anesthesiologists who have demonstrated through commitment, continuing education and experience are available. This includes: an Anesthesiology team of sufficient number and experience must be available to support the immediate surgical needs of all trauma patients, including pediatric trauma patients. This includes:
   - A. Board Certification or Board Eligibility
   - B. The Anesthesiology Service must maintain in-house 24-hour availability and be dedicated to one hospital when on call.
     - i. Published on-call and back-up call schedules must be maintained.
   - C. Anesthesiology services must be available for severely injured patients, emergency operations and airway management as requested by the trauma team.
     - i. The institution will determine when the attending anesthesiologist will respond in-house for the resuscitative phase of care based on patient condition.
     - ii. The Trauma Program must define the parameters of emergent response outside of the resuscitative and operative phases of care, based on level of acuity. For example, emergent consult in the ICU scenarios.
       - a. The emergent response must be within 30 minutes.
     - iii. Requirements may be fulfilled by senior anesthesia residents (PGY-4/CA3) or licensed certified nurse anesthetists (CRNA's) who are capable of assessing emergent situations and providing any indicated treatment for trauma patients.
       - a. When anesthesia residents and/or CRNA's are used to fulfill availability requirements, the staff anesthesiology on-call will be notified.
       - b. The staff anesthesiologist may not supervise more than two residents or CRNA's on major trauma cases at one time.
       - c. CRNA's should reference Advanced Practitioner Standard for continuing education requirements.
     - iv. The Anesthesiologist involved in the emergent operating room case must be immediately available. – See Operating Room Standard 17 for additional details.
       - a. Level I and II: within 15 minutes
   - D. The Anesthesiology Service must actively participate with the overall trauma PIPS program
     - i. This includes the Anesthesiology Liaison's participation in the multidisciplinary PIPS peer review meeting.

Physicians

EMERGENCY MEDICINE

6. It is the responsibility of the institution to ensure that emergency physicians who have demonstrated through commitment, continuing education and experience staff the emergency department. This includes:
   - A. Board Certification / Board Eligible
     - i. Physicians participating in an approved alternate pathway must acquire twelve (12) hours annually or thirty-six (36) hours in three years of Continuing Medical Education (CME).
       - In lieu of CME, demonstration of completion of the Trauma Program (IEP) is acceptable. See Continuing Education Standard # 7 for additional details.
     - ii. Level I: There must be two Emergency Medicine Physicians who are board certified or board eligible in Pediatric Emergency Care. The remainder of the Physicians must be Board Certified / Board Eligible in Emergency Medicine at a minimum.
     - iii. Level II: There must be one Emergency Medicine Physician who is board certified or board eligible in Pediatric Emergency Care. The remainder of the Physicians must be Board Certified / Board Eligible in Emergency Medicine at a minimum.
     - iv. In lieu of certifications by Emergency Medicine Boards, a physician with certification by the Board of Surgery, Pediatric Medicine or Family Practice is acceptable for meeting the emergency department staffing requirement providing the physician is actively participating in emergency medicine as evidenced by participation in routine, daily emergency department patient care.
   - B. ATLS Certification
     - i. Emergency Medicine Physicians board certified in Emergency Medicine must take ATLS at least one time.
     - ii. ATLS must be continuously maintained if not board certified in Emergency Medicine.
   - C. Credentialed by the hospital to be qualified to provide pediatric care if they are not pediatric providers.
   - D. There must be a designated Emergency Department Physician Director with evidence of active participation in daily emergency department administrative duties.
   - E. The emergency department staffing will ensure immediate and appropriate care of the trauma patient.
     - i. A physician with special competence in the care of the critically injured trauma patient must be physically present in the emergency department 24 hours a day.
       - a. During daily periods of peak utilization, staffing by a minimum of two physicians within the Emergency Department is required.
         - The trauma program must define peak hours, supported by data, and reevaluate annually at a minimum.
     - ii. Published on-call and back-up call schedules must be maintained.
   - F. Level I Emergency Physician's will have no other responsibilities outside of the emergency department.
     - i. Level II Emergency Physician's may have other responsibilities outside of the emergency department if the trauma surgeon is physically present within the institution to respond to alerts.
   - G. The initial assessment and evaluation of the severely injured patient is the responsibility of the attending trauma surgeon. The Emergency Physician works closely with the trauma attending surgeon, and is a member of the trauma team.
     - i. When the trauma surgeon is not immediately available, the attending emergency physician assumes control until the attending trauma surgeon arrives.
       - a. An Emergency Medicine physician must respond to the highest level of trauma alert.
       - b. In an Emergency Department where a trauma surgeon is present in the ED at all times, the EM Physician is not required to respond to highest level activations.
       - c. This responsibility can be met by an emergency medicine resident, PGY 3 or above, who has completed at least two years of emergency medicine experience.

Physicians

EMERGENCY MEDICINE CONTINUED

ii. The institution must define the role and clearly established responsibilities of the Emergency Physician on the trauma team.

iii. Performance of various diagnostic and resuscitative procedures may be shared, especially in training institutions.

a. These responsibilities must be agreed upon and approved by the TPMD.

H. The Emergency Medicine Department must actively participate with the overall trauma PIPS program.

i. This includes the Emergency Departments Liaison's participation in the multidisciplinary PIPS peer review meeting.

Physicians

GENERAL SURGERY

7. It is the responsibility of the institution to ensure that General Surgeons who have demonstrated through commitment, continuing education and experience are available. This includes:

A. Board Certification/Board Eligible.

i. Physicians participating in an approved alternate pathway must acquire twelve (12) hours annually or thirty-six (36) hours in three years of Continuing Medical Education (CME).

- In lieu of CME, demonstration of completion of the Trauma Program (IEP) is acceptable. See Continuing Education Standard # 7 for additional details.

ii. Level I: There must be at least two physicians who are board certified or board eligible in pediatric surgery.

iii. Level II: There must be at least one physicians who is board certified or board eligible in pediatric surgery.

B. ATLS Certification

C. General Surgeons on call for trauma are encouraged to participate in the operative and critical care of patients with urgent and emergent surgical problems.

D. All general surgery-attending physicians taking trauma call must actively participate in the trauma PIPS program.

i. Every general surgeon participating on the trauma call roster, regardless of the amount of call, must attend in a minimum of 50% of the multidisciplinary trauma peer review meetings. See PIPS standard for additional details.

- Back-up Trauma Surgeons who only serve in this capacity on the back-up call schedule, and not on the primary trauma call roster, are not expected to participate in 50% of multidisciplinary peer review committee meetings.

E. Trauma Surgeons must be in-house and dedicated to one hospital when on call.

i. In-house expectations may be fulfilled by senior residents in general surgery (PGY-4 or above).

a. The PGY-4 or above surgical resident may be approved to begin resuscitation while awaiting the arrival of the attending surgeon, but cannot be considered a replacement for the attending surgeon in the emergency department/resuscitation area.

- They must be able to deliver surgical treatment immediately and provide the control and leadership for the care of the injured patient.
- They must have completed at least three years of clinical, general surgery.
- The presence of such a resident may allow the attending surgeon to take call from outside of the hospital.
- See ICU Standard for additional details.

F. Published on-call and back-up schedules must be maintained.

i. The expected response time parameters for the back-up trauma attending must be further defined by the trauma program; however, a 30-minute response time for the emergent request is expected.

Physicians
GENERAL SURGERY
H. The attending surgeon's participation in the major therapeutic decisions, presence in the emergency department for major resuscitations and presence at operative procedures is mandatory. i. The attending surgeon will be in the emergency department/trauma resuscitation area on patient arrival, with adequate notification from the field (defined as EMS/Pre-hospital notification). a. The maximum acceptable response time is 15 minutes, tracked from patient arrival. b. Compliance of surgeon's presence at least 80% of the time must be maintained and monitored. c. The response time is applicable to the highest-level activation at a minimum. d. For centers where the highest level of activation is direct transport to the OR, the second highest activation would apply to the activation criteria. ii. For general surgical trauma operative procedures, the responsible attending trauma surgeon must be present in the operating room unless surgical staff specialists are performing the surgical procedures. a. The on-going resuscitation and management of the trauma patient while in the operating room, remains the responsibility of the surgical trauma team in collaboration with the anesthesia team. • This requirement for the attending trauma surgeon's presence should not result in delay for initiating urgently needed operative procedures. iii. Fellows in pediatric surgery training programs who are board certified or board eligible in general surgery are acceptable in fulfilling the attending physician requirement.

Physicians

8. There must be a Pediatric Intensive Care Unit (PICU).
   - A. The Trauma Services must work collaboratively with the Pediatric Critical Care providers.
   - B. There will be a surgically directed or co-directed ICU physician team (Surgery and Medicine).
     - i. The Surgical ICU Director / Co-Director must be Board Certified / Board Eligible Pediatric Surgery.
     - ii. The Surgical Director/Co-Director is responsible for the quality of care and administration of the trauma ICU. This includes policy setting, administration and clinical care for the trauma ICU patients.
     - iii. This may be the Trauma Program Medical Director
   - C. The ICU service must actively participate with the overall trauma PIPS program.
     - i. This includes the ICU Co-Director (if not a surgeon) or Liaison's participation in the multidisciplinary PIPS peer review meeting.
   - D. It is the responsibility of the institution to ensure that physicians who have demonstrated special capabilities through commitment, continuing education, and experience to care for pediatric trauma patients staff the ICU.
     - i. Board Certification:
       - a. Level I: There must be at least two physicians who are board certified or board eligible in pediatric critical care or in pediatric surgery and critical care.
       - b. Level II: There must be at least one physician who is board certified or board eligible in pediatric critical care or in pediatric surgery and critical care.
   - E. If the Trauma Attending is providing ICU coverage, a back-up ICU attending must be identified and ready available.
   - F. See ICU Standard for additional details and response parameters.

Physicians

NEUROLOGICAL SURGERY

9. It is the responsibility of the institution to ensure that Neurosurgeons who have demonstrated through commitment, continuing education and experience are available. This includes:
   - A. Board Certification / Board Eligibility.
     - i. Physicians participating in an approved alternate pathway must acquire twelve (12) hours annually or thirty-six (36) hours in three years of Continuing Medical Education (CME).
       - In lieu of CME, demonstration of completion of the Trauma Program (IEP) is acceptable. See Continuing Education Standard # 7 for additional details.
     - ii. Level I: There must be at least one board certified or board eligible neurosurgeon who has had pediatric fellowship training and one additional board certified or board eligible neurosurgeon with demonstrated interest in trauma care.
     - iii. Level II: There must be at least one board certified or board eligible neurosurgeon with demonstrated interest in trauma care.
   - B. All Neurosurgeons must be qualified and credentialed to treat all trauma patients, including pediatric patients.
     - i. It is acceptable for institutions to credential both neurosurgeons and orthopedic surgeons to treat spine injuries or share spine call.
   - C. Neurosurgery must be dedicated to one hospital or have a published back-up call schedule.
     - i. If a published back-up call schedule is not utilized, the PIPS program must monitor compliance to ensure that there is not a delay in clinical care.
   - D. Current trauma care involves the active participation and support of the Neurosurgical service. In order to provide continuous coverage/care, more than one neurosurgeon must be on staff and participating in the trauma program.
   - E. An attending Neurosurgeon or designee must be available. If the attending Neurosurgeon is not in house when on call, they must be promptly available to come in house when requested by the trauma team leader.
     - i. The Trauma Program must define the parameters of emergent response based on level of acuity.
       - a. The immediate/emergent response must be within 30 minutes.
     - ii. The Neurosurgical designee requirement may be fulfilled by a Neurosurgical resident in at least the second year of clinical Neurosurgical experience, or a mid-level provider/advanced practitioner who has special competence, as attested to in writing by the Chief of Neurosurgery and/or the TPMD in consultation with the Chief of Neurosurgery, in the care of patients with neural trauma.
       - a. The surgeon must be capable of initiating measures towards stabilizing the patient and initiating diagnostic procedures.
       - b. Special competence recognition for trauma surgeons does not relieve the neurosurgeon of the responsibility for prompt in-house response.
       - c. The intent of this standard is to assure the subspecialist's surgical expertise is promptly available when requested for a subset of emergent patients.
       - d. If a designee is utilized, the trauma program must define parameters for and monitor the compliance with expectations of the surgeon's response.
         - A "designee" does not replace the surgeon's presence, but rather provides emergent evaluation and intervention until the surgeon arrives.
         - Communication between the designee and the subspecialist during this emergent period must be documented in the medical record in order to demonstrate compliance.
   - F. The Neurosurgeon on call must be present in the operating room for major surgical procedures related to their specialty.

Physicians
NEUROLOGICAL SURGERY CONTINUED
H. The Trauma Center must provide a contingency plan in case the capability of the neurosurgeon, hospital or system is overwhelmed and unable to care for the neurotrauma patient. This plan must include the following: i. Emergency Medical Services (EMS) notification of advisory status/diversion. ii. Evaluation of timely and appropriate care during event. iii. Monitoring the efficacy of the process and each instance by the PIPS program. I. There must be an acute spinal cord/brain injury management capability or formal transfer agreements in effect with regionally recognized spinal cord injury treatment centers. J. The Neurosurgery service must actively participate with the overall trauma PIPS program i. This includes the Neurosurgical Liaison's participation in the multidisciplinary PIPS peer review meeting.

Physicians

ORTHOPEDIC SURGERY

10. It is the responsibility of the institution to ensure that Orthopedists who have demonstrated through commitment, continuing education and experience are available. This includes:
    - A. Board Certification/Board Eligible.
        - i. Physicians participating in an approved alternate pathway must acquire twelve (12) hours annually or thirty-six (36) hours in three years of Continuing Medical Education (CME).
            - In lieu of CME, demonstration of completion of the Trauma Program (IEP) is acceptable. See Continuing Education Standard # 7 for additional details.
        - ii. Level I: There must be at least one board certified or board eligible orthopedic surgeon who has had pediatric fellowship training and one additional board certified or board eligible orthopedic surgeon with demonstrated interest in trauma care.
        - iii. Level II: There must be at least one board certified or board eligible orthopedic surgeon with demonstrated interest in trauma care.
    - B. Current trauma care involves the active participation and support of the Orthopedic Service. In order to provide continuous coverage/care, more than one orthopedist must be on staff and participating in the trauma program.
    - C. Orthopedic surgery must be dedicated to one hospital or have a published back-up call schedule.
    - D. An attending Orthopedic Surgeon or designee must be available to respond in-house and dedicated to the trauma program when on-call as requested by the Trauma Team Leader.
        - i. The Trauma Program must define the parameters of emergent response based on level of acuity.
            - a. The emergent response must be within 30 minutes.
        - ii. The in-house Orthopedic requirement may be fulfilled by an Orthopedic resident in at least the second year of clinical Orthopedic experience, or the attending trauma surgeon, the general surgery resident (PGY-4 or above) or a mid-level provider/advanced practitioner who has special competence, as attested to in writing by the Chief of Orthopedics and/or the TPMD in consultation with the Chief of Orthopedics, in the care of patients with orthopedic trauma.
            - a. The provider must be capable on initiating measures towards stabilizing the patient and initiating diagnostic procedures.
            - b. Special competence recognition for trauma surgeons does not relieve the orthopedic surgeon of the responsibility for prompt in-house response.
            - c. The intent of this standard is to assure the subspecialist's surgical expertise is promptly available when requested for a subset of emergent patients.
            - d. If a designee is utilized, the trauma program must define parameters for and monitor the compliance with expectations of the surgeon's response.
                - A "designee" does not replace the surgeon's presence, but rather provides emergent evaluation and intervention until the surgeon arrives.
                - Communication between the designee and the subspecialist during this emergent period must be documented in the medical record in order to demonstrate compliance.
    - E. The Orthopedist on call must be present in the operating room for major surgical procedures related to their specialty.
    - F. Operating rooms must be promptly available to allow for emergent orthopedic operations on musculoskeletal injuries such as open fracture debridement and stabilization, external fixator placement and compartment syndrome decompression.
        - i. A system must be organized so that musculoskeletal trauma cases can be scheduled without undue delay and not at inappropriate hours that might conflict with more urgent surgery or other elective procedures.

Physicians
ORTHOPEDIC SURGERY CONTINUED
H. The following orthopedic related practice management guidelines must be in place: i. Unstable pelvic and acetabular fractures. ii. Long bone fracture management. iii. Open fracture management. I. The Orthopedic service must actively participate with the overall trauma PIPS program. i. This includes the Orthopedic Liaison's participation in the multidisciplinary PIPS peer review meeting.

Physicians
RADIOLOGY
11. It is the responsibility of the institution to ensure that Radiologists who have demonstrated through commitment, continuing education and experience staff the radiology department. This includes: A. Board Certification/Board Eligible. B. An Attending Radiologist must be available within 30 minutes in person or by tele radiology for the interpretation of radiographs. C. Radiologist able to perform complex imaging studies or interventional procedures must be available. i. The emergent response expectation for the interventionalist to begin an endovascular or interventional radiology procedure is 60 minutes. The Trauma Program must identify the emergent patient classification parameters based on patient acuity, which must include, at a minimum, hemorrhage control. a. The response time is tracked from request to arterial puncture. ii. This role may be fulfilled by Vascular surgeons, Neurosurgeons, Neurologists, Cardiologists or Senior Radiology Residents (PGY-3 or above and must have completed one year of clinical radiological training) who are credentialed and capable of performing emergent radiographs, performance of complex imaging studies or interventional procedures. a. When radiology residents are used to fulfill availability requirements, the staff radiologist on-call will be notified and will be promptly available. iii. Level III: Not required. D. Published on-call schedules must be maintained. E. The institution will establish protocols defining the role of the radiologist and define the relationship between the trauma surgeons, emergency medicine physicians and other members of the trauma team. F. The Radiology Department must actively participate with the overall trauma PIPS program. i. This includes the Radiology Liaison's participation in the multidisciplinary PIPS peer review meeting.

Physicians

OTHER SURGICAL SPECIALTIES

12. Other surgical specialists must be available at the bedside for trauma patients when requested.
    A. Level I facilities are prepared to manage the most complex trauma patients and must have continuously available a full spectrum of surgical specialists.
    B. Level II facilities must have continuous surgical specialists described for Level I centers and may transfer highly-complex/low-volume patients.
    C. Regardless of the surgical or admission capabilities, every trauma center must immediately evaluate, stabilize, treat and, if indicated, transfer trauma patients that exceed the capabilities of the trauma center. Every trauma center must have transfer plans in place defining cases that exceed the capabilities of the trauma center and necessitate transfer.
    D. Level I and II Other Surgical Specialists participating in the care of the injured patient must be board certified/board eligible with credentialled expertise (privileges at the institution through the institution's credentialing process for the surgical specialty) in the specific surgical specialty.
        i. Recognized Boards are those recognized by the American Board of Medical Specialties, American Osteopathic Association or Royal College of Physicians and Surgeons of Canada.
        ii. Physicians with Board certification by any other governing board must apply for an Alternate Pathway per Policy AC-129: Process for Use of Non-Board Certified Physicians: Alternate Pathway.
    E. Level I and II Other Surgical Specialties must include:
        i. Cardiac Surgery: If cardiopulmonary bypass equipment is not immediately available, a contingency plan, including immediate transfer to an appropriate center and PIPS review of all patients transferred must be in place.
        ii. Craniofacial Expertise
            a. Level I: must have surgeons with Craniofacial Expertise capable to diagnose and manage acute facial fractures of the entire craniomaxillofacial skeleton, including the skull, cranial base, orbit, midface, and occlusal skeleton.
            b. Level II: must have surgeons with Craniofacial Expertise and may transfer highly complex/low-volume patients. If highly complex/low-volume patients will be transferred, a transfer plan and PIPS review of all patients transferred must be in place.
            c. Coverage can be a combination of any of the following specialists: Otolaryngology, Oral Maxillofacial Surgery, or Plastic Surgery. This can include a single specialty covering all injuries, a rotating schedule, or involvement of specific expertise depending on the nature of the injuries.
        iii. Hand Surgery
        iv. Soft Tissue Expertise
            a. Level I: Soft Tissue Coverage Expertise that are capable to address comprehensive soft tissue coverage of wounds, including microvascular expertise for free flaps. Also including all open fractures, soft tissue coverage of a mangled extremity, and soft tissue defects of the head and neck.
            b. Level II: Must have Soft Tissue Coverage Expertise and may transfer highly complex/low-volume patients.
                - If highly complex/low-volume patients will be transferred, a transfer plan and PIPS review of all patients transferred must be in place.
        v. Obstetric and Gynecologic Surgery: If OBGYN is not immediately available, a contingency plan, including immediate transfer to an appropriate center and PIPS review of all patients transferred must be in place.
        vi. Ophthalmic Surgery
        vii. Otorhinolaryngological Surgery
        viii. Plastic Surgery

Physicians

ix. Replantation Expertise or must have in place a triage and transfer plan with a Trauma Center with Replantation Expertise
    a. Replantation Expertise is defined as the capability to replant a severed limb, digit or other body part (for example, ear, scalp, or penis). This includes critical revascularization or care of a mangled extremity.
    b. The triage and transfer plan should ensure optimal care with a goal of minimizing time to replantation.
x. Urological Surgery
xi. Vascular Surgery

F. Published 24/7/365 on-call schedules must be maintained for all surgical specialties without gaps in coverage.
G. The Surgeon on call must be present in the operating room for major surgical procedures related to their specialty.
    i. Compliance and appropriateness must be monitored by the trauma PIPS program.
H. Surgical Specialists may be asked to participate in the trauma performance improvement process at the direction of the Trauma Program.

OTHER NON-SURGICAL SPECIALTIES

13. The complexity of the management of many seriously injured patients may require continuous support from medical specialists and their respective support teams.
    A. Level I and II Other Non-Surgical Specialists participating in the care of the injured patient must be board certified/board eligible with credentialled expertise (privileges at the institution through the institution's credentialing process for the medical specialty) in the specific medical specialty.
        i. Recognized Boards are those recognized by the American Board of Medical Specialties, American Osteopathic Association or Royal College of Physicians and Surgeons of Canada.
        ii. Physicians with Board certification by any other governing board must apply for an Alternate Pathway per Policy AC-129: Process for Use of Non-Board Certified Physicians: Alternate Pathway.
    B. Non-surgical specialties must include:
        i. Cardiology
        ii. Gastroenterology
        iii. Infectious Disease
        iv. Pediatric Medicine
        v. Nephrology
        vi. Pulmonary Medicine
    C. Providers must be promptly available from inside or outside the institution as defined by the medical staff by-laws and the trauma program.
        i. Published 24/7/365 on-call schedules must be maintained without gaps in coverage.
    D. A patient's Primary Care Physician/Pediatrician may be a valuable resource and considered a member of the trauma team and input into the care of a critically injured or ill patient.
    E. Non-Surgical Specialists may be asked to participate in the trauma performance improvement process at the direction of the Trauma Program.

Physicians
MISCELLANEOUS
14. For all patients requiring transfer 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 accredited trauma centers should be in place. A. If this occurs, a clear plan for expeditious transport, follow-up and PIPS monitoring is required. i. Refer to Standard 2: Capacity and Availability for transfer plan detail requirements. 15. Telemedicine, by itself, is not an acceptable method of consult. The expectation is that the specialist must be available in person at the bedside by a predefined time when a request is made.

Advanced Practitioners

1. Advanced Practitioners (APs), under the direction of a physician, may have a defined role in trauma patient care.
   A. The extent of the involvement must be determined by the TPMD in compliance with Pennsylvania law and hospital policy.
   B. This includes Physician Assistants (PA), Nurse Practitioners (NP) and Certified Registered Nurse Anesthetists (CRNA).

2. All APs who have a defined role in trauma patient care must be knowledgeable and current in the role of injured patients. This includes:
   A. A formal, institution specific orientation to the trauma program.
   B. Completion of annual review/performance evaluation including skills proficiency and trauma clinical competence by the TPMD or the Division Chief.
   C. Participation in the PIPS program as defined by the trauma program.

3. AP's prior to functioning as a member of the team caring for trauma activation patients via assessment or interventions must:
   A. Maintain ATLS:
      i. This includes Emergency Medicine and Trauma/Surgery APs responding to activations.
      ii. This excludes:
         a. Neurosurgery, Orthopedic Surgery and other AP Consulting Services
         b. Emergency Medicine APs solely working in the main Emergency Department and/or FastTrack area who do not respond to trauma activations
      iii. Certified Registered Nurse Anesthetists (CRNAs) who respond to care for the injured patient in a supportive/subspecialist role (such as airway only) are excluded from ATLS certification expectations.
   B. Recommend maintaining ACLS certification (or equivalent course)
   C. Recommend maintaining PALS certification (or equivalent course)

4. APs prior to being involved as first responders in any phase of trauma care must:
   A. Recommend maintaining PALS certification (or PALS equivalent)
   B. Maintenance of ACLS certification is recommended (or equivalent course)
      i. Requirement must be determined by the trauma program
      ii. Consideration should be based on age and population of trauma patients.
   C. ATLS is required for AP's identified as ICU First Responders (see Standard 19: ICU for details)
      i. Certified Registered Nurse Anesthetists (CRNA) who respond to care for the injured patient in a supportive/subspecialist role (such as airway only) are excluded from ATLS certification expectations.

5. Additional subspecialty AP credentialing requirements as defined by the trauma program.

6. The Pennsylvania Trauma Nursing Core Curriculum (PaTNCC) is not required for Advanced Practitioners.

Residency Programs

1. In teaching facilities, the requirements of the residency review committees must be met.

2. A General or Pediatric Surgical Residency program is required for Level I trauma accreditation.
   - A. There will be a fully accredited hospital residency program in general surgery or pediatric surgery by the Accreditation Council for Graduate Medical Education or the American Osteopathic Association.
     - i. Trauma Programs utilizing residents with residency programs from other accredited trauma centers must have a formal written training agreement in place.
     - ii. There will be educational programs within the surgical residency specifically designated to prepare surgeons to be proficient in the delivery of a high level of trauma care.
     - iii. There will be continuous scheduled educational rotations in trauma surgery of senior residents (PGY 4-5).

3. In institutions in which there are Emergency Medicine Residency training programs, supervision must be provided by an in-house attending emergency physician 24-hours a day.

4. When any residents are fulfilling standard requirements, they must be fully qualified by the institution, in conjunction with the trauma program, for care by the appropriate specialty.
   - A. Surgical and Emergency Medicine Residents involved in the care of trauma patients must at a minimum:
     - i. Maintain ATLS certification
     - ii. Recommend maintaining PALS certification (or equivalent course)
     - iii. Recommend maintaining ACLS certification (or equivalent course)
       - a. Consideration for ACLS should be based on age and population of trauma patients.
   - B. Additional subspecialty residency credentialing requirements as defined by the trauma program.

1. All registered nurses functioning in a department that routinely admits trauma patients must demonstrate compliance with the nursing standards. This includes:
   A. Burn Unit
   B. Emergency Department
      i. This includes admission/holding/observation areas used as an extension of the Emergency Department
   C. Intensive Care Units (ICU) for Trauma Patients
   D. Intermediate Care Step-Down Units (IICU) for Trauma Patients
   E. Medical/Surgical Units which regularly receive Trauma Patients
   F. PACU
   G. Operating Room
   H. Advanced Practitioners: This standard does not apply to AP's. Nurse Practitioners, Physician's Assistants and Certified Registered Nurse Anesthetists should see Advanced Practitioner Standard for additional details.

2. The institution will ensure that patient care units are staffed by registered nurses who have special capabilities as demonstrated through commitment, continuing education and experience.
   A. This includes, where applicable the ability to operate pediatric equipment.
   B. Trauma care oversight must be done by a Registered Nurse.
      i. Licensed Practical Nurses (LPN's), Aids, Technicians or other ancillary staff may be utilized in care tasks. This must be accomplished by RN oversight of care, procedure and chart entries per institutional policy.
   C. In circumstances where a patient is admitted to the unit under the care of a non-trauma credentialed RN, there must be oversight by a trauma credentialed RN, which must include at a minimum immediate availability as a resource. This must be defined by the trauma program.

3. The Pennsylvania Trauma Nursing Core Curriculum (PaTNCC) Course is required.
   A. The geriatric module of the PaTNCC is optional, at the discretion of the trauma program.
   B. For new applicants, 50% of the nursing staff must complete the trauma nurse course prior to survey.
   C. For RN's transferring from a pediatric Level I or II trauma center to another pediatric trauma center, the PaTNCC is transferable, however the hospital-specific module must be completed within one year of hire.
      i. RNs transferring from an adult Level I, II, or III trauma center can transfer the PaTNCC, at the discretion of the trauma program
      ii. RNs transferring from a Level IV trauma center must complete the PaTNCC
   D. The RN transferring into a trauma department must complete the PaTNCC within one year of transfer.
   E. For an accredited trauma center that is opening a new nursing unit, 50% of the staff must complete the trauma nurse course prior to the opening of the unit and the remaining 50% (for a total of 100%) must complete the course within the first year of the opening of the new unit.
   F. The course content will be reviewed on a regular basis at least every two years and must support evidenced based practice with the integration of data from the institutions trauma registry, national guidelines, current literature, and benchmarking efforts.
   G. The course must be accredited by a recognized professional nursing organization, for example: PSNA, ENA, AACN or AORN.
   H. The Trauma Certified Registered Nurse (TCRN) advanced certification indicates advanced competence in trauma nursing, and therefore exceeds the expectations of the PaTNCC. A trauma program may combine a hospital-specific competency module with the TCRN certificate to demonstrate compliance with this standard.

4. There must be evidence of ongoing skills proficiency / clinical competence appropriate for the institution.
   A. This can be accomplished through such mechanisms as annual reviews and performance evaluations.

5. Recommend all RN's (with the exception of Medical/Surgical Floor and Operating Room RN's) maintain PALS/ACLS provider status (or equivalent course).
   A. The hospital should determine the indication for PALS/ACLS course requirements. This should be based on the age and needs of the patient population. The hospital should monitor compliance.

6. All RN's participating in the care of trauma patients must have evidence of annual continuing education including eight (8) hours of continuing education.
   A. Education should be driven by the trauma PIPS program and registry data.
      i. This should include age-related clinical competency as determined by the trauma program.
   B. The TPM in conjunction with the TPMD is responsible for determining and validating which educational forums are acceptable in fulfilling continuing education requirements. This includes the approval and appropriation of all contact hours.
   C. Completion of an advanced trauma course, such as ATCN, TNCC, and TCAR may be credited to fulfill up to twelve (12) hours of continuing education requirements over a three (3) year timeframe from the class.
   D. Completion of an advanced non-trauma course such as ACLS, APLS, PALS or ABLS may be counted towards the yearly hours as follows:
      i. Four (4) hours for a two day provider course
      ii. Two (2) hours for a one-day (re-certification) course
      iii. While it is recognized that these courses required additional hourly participation, the intention is to
         a. Acknowledge the trauma related content
         b. Assure that other trauma related education is obtained
   E. Serving as faculty for trauma-related courses may be used to fulfill eight (8) hours of continuing education requirement for a three-year timeframe from the time of the class.
   F. Nurses maintaining a trauma advanced certification (CEN/CPEN, CCRN, TCRN, PCCN, CPN, CFRN, CNRN, CNOR, CPAN, ANCC Medical-Surgical Nursing board certification (RN-BC)) are not required to maintain continuing education logs.
      i. Not applicable to the TPM or PI-Coordinator
   G. New nurses may have education requirements prorated based on start date/calendar year.

7. Advanced Certification: at least 50% of the RN's employed in the Emergency Department, Intensive Care Unit and Intermediate Care/Step-Down Unit more than three years must have and maintain advance certifications within two years following initial accreditation.
   A. Certifications that meet expectations are: CEN/CPEN, CCRN, TCRN, PCCN, CPN, CFRN and CNRN.
      i. By virtue of certification maintenance continuing education requirements, Nurses maintaining one of the approved advanced certifications are not required to maintain continuing education logs.
         a. Not applicable to the TPM or PI-Coordinator
   B. Courses that meet expectations are: ATCN and TNCC.
   C. For new applicants, 25% of nursing staff, in these units, must have advanced certification in the year prior to survey.

Emergency Medical Services (EMS)

1. Medical Command Facility Designation, as recognized by the PaDOH Bureau of EMS, must be maintained. A. A facility may submit a request for a waiver to the PaDOH if unable to meet the medical command qualifications. The waiver must then be submitted to the PTSF following Policy AC-105 Applying for a Variance from a Standard for final approval.
2. The institution must have active involvement in its regional Emergency Medical Services (EMS / Pre-hospital) system. A. It is the responsibility of the trauma center to enhance lines of communication with EMS services and Regional EMS Councils to resolve issues related to EMS transportation, transfer and clinical care. B. The trauma program must identify an internal liaison to facilitate communication, education and outreach with EMS.
3. The trauma center must be the local trauma authority and assume the responsibility for providing training for EMS providers. A. Physicians, nurses and administrative personnel must be involved in various EMS programs and invite EMS providers to attend internal hospital education forums that are trauma related. B. Participation in jointly sponsored accredited continuing educational program is required.
4. The institution must participate in the development and improvement of EMS care protocols.
5. The institution must provide opportunities for appropriate EMS provider clinical experience.
6. EMS participation in the PIPS program must be clearly defined by the PIPS plan. A. At a minimum this includes, inviting an EMS liaison to the multidisciplinary PIPS meeting.
7. Completed pre-hospital patient care records (PCR) must be sought, and when available, present for review by the trauma program as a part of the PIPS process.
8. The trauma center should collaborate with EMS to adopt a universal format for the verbal transfer of care of the trauma patient from EMS to the trauma center. A. DMIST communication is recommended.

Helipad

1. There will be a lighted helipad in close proximity to the institution's emergency department. A. Location of the helipad will permit the trauma resuscitation team to meet the patient and provide direct transfer by gurney to the resuscitation unit. No intermediary vehicles should be employed.
2. The transport system to/from the helipad and/or ambulance entrance to the resuscitation unit must not adversely affect the timely intervention of definitive care. Methods will include: A. A diagram of the ground and air transport systems including the distance from the point of origin (i.e. helipad and/or ambulance entrance) to the trauma resuscitation rooms. B. Policies and procedures of the transport and transfer system for patients arriving or departing by the air transport system. C. Listing of the air transport systems used, consistent with the scope of care delivered.
3. The Commonwealth of Pennsylvania must license the helipad.
4. The Federal Aviation Administration, Eastern Region, must approve the air space.

1. Adequate Emergency Department facilities and personnel will be available to simultaneously care for two or more major uni-system or multi-system trauma patients.
   A. Back up areas must be identified and immediately available.

2. It is the responsibility of the institution to ensure that the Emergency Department is staffed by registered nurses who have demonstrated special capabilities through commitment, continuing education and experience.
   A. The Emergency Department will have a staffing plan that reflects the trending, severity of injury, arrival of multiple trauma patients, and staffing/skill mix required to ensure the appropriate care of trauma patients.
   B. A minimum of two (2) RN's who are capable to actively function in trauma resuscitation must be present in the Emergency Department at all times.
   C. See Nursing Standard for additional details.

3. There will be a designated trauma resuscitation area in the Emergency Department which will:
   A. Remain open 24-hours a day.
   B. Be of adequate size to accommodate the full trauma resuscitation team.

4. Equipment will be available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient. This will include but is not limited to:
   A. The trauma program must determine the scope of adult equipment based on population.
   B. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, rescue airway devices, bag-valve mask resuscitators, sources of oxygen and mechanical ventilator.
   C. Arterial catheters
   D. Central Venous Pressure Monitoring devices
   E. Continuous cardiac monitoring, electrocardiograph and defibrillator with pediatric and adult paddles (both internal and external)
   F. End-tidal CO2 determination
      i. Waveform Capnography
   G. High volume rapid infuser
   H. Intravenous fluids and administrative devices including intravenous catheters and IO devices
   I. Intra-compartmental Pressure Measuring Device
   J. Portable or over-head x-ray equipment
   K. Pulse Oximeter
   L. Medications and supplies necessary for emergency care
   M. Naso/Oro Gastric tubes
   N. Skeletal immobilization devices
   O. Suction devices
   P. Surgical Sets for standard emergent procedures
      i. Airway access/Cricothyrotomy
      ii. Central line insertion
      iii. Chest tube insertion
      iv. Peritoneal lavage
      v. Thoracotomy
      vi. Venous cut-down
   Q. Temperature control and warming devices for
      i. The Patient
      ii. Parenteral fluids
      iii. Blood
      iv. The Trauma Resuscitation area
   R. Tourniquet (commercial)
   S. Two-way communication with emergency transport system vehicles
   T. Ultrasound

5. Adequate physician and nursing personnel and equipment must be available to accompany the trauma patient during transport.
   A. Personnel and patient population must be defined by the hospital, at minimum patient population must include highest level activations during resuscitative phase of care.
      i. Providers must be appropriately trained and to fully monitor and resuscitate the trauma patient in all areas.
   B. Documentation of care during the time that the trauma patient is physically present in the department and during transportation to and from the Radiology Department must be available.

1. The operating room will be adequately staffed in-house and immediately available – within 15 minutes – 24 hours a day.
   A. If the first team is in surgery, the back-up on-call team will be in-house.
   B. If the first room is occupied, an additional room must be available.
   C. The Trauma Program must define the parameters of immediate response based on level of acuity.
   D. The Trauma Program must define the participants for minimal staffing.
2. The institution will ensure that the operating room is staffed by RN's who have special capabilities through commitment, continuing education and experience.
   A. See Nursing Standard for additional details.
3. Equipment will be available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient. This will include but is not limited to:
   A. The trauma program must determine the scope of adult equipment based on population.
   B. Bronchoscope
   C. Cardiac output equipment
   D. Cardiopulmonary bypass capability:
      i. Required for Level I
      ii. Desired for Level II
      iii. If cardiopulmonary bypass is not available, management/transfer guidelines must be defined and individual cases reviewed by the PIPS program
   E. Craniotomy equipment
   F. Defibrillator and monitor with adult and pediatric paddles (both internal and external)
   G. Endoscopes
   H. High-volume rapid infuser
   I. Intra-compartmental Pressure Measuring Device
   J. Invasive and non-invasive monitoring equipment to include intracranial pressure monitoring
   K. Monitoring equipment
   L. Operating Microscope
      i. Level II: Desired
   M. Orthopedic equipment appropriate for fixation of long bone and pelvic fractures
   N. Pediatric anesthesia equipment
   O. Pediatric (ranging in age from neonate to adolescent) instrumentation i.e.: blood pressure cuffs, chest tubes, nasogastric tubes and urinary drainage apparatus
   P. Radiologic capabilities including c-arm imaging intensifier with technologist available 24-hours
   Q. Thermal control and warming devices for:
      i. The patient
      ii. Parenteral fluids
      iii. Blood
      iv. The room
4. The Trauma Center must provide resources for modern musculoskeletal trauma care including readily available operating rooms.
   A. A system must be organized so that musculoskeletal trauma cases can be scheduled without undue delay and not at inappropriate hours that might conflict with more urgent surgery or other elective procedures.
      i. This can be documented by a dedicated orthopedic fracture room or sufficient available unblocked operating time to accommodate cases.

Post Anesthesia Care Unit (PACU)

1. The institution must define the scope of involvement of the PACU within the trauma plan.
2. It is the responsibility of the institution to ensure that the post-anesthesia care unit is staffed by RN's who have demonstrated special capabilities through commitment, continuing education and experience: A. RN's and other essential personnel must be available 24 hours a day. B. See Nursing Standard for additional details.
3. Equipment will be available in the appropriate array of sizes for the resuscitation and life support of the critically or seriously injured trauma patient including but not limited to: A. The trauma program must determine the scope of adult equipment based on population. B. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-valve mask resuscitators, sources of oxygen, and mechanical ventilator C. Central venous pressure monitoring equipment D. Continuous cardiac monitoring, electrocardiograph and defibrillator with adult and pediatric paddles, both internal (close proximity) and external. E. End-tidal CO_2 determination F. Intracranial pressure monitoring devices G. Intravenous fluids including devices and intravenous catheters H. Medications and supplies necessary for emergency medications including pediatric medication doses I. Monitoring capabilities for continuous monitoring of temperature, hemodynamics and gas exchange – both invasive and non-invasive J. Pulmonary function measuring devices K. Pulse oximeter L. Suction devices M. Surgical sets for emergency procedures. For example, thoracotomy N. Temperature control and warming devices for: i. The patient ii. Parenteral fluids iii. Blood iv. Physical space/location/room O. Temporary Transvenous pacemaker

Intensive Care Units (ICU)

1. The ICU resources will be concentrated in a single unit or be in multiple specialty units.
   A. There must be a Pediatric Intensive Care Unit (PICU).
2. There will be a commitment to the priority dedication of ICU beds for trauma care.
3. There must be a Pediatric Intensive Care Unit Surgical Director.
   A. For the Medical/Surgical ICU, a surgical co-director is acceptable.
   B. The Trauma Services must work collaboratively with the Pediatric Critical Care providers.
   C. The Surgical Director's / Co-Director's responsibilities include
      i. Active participation in the administration of the unit
      ii. Active participation in unit based performance improvement
   D. See Physician Standard for additional details.
4. It is the responsibility of the institution to ensure that physicians who have demonstrated special capabilities through commitment, continuing education, and experience to care for pediatric trauma patients staff the ICU. This includes:
   A. Level I: Must have a dedicated ICU physician team 24 hours per day.
      i. This team can be staffed from different specialties as determined by critical care credentials consistent with the medical staff privileging process of the institution.
      ii. There must be at least two physicians on staff who are board certified or board eligible in pediatric critical care or in pediatric surgery and critical care.
   B. Level II: An ICU specific team is not essential; however, arrangements for 24-hour coverage of all trauma patients are necessary for routine care.
      i. There must be at least one physician on staff who is board certified or board eligible in pediatric critical care or in pediatric surgery and critical care.
   C. See Physician Standard for additional details.

5. In addition to overall responsibility for patient care by the patient's primary admitting trauma surgeon, there must be 24- hour in-house ICU physician coverage.
   A. A tiered medical response must be established to ensure immediate interventions for unplanned situations. While the ultimate responsibility for the treatment plan is that of the primary admitting surgeon, on-site assessments and initial interventions must be planned in a systematic and documented approach.
   B. The ICU first responder will be in-house 24-hours a day.
      i. If the Trauma Attending is providing ICU coverage, a back-up ICU attending must be identified and ready available.
      ii. At a minimum, a first responder will be on duty in the ICU 24-hours a day or immediately available within fifteen (15) minutes from inside the institution.
         a. The institution must define the first responder qualifications (For example, NP, PA, PGY-1 or above).
            - If a PGY-1 is permitted to be the first responder, then the PGY-1 must be, at a minimum, in the second half of the first year with this institution.
            - The first responder must complete and maintain ATLS. Recommend maintaining ACLS (or ACLS equivalent) and PALS (or PALS equivalent if pediatric patients are admitted to the ICU).
      iii. The ICU first responder must be formally oriented to the trauma program and the ICU.
      iv. The ICU first responder (other than an attending physician) must be promptly and properly supervised by the in-house general trauma surgeon in charge of the trauma patient.
         a. This may be fulfilled by senior residents in general surgery (PGY-4 or above).
            - The PGY-4 or above surgical resident may be approved to begin resuscitation while awaiting the arrival of the attending surgeon, but cannot be considered a replacement for the attending surgeon.
            - The PGY-4 or above must be able to deliver surgical treatment immediately and provide the control and leadership for the care of the injured patient.
            - The PGY-4 or above must have completed at least three years of clinical, general surgery.
            - The presence of such a resident may allow the attending surgeon to take call from outside of the hospital.
   C. See Physicians Standard for additional details.
   D. This coverage for emergencies is not intended to replace the primary admitting trauma surgeon in caring for the patient in the ICU. It is to ensure that the patient's immediate needs will be met while the primary surgeon is being contacted.

6. The primary admitting trauma surgeon, who assumes initial responsibility for the care of the trauma patient, should maintain control over all aspects of care.
   A. All orders should be written in collaboration with the primary surgeon or designee.
   B. The PICU team will provide 24-hour bedside care to the trauma patient. Protocols should establish a formal role and relationship for and between the primary surgeon and the PICU team.
   C. In some cases, transfer of responsibility to a surgical specialist may be appropriate; if such a transfer of responsibility is mutually acceptable to both the primary admitting surgeon and the specialist.
   D. Non-surgical specialists should be consulted as necessary; however, at no time should the surgeon relinquish primary care of the critically ill trauma patient to a non-surgical specialist until all acute traumatic injuries are resolved.

7. The institution will ensure that the PICU is staffed by registered nurses who have special capabilities as demonstrated through commitment, continuing education, and experience.
   A. See Nursing Standard for additional details

8. The PICU will have a staffing plan that reflects the trending, severity of injury, arrival of multiple trauma patients and staffing/skill mix required to ensure the appropriate clinical care of trauma patients or the workload of the nurse which will indicate the number of nursing staff needed.
   A. A planned maximum nurse-patient ratio of 1:2 on each shift is required.

9. Equipment will be available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient including, but not limited to:
   A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator
   B. Arterial Lines
   C. Central venous pressure monitoring devices
   D. Continuous Cardiac Monitoring, Electrocardiograph and defibrillator with adult paddles, both internal (close proximity) and external
   E. Electronic hemodynamic monitoring
   F. Electronic Transvenous pacemaker
   G. End Tidal CO_2 determination
   H. Gastric lavage equipment
   I. Intracranial pressure monitoring devices
   J. Intravenous fluids and administration devices, including intravenous catheters
   K. High-volume rapid volume fluid infuser
   L. Medications and supplies necessary for emergency care; including pediatric and adult medication doses
   M. Pulmonary Artery catheters
   N. Pulmonary function measuring devices
   O. Pulse oximeter
   P. Suction Devices
   Q. Surgical sets for emergency procedure such as thoracotomy, cut-down etc.
   R. Temperature control and warming devices for:
      i. The patient
      ii. Parenteral fluids
      iii. Blood
      iv. Patient Room
   S. Bedside Ultrasound should be available as defined by the trauma program.

Intermediate Care / Step-Down Units

1. The institution must define the areas considered Intermediate Care/Step-Down Units if utilized.
2. The institution will ensure that the Intermediate Care/Step-Down Unit is staffed by registered nurses who have special capabilities as demonstrated through commitment, continuing education and experience. A. See Nursing Standard for additional details.
3. The Intermediate Care/Step-Down Unit will have a staffing plan that reflects the trending, severity of injury, arrival of multiple trauma patients, and staffing/skill mix required to ensure the appropriated clinical care of trauma patients or the workload of the nurse which will indicate the number of nursing staff needed. A. The maximum planned nurse-patient ratio of 1:4 on each shift to adequately provide patient care.
4. Equipment will be available in the appropriate array of sizes for resuscitation and life support of the critically injured trauma patient. A. Availably of equipment will be dependent on the acuity level of trauma patients cared for in the Intermediate Care/Step-Down units.

1. The institution will ensure that the general Medical/Surgical units that regularly receive trauma patients are staffed by registered nurses who have special capabilities as demonstrated through commitment, continuing education and experience.
   A. See Nursing Standard for additional details.
2. The Medical/Surgical units shall have a staffing plan that reflects the trending, severity of injury, arrival of multiple trauma patients, and staffing/skill mix required to ensure the appropriate clinical care of trauma patients or the workload of the nurse which will indicate the number of nursing staff needed to adequately provide patient care.
3. Equipment must support the current status of trauma patients of all ages
   A. Location/Availability of the equipment is dependent upon the patient's condition, age and immediacy with which equipment is accessible.
   B. Equipment must include, but is not limited to:
      i. Airway control and ventilation equipment, including laryngoscopes, endotracheal tubs, bag-valve mask resuscitators and sources of oxygen
      ii. Continuous cardiac monitoring, electrocardiograph and defibrillator. External defibrillator paddles must be promptly available.
      iii. Intravenous fluids and administration devices including intravenous catheters
      iv. Medications and supplies necessary for emergency care
      v. Suction devices

1. There will be provisions to provide and receive the following laboratory test results 24-hours a day: A. Blood gases and pH determinations B. Blood typing and cross matching C. Coagulation studies D. Drug and alcohol screening E. Microbiology F. Micro capabilities for routine blood determinations G. Serum and urine osmolality H. Standard analysis of blood, urine and other body fluids I. Thromboelastography is desired
2. A protocol must be in place stating that the trauma patient receives priority in laboratory request handling.
3. There will be comprehensive blood bank or access to a community central blood bank and adequate storage facilities.
4. There will be an evidenced-based massive transfusion policy that will be collaboratively reviewed by the Blood Bank and the Trauma Program.
5. The blood bank must have adequate in-house supplies based on the needs of the trauma center: A. Packed Red Blood Cells B. Fresh Frozen (or thawed) Plasma C. Platelets D. Cryoprecipitate E. Coagulation Factors
6. Prothrombin Complex Concentrate (PCC) must be available. A. A guideline/policy for utilization must be present
7. The Trauma Program, in collaboration with the blood bank, should consider utilization of Whole Blood.
8. The Laboratory/Blood Bank must participate in the trauma PIPS program as defined by the Trauma Program.

Radiology

1. Conventional radiological services will include 24-hour in-house technicians.
2. Diagnostic information must be communicated in a written form and in a timely manner:
   A. Critical information that is deemed to immediately affect patient care must be verbally communicated to the trauma team.
   B. The preliminary report must be permanently recorded.
   C. The final report must accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretation.
   D. Changes in interpretation, including missed injuries, must be monitored through the PIPS program.
3. The following protocols/policies/guidelines must be in place:
   A. Trauma Patient Priority Requests
   B. Incidental Findings
   C. Discrepant Radiology Findings
      i. Changes in Interpretation
      ii. Missed Injury / Delay in Diagnosis
4. The trauma surgeon, emergency physician, and neurosurgeon all of whom have been properly credentialed by the institution, will have ability to initiate CT Scans.
5. Computerized Tomography Scanning (CT) must be available for the trauma patient without delay 24-hours a day.
   A. CT Technicians must be in-house 24-hours
   B. A protocol must be in place to give the trauma patient priority and immediate access to the CT scanner for initiation of studies in a timely manner.
   C. A policy for the bypass or transfer of trauma patients when CT capability is unavailable due to planned maintenance or mechanical failure is required.
   D. A minimum of one 64-slice CT capability scanner
   E. CT scanner does not include mobile services, guaranteed service contracts with other institutions in-house CT scanners, or CT scanners in use at remote buildings or areas of the institution requiring transportation of the patients from the main building to the CT scanner.
6. A Magnetic Resonance Imaging (MRI) scanner will be available on site 24 hours a day.
   A. Emergent MRI test is expected to be initiated within 2 hours of request.
      i. The Trauma Program must define the parameters of an emergent test based on level of acuity.
      ii. The PIPS program must monitor compliance with initiation of emergent tests and effects on patient care.
      iii. Initiation of test is defined as the actual start time of first scan/slice.
7. Level I & II: Sonography will be available 24-hours a day with a maximum response time of 30 minutes for emergent/immediate response in Level I and II centers.
   A. The Trauma Program must define the parameters of immediate response based on level of acuity.
8. Level I & II: Interventional Radiology will be available 24-hours a day with the necessary human and physical resources so that an endovascular or interventional radiology procedure for hemorrhage control can begin within 60 minutes of request.
   A. The Trauma Program must define the parameters of an emergent procedure.
   B. The response time is tracked from request to arterial puncture.
9. Adequate physician and nursing personnel and equipment must be available to accompany the trauma patient during transport to and while in the Radiology Department.
   A. Personnel and patient population must be defined by the hospital, at minimum patient population must include highest level activations during resuscitative phase of care.
      i. Providers must be appropriately trained and to fully monitor and resuscitate the trauma patient in all areas.
   B. Documentation of care during the time that the trauma patient is physically present in the department and during transportation to and from the Radiology Department must be available.

10. Trauma centers must have a mechanism in place to view radiographic imaging from referring hospitals within their catchment area. A. Documentation of review of external images must occur. B. Excessive rescanning due to technology issues should be reviewed by the PIPS program.
11. The Radiology Department must work to optimize the technical parameters of each examination so that the lowest radiation dose possible is used for each patient while still producing high-quality diagnostic images. A. Important consideration in the pediatric population is the use of non-radiation imaging. B. PTSF Imaging Statement

Child Protective Services

1. There must be an identified child protective service as defined by the institution.
   A. There must be a mechanism to assess for maltreatment.

Medical Records

2. A copy of the discharge summary of trauma care will be made available to the patient's primary care provider.

Nutritional Services

3. The Nutritional requirements of all trauma patients must be screened and evaluated with appropriate feedback and recommendations to the attending trauma surgeon or designee.
   A. This must be completed within 72 hours of admission.

Organ and Tissue Donation

4. The institution will comply with Pennsylvania law regarding organ and tissue donation request, procurement and documentation.
   A. The Trauma Center must have an affiliation with an organ procurement organization (OPO).
   B. A policy must be in place triggering the timely notification of the Organ Procurement Organization (OPO).
   C. A policy must be in place defining the clinical criteria and confirmatory tests for the diagnosis of brain death.
   D. The Trauma Center must review its organ donation data annually.

Rehabilitation Services

5. All trauma patients will be screened for short and long term recovery / rehabilitation and treatment plans/goals. Where appropriate, a documented, comprehensive, trauma recovery plan will be an integral part of the patient's medical record.
   A. The plan will be in place within seventy-two (72) hours of the patient's admission.
      i. This is best met by having physical therapist and occupational therapist (at a minimum) available seven days a week.
   B. A referral will be made to the psychiatrist or other appropriate medical specialist when indicated.
   C. A physician with a special interest and training in Physical Medicine and Rehabilitation most often assumes leadership of the rehabilitation team.
      i. This does not restrict physicians in other disciplines, such as general surgery, neurosurgery or orthopedic surgery from having a leadership role providing they have the skill, training, dedication and are recognized by the institution as an expert in rehabilitation.
   D. If the trauma patient is transferred to another institution for rehabilitation, outcome and follow-up must be formally requested if not received.
   E. Additional specialty services have defined roles in the recovery and rehabilitative care of the trauma patient. This includes but is not limited to:
      i. Child Life
      ii. Family Support Programs
      iii. Neuropsychology (mild brain injury)
      iv. Occupational Therapy
      v. Pain Management Services
      vi. Physical Therapy
      vii. Psychosocial
      viii. Speech Therapy

Respiratory Therapy

6. A Respiratory Therapist must be available in-house 24-hours a day

Spiritual Counseling / Pastoral Care

7. The opportunity for spiritual counseling/pastoral care should be available.
   A. This can be accomplished by providing a listing of spiritual leaders promptly available to the institution.
   B. Ideally, spiritual counseling/pastoral care will have a defined role in the trauma program.

Acute Pain Management

8. The utilization of a pain management resource as a consultant for trauma care is recommended.
   A. This may be a formal pain management service, a representative from pharmacy, or an identified liaison from the trauma program.
9. A protocol for multimodal analgesia (MMA) regimens and limited duration prescriptions is recommended.

1. Social work intervention will be available to all major trauma patients and their families from the time of admission to the facility until the time of discharge. This is to include evidence of appropriate social work intervention, involvement and coordination of post-discharge plan development and rehabilitation.

2. The institution will define the protocol to ensure that there are adequate social work capabilities available to assist in the support of the patient's family and significant others during this time. This may include but is not limited to:
   A. Assisting with the process of organ donation in the event of death.
   B. Contacting family and providing crisis intervention counseling upon arrival and throughout the hospitalization.
   C. Coordinating resource referrals.
   D. Facilitating the information flow between the trauma team, patient and family.
   E. Identifying the trauma patient.
   F. Intervention and involvement in post-discharge plan development.
   G. Locating family or legal next-of-kin.
   H. Providing grief counseling, when appropriate.
   I. Screening, reporting and interventions for suspected or confirmed abuse including but not limited to: child abuse, elder abuse, intimate partner violence, and sex trafficking.
   J. Timely access to information related to insurance verification and financial resource availability.

3. There will be a social worker designated as accountable for ensuring that all trauma social work services are being provided in a cohesive manner (Liasion). This liaison must have:
   A. Qualifications – such as educational preparation, certification and clinical experience.
      i. Bachelor Degree in Social Work is required
      ii. Masters of Social Work is preferred
   B. A job description and organizational chart defining the structural role and relationship of the dedicated social worker within the institution and to the trauma services.
   C. Continuing Education:
      i. Eight (8) hours of trauma related continuing education annually.
      ii. Educational activities external to the institution's staff development program.
   D. Active participation in trauma multidisciplinary PIPS forums/groups/meetings as defined by the trauma program.
   E. It is the responsibly of the Social Work Liaison to facilitate communication between the trauma program and the Social Work / Social Services including dissemination of meeting minutes and information.

4. All Social Workers who are associated with the trauma program must have evidence of eight (8) hours of trauma-related continuing education annually.
   A. Bachelor Degree in Social Work is required.
      i. Masters of Social Work is preferred.
   B. Eight (8) hours of trauma-related continuing education annually.

5. There must be child protective services.

Case Management

1. Case Management is a collaborative process which assesses, plans, implements, coordinates, monitors and evaluates the options and services to meet an individual's health needs, using communication and available resources to promote quality, cost-effective outcomes.
   A. Case Management will be available to all trauma patients and their families from the time of admission to the facility to the time of discharge.
   B. There must be evidence of appropriate coordination of clinical trauma care, discharge planning and follow-up care.
   C. These services may be provided by case managers or by qualified members of the multidisciplinary team.
2. If the case manager is an identified role/position; then there must be:
   A. A job description and organizational chart depicting the relationship between the case manager role/position and the trauma program.
      i. The role must be hospital based.
      ii. Evidence of appropriate qualifications, for example educational preparation, certification(s) and clinical experience is required.
   B. Demonstrated regular and active interface with the trauma program.
   C. Participation in local, state and national trauma related activities is desired.
   D. Continuing Education:
      i. Eight (8) hours of trauma related continuing education annually.
   E. Active participation in trauma PIPS multidisciplinary forums/groups/meetings as defined by the trauma program.
3. When there is no identified case manager, a policy/protocol must be defined to ensure the presence of adequate case management capabilities. This evidence may include but is not limited to:
   A. Involvement with the multidisciplinary trauma team to coordinate the overall plan of care for the trauma patient.
   B. Involvement with the trauma PIPS program, including the development of patient management guidelines.
   C. Involvement with institutional departments such as admissions, utilization review, finance, nursing, rehabilitation, home health care, and social work to appropriately plan for the discharge/disposition of the trauma patient.

Inter-Facility Transfer & Consultation Requirements For Level III & IV Trauma Centers

General Guidelines

To facilitate transfer, timely consultation is required with a higher-level receiving trauma center. Consultation with an attending surgeon is required in the determination of the necessity of transfer and the circumstance of transfer, including but not limited to additional diagnostic/therapeutic issues, availability of resources, and weather conditions. The development of mutually agreed upon written guidelines for the transfer of trauma patients between institutions is essential. These agreements should define which patients should be transferred and the process for doing so. Refer to Standard 2: Capacity and Ability; for transfer guideline requirements.

When transfer is necessary, the patient must be transferred to a higher-level trauma center. If the patient's condition exceeds the institution's capabilities, the patient should ideally be transferred to the closest higher-level trauma center.

In the event that patients meeting the mandatory transfer requirements below are not transferred, evidence must be presented to the site survey team on survey day showing review of those cases through the Performance Improvement process, including appropriateness of care and patient outcome.

MANDATORY TRANSFER is required for Level III and IV trauma centers caring for the critically injured adult and pediatric trauma patient with any of the following conditions:

HEAD/C-SPINE

1) Carotid of vertebral artery injury
2) Penetrating injuries or open fracture of the skull
3) Abnormal CT as defined as an acute finding consistent (or highly suspicious) of an acute traumatic injury.
4) GCS </= 14
    a. Exceptions
        i. Patients who are at their normal baseline health status/GCS (e.g. this can be less than 14 if it is the patient's baseline)
        ii. Patients with an altered GCS due to substance use/abuse
    b. In these patients it is highly recommended that a minimal phone consultation with a neurosurgeon (who is able to view CT imaging) is completed prior to consideration for admission.
5) Spinal fracture or spinal cord deficit

CHEST

6) Cardiac rupture
7) Torn thoracic aorta or great vessel
8) Bilateral pulmonary contusion with PaO2/FIO2 ratio less than 200
9) Level III: 2 or more rib fractures with the presence of a pulmonary contusion
10) Level IV: Rib fractures with the presence of a pulmonary contusion
11) Rib fracture(s) with the presence of flail chest
12) Significant torso injury with advanced comorbid disease (such as coronary artery disease, chronic obstructive pulmonary disease, type 1 diabetes mellitus, or immunosuppression)
13) Non-occult pneumothorax which must be further defined by the trauma program

PELVIS/ABDOMEN

14) Major abdominal vascular injury
15) Grade IV or V liver injuries
16) Any patient requiring damage control laparotomy
17) Hemodynamically unstable pelvic fracture
18) Complex pelvis/acetabulum fractures

SPINE

19) Any level of spine fracture with neurologic deficit
20) Neurologic deficit without spine fracture

EXTREMITIES

21) Fracture or dislocation with loss of distal pulses

PEDIATRICS*: Age < 15 (less than or equal to 14) who:

22) Require admission to an ICU.
23) Exhibit signs of traumatic brain injury (structural abnormality on x-ray or CT, sustained GCS < 15 for greater than 2 hrs, or neurological deterioration.)
24) Are being treated non-operatively for solid organ injuries.

*When transfer is necessary, pediatric trauma patients should be preferentially transferred to a Pediatric Trauma Center unless, in the judgment of the referring physician, transfer would excessively delay life-saving care that could be provided at a closer Level I or II.

Consideration for Transfer: In addition to the above mandatory transfer criterion, consideration is indicated in the following circumstances:

1) Patients receiving anticoagulant therapy which places the patient at significant risk for intracranial hemorrhage or intracranial bleeding.
2) Pediatric considerations for transfer include:
   - Pediatric trauma patients ≤14 years of age injured seriously enough to require hospital admission should be considered for transfer to a Level I or Level II Pediatric Trauma Center.

Transfer Guidelines: Adult Trauma Centers (Level I and II) To Pediatric Trauma Centers

Pediatric trauma patients less than or equal to 14 years of age may benefit from resources and care available at Pediatric Trauma Centers (PTCs). PTCs incorporate specialized pediatric resources typically available in children's hospitals and are therefore usually located in such hospitals. "Children's hospital" is understood to mean a free standing children's hospital or a separate administrative entity within a larger hospital organization such as a children's hospital within a hospital or a full service general hospital with comprehensive pediatric inpatient subspecialty services.

Pediatric Surgeons are a requirement for the care of injured children in PTCs. The presence of a modern pediatric intensive care unit (PICU) utilizing the services of pediatric critical care medicine (PCCM) specialists in cooperation with pediatric trauma surgeons is also a distinguishing characteristic of trauma care at PTCs. PTCs should be used to the fullest extent feasible within the trauma system. Adult Trauma Centers must have transfer agreements in place with pediatric trauma centers. (Reference: ACS, Resources for Optimal Care of the injured Patient: 2014)

For some injured children transfer would be mandatory, barring extenuating circumstances such as weather, transport capabilities and the regional deployment of resources pertaining to the needs of multiple injured patients. Each decision to transfer takes into consideration the enhanced care provided at institutions with dedicated resources for the care of injured children and the inconvenience to families when they are geographically remote from their place of residence and support structures.

A. Pediatric trauma patients, less than or equal to 14 years of age, who meet the following criteria should be transferred to a pediatric trauma center:

   The decision to transfer should be consistent with the best practices of trauma care and under some circumstances may require immediate onsite neurosurgical treatment such as decompression of an expanding epidural hematoma, thoracic, abdominal, and pelvic or extremity procedures required to control hemorrhage, such as laparotomy for hemoperitoneum with hemodynamic instability.

   1. Persistent physiologic derangements, shock, hemodynamically unstable, ongoing transfusion needs.
   2. Traumatic brain injury (significant structural abnormality on x-ray or CT, sustained GCS less than or equal to 13 for greater than two hours, or neurologic deterioration.
   3. Intubation and mechanical ventilation not expected to be weaned and extubated within 24 hours.
   4. Children with special needs and those with other co-morbid conditions such as congenital heart disease, chronic lung disease or other disease processes that will benefit from the multidisciplinary care available at a pediatric trauma center.

B. Pediatric trauma patients who meet the following criteria should be considered for transfer to a pediatric trauma center:
   1. Non-operative management of solid organ injuries.
   2. Any assessment of "negative points" on the Pediatric Trauma Score ("negative points are assigned for: less than 10 kg, airway unmaintainable, systolic blood pressure less than 50 mmHg, coma, major open or penetrating wound, open or multiple fractures.)
   3. Injury Severity Score > 9
   4. Victim or non-accidental injury that requires additional resources including a child protection team.
   5. When it is anticipated that the complexity of ongoing care will exceed the capabilities of the local resources at the adult trauma center.

C. See Inter-Facility Transfer & Consultation Requirements for Level III and IV Trauma Centers for additional details

Admission Considerations for Level IV Trauma Centers

The following conditions may be appropriate for admission to a Level IV Trauma Center:

- Neurotrauma:
  - GCS 15 with normal (baseline) CT
  - GCS less than or equal to 14 with a normal (baseline) CT and an in-house Neurosurgical consultation
  - Neck Strain with no neurological deficits
- Facial Injury:
  - Isolated, non-displaced facial/nasal fracture
- Orthopedic Trauma:
  - Multiple distal orthopedic injuries with intact neurovascular examination in a patient without significant concomitant head, thoracic-abdominal or proximal lower extremity injuries
  - Closed proximal orthopedic injury with intact neurovascular examination in a patient without concomitant significant head or thoracic-abdominal injuries
  - Isolated clavicle fracture
  - Simple, non-operative pelvic fractures
- Truncal Trauma:
  - Rib fractures without presence of pulmonary contusion or flail chest
    - Age > 14 (age 15 or greater)
    - Oxygen saturation > 93% on room air
    - Minimal hemothorax
    - Pneumothorax (isolated injury and asymptomatic)
    - A clinical management guideline which must include pain management, respiratory therapy involvement, admission acuity guideline (med/surg, stepdown, intensive care, etc.), and provider-specific credentialing for chest tube insertion and management
- Superficial abrasions and contusions

TERM	DEFINITION
AACN	American Association of Critical Care Nurses
AANN	American Association of Neuroscience Nurses
ABLS	Advanced Burn Life Support. A program offered by the American Burn Association providing knowledge for immediate care of the burn patient up to the first 24-hours post injury.
ACGME	Accreditation Council for Graduate Medical Education
ACLS/PALS equivalent	A course covering advanced resuscitation training including Basic Cardiac Life Support (BCLS) and Advanced Cardiac Life Support (ACLS) including age appropriate principles. An example is the Advanced Resuscitation Training/ Basic Resuscitation Training (ART/BART) resuscitation program.
Adequate notification from the field	In relationship to the tracking of arrival time for providers to trauma activations (highest level). For example, the attending surgeon must be present on patient arrival, with adequate notification from the field – maximum acceptable response time is 15 minutes tracked from patient arrival (30 minutes for level III and IV). Adequate notification from the field is EMS/Pre-hospital notification.
Admission	The formal acceptance by a hospital of patients who are to receive physician dentist, or allied services while lodged in the hospital and all PTOS qualifiers will be included as admissions.
Advanced Practitioner	A Physician Assistant or Certified Nurse Practitioner or Certified Registered Nurse Practitioner
Allied Health Professional	Occupations whose primary function is to provide health services to promote health and well-being. Preparations for such occupations range from on-the –job training to post-graduate education. The occupations include those that direct patient care responsibilities, such as physical and occupational therapists and those with little or no direct patient contact such as medical laboratory technologists, community health educators and medical record practitioners. (Medical Record Management 11th Edition).
Alternate Pathway	To provide criteria and mechanism for which non-board certified physicians in a trauma center can be approved to care for trauma patients by using the Alternate Pathway Criteria. This applies to only those physicians who, by PTSF Standards of Accreditation, are required to be Board Certified. See Policy AC-129: Process for Use of Non-Board Certified Physicians: Alternate Pathway.

American Burn Association Burn Center referral criteria	Burn injuries that should be referred to a burn center include the following: • Partial-thickness burns of greater than 10% of the total body surface area • Burns that involve the face, hands, feet, genitalia, perineum, or major joints • Third-degree burns in any age group • Electrical burns, including lightning injury • Chemical burns • Inhalation injury • Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality • Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk the patient's condition may be stabilized initially in a trauma center before transfer to a burn center. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols • Burned children in hospitals without qualified personnel or equipment for the care of children. • Burn injury in patients who will require special social, emotional, or rehabilitative intervention
ANCC Medical-Surgical Nursing certification (RN-BC)	American Nurses Credentialing Center's Medical-Surgical Nursing Certification awarding the credential RN-BC, Registered Nurse-Board Certified. RN-BC credentialing. Other ANCC specialty certifications awarding the RN-BC are not applicable.
AORN	Association of Operating Room Nurses
ATCN	Advanced Trauma Care for Nurses sponsored by Society of Trauma Nurses
ATLS Course	Advanced Trauma Life Support Course sponsored by the American College of Surgeons

Basic Registry Course	Trauma registrars must have a foundation of basic registry education. The PTSF has a Basic Trauma Registry Course available on line at www.ptsf.org (Education). It is acceptable to substitute this course for other basic registry options, however the core content of the basic education must consist of: Introduction, History and Insight (PA trauma system, PTSF operations, accreditation process) Tool Box #1 – What is trauma, why is trauma important, Trauma registry intro and state vs facility registry, where to find documentation required for abstraction, types of injuries, PTOS vs NON-PTOS Tool Box #2 – Patient Log Tool Box #3 – Reference documents to assist in abstraction (PTOS Directory, Standards, Quarterly Reports, website, PTOS manual, ICD-9 book, AIS coding book, COLLECTOR Manual, TRICODE Instructions Tool Box #4 – COLLECTOR introduction Tool Box #5 – ICD-9-CM coding basics Tool Box #6 – AIS coding basics Tool Box #7 – TRICODE Tool Box #8 – Interfaces (POPIMS/PA V5, NTDS, NTRACS) Tool Box #9 – Timely Submissions (how to submit) Tool Box #10- Performance Improvement Intro
Board-Eligible	Physician graduated from medical school, completed residency, trained under supervision in a specialty and is eligible to take a specialty exam by a medical specialty board
Board-Certified	Physicians certified by appropriate specialty boards. Recognized Boards are those recognized by the American Board of Medical Specialties, the Bureau of Osteopathic Specialists or Boards of Certification of the Royal College of Physicians and Surgeons of Canada.
Burn Unit	A special care unit that possesses the facilities, equipment and personnel specifically for the care of burn patients and adhering to the standards of the American Burn Association (ABA)
Bypass	A procedure put into effect by a trauma center when the facility is unable to provide the level of care designated by the trauma center accreditation and patients are referred to other accredited trauma centers.

Case Management	Case management is a collaborative process which assesses plans, implements coordinates, monitors and evaluates the options and services to meet an individual's health needs, using communication and available resources to promote quality cost effective outcomes.
CCRN	Critical Care Registered Nurse Certification by the American Association of Critical Care Nurses
CEN	Certified Emergency Nurse certification by the Emergency Nurses Association
CFRN	Certified Flight Registered Nurse certification by the National Flight Nurse Association
CME	Continuing Medical Education – Defined educational activities for practicing physicians, often resulting in approved credit hours from the AMA, state medical society, a medical school or hospital. Continuing medical education consists of educational activities that serve to maintain, develop or increase the knowledge, skills, professional performance and relationships that a physician uses to provide services for patients, the public or profession. The content of CME is that body of knowledge and skills generally recognized and accepted by the profession as within the basic medical sciences, the discipline of clinical practice and the provision of health care to the public. Both category I and II CME can be used to comply with the standard for total CME hours.
CNOR	Certified operating room/perioperative nurse
CNRN	Certified Neuroscience Registered Nurse
Continuing Education	Planned educational activities intended to enrich the educational and experiential background of the health professional
Continuous Basis	Required certification(s) must be current and maintained with no time lapse between the date of expiration and the date of re-certification
CPAN	Certified Post Anesthesia Nurse
CPN	Certified Pediatric Nurse by the Pediatric Nursing Certification Board
Credentialed	A process in which individual institutions recognize appropriate education and training for physicians, advanced practitioners, allied health professionals and registered nurses with specialized skills
CRNP	Certified Registered Nurse Practitioner
Demonstrated capacity	Documentation of the adequacy of the institution's capacity to provide care at the level stated, including methodology for prioritization of services throughout the institution, to meet patient needs.
Demonstrated commitment	Provision of evidence, visible and written, which clearly demonstrates an institution-wide commitment to trauma care.
Desired	Desired requirement(s) for accredited trauma centers in Pennsylvania. This means the standard is not required for trauma center accreditation, however this could be a goal to strive for.

DMIST	• D - Demographics • M - Medical Complaint / Mechanism • I - Inspections / Injuries • S - Signs (vital signs) • T - Treatment This process was formalized by the Pennsylvania Department of Health Bureau of EMS, Pennsylvania Emergency Health Services Council and Pennsylvania Trauma Systems Foundation as a method to standardize the verbal transfer of care process from EMS to the trauma center
Emergency	A sudden generally unexpected occurrence or set of circumstances that require immediate attention.
ENA	Emergency Nurses Association
ENPC	Emergency Nursing Pediatric Course sponsored by ENA
Equivalent to	Equal in value, measure, function
Essential	Essential requirements indicates the standard is required for trauma center accreditation
Excused Absence (PI Attendance) and temporary variance	Peer-review meeting attendance may be waived / pro-rated for military deployment, medical leave and missionary work. The center must provide documentation to support the excused absence. Vacation, patient care, illness and contracted but not working that month are not excused absences and may not be prorated. TPMD/Liaison providing a review of the meeting minutes to the absent provider cannot be counted as attendance at the meeting. Per Diem providers, providers rotating from another hospital, and Locum Tenens providers cannot have attendance expectations prorated based on amount of call taken.
First Responder	A physician, or advanced practitioner, that is the first provider contacted for emergencies 24 hours a day in any admitted unit/floor. The institution defines which provider is designated the first responder. See ICU Standard for qualifications specific to the ICU First Responder.
Functionally Equivalent	This term as it applies to acquisition of 16 hours of trauma-related CME per year on average or by demonstrating participation in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program. The outcome of learning principles are the goal achieved and therefore equivalent to the same hours and intentions.
General Surgical Accredited Residency Program	A program approved by either the Accreditation Council for Graduate Medical Education or the American Osteopathic Association
General Surgical Trauma Call Roster	A publicized listing of attending level surgeons assigned to trauma care, including dates of coverage and back-up surgical physician (s).
Geriatric Patient	For the purposes of PTOS submission: trauma patients equal to or greater than to sixty-five (65) years of age. Trauma Centers should determine the age definition of a pediatric trauma patient for their individual institutions.

ICD-10	The tenth edition of "International Classification of Diseases" - a standard coding system that includes all injuries and disease processes.
ICD-9	The ninth edition of "International Classification of Diseases " - a standard coding system that includes all injuries and disease processes
ICP	Intracranial pressure, often monitored in patients with severe injuries to the brain
IEP (Internal Educational Process)	Internal Educational Process: An institutional specific educational option for designated trauma providers to meet continuing education requirement. Examples of an IEP may include the following: in-services, case-based learning, educational conferences, grand rounds, internal trauma symposia and in-house publication dissemination of information gained from a local conference or an individual's recent publication (through trained analysis). IEP's should include presentations and discussions on a quarterly basis at a minimum. The total hours acquired through an IEP should be functionally equivalent to 12 hours of CME annually for a Level I, II or III trauma center or 8 hours for a level IV.
Immediate / Immediately available	Implies urgency in a prompt, rapid and expeditious manner
In-House CT Scanner	In-house computerized tomography (CT) scanner does NOT include mobile services, guaranteed service contracts with other institutions with in-house CT scanners, or CT scanners in use at remote buildings or areas of the institution requiring transportation of the patient from the main building to the CT scanner.
Institution	The hospital facility, administration and physical plant, applying for and maintaining trauma center accreditation. The accreditation process does not review or accredit ALL hospitals within the health network/system. Accreditation only applies to the individual institution under review.
Interdisciplinary	The collaboration of professionals who formulate an optimal plan of patient care
Intermediate Care Step Down Unit(s)	Each institution will define the areas considered intermediate care/ step down units by the patient admission criteria. This typically is a unit providing higher acuity care than a regular Medical/Surgical Floor and frequently less than in Intensive Care Unit.
Intervention	Raises awareness of risks and motivation of the individual toward acknowledgment of a potential problem.
ISS (Injury severity score)	Injury Severity Score: the sum of the squares of the Abbreviated Injury Scale scores of the three most severely injured body regions.
Liaison	A physician with credentials in the appropriate specialty with expertise and interest in trauma care. This person optimally should be the chairperson of the specialty department.

Licensed Helipad	Licensed by the Bureau of Aviation, Pennsylvania Department of Aviation. Air space approved by the Federal Aviation Administration.
Major Uni-system/Multi-system Trauma patient	The patient with severe multi-system or major uni-system injury, the extent of which may be difficult to ascertain, but which has the potential of producing mortality or major disability.
Mechanism of Injury	The source of forces that produce mechanical deformations and physiologic responses that causes an anatomic lesion or functional change in humans.
Monitoring Equipment	For purpose of equipment required in departments, monitoring equipment must be defined by the trauma program but includes items such as cardiac monitoring, blood pressure and pulse oximetry.
Morbidity	The relative incidence of complications related to disease
Mortality	The proportion of deaths to population
Orientation	Time period provided to acquaint new personnel with the physical facilities, philosophies, policies, role expectations, procedures, and skills required in the new environment.
PaTNCC	Pennsylvania Trauma Nursing Core Curriculum developed by the PA Trauma Systems Foundation.
PALS	Pediatric Advanced Life Support Course developed and sponsored by the American Heart Association and the American Academy of Pediatrics. This course covers the knowledge and skills necessary for the initial management of pediatric emergencies, including trauma.
Participation	The act of an individual(s) sharing or receiving information, with active involvement.
Pastoral Care/Spiritual Counseling	The delivery of spiritual or religious support usually by qualified spiritual leaders such as ministers, priests, rabbis, etc.
Patient/Practice Management Guidelines	The standardized specifications for care developed by a formal process that incorporates the best scientific evidence of effective care with expert opinion.
PATNAC	Pennsylvania Trauma Nurse Advisory Committee: A voluntary committee comprised of Trauma Program Managers (and occasionally other trauma program staff) from various hospitals across Pennsylvania.
PCCN	Progressive Care Certified Nurse
Pediatric Trauma Patient	For the purposes of PTOS submission: trauma patients less than 15 years of age. (Equal to or less than14). Trauma Centers should determine the age definition of a pediatric trauma patient for their individual institutions.

PGY	Post Graduate Year - Classification system for residents in post-graduate training. The number indicates the *year* the resident is in during their post-medical school residency program; for example, PGY-1 is one *year* after graduation from medical school.
Phases of Care	Pre-hospital, resuscitative care, operative care, post-anesthesia care, critical care, post resuscitative care (intermediate care/step-down unit, medical surgical unit) rehabilitative care.
PHTLS	Pre-hospital Trauma Life Support sponsored by National Association for Emergency Medical Technicians in cooperation with the American College of Surgeons Committee on Trauma
PICU (Pediatric Intensive Care Unit)	Pediatric Intensive Care Unit: Typically the PICU is geographically separated from adult intensive care units. A board certified Pediatric Critical Care Medicine Specialist is the medical director and provides oversight of other physicians providing care in the PICU as well as other care providers including residents, advanced practice nurses and others. Modern PICU's have their own performance improvement and patient safety processes whereby data is collected and analyzed to assess performance based on national standards . Pediatric Critical Care Medicine specialists provide concurrent care for injured children cooperatively with the pediatric trauma surgeons, neurosurgeons and other surgical specialists. The overall care of the pediatric trauma patient is the responsibility of the pediatric trauma surgeon, but the concurrent care model utilizing Pediatric Critical Care Medicine care specialists is an indispensable part of a process that provides the highest level of care and the best outcomes.
PIPS (Performance Improvement and Patient Safety Program)	Performance improvement emphasizes a continuous, multidisciplinary effort to measure, evaluate, and improve the process of care and its outcome .The patient safety program evaluates the overall care process to see whether it minimizes risk of harm related to the care process itself. (ACS COT 2014)
Prompt / Promptly Available	This implies the physical presence of health professionals in a stated location within a short period of time, without delay. This must be further defined by the Trauma Program Medical Director and continuously monitored by the performance improvement and patient safety program. The minimal urgent response is typically 30 minutes.
PSNA	Pennsylvania State Nurses Association

PTOS (Pennsylvania Trauma Outcome Study)	Pennsylvania Trauma Outcome Study. -A centralized statewide registry organized to compile and maintain statistics on mortality and morbidity for major uni-system or multi-system trauma patients.
Readily Available	Implies the physical presence of required equipment in the stated unit within a short period of time and easily accessible. This should be monitored and addressed by the performance improvement and patient safety program as necessary.
Rehabilitation	Services that seek to return a trauma patient to the fullest physical, psychological, social, vocational, and educational level of functioning of which he/she is capable, consistent with physiologic or anatomic impairments and environmental limitations.
Response Time	The interval between notification and arrival of a provider to include an in-person evaluation/intervention.
Resuscitation	The intense period of patient assessment and aggressive medical care to preserve tissue perfusion of life or limb. For purposes of educational requirements of responding staff – this resuscitative period is in the trauma bay.
RTTDC (Rural Trauma Team Development Course)	The Rural Trauma Team Development Course (RTTDC) emphasizes a team approach to the initial evaluation and resuscitation of the trauma patient at a rural facility. With more than 60 percent of the country's trauma deaths occurring in rural areas, the course assists health care professionals in determining the need to transfer the patient to a higher level of care. The one-day course includes interactive lectures on both medical procedures and communication strategies and three team performance scenarios.
Staff Development	Educational activities, which allow for acquisition, maintenance and for increased competence in job knowledge, skills, and responsibilities .Promotes the professional development of staff through the utilization of orientation, in-service education, and continuing education activities
STN	Society of Trauma Nurses
TCRN	Trauma Certified Registered Nurse
Timely	A period of time deemed appropriate or suitable by the Trauma Program Medical Director and continuously monitored by the performance improvement and patient safety program
TNCC (Trauma Nurse Core Courses)	Trauma Nurse Core Courses sponsored by the Emergency Nurse's Association. Not to be confused by the PaTNCC (Pennsylvania Trauma Nursing Core Curriculum)

Transfer Guidelines	2014 Orange Book Guidelines for Transferring Patients *(For all levels of trauma centers)* Transferring physician responsibilities: • Identify patients needing transfer. • Initiate the transfer process by direct contact with the receiving physician trauma surgeon. • Initiate resuscitation measures within the capabilities of the facility. • Determine the appropriate mode of transportation in consultation with the receiving surgeon. • Transfer all records, test results, and radiologic evaluations to the receiving facility. • Perform a PIPS review of all transfers (CD 4–3). Receiving physician responsibilities: • Ensure that the resources required to care for the patient are available at the receiving facility. • Provide consultation to the referring physician regarding specifics of the transfer, additional evaluation, or resuscitation before transport. • Once transfer of the patient is established, clarify who will provide medical control of the patient during transport. • Identify a PIPS process for transportation, allowing feedback from the receiving trauma surgeon to the transport team directly, or at least to the medical director for the transport team and the referring hospital. • Provide feedback to the transferring facility regarding the patient's condition, plan of care, and any PIPS issues identified. Management during transport: • Ensure that qualified personnel and equipment are available during transport to meet anticipated contingencies Trauma system responsibilities: • Ensure prompt transport once a transfer decision is made. • Review all transfers for PIPS. • Ensure that transportation resources are commensurate with the patient's severity of injury.
Trauma Center	A specialized hospital facility distinguished by the immediate availability of specialized surgeons (not level IV), physician specialists, anesthesiologists, nurses, and resuscitation and life support equipment on a 24-hour basis for severely injured patients or those at risk for severe injury.
Trauma Contact	Patients in which the trauma program is associated with. This must be further defined by the trauma program and noted in the PIPS plan. Examples are (but are not limited to) PTOS and Non-PTOS patients.

Trauma Credentialed Registered Nurse	Professional registered nurse who has successfully completed the Trauma Nurse Course and fulfills education requirements mandated by the PTSF standards for trauma center accreditation. He/she must demonstrate and maintain clinical proficiency by integrating his/her knowledge and skills by regularly providing care to the trauma patient.
Trauma Fellowship	Formal advanced post-residency training in the care of injured patients. (See Appendix C of the "Resources *for Optimal Care of the Injured Patient: 2014")* A fellowship is the period of medical training in the United States and Canada that a physician or dentist may undertake after completing a specialty training program (residency). During this time (usually more than one year), the physician is known as a fellow. Fellows are capable of acting as attending physician or consultant physician in the generalist field in which they were trained, such as internal medicine or pediatrics. After completing a fellowship in the relevant sub-specialty, the physician is permitted to practice without direct supervision by other physicians in that sub-specialty, such as Acute care surgery, Trauma surgery, cardiology or oncology
Trauma-Informed Care	Encompasses four basic components: understanding the impact of trauma on individuals; knowing how trauma may affect patients, families, and staff; utilizing knowledge about trauma responses and putting it into practice; and preventing re-traumatization. Refer to ACS TQIP Best Practice Guidelines for Trauma Center Recognition of Child Abuse, Elder Abuse, and Intimate Partner Violence, released November 2019.
Trauma Program Medical Director	Physician designated by the institution and medical staff to coordinate trauma care.
Trauma Prevention Program	Internal institutional and external outreach educational programs designed to increase awareness of methods for prevention and/or avoidance of trauma-related injuries.
Trauma Program	The individual programs have the authority to determine the resources, criterion and practice that enables the cultures to embrace the desired outcomes.
Trauma Program Manager/ Trauma Program Coordinator	A registered nurse with responsibility for oversight and coordination of all activities on the trauma service who works in collaboration with the Trauma Program Medical Director. In some programs this person may have management responsibilities and have the title of Trauma Program Manager, for the purposes of this document the title of Trauma Program Manager and Trauma Program Coordinator may be used interchangeably and title, compensation and management roles are facility specific.
Trauma Registry	Database to provide information for analysis and evaluation of the quality of patient care, including epidemiological and demographic characteristics of trauma patients.
Trauma Resuscitation Area	A space used for trauma resuscitations. It must be of adequate size to accommodate the full trauma resuscitation team, specific stocked equipment and readily available and accessible for the injured 24/7/365.

Trauma Resuscitation Team	Major trauma resuscitations require a multidisciplinary team of health care providers who work in synergy to rapidly assess and treat the patient. The trauma attending or appropriate designee must lead the team. A formal team configuration must be defined by the institution and monitored for effectiveness
Trauma-Related Continuing Medical Education (CME)	Any approved CME (continuing medical education) or CE (continuing education) that enhances the ability of the provider to manage a trauma patient.

Guideline and Policy Reference Tool

The following lists identify operational and clinical guidelines as referenced throughout the standards of accreditation. Each policy/guideline should be reflective of the scope of practice of the institution

REQUIRED OPERATIONAL POLICIES:

1. Trauma Activation Criteria
2. Trauma Team Member Identification and Role Definition
3. Trauma Activation, Trauma Consult and Non-Activation Provider Response Time Expectations
4. Admission Criteria
5. Level I, II and III: Transfer In
6. Transfer Out
7. Diversion / Disaster
    a. Bypass for transfer when CT capability is unavailable due to planned maintenance or mechanical failure
8. PIPS Plan
9. Screening, Brief Intervention and Referral for Treatment (SBIRT) of Substance Abuse
10. Level I, II and III: ED physician staffing, including defining daily periods of peak utilization
11. Level I and II: Back-up trauma attending expected response time parameters
12. Level III: Back-up trauma attending plan
13. Transfer To and From the Helipad
14. OR staffing availability, immediate response parameters and participants for minimal staffing
15. Level I and II: If cardiopulmonary bypass is not available at the facility: Management/transfer of patients requiring cardiopulmonary bypass
16. Priority Laboratory
17. Priority Radiology
18. Discrepant Radiology Reports (process for changes in interpretation, missed injury/delay in diagnosis, notification, and PI tracking)
19. Incidental Radiology Findings
20. Response time expectations for radiology personnel (CT, MRI) when not in-house
21. Social work capabilities
22. Level I and II: Case management capabilities when there is no identified case manager

REQUIRED CLINICAL GUIDELINES / POLICIES:

1. Anti-coagulant reversal
2. Burn Management
3. C-spine clearance
4. Determination of Brain Death Criteria
5. DVT Prophylaxis
6. First Responder identification, parameters and indications for response
7. Long Bone Fracture Management
8. Adult Trauma Centers: Management of Geriatric Trauma Patient including critical care and rehabilitation
9. Management of Pediatric Trauma Patient including resuscitation, critical care and rehabilitation
10. Massive Transfusion Protocol
11. Level III and IV: Mild Traumatic Brain Injury (TBI)
12. Open Fracture Management
13. Prothrombin Complex Concentrate (PCC) protocol
14. Resuscitation Management: (Adult, Pediatric, and Geriatric (n/a for Pediatric Trauma Center)
15. Screening for and management of suspected or confirmed child abuse, elder abuse, intimate partner violence, and sex trafficking
16. Timeliness of response to emergency situation / patient criteria for: Anesthesia (outside of the trauma resuscitation area), Radiology (interventional), Orthopedics and Neurosurgery as applicable
17. Timely notification of Organ Procurement Organization (OPO)
18. Unstable Pelvic/Acetabular Fracture Management

**Note, this appendix may not be all inclusive.

RECOMMENDED RESOURCES:

EAST Guidelines: https://www.east.org/education/practice-management-guidelines
TQIP Guidelines: https://www.facs.org/quality-programs/trauma/tqip/best-practice

Standards of Accreditation Revision Log

April 1, 2016		
Standard	**Levels**	**Edit**
FRONT COVER	ALL	Add Revision Date
Table of Contents	ALL	Add Appendix D: 2016 Standards of Accreditation Revision Log
5: Registry 1.A. Remove link to PTOS Manual	ALL	Change A From: 2015: PTOS Manual To: Refer to PTOS Manual found at www.ptsf.org – Resources – Trauma Registry
6: PIPS 3. K. iii. New TQIP Participation Update	Adult Levels I, II and III	Update iii: iii. Participation in risk-adjusted benchmarking is required. a. Pennsylvania Trauma Outcome Study (PTOS) participation is required. b. TQIP participation is required. • Submission compliance is mandatory by 1/1/2017. • Trauma Centers must demonstrate risk adjusted benchmarking incorporation into the PIPS process while transitioning into TQIP reports. • Trauma centers wishing to utilize another national benchmarking program must obtain a variance from this standard. Refer to Policy AC-105: Applying for a Variance from a Standard for details.
6: PIPS 3. K. IV New TQIP Participation Update	Peds Levels I & II	Update iv: iv. Participation in risk-adjusted benchmarking is required. a. Pediatric Trauma Quality Improvement Program (P-TQIP) participation is required. • Submission compliance is mandatory by 1/1/2017. • Trauma Centers must demonstrate risk adjusted benchmarking incorporation into the PIPS process while transitioning into TQIP reports. • Trauma centers wishing to utilize another national benchmarking program must obtain a variance from this standard. Refer to Policy AC-105: Applying for a Variance from a Standard for details.
10: Physicians #7. H. i. Clarification of trauma activation response times	Adult L I, II & III Peds Level I & II	Add: c. The response time is applicable to the highest-level activation at a minimum. d. For centers where the highest level of activation is direct transport to the OR, the second highest activation would apply to the activation criteria.

10: Physicians #7. G. Clarification of back-up trauma attending response to trauma activation response times	Adult Levels I, II and III Pediatrics Levels I & II	Add: ii. The expected response time parameters for the back-up trauma attending must be further defined by the trauma program; however, a 30-minute response time for the emergent request is expected. For Adults: Move this new ii to i. and move the current i. to ii.
10: Physicians #9. F Neurosurgery And #10: F Orthopedic Surgery Clarification of the subspecialist response time	Adult Levels I, II and III Pediatrics Levels I & II	Add or designee into sentence to read: ii. a. The surgeon or designee must be capable…..” Add a new c and d: c. The intent of this standard is to assure the subspecialist’s surgical expertise is promptly available when requested for a subset of emergent patients. d. If a designee is utilized, the trauma program must define parameters for and monitor the compliance with expectations of the surgeon’s response. • A “designee” does not replace the surgeon’s presence, but rather provides emergent evaluation and intervention until the surgeon arrives. • Communication between the designee and the subspecialist during this emergent period must be documented in the medical record in order to demonstrate compliance. REMOVE from the current ii: or attending trauma surgeon or general surgery resident (PGY-4 or above)
13: Nursing #7 A. Advanced Certification	Adult Levels I, II & III & Pediatrics Levels I & II	Add: A. CNRN (Certified Neuroscience Registered Nurse) to list of acceptable advanced certifications.
Glossary	All Levels	Add: CNRN: Certified Neuroscience Registered Nurse General
General	All Levels	Remove link to policy AC-105 and replace with Refer to Policy AC-105: Applying for a Variance from a Standard for additional details.

June 1, 2016		
Standard	**Levels**	**Edit**
6. PIPS	ALL	Allows for Subspecialist Liaison meeting attendance to be shared between the Liaison and a second Identified representative of the subspecialty group.
10: Physician	ALL	

Standards of Accreditation Revision Log

September 30, 2016		
Standard	**Levels**	**Edit**
10: Physician	Level IV	Clarified role of Anesthesia services as defined by the trauma program.
6: PIPS	ALL	If using two subspecialists to meet Liaison PI attendance requirements, then both representatives must comply with CME hours.
10: Physician	ALL	
6: PIPS	Adult Level I, II and III	Submission to the PA-TQIP Collaborative is required.
13: Nursing	ALL	TCRN certification paired with a hospital-specific competency module meets the PTNCC curriculum requirements.
14: EMS	ALL	Add Medical Command, as recognized by the PaDOH Bureau of EMS must be maintained.

December 12, 2016		
Standard	**Levels**	**Edit**
6: PIPS	Level III and IV	Clarified PA-TQIP and Risk Adjusted Benchmarking requirements and POPIMS Central Site Submissions.
10: Physicians	Level IV	Clarified minimal requirements for Emergency Department Physician credentials.
11: Nursing	ALL	Clarification of Pa TNCC requirements for accredited trauma centers opening new nursing units.

April 14, 2017		
Standard	**Levels**	**Edit**
6: PIPS	Adult & Pediatric Level I & II Combined Centers	Requires representative from adult/pediatric general surgery on the opposite adult/pediatric multidisciplinary peer-review committee
7: Continuing Education 10: Physicians	Adult & Pediatric Combined Centers	In Trauma Centers with both and Adult and Pediatric Accredited program, a minimum of 4 hours (of 16) of the required annual continuing education must be related to pediatric trauma care.
8: Injury Prevention	ALL	Clarified that substance abuse screening includes both drugs and alcohol.
10: Physicians	ALL	Increased the amount of continuing education credits for physicians completing board certification / re-certification from 4 hours to 33 hours.
10: Physicians	Levels I, II and III Adult and Pediatric	Removed specifics related to requiring pre-hospital notification in order to track attending response times to trauma activations.
10: Physicians	Levels I, II and III Adult and Pediatric	Vascular Surgeons may meet Interventional Radiology emergent response qualifications.

10: Physicians	Adult Levels I, II, and III	Clarified that Level III trauma centers do not need trauma surgeons to be in-house.
15: Helipad	Level IV	Remove verbiage requiring the team direct access to the helipad/patient.
16: Emergency Department	Level IV	Required waveform capnography. Made tourniquets plural
23: Radiology	Levels I, II and III	Clarified that emergent (30-minute) response is not required for Level III trauma centers.
25: Social Services	Levels I, II and III Adult and Pediatric	Removed requirement for active participation in local, state and national trauma Social work related activities.

August 21, 2017		
Standard	**Levels**	**Edit**
1: Commitment	ALL	Clarified that a trauma activation policy must include the defined role expectations of the trauma team participants.
2: Capacity and Ability	ALL	Clarified that diversion applies to the entire trauma center and not just the Emergency Department.
6: PIPS #3	ALL	Removed JCAHO initials from taxonomy, as it is not proprietarily owned by JCAHO.
8: Injury Prevention	ALL	Clarified that SBIRT at a minimum must be completed on patients admitted greater than 24 hours.
Appendix A: Level III & IV Transfer Guidelines	ALL	Transfer Out Criteria: Updated the Head/C-Spine criteria
Appendix C: Level IV Admission Guidelines	ALL	Admission Criteria: Updated Neurotrauma criteria
New Appendix D	ALL	Guideline and Policy Reference Tool. This is a list of guidelines and policies that are referenced throughout the Standards of Accreditation. Old Appendix D (Revision Log) now becomes Appendix E

Standards of Accreditation Revision Log

January 1, 2018		
Standard	**Levels**	**Edit**
1: Commitment	ALL	New Standard Effective 10/1/2018 If a center has more than one level of trauma activation/alert, the response time expectation for each level must be defined by the trauma program.
6: PIPS	Adult Level I, II and III and Pediatrics Level I & II	• Clarification on TQIP participation for pursuing and newly accredited centers. • Clarification on the PA TQIP Collaborative submission requirements.
8: Injury Prevention	ALL	The established minimal threshold for SBIRT screening is 80% compliance.
10: Physicians – Emergency Medicine	Level IV	New Standard Effective 10/1/2018 Clarification on use of Residents as "moonlighters" for Emergency Physician Coverage.
10: Physicians – Other Surgical and Non-Surgical Providers	Adult Level I & II and Pediatrics Level I & II	Clarification that coverage is expected to be continuous (meaning 24/7/365).

April 1, 2018		
Standard	**Levels**	**Edit**
1: Commitment	ALL	Added to highest level of activation: • Penetrating Injuries to the head Added for consideration in some level of trauma activation • Anticoagulants or Bleeding Disorders • Partial or Full Thickness Burns ≥ 20% Total Body Surface Area (TBSA) – if not a designated Burn Center.
3:TPMD	Level I-III	Added variance pathway for Level III TPMD requesting a variance from standard requiring a Fellowship in Surgical Critical Care, Trauma or Acute Care Surgery.
6: PIPS	ALL	Added standard addressing confidentiality of PA V5/ POPIMS Central Site, PA TQIP Collaborative and PTOS data.
11: Advanced Practitioners	ALL	Corrected typo noting CRNA from Certified Registered Nurse Practitioners to CRNA =Certified Registered Nurse Anesthetists.

11: Advanced Practitioners	ALL	Clarified that ATLS is required for APPs participating as a member of the team caring for trauma activation patients via assessment or interventions and excluded 'main/FastTrack ED, Neurosurgical, Orthopedic or other consultants. This does not affect the ICU First Responder expectations.
13: Nursing	Level I, II and III Adult Level I and II Pediatrics	EFFECTIVE 1/1/2020: Updates acceptable courses that meet advanced certification expectations are: ATCN and TNCC.

August 1, 2018		
Standard	**Levels**	**Edit**
Standard 5: Registry	ALL	Changed the word abstracted (within 42 days of discharge) to submitted in coordination with the submission policy. Clarification.
Standard 3: Trauma Program Medical Director Standard 10: Physicians Standard 11: Advanced Practitioners	ALL	Change – If a physician maintains board certification in applicable specialty, additional continuing education tracking is not required. • Not applicable to TPMD • Not applicable to Physicians with an approved alternate pathway. Decreased the annual hours from sixteen per year / 48 in 3 years to twelve per year / 36 in 3-years. For Level IVs: 8 hours per year or 24 hours in 3 years. Eliminate annual CME tracking for Advanced Practitioners. Effective immediately.
Standard 8: Injury Prevention	ALL	Clarified that SBIRT eligibility expectations. Clarification.
Standard 8: Injury Prevention	ALL	Stop the Bleed initiatives should be included in the injury prevention plan. New standard as a 'should' – effective immediately.

Standard 10: Physicians – Anesthesia	Level I, II and III Adult Level I and II Pediatrics	Clarified that the anesthesiologist is required to respond to emergent operating room cases within 15 minutes (L 1 & 2) and 30 minutes (L3). Congruent with Standard 17: Operating Room. Clarification.
Standard 10: Physicians	ALL	Telemedicine is not an acceptable from of consultation. Clarification.
Standard 17: Operating Room	ALL	The Trauma Program must define the participants for minimal OR staffing. Clarification.
Standard 23: Radiology And Appendix D: Policies and Guideline Reference	ALL	Added policy/guideline expectations for Incidental Findings New expectation: Effective June 2019.

January 1, 2019		
Standard	**Levels**	**Edit**
1: Commitment	All Levels	Clarification within the minimal trauma alert criteria. F. i. was updated as age 10 was not previously accounted for in either category. Age 10 and younger belongs in the pediatric systolic blood pressure category. F. i. was changed to reflect: Systolic blood pressure <70 + (2x age in years) at any time in a patient 10 and younger.
5: Registry	All Levels	Clarified that Trauma Contacts at a minimum must equal PTOS volume.
5: Registry	All Levels	Clarified that an example of inter-rater reliability is to re-abstract records.
5: Registry	All Levels	Registrars maintaining CSTR are not required to maintain continuing education logs.
6: PIPS	Level IV	Clarified that NTDB submission is encouraged but not required for Level IV centers.
6: PIPS And 10: Physicians	Level IV	New Standard: Compliance Date of October 1, 2019: In a level IV program where trauma patients are regularly admitted to an in-patient unit, a medical service representative/liaison must participate on the peer-review committee. Liaison expectations apply.
8: Injury Prevention	Pediatrics	Clarified that all PTOS (pediatric) patients must undergo a screening for abuse and this must be documented. Positive screenings must result in evaluation/investigation of the cause of abuse.

11: Advanced Practitioners	All Levels	Clarified that Certified Registered Nurse Anesthetists (CRNAs) functioning in a supportive/specialist role (such as airway) are exempt from ATLS certification requirements.
13: Nursing	All Levels	Clarified/New standard: Compliance date of October 1, 2019 Units requiring compliance with Nursing standards includes admission/holding/observation areas used as an extension of the Emergency Department.
13: Nursing	All Levels	Nurses maintaining a trauma advanced certification are not required to maintain continuing education logs. Not applicable to the TPM or PI Coordinator. Effective immediately.
22: Laboratory and Blood Bank	All Levels	New standard: Expected compliance October 1, 2019. Prothrombin Complex Concentrate (PCC) must be available and a guideline/policy for utilization must be present.

April 1, 2019		
Standard	**Levels**	**Edit**
6: PIPS	Adult Level I, II and III Pediatric Level I and II	Clarified that Any RN fulfilling any component of the PI Role/FTE must maintain 75% attendance at the Trauma PIPS meetings. Expected compliance of 1.1.2020
7: Continuing Education	ALL	Clarified that internal audience continuing education programs must occur annually.
7: Continuing Education	Adult Level I and II	Clarified that there will be programs in continuing education provided by the institution concerning the treatment of trauma patients of all ages for each of the following external audiences. This may be fulfilled by multidisciplinary programs.
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Clarified that an Emergency Medicine physician must respond to the highest level of trauma alert. In an Emergency Department where a trauma surgeon is present in the ED at all times, the EM Physician is not required to respond to highest level activations.
13: Nursing	ALL	Added that in circumstances where a patient is admitted to the unit under the care of a non-trauma credentialed RN there must be oversight by a trauma credentialed RN, which must include at a minimum immediate availability as a resource. Expected compliance of 1.1.2020

13: Nursing	ALL	Added to the list of advanced certifications that exempt a nurse from completing a continuing education log: CNOR, CPAN, and ANCC Medical-Surgical Nursing board certification (RN-BC). See Glossary for details.
13: Nursing	Adult Level I, II, III and IV	Affirmed that the PaTNCC is transferable between Level I, II and III trauma center, however the transferring nurse must complete a hospital-specific module within one year of hire. RNs transferring from a Level IV trauma center must complete the higher-level trauma center PaTNCC RNs transferring from a pediatric trauma center to an adult trauma center must complete a geriatric module if not completed at the previous trauma center. Expected compliance of 1.1.2020.
13 Nursing	Pediatric Level I and II	Affirmed that the geriatric module of the PaTNCC is optional. The PaTNCC is transferable between pediatric Level I and II trauma centers, however the transferring nurse must complete a hospital-specific module within one year of hire. RNs transferring from an adult Level I, II, or III trauma center can transfer the PaTNCC, at the discretion of the trauma program RNs transferring from a Level IV trauma center must complete the PaTNCC. Expected compliance of 1.1.2020.
23: Radiology	ALL	Added CT scanner slice capability requirements: Level I & II: A minimum of one 64-slice CT capability scanner Level III & IV: A minimum of one 64-slice CT capability scanner in hospitals where vascular imaging occurs or a minimum of one 16-slice CT capability scanner where vascular imaging does not occur. Expected compliance of 1.1.2020

Glossary	ALL	Added: Excused Absence (PI Attendance) and temporary variance: Peer-review meeting attendance may be waived / pro-rated for military deployment, medical leave and missionary work. CNOR: Certified operating room/perioperative nurse CPAN: Certified Post Anesthesia Nurse ANCC Medical-Surgical Nursing certification (RN-BC): American Nurses Credentialing Center's Medical-Surgical Nursing Certification awarding the credential RN-BC, Registered Nurse - Board Certified. RN-BC credentialing. Other ANCC specialty certifications awarding the RN-BC are not applicable.
Appendix A	ALL	Added Flail Chest, and Non-occult pneumothorax defined by the trauma program to the list of conditions that require transfer to a higher-level of care. Expected compliance of 1.1.2020
Appendix C	ALL	Added Pneumothorax (isolated injury and asymptomatic) and a clinical practice guideline for chest tube insertion and management to the list of conditions that are appropriate for admission to a Level IV trauma center. Expected compliance of 1.1.2020

August 1, 2019		
Standard	**Levels**	**Edit**
2: Capacity & Ability	Adult Level I, II and III Pediatric Level I and II	Added clarification that communication from Level IV referring hospitals may be by a physician or advanced practitioner.
10: Physicians	ALL	Added clarification to Other Surgical Specialties that regardless of the surgical or admission capabilities, every trauma center must immediately evaluate, stabilize, treat and, if indicated, transfer trauma patients that exceed the capabilities of the trauma center.
10: Physicians	Level IV	Added that best practice is for the medical service who primarily covers in-patient care to maintain ATLS.

11: Advanced Practitioners	ALL	Added that APs involved as first responders in any phase of trauma care must have ACLS/PALS (as applicable) Expected compliance of 1.1.2021
14: Emergency Medical Services	ALL	Added the suggestion to collaborate with EMS to adopt a universal format for the verbal transfer of care of the trauma patient, recommending the standard DMIST communication format.
17: Operating Room	Adult Level I, II and III	Added End-Tidal CO2 Determination to the list of required equipment. Expected compliance of 5.1.2020
17: Operating Room	Level IV	Added Monitoring equipment to the list of required equipment. Expected compliance of 5.1.2020
23: Radiology	Adult Level I, II and III Pediatric Level I and II	Added clarification of an MRI log to monitor compliance with response times expectations.
Glossary	ALL	Added: DMIST • D - Demographics • M - Medical Complaint / Mechanism • I - Inspections / Injuries • S - Signs (vital signs) • T - Treatment This process was formalized by the Pennsylvania Department of Health Bureau of EMS, Pennsylvania Emergency Health Services Council and Pennsylvania Trauma Systems Foundation as a method to standardize the verbal transfer of care process from EMS to the trauma center.
Appendix D	All Levels	Clarified that all Clinical Guidelines/Policies listed are required, and should be reflective of the scope of practice of the institution.

Standards of Accreditation Revision Log

January 1, 2020		
Standard	**Levels**	**Edit**
1: Commitment	Adult Level I, II and III	New Standard per Legislation: New Level I, II and III must be 25 miles from an accredited trauma center. Waiver process in place to waive the 25 mile restriction.
1: Commitment	Adult Level IV	New Standard: Expected compliance January 1, 2021. The Emergency Medicine Physician and/or Advanced Practitioner response to highest level activation is 15 minutes.
2: Capacity & Ability	Adult Level I, II and III	New Standard per Legislation: Level II must have 600 PTOS patients.
2: Capacity & Ability	Adult Level I, II and III Pediatric Level I and II	Added clarification that communication from Level IV referring hospital to a higher level center may be completed by a physician or advanced practitioner.
6: Performance Improvement & Patient Safety Program	Adult Level I, II, III and IV Pediatric Level I and II	New Standard for programs utilizing the optional role of a PI Medical Director/Associate Medical Director. Expected compliance January 1, 2021. The individual functioning in this role must meet the following requirements: be a physician with Board Certification/Eligibility in specialty field, have a job description, be included in the PIPS plan, maintain a CME log, attend TOPIC course, and attend 75% of the multidisciplinary peer review PI meeting and trauma program operational meeting.
10: Physicians	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that Board Certified and Board Eligible physicians are not required to maintain a CME log.
10: Physicians	Adult Level IV	Clarified that trauma programs with Orthopedic Surgery, Neurosurgery, and/or Anesthesiology involved in the care of the trauma patient at any time must maintain on-call coverage 24/7/365.
Appendix C	Adult Level I, II, III and IV Pediatric Level I and II	Changed Appendix title to Admission Considerations for Level IV Trauma Centers. Removed INR <2 from Neurotrauma, Facial Injury, and Truncal Trauma sections of the of the admission considerations.

Standards of Accreditation Revision Log

May 1, 2020		
Standard	**Levels**	**Edit**
1: Commitment	Adult Level IV	Added clarification that the trauma program must define the response expectations for non-activation trauma patients. See Standard 10 below.
2: Capacity & Ability and Appendix A	Adult Level I, II, III and IV Pediatric Level I and II	Added clarification that patients must be transferred to higher-level trauma centers.
3: Trauma Program Medical Director	Adult Level I, II and III Pediatric Level I and II	Added clarification that years of experience can include years in Fellowship but not years in Residency.
8: Injury Prevention	Adult Level I, II, III and IV Pediatric Level I and II	New Standard as a recommendation Providers participating in the care of the injured patient should have access to trauma-informed care training. Definition of trauma-informed care added to Glossary.
10: Physicians	Adult Level IV	Added clarification that the trauma program must define response times for the Emergency Physician for all activation levels and non-activation trauma patients. Response time expectations for non-activation trauma patients may be a tiered response time expectation based on triage level, such as ESI levels.
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Added clarification that the Orthopedic Attending or designee must be able to respond at bedside when consulted.
10: Physicians	Adult Level III and IV	New Standard: Effective immediately The second representative from Anesthesia for the PIPS meeting may be a CRNA.
11: Advanced Practitioners	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that APs must complete ATLS prior to participating independently in activations and prior to functioning independently as a first responder.
27: Geriatrics	Adult Level I, II, III and IV Pediatric Level I and II	New Standard: Expected compliance May 1, 2021 The institution must have a policy/procedure/guideline that defined the abuse screening and management of geriatric patients with suspected for confirmed elder abuse, intimate partner violence, and sex trafficking. Reporting of abuse must be in compliance with Pennsylvania law and hospital policy.

Standards of Accreditation Revision Log

August 15, 2020		
Standard	**Levels**	**Edit**
3: Trauma Program Medical Director	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that Trauma Program Medical Directors are not eligible to participate in an Alternate Pathway if not appropriately Board certified.
10: Physicians	Adult Level I, II Pediatric Level I and II	Clarified that Other Surgical Specialties for Level I and II centers must be available at the bedside when requested.
13: Nursing	Adult Level I, II, III and IV Pediatric Level I and II	Added the requirement for all PACU nurses to maintain ACLS provider status, this is in addition to completing the trauma nursing education and annual continuing education. Upgraded expectation. Compliance due by 5.1.2021.
Appendix A: Inter-Facility Transfer & Consultation Requirements For Level III & IV Trauma Centers	Adult Level I, II, III and IV Pediatric Level I and II	Added an exception to the mandatory transfer of Head/C-Spine patients with a GCS </= 14: patients at their normal baseline GCS less than 14 are not required to be transferred. Revised rib fracture in the presence of pulmonary contusion clarification differences for Level III and Level IV centers.
Appendix C: Admission Considerations for Level IV Trauma Centers	Adult Level I, II, III and IV Pediatric Level I and II	Revised the suggested rib fracture admission considerations details for Level IV centers.
Glossary	Adult Level I, II, III and IV Pediatric Level I and II	Clarified the definition of a First Responder: A physician, or advanced practitioner that is the first provider contacted for emergencies 24 hours a day in any admitted unit/floor. The institution defines which provider is designated the first responder.

Standards of Accreditation Revision Log

January 1, 2021		
Standard	**Levels**	**Edit**
5: Registry	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that the AIS coding course should be the AIS coding version utilized within the PTOS submission software. When a new AIS coding version is implemented in the PTOS submission software, a registrar will have 1 year to complete the updated AISU Coding Course. Currently, the PTOS submission software utilizes AIS 08. PTSF expects to update to AIS15 following the update of Collector to version 5, approximately in January 2022. For AIS15, the AAAM is offering an abbreviated, less expensive "update course" for registrars who have taken the AIS 08 course within the last five years. Upgraded expectation, compliance due 1 year after AIS 15 implementation in PTOS Registry – date to be determined.
5: Registry	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that the trauma registry staffing plan must include a workload analysis for all trauma programs supported that defines the personnel needs necessary to comply with PTOS data submission requirements, this includes (for example) a centralized registry model. Compliance due by 9.1.2021.
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Clarified that Level I, II and III trauma centers must have a minimum of two physicians in the Emergency Department during daily periods of peak utilization. The trauma program must define peak hours, supported by data, and review it annually.
13: Nursing	Adult Level I, II, III and IV Pediatric Level I and II	Added CPN (Certified Pediatric Nurse) to the list of approved trauma advanced certifications.
22: Laboratory & Blood Bank	Adult Level I, II, III and IV Pediatric Level I and II	Added the recommendation for trauma programs, in collaboration with the blood bank, to consider utilization of Whole Blood. This is optional and not a requirement.

Standards of Accreditation Revision Log

April 1, 2021		
Standard	**Levels**	**Edit**
1: Commitment	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that all programs must have Trauma Resuscitation Management guidelines that include at a minimum ATLS principles and c-spine clearance. This is consistent with the existing required guidelines and policies listed in Appendix D.
5: Capacity & Ability	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that all programs must have policy(s) for admission of the trauma patient to the institution that includes at a minimum: criteria for admission, most common units admitted to, non-trauma service admissions, and special populations such as pediatrics, burns, geriatrics and obstetrics if applicable. This is consistent with the existing required guidelines and policies listed in Appendix D.
6: PIPS	Adult Level I, II, III and IV Pediatric Level I and II	The PIPS indicator section at the end of Standard 6 has been reformatted to clearly identify the required PI indicators that must be monitored by the Trauma Program at a minimum and additional PI indicators that are recommended for consideration by the Trauma Program to monitor. Screening for Substance Abuse, Brief Intervention, and Referral for Treatment (SBIRT) was added to the list PI indicators that are required to be tracked consistent with the Standards.
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Clarified the language of one of the required Orthopedic Surgery practice management guidelines that must be in place is unstable pelvis and acetabular fractures. This is consistent with language of the existing required guidelines listed in Appendix D.
Appendix D	Adult Level I, II, III and IV Pediatric Level I and II	This appendix has been updated to include additional policies and guidelines existing within the Standards. The goal of the revision is to clearly identify the required operational and patient care policies and guidelines from the Standards.

Standards of Accreditation Revision Log

August 1, 2021		
Standard	**Levels**	**Edit**
1: Commitment	Adult Level I, II, III and IV Pediatric Level I and II	Added "Tourniquet utilization" to the list of criteria that is recommended for hospitals to consider including in any level of trauma activation criteria.
3: Trauma Program Medical Director 4: Trauma Program Manager 6: PIPS	Adult Level IV	Added STN-Rural TOPIC course as an option for Performance Improvement process education for Level IV TPMD, TPM and other PI Personnel. Level IV Personnel can take either traditional TOPIC or Rural TOPIC. Level I-III: Note that Rural TOPIC is not an approved Performance Improvement process course.
8: Injury Prevention, Public Education & Outreach	Adult Level I, II, III and IV Pediatric Level I and II	Clarified the SBIRT Standard. Specifically clarified that 80% of all injured patients (PTOS), regardless if activated or not activated, and regardless of admitting service must be screened. Specifically clarified that 100% of those patients that screen positive must have a brief intervention offered to them. Patients refusing resources counts as the hospital offering an intervention.
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Revised the expectation for Board Eligible physicians to become Board Certified. PTSF no longer has a time-frame for achieving Board Certification. Board eligibility will be determined by the appropriate Board, and only when no-longer Board Eligible the provider would be unacceptable for inclusion on the trauma team until an alternate pathway is approved.
16: Emergency Department 23: Radiology	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that hospitals must define the patient population that requires monitoring during transport and while in Radiology, but at a minimum this population must include those patients activated at the highest level of trauma alert during the resuscitative phase of care. Clarified that hospitals must define the appropriate personnel to accompany and monitor the patient during transport and while in Radiology.

27: Geriatrics	Adult Level I, II, III, and IV	Clarified that multidisciplinary geriatric trauma patient management guidelines (protocols) that include resuscitation, critical care and rehabilitation are required. Expected compliance by 6.1.2022
28: Pediatrics	Adult Level I,II, III, and IV	Clarified that pediatric trauma patient management guidelines (protocols) are required. At Level I, II and III trauma centers the protocol must include resuscitation, critical care and rehabilitation. At Level IV trauma centers the protocol must include resuscitation. Expected compliance by 6.1.2022
Appendix D	Adult Level IV	Added the following to the list of required clinical management guidelines at Level IV trauma centers, with the expectation that the guideline will be consistent with the hospital's capabilities and provides guidance on patient management prior to transfer to higher-level trauma center for further management. 1. Unstable pelvic and acetabular fractures 2. Long bone fracture management 3. Open fracture management Expected compliance by 6.1.2022

Standards of Accreditation Revision Log

October 15, 2021		
Standard	**Levels**	**Edit**
6: PIPS	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that registrars functioning in the PI role must be an RN.
6: PIPS 10: Physicians Glossary	Adult Level I, II, III and IV Pediatric Level I and II	Clarified Multidisciplinary Peer Review Meeting attendance requirements. All Trauma/General Surgeons must attend 50% of meetings, regardless of the amount of call. Back-up Trauma Surgeons who only serve in this capacity on the back-up call schedule, and not on the primary trauma call roster, are not expected to participate in 50% of multidisciplinary peer review committee meetings. The definition of excused absences was expanded to included situations that are not excused and included within Standard 6. Excused Absences definition: Peer-review meeting attendance may be waived / pro-rated for military deployment, medical leave, and missionary work. The center must provide documentation to support the excused absence. Vacation, patient care, illness and contracted but not working that month are not excused absences and may not be prorated. TPMD/ Liaison providing a review of the meeting minutes to the absent provider cannot be counted as attendance at the meeting. Per Diem providers, providers rotating from another hospital, and Locum Tenens providers cannot have attendance expectations prorated based on amount of call taken. A new reference for calculating meeting attendance is available on the last page of Standard 6. The reference includes examples of unique provider situations that can affect meeting attendance tracking.

10: Physicians 11: Advanced Practitioners 12: Residency Programs 13: Nursing 16: ED 19: ICU	Adult Level I, II, III and IV Pediatric Level I and II	PTSF acknowledges the value of ACLS and PALS (or equivalents) in the care of patients. However, as the accrediting body for Trauma Centers, the scope of PTSF must be specific to Trauma Center operations and trauma patient care. Therefore, the Standards have been revised to reflect that PTSF will not include within its purview the maintenance of ACLS and PALS. Hospitals should define which clinicians require maintenance of ACLS and/or PALS and monitor their compliance.
24: Collaborative Services	Adult Level I, II, III and IV Pediatric Level I and II	Added a new subcategory to this standard: Acute Pain Management. The utilization of a pain management resource as a consultant for trauma care is recommended. This may be a formal pain management service, a representative from pharmacy, or an identified liaison from the trauma program. A protocol for multimodal analgesia (MMA) regimens and limited duration prescriptions is recommended.

April 15, 2022		
Standard	**Levels**	**Edit**
8: Injury Prevention, Public Education & Outreach	Adult Level I, II, III and IV Pediatric Level I and II	Reduced the minimum requirement for completion of brief interventions to 80% of patients who screened positive for substance use. Effective Immediately
13: Nursing	Adult Level I, II, III and IV Pediatric Level I and II	Clarified that new nurses may have education requirements prorated based on start date/calendar year.

June 15, 2022		
Standard	**Levels**	**Edit**
10: Physicians	Adult Level IV	Revised the General Surgery Standards to be dependent on the level of participation in the care of the injured patients. The hospital will determine if General Surgeons will not participate, will participate as a Trauma Service, or participate as subspecialty consultants. • General Surgeons are considered a Trauma Service if they meet at least 1 of the following: involved in trauma activations, admitting injured patients, and/or performing operative care to injured patients. General Surgery as a Trauma Service must have 24/7/365 coverage, and each General Surgeon must maintain board certification/eligibility, ATLS, and 50% attendance at the Multidisciplinary Peer Review meeting. • General Surgeons are considered a subspecialty consultant service if they meet all of the following: not involved in trauma activations, not admitting injured patients, and not performing operative care to injured patients. General Surgeons can be consulted for wound management, wound debridement, and external hematoma management. General Surgery as a subspecialty consultant service must have 24/7/365 coverage, assign 1 Liaison to attend 50% of the Multidisciplinary Peer Review meeting, and each General Surgeon must maintain board certification/eligibility. This is an optional addition, effective immediately

Standards of Accreditation Revision Log

Standard	Levels	Edit
10: Physicians	Adult Level I and II Pediatric Level I and II	Clarified that Other Surgical Specialties (#12) and Other Non-Surgical Specialties (#13) must have 24/7/365 call schedules without gaps in coverage. Clarified the expectation for the surgical specialist Oral/Maxillofacial Surgery. Revised the verbiage to: Craniofacial Expertise. Clarified that Level I Trauma Centers must have Craniofacial Expertise capable to diagnose and manage acute facial fractures of the entire craniomaxillofacial skeleton, including the skull, cranial base, orbit, midface, and occlusal skeleton. Clarified that Level II Trauma Centers must have Craniofacial Expertise and may transfer highly complex/low-volume patients. Clarified if highly complex/low-volume patients will be transferred from Level II Trauma Centers, a transfer plan and PIPS review of all patients transferred must be in place. Clarified that call coverage can be a combination of a single specialty or multiple specialties from the following specialists: Otolaryngology, Oral Maxillofacial Surgery, and Plastic Surgery. Added the surgical specialty of Replantation Expertise. Level I and II Trauma Centers must have either 24/7/365 coverage of Replantation Expertise or have a triage and transfer plan in place with a Trauma Center with Replantation Expertise. Physicians providing Replantation Expertise must be capable of replanting a severed limb, digit or other body part (for example, ear, scalp, or penis), including critical revascularization or care of a mangled extremity. The triage and transfer plan should ensure optimal care with a view toward minimizing time to replantation. Effective Immediately

Standards of Accreditation Revision Log

Standard	Levels	Edit
10: Physicians 23: Radiology	Adult Level I and II Pediatric Level I and II	Revised the response expectation for Intervention Radiology to 60 minutes from the time of request to arterial puncture in endovascular or interventional radiology procedures for hemorrhage control. Added that interventional procedures can be performed by Neurosurgeons, Neurologists and Cardiologists who are credentialed and capable to function in the role. Expected compliance by 1.1.24. Prior to 1.1.24 either parameter will be accepted: • 30 minutes from time of request to time of arrival at the bedside • 60 minutes from time of request to time of arterial puncture to signify the start of the procedure On and after 1.1.24 the only acceptable parameter will be 60 minutes from time of request to time of arterial puncture to signify the start of the procedure.
10: Physicians 16: Emergency Department 17: Operating Room	Adult Level IV	Added that trauma centers with Orthopedic Surgery involved in the care of the injured patient must have at least 1 intra-compartmental pressure monitoring device in the hospital. Expected compliance by 6.1.2023.
23: Radiology	Adult Level I, II, and III Pediatric Level I and II	Revised the expectation for Magnetic Resonance Imaging (MRI) response for emergent tests. An emergent MRI test is expected to be initiated within 2 hours of request. The Trauma Program must define the parameters of an emergent test based on level of acuity and monitor compliance. Removed the expectation to have Nuclear Scanning available 24-hours a day with a maximum response time of 30 minutes for emergent/immediate response. Effective Immediately
24: Collaborative Services	Adult Level I, II, and III Pediatric Level I and II	Added the requirement to have an affiliation with an organ procurement organization (OPO). Effective Immediately

Standards of Accreditation Revision Log

October 1, 2022		
Standard	**Levels**	**Edit**
2: Capacity & Ability	Adult Level I, II and III Pediatric Level I and II	Added that every bypass/diversion event must be reviewed at the trauma operations committee. Expected compliance by 1.1.24
3: Trauma Program Medical Director	Adult Level I, II and III Pediatric Level I and II	Revised the board certification requirements for TPMDs. TPMDs must be a board certified or board eligible general surgeon. TPMDs can no longer be a general surgeon who is an ACS Fellow with special interest in trauma care. • Effective immediately Clarified that the TPMD must be credentialed by the hospital to provide trauma care. • Effective immediately Added that Pediatric TPMDs who are board certified in general surgery but not board certified/board eligible in pediatric surgery must maintain Pediatric Advanced Life Support (PALS) certification and have a written affiliation agreement with a pediatric TPMD who is board certified in pediatric surgery from an accredited Level I pediatric trauma center. • Effective Immediately Added that Level I TPMD must hold active membership in at least one national trauma organization and have attended at least one meeting during the survey cycle. Membership in the Pennsylvania COT is not equivalent to membership in a national trauma organization. • Expected compliance by 1.1.24 Added that Level II-III TPMD must hold active membership in at least one regional, state, or national trauma organization and have attended at least one meeting during the survey cycle. • Expected compliance by 1.1.24 Revised that the 36 hours of CME in a 3-year period for Pediatric TPMDs must include 9 hours of pediatric-specific content. • Expected compliance by 1.1.24

Standard	Levels	Edit
		Added that TPMDs at hospitals pursuing trauma accreditation undergoing an initial site survey must have 12 hours of trauma-related CME during the reporting period. • Expected compliance by 1.1.24 Clarified that TPMDs must have authority to ensure providers meet all requirements and adhere to institutional standards of practice, and correct deficiencies across departments and other administrative units. • Effective immediately
6: PIPS	Adult Level I, II and III Pediatric Level I and II	Clarified the following, which are effective immediately: • The trauma PI program must be independent of the hospital PI program with an organizational chart showing the relationship and bidirectional flow of information between the two programs. • The trauma PI program must have a means to report events and actions to the hospital PI program and the hospital PI program must provide feedback and loop closure to the trauma PIPS program. • The trauma PI program must be empowered to identify opportunities for improvement and develop actions to reduce the risk of patient harm, irrespective of the department, service, or provider. • The trauma program must use the results of benchmarking data (such as TQIP) to determine whether there are opportunities for improvement in patient care and registry data quality. • Pa V5 Outcomes must be utilized for documenting event identification, analysis, verification, corrective actions, loop closure and strategies for sustained improvement measured over time. • Trauma Centers with both adult and pediatric accredited programs must have separate adult and pediatric trauma multidisciplinary PIPS meetings with distinct minutes.

Standard	Levels	Edit
		Revised the requirements for the trauma PI Plan. Expected compliance by 1.1.24. • Added that there must be an organizational chart demonstrating the structure of the trauma PI process, with a clearly defined relationship to the hospital PI program. • Clarified the trauma PI program must identify events from all phases of care from prehospital care to hospital discharge. • Clarified the use of PI indicator, opportunities for improvement, hospital events and audit filters definitions in the PTOS Manual and Outcomes Manual. • Added that each level of review must be defined, including which cases are reviewed at that level, who performs the review at that level and when cases can be closed or advanced to the next level of review. • Added that the Multidisciplinary PIPS Committee must be defined, including membership and responsibilities. • Clarified that action plan development and issue resolution (loop closure) must each be distinctively included in the trauma PI Plan. • Added the outline of an annual process for identification of priority areas for PI, based on audit filters, event reviews, and benchmarking reports, with the requirement that priority focus areas be data driven. Added PI specifics for Non-surgical admissions (NSA). NSA with surgical consultation, an ISS ≤ 9, or without other identified opportunities for improvement may be closed in primary review, however NSA without surgical consultation, an ISS > 9, or identified opportunities for improvement must, at a minimum, be reviewed by the TPMD in secondary review. Includes the recommendation of utilization of the Nelson tool to review NSA. • Expected compliance by 1.1.24

Standard	Levels	Edit
		Added that all traumatic injury related mortality (DOA, died in ED or inpatient, and withdrawal of life-sustaining care) must be reviewed, and classified for potential opportunities for improvement (OFI). Best practice is for review at tertiary level, however at a minimum those with OFI must go to tertiary level while those without OFI can go to secondary review. The categories include event/mortality with an OFI, event/mortality without an OFI, and undetermined OFI. A death should be designated as "mortality with OFI" if any of the following criteria are met: anatomic injury or combination of severe injuries but may have been survivable under optimal conditions; standard protocols were not followed, possibly resulting in unfavorable consequences; provider care was suboptimal. Includes the recommendation to review patients discharged to hospice to ensure there were no OFI in care that might have significantly changed the clinical course that ultimately led to the decision for hospice care. • This is an addition to the Standards but a clarification from the Outcomes Manual • Effective immediately

Standards of Accreditation Revision Log

Standard	Levels	Edit
10: Physicians	Adult Level I, II and III Pediatric Level I and II	Revised requirements for board certification/board eligibility. At Level I & II Trauma Centers, board certification/board eligibility in the appropriate specialty board is required for Anesthesiology, Emergency Medicine, General Surgery, Neurosurgery, Orthopedic Surgery and Radiology. Other surgical and non-surgical specialties must be a board certified or board eligible physician with credentialled expertise (privileges at the institution through the institution's credentialing process for the specialty) in the specific specialty. At Level III Trauma Centers, board certification/board eligibility is required for Emergency Medicine, General Surgery and Orthopedic Surgery. • Effective immediately Revised the requirement from Microvascular Surgery to Soft Tissue Coverage Expertise at Level I and II Trauma Centers. At Level I Trauma Centers the provider with soft tissue coverage expertise must be capable to address comprehensive soft tissue coverage of wounds, including microvascular expertise for free flaps, all open fractures, soft tissue coverage of a mangled extremity, and soft tissue defects of the head and neck. At Level II Trauma Centers there must be soft tissue coverage expertise 24/7/365, however it is acceptable to transfer highly complex/low-volume patients. If a Level II Trauma Center will transfer highly complex/low-volume patients, then a transfer plan and PIPS review of all patients transferred must be in place. • Effective immediately
22: Laboratory & Blood Bank	Adult Level I, II and III Pediatric Level I and II	Clarified that the blood bank in-house supplies must be based on the needs of the trauma center. • Effective Immediately