
2009 Standards for Trauma Center Accreditation

Pediatric Levels I, II

Version I

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 October 2006 the ACS-COT released the fifth edition of its optimal resource guide titled “*Resources for Optimal Care of the Injured Patient 2006*”. With the release of this document the PTSF began the process of bringing the Pennsylvania standards in compliance with our legislative mandate that Pennsylvania standards be based at a minimum on criteria established by the American College of Surgeons, Committee on Trauma (ACS-COT). The standards contained in this document are for every level of pediatric trauma center and were developed with this legislative mandate in mind.

A new major change in our Pediatric standards is how we will now refer to trauma centers previously referred to as “AQ” centers or those with Additional Qualifications in Pediatric Trauma. These centers will now be called Level II Pediatric Trauma Centers to keep in line with the ACS mandate.

The PTSF would like to thank all of the members of the Adult and Pediatric Standards Committees for their time and commitment to this process. Additionally, the PTSF would like to thank everyone who shared their input for suggested changes, revisions, and clarification during this time period.

The continuing focus of the Standards, since their initial publication in 1985, continues to be 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.

Individuals who acquire this document with the intention of becoming a trauma center must recognize that specific criteria 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 for viewing on our website at www.ptsf.org.

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General Standards

Standard I - Commitment	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. There will be demonstrated both personal and institutional commitment by the institution's Board of Directors, administration, medical staff, and nursing staff to treat any pediatric trauma patient presented to the institution for care.	E	E
B. Methods of demonstrating the commitment to the trauma center/system will include, but are not be limited to:	E	E
1. A Board and Medical Staff resolution that the institution agrees to meet the Pennsylvania Trauma Systems Foundation Standards for Pediatric Trauma Center Accreditation. This must be reaffirmed every three years.	E	E
2. Participation in the operations and integration of a statewide system; submission of pediatric patient care data to the Pennsylvania Trauma Systems Foundation for system management, performance improvement, and operations research.	E	E
3. Established policies and procedures for the maintenance of the services essential to a trauma center/system as outlined in the Standards for Pediatric Trauma Center Accreditation.	E	E
4. Assurance that all pediatric trauma patients will receive medical care commensurate with the level of the institution's accreditation.	E	E
5. Commitment of the institution's financial, human, and physical resources as needed for the pediatric trauma program.	E	E
6. Established priority admission for the pediatric trauma patient to the full services of the institution. This will include adequate resuscitation facilities and personnel, operating room availability, and intensive care unit availability. Pediatric Trauma Centers must assume the responsibility for insuring prompt access for all pediatric patients requiring trauma care.	E	E
7. Established and maintained formal written transfer agreements and protocols with neighboring accredited trauma centers. Established procedures to document and review all transfers to these institutions. All agreements must be reviewed internally at least every three years and updated as required by the terms of the agreements.	E	E

General Standards

Standard I - Commitment		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
8.	Emergency department availability for stabilization and transfer of trauma patients maintained on a continuous 24-hour basis. When the trauma center is unable to provide care, a log of closure or bypass date, time, duration, and cause will be maintained. This information must be reported to the Foundation on an annual basis. The maximum amount of time that a trauma center can be on diversion is 5% or 438 hours per year. The institution must notify the local Public Safety Access Point (PSAP)/911 Center when the institution goes on diversion and when the institution comes off of diversion.	E	E
9.	The Pediatric Trauma Center must have the capability to transport the pediatric trauma patient by ground or air.	E	E
10.	There will be a formal consultation process, identified by the institution, to ensure appropriate twenty-four hour telephone consultation. This process must provide access to the appropriate physician, subspecialty, or allied health professional, and assist with clinical triage and/or patient transfer when necessary.	E	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. <i>(Reference: Standard XV; PTOS Operational Manual)</i>	E	E
D.	The institution must be licensed by the Pennsylvania Department of Health.	E	E
E.	The institution must be accredited by the Joint Commission on Accreditation of Healthcare Organizations or a recognized state or nationally based accrediting agency for acute care hospitals.	E	E

General Standards

Standard II - Capacity and Ability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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The Foundation recognizes that experience and cost effectiveness are integral to the efficient establishment of a trauma center/system and that these factors directly relate to the demonstrated capacity and ability to care for major uni-system and multi-system injuries.

A.	There will be demonstrated capacity and ability on an annual basis to care for both major uni-system trauma (such as head trauma) and multi-system trauma. This must include adequate surgical and intensive care unit capabilities so as not to disrupt other key functions of the institution.	E	E
B.	The institution will develop formal written protocols with neighboring trauma centers to accept patients when bypass is mandatory.	E	E
C.	Upon reaccreditation, a minimum number of major uni-system and multi-system injury cases will have been treated and admitted:		
	1. Level I Pediatric Trauma Centers - 200 PTOS qualified per year.	E	—
	2. Level II Pediatric Trauma Centers – 100 PTOS qualified per year.	—	E
D.	Evidence that the institution has been operating a pediatric trauma program will be provided by the Pediatric Trauma Director credentialing the pediatric trauma surgeons (this is described elsewhere in The Standards). This will also include satisfactory completion of the ATLS® Course, inclusion in the pediatric trauma call roster, and management of pediatric trauma patients. The Pediatric Trauma Director utilizing the PIPS program will perform evaluations to determine the satisfactory management of the surgeon’s pediatric trauma patients.	E	E

NOTE: Management may include resuscitation and post-resuscitation of patients, which may include surgery, comprehensive critical care, daily word rounds, and discharge planning. Methods of demonstrating this will be a listing of the dates of participation of the individual surgeon’s participation in the Pediatric Surgical Trauma Call Roster. This listing will also include the number and descriptions of major uni-system and multi-system pediatric trauma patients by fiscal/calendar year with the individual pediatric trauma surgeons.

E.	The institution must participate in disaster related activities.	E	E
	1. A trauma surgeon must be on the hospital’s disaster planning committee.	E	E
	2. Hospital drills that test the individual hospital’s disaster plan must be conducted at least every 6 months.	E	E

General Standards

Standard III - Helipad		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	There will be a lighted, licensed helipad in close proximity to the institution's emergency department. Location of the helipad will permit the trauma resuscitation team to meet the pediatric patient at the helipad and provide direct transfer by gurney to the resuscitation unit. No other intermediary vehicles should be employed.	E	E
1.	The Commonwealth of Pennsylvania must license the helipad.	E	E
2.	The Federal Aviation Administration, Eastern Region, must approve the air space.	E	E
B.	The Golden Hour for the patient begins at the time of injury, not at the time that pre-hospital care is initiated. Therefore, the institution must clearly document that the transport system available from the helipad and/or the ambulance entrance to the institution's resuscitation room does not adversely affect the timely intervention of definitive care. Methods of providing this information will include:	E	E
1.	A diagram of the ground and air transport systems including the distance from the point of origin, i.e., helipad and/or ambulance entrance, to the trauma resuscitation rooms.	E	E
2.	Policies and procedures of the transport and transfer system for patients arriving via the air transport system.	E	E
3.	Listing of the air transport systems used and staff qualifications consistent with the scope of care delivered. Each helicopter must be equipped for neonatal and pediatric transport.	E	E

NOTE: The Pennsylvania Trauma Systems Foundation will individually review significant variations from this standard. The Foundation will critically review capability for continuity of pediatric 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 for the severely injured pediatric patient.

General Standards

Standard IV - General Surgery Residency Program	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. There will be a fully accredited hospital residency program in general or pediatric surgery.	E	E
B. If there is a general surgery or pediatric surgery residency program, there will be educational programs within the surgical residency specifically designed to prepare surgeons to be proficient in the delivery of a high level of pediatric trauma care.	E	E

General Standards

Standard V - Pediatric Trauma Program Medical Director		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	The Pediatric Trauma Program Medical Director will have demonstrated special competence in pediatric trauma care and be certified by the American Board of Surgery or the American Board of Osteopathic Surgery, and have the Certificate of Special Competence in Pediatric Surgery.	E	D
B.	The Pediatric Trauma Program Medical Director, in conjunction with the hospital's medical governing board or body, and in collaboration with the Trauma Program Coordinator will have oversight authority for all pediatric trauma patients and administrative authority and responsibility for the pediatric trauma program to affect all aspects of trauma care including:	E	E
1.	Recommending trauma team privileges	E	E
2.	Cooperating with nursing administration to support the nursing needs of the trauma program	E	E
3.	Developing treatment protocols	E	E
4.	Coordinating the performance improvement peer-review process	E	E
5.	Correcting deficiencies in the trauma care or excluding from trauma call those trauma team members who do not meet criteria	E	E
6.	Coordinating the budgetary process for the trauma program	E	E
C.	The Pediatric Trauma Program Medical Director, working in conjunction with the chiefs of clinical services, will identify representatives from neurosurgery, orthopedic surgery, pediatric critical care medicine, emergency medicine, radiology, anesthesia, rehabilitation, and other appropriate disciplines who will participate in the PIPS program and will work with the Pediatric Trauma Program Medical Director to identify physicians from their disciplines who are qualified to be members of the trauma team and will participate in the PIPS program.	E	E
D.	Fundamental to the establishment and organization of an institution's pediatric 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	E
1.	Evidence of qualifications including pediatric educational preparation, fellowships, Board Certification, and pediatric experience.	E	E

General Standards

Standard V - Pediatric Trauma Program Medical Director

		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2.	A job description and organizational chart depicting the relationship between the Pediatric Trauma Program Medical Director, hospital governance, administration, and other services.	E	E
3.	Selection process as defined by the institution's medical staff bylaws or rules and regulations.	E	E
4.	Attendance and participation in local, state, and national trauma-related activities.	E	E
5.	Participation in trauma educational activities such as the Advanced Trauma Life Support (ATLS) course; teaching at undergraduate, graduate, and postgraduate levels; and training programs within the Department of Surgery.	E	E
6.	Participation in pediatric trauma research and publication efforts.	E	D
7.	Credentials for neurotrauma and orthopedic resuscitation.	E	E
8.	Evidence of active participation in the resuscitation and/or surgery of multi-system pediatric trauma patients.	E	E

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	Credentialing		
1.	The institution for the appropriate specialty will credential each physician, including pediatric trauma care.	E	E
2.	When residents are fulfilling requirements, they must be fully credentialed by the institution, in conjunction with the trauma program, for pediatric trauma care by the appropriate specialty.	E	E
B.	Delineation/Reevaluation of Privileges		
1.	Trauma call will be limited to those with demonstrated skills, commitment, and experience. Surgical privileges do not necessarily qualify a surgeon to care for or consult on the care of the severely injured. The Pediatric Trauma Program Medical Director, in conjunction with the hospital's medical governing board or body, and in association with the liaison/representative from neurosurgery, orthopedic surgery, emergency medicine, radiology, anesthesia, and rehabilitation will utilize the PIPS program to determine each individual attending physician's ability to participate on the pediatric trauma team. This will be based on a review of each individual attending physician's performance in the pediatric trauma program. At a minimum, this will occur at least once per site survey cycle.	E	E
2.	Reappointment to the trauma admitting/consulting staff must be coordinated by the Pediatric Trauma Program Medical Director in association with the liaison/representative from neurosurgery, orthopedic surgery, emergency medicine, radiology, anesthesia, and rehabilitation and other appropriate disciplines who will work with the Pediatric Trauma Program Medical Director and based on the following criteria:	E	E
a.	Maintenance of good standing in the primary specialty;	E	E
b.	Evidence of the required continuing medical education in trauma;	E	E
c.	Documentation of attendance at multidisciplinary conferences, morbidity/mortality rounds, and/or institution peer-review conferences that deal with the care of injured patients;	E	E
d.	Satisfactory performance in managing trauma patients based on performance assessment and outcome analysis.	E	E
	Note: the institution must be able to demonstrate evidence of a formal plan and process to comply with this standard.		
C.	Certifications		

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
1.	All certifications must be maintained on a continuous basis.	E	E
2.	At least two surgeons who are board certified or board eligible in pediatric surgery	E	D
3.	At least one surgeon who is board certified or board eligible in pediatric surgery	—	E
4.	There must be two physicians that are board certified or board eligible in pediatric emergency medicine.	E	D
5.	There must be two physicians that are board certified or board eligible in pediatric critical care or in pediatric surgery and surgical critical care.	E	D
6.	There must be one physician that is board certified or board eligible in pediatric critical care or in pediatric surgery and surgical critical care.	—	E
7.	There must be one board certified or board eligible orthopedic surgeon who has had pediatric fellowship training and one additional board certified or board eligible orthopedic surgeon with demonstrated interest in pediatric trauma care.	E	D
8.	One board certified or board eligible orthopedic surgeon with demonstrated interest and skills in pediatric trauma care.	—	E
9.	There must be one board certified or board eligible neurosurgeon who has had pediatric fellowship training and one additional board certified or board eligible neurosurgeon with demonstrated interest in pediatric trauma care.	E	D
10.	One board certified or board eligible neurosurgeon with demonstrated interest and skills in pediatric trauma care.	—	E
11.	Board Certification: All physicians listed who care for pediatric trauma patients will be Board Certified by the appropriate specialty board recognized by the American Board of Medical Specialties, the or Bureau of Osteopathic Specialists and Boards of Certification or the Royal College of Physician and Surgeons of Canada. If an individual has not been certified within 5 years after successful completion of an ACGME or Canadian residency, that individual is unacceptable for inclusion on the trauma team until Board Certification is achieved or the PTSF Board of Directors has approved an Alternate Pathway.	E	E
a.	Surgical Specialties		
1.	Cardiac Surgery	E	E
2.	General Surgery	E	E
3.	Neurologic Surgery	E	E
4.	Obstetric and Gynecologic Surgery	E	E
5.	Ophthalmic Surgery	E	E
6.	Oral Maxillofacial Surgery	E	E

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
7.	Orthopedic Surgery	E	E
8.	Otorhinolaryngologic Surgery	E	E
9.	Pediatric Surgery	E	E
10.	Plastic Surgery	E	E
11.	Thoracic Surgery	E	E
12.	Urological Surgery	E	E
b.	Non-Surgical Specialties		
1.	Anesthesiology	E	E
2.	Cardiology	E	E
3.	Emergency Medicine	E	E
4.	Family Medicine	E	E
5.	Gastroenterology	E	E
6.	Hematology	E	E
7.	Infectious Diseases	E	E
8.	Internal Medicine	E	E
9.	Nephrology	E	E
10.	Neurology	E	E
11.	Pathology	E	E
12.	Pediatrics	E	E
13.	Physiatry	E	E
14.	Psychiatry	E	E
15.	Pulmonary Medicine	E	E
16.	Radiology	E	E
12.	Advanced Trauma Life Support (ATLS) Certification		
a.	All members of the Pediatric General Surgical Trauma Call Roster must maintain at least provider ATLS certification.	E	E
b.	The Pediatric Trauma Program Medical Director must maintain ATLS instructor status.	E	E

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
c.	All emergency department physicians who are board certified in emergency medicine must successfully complete the provider ATLS certification prior to participation on the trauma call roster.	E	E
1.	All emergency department physicians who are not board certified in emergency medicine must maintain at least provider ATLS certification.	E	E
2.	All emergency department physicians who have been granted board certification in emergency medicine (grandfather clause) must successfully complete the provider ATLS certification prior to participation on the trauma call roster.	E	E
d.	First responders to the Pediatric Intensive Care Unit must maintain at least provider ATLS certification.	E	E
13.	Advanced Cardiac Life Support (ACLS/PALS/APLS)		
a.	Emergency department physicians who are not Board Certified in Emergency Medicine or Pediatric Emergency Medicine or active candidates for Emergency Medicine Board Certification must continuously maintain at least pediatric advanced life support (PALS/APLS) provider status with renewal every two years.	E	E
b.	First responders to the Pediatric Intensive Care Unit must continuously maintain at least ACLS, PALS, or APLS provider status with renewal every two years. First responders to the PICU who are Board Certified and hold a Certificate in Critical Care (Surgery, Anesthesiology, Internal Medicine, and Pediatrics) are not required to maintain ACLS/PALS/APLS provider status.	E	E
D.	Continuing Medical Education (CME)		
1.	Trauma surgeons (pediatric or general surgeons) taking pediatric trauma call must have evidence of being current in the care of the injured patient. This may be accomplished by: <ul style="list-style-type: none"> Acquisition of 16 hours of trauma related CME per year, 4 must be pediatric related or 48 hours of trauma related CME in 3-years, 12 must be pediatric related OR 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. 	E	E
2.	The Pediatric Trauma Program Medical Director must have evidence of being current in the care of the injured patient. This may be accomplished by acquisition of 16 hours of trauma related external CME per year, 4 must be pediatric related or 48 hours of trauma related external CME in 3-years, 12 must be pediatric related.	E	E
3.	Emergency department physicians taking trauma call must have evidence of being current in the care of the injured patient.	E	E

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
<ul style="list-style-type: none"> • The Liaison representative from emergency medicine must have evidence of trauma-related external CME of 16 hours annually 4 must be pediatric related or 48 hours of trauma related external CME in 3-years, 12 must be pediatric related.. • Other emergency medicine physicians who participate on the trauma team also must be knowledgeable and current in the care of injured patients. This may be met by: <ul style="list-style-type: none"> ○ Documenting acquisition of 16 hours of trauma related CME per year 4 must be pediatric related or 48 hours of trauma related CME in 3-years, 12 must be pediatric related OR, ○ By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program 		
<p>4. Neurosurgeons taking trauma call must have evidence of being current in the care of the injured patient.</p> <ul style="list-style-type: none"> • The Liaison representative from neurosurgery must have evidence of trauma-related external CME of 16 hours annually, 4 must be pediatric related or 48 hours of trauma-related external CME in 3-years, 12 must be pediatric related. • Other neurosurgeons who participate on the trauma team also must be knowledgeable and current in the care of injured patients. This may be met by: <ul style="list-style-type: none"> ○ Documenting acquisition of 16 hours of trauma related CME per year, 4 must be pediatric related or 48 hours of trauma-related CME in 3-years, 12 must be pediatric related OR, ○ By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program 	E	E
<p>5. Orthopedic surgeons taking trauma call must have evidence of being current in the care of the injured patient.</p> <ul style="list-style-type: none"> • The Liaison representative from Orthopedic Surgery must have evidence of trauma-related external CME of 16 hours annually, 4 must be pediatric related or 48 hours of trauma-related external CME in 3-years, 12 must be pediatric related. • Other Orthopedic Surgeons who participate on the trauma team also must be knowledgeable and current in the care of injured patients. This may be met by: <ul style="list-style-type: none"> ○ Documenting acquisition of 16 hours of trauma related CME per year, 4 must be pediatric related or 48 hours of trauma-related CME in 3-years, 12 must be pediatric related, OR, ○ By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program 	E	E

General Standards

Standard VI - Physician Credentials, Certifications, and Continuing Medical Education	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
6. 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/pediatric trauma or sub-specialty trauma surgery, critical care medicine, surgical infection, or other trauma related topics.	E	E
7. The Pediatric Trauma Program Medical Director is responsible for determining, validating, and recording which visiting professor(s) and invited speaker(s) are counted as external CME.	E	E
8. The program content as well as proof of the CME awarded must be available at the time of site survey.	E	E
9. 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.	E	E
10. 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	E
11. 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	E
a. Pediatric Trauma Program Medical Director 6 CME per year/18 CME per 3 years		
b. General Surgeons 4 CME per year/12 CME per 3 years		
c. Emergency Medicine 4 CME per year/12 CME per 3 years		
d. Orthopedic Surgeons 4 CME per year/12 CME per 3 years		
e. Neurosurgeons 4 CME per year/12 CME per 3 years		

General Standards

Standard VII - Physician Assistants	Pediatric Level I Trauma Center	Pediatric Resource Trauma Center (Level II)
A. Physician assistants may, under the direction of the trauma surgeon or trauma subspecialist, 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 pediatric trauma program.	E	E
B. All physician assistants who have a defined role in trauma patient care must have evidence of being current in the care of the injured patient. This will be met by: <ul style="list-style-type: none"> • 12 trauma related CME annually, 3 must be pediatric trauma related or 36 trauma related CME over a three year period, 9 must be pediatric trauma related OR • By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program 	E	E
1. For physician assistants who are involved in the resuscitation phase of trauma care, the audit of ATLS every four years is required as a portion of the credentialing process for the trauma program.	E	E
NOTE: CME credits for ATLS will be counted toward meeting the yearly CME requirement.		
C. There must be evidence of ongoing pediatric trauma skills proficiency and pediatric 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	E
D. All physician assistants who have a defined role in pediatric trauma patient care must participate in the PIPS program as defined by the Trauma Program.	E	E

General Standards

Standard VIII - Pediatric Trauma Program Coordinator/Manager		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	There will be a full-time Pediatric Trauma Program Coordinator who is a registered nurse and is responsible for monitoring, promoting, and evaluating all trauma-related activities associated with the pediatric trauma program in cooperation and conjunction with the Pediatric Trauma Program Medical Director.	E	E
B.	The institution's organization must define the structural role of the Pediatric Trauma Program Coordinator to include responsibility, accountability, and authority.	E	E
C.	These indicators will be present:	E	E
1.	Evidence of qualifications including educational preparation, certification, and clinical experience.	E	E
2.	A job description and organizational chart depicting the relationship between the Pediatric Trauma Program Coordinator and other services, especially the Department of Nursing.	E	E
3.	A selection process defined by the institution's personnel policies.	E	E
4.	Attendance and/or participation in local, state, and national trauma-related activities.	E	E
5.	Participation in trauma educational activities external to the institution's staff development programs.	E	D
6.	Evidence of an effective working relationship with the Pediatric Trauma Program Medical Director.	E	E
7.	Participation in multidisciplinary trauma research.	E D	D

General Standards

Standard IX - Nursing Services		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	The Department of Nursing or designated representative of nursing care delivery for the institution will maintain a formal relationship with the pediatric trauma program.	E	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	E

General Standards

Standard X - Nursing Credentials, Certifications, and Continuing Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	Trauma Nurse Course is required. (<i>Reference: Pennsylvania Trauma Nursing Core Curriculum, Appendix A</i>)	E	E
B.	Credentialing		
1.	All registered nurses functioning in the following departments will be credentialed by the institution in pediatric trauma nursing within one year of assignment to the department. Those registered nurses who were assigned to the department prior to trauma center accreditation must be credentialed in pediatric trauma nursing within two years of that accreditation.	E	E
a.	Emergency Department	E	E
b.	Operating Room: All registered nurses who have the potential to provide care for pediatric trauma patients.	E	E
c.	Post-Anesthesia Care Unit: The hospital must document the number of times the PACU is used as a PICU for trauma patients. The institution must determine the need for PACU registered nurses to comply with the PICU trauma nurse course requirement.	E	E
d.	Pediatric Intensive Care Units (PICU) for Trauma Patients	E	E
e.	Intermediate Care/Step-Down Units for Pediatric Trauma Patients	E	E
f.	Pediatric Medical/Surgical Units which regularly receive trauma patients	E	E
g.	Burn Unit	E	E
2.	There must be evidence of 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.	E	E
C.	Certification		
1.	Advanced Cardiac Life Support (ACLS): All registered nurses assigned to the following departments must successfully obtain and continuously maintain at least ACLS, PALS, or APLS 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/PALS/APLS provider status within two years of that accreditation.	E	E
a.	Emergency Department	E	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	E
c.	Pediatric Intensive Care Units for trauma patients	E	E
d.	Intermediate Care/Step-Down Units for Trauma Patients	E	E

General Standards

Standard X - Nursing Credentials, Certifications, and Continuing Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
e.	Burn Unit	E	E
2.	CEN Certification: At least 50% of the emergency department nursing staff employed in the department for three years or more should be certified by the Emergency Nurses Association (ENA) within two years following provisional accreditation. The Flight Nursing Certification (CFRN) is acceptable for meeting this requirement for certification for registered nurses (flight nurses) who function in the emergency department.	E	E
3.	CCRN/CNRN Certification		
a.	At least 50% of the PICU nursing staff employed in the department for three years or more should be certified by AACN or AANN within two years following provisional accreditation.	E	E
b.	At least 50% of the Intermediate Care/Step-Down Unit nursing staff employed in the department for three years or more should be certified by AACN or AANN within two years following provisional accreditation.		
c.	At least 50% of registered nurses employed in the burn unit for three years or more should be certified by AACN within two years following provisional accreditation.	E	E
d.	Numbers 2, 3a, and 3b of the Standard may also be met by successfully completing other trauma related courses including ATCN, ENPC, TNCC and PHTLS within 3 years of employment.	E	E
D.	Continuing Education (CE)		
1.	All registered nurses must have evidence of at least eight hours of trauma-related continuing education or staff development every year; two hours must be pediatric trauma related. In addition, ACLS, PALS, ABLIS, or APLS may be counted toward the yearly hours as follows: four hours for a 2-day provider course and two hours for a 1-day re-certification course.	E	E
a.	Emergency Department	E	E
b.	Operating Room	E	E
c.	Post-Anesthesia Care Unit	E	E
d.	Pediatric Intensive Care Units for Trauma Patients	E	E
e.	Intermediate Care/Step-Down Units for Pediatric Trauma Patients	E	E
f.	Pediatric Medical/Surgical Units which regularly receive trauma patients	E	E
g.	Burn Unit	E	E
2.	Certified registered nurse anesthetists assigned to pediatric trauma patients must have evidence of eight (8) trauma-related contact hours (0.8 continuing education units) every year, two (2) must be pediatric trauma related. The American Association of Nurse Anesthetists or any other recognized professional nursing or medical organization must approve the continuing education units.	E	E

General Standards

Standard X - Nursing Credentials, Certifications, and Continuing Education		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
3.	The Pediatric Trauma Program Coordinator/Manager must have evidence of continuing education related to trauma care and the trauma system. Evidence of continuing education must include 8 hours of trauma-related continuing education; 2 hours must be pediatric trauma related every year. All of the continuing education hours must occur outside of the facility.	E	E
a.	The Pediatric Trauma Coordinator, in conjunction with the Pediatric Trauma Program Medical Director, is responsible for determining, validating, and recording which visiting professor(s) and invited speaker(s) are acceptable in fulfilling external CE requirements.	E	E
b.	The program content as well as proof of the CE credits awarded must be available at the time of site survey.	E	E

General Standards

Standard XI - Certified Registered Nurse Practitioners	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Certified registered nurse practitioners may, under the direction of the trauma surgeon or trauma sub-specialist, have a defined role in trauma patient care. The extent of the involvement must be determined by the Pediatric Trauma Program Medical Director in compliance with Pennsylvania law and hospital policy, and be consistent with the Pennsylvania Trauma Systems Foundation Standards for Pediatric Trauma Center Accreditation. This must include a formal, institution specific orientation to the pediatric trauma program.	E	E
B. All certified registered nurse practitioners who have a defined role in trauma patient care must have evidence of being current in the care of the injured patient. <ul style="list-style-type: none"> ▪ 12 trauma related hours, 3 must be pediatric trauma related or 36 trauma related hours, 9 must be pediatric trauma related over three years, OR ▪ By demonstrating participation in an internal educational process conducted by the trauma program based on principles of practice based learning and the PIPS program 	E	E
1. For certified registered nurse practitioners who are involved in the resuscitation phase of trauma care, the audit of ATLS or completion of ATCN every four years is required as a portion of the credentialing process for the trauma program.	E	E
2. CE credits obtained by audit of ATLS or completion of the ATCN course will be counted toward meeting the yearly CE requirement.	E	E
B. There must be evidence of ongoing pediatric trauma skills proficiency and pediatric 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	E
C. All certified registered nurse practitioners who have a defined role in pediatric trauma patient care must participate in the PIPS program as defined by the Trauma Program.	E	E

General Standards

Standard XII - Post-Discharge Follow-Up	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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	E
A. A copy of the discharge summary of pediatric trauma care will be sent to the patient's private physician where appropriate.	E	E
B. Evidence of appropriate social work intervention and involvement in post-discharge plan development.	E	E

General Standards

Standard XIII - Pediatric Trauma Prevention Programs/Public Education	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
The institution will demonstrate a leadership role in pediatric trauma prevention programs. These pediatric trauma prevention programs need to 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.	E	E
A. The institution must demonstrate evidence of a job description and salary support for a prevention coordinator. In a level I or II center, the prevention coordinator must be a separate person from the trauma program manager. The Trauma Prevention Coordinator must directly report thru the Trauma Program administrative structure.	E	E
B. The institution must demonstrate collaboration with or participation in national, regional, state, or local injury prevention programs	E	E

General Standards

Standard XIV - Emergency Medical Services Involvement		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	The institution must be able to document active involvement in its regional Emergency Medical Services (EMS) system.	E	E
B.	Physicians, nurses, and administrative personnel will be involved in various EMS programs.	E	E
C.	The institution will demonstrate involvement in regional EMS programs by the following:	E	E
1.	Participation in Emergency Medical Technician and/or Paramedic training programs, when appropriate. This may also include First Responder, Rescue, and Pre-hospital RN programs.	E	E
2.	Participation in joint sponsored accredited continuing educational programs, including equipment, supplies, and drugs specific to the neonate and pediatric patient.	E	E
3.	Provision of opportunities for appropriate clinical experience.	E	E
4.	Participation in the EMS system performance improvement mechanisms.	E	E
5.	Assistance in the development of regional policies and procedures.	E	E

General Standards

Standard XV - Trauma Registry	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. The institution will maintain a Trauma Registry.	E	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	E
1. Demographic Data	E	E
2. Pre-hospital Data	E	E
3. Process of Acute Care	E	E
4. Clinical Data	E	E
5. Outcome Data	E	E
6. Final Anatomical Diagnoses	E	E
7. Procedure Codes	E	E
8. Payor Class	E	E
9. Performance Improvement Data	E	E
10. Standard Report Utilization	E	E
C. There will be evidence of regular and active interface with the pediatric trauma program. The registry must be responsive to the needs of the Pediatric Trauma Program Medical Director and support the pediatric trauma program.	E	E
1. The trauma registry staff will maintain a formal relationship with the pediatric trauma program	E	E
2. There will be documentation of attendance of trauma registry staff at multidisciplinary conferences and/or peer review conferences that deal with the review and analysis of trauma registry data.	E	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	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 program FTE per 500 PTOS submissions per year.	E	E
2. A minimum of 85% of cases must be entered (see glossary definition) into the trauma registry within 42 days of discharge.	E	E

General Standards

Standard XV - Trauma Registry

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
3. There must be a plan for ensuring that the data entered into the trauma registry is accurate and reflect the documentation in the patients medical record. This plan must also reflect compliance with PTOS Operations Manual and definitions for data entry	E	E
4. Data must be submitted to the National Trauma Data Bank	E	E
E. The registry must be designed for children and permit comparison with other pediatric centers. Inherent in this is the concept of coordination with the adult trauma registry.	E	E
F. 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, site survey participation, and interface with outside agencies, committee work, and research.	E	E
NOTE: The PTSF recognizes concurrent data abstraction as a best practice.		
G. 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	E

General Standards

Standard XVI – Organ and Tissue Donation

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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The institution will comply with Pennsylvania law regarding organ and tissue donation request, procurement, and documentation.

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E

Hospital Organization

Standard XVII – Pediatric Trauma Program		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A.	The institution will establish within its organization a defined pediatric trauma program for the pediatric patient including a clinical service. The clinical service will be comprised of the pediatric and general surgery and specialty surgeons who are taking trauma call.	E	E
1.	This concept embraces both administrative and physical attributes of individual trauma centers. By this means successful functioning of the pediatric trauma program will be assured and its staffing and direction clearly defined.	E	E
2.	It is the responsibility of the Pediatric Trauma Program Director in conjunction with the Pediatric Trauma Program Coordinator, and in association with the liaison/representative from neurosurgery, orthopedic surgery, emergency medicine, radiology, anesthesia, pediatric critical care medicine, and rehabilitation, and other appropriate disciplines to direct the pediatric PIPS program and to integrate it into the institution’s overall performance improvement program.	E	E
3.	The definitions of bed capacity, intensive care unit, operating room capability, and proximity to supporting services (surgical and non-surgical services, nursing services, radiology, laboratory, etc.) are vital features of the trauma program concept.	E	E
4.	The intent is to ensure the coordination of services and performance improvement for the pediatric trauma patient.	E	E
B.	There will be evidence of strong communication links between the institution’s administration, the Pediatric Trauma Program Medical Director, and the Pediatric Trauma Program Coordinator to coordinate both long and short-term goals of the pediatric trauma program.	E	E
C.	A protocol will be in place to ensure that:		
1.	All pediatric trauma patients who are admitted or transferred and have a severe and major multi-system injury are immediately evaluated and admitted to the trauma service;	E	E
2.	All pediatric trauma patients who are admitted or transferred and have severe and major uni-system injury are immediately evaluated by the trauma service and admitted to the trauma service or an appropriate surgical service;	E	E
3.	All 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.	E	E

Hospital Organization

Standard XVIII – Surgical Specialties Availability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Published on-call and back-up schedules must be maintained for trauma surgeons,	E	E
1. Trauma surgeons must have a published back-up schedule and be dedicated to a single hospital when on call.	E	E
2. Neurologic surgery must be dedicated to one hospital or have a published back-up call schedule.	E	E
3. Orthopedic surgery must be dedicated to one hospital or have a published back-up call schedule.	E	E
4. If a published back-up call schedule is not utilized, the Pediatric Trauma Program Performance Improvement Program must be able to monitor compliance to ensure that there is no delay in treatment/clinical care.	E	E
5. Published on call schedules must be maintained for all surgical specialists.	E	E
B. The attending surgeon’s participation in the major therapeutic decisions, presence in the emergency department for major resuscitations, and presence at operative procedures is mandatory. Compliance with these criteria and their appropriateness must be monitored by the hospital’s PIPS program. 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.	E	E
1. It is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 15 minutes, tracked from patient arrival. The program must demonstrate that the surgeon’s presence is in compliance at least 80% of the time.	E	E
2. The following criteria must be included in each institution’s highest-level activation criteria. ¹	E	E
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.		
C. In-House 24 Hour a Day Availability		

¹ If an institution’s highest level of alert is direct transport to the OR the standard would apply to their second highest level alert.

Hospital Organization

Standard XVIII – Surgical Specialties Availability		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
1.	Trauma Surgery must be attending surgeons, dedicated to one hospital when on call and back-up coverage must be promptly available.	E	E
a.	This requirement may be fulfilled by senior residents in general or pediatric surgery (PGY-4 or above). A PGY-4 or 5 surgical resident may be approved to begin resuscitation while awaiting the arrival of the attending surgeon, but cannot be considered as a replacement for the attending surgeon in the emergency department. They must be able to deliver surgical treatment immediately and to provide the control and leadership for the care of the pediatric trauma patient.	E	E
	1. General or pediatric surgery residents (PGY-4 or above) should have completed at least three years of clinical, general/pediatric surgery.	E	E
	2. Residents in pediatric surgery programs (First and Second year) who are board certified or board eligible are acceptable in fulfilling the attending physician requirement.	E	E
2.	For pediatric general surgical trauma operative procedures, the responsible attending pediatric trauma surgeon on-call must be present in the operating room unless surgical staff sub-specialists are performing the surgical procedures. The ongoing resuscitation and management of the trauma patient while in the operating room remains the responsibility of the surgical trauma team in collaboration with the anesthesia team.	E	E
a.	This requirement for the attending trauma surgeon’s presence should not result in delay for initiating urgently needed operative procedures.	E	E
b.	The initial assessment and evaluation of the severely injured pediatric patient is the responsibility of the attending trauma surgeon. The emergency physician works closely with the attending trauma surgeon and is a member of the trauma team. Each institution must define the role of the emergency physician on the trauma team. Performance of various diagnostic and resuscitative procedures may be shared, especially in training institutions. These responsibilities must be agreed upon and approved by the pediatric Trauma Program Medical Director. When the attending general surgeon is not immediately available, the attending emergency physician assumes control until the attending general surgeon arrives.	E	E
c.	There must be a minimum of two pediatric surgeons available and dedicated to the pediatric trauma center.	E	D
d.	It is expected that the institution will have available to site surveyor’s evidence of attending general/ pediatric surgery responses.	E	E
e.	Each general surgeon must attend a minimum of 50% of the peer review meetings. Acceptable attendance must be documented.	E	E

Hospital Organization

Standard XVIII – Surgical Specialties Availability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
1. If the Pediatric PIPS Program identifies an 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	E
3. Neurosurgical service must be dedicated to one hospital when on call. If not dedicated to one hospital when on call then a published back-up call schedule or formal contingency plan must be in place. (See glossary)	E	E
a. Current trauma care involves the active participation and support of the neurosurgical service. In order to provide continuous neurosurgical coverage/care, more than one neurosurgeon must be on staff and participating in the pediatric trauma program.	E	E
b. An attending neurosurgeon or designee must be promptly available in-house and dedicated to this hospital’s pediatric trauma program when on-call. If the attending neurosurgeon is not in house when on call, he/she must be promptly available to come in house when requested by the pediatric trauma surgeon, general or pediatric surgical resident, or the orthopedic surgical resident.	E	E
c. The in-house neurosurgical requirement may be fulfilled by a neurosurgical resident in at least the second year of clinical neurosurgical experience, or the attending pediatric trauma surgeon, or the general/pediatric surgery resident (PGY-4 or above) who has special competence, as attested to in writing by the Chief of Neurosurgery and/or the Pediatric Trauma Program Medical Director in consultation with the Chief of Neurosurgery, in the care of pediatric patients with neuro trauma. The surgeon must be capable of initiating measures toward stabilizing the pediatric patient and initiating diagnostic procedures. Special competence recognition for trauma surgeons does not relieve the neurosurgeon of the responsibility for prompt in-house response.	E	E
d. Neurotrauma outcome is often a time-related factor from the time of injury. Appropriateness of the neurosurgical 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 neurosurgical response.	E	E
e. The Neurosurgical service must actively participate with the overall PIPS program as directed by the trauma program.	E	E
1. If the Pediatric PIPS Program identifies a 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	E

Hospital Organization

Standard XVIII – Surgical Specialties Availability		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2.	A neurosurgical representative to the multidisciplinary committee must attend a minimum of 50% of the multidisciplinary peer review committee meetings. Acceptable attendance must be documented.	E	E
4.	Orthopedic Surgery service must be dedicated to one hospital when on call or have a published back-up call schedule.	E	E
a.	Current trauma care involves the active participation and support of the orthopedic surgical service. In order to provide continuous orthopedic coverage/ care, more than one orthopedic surgeon must be on staff and participating in the pediatric trauma program.	E	E
b.	An attending orthopedic surgeon or designee must be promptly available in-house and dedicated to this institution’s pediatric trauma program when on-call. The staff orthopedic surgeon must be on-call and promptly available to come in-house when requested by the pediatric trauma surgeon, general or pediatric surgical resident, or the orthopedic surgical resident.	E	E
c.	The in-house orthopedic surgical requirement may be fulfilled by an orthopedic surgical resident in at least the second year of clinical orthopedic surgery experience, or the attending pediatric trauma surgeon or general/pediatric surgery resident (PGY-4 or above) who has special competence, as attested to in writing by the Chief of Orthopedics and/or the Trauma Program Medical Director in consultation with the Chief of Orthopedics in the care of pediatric patients with orthopedic trauma. The surgeon must be capable of initiating measures toward stabilizing the pediatric patient and initiating diagnostic procedures. Special competence recognition for pediatric trauma surgeons does not relieve the orthopedic surgeon of the responsibility for prompt in-house response.	E	E
d.	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.	E	E
e.	The orthopedic service must actively participate with the overall PIPS program as directed by the trauma program.	E	E
1.	If the Pediatric PIPS Program identifies an 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	E

Hospital Organization

Standard XVIII – Surgical Specialties Availability		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2.	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.	E	E
D.	On-Call and Promptly Available:		
1.	Cardiac Surgery	E	E
2.	*Hand Surgery	E	E
3.	*Vascular Re-implantation Capabilities	E	E
4.	*Obstetric and Gynecologic Surgery, available on a consultant basis	E	E
5.	Ophthalmic Surgery	E	E
6.	Oral/Maxillofacial Surgery	E	E
7.	Otorhinolaryngologic Surgery	E	E
8.	Pediatric Surgery	E	E
9.	Plastic Surgery	E	E
10.	Thoracic Surgery	E	E
11.	Urological Surgery	E	E
12.	If the Pediatric PIPS Program identifies an 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	E
E.	All surgical sub-specialists should be formally trained in their surgical subspecialty. If this training does not exist, special expertise in the pediatric subspecialty will be demonstrated through commitment, continuing medical education, and experience.	E	E

* Compliance with this standard may be shown by a formal, written transfer agreement with an accredited trauma center.

Hospital Organization

Standard XIX – Non-Surgical Specialties Availability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Published on-call schedules and back up schedules must be maintained for emergency physicians and anesthesiologists	E	E
1. Published on-call schedules must be maintained for radiologists and all other non-surgical specialists.	E	E
B. Pediatric Emergency Medicine		
1. 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	E
This responsibility can be met by an emergency medicine resident (PGY-3 or above) or a pediatric emergency medicine fellow (PGY-4 or above).		
2. The emergency department staffing will ensure immediate and appropriate care of the pediatric trauma patient.	E	E
a. It is the responsibility of the institution to ensure that emergency physicians who have demonstrated special pediatric capabilities through commitment, continuing education, and experience staff the emergency department.	E	E
b. A physician with special competence in the care of the critically injured pediatric trauma patient must be physically present in the emergency department 24 hours a day. The physician must be a designated member of the pediatric trauma team.	E	E
c. Optimal staffing for a trauma center will include at least one emergency department physician who is Board Certified in Emergency Medicine or Pediatrics on duty 24 hours a day.	E	E
NOTE: In lieu of certification by Emergency Medicine or Pediatric Boards, a physician with certification by the Board of Surgery, Internal Medicine, or Family Medicine is acceptable for meeting the emergency department staffing requirement providing the physician is actively participating in emergency medicine as evidenced by participation in routine, daily emergency department patient care. Residents in Pediatrics do not meet this requirement.		
d. The emergency medicine department must actively participate with the overall PIPS program as directed by the trauma program.	E	E

Hospital Organization

Standard XIX – Non-Surgical Specialties Availability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
e. An emergency medicine representative to the multidisciplinary committee must attend a minimum of 50% of the multidisciplinary peer review committee meetings. Acceptable attendance must be documented.	E	E
C. Anesthesiology: The Anesthesiology service must maintain in-house 24 hour per day availability and must be dedicated to one hospital when on call and back-up coverage must be promptly available.	E	E
1. Requirements may be fulfilled by senior anesthesia residents (PGY-4/CA3) or licensed certified registered nurse anesthetists (CRNA’s) who are capable of assessing emergent situations in pediatric trauma patients and of providing any indicated treatment.	E	E
a. When neither anesthesia residents nor licensed CRNA’s are used to fulfill in-house anesthesia requirements, the staff anesthesiologist must be in-house and available 24 hours a day.	E	E
b. When anesthesia residents and/or CRNA’s are used to fulfill availability requirements, the staff anesthesiologist on-call will be notified and will be promptly available in-house for all operative procedures.	E	E
Note: The institution will determine when the attending anesthesiologist will respond in-house for the resuscitative phase of care based on patient condition.		
2. The staff anesthesiologist may not supervise more than two CRNA’s/residents on major trauma cases at one time.	E	E
3. When a residency-trained anesthesiologist is not available, there must be the ability to demonstrate the experience or special education of the anesthesiologist in the pediatric age group.	E	E
4. Trauma programs changing to CRNA’s to fulfill in-house anesthesia requirements must monitor this change via the PIPS program and have information available for the site surveyors’ review.	E	E
5. The anesthesia service must actively participate with the overall PIPS program as directed by the Pediatric Trauma Program.	E	E
6. An anesthesia representative to the multidisciplinary committee must attend a minimum of 50% of the multidisciplinary peer review committee meetings. Acceptable attendance must be documented.	E	E
D. Radiology: An attending radiologist capable of diagnostic, invasive, and therapeutic procedures must be promptly available 24 hours a day.	E	E

Hospital Organization

Standard XIX – Non-Surgical Specialties Availability		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
1.	Requirements may be fulfilled by senior radiology residents (PGY-3 or above and must have completed one year of clinical radiological training) who are capable of performing emergent radiographic interpretations of pediatric trauma patients and indicated treatment (interventions).	E	E
a.	When radiology residents are used to fulfill availability requirements, the staff radiologist on-call will be notified and will be promptly available in-house for the interpretation of radiographs, performance of complex imaging studies or interventional procedures.	E	E
b.	The institution will determine when the attending radiologist will respond in-house.	E	E
2.	The institution will establish protocols defining the role of the radiologist and define the relationship between the pediatric trauma surgeons, emergency medicine physicians, and other members of the pediatric trauma team.	E	E
3.	The radiology service must participate actively with the overall pediatric PIPS program as directed by the pediatric trauma program.	E	E
	Note: The institution must be able to demonstrate evidence of a formal plan and process to comply with this standard.		
E.	On-call and promptly available in-house from inside or outside the institution:		
1.	Cardiology	E	E
2.	Gastroenterology	D	D
3.	Hematology	E	E
4.	Infectious Disease	E	E
5.	Nephrology	E	E
6.	Neurology	E	E
7.	Pathology	E	E
8.	Pediatrics	E	E
9.	Physiatry	D	D
10.	Psychiatry	E	E
11.	Pulmonary Medicine	E	E
F.	If the Pediatric PIPS Program identifies an 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	E

Special Facilities/Resources/Capabilities

Standard XX – Emergency Department

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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A. Personnel

1. Physician Staff

- | | | | |
|----|---|---|---|
| a. | It is the responsibility of the institution to ensure that emergency physicians who have demonstrated special pediatric capabilities through commitment, continuing education, and experience staff the emergency department. | E | E |
| b. | A designated physician director for pediatric patients with evidence of active participation in daily emergency department patient care and administrative duties of the emergency department. | E | E |

2. Nursing Staff

- | | | | |
|----|--|---|---|
| a. | It is the responsibility of the institution to ensure that registered nurses who have demonstrated special capabilities through commitment, continuing education, and experience staff the emergency department. | E | E |
| b. | Minimums of two registered nurses per shift whom actively function in trauma resuscitation and who have completed the pediatric trauma nurse course. | E | E |
| c. | The Emergency Department shall have a staffing plan that reflects the trending, severity of injury, arrival of multiple pediatric trauma patients, and staffing/skill mix required to ensure the appropriate clinical care of pediatric trauma patients. | E | E |
| d. | Documentation: Nursing documentation for the major uni-system/multi-system pediatric trauma patient must be on a trauma flow sheet. | E | E |

B. Resuscitation

- | | | | |
|----|---|---|---|
| 1. | There will be a designated trauma resuscitation area in the emergency department that will remain open 24 hours a day. The designated trauma resuscitation area must be of adequate size to accommodate the full pediatric trauma resuscitation team. | E | E |
| 2. | Adequate facilities and personnel will be available within the emergency department to simultaneously care for two or more major uni-system or multi-system pediatric trauma patients. Backup areas must be immediately available. | E | E |

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

- | | | | |
|----|--|---|---|
| 1. | Airway control and ventilation equipment, including laryngoscopes, assorted blades, airways, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator. This equipment must be immediately available. | E | E |
|----|--|---|---|

Special Facilities/Resources/Capabilities

Standard XX – Emergency Department		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2.	Pulse oximeter	E	E
3.	End-tidal CO2 determination	E	E
4.	Suction devices.	E	E
5.	Electrocardiograph, monitor, and defibrillator with pediatric and adult paddles, both internal and external.	E	E
6.	Apparatus to establish central venous pressure and arterial monitoring.	E	E
7.	All standard intravenous fluids and administration devices, including intravenous catheters and IO devices designed with the capacity for delivering IV fluids and medication at rates and in amounts appropriate for children ranging in age from neonate to adolescent.	E	E
8.	Sterile surgical sets for standard emergency department procedures such as thoracotomy, cut-down, etc.	E	E
9.	Gastric lavage equipment.	E	E
10.	Drugs and supplies necessary for emergency care.	E	E
11.	Temperature control and warming devices for:	E	E
	a. The patient, i.e., radiant warmers;	E	E
	b. Parenteral fluids;	E	E
	c. Blood;	E	E
	d. The trauma resuscitation area	E	E
12.	Skeletal immobilization devices, including capability for cervical spine immobilization and traction.	E	E
13.	Equipment for cervical stabilization for all age groups.	E	E
14.	Arterial catheters.	E	E
15.	Two-way communication with emergency transport system vehicles.	E	E
16.	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	E
17.	Means of estimating patient weight.	E	E
18.	High volume rapid infuser	E	E
19.	Portable or Overhead X-ray availability in the trauma bay 24 hours/day	E	E

Special Facilities/Resources/Capabilities

Standard XXI – Clinical Lab Services	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. There will be provisions to provide and receive the following laboratory test results 24 hours a day:		
1. Micro sampling capabilities.	E	E
2. Standard analyses of blood, urine, and other body fluids.	E	E
3. Blood typing and cross matching.	E	E
4. Coagulation studies.	E	E
5. Blood gases and pH determinations.	E	E
6. Serum and urine osmolality.	E	E
7. Microbiology.	E	E
8. Drug and alcohol screening.	E	E
B. There will be a written protocol stating that the pediatric trauma patient receives priority in request handling.	E	E
C. A comprehensive blood bank or access to a community central blood bank and adequate hospital storage facilities. To include a clinically driven Massive Transfusion Policy.	E	E

Special Facilities/Resources/Capabilities

Standard XXII – Radiological Capabilities	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Diagnostic information must be communicated in a written form and in a timely manner.		
1. Critical information that is deemed to affect patient care must be verbally communicated to the trauma team.	E	E
2. A preliminary report should be permanently recorded.	E	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	E
4. Changes in interpretation must be monitored through the PIPS program.	E	E
B. Radiological services, 24-hour coverage by in-house technicians.	E	E
C. Angiography		
1. Conventional catheter angiography must be promptly available 24 hours a day.	E	E
NOTE: Cardiac catheterization and coronary arteriography capability is not required.		
D. Sonography for the pediatric trauma patient will be available 24 hours a day with a maximum response time of 30 minutes.	E	E
E. Nuclear Scanning for the pediatric trauma patient will be available 24 hours a day.	D	D
F. Computerized Tomography Scanning	E	E
1. Computerized tomography scanning must be available for the pediatric trauma patient in-house without delay 24 hours a day.	E	E
a. A protocol must be in place to give the pediatric trauma patient priority and immediate access to the scanner for initiation of studies in a timely manner.	E	E
2. The trauma surgeon, neurosurgeon, and emergency physician, all of whom have been properly credentialed by the institution, will have the ability to initiate computerized scans.	E	E
3. Protocols must be in place that assures a continuing review of computerized tomographic availability when indicated for the pediatric 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	E
G. A magnetic resonance imaging (MRI) scanner will be readily available.	E	E
H. Priority Handling: There will be a written protocol stating that the pediatric trauma patient receives priority in request handling, particularly portable studies.	E	E

Special Facilities/Resources/Capabilities

Standard XXII – Radiological Capabilities

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
I. Personnel: Adequate physician and nursing personnel must be available to accompany the pediatric trauma patients. 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 pediatric trauma patient is physically present in the department and during transportation to and from the Radiology Department.	E	E
J. Resuscitation and Monitoring Equipment: There will be resuscitation and monitoring equipment available for pediatric trauma patients of all ages while in the Radiology Department.	E	E
K. The pediatric PIPS program must ensure that appropriately trained providers and the appropriate resuscitation and monitoring equipment accompany pediatric trauma patients while in all areas of the radiology department.	E	E

Special Facilities/Resources/Capabilities

Standard XXIII – Operating Room Requirements	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Personnel		
1. The operating room will be adequately staffed in-house and immediately available 24 hours a day. When the first team is in surgery, the second on-call team will be in-house.	E	E
2. It is the responsibility of the institution to ensure that registered nurses who have special capabilities through commitment, continuing education, and experience staff the operating room.	E	E
B. Equipment in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured neonatal/pediatric/ adolescent trauma patient will include, but not be limited to:		
1. Cardiopulmonary bypass capability.	E	E
2. Operating microscope.	E	E
3. Thermal control equipment and warming devices for:		
a. The patient,	E	E
b. Parenteral fluids,	E	E
c. Blood;	E	E
d. The room.	E	E
4. X-ray capability, including c-arm image intensifier with technologist available 24 hours a day.	E	E
5. Endoscopes, all varieties.	E	E
6. Craniotomy instruments	E	E
7. Monitoring equipment.	E	E
8. Invasive and non-invasive monitoring equipment to include intracranial pressure monitoring.	E	E
9. Pediatric anesthesia equipment.	E	E
10. Cardiac output equipment.	E	E
11. Defibrillator and monitor with pediatric and adult paddles, both internal and external.	E	E
12. 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	E
13. Equipment appropriate for fixation of long bone and pelvic fractures.	E	E

Special Facilities/Resources/Capabilities

Standard XXIII – Operating Room Requirements

Pediatric
Level I
Trauma
Center

Pediatric
Level II
Trauma
Center

14. High volume rapid infuser.

E

E

Special Facilities/Resources/Capabilities

Standard XXIV – Post-Anesthesia Care Unit	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
Surgical and/or trauma intensive care unit(s) are acceptable.		
A. Registered nurses and other essential personnel available 24 hours a day.	E	E
B. It is the responsibility of the institution to ensure that registered nurses who have demonstrated special pediatric capabilities through commitment, continuing education, and experience staff the post-anesthesia care unit.	E	E
C. Equipment in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured trauma patient will include, but not be limited to:		
1. Airway control and ventilation equipment including laryngoscopes, assorted blades, airways, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator. This equipment must be immediately available.	E	E
2. Pulse oximeter	E	E
3. End-tidal CO2 determination	E	E
4. Suction devices.	E	E
5. Electrocardiograph and defibrillator with pediatric and adult paddles, both internal and external promptly available.	E	E
6. Apparatus to establish and maintain central venous pressure monitoring.	E	E
7. All standard intravenous fluids and administration devices, including intravenous catheters, designed with the capacity for delivering IV fluids and medications at rates and in amounts appropriate for children ranging in age from neonate to adolescent.	E	E
8. Sterile surgical set for emergency procedures such as thoracotomy.	E	E
9. Drugs and supplies necessary for emergency care.	E	E
10. Temperature control and warming devices for:		
a. The patient, i.e., radiant warmers;	E	E
b. Parenteral fluids;	E	E
c. Blood;	E	E
d. Physical space/location/room.	E	E
11. Intracranial pressure monitoring devices promptly available.	E	E
12. Temporary transvenous pacemaker promptly available.	E	E
13. Equipment for the continuous monitoring of temperature, hemodynamics, and gas exchange both invasive and non-invasive.	E	E

Special Facilities/Resources/Capabilities

Standard XXIV – Post-Anesthesia Care Unit

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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D.	The hospital must document the number of times the PACU is used as a PICU for trauma patients. The institution must determine the need for PICU equipment to be available in the PACU.	E	E
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Special Facilities/Resources/Capabilities

Standard XXV – Pediatric Intensive Care Units (PICU) for Trauma Patients

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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The management of the severely traumatized pediatric 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 pediatric patient is most vulnerable to multi-system deterioration. The ability to assess and initiate rapid intervention is paramount.

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|----|---|---|---|
| A. | A formal PICU is required. See Glossary | E | E |
| B. | The PICU resources will be concentrated in a single unit or be in multiple specialty units. | E | E |
| C. | There will be a commitment to the dedication of beds for pediatric trauma care. | E | E |
| D. | Personnel | | |

1. Physician Staff

- | | | | |
|----|---|---|---|
| a. | There will be a designated surgical director, or for medical/surgical units, co-directors. | E | E |
| 1. | The designated surgical director is responsible for clinical care, policy setting, administration quality of care and PIPS program pertaining to pediatric trauma patients in the ICU. The director should have obtained critical care training during residency or fellowship and must have expertise in the perioperative and post-injury care of the critically injured patient. A Certificate in Surgical Critical Care or Pediatric Critical Care would best demonstrate this expertise. It can also be fulfilled with documentation of active participation during the preceding 12 months in ICU administration and quality management activities, and direct involvement in the ICU care of pediatric patients. The final responsibility for the care of pediatric trauma patients lies with the surgical (co-) director (or designee surgeon). | E | E |

Special Facilities/Resources/Capabilities

Standard XXV – Pediatric Intensive Care Units (PICU) for Trauma Patients	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2. The designated medical director of the PICU shares responsibility for the clinical care, policy setting, administration, quality of care and PIPS program pertaining to pediatric trauma patients in the ICU with the surgical co-director. The medical director must be board certified in Pediatric Critical Care Medicine and has additional administrative responsibilities pertaining to the entire PICU.	E	E
b. It is the responsibility of the institution to ensure that physicians who have demonstrated special pediatric capabilities through commitment, continuing education, and experience staff the PICU.	E	E
1. A Pediatric Trauma Center must have a dedicated, PICU physician team 24 hours per day. This PICU team can be staffed from different specialties as determined by critical care credentials consistent with the medical staff privileging process of the institution.	E	E
2. The PICU team will provide 24-hour bedside care to the trauma patient. Protocols should establish a formal role and relationship for and between the primary pediatric trauma surgeon and the ICU team.	E	E
c. The concurrent care model utilizing PCCM specialists is an indispensable part of the process that provides the highest quality of care and the best outcomes. The primary admitting trauma surgeon (or designee surgeon) who assumes initial responsibility for the care of the pediatric trauma patient however is responsible for all aspects of care. All orders should be written in collaboration with the primary surgeon (or designee surgeon).	E	E
1. In some cases, transfer of responsibility to a surgical specialist may be appropriate, if such transfer of responsibility is mutually acceptable to both the primary admitting surgeon and the specialist.	E	E
2. Non-surgical specialists should be consulted as necessary; however, at no time should the surgeon relinquish primary care of the critically ill pediatric trauma patient to non-surgical specialists.	E	E
d. In addition to overall responsibility for patient care by the patient’s primary admitting trauma surgeon, there must be 24-hour in-house PICU physician coverage.	E	E
1. At a minimum, a physician (PGY-1 or above) will be on duty in the PICU 24 hours a day or immediately available from inside the institution.	E	E

Special Facilities/Resources/Capabilities

Standard XXV – Pediatric Intensive Care Units (PICU) for Trauma Patients	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
2. The PICU first responder must be formally oriented to the trauma program and PICU.	E	E
3. The PICU first responder must act under the supervision of the PCCM attending or Trauma attending utilizing the collaborative care model (Not applicable if the PICU first responder is an attending physician.) <i>Reference: Standard XVIII, Surgical Specialties Availability, C1.</i>	E	E
4. This coverage for emergencies is not intended to replace the primary admitting trauma surgeon in caring for the patient in the PICU; it is to ensure that the patient’s immediate needs will be met while the primary surgeon is being contacted.	E	E
e. 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 interventions must be planned in a systematic and documented approach.	E	E
1. The PIPS program must periodically review this response system and the supervision of the PICU first responder. It is expected that the institution will have available to the site surveyor’s evidence of review of an appropriate PICU first responder system.	E	E
2. The PIPS review of PICU care must include review of all adverse and unexpected events.	E	E
f. A PCCM representative to the multidisciplinary committee must attend a minimum of 50% of these meetings. Acceptable attendance must be documented.		
2. Nursing Staff		
a. It is the responsibility of the institution to ensure that registered nurses who have special pediatric capabilities as demonstrated through commitment, continuing education, and experience staff the PICU.	E	E
b. The PICU shall have a staffing plan that reflects the trending, severity of injury, arrival of multiple pediatric trauma patients, and staffing/skill mix required to ensure the appropriate clinical care of pediatric trauma patients or the workload of the nurse which will indicate the number of nursing staff needed.	E	E
c. Nursing documentation will be on a 24-hour patient flow sheet.	E	E

Special Facilities/Resources/Capabilities

Standard XXV – Pediatric Intensive Care Units (PICU) for Trauma Patients		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
E.	Equipment in the appropriate array of sizes for resuscitation and life support of the critically or seriously injured neonatal/pediatric/ adolescent trauma patient will include, but not be limited to:	E	E
1.	Airway control and ventilation equipment including laryngoscopes, assorted blades, airways, endotracheal tubes, bag-mask resuscitators, sources of oxygen, and mechanical ventilator. This equipment must be immediately available.	E	E
2.	Pulse oximeter	E	E
3.	End-tidal CO2 determination	E	E
4.	Suction devices.	E	E
5.	Electrocardiograph, monitor, and defibrillator with pediatric and adult paddles, both internal and external, promptly available.	E	E
6.	Apparatus to establish and maintain invasive hemodynamic central venous pressure monitoring.	E	E
7.	All standard intravenous fluids and administration devices, including intravenous catheters designed with the capacity for delivering IV fluids and medications at rates and in amounts appropriate for children ranging in age from neonate to adolescent.	E	E
8.	Sterile surgical sets for emergency procedures such as thoracotomy, cut-down, and ventriculostomy.	E	E
9.	Gastric lavage equipment.	E	E
10.	Drugs and supplies necessary for emergency care.	E	E
11.	Temperature control and warming devices for:		
a.	The patient, i.e., radiant warmers;	E	E
b.	Parenteral fluids;	E	E
c.	Blood;	E	E
d.	Patient room.	E	E
12.	Intracranial pressure monitoring devices.	E	E
13.	Electronic transvenous pacemaker.	E	E
14.	Electronic hemodynamic monitoring.	E	E
15.	Pulmonary function measuring devices.	E	E
16.	Patient weighing devices.	E	E
17.	Arterial lines.	E	E
18.	Pulmonary artery catheters.	E	E

Special Facilities/Resources/Capabilities

Standard XXV – Pediatric Intensive Care Units (PICU) for Trauma Patients		Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
19.	Cardiac output monitoring devices.	E	E
20.	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	E

Special Facilities/Resources/Capabilities

Standard XXVI – Intermediate Care/Step-Down Units	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
Each institution must define the areas considered intermediate care/step down units.	E	E
A. Equipment 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	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	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 will indicate the number of nursing staff needed.	E	E

Special Facilities/Resources/Capabilities

Standard XXVII – Medical/Surgical Units

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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These are general pediatric medical/surgical nursing unit beds, not pediatric intensive care or intermediate care/step-down unit beds.

A. Nursing Staff

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|----|---|---|---|
| 1. | It is the responsibility of the institution to ensure that registered nurses who have demonstrated special pediatric capabilities through commitment, continuing education, and experience staff the medical/surgical units that regularly receive trauma patients. | E | E |
| 2. | The Medical/Surgical Unit(s) shall have a staffing plan that reflects the trending, severity of injury, arrival of multiple pediatric trauma patients, and staffing/skill mix required to ensure the appropriate clinical care of pediatric trauma patients or the workload of the nurse which will indicate the number of nursing staff needed to adequately provide pediatric patient care. | E | E |

B. Equipment

- | | | | |
|----|--|---|---|
| 1. | The equipment will support the current status of the trauma patients and be readily available. | E | 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 | E |
| 3. | Equipment in the appropriate array of sizes for resuscitation and life support of the neonatal/pediatric/adolescent trauma patient will include, but not be limited to: | E | E |
| a. | Airway control and ventilation equipment, including laryngoscopes, assorted blades, airways, endotracheal tubes of all sizes, bag-mask resuscitators, and sources of oxygen. | E | E |
| b. | Suction devices. | E | E |
| c. | Electrocardiograph, monitor, and defibrillator with external pediatric and adult paddles. | E | E |
| d. | All standard intravenous fluids and administration devices including intravenous catheters designed with the capacity for delivering IV fluids and medications at rates and in amounts appropriate for children ranging in age from neonate to adolescent. | E | E |
| e. | Drugs and supplies necessary for emergency care. | E | E |
| f. | Sterile surgical sets for emergency procedures, such as thoracotomy, cut down, etc. | E | E |

Special Facilities/Resources/Capabilities

Standard XXVIII – Acute Hemodialysis Capability

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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There must be acute hemodialysis capability.

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Special Facilities/Resources/Capabilities

Standard XXIX – Organized Burn Care	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Transfer Agreement: There must be a formal written transfer agreement with a burn center or hospital with a burn unit.	E	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	E

NOTE: The institution that has an organized burn unit, must meet the established criteria of the American Burn Association.

Special Facilities/Resources/Capabilities

Standard XXX – Neurotrauma Management Capability	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. There must be acute spinal cord/brain injury management capability or formal written transfer agreements will be in effect with regionally recognized spinal cord injury treatment centers.	E	E
B. Early transfer will be considered in circumstances where a recognized spinal cord or brain injury rehabilitation center equipped with personnel and facilities specifically for children exists in the region.	E	E

Special Facilities/Resources/Capabilities

Standard XXXI – Social Work Capabilities	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Availability		
1. Social work intervention will be promptly available to all major trauma patients and their families from the time of admission to the facility until the time of discharge. This is to include evidence of appropriate social work intervention and involvement, and coordination of post-discharge plan development and rehabilitation.	E	E
2. There will be a social worker designated as accountable for ensuring that all pediatric trauma social work services are being provided in a cohesive manner.	E	E
a. There will be evidence of appropriate;		
1. Qualifications, for example, educational preparation, certification, and clinical experience	E	E
2. Job description and organizational chart defining the structural role and relationship of the dedicated social worker within the institution and to the trauma service	E	E
3. Active participation in local, state, and national trauma social work activities	D	D
4. Educational activities external to the institution’s staff development program	D	D
5. Active participation in trauma multidisciplinary forums/groups/committees	E	E
3. The institution will define the protocol to ensure that there are adequate social work capabilities available to assist in the support of the pediatric patient’s family and significant others during this time. This may include:	E	E
a. Identifying the trauma patient and locating family or legal next-of-kin.		
b. Contacting family and providing crisis intervention counseling upon arrival and throughout hospitalization.		
c. Facilitating the information flow between the trauma team, patient, and family.		
d. Coordinating resource referrals.		
e. Assisting with the process of organ donation in the event of death.		
f. Providing grief counseling, when appropriate.		
g. Timely access to information related to insurance verification and financial resource availability		

Special Facilities/Resources/Capabilities

Standard XXXI – Social Work Capabilities

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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NOTE: The above services may be provided in conjunction with other members of the hospital staff.

4.	The social worker should be educated at the Master of Social Work level. At a minimum, a bachelor’s degree in social work is required.	E	E
B.	Every admitted pediatric trauma patient suspected of substance abuse must be evaluated by social work, investigating cause of injury/abuse and coordinating discharge planning/referral(s).	E	E
1.	The institution must have a mechanism to identify pediatric patients who are at risk for substance abuse. This may be part of the injury prevention coordinator job description	E	E
2.	The institution must provide an intervention for pediatric patients identified as at risk for substance abuse. This may be part of the injury prevention coordinator job description	E	E
C.	Every admitted pediatric trauma patient suspected of child abuse must be evaluated by social work, investigating cause of injury/abuse and coordinating discharge planning/referral(s).	E	E
D.	Continuing Education: Social workers who are associated with the pediatric trauma program will have evidence of a minimum of eight hours of trauma-related continuing education every year.	E	E
E.	Space Requirements: There will be a separate interview area for social work.	E	E

Special Facilities/Resources/Capabilities

Standard XXXII – Spiritual Counseling/ Pastoral Care

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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A.	The opportunity for spiritual counseling/pastoral care for all religious denominations 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 pediatric trauma program.
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Trauma Quality Management Programs

Standard XXXIII – PIPS Programs	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
<p>The goals of a trauma PIPS 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.</p>		
<p>A. Trauma PIPS must review pediatric trauma patients both concurrently and retrospectively. Trauma quality management 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.</p>	E	E
<p>B. The institution must provide resources to support the pediatric trauma PIPS.</p>	E	E
<p>1. There will be a Trauma PI Coordinator who is a registered nurse and 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/Coordinator. This person should be housed within the organizational structure of the trauma program.</p>	D	D
<p>a. The institution’s organization must define the structural role of the Trauma PI Coordinator to include responsibility, accountability, and authority.</p>	E	E
<p>b. Evidence of qualifications including educational preparation, certification, and clinical experience.</p>	E	E
<p>c. A job description and organizational chart depicting the relationship between the Trauma PI Coordinator and the trauma program.</p>	E	E
<p>d. A selection process defined by the institution’s personnel policies.</p>	E	E
<p>e. Evidence of an effective working relationship with the Trauma Program Medical Director and Trauma Program Manager/Coordinator.</p>	E	E
<p>C. A multidisciplinary forum(s) for performance improvement review is necessary. The Pediatric Trauma Program Medical Director will have a leadership role in all forums. Minutes must be maintained for all meetings. The goals of multi-disciplinary review include:</p>	E	E

Trauma Quality Management Programs

Standard XXXIII – PIPS Programs

	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
1. Review of the performance of the pediatric trauma program. This can be accomplished by a multidisciplinary committee, which should include representatives from all phases of care. The following aspects will be addressed: all deaths, all transfers, morbidities, performance improvement issues, systems issues, clinical management guideline issues, and provider specific issues.	E	E
a. The trauma program will utilize and monitor trauma patient management guidelines.	E	E
b. Trauma admissions will be reviewed through the PIPS process. Audit filters may be utilized. They can be selected from the American College of Surgeons Committee on Trauma audit filters (<i>Resources for Optimal Care of the Injured Patient: 1993</i> , Chapter 16, <i>Quality Improvement</i>), identified based on institutionally specific opportunities for improvement, or a combination of both. All phases of care will be reviewed over a period of time identified by the institution. The institution will demonstrate that actions taken as a result of issues identified in the performance improvement process created a measurable improvement.	E	E
c. Utilization, tissue, and procedure review will be performed in concurrence with the institution’s PIPS process.	E	E
d. The PIPS will evaluate resource utilization and cost-effectiveness of the pediatric trauma program.	E	E
2. Provide education – This can be accomplished by a periodic trauma case review or didactic conference and should include appropriate disciplines.	E	E
3. Internal CME/CE/additional continuing education programs should be linked to the pediatric trauma PIPS and provide didactic programs covering identified areas of concern.	E	E
4. Provide peer review – The peer review process can be in committee or conference format and must include a multi-specialty physician review of provider performance. Both provider specific morbidities and mortalities must be reviewed, trended, and reported to the Pediatric Trauma Program Medical Director.	E	E
D. There must be an audit filter for the early identification of suspected child abuse.	E	E
E. 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 for presentation to the Pennsylvania Trauma Systems Foundation and site surveyors.	E	E

Trauma Quality Management Programs

Standard XXXIII – PIPS Programs	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
F. 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	E
G. Completed pre-hospital trip form reports (patient care records-PCR), when available, will be included with the medical record.	E	E

Trauma Research Program

Standard XXXIV- Trauma Research Program	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. The institution will have a designated trauma research director (Trauma Program Medical Director or one of the trauma surgeons, who remains clinically active in trauma care) and demonstrate current (two years) involvement in and commitment to research in pediatric trauma care.	E	D
B. The institution must have formal regularly scheduled trauma research meetings.	E	D
C. The institution must have an identifiable Institutional Review Board process, active research protocols, physicians and allied health professionals involved in extramural educational presentations, and an adequate number of peer-reviewed scientific publications.	E	D
D. Four (4) extramural educational presentations are required each year. These must be presented outside the institution.	E	D
E. Methods of demonstrating the trauma center/system involvement and commitment to research will include, but not be limited to:		
1. Publications must appear in peer-reviewed journals included in Index Medicus. In a three-year cycle, the minimum acceptable number is twenty (20) trauma related publications. This must include a minimal activity of one trauma or trauma related publication by members of the general surgery trauma team and 1 from each of three (3) of the nine (9) disciplines listed; neurosurgery, emergency medicine, orthopedic surgery, radiology, anesthesia, critical care medicine, pre-hospital, burns and rehabilitation. Other surgical, non-surgical, nursing or allied health professional or work done in collaboration with other trauma centers and participation in multi-center investigations may be included in the peer review publications and can contribute to the minimal acceptable number of publications.	E	D
OR		
2. Publications must appear in peer-reviewed journals included in Index Medicus. In a three-year cycle, the minimum acceptable number is ten (10) trauma related publications. This must include a minimal activity of one trauma or trauma related publication from by members of the general surgery trauma team and 1 from each of three (3) of the nine (9) disciplines listed; neurosurgery, emergency medicine, orthopedic surgery, radiology, anesthesia, critical care medicine, pre-hospital, burns and rehabilitation. Other surgical, non-surgical, nursing or allied health professional or work done in collaboration with other trauma centers and participation in multi-center investigations may be included in the peer review publications and can contribute to the minimal acceptable number of publications.		
AND		
3. Of the seven (7) listed trauma related scholarly activities, four (4) must be demonstrated		
a. Leadership in major trauma organizations including membership in trauma committees of any regional and national trauma organization		

Trauma Research Program

Standard XXXIV- Trauma Research Program

Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
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- b. Peer-reviewed funding for trauma research.
 - c. Evidence of dissemination of knowledge to include review articles, book chapters, etc.
 - d. Display of scholarly application of knowledge as evidenced by case reports or reports of clinical series in journals include in MEDLINE.
 - e. Participation as a visiting professor or invited lecturer at national or regional conference.
 - f. Support of resident participation in institution-focused scholarly activity, including laboratory experiences, clinical trials, etc.

NOTE: For Pediatric Level I Trauma Centers that are associated with an Adult Level I Trauma Center, 10 peer reviewed articles, as previously defined, must be pediatric specific.

Education Programs

Standard XXXV- Continuing Education Programs	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. There will be formal internal programs in continuing education concerning the treatment of pediatric trauma patients of all ages provided by the institution for:		
1. Physicians.	E	E
2. Registered nurses.	E	E
3. Allied health personnel.	E	E
B. There will be formal external programs in continuing education concerning the treatment of pediatric trauma patients of all ages provided by the institution for:		
1. Physicians.	E	E
2. Registered nurses.	E	E
3. Allied health personnel.	E	E
4. Pre-hospital providers.	E	E
C. Must provide or participate in an ATLS course at least annually.	E	D

Trauma Rehabilitation Program Services

Standard XXXVI- Trauma Rehabilitation Services	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. All pediatric trauma patients will be screened for short and long term recovery and treatment plans/goals. Where appropriate, a documented comprehensive trauma recovery plan will be an integral part of the patient's medical record.	E	E
1. The trauma rehabilitation plan developed for the pediatric trauma patient will be in place within 72 hours of the patient's admission. A physician with a special interest and training in Physical Medicine and Rehabilitation most often assumes leadership of the rehabilitation team. However, this does not proscribe physicians in the other disciplines, such as general surgery, neurosurgery, or orthopedic surgery from having a leadership role providing they have the skill, training, dedication, and are recognized by the institution, as an expert in rehabilitation.	E	E
2. A referral will be made to the physiatrist or the appropriate medical specialist when appropriate.	E	E
B. If the pediatric patient is transferred to another institution for rehabilitation, outcome, and follow-up data must be formally requested.	E	E
1. If the Pediatric PIPS Program identifies a 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	E
C. The nutritional requirements of all pediatric trauma patients must be screened and evaluated with appropriate feedback and recommendations to the attending trauma surgeon or designee. This must be completed within 72 hours of admission.	E	E
D. Additional specialty services, such as physical therapy, occupational therapy, speech therapy, neuropsychology (mild brain injury), child life therapy, family support programs, and psychosocial services will have defined roles in the recovery and rehabilitative care of the pediatric trauma patient.	E	E

Special Facilities/Resources/Capabilities

Standard XXXVII- Case Management Capabilities	Pediatric Level I Trauma Center	Pediatric Level II Trauma Center
A. Case management will be available to all pediatric trauma patients and their families from time of admission to the facility to time of discharge. This is to include evidence of the appropriate coordination of clinical trauma care, discharge planning, and follow-up care.	E	E
B. If there is an identified case manager, case management will be provided to all trauma patients and all services will be provided in a cohesive manner.	D	D
1. The case manager must be hospital based and have evidence of regular and active interface with the pediatric trauma program.	E	E
2. The case manager will have evidence of appropriate qualifications, for example, educational preparation, certification(s), and clinical experience.	E	E
4. There will be evidence of a job description and organizational chart depicting the relationship between the case manager and the pediatric trauma program.	E	E
5. The case manager will participate in local, state, and national trauma related activities.	D	D
6. Case managers who have a defined role in the pediatric trauma program will have evidence of 8 hours of trauma continuing education every year.	E	E
C. When there is no identified case manager, a policy/protocol will be defined to ensure the presence of adequate case management capabilities. This evidence may include but is not limited to:	E	E
1. Involvement with the multidisciplinary trauma team to coordinate the overall plan of care for the pediatric trauma patient.	E	E
2. Involvement with the pediatric PIPS program.	E	E
3. Involvement with the pediatric PIPS program to assist in the development of patient management guidelines.	E	E
4. Involvement with institutional departments such as admissions, utilization review, finance, nursing, rehabilitation, home health care, and social work to appropriately plan for the discharge/disposition of the trauma patient.	E	E

NOTE: The above services may be provided by case managers or by qualified members of the multidisciplinary trauma team.

GLOSSARY

AACN	American Association of Critical Care Nurses
AANN	American Association of Neuroscience Nurses
ACEP	American College of Emergency Physicians
ACGME	Accreditation Council for Graduate Medical Education
ACLS verification	Verification by the American Heart Association of Advanced Cardiac Life Support course completion
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 a 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 a area staffed by pediatric trauma credentialed registered nurse(s).
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, which have a direct patient care responsibility, 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, 9th Edition</i>)
ALS	Advanced Life Support including techniques of resuscitation, such as intubation, intravenous access, and cardiac monitoring
American Burn Association Burn Center Referral Criteria	Burn injuries that should be referred to a burn center include the following: <ol style="list-style-type: none">1. Partial-thickness burns of greater than 10% of the total body surface area2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints3. Third-degree burns in any age group4. Electrical burns, including lightning injury5. Chemical burns6. Inhalation injury7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality8. 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.9. Burned children in hospitals without qualified personnel or equipment for the care of children

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	<p>10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention</p>
Bypass	<p>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</p>
Case Management	<p>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>)</p>
Category I CME	<p>Category I is a formal learning activity which adheres to the ACCME (American Council for Continuing Medical Education) essentials and is accepted by the Pennsylvania Trauma Systems Foundation. Category I CME can only be awarded by a CME accredited provider. The following are meetings that could be acceptable if Category I CME credits are provided:</p> <ol style="list-style-type: none">1) American Association for the Surgery of Trauma (AAST)2) American Burn Association3) Eastern Association for the Surgery of Trauma (EAST)4) Western Trauma Association5) Las Vegas Trauma Conference6) ACSCOT Point/Counterpoint7) Missouri Trauma Conference (December)8) Pan-American Trauma Association9) ACSCOT Fall Meeting10) Shock Society Annual Meeting11) Society of Critical Care Medicine Annual Meeting12) Orthopedic Trauma Association13) American Academy of Orthopedic Surgeons14) National American Trauma Society Annual Meeting15) Pennsylvania American Trauma Society Annual Meeting16) Philadelphia Trauma Conference (December)17) Pennsylvania ACSCOT Resident Paper Competition18) Regional ACSCOT Resident Paper Competition19) National ACEP Scientific Assembly20) Congress of Neurologic Surgeons national meeting21) American Association of Neurologic Surgeons national meeting22) American Academy of Orthopedic Surgeons national meeting <p>Submit the program if there is any doubt or if the conference is not listed above.</p>
CCRN	<p>Critical Care Registered Nurse certification by the American Association of Critical Care Nurses</p>
CEN	<p>Certified Emergency Nurse certification by the Emergency Nurses Association</p>
CFRN	<p>Certified Flight Registered Nurse certification by the National Flight Nurse Association</p>
CME	<p>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</p>

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educational activities, which 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.
Comprehensive Trauma Rehabilitation Plan	A documented course of treatment prescribed by a physician (in most cases a physiatrist) which the trauma patient follows to assist in integration into the community
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
Credentialed	A process in which individual institutions recognize appropriate education and training for physicians and registered nurses with specialized skills. Credentials for neurotrauma and orthopedic resuscitation for physicians must be identified in writing in the physician privileges and attested to in writing by the chief of the respective department(s).
CRNP	Certified Registered Nurse Practitioner
D	Desired requirement(s) for accredited trauma centers in Pennsylvania.
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
Designee - Neurosurgery	The in-house neurosurgical requirement may be fulfilled by a neurosurgical resident in at least the second year of clinical neurosurgical experience, or the attending trauma surgeon or the general surgery resident (PGY-4 or above) who has special competence, as attested to in writing by the Chief of Neurosurgery and/or the Trauma Program Medical Director in consultation with the Chief of Neurosurgery, in the care of patients with neural trauma.

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Designee - Orthopedics	The in-house orthopedic requirement may be fulfilled by an orthopedic resident in at least the second year of clinical orthopedic experience, or the attending trauma surgeon or the general surgery resident (PGY-4 or above) who has special competence, as attested to in writing by the Chief of Orthopedics and/or the Trauma Program Medical Director in consultation with the Chief of Orthopedics, in the care of patients with orthopedic trauma.
E	Essential requirement(s) for accredited trauma centers in Pennsylvania.
Emergency	A sudden, generally unexpected occurrence or set of circumstances demanding immediate attention.
Emergency Medical Technician (EMT)	An individual who is trained to provide emergency medical services and is certified as such by the Pennsylvania Department of Health in accordance with the current national standard curriculum for basic Emergency Medical Technicians as set forth in the rules and regulations promulgated by the Pennsylvania Department of Health.
Emergency Medical Technician - Paramedic (EMT/P)	Emergency Medical Technician specifically trained to provide advanced life support and who is certified as such by the Pennsylvania Department of Health in accordance with the current national standard curriculum for Emergency Medical Technicians - Paramedics as set forth in the rules and regulations promulgated by the Pennsylvania Department of Health.
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.
ENPC	Emergency Nursing Pediatric Course sponsored by ENA.
ENA	Emergency Nurses Association
Entered	As referred to in standard XV, a record must be submitted to PTOS central site in order for the record to be considered "entered". Entered does not refer to the entry of data or abstraction into the Trauma Registry at the individual institution.
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.
First Responder to the ICU	Physicians who are in-house and available in the ICU for emergencies 24 hours a day. This physician will NOT be the emergency department physician or the on-call trauma surgeon. A first responder to the ICU must be a PGY-1 (in the second half of the first year and having completed ATLS and ACLS and/or PALS) or above.
Foundation	A private, non-profit organization recognized by PA Law "Act 1985-45" for the accreditation of trauma centers throughout the state of PA.
General Surgical Accredited Residency Program	A program approved by either the Accreditation Council for Graduate Medical Education or the American Osteopathic Association.

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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 55 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.
ICP	Intracranial pressure, often monitored in patients with severe injuries to the brain.
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.
Interdisciplinary	The collaboration of professionals who formulate a 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 (i.e., 8 hours for an all adult unit).
Internal Educational Process	A process whereby trauma clinical care updates that included 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">▪ Documentation of a subspecialty specific, trauma clinical care update as a self learning module or▪ Attendance of formal subspecialty specific, trauma clinical care update lecture.
Intervention	Raises awareness of risks and motivation of the individual toward acknowledgement of a potential problem.
IRB	Institutional Review Board
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.

GLOSSARY

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.
Managed Major Trauma Case	A case involving resuscitation and post-resuscitation care of a patient, which may include surgery, comprehensive critical care, daily Medical/Surgical unit care, and discharge planning under the direction of an attending trauma surgeon.
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.
Neurological Surgery Contingency Plan	<p>Formally arranged contingency plans in case the capability of the neurosurgeon, hospital, or system is overwhelmed. “A published back-up call schedule is ideal. Some alternative models are as follows:</p> <ul style="list-style-type: none">▪ When the volume of neurotrauma is low, a backup call schedule is not essential if in a single trauma center or two trauma centers within the same community covered by a single neurosurgeon, fewer than 25 emergency neurosurgical trauma procedures (excluding ICP monitors) are done within 24 hours of admission per year, between the two centers.▪ In communities where neurosurgeon availability is limited, it may occasionally be necessary to redirect neurotrauma cases to a similar or higher-level accredited trauma center with available neurosurgical coverage within that community, if redirection can be accomplished promptly. This alternative requires a predefined neurotrauma diversion plan known to emergency medical services and all members of the trauma team. This system must be thoroughly developed and function so that the care of the injured patient is not compromised by the lack of availability of a neurosurgeon at the receiving center.▪ The trauma surgeon may be trained appropriately by the neurosurgical liaison and periodically credentialed by the hospital in the initial evaluation of patients with neurotrauma, interpretation of CT scans, brain resuscitation, and appropriate emergency procedures. In such situations, the trauma surgeon must be fully capable of managing neurotrauma patients until neurosurgical coverage becomes available or until the patient is in sufficiently stable condition for transport to a facility where neurosurgical coverage is available. <p>In a trauma center with accredited neurosurgical residency training programs, a senior post graduate-year 5 or greater neurosurgery resident may serve as the backup</p>
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.

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Participation	The act of an individual(s) sharing or receiving information, with active involvement.
Pediatric Intensive Care Unit	Typically the PICU is geographically separated from adult intensive care units. A board certified Pediatric Critical Care Medicine Specialist is the medical director and provides oversight of other physicians providing care in the PICU as well as other care providers including residents, advanced practice nurses and others. Modern PICU's have their own performance improvement 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.
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.
PIPS Program	Performance Improvement and Patient Safety Program
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.
Pediatric Trauma Patient	For the purposes of PTOS definition; trauma patient less than 15 years of age. Pediatric Trauma centers should determine the age definition of a pediatric trauma patient.
Pediatric Trauma Resuscitation Team	Major trauma resuscitations require a multidisciplinary team of health care providers who work in synergy to rapidly assess and treat the pediatric 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 based on the level of accreditation.
Performance Improvement	Continuous multidisciplinary efforts to measure, evaluate, and improve both the process of care and the outcome.
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

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PHTLS	Pre-hospital Trauma Life Support sponsored by National Association for Emergency Medical Technicians in cooperation with the American College of Surgeons Committee on Trauma
PICU	Pediatric Intensive Care Unit
Post Graduate Year (PGY)	Classification system for residents in post-graduate training. The number indicates the year the resident is in during their post-medical school residency program; for example, PGY-1 is 1 year after graduation from medical school.
Promptly	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. 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.
PSNA	Pennsylvania State Nurses Association
PTOS	A centralized statewide registry organized to compile and maintain statistics on mortality and morbidity for major uni-system or multi-system trauma patients.
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.
Research	Clinical or laboratory studies designed to produce new knowledge applicable to the care of injured patients.
Response Time	The interval between notification and arrival of the general surgeon or surgical specialist in the emergency center, operating room, or ICU.
Resuscitation	The intense period of patient assessment and medical care to save life or limb.
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.
Special Competency	Physicians with specialized education and training in selected areas of care.
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.

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TNCC	Trauma Nurse Core Courses sponsored by the Emergency Nurse's Association
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. He/she must demonstrate and maintain clinical proficiency by integrating his/her knowledge and skills by regularly providing care to the trauma patient.
Trauma Fellowship	Formal advanced post-residency training in the care of injured patients. (See Appendix C of the <i>"Resources for Optimal Care of the Injured Patient: 1999"</i>)
Trauma Nurse Course	A basic trauma nurse course designed by the trauma center but complies with the Pennsylvania Trauma Nurse Core Curriculum © 1992.
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 Coordinator	A registered nurse with responsibility for coordination of all activities on the trauma service and works in collaboration with the Trauma Program Medical Director. In some programs this person may have management responsibilities and have the title of Trauma Program Manager.
Trauma Program Manager	See Trauma Program Coordinator.
Trauma Program Medical Director	Physician designated by the institution and medical staff to coordinate trauma care.
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: 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), which 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, 2nd 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.

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

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

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

OBJECTIVES	CONTENT
<i>PERIOPERATIVE PHASE</i>	
1. Describe the perioperative phase as it relates to the operative management of traumatic injury and to predisposition of complications (occurrences).	A. Operative priorities B. Potential complications from operative procedures C. Evidence preservation
<i>POST ANESTHESIA RECOVERY PHASE</i>	
1. Discuss the patient's response to anesthetic agents in relation to the injury and to operative management.	A. Anesthetics B. Assessment and monitoring patient response
<i>ACUTE CARE PHASE</i>	
<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 (See A - H). 3. Identify significant performance improvement data that affects current practice in trauma care.	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

OBJECTIVES	CONTENT
<i>ACUTE CARE PHASE (continued)</i>	
	<ul style="list-style-type: none"> 5. Pain management <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 1. Mechanism of injury 2. Pathophysiology 3. Clinical manifestations and assessment 4. Treatment, interventions, and nursing care 5. Pain management <ul style="list-style-type: none"> 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 D. Chest trauma <ul style="list-style-type: none"> 1. Mechanism of injury 2. Pathophysiology 3. Clinical manifestations and assessment 4. Treatment, interventions, and nursing care 5. Pain management <ul style="list-style-type: none"> a. Pharmacologic and non-pharmacologic approaches b. Age-specific interventions c. Outcome evaluation

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

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

OBJECTIVES	CONTENT
ACUTE CARE PHASE (continued)	
4. Discuss nursing interventions to meet the spiritual, cultural, and psychosocial needs of the trauma patient and family.	A. Assessment and plan for the patient and family <ol style="list-style-type: none"> 1. Spiritual 2. Cultural 3. Psychosocial
REHABILITATIVE PHASE	
1. Discuss rehabilitation issues in relation to traumatic injuries.	A. Rehabilitation goals B. Strategies to reduce self-care deficits <ol style="list-style-type: none"> 1. Positioning 2. Therapies 3. Pain management C. Community and financial resources D. Equipment and assistive devices E. Discharge planning <ol style="list-style-type: none"> 1. Interdisciplinary team members 2. Begins on admission 3. Goals F. Americans with Disabilities Act
2. Analyze the standard approach to determine rehabilitation outcome measurements.	A. Functional Independence Measurement Score <ol style="list-style-type: none"> 1. Meaning 2. Importance B. Post discharge outcomes C. Additional scoring methods
PREVENTION STRATEGIES	
1. Identify strategies for trauma prevention	A. Pre-injury <ol style="list-style-type: none"> 1. Community outreach 2. Education 3. Registry data B. Post-injury <ol style="list-style-type: none"> 1. Patient, family education 2. Substance abuse counseling 3. Resources 4. Registry data

OBJECTIVES	CONTENT
PEDIATRIC CONSIDERATIONS	
<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"> A. PTSF age definition B. Institution-specific age definition C. Guardianship issues
2. Relate the common causes of mortality and morbidity to mechanisms of injury in the pediatric trauma patient.	<ul style="list-style-type: none"> A. Pediatric mechanism of injury/Kinematics <ul style="list-style-type: none"> 1. Blunt 2. Penetrating 3. Injuries due to burns or cold 4. Hazardous environment
3. Outline a basic pediatric trauma nursing assessment in collaboration with the ATLS® standardized approach.	<ul style="list-style-type: none"> A. Primary Survey <ul style="list-style-type: none"> 1. Airway 2. Breathing 3. Circulation 4. Disability 5. Exposure B. Secondary Survey <ul style="list-style-type: none"> 1. AMPLE history with mechanism of injury: Allergies, Medications, Past illnesses/ Pregnancy, Last meal, Events/ Environment 2. Physical exam of: <ul style="list-style-type: none"> a. Head and Maxillofacial b. Cervical Spine and Neck c. Chest d. Abdomen e. Peritoneum, Rectum, Vagina f. Musculoskeletal <ul style="list-style-type: none"> 1) Extremities 2) Pelvis g. Neurologic <ul style="list-style-type: none"> 1) Spine 2) Cord 3) Central Nervous System h. Skin integrity

OBJECTIVES	CONTENT
PEDIATRIC CONSIDERATIONS (continued)	
	C. Tertiary Nursing Assessment <ol style="list-style-type: none"> 1. Replication of primary and secondary surveys 2. Ongoing evaluation of response to interventions 3. Recognition of subtle signs and symptoms of decompensation 4. End points of resuscitation
<ol style="list-style-type: none"> 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>). 5. Identify significant performance improvement data that affects current practice in trauma care. 	A. Head trauma <ol style="list-style-type: none"> 1. Mechanism of injury 2. Growth and development implications 3. Pathophysiology 4. Clinical manifestations and assessment 5. Treatment, interventions, and nursing care 6. Pain management <ol style="list-style-type: none"> a. Pharmacologic and non-pharmacologic approaches b. Age-specific interventions c. Outcome evaluation 7. Signs and symptoms of potential decompensation - life threatening 8. Complications (occurrences) - identify by using institution-specific data 9. Nutrition 10. Discharge planning 11. Performance improvement B. Maxillofacial Trauma <ol style="list-style-type: none"> 1. Mechanism of injury 2. Growth and development implications 3. Pathophysiology 4. Clinical manifestations and assessment 5. Treatment, interventions, and nursing care 6. Pain management <ol style="list-style-type: none"> a. Pharmacologic and non-pharmacologic approaches b. Age-specific interventions c. Outcome evaluation

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

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

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

OBJECTIVES	CONTENT
PEDIATRIC CONSIDERATIONS (continued)	
	7. Signs and symptoms of potential decompensation - life threatening 8. Complications (occurrences) - identify by using institution-specific data 9. Nutrition 10. Discharge planning 11. Performance improvement
6. Discuss nursing interventions to meet the developmental, emotional, cultural, psychosocial, and spiritual needs of the child and family.	A. Assessment and plan for the patient and family 1. Spiritual 2. Cultural 3. Psychosocial
GERIATRIC CONSIDERATIONS	
<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.	A. Definition of geriatric patient B. Systematic review of physiologic changes C. Pre-Injury Assessment 1. Physiologic 2. Social 3. Environmental 4. Mental status
2. Describe the common causes of injury and prevention strategy in the geriatric trauma population.	A. Common mechanism of injury B. Prevention Strategies
3. Define the legal issues related to geriatric trauma patients.	A. Guardianship B. Consent C. Advanced directives
OBSTETRICAL CONSIDERATIONS	
1. Describe the normal physiologic changes of pregnancy and how the changes relate to clinical management of traumatic injury.	A. Anatomic and physiologic changes of pregnancy B. Mechanism of injury during pregnancy C. Assessment, diagnosis, and management D. Common complications

OBJECTIVES	CONTENT
ABUSE	
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. 3. Identify the nurse's role in the assessment and reporting of suspected abuse and neglect.	A. Substance abuse B. Child abuse 1. Types 2. Warning signs 3. Legal responsibilities C. Domestic abuse 1. Types 2. Warning signs 3. Legal responsibilities D. Geriatric abuse E. Social work role
CRISIS INTERVENTION	
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
ETHICAL CONSIDERATIONS	
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
ORGAN PROCUREMENT	
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, 2nd Edition.*