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*Pennsylvania Trauma Systems Foundation*

**2012 Level IV Standards for Trauma Center Accreditation**

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**Effective Date: October 1, 2012**

## PREFACE

In 1985 Pennsylvania became the eighth state in the country to develop a trauma system through legislation which created The Pennsylvania Trauma Systems Foundation (PTSF). As a nonprofit organization, PTSF serves to accredit hospitals to be trauma centers on a voluntary basis.

In 2007 the American College of Surgeons Trauma Systems Consultation Committee assisted PTSF and its partnering organizations in completing a trauma system self-assessment based on the HRSA Model Trauma System Planning and Evaluation tool. This assessment provided the impetus for a strategic planning process in 2008 that created a new vision statement for PTSF:

*"The Pennsylvania Trauma Systems Foundation will become the premier organization in Pennsylvania for assuring optimal outcomes for all trauma patients."*

An outcome of this strategic planning process was the development of the PTSF Rural Trauma Committee whose focus is to enhance care for injured patients in underserved areas of Pennsylvania. In July, 2009 the Board of Directors approved the development of Level IV trauma center standards of accreditation under the leadership of the Rural Trauma Committee with oversight by the PTSF Standards Committee. This committee met monthly for two years and was comprised of staff from trauma centers, rural hospitals, and partnering organizations under the leadership of Dr. Simon Lampard.

The PTSF would like to thank all of the members of the Rural Trauma Committee and the trauma community at large for sharing input for suggested changes, revisions, and clarifications during this process.

### **2009-2010 Rural Trauma Committee Members:**

Sharon Adams, RN – Manager of Patient Care, Muncy Hospital  
Larry Baronner – Critical Access Hospital Coordinator, Office of Rural Health  
Tom Brandt, RN – Trauma Program Manager, Robert Packer Hospital  
Lisa Chervanka, RN, Director of Nursing, Mid Valley Hospital  
Donna Cochran, RN – Director of Nursing, Jameson Memorial Hospital  
Robert Cooney - Bureau of EMS, PaDOH  
Sherri Fisher, RN - Director of Pt Care Services, Fulton County Med Center  
Don Fortney, Education Director, EMMCO East, Inc, Kersey, PA  
Greg Frailey, DO - Medical Director, Pre-hospital Services, Susquehanna Health System  
Terry Heller, RN - Trauma Program Manager, Geisinger Wyoming Valley  
William Hoff, MD – TPMD, St. Luke’s Hospital  
Janette Kearney – Director, Pa. Emergency Health Systems Council  
**Simon Lampard, MD - Committee Chairperson - Trauma Program Medical Director, Altoona Hospital**  
Scott Lynn, Exec Director, Danville Ambulance Service, Danville, PA  
Emily Meyers, RN- Director of Emergency Systems Project Coordination, Chas. Cole Hospital  
Michael Pasquale, MD – Trauma Program Medical Director, Lehigh Valley Hospital  
James Rintoul, MD – Director of Emergency Services, Fulton County Hospital  
Fred Rogers, MD- Trauma Program Medical Director, Lancaster Gen. Hospital  
David Scaff, MD – Trauma Medical Director, Pocono Medical Center  
Betsy Seislove, RN – Trauma Program Director, Lehigh Valley Hospital  
Doug Trostle, MD - Board Member, Chair of Surgery, Robert Packer Hospital  
**Chris Wargo, RN - Committee Vice-Chairperson** Trauma Program Manager, Geisinger Medical Center -

From the time of their initial publication in 1985, the focus of the Standards of Accreditation has been the provision of optimal clinical care provided to the trauma patient by physicians, nurses and all allied healthcare

professionals throughout the continuum of care. This is exemplified through commitment, capacity and ability, and constant vigilance to performance improvement activities.

Changes in the 2012 revisions include:

- 1) Standard V (B) Clarification in the functions of the Trauma Program Medical Director
- 2) Standard XIX (C) (2) Deletion of the requirements for Radiologist
- 3) Standard XXXII Clarification for the requirements for Spiritual Counseling/Pastoral Care
- 4) Standard XXXIII (D) Additional requirements for a Trauma Performance Improvement and Patient Safety Plan
- 5) Glossary – Definitions for Core Panel
- 6) Appendix A: Revisions in the General Guidelines and the Mandatory Transfer Criteria

Specifics regarding any of these revisions can be obtained by contacting the Pennsylvania Trauma Systems Foundation.

Individuals who acquire this document with the intention of becoming a trauma center in the Commonwealth must recognize that criteria specific to the accreditation level being sought must be met prior to making application. For information on becoming a trauma center, please contact the Pennsylvania Trauma Systems Foundation at (717) 697-5512. Information is also available on our website at [www.ptsf.org](http://www.ptsf.org) and [www.ptsf.org/become\\_a\\_trauma\\_center](http://www.ptsf.org/become_a_trauma_center)

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**General Standards**

**Level IV**

**Standard I—Commitment**

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|---|----------|
| <p>A. There will be demonstrated both personal and institutional commitment by the institution’s Board of Director’s, administration, medical staff and nursing staff to treat any trauma patient presented to the institution for care.</p>  | <p>E</p> |
| <p>B. Methods of demonstrating the commitment to the trauma center/system will include, but not be limited to:</p>  |          |
| <p>1. A Board and Medical Staff resolution that the institution agrees to meet the Pennsylvania Trauma Systems Foundation Standards for Trauma Center Accreditation. This must be reaffirmed every three years.</p>   | <p>E</p> |
| <p>2. Participation in operations and integration of a statewide system; collaboration with and education of Emergency Medical Services prior to and once accredited as a trauma center; submission of patient care data to the Pennsylvania Trauma Systems Foundation for systems management, performance improvement and operations research.</p> | <p>E</p> |
| <p>3. An assessment to determine the need for a trauma center within their region prior to initial accreditation.</p>   |          |
| <p>4. Established policies and procedures for the maintenance of the services essential to a trauma center/system as outlined in the Standards for Trauma Center Accreditation.</p>   | <p>E</p> |
| <p>5. Assurance that all trauma patients will receive medical care commensurate with the level of the Institution’s accreditation.</p>  | <p>E</p> |
| <p>6. Commitment of the Institution’s financial, human, and physical resources as needed for the trauma program.</p>  | <p>E</p> |
| <p>7. Established priority admission for the trauma patient to the full services of the institution. This will include adequate resuscitation facilities and personnel. Regional Resource and Regional Trauma Centers must assume the responsibility for insuring prompt access for all patients requiring trauma care.</p>                         | <p>E</p> |
| <p>8. Established and maintained formal written transfer agreements with other accredited/designated adult and pediatric trauma centers. All agreements should be reviewed internally at least every three years and updated as required by the terms of the agreements.</p>  | <p>E</p> |
| <p>9. Established procedures to facilitate, document and review all transfers (see glossary under “Transfer Guidelines” for components).</p>  | <p>E</p> |
| <p>10. Emergency department availability for stabilization and transfer of trauma patients maintained on a continuous 24-hour basis. The institution must notify the local Public Safety Access Point (PSAP)/911 Center when the institution goes on</p>  | <p>E</p> |

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**General Standards** **Level IV**

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Standard I—Commitment

diversion and when the institution comes off of diversion.

- 11. When the trauma center is unable to provide care, a log of closure or bypass date, time, duration, and cause will be maintained. E

- C. All accredited trauma centers will support and fully participate in the Pennsylvania Trauma Outcome Study (PTOS) as specified by the Pennsylvania Trauma Systems Foundation. E  
*(References: Standard XV, Trauma Registry)* E

- D. The institution must be licensed by the Pennsylvania Department of Health. E

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**General Standards** **Level IV**

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Standard II—Capacity & Ability

- A. The institution will develop formal written protocols with neighboring trauma centers to accept patients when bypass is mandatory. E

- B. The institution will develop agreements with EMS agencies to assure continuous availability of transportation for unstable trauma patients requiring transfer to a higher-level trauma center. E

- C. All institutions which receive pediatric trauma patients must provide, at a minimum, resuscitation and stabilization capabilities for the pediatric trauma patient and, if further resources are available, appropriate surgical management and intensive care unit capabilities. E

- 1. Formal transfer agreements and protocols must be developed with Level I and Level II Pediatric Trauma Centers for those pediatric trauma patients requiring facilities and/or personnel resources beyond those available at the trauma center. E

- 2. The institution will assess its pediatric capabilities and establish appropriate guidelines for the transfer of severely injured children to accredited/designated pediatric trauma centers. E

- D. The institution must participate in disaster related activities. E

- 1. A trauma surgeon or Emergency Medicine Physician must be on the hospital's disaster planning committee. E

- 2. Hospital drills that test the individual hospital's disaster plan must be conducted at least every 6 months. E

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**General Standards**

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Standard III—Helipad

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|---|---|
| A. Must have access to a <u>lighted helicopter landing area</u> within one mile of the Emergency Department with emergency vehicles readily available to provide proper transport.  | E |
| B. The Golden Hour for the patient begins at the time of injury, not at the time pre-hospital care is initiated. Therefore, the institution must clearly document that the transport of patients does not adversely affect the timely intervention of definitive care. Method of providing this information will include: | E |
| 1. Listing of the air transport systems used and staff qualifications, consistent with the scope of care delivered.   | E |

**NOTE:** The Pennsylvania Trauma Systems Foundation will individually review significant variations from this standard. The Foundation will critically review capability for continuity of patient life support and safety during transfer. It has been well established that early access to definitive care is essential for determining the final outcome of the severely injured patient.

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**General Standards**

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Standard IV—General Surgery Residency Program

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Level IV Trauma Centers are not required to have a General Surgery Residency Program

**General Standards**

**Level IV**

**Standard V—Trauma Program Medical Director**

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| A. | The Trauma Program Medical Director will have demonstrated interest and commitment in trauma care. Board Certification in their field of specialty is desired. The Trauma Program Medical Director will:  | E |
| 1. | Have current ATLS Certification   | E |
| 2. | Be a licensed physician who routinely provides coverage in the emergency department for trauma patients.  | E |
| B. | The Trauma Program Medical Director, in conjunction with the hospital’s medical governing board or body, and in collaboration with the Trauma Program Manager will have the oversight authority for all trauma patients and administrative authority and responsibility for the trauma program to affect all aspects of trauma care including:  | E |
| 1. | Recommending or removing trauma team privileges.  | E |
| 2. | Cooperating with nursing administration to support the nursing needs of the trauma program.   | E |
| 3. | Developing treatment protocols.   | E |
| 4. | Coordinating the performance improvement peer-review process.   | E |
| 5. | Correcting deficiencies in the trauma care or excluding from trauma call those trauma team members who do not meet criteria.  | E |
| 6. | Participating in the budgetary process for the trauma program.  | E |
| C. | The Trauma Program Medical Director, working in conjunction with specialists who actively participate in the resuscitation and inpatient care of trauma patients, will identify representatives from these specialties to work with the Trauma Program and participate in the Trauma Performance and Safety (PIPS) Program. The Trauma Program Medical Director will identify physicians who are qualified to be members of the trauma team and to participate in the trauma performance improvement program. | E |
| D. | Fundamental to the establishment and organization of an institution's trauma program is the recognition that the individual identified as accountable for the operation of this program must be qualified to serve in this capacity. These indicators will be present:  | E |
| 1. | A job description and organizational chart depicting the relationship between the Trauma Program Medical Director, hospital governance, administration, and other services.   | E |
| 2. | Selection process as defined by the institution's medical staff bylaws or rules and regulations.  | E |
| 3. | Attendance and participation in local and state trauma related activities.  | E |
| 4. | Evidence of active participation in the resuscitation and/or surgery of multi-system trauma patients.   | E |

**General Standards**

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**Standard VI—Physician Credentials, Certifications & Continuing Medical Education**

A. Credentialing

- 1. The institution will credential each physician for the appropriate specialty, including trauma care. E
- 2. When residents are fulfilling standards requirements, they must be fully qualified by the institution, in conjunction with the trauma program, for trauma care by the appropriate specialty. E

B. Delineation/Reevaluation of Privileges

- 1. Trauma call will be limited to those with demonstrated skills, commitment, and experience. The Trauma Program Medical Director, in conjunction with the hospital’s medical governing board or body, will utilize the trauma performance improvement program to determine each individual attending physician’s ability to participate on the trauma team. Delineation of privileges is required for emergency medicine and anesthesia. If other specialists provide trauma resuscitation or inpatient trauma care, delineation of privileges is required. At a minimum, this will occur at least once per site survey cycle. E
- 2. Reappointment to the trauma admitting/ consulting staff must be coordinated by the Trauma Program Medical Director in association with the hospital’s medical governing board or body and representatives from specialty services providing resuscitation or inpatient care to trauma patients, including general surgery, orthopedic surgery, family practice, internal medicine, radiology, and anesthesia (if applicable) based on the following criteria: E
  - a. Maintenance of good standing in the primary specialty; E
  - b. Satisfactory performance in managing trauma patients based on performance assessment and outcome analysis. E

C. Certifications

- 1. All certifications must be maintained on a continuous basis. E
- 2. Advanced Trauma Life Support (ATLS) E
  - a. General surgeons taking trauma call or providing trauma resuscitation or inpatient trauma care must, at a minimum, maintain provider ATLS status E
  - b. All emergency department physicians must have the following ATLS status; E

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**Standard VI—Physician Credentials, Certifications & Continuing Medical Education**

- 1. All emergency department physicians who are board certified in emergency medicine must successfully complete the Provider ATLS course once prior to participation on the Emergency Department call roster. E
- 2. All emergency department physicians who are not board certified in emergency medicine must maintain at least provider ATLS status. E
- 3. Pediatric Advanced Life Support: Emergency department physicians participating in pediatric trauma who are not Board Certified in Emergency Medicine or active candidates for Emergency Medicine Board Certification must continuously maintain at least PALS provider status with renewal every two years. E

**D. Continuing Medical Education (CME)**

- 1. The Trauma Program Medical Director must have evidence of trauma-related external CME of 8 hours annually or 24 hours in 3 years. Two hours per year (6 in three years) must be pediatric trauma-related. E
- 2. General surgeons taking trauma call, providing resuscitative or inpatient care to trauma patients must have evidence of maintaining appropriate education related to the care of the injured patient. E
  - a. Acquisition of 8 hours CME per year or 24 in 3-years. **OR**
  - b. By demonstrating participation in an internal educational process conducted by the trauma program based on the principles of practice based learning and the performance improvement and patient safety program
- 3. Emergency Medicine Physicians participating in trauma patient resuscitation must be knowledgeable and current in the care of injured patients. This may be met by: E
  - a. Documenting acquisition of 8 hrs. CME per year **OR**,
  - b. By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice-based learning and the PIPS program.
- 4. Orthopedic Surgeons providing resuscitation or inpatient care for trauma patients must meet the following criteria: E

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**Standard VI—Physician Credentials, Certifications & Continuing Medical Education**

- a) Must be knowledgeable and current in the care of injured patients. This may be met by:
  - 1. Documenting acquisition of 8 hours of trauma related CME per year or,
  - 2. By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program.
  
- 5. Four (4) CME credits may be obtained after successful completion of board certification and/or board re-certification. The four (4) CME credits will be counted in the same year that the board certification and/or board re-certification occurred. E
- 6. CME credits obtained by completion of the ATLS course will be counted toward meeting the yearly CME requirement. A maximum of ten CME hours as an ATLS instructor may be counted every three years toward the total.
- 7. Visiting professors and invited speakers may be considered in fulfilling the external CME requirements. Visiting professors and invited speakers are defined as: person(s) who are recognized for their expertise in a trauma related area by virtue of their publications, research, or membership on national, professional, or governmental committees. The program could be presented in general trauma or sub-specialty trauma surgery, critical care medicine, surgical infection, or other trauma related topics.
  - a. The Trauma Program Medical Director is responsible for determining, validating, and recording which visiting professor(s) and invited speaker(s) are acceptable in fulfilling external CME requirements. E
  - b. The program content as well as proof of the CME credits awarded must be available at the time of site survey E
  - c. The following indicates the total number of external CME credits that can be fulfilled by visiting professor(s) and/or invited speaker(s), and/or teleconferencing, and/or the Internet per year: E
    - 1. Trauma Program Medical Director E
      - 3 CME per year/9 CME per three years
    - 2. General Surgeons (if providing resuscitative or inpatient care to trauma patients) E
      - 2 CME per year/6 CME per three years
    - 3. Emergency Medicine E
      - 2 CME per year/6 CME per three years
    - 4. Orthopedic Surgeons (if providing resuscitative or inpatient care to trauma patients) D
      - 2 CME per year/6 CME per three years

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**General Standards**

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Standard VII—Advanced Practitioners

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- A. Advanced Practitioners may, under the direction of a physician have a defined role in trauma patient care. The extent of the involvement must be determined by the Trauma Program Medical Director in compliance with Pennsylvania law and hospital policy, and be consistent with the Pennsylvania Trauma Systems Foundation Standards for Trauma Center Accreditation. This must include a formal, institution specific orientation to the trauma program. E
- B. All Advanced Practitioners who have a defined role in trauma patient care must be knowledgeable and current in the care of injured patients. This may be met by: E
1. Documenting acquisition of 6 hours of trauma related CME/CEU per year **OR**,
  2. By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program.
    - a) For Advanced Practitioners who are involved in the resuscitation phase of trauma care, the completion of ATLS every four years is required as a portion of the credentialing process for the trauma program. E
- Note: CME/CEU credits for ATLS will be counted toward meeting the yearly CME/CEU requirement.
- C. There must be evidence of ongoing trauma skills proficiency and trauma clinical competence. It is the responsibility of the institution to measure skills proficiency in an ongoing manner deemed most appropriate for the institution. This can be accomplished through such mechanisms as annual reviews and performance evaluations. E
- D. All Advanced Practitioners who have a defined role in trauma patient care must participate in the trauma performance improvement program as defined by the Trauma Program. E

**NOTE:** *CME language was changed to CEU in January 2010. CEUs will be required in 2011.*

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**General Standards** **Level IV**

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Standard VIII—Trauma Program Manager

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| A. There will be a Trauma Program Manager who is a registered nurse and is responsible for monitoring, promoting and evaluating all trauma-related activities associated with the trauma program in cooperation and conjunction with the Trauma Program Medical Director.  | E |
| 1. This must be a budgeted position with dedicated hours.  | E |
| B. The institution's organization must define the structural role of the Trauma Program Manager to include responsibility, accountability, and authority to develop and maintain the trauma program infrastructure, maintain/oversee the trauma registry and develop/maintain/oversee the trauma performance improvement and safety program. | E |
| C. These indicators will be present:   |   |
| 1. Evidence of qualifications including educational preparation, certification, and clinical experience.   | E |
| 2. A job description and organizational chart depicting the relationship between the Trauma Program Manager and other services, especially the Department of Nursing.  | E |
| 3. A selection process defined by the institution's personnel policies.  | E |
| 4. Attendance and/or participation in local and state trauma-related activities.   | E |
| 5. Evidence of an effective working relationship with the Trauma Program Medical Director.   | E |

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**General Standards** **Level IV**

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Standard IX—Nursing Services

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| A. The Department of Nursing or designated representative of nursing care delivery for the institution will maintain a formal relationship with the trauma program.   | E |
| B. The nursing trauma plan must include the ability to immediately mobilize qualified nursing resources from inpatient areas for initial multi-resuscitation efforts. | E |

**General Standards**

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Standard X—Nursing Credentials, Certifications and Continuing Education

A. Credentialing

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| <p>1. All registered nurses functioning in a department that routinely admits trauma patients will be credentialed by the institution in trauma nursing within one year of assignment to the department. Fifty percent of the registered nurses who were assigned to the department prior to trauma center accreditation must be credentialed in trauma nursing within one year of trauma center accreditation. Within two years of accreditation all nurses must be credentialed.</p> | E |
| <p>a. Emergency Department</p>   | E |
| <p>b. Operating Room: All registered nurses who have the potential to provide care to trauma patients.</p>   | E |
| <p>c. Post-Anesthesia Care Unit: If PACU is used as an ICU for trauma patients the institution must determine the need for PACU registered nurses to comply with the ICU trauma nurse course requirement.</p>  | E |
| <p>d. Intensive Care Units (ICU) for Trauma Patients (if trauma patients are routinely admitted to ICU)</p>  | E |
| <p>e. Intermediate Care Step-Down Units for Trauma Patients (if trauma patients are routinely admitted to step-down unit)</p>  | E |
| <p>f. Medical/Surgical Units which routinely receive trauma patients</p>   | E |
| <p>2. Trauma Nurse Course is required. (<i>Reference: Pennsylvania Trauma Nursing Core Curriculum, Appendix B</i>)</p>   | E |
| <p>a) In lieu of the Trauma Nurse Course, RTTDC, TNCC, or ATCN is acceptable.</p>  |   |
| <p>b) If the Pa Trauma Nurse Course is taken, only the following sections are required: Trauma Systems, Resuscitative Phase, Shock section of acute care phase.</p>  |   |
| <p>c) Regardless of which course is taken a hospital specific module describing the institution’s trauma program is required.</p>  |   |
| <p>3. There must be evidence of initial and ongoing skills proficiency, i.e., clinical competence. It is the responsibility of the institution to measure skills proficiency in an ongoing manner deemed most appropriate for the institution. This can be accomplished through such mechanisms as annual reviews and performance evaluations.</p>   | E |

**General Standards**

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Standard X—Nursing Credentials, Certifications and Continuing Education

B. Certifications

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|--|---|
| 1. Advanced Cardiac Life Support (ACLS): All registered nurses assigned to the following departments must successfully obtain and continuously maintain at least ACLS provider status within two years of assignment. Registered nurses who were assigned to the departments prior to trauma center accreditation must successfully obtain and continuously maintain at least ACLS provider status within two years of that accreditation. | E |
| a. Emergency Department  | E |
| b. Post-Anesthesia Care Unit: This requirement can be met if registered nurses assigned to this department successfully completed the cardiac component of the institution's own critical care course.   | E |
| c. Intensive Care Units ( if trauma patients are routinely admitted to ICU)  | E |
| d. Intermediate Care/Step-Down Units for Trauma Patients (if trauma patients are routinely admitted to unit)   | E |
| 2. Nurses trained in Pediatric Advanced Life Support are required to be readily available to care for the pediatric trauma patient.  | E |
| a. Emergency Department  | E |
| b. Post-Anesthesia Care Unit: This requirement can be met if registered nurses assigned to this department successfully completed the cardiac component of the institution's own critical care course.   | E |
| c. Intensive Care Units ( if trauma patients are routinely admitted to ICU)  | E |
| d. Intermediate Care/Step-Down Units ( if trauma patients are routinely admitted to unit)  | E |

C. Continuing Education (CE)

- |   |   |
|---|---|
| i. All registered nurses who meet the requirements of Standard X A. Credentialing must have evidence of a minimum of 4 hours (12 hours over 3 years) of continuing education or staff development. Continuing Education is not required if a patient care unit does not routinely provide care for trauma patients. | E |
| ii. The yearly hours may be obtained by documented attendance at and participation at a Trauma Conference with a trauma focus. In addition, ACLS, APLS, PALS, or ABLIS may be counted towards the yearly hours as follows: four hours for a 2-day provider course and two hours for a 1-                            |   |

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Standard X—Nursing Credentials, Certifications and Continuing Education

day re-certification course.

3. Trauma related courses such as ATCN, TNCC (ENA) and ABLIS may be used to fulfill up to 12 hours of continued education requirement for a 3-year timeframe from the time of the class.
4. Serving as faculty for trauma-related courses, such as ATCN, TNCC (ENA), ABLIS and PaTNC may be used to fulfill 8 hours of continuing education requirement for a 3-year timeframe from the time of the class.
  1. Emergency Department E
  2. Operating Room E
  3. Post-Anesthesia Care Unit (if unit is used as an ICU) E
  4. Intensive Care Units ( if trauma patients are routinely admitted to ICU) E
  5. Intermediate Care/Step-Down Units ( if trauma patients are routinely admitted to unit) E
  6. Medical/Surgical Units which routinely receive trauma patients E
5. Certified registered nurse anesthetists assigned to trauma patients must have evidence of 8 trauma-related contact hours (0.8 continuing education units) every year. The American Association of Nurse Anesthetists or any other recognized professional nursing or medical organization must approve the continuing education units. E
6. The Trauma Program Manager must have evidence of 4 hours of continuing education (CE) related to trauma care and the trauma system per year. All hours must be received outside of the institution E
  - a. Two of the annual CE hours must be accredited by a professional nursing organization that provides nursing continuing education credits, i.e., PSNA, ENA, AACN, AANN, AORN, etc. E
  - b. The program content as well as proof of the CE credits awarded must be available at the time of site survey. E

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**General Standards**

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Standard XI (intentionally left blank\*)

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\*Effective with the 2010 version of the Pennsylvania Trauma Systems Foundation “Standards for Trauma Center Accreditation,” Standard XI Certified Registered Nurse Practitioners was incorporated into Standard VII Physician Assistants—and renamed as: Advanced Practitioners. For consistency, the Standards were NOT re-numbered.

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**General Standards**

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**Level IV**

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Standard XII—Post-Discharge Follow-Up

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The institution will document in the patient's medical record a post-discharge plan including the need for rehabilitative or other services, as appropriate, for the severity of the case. This is to include: E

- A. Evidence of appropriate social work intervention and involvement in post-discharge plan development. E

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**General Standards**

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**Level IV**

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Standard XIII—Trauma Prevention Programs/Public Education

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The institution will demonstrate a leadership role in trauma prevention programs. These trauma prevention programs should be both internal and external to the institution and reflect the trauma trends identified through the institution's trauma registry and/or identified community needs. The programs can be presented collectively with other institutions and organizations.

- A. The institution must demonstrate collaboration with or participation in national, regional, state, or local injury prevention programs E

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**General Standards** **Level IV**

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Standard XIV—Emergency Medical Services Involvement

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|---|---|
| A. The institution must be able to document active involvement in its regional Emergency Medical Services (EMS) system while pursuing accreditation and during all periods of accreditation. It is the responsibility of the trauma center to enhance the line of communication with ambulance services and the Regional EMS Council to resolve issues related to EMS transportation, transfer and clinical care. | E |
| B. Physicians, nurses, and administrative personnel will be involved in various EMS programs and invite prehospital providers to attend internal hospital education forums that are trauma related.   | E |
| C. Provision of opportunities for appropriate clinical experience.  | E |
| D. The institution will demonstrate involvement in regional EMS programs by the following:  |   |
| 1. Participation in the EMS system performance improvement mechanisms.  | E |

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**General Standards** **Level IV**

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Standard XV—Trauma Registry

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|--|---|
| A. The institution will maintain a Trauma Registry.  | E |
| B. The trauma registry must include, at a minimum, all of the data elements included in the Pennsylvania Trauma Outcome Study (PTOS). ( <i>Reference: PTOS Operational Manual.</i> ) | E |
| 1. Demographic Data  | E |
| 2. Pre-hospital Data   | E |
| 3. Process of Acute Care   | E |
| 4. Clinical Data   | E |
| 5. Outcome Data  | E |
| 6. Final Anatomical Diagnoses  | E |
| 7. Procedure Codes   | E |
| 8. Payer Class   | E |
| 9. Performance Improvement Data  | E |
| 10. Standard Report Utilization  | E |

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Standard XV—Trauma Registry

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E—Essential  
 D—Desired

General Standards	Level IV
C. There will be evidence of regular and active interface with the trauma program. The registry must be responsive to the needs of the Trauma Program Medical Director and support the trauma program.	E
D. A clearly identified person will have the authority, responsibility, and accountability for directing and maintaining the trauma registry and its data submission to the Pennsylvania Trauma Systems Foundation in a timely manner.	E
1. The trauma registry program will have a staffing plan. The plan must include a workload analysis that defines personnel needs necessary to comply with PTOS data submission requirements. Included in this plan is consideration of, at a minimum, one registry program FTE per 500 - 1000 trauma admissions per year OR one registry FTE per 500 PTOS submissions per year.	E
2. The trauma registry must enter 85% of cases within 42 days of discharge.	E
3. 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. This plan must also reflect compliance with PTOS Operations Manual and definitions for data entry.	E
E. The Trauma Registry staff will optimally have a core set of skill requirements including: anatomy and physiology, medical terminology, ICD-9-CM coding, computer competency, database management, and/or a degree in a health related field/allied profession. Job responsibilities of the trauma registrar will include but are not limited to the following components: database management, education, performance improvement, technical skill, site survey participation, interface with outside agencies, committee work, and research.	E
<b>NOTE:</b> <i>The PTSF recognizes concurrent data abstraction as a best practice.</i>	
F. The Trauma Registry staff must have evidence of continuing education related to the trauma registry. This requirement can be fulfilled by attendance at PTSF Registry Conferences.	E

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Standard XVI—Organ & Tissue Donation

The institution will comply with Pennsylvania law regarding organ and tissue donation request, procurement, and documentation. E

**General Standards**

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Standard XVII—Trauma Program

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|--|----------|
| <p>A. The institution will establish within its organization a defined trauma program including a clinical service that is comprised of the trauma medical director, trauma program manager, and trauma registrar at a minimum. If general surgeons routinely take trauma call, participate in trauma resuscitation, or admit trauma patients they should participate in trauma program development and Performance Improvement and Safety initiatives.</p>  | <p>E</p> |
| <p>1. This concept embraces both administrative and physical attributes of individual trauma centers. By this means, successful functioning of the trauma program will be assured and its staffing and direction clearly defined.</p>  | <p>E</p> |
| <p>2. It is the responsibility of the Trauma Program Medical Director in collaboration with the Trauma Program Manager, and in association with the liaisons/ representatives of departments that provide direct care for trauma patients (i.e. general surgery, orthopedic surgery, emergency medicine, radiology, anesthesia, and other appropriate disciplines) to direct the trauma performance improvement and safety program and to integrate it into the institution’s overall performance improvement program.</p> | <p>E</p> |
| <p>3. The intent is to ensure the coordination of services and performance improvement for the trauma patient.</p>   | <p>E</p> |
| <p>B. There will be evidence of strong communication links between the institution's administration, the Trauma Program Medical Director, and the Trauma Program Manager to coordinate both long and short-term goals of the trauma program.</p>   | <p>E</p> |
| <p>C. A protocol will be in place to ensure that:</p>  |          |
| <p>1. All adult and pediatric trauma patients who have severe and major multi-system injury and who are admitted or transferred are immediately evaluated, stabilized and transferred appropriately.</p>   | <p>E</p> |
| <p>2. All adult and pediatric trauma patients who are admitted or transferred and have a mechanism of injury suggestive of significant risk of serious injury are promptly evaluated by the trauma service or Emergency Medicine.</p>  | <p>E</p> |

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**Standard XVIII—Surgical Specialties Availability & Responsibility**

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|---|----------------------------|
| <p>A. The initial assessment and resuscitation of the severely injured patient is the responsibility of Emergency Department Physician. The following criteria must be included in each institutions activation criteria for highest-level trauma team response.</p> <ol style="list-style-type: none"> <li>1. Confirmed blood pressure &lt;90 at any time in adults and age specific hypotension in children;</li> <li>2. Gunshot wounds to the neck, chest, or abdomen;</li> <li>3. GCS &lt;8 with a mechanism related to trauma;</li> <li>4. Transfer from other hospitals receiving blood to maintain vital signs;</li> <li>5. Respiratory compromise/obstruction and /or intubation in a patient who was not transferred from another facility;</li> <li>6. Emergency physician’s discretion.</li> </ol>   | <p>E</p>                   |
| <p>B. The Trauma Program Performance Improvement and safety Program must monitor compliance to ensure that there is no delay in treatment/clinical care of patients requiring trauma team response.</p>   | <p>E</p>                   |
| <p>C. Published on call schedules must be maintained for all specialty services (general surgery, orthopedic surgery, anesthesia, radiology) regularly providing resuscitation or admission of trauma patients.</p>   | <p>E</p>                   |
| <p>D. If the general surgeon participates in the trauma team, the general surgeon’s participation in the major therapeutic decisions, presence in the emergency department for major resuscitations, and presence at operative procedures must be determined by policy.</p> <ol style="list-style-type: none"> <li>1. This requirement for the attending trauma surgeon’s presence should not result in delay for initiating urgently needed operative procedures or transfer.</li> <li>2. Compliance with these criteria and their appropriateness must be monitored by the hospital’s trauma performance improvement and safety program.</li> <li>3. The responsible attending surgeon or attending surgical specialist on call must be present in the operating room for major surgical procedures related to their specialty.</li> <li>4. Upon notification that the patient meets the criteria outlined by policy, the surgeon will respond to the emergency department within 30 minutes of notification, tracked from patient arrival. Response will be tracked through the Performance Improvement and Safety process and will be available at time of survey.</li> </ol> | <p>E<br/>E<br/>E<br/>E</p> |
| <p>E. If the Trauma Performance Improvement Program identifies a patient occurrence not resolved at discharge, data/ information must be requested to provide loop closure and track patient outcomes. The institution will determine the number and type of occurrences to be tracked.</p>   | <p>E</p>                   |
| <p>F. If the orthopedic surgeon participates in the trauma team, the orthopedic surgeons’ participation in the major therapeutic decisions, presence in the emergency department for major resuscitations, and presence at operative procedures must be determined by policy.</p> <ol style="list-style-type: none"> <li>1. Orthopedic trauma outcome is often a time-related factor from time of injury. Appropriateness of the orthopedic response time is the responsibility of the trauma center. It is expected that the institution will have available, to the site surveyors, evidence of review of appropriate orthopedic response.</li> </ol>   | <p>E</p>                   |

**General Standards**

**Level IV**

**Standard XVIII—Surgical Specialties Availability & Responsibility**

- 2. The orthopedic service must actively participate with the overall trauma performance improvement and safety program as directed by the trauma program.
- 3. An orthopedic surgery representative to the multidisciplinary committee must attend a minimum of 50% of the multidisciplinary peer review committee meetings. Acceptable attendance must be documented.
- G. If the Trauma Performance Improvement and Safety Program identifies a patient occurrence not resolved at discharge, data/ information must be requested to provide loop closure and track patient outcomes. The institution will determine the number and type of occurrences to be tracked. E
- H. If the Trauma Performance Improvement Program identifies a patient occurrence not resolved at discharge, data/ information must be requested to provide loop closure and track patient outcomes. The institution will determine the number and type of occurrences to be tracked. E

**General Standards**

**Level IV**

**Standard XIX—Non-Surgical Specialties Availability & Responsibility**

- A. Emergency Medicine: E
  - 1. Published on-call schedules must be maintained for emergency physicians. E
  - 2. The initial assessment and resuscitation of the severely injured patient is the responsibility of Emergency Department Physician. The following criteria must be included in each institution’s activation criteria for highest-level trauma team response:
    - a. Confirmed blood pressure <90 at any time in adults and age specific hypotension in children;
    - b. Gunshot wounds to the neck, chest, or abdomen;
    - c. GCS <8 with a mechanism related to trauma;
    - d. Transfer from other hospitals receiving blood to maintain vital signs;
    - e. Respiratory compromise/obstruction and /or intubation in a patient who was not transferred from another facility;
    - f. Emergency physician’s discretion.
    - 1. The Trauma Program Performance Improvement and Safety Program must monitor compliance to ensure that there is no delay in treatment/clinical care of patients requiring trauma team response.
  - 3. The initial assessment and resuscitation of the severely injured patient is the responsibility of Emergency Department Physician. The emergency department physician will function as a designated member of the trauma team 24 hours a day. The institution will establish protocols defining these roles to clearly establish responsibilities and define the relationship between the emergency department physicians and other physician members of the trauma team. E

**General Standards**

**Level IV**

**Standard XIX—Non-Surgical Specialties Availability & Responsibility**

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|------------------------|--|---|
| 4.                     | The emergency department staffing will ensure immediate and appropriate care of the trauma patient.  | E |
| a.                     | It is the responsibility of the institution to ensure that emergency physicians who have demonstrated special capabilities through commitment, continuing education, and experience staff the emergency department.  | E |
| b.                     | A physician with special interest and commitment in the care of the critically injured trauma patient must be physically present in the hospital 24 hours a day. The physician must be a designated member of the trauma team. Although Board Certification is desired, it is not mandatory. | E |
| d.                     | The emergency medicine department must actively participate with the trauma performance improvement and safety program.  | E |
| <br>B. Anesthesiology: |  |   |
| 1.                     | Published on-call schedules must be maintained for anesthesiologists if surgical services for trauma patients are provided by the institution. Certified Registered Nurse Anesthetists may be used in lieu of anesthesiologists.   | E |
| 2.                     | Trauma programs must have a policy outlining those conditions requiring immediate response of an anesthesiologist/CRNA and must monitor response through the trauma performance improvement activities.  | E |
| 3.                     | The anesthesiologist/CRNA must participate in trauma performance improvement activities as directed by the trauma medical director.  | E |
| <br>C. Radiology:      |  |   |
| 1.                     | Published on-call schedules must be maintained for radiologists (Reference: Standard XIX)  | E |
| 2.                     | An attending radiologist capable of diagnostic procedures must be promptly available from inside or outside the trauma center 24 hours a day.  | E |
| 3.                     | The institution will establish protocols defining the role of the radiologist and define the relationship between the emergency medicine physicians and other members of the trauma team.  | E |
| 4.                     | The radiology service must participate actively with the overall trauma performance improvement program as directed by the trauma program.   | E |
| D.                     | If the Trauma Performance Improvement and Safety Program identifies a patient occurrence not resolved at discharge, data/ information must be requested to provide loop closure and  | E |

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**Standard XIX—Non-Surgical Specialties Availability & Responsibility**

track patient outcomes. The institution will determine the number and type of occurrences to be tracked.

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**General Standards**

**Level IV**

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**Standard XX—Emergency Department**

A. Personnel

1. Physician Staff

- a. It is the responsibility of the institution to ensure that emergency physicians and physician extenders, staff the emergency department. This commitment will be demonstrated through commitment, continuing education, and experience, including a demonstrated ability to operate pediatric equipment. E
- b. A designated physician director with evidence of active participation in emergency department patient care and administrative duties of the emergency department. E

2. Nursing Staff

- a. 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, including, where applicable, a demonstrated ability to operate pediatric equipment. E
- b. A minimum of one registered nurse per shift who actively functions in trauma resuscitation and who has completed the trauma nurse course. E
  - 1. A minimum of one nurse per shift must have ACLS certification. E
- c. The Emergency Department 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. E
- d. Documentation: Nursing documentation for the major uni-system/multi-system trauma patient must be on a trauma flow sheet. E

3. Advanced Practitioner

- a. It is the responsibility of the institution to ensure that emergency physician extenders are credentialed by the institution to work in the Emergency Department. E

B. Resuscitation

- 1. There will be a designated trauma resuscitation area in the emergency department, which will remain open 24 hours a day. The designated trauma resuscitation area must E

**General Standards**

**Level IV**

**Standard XX—Emergency Department**

be of adequate size to accommodate the full trauma resuscitation team.

2. Appropriate pediatric equipment and drugs must be available. E

C. Equipment will be readily available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient, adult and pediatric, will include, but not be limited to:

1. Airway control and ventilation equipment, including laryngoscopes, endotracheal tubes, bag-mask resuscitators, and sources of oxygen. This equipment must be immediately available. A mechanical ventilator is not required, but recommended. E

2. Pulse oximeter E

3. End-tidal CO<sub>2</sub> determination E

4. Suction devices E

5. Electrocardiograph and defibrillator with pediatric and adult external paddles E

6. Apparatus to establish central venous pressure monitoring E

7. All standard intravenous fluids and administration devices, including intravenous catheters and IO devices E

8. Sterile surgical sets for standard emergency department procedures including: E

a. Airway control/cricothyrotomy E

b. Venous cut-down E

c. Chest tube insertion E

9. Naso/Oro Gastric tubes E

10. Drugs and supplies necessary for emergency care, including pediatric drug dosages E

11. Temperature control and warming devices for: E

a. The patient

b. Parenteral fluids

c. Blood

12. Skeletal immobilization devices, including capability for cervical spine immobilization E

13. Two-way communication with emergency transport system vehicles E

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Standard XX—Emergency Department

- |   |   |
|---|---|
| 14. Portable or overhead X-ray equipment readily available to the resuscitation area 24 hours/day   | E |
| 15. The space and resuscitation equipment must be prepared for treatment of children as well as of adults. Equipment unique to the control of the pediatric airway must be available. Reference materials for pediatric drugs, dosages, and cardiac resuscitation must be displayed or immediately available. | E |

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Standard XXI—Clinical Lab Services

- |  |   |
|--|---|
| A. There will be provisions to provide and receive the following laboratory test results 24 hours a day:   | E |
| 1. Micro capabilities for routine pediatric blood determinations   | E |
| 2. Standard analyses of blood, urine, and other body fluids  | E |
| 3. Blood typing and cross-matching   | E |
| 4. Coagulation studies   | E |
| 5. Blood gases and pH determinations   | E |
| 6. Microbiology  | E |
| 7. Drug and alcohol screening  | E |
| B. There will be a written protocol stating that the trauma patient receives priority in request handling.   | E |
| C. There will be a comprehensive blood bank or access to a community central blood bank and adequate hospital storage facilities which will include a clinically driven Massive Transfusion Policy | E |

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**Standard XXII—Radiological Capabilities**

- |    |   |   |
|----|---|---|
| A. | Diagnostic information must be communicated in a written form and in a timely manner:   | E |
| 1. | Critical information that is deemed to immediately affect patient care must be verbally communicated to the trauma team. (Increase education regarding potential need to change contracts with off-site firms to meet this requirement)   | E |
| 2. | The preliminary report should be permanently recorded.  | E |
| 3. | The final report must accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretation.   | E |
| 4. | Changes in interpretation must be monitored through the PIPS program  | E |
| B. | Priority Handling: There will be a written protocol stating that the trauma patient receives priority in request handling, particularly portable studies.   | E |
| C. | Personnel: Adequate physician and nursing personnel must be available to accompany the trauma patient. These providers must be appropriately trained and must be able to resuscitate and fully monitor the trauma patient in all areas. 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. | E |
| D. | Resuscitation and Monitoring Equipment: There will be resuscitation and monitoring equipment readily available for trauma patients of all ages while in the Radiology Department.   | E |
| E. | Computerized Tomography-Scanning is required and:   | E |
| a. | A protocol must be in place to give the trauma patient priority and immediate access to the scanner for initiation of studies in a timely manner.   | E |
| b. | Those institutions without the 24-hour in-house CT technician requirement must monitor the availability and the response time as a performance improvement audit on a continuous basis and have documentation available at the time of the site survey  | E |
| c. | The emergency physicians (and trauma surgeons if available) will be properly credentialed by the institution and will have the ability to initiate computerized scans.  | E |
| d. | Protocols must be in place, which assure a continuing review of computerized tomography availability when indicated for the trauma patient. This will include the policy and procedure for the bypass or transfer of trauma patients when CT capability is unavailable due to planned maintenance or mechanical failure.  | E |
| F. | The trauma PIPS program must ensure that appropriately trained providers accompany trauma patients and that the appropriate resuscitation and monitoring occurs while in all  | E |

<b>General Standards</b>	<b>Level IV</b>
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Standard XXII—Radiological Capabilities  
 areas of the radiology department.

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Standard XXIII—Operating Room Requirements

- |    |   |   |
|----|---|---|
| A. | Personnel   |   |
|    | 1. The operating room will be adequately staffed.   | E |
|    | a. The operating room on-call team will have 30 minutes response time. A backup team is not required.   | E |
|    | 2. It is the responsibility of the institution to ensure that the operating room is staffed by registered nurses who have special capabilities through commitment, continuing education, and experience, including, where applicable, the ability to operate pediatric equipment. | E |
| B. | Equipment will be readily available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient, adult and pediatric (as necessary), will include, but not be limited to:  |   |
|    | 1. Thermal control and warming devices for:   | E |
|    | a. The patient  |   |
|    | b. Parenteral fluids  |   |
|    | c. Blood  |   |
|    | d. The room   |   |
|    | 4. Monitoring equipment   | E |
|    | 5. Pediatric anesthesia equipment   | E |
|    | 6. Defibrillator and monitor with external pediatric and adult paddles  | E |
|    | 7. Instrumentation, i.e., blood pressure cuffs, chest tubes, nasogastric tubes, and urinary drainage apparatus specific to the pediatric patient ranging in age from neonate to adolescent  | E |
|    | 8. Equipment appropriate for external or internal stabilization of long bone and pelvic fractures.  | E |
|    | 9. High volume rapid infuser  | E |

General Standards	Level IV
<b>Standard XXIV—Post Anesthesia Care Unit</b>	
Intensive care unit(s) are acceptable in lieu of the PACU for post-op care.	E
A. Registered nurses and other essential personnel available 24 hours a day.	E
B. It is the responsibility of the institution to ensure that the post-anesthesia care unit is staffed by registered nurses who have demonstrated special capabilities through commitment, continuing education, and experience, including, where applicable, the ability to operate pediatric equipment.	E
C. Equipment will be readily available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient, adult and pediatric (as necessary), will include, but not be limited to:	
1. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator. This equipment must be immediately available.	E
2. Pulse oximeter	E
3. End-tidal CO <sub>2</sub> determination	E
4. Suction devices	E
5. Electrocardiograph and defibrillator with pediatric and adult paddles, both internal and external be promptly available	E
6. Apparatus to establish central venous pressure monitoring	E
7. All standard intravenous fluids and administration devices, including intravenous catheters	E
8. Sterile surgical sets for emergency procedures such as thoracotomy	E
9. Drugs and supplies necessary for emergency care, including pediatric drug dosages.	E
10. Temperature control and warming devices for:	E
a. The patient	
b. Parenteral fluids	
c. Blood	
d. Physical space/location/room	
11. External pacemaker	E
12. Non-invasive equipment for the continuous monitoring of temperature, hemodynamics, and gas exchange	E

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**General Standards**

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Standard XXIV—Post Anesthesia Care Unit

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13. Pulmonary function measuring devices.

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**General Standards**

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Standard XXV—Intensive Care Units (ICU) for Trauma Patients

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**If the Intensive Care Unit routinely admits trauma patients, the unit is required to comply with Standard XXV.** E

The management of the severely traumatized patient in the critical care environment is the most crucial phase of trauma care following initial resuscitation. During this period of therapy, the severely injured patient is most vulnerable to multi-system deterioration. The ability to assess and initiate rapid intervention is paramount.

- |   |   |
|---|---|
| A. The ICU resources for trauma care will be concentrated in a single unit.   | E |
| B. There will be a commitment to the dedication of beds for trauma care.  | E |
| C. Personnel  |   |
| 1. Physician Staff  | E |
| a. There will be a designated medical director for the Intensive Care Unit who is responsible for the quality of care in the ICU.   | E |
| b. 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 the adult and pediatric trauma patient staff the ICU. When admitting pediatric trauma patients to an ICU, the physicians must demonstrate an ability to operate pediatric equipment. | E |
| 1. Arrangements for 24-hour coverage of all trauma patients are necessary for emergencies and routine care.   | E |
| c. The primary admitting trauma surgeon who assumes initial responsibility for the care of the trauma patient should maintain control over all aspects of care. All orders should be written in collaboration with the primary attending physician or designee.   | E |
| d. A tiered medical response will 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   | E |

General Standards	Level IV
<b>Standard XXV—Intensive Care Units (ICU) for Trauma Patients</b>	
interventions must be planned in a systematic and documented approach.	
1. The trauma performance improvement review of ICU care must include review of all adverse and unexpected events.	E
2. Nursing Staff	E
a. It is the responsibility of the institution to ensure that the ICU is staffed by registered nurses who have special capabilities as demonstrated through commitment, continuing education, and experience, including, where applicable, the ability to operate pediatric equipment.	E
b. The ICU 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 with a planned minimum nurse-patient ratio of 1:2 on each shift to adequately provide patient care.	E
c. Nursing documentation will be on a 24-hour patient flow sheet.	E
d. If a pediatric patient is admitted to the ICU, the pediatric trauma patient will receive nursing care provided by a registered nurse who is specialized in pediatric nursing as demonstrated by the institution's credentialing process in pediatric critical care nursing.	E
D. Equipment will be readily available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient, adult and pediatric (as necessary), will include, but not be limited to:	E
1. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator. This equipment must be immediately available.	E
2. Pulse oximeter	E
3. End Tidal CO2	E
4. Suction devices	E
5. Electrocardiograph and defibrillator with pediatric and adult paddles, both internal and external promptly available.	E
6. Apparatus to establish central venous pressure monitoring	E
7. All standard intravenous fluids and administration devices, including intravenous catheters	E

General Standards	Level IV
<b>Standard XXV—Intensive Care Units (ICU) for Trauma Patients</b>	
8. Sterile surgical sets for emergency procedures such as thoracotomy, cut-down, etc.	E
9. Naso/oro gastric tubes and suction	E
10. Drugs and supplies necessary for emergency care, including pediatric drug dosages	E
11. Temperature control and warming devices for:	E
a. The patient	
b. Parenteral fluids	
c. Blood	
d. Patient room	
12. External pacemaker	E
13. Electronic hemodynamic monitoring	E
14. Pulmonary function measuring devices	E
15. Patient weighing devices	E
16. Arterial lines	E

General Standards	Level IV
<b>Standard XXVI—Intermediate Care/Step-Down Units</b>	
<b>If the intermediate care/step-down unit routinely admits trauma patients, the unit is required to comply with Standard XXVI.</b>	
A. Equipment will be readily available in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient will be available. Availability of equipment (intensive care unit, medical surgical unit) will be dependent on the acuity level of trauma patients cared for in the intermediate care/step-down units.	E
B. It is the responsibility of the institution to 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, including, where applicable, the ability to operate pediatric equipment.	E
C. The Intermediate Care/Step-Down Unit 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	E

General Standards	Level IV
Standard XXVI—Intermediate Care/Step-Down Units	
will indicate the number of nursing staff needed with a planned minimum nurse-patient ratio of 1:4 on each shift to adequately provide patient care.	

General Standards	Level IV
Standard XXVII—Medical/Surgical Units	
These are general medical/surgical nursing unit beds, not intensive care or intermediate care/step-down unit beds. Pediatric trauma patients should be cared for by a registered nurse who is specialized in pediatric nursing as demonstrated by the institution's credentialing process.	
A. Nursing Staff	E
1. It is the responsibility of the institution to ensure that the medical/surgical units that regularly receive trauma patients are staffed by registered nurses who have demonstrated special capabilities through commitment, continuing education, and experience, including, where appropriate, a demonstrated ability to operate pediatric equipment.	E
2. The Medical/Surgical Unit(s) 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.	E
B. Equipment	E
1. The equipment will support the current status of trauma patients of all ages and be readily available.	E
2. Availability of the equipment will be dependent upon the patient's condition, patient's age, and the immediacy with which equipment can be made available.	E
3. Equipment in the appropriate array of sizes for resuscitation and life support of the trauma patient will include, but not be limited to:	E
a. Airway control and ventilation equipment, including laryngoscopes, endotracheal tubes, bag-mask resuscitators, and sources of oxygen	E
b. Suction devices	E
c. Electrocardiograph and defibrillator with external adult paddles, promptly available	E
d. All standard intravenous fluids and administration devices including intravenous catheters	E
e. Drugs and supplies necessary for emergency care, including pediatric drug dosages	E

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**General Standards** **Level IV**

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Standard XXVIII—Acute Hemodialysis Capability

- |  |   |
|--|---|
| A. There must be a formal written transfer protocol to an accredited trauma center that has hemodialysis capability. | E |
|--|---|

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**General Standards** **Level IV**

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Standard XXIX—Organized Burn Care

- |  |   |
|--|---|
| A. There must be a formal written transfer agreement with a burn center/hospital with a burn unit.   | E |
| B. Early transfer or early burn patient referral will be strongly considered for patients meeting the American Burn Association Criteria for Referral to a Burn Center | E |

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**General Standards** **Level IV**

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Standard XXX—Neurotrauma Management Capability

- |   |   |
|---|---|
| A. There must be formal written transfer agreement(s) in effect with regionally recognized spinal cord/column & brain injury treatment centers. | E |
| B. Early transfer will be considered for all cases in which a brain or spinal cord injury is suspected.   | E |

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**General Standards** **Level IV**

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Standard XXXI—Social Work Capabilities

- |  |          |
|--|----------|
| A. Availability  | <u>E</u> |
| <ol style="list-style-type: none"> <li>1. Social services 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 evaluation, intervention, involvement, and coordination of post-discharge plan development and rehabilitation. This may be provided in conjunction with existing hospital staff.</li> </ol> | <u>E</u> |
| <ol style="list-style-type: none"> <li>3. The institution will define the protocol to ensure that there are adequate social services available to assist in the support of the patient's family and significant others during this time. This may include:           <ol style="list-style-type: none"> <li>a. Identifying the trauma patient and locating family or legal next-of-kin.</li> </ol> </li> </ol>                             | <u>E</u> |

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**General Standards**

**Level IV**

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Standard XXXI—Social Work Capabilities

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- b. Identifying trauma patients suspected of elder, domestic, child or substance abuse and providing an appropriate referral.
- c. Contacting family and providing crisis intervention counseling upon arrival and throughout hospitalization.
- d. Facilitating the information flow between the trauma team, patient, and family.
- e. Coordinating resource referrals.
- f. Assisting with the process of organ donation in the event of death.
- g. Providing grief counseling, when appropriate.
- h. Timely access to information related to insurance verification and financial resource availability.

**NOTE:** The above services may be provided in conjunction with other members of the hospital staff or community services and institutions.

B. Space Requirements: There will be a separate interview area for social services.

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**General Standards**

**Level IV**

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Standard XXXII—Spiritual Counseling/Pastoral Care

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

E

**General Standards**

**Level IV**

**Standard XXXIII—Trauma Performance Improvement and Patient Safety Programs**

The goals of a trauma performance improvement program and patient safety (PIPS) program are to monitor the process and outcome of patient care, to ensure the quality and timely provision of such care, to improve the knowledge and skills of trauma care providers, and to provide the institutional structure and organization to promote performance improvement and patient safety.

- |    |  |   |
|----|--|---|
| A. | Trauma PIPS view trauma patients both concurrently and retrospectively. Trauma performance improvement programs must be integrated into the institution's overall performance improvement program and reported to the institution's governing body. Performance improvement must be supported by a reliable method of data collection, which consistently gathers valid and objective information necessary to identify opportunities for improvement. | E |
| B. | The institution must provide resources to support the trauma PIPS.   | E |
| 1. | There will be a registered nurse who is responsible for monitoring, promoting and evaluating all trauma-related performance improvement activities associated with the trauma program in cooperation and conjunction with the Trauma Program Medical Director and Trauma Program Manager. This person should be housed within the organizational structure of the trauma program.  | D |
| a. | The institution's organization must define the structural role of the Trauma Performance Improvement and Patient Safety Coordinator to include responsibility, accountability, and authority for the Trauma Performance Improvement and Patient Safety Program.  | D |
| b. | Evidence of qualifications including educational preparation, certification, and clinical experience.  | D |
| c. | Evidence of a job description and organizational chart depicting the relationship between the Trauma Performance Improvement and Patient Safety Coordinator and the trauma program. This position can be combined with the Trauma Manager/Trauma Registry positions.   | D |
| d. | Evidence of a selection process defined by the institution's personnel policies.   | E |
| e. | Evidence of an effective working relationship with the Trauma Program Medical Director and the Trauma Program Manager.   | E |
| C. | There must be specific pediatric audit filters. Severely injured children must be reviewed internally for appropriateness of care and the appropriateness of the decision not to transfer the patient to a Pediatric Regional Resource Trauma Center or Pediatric Resource Trauma Center in recognition of the institution's pediatric capabilities as specified in Standard II, D.  | E |
| D. | There must be a Performance Improvement Plan that includes:  | E |
|    | 1) Authority/Scope of Trauma Program   |   |
|    | 2) Trauma Credentialing requirements   |   |

**General Standards**

**Level IV**

**Standard XXXIII—Trauma Performance Improvement and Patient Safety Programs**

- 3) Roles and responsibilities for Performance Improvement review
  - 4) Process for
    - a) Problem identification, including methods of data collection (i.e. chart review, patient rounds) and use of indicators and audit filters
    - b) Retrospective and concurrent review
    - c) Analysis (i.e. Performance Improvement forums and meetings)
    - d) Preventability classification
    - e) Action plan development / implementation / reevaluation
  - 5) Development of and use of patient management guidelines to guide and assess appropriateness of care
- E. There must be specifically designed audit filters for the pediatric trauma patient and early identification of suspected child abuse.
- F. A multidisciplinary forum(s) for PIPS review is necessary. The Trauma Program Medical Director, in collaboration with the Trauma Program Manager, will have a leadership role in all forums. Minutes must be maintained for all meetings. The goals of multidisciplinary review include:
- 1. Review of the performance of the trauma program. This can be accomplished by a multidisciplinary trauma committee or in a hospital-wide PIPS forum which should include representatives from all phases of care. The following aspects will be addressed: all deaths, all transfers, morbidities, PIPS issues, systems issues, clinical management guideline issues, and provider specific issues.
    - a. The trauma program will utilize and monitor compliance with the trauma patient management guidelines. E
    - b. Trauma admissions will be reviewed through the PIPS process. All phases of care will be reviewed. All phases of care will be reviewed by the institution. The institution will demonstrate that actions taken as the result of identified issues in the Process Improvement and Patient Safety process result in measureable improvement in patient care. The institution will identify and track trauma-specific audit filters as identified in the POPIMS Operations Manual. The institution may use POPIMS to document Performance Improvement and Patient Safety issues and loop closure. E
    - c. Utilization, tissue, and procedure review will be performed in concurrence with the institution's PIPS process E
    - d. The PIPS program will evaluate resource utilization and cost-effectiveness of the trauma program. E

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**General Standards** **Level IV**

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Standard XXXIII—Trauma Performance Improvement and Patient Safety Programs

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|---|---|
| e. Programs that admit more than 10% of injured patients to non-surgical services must demonstrate the appropriateness of that practice through the performance improvement and patient safety process.   | E |
| f. Programs are responsible for enhancing the line of communication with ambulance services and the Regional EMS Council to resolve issues related to EMS transportation, transfer and clinical care.   | E |
| 2. Provide education—this can be accomplished by a periodic trauma case review or didactic conference and should include appropriate disciplines.   | E |
| 3. CME, CE, and internal education programs should be linked to the trauma performance improvement program and provide didactic programs covering identified areas of concern.  | E |
| 4. Provide peer review—the peer review process can be in committee or conference format that reflects membership of all specialty services involved in trauma patient care and must include a multi-specialty physician review of provider performance. Provider specific morbidities and mortalities must be reviewed, trended, and reported to the Trauma Program Medical Director.   | E |
| G. Documentation of performance improvement must be available to demonstrate the multidisciplinary approach to the performance improvement program and will include where appropriate: 1) problem identification; 2) analysis; 3) preventability; 4) action plan; 5) implementation; and 6) reevaluation. The institution’s process of case identification, discussion, and action must be easily identified and available for presentation to the Pennsylvania Trauma Systems Foundation and site surveyors. | E |
| H. Complete anatomical diagnosis of injury is essential to assessment of quality of care. A postmortem examination should, therefore, be sought in all trauma-related deaths.   | E |
| I. Completed pre-hospital trip form reports (patient care records - PCR), when available, will be present for review by the trauma program as part of the performance improvement process.  | E |

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**General Standards** **Level IV**

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Standard XXXIV—Trauma Research Program

Level IV Trauma Centers are not required to have a Trauma Research Program.

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**General Standards** **Level IV**

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E—Essential  
 D—Desired

Standard XXXV—Continuing Education Programs

- |  |   |
|--|---|
| A. There will be formal internal programs in continuing education concerning the treatment of trauma patients of all ages provided by the institution for: |   |
| 1. Physicians  | E |
| 2. Registered nurses   | E |
| 3. Allied health personnel   | E |
| B. Local prehospital providers will be invited to internal educational opportunities as appropriate  | E |

**General Standards**

**Level IV**

Standard XXXVI—Trauma Rehabilitative Services

- |   |   |
|---|---|
| C. Additional specialty services, such as physical therapy, occupational therapy, speech therapy, neuropsychology (mild brain injury), psychosocial, family support programs and pain services will have defined roles in the recovery and rehabilitative care of the trauma patient. | E |
|---|---|

**General Standards**

**Level IV**

Standard XXXVII—Case Management Capabilities

**Level IV Trauma Centers are not required to provide Case Management Capabilities for their trauma patients**

**General Standards**

**Level IV**

Standard XXXVIII—Geriatric Trauma Patient Care<sup>1</sup>

- |   |   |
|---|---|
| A. Abuse  |   |
| Every admitted and transferred geriatric trauma patient suspected of abuse (physical, mental, sexual, psychological) must be evaluated by a qualified individual, investigating cause of injury and coordinating discharge planning. If the patient is transferred the results of any abuse screening must be forwarded to the receiving institution. | E |

**NOTE:** *March 2011 is the implementation date for forwarding abuse screening.*

<sup>1</sup> In 2009, approximately 30% of Pennsylvania Trauma Outcome Study (PTOS) trauma patients who were admitted to trauma centers were over age 65. Pennsylvania has the second largest % of population in this category in the United States.

General Standards	Level IV
<b>Standard XXXVIII—Geriatric Trauma Patient Care<sup>1</sup></b>	
<b>B. Interdisciplinary Care</b>	
The trauma program will show evidence of a routine interdisciplinary approach in the care of the geriatric trauma patient. This may include a trauma team representative, geriatrician or medicine liaison nursing, social work/case management and, as available, physical therapy and pharmacy.	D
<b>C. Trauma Center Personnel for Geriatric Trauma</b>	
1. The trauma program will have a geriatrician, primary care physician or rehab medicine liaison to engage in the interdisciplinary functions to include performance improvement, education and patient care conferences.	D
2. There will be a Geriatric Resource Practitioner who may be a registered nurse or advanced practitioner will work in conjunction with the trauma program_for monitoring, promoting and evaluating all trauma-related activities associated with the geriatric trauma program. Centers with large volumes (over 1000 geriatric patients per year) should consider a full FTE for this position.	D
3. The trauma program will have a trauma surgeon who, among his/her duties, will oversee geriatric trauma services.	D
4. The trauma program will utilize a palliative care program in appropriate clinical circumstances for the care of the trauma patient.	D
<b>D. Education of Trauma Center Personnel</b>	
The Trauma Program Medical Director and/or Trauma Manger is responsible for determining, validating, and recording which geriatric topics are acceptable in fulfilling geriatric education requirements.	
Continuing Education must be driven by the trauma center registry data specific to geriatric patients in terms of types of injury and predominate age groups.	E
1. All physicians participating in the adult trauma program must have evidence of geriatric trauma-related CME hours. This includes general surgeons, neurosurgeons, orthopedic surgeons, emergency medicine, radiologist, anesthesiologist, and physiatrists.	D
2. All advanced practitioners with a defined role in adult trauma patient care must have evidence of geriatric trauma-related CME/CEU hours every year.	D
3. All registered nurses who work in the following units: Emergency Department, Operating Room, Post-Anesthesia Care Unit, Intensive Care Unit for adult trauma patients, Intermediate Care/Step-Down Units for adult trauma patients, Medical/Surgical Units which regularly receive adult trauma patients, and adult Burn Unit:	D
a. Must have evidence of geriatric trauma-related continuing education hours each	D

General Standards	Level IV
Standard XXXVIII—Geriatric Trauma Patient Care <sup>1</sup>	
year.	
b. Must have evidence of age related clinical competency (reference JCAHO).	D
E. Performance Improvement	
1. Trauma performance improvement programs must review geriatric trauma patients both concurrently and retrospectively in terms of clinical and systems issues. The use of audit filters may be useful for this process.	D
2. The trauma program will develop geriatric trauma patient management guidelines (protocols) that include resuscitation, critical care, and rehabilitation.	D
3. Geriatric performance improvement will include the geriatric liaison and other specialties included in the care of the geriatric patient.	D
F. Prevention	
1. The trauma center must use its trauma registry to identify the pattern, frequency, and risks for injury to the geriatric population group within the community and use this as a guide (along with community resources) to formulate geriatric trauma prevention programs.	D
2. The trauma program must show proof of geriatric trauma prevention initiatives.	D

## GLOSSARY

AACN	American Association of Critical Care Nurses
AANN	American Association of Neuroscience Nurses
ACEP	American College of Emergency Physicians
ACLS	Advanced Cardiac Life Support course provided by the American Heart Association
ACS COT	American College of Surgeons Committee on Trauma
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. In addition, those patients receiving full trauma team activation, as defined by the pediatric Trauma Program and kept within the hospital on a 23 hour protocol or clinical management guideline can be counted as an admission. During this period of observation, the pediatric trauma patient must reside in an area staffed by pediatric trauma credentialed registered nurse(s).
Advanced Practitioner	A physician assistant or CRNP that has a defined role in the care of the trauma patient.
AIS	Abbreviated Injury Scale - An anatomic severity scoring system
Allied Health Professional	Occupations whose primary function is to provide health services to promote health. Preparations for such occupations range from on-the-job training to post-graduate education. The occupations include those that have direct patient care responsibilities, such as physical therapists and occupational therapists, and those with little or no direct patient contact, such as medical laboratory technologists, community health educators, and medical record practitioners. ( <i>Medical Record Management, 9<sup>th</sup> Edition</i> )

## GLOSSARY

American Burn Association Burn Center Referral Criteria	<p>Burn injuries that should be referred to a burn center include the following:</p> <ol style="list-style-type: none"><li>1. Partial-thickness burns of greater than 10% of the total body surface area</li><li>2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints</li><li>3. Third-degree burns in any age group</li><li>4. Electrical burns, including lightning injury</li><li>5. Chemical burns</li><li>6. Inhalation injury</li><li>7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality</li><li>8. 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.</li><li>9. Burned children in hospitals without qualified personnel or equipment for the care of children</li><li>10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention</li></ol>
AORN	Association of Operating Room Nurses
APLS Course	Advanced Pediatric Life Support Course jointly developed and sponsored by the American College of Emergency Physicians and American Academy of Pediatrics which covers the knowledge and skills necessary for the initial management of pediatric emergencies, including trauma.
ATCN	Advanced Trauma Care for Nurses sponsored by Society of Trauma Nurses and recognized by the American College of Surgeons Committee on Trauma.
ATLS Course	Advanced Trauma Life Support Course of the American College of Surgeons
Available	Immediately accessible for providing care to the trauma patient
Board - certified	Physicians certified by appropriate specialty boards recognized by the American Board of Medical Specialties, a Canadian board, or other equivalent foreign board. (Revised effective 01-01-04)
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).

## GLOSSARY

Bypass	A procedure put into effect by a trauma center when the facility is unable to provide the level of care demanded by 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. ( <i>National Case Management Task Force, Feb. 92</i> )
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 & II CME can be used to comply with the standard for total CME hours.
CNRN	Certified Neuroscience Registered Nurse certification by the American Association of Neuroscience Nurses
Co-morbidity	Significant cardiac, respiratory, or metabolic diseases that stimulate the triage of trauma patients to trauma centers; also known as pre-existing conditions.
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
Core Panel	The group of trauma surgeons who take trauma call for a hospital. Any trauma/general surgeon taking more than 10% of the total trauma call will be considered a member of the core panel.

## GLOSSARY

Credentialed	A process in which individual institutions recognize appropriate education and training for physicians and registered nurses with specialized skills. Note: For Level IV's ATLS can be part of credentialing.
CRNP	Certified Registered Nurse Practitioner
D	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.
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
E	Essential requirement(s) for accredited trauma centers in Pennsylvania. This means the standard is required for trauma center accreditation.
Emergency	A sudden, generally unexpected occurrence or set of circumstances demanding immediate attention.
EMS System	Emergency Medical Services System. The arrangement of personnel, facilities, and equipment for the effective and coordinated delivery of emergency medical services required for prevention and management of incidents which occur as the result of a medical emergency, an accident/crash, a natural disaster, or a similar situation.
ENA	Emergency Nurses Association
ENPC	Emergency Nursing Pediatric Course sponsored by ENA.
External Education Presentation	CME/CE approved lectures, seminars, or courses given by the staff of the Trauma Program, Medical, Nursing, or Allied Health Professions involved with the trauma program. These can include offerings such as ATLS, PALS, EMS symposium or staff participation as an invited presenter in CME/CE recognized programs.
Foundation	A private, non-profit organization recognized by PA Law "Act 1985-45" for the accreditation of trauma centers throughout the state of PA.

## GLOSSARY

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	The patient age 65 and over.
ICD - 9	The ninth edition of “ <i>International Classification of Diseases</i> ” - a standard coding system that includes all injuries and disease processes.
Immediately Available	Implies the physical presence of the health care professional in a stated location at the time of need by the trauma patient.
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.
Inter-hospital Transfer	The transfer of a patient from a resource-limited facility to a trauma center able to provide a higher level of care.
Intermediate Care Step Down Unit(s)	Each institution will define the areas considered intermediate care/step down units by the patient admission criteria. Appropriate education for the staff will be determined. The minimum education provided must be the trauma nurse course and the required hours of continuing education.
Internal Educational Process	A process whereby trauma clinical care updates that includes sub-specialty specific information is provided to the sub-specialists within that group on an annual basis. It will be up to the individual facilities to define this process. At a minimum the education must be one hour in length and there must be evidence of attendance. Examples may include but are not limited to: <ul style="list-style-type: none"><li>▪ Documentation of a subspecialty specific, trauma clinical care update as a self learning module or</li><li>▪ Attendance of formal subspecialty specific, trauma clinical care update lecture.</li></ul>

## GLOSSARY

Intervention	Process that raises awareness of risks and motivates the individual toward acknowledgement of a potential problem.
ISS	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.
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.
Morbidity	The relative incidence of complications related to disease.
Mortality	The proportion of deaths to population.
NFNA	National Flight Nurses Association
Orientation	Time period provided to acquaint new personnel with the physical facilities, philosophies, policies, role expectations, procedures, and skills required in the new environment.
Participation	The act of an individual(s) sharing or receiving information, with active involvement.
PTNCC	Pennsylvania Trauma Nursing Core Curriculum © 1992, Pennsylvania 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.
Pastoral Care	The delivery of spiritual or religious support usually by qualified spiritual leaders such as ministers, priests, rabbis, etc.
Patient Management Guidelines	The standardized specifications for care developed by a formal process that incorporates the best scientific evidence of effective care with expert opinion.

## GLOSSARY

Pediatric Trauma Patient	For the purposes of PTOS submission: trauma patients less than 15 years of age. Trauma Centers should determine the age definition of a pediatric trauma patient for their individual institutions.
Performance Improvement and Patient Safety	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 2010)
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	<p>Pediatric Intensive Care Unit</p> <p>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 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.</p>
Promptly	<p>Implies the physical presence of health professionals in a stated location within a short period of time, which is defined by the Trauma Program Medical Director and continuously monitored by the performance improvement program.</p> <p>Note: An exception to the physical presence requirement would be for radiologists using digital electronic equipment. In this case the medical record must reflect the delivery of the radiologist reading to the trauma team in a clinically appropriate time, as monitored by the performance improvement program.</p>
PSNA	Pennsylvania State Nurses Association

## GLOSSARY

PTOS	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. This should be monitored and addressed by the performance improvement 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 the general surgeon or surgical specialist in the emergency center, operating room, or ICU.
RTS	Revised trauma score - a pre-hospital/emergency center scoring system in which numerical values are assigned to differing values of Glasgow Coma Score, systolic blood pressure, and respiratory rate.
Spiritual Counseling	See Pastoral Care.
Staff Development	Educational activities, which allow for acquisition, maintenance, and/or 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.
Timely	A period of time deemed appropriate or suitable by the Trauma Program Medical Director and continuously monitored by the performance improvement program.

## GLOSSARY

TNCC	Trauma Nurse Core Courses sponsored by the Emergency Nurse's Association that can be used toward fulfilling the certification component of Standard X. (This does not take the place of the Trauma Nurse Core Curriculum as noted in Appendix D.)
Transfer Guidelines	Established and maintained formal transfer agreements or guidelines should contain at a minimum the following components: <ol style="list-style-type: none"><li>1. Defined process for the initiation of transfer, including roles and responsibilities of the referring facility and referral center (including responsibilities for requesting transfer and communication).</li><li>2. Process for selecting the appropriate facility based on patient injury (i.e., Pediatrics, Burns, closest higher level facility).</li><li>3. Process for selecting the appropriate staffed transport service to match the patient's acuity level.</li><li>4. Process for patient transfer including informed consent.</li><li>5. Plan for transfer of patient medical record.</li><li>6. Plan for transfer of copy of signed transport consent</li><li>7. Plan for transfer of personal belongings of the patient</li><li>8. Plan for provision of directions and referral institution's information to family.</li></ol>
Trauma Center	A specialized hospital facility distinguished by the immediate availability of specialized surgeons, 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 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 Nurse Course	A basic trauma nurse course designed by the trauma center but which complies with the Pennsylvania Trauma Nurse Core Curriculum © 1992. (See Appendix B.)
Trauma Prevention Programs	Internal institutional and external outreach educational programs designed to increase awareness of methods for prevention and/or avoidance of trauma-related injuries.
Trauma Program Manager	A registered nurse with responsibility for coordination of all activities on the trauma service who works in collaboration with the Trauma Program Medical Director.
Trauma Program Medical Director	Physician designated by the institution and medical staff to coordinate trauma care.

## GLOSSARY

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-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.
Trauma Resuscitation Area	A space used for trauma resuscitations. It must be of adequate size to accommodate the full trauma resuscitation team and equipment.
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 Team	A group of health care professionals organized to provide care and monitor the trauma patient in a coordinated and timely fashion.
TRISS	Trauma Score/Injury Severity Score - the likelihood of patient survival based on regression equation that includes patient age, ISS, RTS, and the type of injury (blunt or penetrating).

## Appendix A: Required Inter-Facility Transfer & Consultation

### General Guidelines

To facilitate transfer, timely consultation is required with a Level I or Level II receiving trauma center surgeon. The attending trauma surgeon of the referring facility should initiate the consult. (An EM physician may initiate the consult if the trauma surgeon is unavailable.) Consultation with the attending trauma 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, weather conditions.

When transfer is necessary, the patient must be transferred to a Level I/II trauma center. If the patient's condition exceeds the institution's capabilities the patient should be transferred to the closest level I/II trauma center. Transport to a trauma center other than the closest trauma center is permitted if the difference in time to arrival between the closest center and other center is no more than 10 minutes.

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:**

- 1) Pelvic fractures with unrelenting hemorrhage
- 2) Aortic tears
- 3) Any patient requiring damage control laparotomy
- 4) Significant head injuries (intracranial bleeding or GCS  $\leq$  10), spinal cord injury with neurological deficit, or unstable spine fractures.
- 5) Significant multi-system trauma as defined by:
  - a) Chest Injury (as part of multi-system injuries)
    - i) Multiple rib fractures  $>$  3 unilaterally or  $>$  2 bilaterally
    - ii) Hemothorax
  - b) Abdominal injury (as part of multi-system injuries)
    - i) Significant intra or retro peritoneal bleeding
    - ii) Hollow organ or solid visceral injury
- 6) Bilateral femur fracture or pelvic fracture complicated by significant chest and/or abdominal injuries as defined above
- 7) Trauma patient on mechanical ventilation for  $>$  2 days.
- 8) Life threatening complications, such as acute renal failure coagulopathy or acute myocardial infarction etc.
- 9) Significant preexisting conditions with single or multi-system injuries.
- 10) Trauma patients  $<$ 15 years of age who meet the following criteria should be transferred to a pediatric trauma center:
  - a) Require admission to an ICU.
  - b) Exhibit signs of traumatic brain injury (structural abnormality on x-ray or CT, sustained GCS  $<$  15 for greater than 2hrs, or neurological deterioration.)
  - c) Are being treated non-operatively for solid organ injuries.

**Consideration for Transfer: Patients receiving anticoagulant therapy that places the patient at significant risk for intracranial hemorrhage or intracranial bleeding.**

**Mandatory Consult is required for patients with bilateral pulmonary contusions requiring ventilation.**

**In addition to the above conditions** 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 Level II facility.

Note: Please refer to Appendix B for details regarding suggested Level IV Admission Guidelines.

## Appendix B: Admission Guidelines for Level IV Trauma Centers

Reference: ACS-COT Sharepoint site from rural ad hoc group

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

- Neurotrauma:
  - GCS 14 or 15 for adults and normal intracranial CT head
    - For children age < 15 the GCS must be 15
  - Neck strain with no neurologic deficit
    - For children age < 15 with persistent cervical spine abnormal exam, consider transfer to a pediatric trauma center.
  - INR < 2
- Facial injury
  - Isolated, non-displaced facial/nasal fracture
  - INR < 2
- Orthopedic trauma
  - Multiple distal orthopedic injuries with intact neurovascular examination in a patient without significant concomitant head, thoracoabdominal or proximal lower extremity injuries
  - Closed proximal orthopedic injury with intact neurovascular examination in a patient without concomitant significant head or thoracoabdominal injuries
  - Isolated clavicle fracture
  - Simple non-operative pelvis fractures
  - In children, must have no growth plate involvement
- Truncal trauma:
  - 1-3 rib unilateral rib fractures
    - Age 15 or greater
    - Minimal hemothorax
    - No pneumothorax
    - Oxygen saturation >93% on room air
    - No flail chest
    - No pulmonary contusion
    - INR < 2
- Superficial abrasions and contusions
- Pediatric Considerations: See above and appendices A and E for guidelines regarding transfer to a pediatric trauma center

### Abstract:

**BACKGROUND:** Coumadin is widely used in the elderly population. Despite its widespread use, little is known about its effect on the outcome of elderly traumatic brain-injured patients. This study was undertaken to describe the outcomes of such a cohort. **METHODS:** Clinical material was identified from a Level I trauma center prospective **head injury** database, and a database obtained from the American College of Surgeons Committee on Trauma Verification and Review Committee from 1999 to 2002. Both databases contain many relevant variables, including age, sex, Glasgow Coma Scale (GCS) score, mechanism of injury, Injury Severity Score, International Normalized Ratio (INR), computed tomography (CT) findings, operative procedure, time to operating room, complications, length of stay, and outcome at

hospital discharge. RESULTS: For patients with GCS scores less than 8, average INR was 6.0, with almost 50% having an initial value greater than 5.0. Overall mortality was 91.5%. For the 77 patients with GCS scores of 13 to 15, average INR was 4.4. Overall mortality for this group was 0.6%. A subset of patients deteriorated to a GCS score of less than 10 just hours after injury, despite most having normal initial CT scans. Mortality in this group was 84%. CONCLUSIONS: All patients on warfarin should have an INR performed, and a CT scan should be done in most anticoagulated patients. All supratherapeutically anticoagulated patients, as well as any anticoagulated patient with a traumatic CT 4 abnormality, should be admitted for neurologic observation and consideration given to short term reversal of **anticoagulation**. Routine repeat CT scanning at 12 to 18 hours or when even subtle signs of neurologic worsening occur is a strong recommendation. A multi-institutional, prospective trial using these guidelines would be a first step toward demonstrating improved outcomes in the anticoagulated patient population after head trauma.

## Appendix C: Pennsylvania Trauma Nursing Core Curriculum

### PREFACE

Care of the trauma patient has evolved since 1985, when the Pennsylvania Trauma Systems Foundation (PTSF) Board of Directors approved the initial Standards for Trauma Center Accreditation based upon the American College of Surgeons report *Hospital Resources for the Optimal Care of the Injured Patient*. The 1986 PTSF Standards included the Pennsylvania Trauma Nursing Core Curriculum (PATNCC) that focused on education for registered nurses directly involved with trauma patient care. In 1991, the curriculum was expanded and clarified to include the educational needs and responsibilities of registered nurses in providing care to trauma patients across the continuum of the hospital admission. This included all phases of care from time of injury and pre-hospital care to acute in hospital care, including in hospital rehabilitation and discharge planning.

Building on the 1991 foundation, the Ad Hoc Committee for Trauma Nurse Course Revision 1999 reformatted the curriculum to facilitate an evidence-based approach for trauma nursing credentialing. Successful completion of the Pennsylvania Trauma Nursing Curriculum (PTNC) is one component of PTSF standards for trauma nurse credentialing. This curriculum, which is attached, establishes minimum content for the basic Trauma Nurse Course. *A Comprehensive Curriculum for Trauma Nursing, 2<sup>nd</sup> Edition* by E.W. Bayley & S.A. Turcke is one suggested resource that can be used as a reference for expanding course content. Additionally, each trauma center will need to consider their specific patient population, registered nurse audience, protocols and guidelines, teaching methodologies, time frame, and evaluation process when developing their own basic trauma course. The Trauma Nurse Course is considered one part of the trauma center's overall competence plan which also includes hospital and unit-based orientation, ongoing competency skills, specialty nursing certification, periodic performance evaluation, etc.

It is an expectation that each trauma center will review their course content on a regular basis at least every two years. The content should support evidence-based practice with the integration of data from the institution's trauma registry, national guidelines, current literature, and benchmarking efforts. This course must be accredited by a recognized professional nursing organization, for example, PSNA, ENA, AACN, or AORN.

Use of electronic means of course delivery is acceptable as well as partnering with other trauma centers to take part in the course.

The following methods of course delivery are acceptable:

- Taking the PTNC at an outside institution as long as there is an institution specific module. The module must be comprehensive and cover institution specific differences between the outside institution course and the institution's own course. Several examples of institution specific content that should be included are:
  - Trauma Performance Improvement process
  - Clinical Management Guidelines
  - Trauma Program Staff
  - Trauma Alert Activation Criteria
  - Nursing and Physician education submission process

- Using nationally accepted courses, such as the ENA's Trauma Nurse Core Course (TNCC), for the clinical aspects of the TNC requirement and augmenting that with an institution specific module(s) that covers curriculum that is not found in TNCC, but are required by the TNC core curricula.
- An institution specific TNC course that includes all of the PTNC curricula as outlined in the Standards for Trauma Center Accreditation Appendix B and delivered in a classroom setting or as an on-line independent study module. It is recommended however that some classroom instruction occurs and that the entire course not be self-study.

Reference: *Standard X: Nursing Credentials, Certifications, and Continuing Education, Standards for Trauma Center Accreditation.*

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## PURPOSE

To introduce registered nurses responsible for caring for the trauma patient to the Pennsylvania Trauma Systems Foundation (PTSF), to the *Standards for Trauma Center Accreditation*, and to key areas of evidence based nursing practice that support PTSF in its mission to reduce death and disability from traumatic injury and improve patient outcomes.

OBJECTIVES	CONTENT
<b>TRAUMA SYSTEMS</b>	
1. Describe the Pennsylvania Trauma Systems Foundation (PTSF) and its standards and accreditation process.	<ul style="list-style-type: none"> <li>A. Quasi-governmental agency – PTSF</li> <li>B. Standards for Trauma Center Accreditation</li> <li>C. Accreditation/Verification process</li> <li>D. Entry of patient into system</li> <li>E. Triage Guidelines</li> <li>F. Performance improvement</li> </ul>
2. Describe how institution-specific practices relate to the PTSF standards requirements.	<ul style="list-style-type: none"> <li>A. Institution specific credentialing</li> <li>B. Institution specific Performance Improvement process</li> <li>C. Trauma Program Structure               <ul style="list-style-type: none"> <li>1. Clinical</li> <li>2. Administrative</li> </ul> </li> <li>D. Trauma Registry</li> <li>E. Clinical Practice Guidelines</li> <li>F. Trauma Resuscitation Team</li> <li>G. Multidisciplinary Acute Care Team</li> <li>H. Plan of Care</li> <li>I. Outcome measurements</li> </ul>
<b>PREHOSPITAL</b>	
1. Identify the purpose and role of Emergency Medical Services (EMS) and availability within the region.	<ul style="list-style-type: none"> <li>A. Access EMS</li> <li>B. Purpose of EMS</li> <li>C. Scene Management</li> <li>D. Medical Command</li> <li>E. EMS Documentation</li> <li>F. Disaster preparedness/Mass Casualties</li> </ul>

OBJECTIVES	CONTENT
<b>SYSTEMATIC ASSESSMENT/ MANAGEMENT</b>	
<b><i>RESUSCITATIVE PHASE</i></b>	
1. Define predictable clinical manifestations relative to mechanism of injury.	<ul style="list-style-type: none"> <li>A. Mechanism of Injury/ Kinematics               <ul style="list-style-type: none"> <li>1. Blunt</li> </ul> </li> </ul>

E—Essential  
D—Desired

	<ul style="list-style-type: none"> <li>2. Penetrating</li> <li>3. Injuries due to burns/cold</li> <li>4. Hazardous environment</li> </ul>
<p>2. Outline a basic trauma nursing assessment in collaboration with the ATLS® standardized approach.</p>	<ul style="list-style-type: none"> <li>A. Primary Survey <ul style="list-style-type: none"> <li>1. Airway</li> <li>2. Breathing</li> <li>3. Circulation</li> <li>4. Disability</li> <li>5. Exposure</li> </ul> </li> <li>B. Secondary Survey <ul style="list-style-type: none"> <li>1. AMPLE history with mechanism of injury: Allergies, Medications, Past illnesses/ Pregnancy, Last meal, Events/ Environment</li> <li>2. Physical exam of: <ul style="list-style-type: none"> <li>a. Head and Maxillofacial</li> <li>b. Cervical Spine and Neck</li> <li>c. Chest</li> <li>d. Abdomen</li> <li>e. Peritoneum, Rectum, Vagina</li> <li>f. Musculoskeletal <ul style="list-style-type: none"> <li>1) Extremities</li> <li>2) Pelvis</li> </ul> </li> <li>g. Neurologic <ul style="list-style-type: none"> <li>1) Spine</li> <li>2) Cord</li> <li>3) Central Nervous System</li> </ul> </li> <li>h. Skin integrity</li> </ul> </li> </ul> </li> <li>C. Tertiary Nursing Assessment <ul style="list-style-type: none"> <li>1. Replication of primary and secondary surveys</li> <li>2. Ongoing evaluation of response to interventions</li> <li>3. Recognition of subtle signs and symptoms of decompensation</li> <li>4. End points of resuscitation</li> </ul> </li> </ul>

<b>OBJECTIVES</b>	<b>CONTENT</b>
<b><i>PERIOPERATIVE PHASE</i></b>	
<p>1. Describe the perioperative phase as it relates to the operative management of traumatic injury and to predisposition of complications (occurrences).</p>	<ul style="list-style-type: none"> <li>A. Operative priorities</li> <li>B. Potential complications from operative procedures</li> <li>C. Evidence preservation</li> </ul>
<b><i>POST ANESTHESIA RECOVERY PHASE</i></b>	
<p>1. Discuss the patient's response to anesthetic agents in relation to the injury and to operative management.</p>	<ul style="list-style-type: none"> <li>A. Anesthetics</li> <li>B. Assessment and monitoring patient response</li> </ul>

<b>ACUTE CARE PHASE</b>	
<i>SUGGESTED TEACHING METHOD: Use a case study that demonstrates the use of data from the trauma registry, the performance improvement process, and patient outcomes.</i>	
1. Recognize signs, symptoms and management strategies of shock.	A. Classifications B. Signs and symptoms C. Management 1. Massive transfusion concerns
2. Describe the pathophysiology, clinical manifestations, and medical and nursing management of systems trauma during the acute phase of care, including issues for discharge planning ( <i>See A - H</i> ).	A. Head trauma 1. Mechanism of injury 2. Pathophysiology 3. Clinical manifestations, assessment 4. Treatment, interventions, nursing care 5. Pain management a. Pharmacologic and non-pharmacologic approaches b. Age-specific interventions c. Outcome evaluation 6. Signs and symptoms of potential decompensation - life threatening 7. Complications (occurrences) - identify by using institution-specific data 8. Nutrition 9. Discharge planning 10. Performance improvement B. Maxillofacial trauma 1. Mechanism of injury 2. Pathophysiology 3. Clinical manifestations and assessment 4. Treatment, interventions, and nursing care
3. Identify significant performance improvement data that affects current practice in trauma care.	

<b>OBJECTIVES</b>	<b>CONTENT</b>
<b>ACUTE CARE PHASE (continued)</b>	
	5. Pain management a. Pharmacologic and non-pharmacologic approaches b. Age-specific interventions c. Outcome evaluation 6. Signs and symptoms of potential decompensation - life threatening 7. Complications (occurrences) - identify by using institution-specific data 8. Nutrition 9. Discharge planning 10. Performance improvement C. Spinal cord injury

	<ol style="list-style-type: none"><li>1. Mechanism of injury</li><li>2. Pathophysiology</li><li>3. Clinical manifestations and assessment</li><li>4. Treatment, interventions, and nursing care</li><li>5. Pain management<ol style="list-style-type: none"><li>a. Pharmacologic and non-pharmacologic approaches</li><li>b. Age-specific interventions</li><li>c. Outcome evaluation</li></ol></li><li>6. Signs and symptoms of potential decompensation - life threatening</li><li>7. Complications (occurrences) - identify by using institution-specific data</li><li>8. Nutrition</li><li>9. Discharge planning</li><li>10. Performance improvement</li></ol> <p>D. Chest trauma</p> <ol style="list-style-type: none"><li>1. Mechanism of injury</li><li>2. Pathophysiology</li><li>3. Clinical manifestations and assessment</li><li>4. Treatment, interventions, and nursing care</li><li>5. Pain management<ol style="list-style-type: none"><li>a. Pharmacologic and non-pharmacologic approaches</li><li>b. Age-specific interventions</li><li>c. Outcome evaluation</li></ol></li></ol>
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OBJECTIVES	CONTENT
<i>ACUTE CARE PHASE (continued)</i>	
	<ul style="list-style-type: none"> <li>6. Signs and symptoms of potential decompensation - life threatening</li> <li>7. Complications (occurrences) - identify by using institution-specific data</li> <li>8. Nutrition</li> <li>9. Discharge planning</li> <li>10. Performance improvement</li> <li>E. Abdominal trauma               <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Pathophysiology</li> <li>3. Clinical manifestations and assessment</li> <li>4. Treatment, interventions, and nursing care</li> <li>5. Pain management                   <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> <li>6. Signs and symptoms of potential decompensation - life threatening</li> <li>7. Complications (occurrences) - identify by using institution-specific data</li> <li>8. Nutrition</li> <li>9. Discharge planning</li> <li>10. Performance improvement</li> </ul> </li> <li>F. Genitourinary trauma               <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Pathophysiology</li> <li>3. Clinical manifestations and assessment</li> <li>4. Treatment, interventions, and nursing care</li> <li>5. Pain management                   <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> <li>6. Signs and symptoms of potential decompensation</li> <li>7. Complications (occurrences) - identify by using institution-specific data</li> </ul> </li> </ul>

OBJECTIVES	CONTENT
<i>ACUTE CARE PHASE (continued)</i>	
	<ul style="list-style-type: none"> <li>8. Nutrition</li> <li>9. Discharge planning</li> <li>10. Performance improvement</li> </ul>

E—Essential  
 D—Desired

	<p>G. Musculoskeletal trauma</p> <ol style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Pathophysiology</li> <li>3. Clinical manifestations and assessment</li> <li>4. Treatment, interventions, and nursing care</li> <li>5. Pain management             <ol style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ol> </li> <li>6. Signs and symptoms of potential decompensation</li> <li>7. Complications (occurrences) - identify by using of institution specific data</li> <li>8. Nutrition</li> <li>9. Discharge planning</li> <li>10. Performance improvement</li> </ol> <p>H. Injuries due to burns or cold</p> <ol style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Pathophysiology</li> <li>3. Clinical manifestations and assessment</li> <li>4. Treatment, interventions, nursing care</li> <li>5. Pain management             <ol style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ol> </li> <li>6. Signs and symptoms of potential decompensation - life threatening</li> <li>7. Complications (occurrences) - identify by using of institution-specific data</li> <li>8. Nutrition</li> <li>9. Discharge planning</li> <li>10. Performance improvement</li> </ol> <p>9.</p>
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OBJECTIVES	CONTENT
<i>ACUTE CARE PHASE (continued)</i>	
4. Discuss nursing interventions to meet the spiritual, cultural, and psychosocial needs of the trauma patient and family.	<p>A. Assessment and plan for the patient and family</p> <ol style="list-style-type: none"> <li>1. Spiritual</li> <li>2. Cultural</li> <li>3. Psychosocial</li> </ol>

E—Essential  
D—Desired

<b>REHABILITATIVE PHASE</b>	
1. Discuss rehabilitation issues in relation to traumatic injuries.	<ul style="list-style-type: none"> <li>A. Rehabilitation goals</li> <li>B. Strategies to reduce self-care deficits                             <ul style="list-style-type: none"> <li>1. Positioning</li> <li>2. Therapies</li> <li>3. Pain management</li> </ul> </li> <li>C. Community and financial resources</li> <li>D. Equipment and assistive devices</li> <li>E. Discharge planning                             <ul style="list-style-type: none"> <li>1. Interdisciplinary team members</li> <li>2. Begins on admission</li> <li>3. Goals</li> </ul> </li> <li>F. Americans with Disabilities Act</li> </ul>
2. Analyze the standard approach to determine rehabilitation outcome measurements.	<ul style="list-style-type: none"> <li>A. Functional Independence Measurement Score                             <ul style="list-style-type: none"> <li>1. Meaning</li> <li>2. Importance</li> </ul> </li> <li>B. Post discharge outcomes</li> <li>C. Additional scoring methods</li> </ul>
<b>PREVENTION STRATEGIES</b>	
1. Identify strategies for trauma prevention	<ul style="list-style-type: none"> <li>A. Pre-injury                             <ul style="list-style-type: none"> <li>1. Community outreach</li> <li>2. Education</li> <li>3. Registry data</li> </ul> </li> <li>B. Post-injury                             <ul style="list-style-type: none"> <li>1. Patient, family education</li> <li>2. Substance abuse counseling</li> <li>3. Resources</li> <li>4. Registry data</li> </ul> </li> </ul>

<b>OBJECTIVES</b>	<b>CONTENT</b>
<b>PEDIATRIC CONSIDERATIONS</b>	
<i>NOTE: This specific course content can be presented as a separate focus or integrated throughout the course curriculum.</i>	
<i>SUGGESTED TEACHING METHOD: Use a case study that demonstrates the utilization of data from the trauma registry, the performance improvement process, and patient outcomes.</i>	
1. Define the pediatric population in relation to age and guardianship issues.	<ul style="list-style-type: none"> <li>A. PTSF age definition</li> <li>B. Institution-specific age definition</li> <li>Guardianship issues</li> </ul>
2. Relate the common causes of mortality and morbidity to mechanisms of injury in the pediatric trauma patient.	<ul style="list-style-type: none"> <li>A. Pediatric mechanism of injury/Kinematics                             <ul style="list-style-type: none"> <li>1. Blunt</li> <li>2. Penetrating</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>3. Injuries due to burns or cold</li> <li>4. Hazardous environment</li> </ul>
<p>3. Outline a basic pediatric trauma nursing assessment in collaboration with the ATLS® standardized approach.</p>	<ul style="list-style-type: none"> <li>A. Primary Survey <ul style="list-style-type: none"> <li>1. Airway</li> <li>2. Breathing</li> <li>3. Circulation</li> <li>4. Disability</li> <li>5. Exposure</li> </ul> </li> <li>B. Secondary Survey <ul style="list-style-type: none"> <li>1. AMPLE history with mechanism of injury: Allergies, Medications, Past illnesses/ Pregnancy, Last meal, Events/ Environment</li> <li>2. Physical exam of: <ul style="list-style-type: none"> <li>a. Head and Maxillofacial</li> <li>b. Cervical Spine and Neck</li> <li>c. Chest</li> <li>d. Abdomen</li> <li>e. Peritoneum, Rectum, Vagina</li> <li>f. Musculoskeletal <ul style="list-style-type: none"> <li>1) Extremities</li> <li>2) Pelvis</li> </ul> </li> <li>g. Neurologic <ul style="list-style-type: none"> <li>1) Spine</li> <li>2) Cord</li> <li>3) Central Nervous System</li> </ul> </li> <li>h. Skin integrity</li> </ul> </li> </ul> </li> </ul>

OBJECTIVES	CONTENT
<b>PEDIATRIC CONSIDERATIONS (continued)</b>	
	<ul style="list-style-type: none"> <li>C. Tertiary Nursing Assessment <ul style="list-style-type: none"> <li>1. Replication of primary and secondary surveys</li> <li>2. Ongoing evaluation of response to interventions</li> <li>3. Recognition of subtle signs and symptoms of decompensation</li> <li>4. End points of resuscitation</li> </ul> </li> </ul>
<p>4. Describe the pathophysiology, clinical manifestations, and medical and nursing management of systems trauma for the pediatric patient during the acute phase of care, including issues for discharge planning (<i>See A-H</i>).</p>	<ul style="list-style-type: none"> <li>A. Head trauma <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management</li> </ul> </li> </ul>

<p>5. Identify significant performance improvement data that effects current practice in trauma care.</p>	<ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> <ul style="list-style-type: none"> <li>7. Signs and symptoms of potential decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul> <p><b>B. Maxillofacial Trauma</b></p> <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> </ul>
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OBJECTIVES	CONTENT
<b>PEDIATRIC CONSIDERATIONS (continued)</b>	
	<ul style="list-style-type: none"> <li>7. Signs and symptoms of potential decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using institution specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul> <p><b>C. Spinal cord injury</b></p> <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> <li>7. Signs and symptoms of potential</li> </ul>

	<ul style="list-style-type: none"> <li>decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using of institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul> <p>D. Chest Trauma</p> <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> </ul>
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OBJECTIVES	CONTENT
<b>PEDIATRIC CONSIDERATIONS (continued)</b>	
	<ul style="list-style-type: none"> <li>7. Signs and symptoms of potential decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul> <p>E. Abdominal trauma</p> <ul style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> <li>7. Signs and symptoms of potential decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul>

	<p>F. Genitourinary trauma</p> <ol style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management           <ol style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ol> </li> </ol>
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OBJECTIVES	CONTENT
<b>PEDIATRIC CONSIDERATIONS (continued)</b>	
	<ol style="list-style-type: none"> <li>7. Signs and symptoms of potential decompensation</li> <li>8. Complications (occurrences) - identify by using of institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ol> <p>G. Musculoskeletal</p> <ol style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management           <ol style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ol> </li> <li>7. Signs and symptoms of potential decompensation</li> <li>8. Complications (occurrences) - identify by using institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ol> <p>H. Injuries due to burns or cold</p> <ol style="list-style-type: none"> <li>1. Mechanism of injury</li> <li>2. Growth and development implications</li> <li>3. Pathophysiology</li> <li>4. Clinical manifestations and assessment</li> </ol>

E—Essential  
 D—Desired

	<ul style="list-style-type: none"> <li>5. Treatment, interventions, and nursing care</li> <li>6. Pain management <ul style="list-style-type: none"> <li>a. Pharmacologic and non-pharmacologic approaches</li> <li>b. Age-specific interventions</li> <li>c. Outcome evaluation</li> </ul> </li> </ul>
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OBJECTIVES	CONTENT
<b>PEDIATRIC CONSIDERATIONS (continued)</b>	
	<ul style="list-style-type: none"> <li>7. Signs and symptoms of potential decompensation - life threatening</li> <li>8. Complications (occurrences) - identify by using institution-specific data</li> <li>9. Nutrition</li> <li>10. Discharge planning</li> <li>11. Performance improvement</li> </ul>
6. Discuss nursing interventions to meet the developmental, emotional, cultural, psychosocial, and spiritual needs of the child and family.	<ul style="list-style-type: none"> <li>A. Assessment and plan for the patient and family <ul style="list-style-type: none"> <li>1. Spiritual</li> <li>2. Cultural</li> <li>3. Psychosocial</li> </ul> </li> </ul>
<b>GERIATRIC CONSIDERATIONS</b>	
<i>NOTE: This specific course content can be presented as a separate focus or integrated throughout the course curriculum.</i>	
<i>SUGGESTION: Use a case study technique method that demonstrates the utilization of data from the trauma registry, performance improvement process, and patient outcomes.</i>	
1. Define the geriatric trauma patient based on physiologic changes related to the aging process.	<ul style="list-style-type: none"> <li>A. Definition of geriatric patient</li> <li>B. Systematic review of physiologic changes</li> <li>C. Pre-Injury Assessment <ul style="list-style-type: none"> <li>1. Physiologic</li> <li>2. Social</li> <li>3. Environmental</li> <li>4. Mental status</li> </ul> </li> </ul>
2. Describe the common causes of injury and prevention strategy in the geriatric trauma population.	<ul style="list-style-type: none"> <li>A. Common mechanism of injury</li> <li>B. Prevention Strategies</li> </ul>
3. Define the legal issues related to geriatric trauma patients.	<ul style="list-style-type: none"> <li>A. Guardianship</li> <li>B. Consent</li> <li>C. Advanced directives</li> </ul>
<b>OBSTETRICAL CONSIDERATIONS</b>	
1. Describe the normal physiologic changes of pregnancy and how the changes relate	<ul style="list-style-type: none"> <li>A. Anatomic and physiologic changes of pregnancy</li> </ul>

to clinical management of traumatic injury.	B. Mechanism of injury during pregnancy C. Assessment, diagnosis, and management D. Common complications
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OBJECTIVES	CONTENT
<b>ABUSE</b>	
1. Describe the patterns of injury that are suggestive of abuse.	A. Common injuries B. Patterns of injury
2. Identify screening and reporting responsibilities in abuse Situations.	A. Substance abuse B. Child abuse 1. Types 2. Warning signs 3. Legal responsibilities
3. Identify the nurse’s role in the assessment and reporting of suspected abuse and neglect.	C. Domestic abuse 1. Types 2. Warning signs 3. Legal responsibilities D. Geriatric abuse E. Social work role
<b>CRISIS INTERVENTION</b>	
1. Describe strategies of crisis intervention for the patient, family and caregiver.	A. Stages of coping B. Interventions C. Stress management techniques D. Critical Incident Stress Management (CISM) E. Post Traumatic Stress Disorder
<b>ETHICAL CONSIDERATIONS</b>	
1. Describe a decision making process that may be used to address ethical issues.	A. Role of ethics committee B. Responsibility of caregivers C. End-of-life decisions
<b>ORGAN PROCUREMENT</b>	
1. Define the process of evaluation for organ and tissue donation.	A. Request law B. Brain death: institution specific C. Non-heart beating donors D. Role of organ procurement organization

## ESSENTIAL TRAUMA SPECIFIC SKILLS

- Pre-hospital packaging
- Spine immobilization
- Trauma nursing assessment using the ATLS® approach
- Documentation
- Unit specific skills including orientation and competency

**Reference:** Bayley, E.W. & Turcke, S.A. (Eds), 1998. *A Comprehensive Curriculum for Trauma Nursing, 2<sup>nd</sup> Edition.*

**Appendix D: Transfer Guidelines:**  
Adult Trauma Centers (Level I,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 need 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: 2006) 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. Transfer to a Pediatric Trauma Center:** 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:

1. Persistent physiologic derangements, shock, hemodynamically unstable, ongoing transfusion needs. 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.
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. Consider Transfer to a Pediatric Trauma Center:** Pediatric trauma patients less than or equal to 14 years of age 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 Appendix A for Level III and IV trauma center Guidelines.**

## **Appendix E: Summary of the Standards for Adult Trauma Centers Treating Injured Children (abstracted from Level I, II, III adult trauma standards)**

Adult trauma centers treating injured children (ATCTIC) must achieve a high level of care for pediatric patients. ATCTICs should have the following characteristics. Description of the resources, credentialing, and PIPS elements that pertain to ATCTIC are found within the adult standards and are abstracted below for your reference

### **A. Resources**

1. There is a pediatric acute care inpatient area with dedicated resources for both trauma patients and other pediatric patients.
2. PALS trained nurses should be readily available in this area.
3. Age-specific emergency equipment must be readily available in the emergency department, the operating room and in the acute care areas of the hospital where pediatric trauma patients are cared for.
4. If pediatric patients are admitted to an intensive care unit setting for observation, there must be specific equipment and resources for pediatric patients.
5. Pediatric consultation must be readily available.

### **B. Credentialing**

1. A portion of the CME/update for trauma providers each year must include a review of pediatric trauma care at the institution.
2. The trauma program medical director must include within the 16 hours per year of external trauma CME, two hours per year (six hours every three years) of pediatric trauma CME.
3. PALS certification is desirable for all members of the trauma team.

### **C. Performance Improvement and Patient Safety (PIPS)**

1. The PIPS program will review all children cared for at an adult trauma center that treats injured children. Ideally this would include all children admitted to the adult trauma center and not only PTOS patients.
2. The PIPS program for an adult trauma center that treats injured children may include external review.

**Appendix F: The General Assembly of Pennsylvania HOUSE  
BILL No. 100, Session Of 2003**

**(Pennsylvania Trauma Systems Stabilization Act; Act 15 of 2004)**