

## **19 CSR 30-40.410 Definitions and Abbreviations Relating to Trauma Centers**

*PURPOSE:* This rule defines terminology related to trauma centers. (1) The following definitions and abbreviations shall be used in the interpretation of the rules in 19 CSR 30-40.400 to 19 CSR 30-40.450:

- (A) Advanced cardiac life support (ACLS) certified means that an individual has successfully completed a course of training in advanced cardiac life-support techniques certified by the American Heart Association and that certification is maintained;
- (B) Anesthesiologist assistant (AA) means a person who meets each of the following conditions: 1. Has graduated from an anesthesiologist assistant program accredited by the American Medical Association's Committee on Allied Health Education and accreditation or by its successor agency; 2. Has passed the certifying examination administered by the National Commission on Certification of Anesthesiologist Assistants; 3. Has active certification by the National Commission on Certification of Anesthesiologist Assistants; 4. Is currently licensed as an anesthesiologist assistant in the state of Missouri; and 5. Provides health care services delegated by a licensed anesthesiologist. For the purposes of subsection (1)(B), the licensed anesthesiologist shall be "immediately available" as this term is defined in section 334.400, RSMo.
- (C) ATLS course means the advanced trauma life support course approved by the American College of Surgeons when required, certification shall be maintained;
- (D) Board-admissible means that a physician has applied to a specialty board and has received a ruling that s/he has fulfilled the requirements to take the examinations. Board certification must be obtained within five (5) years of the first appointment;
- (E) Board-certified means that a physician has fulfilled all requirements, has satisfactorily completed the written and oral examinations, and has been awarded a board diploma in a specialty field;
- (F) Certified registered nurse anesthetist (CRNA) means a registered nurse who has graduated from a school of nurse anesthesia accredited by the Council on Accreditation of Educational Programs of Nurse Anesthesia or its predecessor and who has been certified as a nurse anesthetist by the Council on Certification of Nurse Anesthetists;
- (G) Children's Hospital means a freestanding children's hospital or a separate administrative entity within a larger general hospital organization, such as a children's hospital within a hospital or a full service general hospital with comprehensive pediatric inpatient subspecialty services similar to those found in a freestanding children's hospital or a children's hospital within a hospital.
- (G) CME means continuing medical education and refers to the highest level of continuing education approved by the Missouri State Medical Association, the Missouri Association of Osteopathic Physicians and Surgeons, The American Osteopathic Association, or the Accreditation Council for Continuing Medical Education;
- (H) Continuing nursing education means education approved or recognized by a national and/or state professional organization and/or trauma medical director;
- (I) Core surgeon is a member of the trauma team listed on the trauma call schedule ten percent (10%) of the time or greater;
- (J) Credentialed or credentialing is a hospital-specific system of documenting and recognizing the qualifications of medical staff and nurses and authorizing the

performance of certain procedures and establishing clinical privileges in the hospital setting;

(K) EMS Bureau means the Missouri Department of Health and Senior Services Emergency Medical Services Bureau;

(L) Glasgow coma scale is a scoring system for assessing a patient's level of consciousness utilizing a point system which measures eye opening, verbal response, and motor response. The higher the total score, the better the patient's neurological status;

(M) Immediately available (IA) means being present at bedside at the time of the patient's arrival at the hospital when prior notification is possible and no more than twenty (20) minutes from the hospital under normal driving and weather conditions;

(N) In-house (IH) means being on the hospital premises twenty-four (24) hours a day;

(O) Liaison means one (1) physician representative from each of the following areas: Emergency Medicine, Neurosurgery, Orthopedics, and Anesthesia who is selected to attend the Performance Improvement and Patient Safety Committee and to disseminate information to the other physicians within his/her specialty taking trauma call;

(P) Missouri trauma registry is a statewide data collection system to compile and maintain statistics on mortality and morbidity of trauma victims, using a reporting method provided by the Missouri Department of Health and Senior Services;

(Q) Multidisciplinary trauma conference means a meeting of members of the trauma team and other appropriate hospital personnel to review the care of trauma patients at the hospital;

(R) Non-core surgeon is a member of the trauma call team listed on the trauma call schedule less than ten percent (10%) of the time;

(S) PI is the symbol for Pediatric Level I Trauma center designation

(T) PII

(U) PC

T(S) PALS means Pediatric Advanced Life Support, ENPC means Emergency Nurses Pediatric ~~Course~~, Course and APLS means Advanced Pediatrics Life Support; when required, certification shall be maintained;

U(T) Physician advisory group is two (2) or more physicians who collectively assume the role of a medical advisor;

V(U) Promptly available (PA) means arrival at the patient's bedside within thirty (30) minutes after notification of a patient's arrival at the hospital under normal driving and weather conditions;

(V) R is a symbol to indicate that a standard is a requirement for trauma center designation at a particular level;

(W) Review is the inspection of hospitals to determine compliance with the rules of this chapter. There are four (4) types of reviews: the initial review of hospitals never before designated as trauma centers or hospitals never before reviewed for compliance with the rules of this chapter or hospitals applying for a new level of trauma center designation; the verification review to evaluate the correction of any deficiencies noted in a previous review; and the validation review, which shall occur every five (5) years to assure continued compliance with the rules of this chapter, and a focus review to allow review of substantial deficiencies by a review team;

- (X) Revised trauma score (RTS) is a numerical methodology for categorizing the physiological status of trauma patients;
- (Y) Senior trauma surgery resident is a physician in at least the third post-graduate year of study;
- (Z) Severely injured adult patient is an injured patient with a glasgow coma score (GCS) less than fourteen (14) or a systolic blood pressure less than ninety (90) millimeters of mercury or respirations less than ten (10) per minute or more than twenty-nine (29) per minute;
- (AA) Severely injured child is defined as a patient fourteen (14) years of age or less having a GCS less than fourteen (14), shock following injury, pediatric trauma score less than eight (8), or with any of the following conditions: unable to establish or maintain an airway; ineffective respiratory effort; penetrating injury to head, neck, chest, abdomen, or extremity proximal to elbow or knee; burns greater than ten percent (10%) of the body surface area or involving inhalation injury; two (2) or more proximal long bone fractures or pelvic fracture; open or depressed skull fracture; suspected spinal cord injury and/or paralysis; amputation proximal to wrist or ankle; facial or tracheal injury with airway compromise; pre-existing medical conditions; or respiratory or cardiopulmonary arrest after injury;
- (BB) Surgical trauma call roster is a hospital-specific list of surgeons assigned to trauma care, including date(s) of coverage and back-up surgeons when indicated;
- (CC) Trauma center is a hospital that has been designated in accordance with the rules in this chapter to provide systematized medical and nursing care to trauma patients. Level I is the highest level of designation and functions as a resource center for the hospitals within that region. Level II is the next highest level of designation dealing with large volumes of serious trauma. Level III is the next level with limited resources;
- (DD) Trauma medical director is a surgeon designated by the hospital who is responsible for the trauma service and performance improvement and patient safety programs related to trauma care; **Pediatric Level I Trauma Center Medical Director is a surgeon that is boarded in general surgery and Board-Certified in Pediatric Surgery or board-eligible in Pediatric Surgery by the American Board of Surgery.**
- (EE) Trauma nurse coordinator/trauma program manager is a registered nurse designated by the hospital with responsibility for monitoring and evaluating the care of trauma patients and the coordination of performance improvement and patient safety programs for the trauma center in conjunction with the trauma medical director;
- (FF) Trauma nursing course is an education program in nursing care of trauma patients;
- (GG) Trauma service is an organizational component of the hospital specializing in the care of injured patients;
- (HH) Trauma team is a team consisting of the emergency physician, physicians on the surgical trauma call roster, appropriate anesthesiology staff, nursing and other support staff as needed;
- (II) Trauma team activation protocol is a hospital document outlining the criteria used to identify severely injured patients and the procedures for notification of trauma team members and indicating surgical and non-surgical specialty response times acceptable for treating major trauma patients; and
- (JJ) Trauma triage is an estimation of injury severity at the scene of an accident.

*AUTHORITY: section 190.185, RSMo Supp.2007 and section 190.241, HB 1790, 94th General Assembly, Second Regular Session,2008.\* Emergency rule filed Aug. 28, 1998, effective Sept. 7, 1998, expired March 5,1999. Original rule filed Sept. 1, 1998, effective Feb. 28, 1999. Amended: Filed Jan. 16,2007, effective Aug. 30, 2007. Amended: Filed May 19, 2008, effective Jan. 30, 2009. \*Original authority: 190.185, RSMo 1973, amended 1989, 1993, 1995, 1998, 2002 and 190.241, RSMo 1987,amended 1998, 2008.*

### **19 CSR 30-40.420 Trauma Center Designation Requirements**

*PURPOSE: This rule establishes the requirements for participation in Missouri's trauma center program.*

*PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome and expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.*

(1) Participation in Missouri's trauma center program is voluntary and no hospital shall be required to participate. No hospital shall in any way indicate to the public that it is a trauma center unless that hospital has been designated as such by the Emergency Medical Services (EMS) Bureau. Hospitals desiring trauma center designation shall apply to the EMS Bureau. Only those hospitals found by review to be in compliance with the requirements of the rules in this chapter shall be designated by the EMS Bureau as trauma centers.

(2) The application required for trauma center designation shall be made upon forms prepared or prescribed by the EMS Bureau and shall contain information the EMS Bureau deems necessary to make a fair determination of eligibility for review and designation in accordance with the rules of this chapter.

(A) An application shall include the following information: designation level requested; name, address, and telephone number of hospital; name of chief executive officer, chairman/president of board of trustees, surgeon in charge of trauma care, trauma nurse coordinator/program manager, director of emergency medicine, and director of trauma intensive care; number of emergency department trauma caseload, trauma team activations, computerized tomography scan capability, magnetic resonance imaging capability, operating rooms, intensive care unit/critical care unit beds, burn beds, rehabilitation beds, trauma surgeons, neurosurgeons, orthopedists, emergency department physicians, anesthesiologists, certified registered nurse anesthetists, pediatricians, and pediatric surgeons; date of application; and signatures of the chairman/president of board of trustees, hospital chief executive officer, surgeon in charge of trauma, and director of emergency medicine. The trauma center review and designation application form, included herein, is available at the EMS Bureau office or may be obtained by mailing a written request to Missouri Department of Health and Senior Services, EMS Bureau, PO Box 570, Jefferson City, MO 65102-0570.

(B) The EMS Bureau shall notify the hospital of any apparent omissions or errors in the completion of the application and shall contact the hospital to arrange a date for the review.

(C) Failure of a hospital to cooperate in arranging for a mutually suitable date for review shall constitute forfeiture of application when a hospital's initial review is pending or suspension of designation when a hospital's verification or validation review is pending.

(D) Hospitals designated as trauma centers under the previous designation system shall maintain their designation until a review is conducted using the rules of this chapter.

(3) The review of hospitals for trauma center designation shall include interviews with designated hospital staff, a review of the physical plant and equipment, and a review of records and documents as deemed necessary to assure compliance with the requirements of the rules of this chapter. The cost of any and all site reviews shall be paid by each applicant hospital or renewing trauma center unless adequate funding is available to the EMS Bureau to pay for reviews.

(A) For the purpose of reviewing trauma centers and hospitals applying for trauma center designation, the EMS Bureau shall use review teams consisting of two (2) surgeons and one (1) emergency physician who are experts in trauma care and one (1) trauma nurse coordinator/trauma program manager experienced in trauma center review. The team shall be disinterested politically and financially in the hospitals to be reviewed. Out-of-state review teams shall conduct levels I, ~~and II~~ and **Level I Pediatric Trauma Center** reviews. In-state reviewers may conduct level III reviews. In the event that out-of-state reviewers are unavailable, level II reviews may be conducted by in-state reviewers from EMS regions other than the region being reviewed with approval of the director of the Department of Health and Senior Services or his/her designee. When utilizing in-state review teams, the level II trauma center shall have the right to refuse one (1) review team.

**Pediatric Level I trauma Center survey review team will consist of a (2) Pediatric Surgeons, (1) Pediatric Emergency physician and (1) Pediatric Trauma Program Manager as available.**

(B) Any substantial deficiencies cited in the initial review or the validation review regarding patient care issues, especially those related to delivery of timely surgical intervention, shall require a focused review to be conducted. When deficiencies involve documentation or policy or equipment, the hospital's plan of correction shall be submitted to the EMS Bureau and verified by EMS Bureau personnel.

(C) The verification review shall be conducted in the same manner and detail as initial and validation reviews. A review of the physical plant will not be necessary unless a deficiency was cited in the physical plant in the preceding initial or validation review. If deficiencies relate only to a limited number of areas of hospital operations, a focused review shall be conducted. The review team for a focused review shall be comprised of review team members with the required expertise to evaluate corrections in the specified deficiency area.

(D) Validation reviews shall occur **no less than** every five (5) years. Level I and II trauma centers undergoing American College of Surgeons reverification review at shorter intervals may incorporate EMS Bureau personnel in these reviews and, if they

successfully pass reverification and meet all requirements herein, submit that review for EMS Bureau reverification.

(E) Upon completion of a review, the reviewers shall submit a report of their findings to the EMS Bureau. If this is also an American College of Surgeons (ACS) verification or reverification, the hospital shall request a copy of the report be sent directly to the EMS Bureau from the ACS verification committee. The report shall state whether the specific standards for trauma center designation have or have not been met; if not met, in what way they were not met. The report shall include the patient chart audits and a narrative summary to include pre-hospital, hospital, trauma service, emergency department, operating room, recovery room, clinical lab, intensive care unit, blood bank, rehabilitation, performance improvement and patient safety programs, education, outreach, research, chart review, and interviews. The EMS Bureau has final authority to determine compliance with the rules of this chapter.

(F) Within thirty (30) days after receiving a review report, the EMS Bureau shall return a copy of the report in whole to the chief executive officer of the hospital reviewed. Included with the report shall be notification indicating that the hospital has met the criteria for trauma center designation or has failed to meet the criteria for the designation level for which it applied and options the hospital may pursue.

(G) If a verification review is required, the hospital shall be allowed a period of six (6) months to correct deficiencies. A plan of correction form shall be provided to the EMS Bureau and shall be completed by the hospital and returned to the EMS Bureau within thirty (30) days after notification of review findings.

(H) Once a review is completed, a final report shall be prepared by the EMS Bureau. ~~The~~ **A summary of the** final report shall be public record and shall disclose the standards by which the reviews were conducted and whether the standards were met. The reports filed by the reviewers shall be held confidential and shall be disclosed only to the hospital's chief executive officer or an authorized representative.

(4) The EMS Bureau shall have the authority to put on probation, suspend, revoke, or deny trauma center designation if there is reasonable cause to believe that there has been a substantial failure to comply with the requirements of the rules in this chapter. Once designated as a trauma center, a hospital may voluntarily surrender the designation at any time without giving cause, by contacting the EMS Bureau. In these cases, the application and review process shall be completed again before the designation may be reinstated.

(A) Trauma center designation shall be valid for a period of **no more than** five (5) years from the date the trauma center is designated. Expiration of the designation shall occur unless the trauma center applies for validation review within this five (5)-year period.

Trauma center designation shall be site specific and not transferable when a trauma center changes location. (B) The EMS Bureau shall investigate complaints against trauma centers. Failure of the hospital to cooperate in providing documentation and interviews with appropriate staff may result in revocation of trauma center designation. Any hospital, which takes adverse action toward an employee for cooperating with the EMS Bureau regarding a complaint, is subject to revocation of trauma center designation.

*AUTHORITY: section 190.185, RSMo Supp.2007 and section 190.241, HB 1790, 94th General Assembly, Second Regular Session,2008.\* Emergency rule filed Aug. 28, 1998,*

effective Sept. 7, 1998, expired March 5, 1999. Original rule filed Sept. 1, 1998, effective Feb. 28, 1999. Amended: Filed May 19, 2008, effective Jan. 30, 2009.

\*Original authority: 190.185, RSMo 1973, amended 1989, 1993, 1995, 1998, 2002 and 190.241, RSMo 1987, amended 1998, 2008.

*PURPOSE: This rule establishes standards for level I, II and III **adult** trauma center and **Level I Pediatric Trauma Center** designation.*

*EDITOR'S NOTE: I-R, II-R, ~~III-R~~ or **PI-R** after a standard indicates a requirement for **that level I center**,*

*II or III trauma center respectively. I-IH, II-IH or III-IH **PI-IH** after a standard indicates an in-house requirement for level I, II, ~~III~~ or **PI** trauma center respectively. I-IA, II-IA, ~~III-IA~~ or **PI-IA** indicates an immediately available requirement for level I, II, ~~III~~ or **PI** trauma center.*

*respectively. I-PA, II-PA, ~~III-PA~~ or **PI-PA** indicates a promptly available requirement for level I, II, ~~III~~ or **PI** trauma center respectively.*

*PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.*

### **(1) General Standards for Trauma Center Designation.**

(A) The hospital board of directors, administration, medical staff and nursing staff shall demonstrate a commitment to quality trauma care. Methods of demonstrating the commitment shall include, but not be limited to, a board resolution that the hospital governing body agrees to establish policy and procedures for the maintenance of services essential for a trauma center; assure that all trauma patients will receive medical care at the level of the hospital's designation; commit the institution's financial, human and physical resources as needed for the trauma program; and establish a priority admission for the trauma patient to the full services of the institution. (I-R, II-R, III-R, **PI-R**)

(B) Trauma centers shall agree to accept all trauma victims appropriate for the level of care provided at the hospital, regardless of race, sex, creed or ability to pay. (I-R, II-R, III-R, **PI-R**)

(C) **The Level I pediatric trauma center shall be located in a freestanding children's hospital. Adult trauma centers with pediatric capability must have:**

1. admitted more than 100 injured children less than 15 years of age/year.
2. Trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing committee
3. Pediatric emergency department unit, pediatric intensive care unit, appropriate resuscitation equipment, and a pediatric-specific trauma PIPS program.

(C) The hospital shall demonstrate evidence of a trauma program that provides the trauma team with appropriate experience to maintain skill and proficiency in the care of trauma patients. Such evidence shall include meeting of continuing education unit requirements by all professional staff, documented regular attendance by all core trauma surgeons and liaison representation from neurosurgeons, orthopedic surgeons, emergency medicine physicians, and anesthesiologists at trauma program performance improvement and patient safety program meetings, documentation of continued experience as defined by the trauma medical director in management of sufficient numbers of severely injured patients to maintain skill levels, and outcome data on quality of patient care as defined by regional emergency medical service committees. Regular attendance shall be defined by each trauma service, but shall be not less than fifty percent (50%) of all meetings. The trauma medical director must ensure and document dissemination of information and findings from the peer review meetings to the non-core surgeons on the trauma call roster.

(D) There shall be a lighted designated helicopter landing area at the trauma center to accommodate incoming medical helicopters. (I-R, II-R, III-R, **PI-R**)

1. The landing area shall serve solely as the receiving and take-off area for medical helicopters and shall be cordoned off at all times from the general public to assure its continual availability and safe operation. (I-R, II-R, III-R, **PI-R**)

2. The landing area shall be on the hospital premises no more than three (3) minutes from the emergency room. (I-R, II-R, III-R, **PI-R**)

(E) The hospital shall appoint a board-certified surgeon to serve as the trauma medical director. (I-R, II-R, III-R, **PI-R**) 1. There shall be a job description and organization chart depicting the relationship between the trauma medical director and other services. (I-R, II-R, III-R, **PI-R**)

2. The trauma medical director shall be a member of the surgical trauma call roster. (I-R, II-R, III-R, **PI-R**)

3. The trauma medical director shall be responsible for the oversight of the education and training of the medical and nursing staff in trauma care. (I-R, II-R, III-R, **PI-R**)

4. The trauma medical director shall document a minimum average of sixteen (16) hours of continuing medical education (CME) in trauma care every year. (I-R, II-R, III-R, **PI-R**)

5. The trauma medical director shall participate in the trauma center's research and publication projects. (I-R, **PI-R**)

(F) There shall be a trauma nurse coordinator/trauma program manager. (I-R, II-R, III-R, **PI-R**) 1. There shall be a job description and organization chart depicting the relationship between the trauma nurse coordinator/trauma program manager and other services. (I-R, II-R, III-R, **PI-R**)

2. The trauma nurse coordinator/trauma program manager shall document a minimum average of sixteen (16) hours of continuing nursing education in trauma care every year. (I-R, II-R, III-R, **PI-R**)

(G) By the time of the initial review, all general surgeon members of the surgical trauma call roster shall have successfully completed or be registered for a provider Advanced Trauma Life Support (ATLS) course. Current certification must then be maintained by each general surgeon on the trauma call roster. (I-R, II-R, III-R, **PI-R**)

(H) All members of the surgical trauma call roster and emergency medicine physicians including liaisons for anesthesiology, neurosurgery, and orthopedic surgery shall

document a minimum average of eight (8) hours of CME in trauma care every year. In hospitals designated as **Pediatric trauma Center** and adult/pediatric trauma centers, providing care to injured children fourteen (14) years of age and younger, four (4) of the eight (8) hours of education per year must be applicable to pediatric trauma. (I-R, II-R, III-R, **PI-R**) **Trauma Surgeons in adult trauma centers that treat more than 100 injured children annually *must be* credentialed in pediatric trauma care by the hospital's credentialing body. (ACS CD 2.14)**

(I) The hospital shall demonstrate that there is a plan for adequate post-discharge follow-up on trauma patients, including rehabilitation. (I-R, II-R, III-R, **PI-R**)

(J) A Missouri trauma registry shall be completed on each patient who sustains a traumatic injury and meets the following criteria: Includes at least one (1) code within the range of the following injury diagnostic codes as defined in the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9)-(CM) 800-959.9 which is incorporated by reference in this rule as published by the Centers for Disease Control and Prevention in 2006 and is available at National Center for Health Statistics, 1600 Clifton Road, Atlanta, GA 30333. This rule does not incorporate any subsequent amendments or additions. Excludes all diagnostic codes within the following code ranges: 905–909.9 (late effects of injury), 910–924.9 (superficial injuries, including blisters, contusions, abrasions, and insect bites), 930–939.9 (foreign bodies), and must include one of the following criteria: hospital admission, patient transfer **via EMS or air transport** ~~out of facility~~, or death resulting from the traumatic injury (independent of hospital admission or hospital transfer status). The registry shall be submitted electronically in a format defined by the Department of Health and Senior Services. Electronic data shall be submitted quarterly, ninety (90) days after the quarter ends. The trauma registry must be current and complete. A patient log with admission date, patient name, and injuries must be available for use during the site review process. Information provided by hospitals on the trauma registry shall be subject to the same confidentiality requirements and procedures contained in section 192.067, RSMo. The trauma care data elements shall be those identified and defined by the National Trauma Data Standard which is incorporated by reference in this rule as published by the American College of Surgeons in 2008 and is available at the American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, III-R, **PI-R**)

(K) The hospital shall have a trauma team activation protocol that establishes the criteria used to rank trauma patients according to the severity and type of injury and identifies the persons authorized to notify trauma team members when a severely injured patient is en route or has arrived at the trauma center. (I-R, II-R, III-R, **PI-R**)

1. The trauma team activation protocol shall provide for immediate notification and response requirements for trauma team members when a severely injured patient is enroute to the trauma center. (I-R, II-R, III-R, **PI-R**)

(L) The hospital shall have a plan to notify an organ or tissue procurement organization and cooperate in the procurement of anatomical gifts in accordance with the provisions in section 194.233, RSMo. (I-R, II-R, III-R, **PI-R**)

(M) There shall be no level III trauma centers designated within fifteen (15) miles of any Missouri level I or II trauma center. Hospitals which have continually been level III trauma centers since January 1, 1989, and which are within fifteen (15) miles of a

Missouri level I or II trauma center may continue as level III trauma centers, provided they continue to meet standards for level III trauma centers.

(N) The adult trauma center that admits more than 100 injured children annually ~~must have~~ has a pediatric emergency department area, a pediatric intensive care ~~area~~ unit, appropriate resuscitation equipment, and pediatric-specific trauma PIPS program. For those centers who admit less than 100 injured children annually, these resources are desirable, however, they must review the care of their injured children through their PIPS program. (ACS CD 2-15, 2-16).

## **(2) Hospital Organization Standards for Trauma Center Designation.**

(A) There shall be a delineation of privileges for the trauma service staff made by the medical staff credentialing committee. (I-R, II-R, III-R, **PI-R**)

(B) All members of the surgical trauma call roster shall comply with the availability and response requirements in subsection (2)(D) of this rule. If not on the hospital premises, trauma team members who are immediately available shall carry electronic communication devices at all times to permit contact by the hospital and shall respond immediately to a contact by the hospital. (IR, II-R, III-R, **PI-R**)

(C) Surgeons who are board-certified or board-admissible or complete an alternate pathway as documented and defined by the trauma medical director using the criteria established by the American College of Surgeons (ACS) in the current Resource for Optimal Care Document in the following specialties and who are credentialed by the hospital for trauma care shall be on the trauma center staff and/or be available to the patient as indicated. The Resource for Optimal Care Document is incorporated by reference in this rule as published by the American College of Surgeons in 2006 and is available at the American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. 1. General surgery—I-R, II-I/A, III-P/A, **PI-R**.

A. The general surgery staffing requirement may be fulfilled by a senior surgery resident credentialed in general surgery, including trauma care, and Advanced Trauma Life Support (ATLS) certification and capable of assessing emergency situations in general surgery.

B. The trauma surgeon shall be immediately available ~~and in attendance with the patient~~ when a trauma surgery resident is fulfilling availability requirements.

C. In a level I or II center, call rosters providing back-up coverage will be maintained for general trauma surgeons. In a level III center, call rosters providing for back-up coverage for general trauma surgeons will be maintained or a written transfer agreement to a level I or II trauma center provided.

D. Surgeons who are board-certified or board-admissible and who are credentialed by the hospital for trauma care shall be on the trauma center staff.

2. Neurologic surgery—I-IH, II-IA, **PI-R**.

A. The neurologic surgery staffing requirement may be fulfilled by a surgeon who has been approved by the chief of neurosurgery for care of patients with neural trauma.

B. The surgeon shall be capable of initiating measures toward stabilizing the patient and performing diagnostic procedures.

3. Cardiac/Thoracic surgery—I-R/PA, II-R/PA, **PI-R**.

4. Obstetric-gynecologic surgery—IR/PA, II-R/PA, **PI-R**.

5. Ophthalmic surgery—I-R/PA, IIR/PA, **PI-R**.
6. Orthopedic surgery—I-R/PA, IIR/PA, **PI-R**.
7. Maxillofacial trauma surgery—IR/PA, II-R/PA.
8. Otorhinolaryngologic surgery—I-R/PA, II-R/PA, **PI-R**.
9. Pediatric surgery/trauma surgeon credentialed and privileged in pediatric trauma care—I-R/IA, II-R/PA, **PI-R**; this requirement will be waived in centers that provide evaluation and care to adults only.
10. Plastic surgery—I-R/PA, II-R/PA, **PI-R**.
11. Urologic surgery—I-R/PA, II-R/PA, **PI-R**.
12. Emergency medicine—I-R/IH, IIR/IH, III-R/IH, **PI-IH**.
13. Cardiology—I-R/PA, II-R/PA, **PI-R**.
14. Chest pulmonary medicine—IR/PA, II-R/PA, **PI-R**.
15. Gastroenterology—I-R/PA, II-R/PA, **PI-R**.
16. Hematology—I-R/PA, II-R/PA, **PI-R**.
17. Infectious diseases—I-R/PA, IIR/PA, **PI-R**.
18. Internal medicine—I-R/PA, II-R/PA, III-R/PA, **PI-R**.
19. Nephrology—I-R/PA, II-R/PA, **PI-R**.
20. Pathology—I-R/PA, II-R/PA, **PI-R**.
21. Pediatrics—I-R/PA, II-R/PA, **PI-R**.
22. Psychiatry—I-R/PA, II-R/PA, **PI-R**.
23. Radiology—I-R/PA, II-R/PA, **PI-R**.
24. Anesthesiology—I-R/IH, II-R/IA, III-R/PA, **PI-R**.
  - A. In a level I or II trauma center, anesthesiology staffing requirements may be fulfilled by anesthesiology residents or certified registered nurse anesthetists (CRNA) capable of assessing emergent situations in trauma patients and of providing any indicated treatment including induction of anesthesia or may be fulfilled by anesthesiologist assistants with anesthesiologist supervision in accordance with sections 334.400 to 334.430, RSMo.
  - B. In a level III trauma center, anesthesiology requirements may be fulfilled by a CRNA with physician supervision, or an anesthesiologist assistant with anesthesiology supervision.

**(3) Standards for Special Facilities/Resources/Capabilities for Trauma Center Designation.**

- (A) The hospital shall meet emergency department standards for trauma center designation. **The adult trauma center that treats more than 100 injured children annually has must have a pediatric emergency department area.**
1. The emergency department staffing shall ensure immediate and appropriate care of the trauma patient. (I-R, II-R, III-R, **PI-R**)
    - A. The physician director of the emergency department shall be board-certified or board-admissible in emergency medicine. **The physician director of the emergency department in a Level I Pediatric Trauma Center shall be board-certified or board admissible in Pediatric Emergency Medicine (I-R, II-R, PI-R)**
    - B. There shall be a physician trained in the care of the critically injured as evidenced by credentialing in ATLS and current in trauma CME in the emergency department twenty-four (24) hours a day. ATLS is incorporated by reference in this rule as published by the

American College of Surgeons in 2003 and is available at American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, III-R, **PI-R**) ([Discussion about ACS requirement for 16 hours?](#))

C. All emergency department physicians shall be certified in ATLS at least once. Physicians who are certified by boards other than emergency medicine who treat trauma patients in the emergency department are required to have current ATLS status. (I-R, II-R, III-R, **PI-R**)

D. There shall be written protocols defining the relationship of the emergency department physicians to other physician members of the trauma team. (I-R, II-R, III-R, **PI-R**)

E. All registered nurses assigned to the emergency department shall be credentialed in trauma nursing by the hospital within one (1) year of assignment. (I-R, II-R, III-R, **PI-R**)

(I) Registered nurses credentialed in trauma nursing shall document a minimum of eight (8) hours of trauma-related continuing nursing education per year. (I-R, II-R, III-R, **PI-R**)

(II) Registered nurses credentialed in trauma care shall maintain current provider status in the Trauma Nurse Core Curriculum or Advanced Trauma Care for Nurses and either Pediatric Advanced Life Support (PALS), Advanced Pediatric Life Support (APLS), or Emergency Nursing Pediatric Course (ENPC) within one (1) year of employment in the emergency department. The requirement for Pediatric Advanced Life Support, Advanced Pediatric Life Support, or Emergency Nursing Pediatric Course may be waived in centers where policy exists diverting injured children to a pediatric trauma center and where a pediatric trauma center is adjacent and a performance improvement filter reviewing any children seen is maintained. The Trauma Nurse Core Curriculum is incorporated by reference in this rule as published in 2007 by the Emergency Nurses Association and is available at the Emergency Nurses Association, 915 Lee Street, Des Plaines, IL 60016-9659. This rule does not incorporate any subsequent amendments or additions. Advanced Trauma Care for Nurses is incorporated by reference in this rule as published in 2003 by the Society of Trauma Nurses and is available at the Society of Trauma Nurses, 1926 Waukegan Road, Suite 100, Glenview, IL 60025. This rule does not incorporate any subsequent amendments or additions. Pediatric Advanced Life Support is incorporated by reference in this rule as published in 2005 by the American Heart Association and is available at the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231. This rule does not incorporate any subsequent amendments or additions. The Emergency Nursing Pediatric Course is incorporated by reference in this rule as published by the Emergency Nurses Association in 2004 and is available at the Emergency Nurses Association, 915 Lee Street, Des Plaines, IL 60016-9659. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, III-R, **PI-R**)

2. Equipment for resuscitation and life support with age appropriate sizes for the critically or seriously injured shall include the following: A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-mask resuscitator, sources of oxygen, and mechanical ventilator—I-R, IIR, III-R, **PI-R**;

B. Suction devices—I-R, II-R, III-R **PI-R**;

C. Electrocardiograph, cardiac monitor, and defibrillator—I-R, II-R, III-R, **PI-R**;

D. Central line insertion equipment— I-R, II-R, III-R **PI-R**;

- E. All standard intravenous fluids and administration devices including intravenous catheters—I-R, II-R, III-R, [PI-R](#);
  - F. Sterile surgical sets for procedures standard for the emergency department—I-R, II-R, III-R, [PI-R](#);
  - G. Gastric lavage equipment—I-R, IIR, III-R, [PI-R](#);
  - H. Drugs and supplies necessary for emergency care—I-R, II-R, III-R, [PI-R](#);
  - I. Two-way radio linked with emergency medical service (EMS) vehicles—I-R, II-R, III-R [PI-R](#);
  - J. End-tidal carbon dioxide monitor—I-R, II-R, III-R and mechanical ventilators— I-R, II-R;
  - K. Temperature control devices for patient, parenteral fluids, and blood—I-R, IIR, III-R; and
  - L. Rapid infusion system for parenteral infusion—I-R, II-R, III-R.
3. There shall be documentation that all equipment is checked according to the hospital preventive maintenance schedule. (I-R, IIR, III-R)
  4. There shall be a designated trauma resuscitation area in the emergency department. (I-R, II-R)
  5. There shall be X-ray capability with twenty-four (24)-hour coverage by technicians. (I-IH, II-IH, III-IA)
  6. Nursing documentation for the trauma patient shall be on a trauma flow sheet approved by the trauma medical director and trauma nurse coordinator/trauma program manager. (I-R, II-R, III-R, [PI-R](#))
- (B) The hospital shall meet intensive care unit (ICU) standards for trauma center designation. ~~For those a~~ **Adult trauma centers admitting more than 100 injured children per year must have a pediatric intensive care unit.**
1. There shall be a designated surgeon medical director for the ICU. (I-R, II-R, III-R [PI-R](#))
  2. A physician who is not the emergency department physician shall be on duty in the ICU or available in-house twenty-four (24) hours a day in a level I trauma center and shall be on call and available within twenty (20) minutes in a level II trauma center.
  3. The minimum registered nurse/trauma patient ratio used shall be one to two (1:2). (I-R, II-R, III-R, [PI-R](#))
  4. Registered nurses shall be credentialed in trauma care within one (1) year of assignment documenting a minimum of eight (8) hours of trauma-related continuing nursing education per year. (I-R, II-R, III-R, [PI-R](#))
  5. Nursing care documentation shall be on a patient flow sheet. (I-R, II-R, III-R, [PI-R](#))
  6. At the time of the initial review, nurses assigned to ICU shall have successfully completed or be registered for a provider ACLS course. The requirement for ACLS may be waived in pediatric centers where policy exists diverting injured adults to an adult trauma center and where an adult trauma center is adjacent to the affected pediatric facilities, and a performance improvement filter reviewing any adult trauma patients seen is maintained (I-R, II-R, III-R, [PI-R](#)).
  7. There shall be separate pediatric and adult ICUs or a combined ICU with nurses trained in pediatric intensive care. In ICUs providing care to children, registered nurses shall maintain credentialing in PALS, APLS, or ENPC (I-R, II-R, [PI-R](#))
  8. There shall be beds for trauma patients or comparable level of care provided until space is available in ICU. (I-R, II-R, III-R, [PI-R](#))

9. Equipment for resuscitation and to provide life support for the critically or seriously injured shall be available for the intensive care unit. In ICUs providing care for the pediatric patient, equipment with age appropriate sizes shall also be available. This equipment shall include, but not be limited to:
- A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes, bag-mask resuscitator, and a mechanical ventilator—I-R, II-R, III-R, **PI-R**;
  - B. Oxygen source with concentration controls—I-R, II-R, III-R, **PI-R**;
  - C. Cardiac emergency cart, including medications—I-R, II-R, III-R, **PI-R**;
  - D. Temporary transvenous pacemakers— I-R, II-R, III-R, **PI-R**;
  - E. Electrocardiograph, cardiac monitor, and defibrillator—I-R, II-R, III-R, **PI-R**;
  - F. Cardiac output monitoring—I-R, II-R, **PI-R**;
  - G. Electronic pressure monitoring and pulse oximetry—I-R, II-R, **PI-R**;
  - H. End-tidal carbon dioxide monitor and mechanical ventilators—I-R, II-R, III-R, **PI-R**;
  - I. Patient weighing devices—I-R, IIR, III-R, **PI-R**;
  - J. Temperature control devices—I-R,II-R, III-R, **PI-R**;
  - K. Drugs, intravenous fluids, and supplies —I-R, II-R, III-R, **PI-R**; and
  - L. Intracranial pressure monitoring devices—I-R, II-R, **PI-R**.
10. There shall be documentation that all equipment is checked according to the hospital preventive maintenance schedule. (I-R, II-R, III-R, **PI-R**)
- (C) The hospital shall meet post-anesthesia recovery room (PAR) standards for trauma center designation.
- 1. Registered nurses and other essential personnel who are not on duty shall be on call and available within sixty (60) minutes.(I-R, II-R, III-R, **PI-R**)
  - 2. Equipment for resuscitation and to provide life support for the critically or seriously injured shall include, but not be limited to:
    - A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes of all sizes, bag-mask resuscitator, sources of oxygen, and mechanical ventilator— I-R, II-R, III-R, **PI-R**;
    - B. Suction devices—I-R, II-R, and III-R, **PI-R**;
    - C. Electrocardiograph, cardiac monitor, and defibrillator—I-R, II-R, III-R, **PI-R**;
    - D. Apparatus to establish central venous pressure monitoring—I-R, II-R, **PI-R**;
    - E. All standard intravenous fluids and administration devices, including intravenous catheters—I-R, II-R, III-R, **PI-R**;
    - F. Sterile surgical set for emergency procedures—I-R, II-R, and III-R, **PI-R**;
    - G. Drugs and supplies necessary for emergency care—I-R, II-R, III-R, **PI-R**;
    - H. Temperature control devices for the patient, for parenteral fluids, and for blood—I-R, II-R, III-R, **PI-R**;
    - I. Temporary pacemaker—I-R, II-R, III-R, **PI-R**;
    - J. Electronic pressure monitoring—IR, II-R, **PI-R**; and
    - K. Pulmonary function measuring devices—I-R, II-R, III-R, **PI-R**.
- (D) The hospital shall have acute hemodialysis capability or a written transfer agreement. (I-R, II-R, III-R, **PI-R**)
- (E) The hospital shall have a physician-directed burn unit or a written transfer agreement. (I-R, II-R, III-R, **PI-R**)
- (F) The hospital shall have injury rehabilitation and spinal cord injury rehabilitation capability or a written transfer agreement. (I-R, II-R, III-R, **PI-R**)

- (G) The hospital shall possess pediatric trauma management capability or maintain written transfer agreements. (I-R, II-R, III-R, **PI-R**)
- (H) Radiological capabilities for trauma center designation including a mechanism for timely interpretation to aid in patient management shall include:
1. Angiography with interventional capability available twenty-four (24) hours a day with a one (1)-hour maximum response time from time of notification—I-R, II-R, **PI-R**;
  2. Sonography available twenty-four (24) hours a day with a thirty (30)-minute maximum response time—I-R, **PI-R**;
  3. Resuscitation equipment available to the radiology department—I-R, II-R, III-R, **PI-R**;
  4. Adequate physician and nursing personnel present with monitoring equipment to fully support the trauma patient and provide documentation of care during the time the patient is physically present in the radiology department and during transportation to and from the radiology department. Nurses providing care for the trauma patients that are not accompanied by a trauma nurse while in the radiology department during initial evaluation and resuscitation shall maintain the same credentialing required of emergency department nursing personnel—I-R, II-R, III-R, **PI-R**;
  5. In-house computerized tomography—I-R, II-R, **PI-R**; and
  6. Computerized tomography technician—I-IH, II-IA, **PI-IH**.
- (I) There shall be documentation of adequate support services in assisting the patient's family from the time of entry into the facility to the time of discharge. (I-R, II-R, III-R, **PI-R**)
- (J) Medical surgical floors of a designated trauma center shall have the following personnel and equipment:
1. Registered nurses and other essential personnel on duty twenty-four (24) hours a day—I-R, II-R, III-R, **PI-R**;
  2. Equipment for resuscitation and to provide support for the injured patient including, but not limited to:
    - A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes of all sizes, bag-mask resuscitator, and sources of oxygen—I-R, II-R, III-R, **PI-R**;
    - B. Suction devices—I-R, II-R, III-R, **PI-R**;
    - C. Electrocardiograph, cardiac monitor, and defibrillator—I-R, II-R, III-R, **PI-R**;
    - D. All standard intravenous fluids and administration devices and intravenous catheters—I-R, II-R, III-R, **PI-R**; and
    - E. Drugs and supplies necessary for emergency care—I-R, II-R, III-R, **PI-R**; and
  3. Documentation that all equipment is checked according to the hospital preventive maintenance schedule—I-R, II-R, III-R, **PI-R**.
- (K) The operating room personnel, equipment, and procedures of a trauma center shall include, but not be limited to:
1. An operating room adequately staffed in-house twenty-four (24) hours a day—I-R, II-R, **PI-R**;
  2. Equipment including, but not limited to:
    - A. Operating microscope—I-R; B. Thermal control equipment for patient, parenteral fluids, and blood—I-R, III-R, **PI-R**;
    - C. X-ray capability—I-R, II-R, III-R, **PI-R**;

- D. Endoscopic capabilities, all varieties—I-R, II-R, III-R, **PI-R**;
- E. Instruments necessary to perform an open craniotomy—I-R, II-R, **PI-R**; and
- F. Monitoring equipment—I-R, II-R, III-R, **PI-R**; and
- 3. Documentation that all equipment is checked according to the hospital preventive maintenance schedule—I-R, II-R, III-R, **PI-R**;
- (L) The following clinical laboratory services shall be available twenty-four (24) hours a day:
  - 1. Standard analyses of blood, urine and other body fluids—I-R, II-R, III-R, **PI-R**;
  - 2. Blood typing and cross-matching— I-R, II-R, III-R, **PI-R**;
  - 3. Coagulation studies—I-R, II-R, III-R, **PI-R**;
  - 4. Comprehensive blood bank or access to a community central blood bank and adequate hospital blood storage facilities—I-R,II-R, III-R, **PI-R**;
  - 5. Blood gases and pH determinations— I-R, II-R, III-R, **PI-R**;
  - 6. Serum and urine osmolality—I-R,II-R, **PI-R**;
  - 7. Microbiology—I-R, II-R, III-R, **PI-R**;
  - 8. Drug and alcohol screening—I-R,II-R, III-R, **PI-R**; and
  - 9. A written protocol that the trauma patient receives priority—I-R, II-R, III-R, **PI-R**.

**(4) Standards for Programs in Performance Improvement and Improvement Patient Safety Program, Outreach, Public Education, and Training for Trauma Center Designation.**

(A) There shall be an ongoing performance improvement and patient safety program (**PIPS**) designed to objectively and systematically monitor, review, and evaluate the quality and appropriateness of patient care, pursue opportunities to improve patient care, and resolve identified problems. (I-R, II-R, III-R, **PI-R**). ~~For a~~**adult trauma centers who admit more than 100 injured children per year, need must to have a separate pediatric performance improvement and patient safety program. For adult trauma centers who admit less than 100 injured children per year, the care of their injured children must be reviewed thru their PIPS program.**

- (B) The following additional performance improvement and patient safety measures shall be required:
- 1. Regular reviews of all trauma-related deaths—I-R, II-R, III-R, **PI-R**;
  - 2. A regular morbidity and mortality review, at least quarterly—I-R, II-R, III-R, **PI-R**;
  - 3. A regular multidisciplinary trauma conference that includes representation of all members of the trauma team, with minutes of the conferences to include attendance and findings—I-R, II-R, III-R, **PI-R**;
  - 4. Regular reviews of the reports generated by the Department of Health and Senior Services from the Missouri trauma registry and the head and spinal cord injury registry—I-R, II-R, and III-R, **PI-R**;
  - 5. Regular reviews of pre-hospital trauma care including inter-facility transfers and all adult patients seen in pediatric centers—IR, II-R, III-R, **PI-R**;
  - 6. Participation in reviews of regional systems of trauma care as established by the Department of Health and Senior Services—I-R, II-R, III-R, **PI-R**; and
  - 7. Trauma patients remaining greater than six (6) hours prior to transfer will be reviewed as a part of the performance improvement and patient safety program—IR, II-R, III-R, **PI-R**
- (C) An outreach program shall be established to assure twenty-four (24)-hour availability of telephone consultation with physicians in the outlying region. (I-R, **PI-R**)

(D) A public education program shall be established to promote injury prevention and trauma care and to resolve problems confronting the public, medical profession, and hospitals regarding optimal care for the injured. These must address major trauma issues as identified in that program's performance improvement and patient safety process. (I-R, II-R, **PI-R**)

(E) The hospital shall be actively involved in local and regional emergency medical services systems by providing training and clinical resources. (I-R, II-R, III-R, **PI-R**)

(F) There shall be a hospital-approved procedure for credentialing nurses in trauma care. (I-R, II-R, III-R, **PI-R**)

1. All nurses providing care to severely injured patients and assigned to the emergency department or ICU shall complete a minimum of sixteen (16) hours of trauma nursing courses to become credentialed in trauma care. (I-R, II-R, III-R, **PI-R**)

2. The content and format of any trauma nursing courses developed and offered by a hospital shall be developed in cooperation with the trauma medical director. A copy of the course curriculum used shall be filed with the EMS Bureau. (I-R, II-R, III-R, **PI-R**)

3. Trauma nursing courses offered by institutions of higher education in Missouri such as the Advanced Trauma Care for Nurses, Emergency Nursing Pediatric Course, or the Trauma Nurse Core Curriculum may be used to fulfill this requirement. To receive credit for this course, a nurse shall obtain advance approval for the course from the trauma medical director and trauma nurse coordinator/trauma program manager and shall present evidence of satisfactory completion of the course. (I-R, II-R, III-R, **PI-R**)

(G) Hospital diversion information must be maintained to include date, length of time, and reason for diversion. This must be monitored as a part of the Performance Improvement and Patient Safety program, and available when the hospital is site reviewed.

(H) Each trauma center shall have a disaster plan. A copy of this disaster plan must be maintained within the trauma center policies and procedures and should document the trauma services role in planning and response.

##### **(5) Standards for the Programs in Trauma Research for Trauma Center Designation.**

(A) The hospital and its staff shall support a research program in trauma as evidenced by any of the following: 1. Publications in peer reviewed journals—I-R, **PI-R**;

2. Reports of findings presented at regional or national meetings—I-R, **PI-R**;

3. Receipt of grants for study of trauma care—I-R, **PI-R**; and

4. Production of evidence-based reviews—I-R, **PI-R**.

(B) The hospital shall agree to cooperate and participate with the EMS Bureau in conducting epidemiological studies and individual case studies for the purpose of developing injury control and prevention programs. (I-R, II-R, III-R, **PI-R**)

*AUTHORITY: section 190.185, RSMo Supp.2007 and section 190.241, HB 1790, 94th General Assembly, Second Regular Session,2008.\* Emergency rule filed Aug. 28, 1998, effective Sept. 7, 1998, expired March 5,1999. Original rule filed Sept. 1, 1998, effective Feb. 28, 1999. Amended: Filed Jan. 16,2007, effective Aug. 30, 2007. Amended: Filed May 19, 2008, effective Jan. 30, 2009. \*Original authority: 190.185, RSMo 1973, amended 1989, 1993, 1995, 1998, 2002 and 190.241, RSMo 1987, amended 1998, 2008.*

## 19 CSR 30-40.440 Standards for Pediatric Trauma Center Designation

*PURPOSE: This rule establishes standards for pediatric trauma center designation.*

### (1) General Standards for Pediatric Trauma Center Designation.

(A) ~~The pediatric trauma center shall be located in a children's hospital or in a level I trauma center.~~ A pediatric trauma center is a children's hospital, which may be a freestanding children's hospital or a separate administrative entity within a larger general hospital organization, such as a children's hospital within a hospital or a full service general hospital with comprehensive pediatric inpatient subspecialty services similar to those found in a freestanding children's hospital or a children's hospital within a hospital [Hospitals that pursue verification as pediatric trauma centers must meet the same resource requirements as adult trauma centers, in addition to pediatric resource requirements.] A pediatric trauma center should have sufficient volume of institutional experience with major pediatric injuries to maintain the clinical skills of pediatric trauma team members.

1. A level I pediatric trauma center must annually admit 200 or more injured children younger than 15 years. (free standing or within adult trauma center)

2. A level II pediatric trauma center must annually admit 100 or more injured children younger than 15 years. (free standing or within adult trauma center)

3. A pediatric capable center is an adult trauma center that admits fewer than 100 injured children younger than 15 years. (should there be a minimum volume seen?)

(B) The hospital board of directors, administration, medical staff and nursing staff shall demonstrate a commitment to quality pediatric trauma care and shall treat any pediatric trauma patient presented to the facility for care. Methods of demonstrating the commitment shall include, but not be limited to, a board resolution that the hospital governing body agrees to establish policies and procedures for the maintenance of the services essential to a pediatric trauma center; assure that all pediatric trauma patients will receive medical care that meets the standards of this rule; commit the institution's financial, human and physical resources as needed for the trauma program; and establish a priority for the pediatric trauma patient to the full services of the institution.

(C) Trauma centers shall agree to accept all trauma victims appropriate for the level of care provided at the hospital, regardless of race, sex, creed or ability to pay. (I-R, II-R, PC-R)

(D) The hospital shall demonstrate evidence of a pediatric trauma program that provides the trauma team with appropriate experience to maintain skill and proficiency in the care of pediatric trauma patients. [Such evidence shall include meeting of continuing education unit requirements by all professional staff, documented regular attendance by all core trauma surgeons and liaison representation from neurosurgeons, orthopedic surgeons, emergency medicine physicians, critical care medicine, and anesthesiologists at trauma program performance improvement and patient safety program meetings, documentation of continued experience as defined by the trauma medical director in

management of sufficient numbers of severely injured patients to maintain skill levels, and outcome data on quality of patient care as defined by regional emergency medical service committees. Regular attendance shall be defined by each trauma service, but shall be not less than fifty percent (50%) of all meetings. The trauma medical director must ensure and document dissemination of information and findings from the peer review meetings to the non-core surgeons on the trauma call roster.

~~(E)~~ The hospital shall have a pediatric trauma team activation protocol that establishes the criteria used to rank trauma victims according to the severity and type of injury and identifies the persons authorized to notify trauma team members when a major pediatric trauma patient is en route or has arrived at the pediatric trauma center. That protocol shall provide for immediate notification and rapid response requirements for trauma team members.

~~(F)~~ There shall be a lighted helipad on the hospital premises no more than three (3) minutes from the emergency department. There shall be a lighted designated helicopter landing area to accommodate incoming medical helicopters. (IV-R)

1. The landing area shall serve as the receiving and take-off area for medical helicopters and shall be cordoned off from the general public when in use to assure its continual availability and safe operation. (IV-R)

2. It is recommended that the landing area shall be no more than three (3) minutes from the emergency department. (IV-R)

~~(G)~~ The hospital shall appoint a board-certified or board-eligible pediatric surgeon to serve as pediatric trauma medical director (I-R).

1. The pediatric trauma medical director shall document a minimum average of sixteen (16) hours of trauma-related external continuing medical education (CME) every year, of which twelve (12) hours over three (3) years must be related to clinical pediatric trauma care..

2. There shall be a job description and organizational chart depicting the relationship between the pediatric trauma program director and other services.

~~(H)~~ The hospital shall appoint a board-certified or board-eligible pediatric surgeon to serve as pediatric trauma medical director (II-R).

1. The pediatric trauma medical director shall document a minimum average of sixteen (16) hours of trauma-related external continuing medical education (CME) every year, of which twelve (12) hours over three (3) years must be related to clinical pediatric trauma care.

2. There shall be a job description and organizational chart depicting the relationship between the pediatric trauma program director and other services.

~~(I)~~ The hospital shall appoint a board-certified or board eligible **general surgeon** credentialed by the hospital to provide pediatric trauma care to serve as pediatric trauma medical director (pediatric capable-R).

1. The pediatric trauma medical director shall document a minimum average of sixteen (16) hours of trauma-related external continuing medical education (CME) every year, of which twelve (12) hours over three (3) years must be related to clinical pediatric trauma care.

2. There shall be a job description and organizational chart depicting the relationship between the pediatric trauma program director and other services.

~~(JG)~~ A registered nurse shall be appointed to serve as the pediatric trauma nurse coordinator/manager. (I-R, II-R, pediatric capable-R)

1. The pediatric trauma program nurse coordinator shall be dedicated to the pediatric trauma service in a level I and level II center. (I-R, II-R)

2. The pediatric trauma nurse coordinator shall document a minimum average of ~~sixteen (16)~~~~twenty-four (24)~~ hours of trauma-related continuing nursing education every year, of which ~~t~~~~welve (12) hours over three (3) years must be related to pediatric trauma care.~~

3. There shall be a job description and organization chart depicting the relationship between the pediatric trauma nurse coordinator and other services. (I-R, II-R, PC-R)

~~(KH)~~ By the time of the initial review, pediatric surgeons who comprise the pediatric surgical trauma call roster shall have successfully completed or be registered for a provider advanced trauma life support (ATLS) course.

~~(L)~~ All members of the pediatric surgical trauma call roster, including anesthesiology, shall document a minimum average of eight (8) hours of trauma-related CME every year.

~~(M)~~ The hospital shall be able to document active involvement in local and regional emergency medical services (EMS) systems. The hospital can demonstrate involvement in the local and regional EMS programs by participating in EMS training programs and joint educational programs regarding the pediatric patient; providing appropriate clinical experience and EMS system quality assessment and quality assurance mechanisms; and assisting in the development of regional policies and procedures.

~~(NK)~~ The hospital shall have a plan to notify an organ or tissue procurement organization and cooperate in the procurement of anatomical gifts in accordance with the provisions in section 194.233, RSMo.

~~(OL)~~ All pediatric trauma centers shall support and fully participate in the Missouri trauma registry and shall belong to the Missouri poison control network.

(P) A Missouri trauma registry shall be completed on each patient who sustains a traumatic injury and meets the following criteria: Includes at least one (1) code within the range of the following injury diagnostic codes as defined in the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9)-(CM) 800-959.9 which is incorporated by reference in this rule as published by the Centers for Disease Control and Prevention in 2006 and is available at National Center for Health Statistics, 1600 Clifton Road, Atlanta, GA 30333. This rule does not incorporate any subsequent amendments or additions. Excludes all diagnostic codes within the following

code ranges: 905–909.9 (late effects of injury), 910–924.9 (superficial injuries, including blisters, contusions, abrasions, and insect bites), 930–939.9 (foreign bodies), and must include one of the following criteria: hospital admission, patient transfer via EMS or air transport out of facility, or death resulting from the traumatic injury (independent of hospital admission or hospital transfer status). The registry shall be submitted electronically in a format defined by the Department of Health and Senior Services. Electronic data shall be submitted quarterly, ninety (90) days after the quarter ends. The trauma registry must be current and complete. A patient log with admission date, patient name, and injuries must be available for use during the site review process. Information provided by hospitals on the trauma registry shall be subject to the same confidentiality requirements and procedures contained in section 192.067, RSMo. The trauma care data elements shall be those identified and defined by the National Trauma Data Standard which is incorporated by reference in this rule as published by the American College of Surgeons in 2008 and is available at the American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, PC-R)

**(2) Hospital Organization Standards for Pediatric Trauma Center Designation.**

(A) There shall be a delineation of privileges for the trauma team staff made by the medical staff credentialing committee. (I-R, II-R, pediatric capable-R)

(General/Pediatric Trauma Surgery Req.)

(B) Surgeons who are board-certified or board-admissible or complete an alternate pathway as documented and defined by the trauma medical director using the criteria established by the American College of Surgeons (ACS) in the current Resource for Optimal Care Document in the following specialties and who are credentialed by the hospital for **pediatric** trauma care shall be on the trauma center staff and/or be available to the patient as indicated. The Resource for Optimal Care Document is incorporated by reference in this rule as published by the American College of Surgeons in 2006 and is available at the American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. 1. General surgery—I-R, II-I/A, IIP/A, PI-R.

(C) The pediatric trauma surgeon on call shall be physically present in-house twenty-four (24) hours a day and shall meet all major trauma patients in the emergency department at the time of the patient's arrival. In a level I pediatric trauma center, ~~t~~This requirement may be fulfilled by a pediatric surgery fellow in a level I pediatric trauma center **who is board certified or eligible in general surgery**, including trauma care, has current Advanced Trauma Life Support (ATLS) certification, and is capable of assessing emergency situations in general surgery. In a level II or pediatric capable trauma center this requirement may be fulfilled by senior residents (need to clarify PGY level) in general surgery who are ATLS-certified and able to deliver surgical treatment immediately and provide control and leadership for care of the pediatric trauma patient in a level II and pediatric capable pediatric trauma center. When senior residents are used to

fulfill availability requirements, the pediatric trauma surgeon shall be immediately available. ~~(I-R)~~

~~C. The trauma surgery staffing requirement may be fulfilled by a pediatric surgical resident (need to clarify PGY level) who is board certified or eligible in general surgery, including trauma care, and Advanced Trauma Life Support (ATLS) certification and capable of assessing emergency situations in general surgery in a hospital that takes care of children only.~~

D

~~EB. The trauma surgeon shall be immediately available and in attendance with the patient when a fellow or trauma surgery resident is fulfilling availability requirements. For the presumed severely injured pediatric trauma patient level I and II pediatric trauma centers, it is expected that the trauma surgeon be in the emergency department on patient arrival with advance notification from the field.~~

~~(EB) All members of the pediatric surgical trauma call roster shall comply with the availability and response requirements in subsection (2)(D) of this rule. If not on the hospital premises, trauma team members who are immediately available shall carry electronic communication devices at all times to permit contact by the hospital and shall respond immediately to a contact by the hospital. (IR, II-R, PCpediatric-capable-R)~~

~~FC. In a level I or -II pediatric trauma center, call rosters providing back-up coverage will be maintained for pediatric and general trauma surgeons. In a pediatric capable level-III center, call rosters providing for back-up coverage for general trauma surgeons will be maintained or a written transfer agreement to a level I or II trauma center provided.~~

~~(Specialists: In Level I and II Pediatric Trauma Centers)~~

~~(GA) Pediatric specialists representing the following specialties shall be on staff at the center and ideally shall be board-certified or board-admissible (COT uses "ideally") and credentialed in trauma care and (if not boarded or eligible) shall have sufficient training and experience in pediatric trauma care and be knowledgeable about current management of pediatric trauma in their specialty: anesthesiology, cardiac surgery, emergency medicine, neurologic surgery, ophthalmic surgery, oral surgery-dental, orthopedic surgery, otorhinolaryngologic surgery, pediatric surgery; microsurgery, hand surgery, plastic and maxillofacial surgery, thoracic surgery, radiology and rehabilitation and urologic surgery. Obstetric and gynecologic surgeons shall be available on a consultant basis.~~

~~Other specialists (including but not limited to anesthesiology, neurosurgery, orthopedic surgery, emergency medicine, radiology and rehabilitation) providing care to injured children who are not pediatric-trained providers also should have sufficient training and experience in pediatric trauma care and be knowledgeable about current management of pediatric trauma in their specialty.~~

~~The program must make specialty-specific pediatric education available for these specialists~~

~~(H)~~ Pediatric specialists representing the following non-surgical specialties shall be on call and available: cardiology, chest medicine, gastroenterology, hematology, infectious diseases, nephrology, neurology, pathology, psychiatry and neonatology.

~~(I) (E) Pediatric specialists representing the following specialties shall be on call and promptly available: cardiac surgery, microsurgery, hand surgery, ophthalmic surgery, oral surgery dental, orthopedic surgery, otorhinolaryngologic surgery, pediatric surgery, plastic and maxillofacial surgery, thoracic surgery and urologic surgery.~~

(Specific Staffing)

**In a Level I Pediatric Trauma Center:**

At least 2 surgeons who are board certified or eligible in pediatric surgery

At least 1 board certified or eligible orthopedic surgeon with pediatric fellowship training and one additional board certified or eligible orthopedic surgeon with demonstrated interests and skills in pediatric trauma care

At least 1 board certified or eligible neurosurgeon with pediatric fellowship training and one additional board certified or eligible neurosurgeon with demonstrated interests and skills in pediatric trauma care

At least 2 physicians who are board certified or eligible in pediatric critical care medicine or in pediatric surgery and surgical critical care.

At least 2 physicians who are board certified or eligible in pediatric emergency medicine

Pediatric intensive care unit and pediatric section of emergency department must be staffed by individuals credentialed by the hospital to provide pediatric trauma care in their respective areas

**In a Level II Pediatric Trauma Center**

At least 1 board certified or eligible pediatric surgeon

At least 1 board certified or eligible trauma surgeon credentialed for pediatric trauma care

At least 1 board certified or eligible orthopedic surgeon with demonstrated interests and skills in pediatric trauma care

At least 1 board certified or eligible neurosurgeon with demonstrated interests and skills in pediatric trauma care

Pediatric intensive care unit and the pediatric section of the emergency department must be staffed by individuals credentialed by the hospital to provide pediatric care in their respective areas

**In a Pediatric Capable Trauma Center**

At least 1 board certified or eligible trauma surgeons credentialed for pediatric trauma care

At least 1 board certified or eligible orthopedic surgeon with demonstrated interests and skill in pediatric trauma care

At least 1 board certified or eligible emergency medicine physician credentialed for pediatric trauma care

(Response Requirements)

~~JD.~~ Surgeons who are board-certified or board-admissible and/or who are credentialed by the hospital for pediatric trauma care shall be on the trauma center staff.

12. Neurologic surgery—I-IH, II-IA.

~~(AD)~~ A neurosurgeon shall be available in-house and dedicated to the hospital's pediatric trauma service in a level I pediatric trauma center. The neurosurgeon requirement may be fulfilled by a surgeon experienced in the care of pediatric patients with neural trauma and able to deliver surgical treatment immediately and provide control and leadership for the care of the pediatric patient with neural trauma. (I-R)

~~BA.~~ The neurologic surgery staffing requirement may be fulfilled by a surgeon who is experienced in the care of pediatric patients with neural trauma, able to deliver surgical treatment immediately, and can provide control and leadership for the care of the pediatric patient with neural trauma and who has been approved by the chief of neurosurgery for care of pediatric patients with neural trauma.

~~C. B.~~ The surgeon shall be capable of initiating measures toward stabilizing the patient, and performing diagnostic procedures.

~~DC. In~~ A pediatric capable center shall have a proven plan, transfer agreement and expedited transfer process for neurologic surgery back-up in a nearby hospital vs with a level I or level II pediatric trauma center with appropriate hemodynamic support capability for transfer. The plan shall ensure that once a potential need for neurosurgical intervention is identified that [the decision is made to perform surgery], the pediatric trauma patient can be evaluated by neurosurgery and in the operating room of the receiving hospital within sixty (60) minutes

23. Cardiac/Thoracic surgery—I-R/PA.

A. Level II and pediatric capable pediatric trauma centers shall have a proven plan, transfer agreement and expedited transfer process for cardiothoracic surgery back-up in a nearby hospital vs with a level I pediatric trauma center with appropriate hemodynamic support capability for transfer. The plan shall ensure that once a potential need for cardiothoracic surgical intervention is identified that [the decision is made to perform surgery], the pediatric trauma patient can be evaluated by cardiothoracic surgery and is in the operating room of the receiving hospital within sixty (60) minutes. (I-R, PC-R)

34. Obstetric-gynecologic surgery—IR/PA, II-R/PA.

45. Ophthalmic surgery—I-R/PA, IIR/PA.

56. Orthopedic surgery—I-R/IA, II-R/PA, PC-R/PA.

67. Maxillofacial trauma surgery—IR/IA, II-R/PA.

78. Otorhinolaryngologic surgery—I-R/IA, II-R/PA.

89. Pediatric surgery/trauma surgeon credentialed and privileged in pediatric trauma care—I-R/IH?A, II-R/IA, PC-IA,

910. Plastic surgery—I-R/IA, II-R/PA

101. Urologic surgery—I-R/IA, II-R/PA

112. Emergency medicine—I-R/IH, IIR/IH, PC-R/IH

123. Cardiology—I-R/IA, II-R/PA,

134. Chest pulmonary medicine—IR/IA, II-R/PA,

145. Gastroenterology—I-R/IA, II-R/PA,

156. Hematology—I-R/PA, II-R/PA,

167. Infectious diseases—I-R/PA, II-RR/PA,

~~118. Internal medicine—I-R/PA, II-R/PA, III-R/PA, PI-R. Delete?~~

179. Nephrology—I-R/IA, II-R/PA,

1820. Pathology—I-R/PA, II-R/PA, PC-R.

1921. Pediatrics—I-R/IA, II-R/PA, PC-R/PA.

202. Psychiatry—I-R/PA, II-R/PA, PC-R.

213. Radiology—I-R/IA, II-R/IA, PC-R/IA.

(H) A pediatric radiologist shall be promptly available twenty-four (24) hours a day (I-R-PA).

234. Rehabilitation—I-R/PA, II-R/PA,

245. Anesthesiology—I-R/IH, II-R/IA, PC-R/PA,

(G) A board-certified or board-admissible anesthesiologist credentialed in pediatric care shall be available in-house twenty-four (24) hours a day. Senior anesthesiology residents or anesthesiologists not credentialed in pediatric care may fulfill the in-house requirement if the credentialed pediatric anesthesiologist is on call and promptly available.

A. In a level I or II trauma center, anesthesiology staffing requirements may be fulfilled by anesthesiology residents or certified registered nurse anesthetists (CRNA) capable of assessing emergent situations in trauma patients and of providing any indicated treatment including induction of anesthesia or may be fulfilled by anesthesiologist assistants with anesthesiologist supervision in accordance with sections 334.400 to 334.430, RSMo.

B. In a pediatric capable level III trauma center, anesthesiology requirements may be fulfilled by a CRNA with physician supervision, or an anesthesiologist assistant with anesthesiology supervision.

(B) The emergency department staffing shall ensure immediate and appropriate care of the pediatric trauma patient.

1. The pediatric emergency department physician/pediatrician shall be board certified/eligible in pediatric emergency medicine and shall function as a designated member of the pediatric trauma team in a level I pediatric trauma center.

2. The pediatric emergency department physician shall be board certified or eligible in emergency medicine, credentialed to provide pediatric emergency trauma care and shall function as a designated member of the pediatric trauma team in a level II and pediatric capable pediatric trauma center

3. All pediatric emergency department physicians providing pediatric trauma care shall have successfully completed and be current in ATLS and pediatric advanced life support (PALS) course or Advanced Pediatric Life Support (APLS) prior to the initial review and shall document a minimum average of sixteen (16) hours of CME in trauma care every year in a level I pediatric trauma center and eight hours every in trauma care every year in a level II pediatric trauma center and pediatric capable trauma center, four (4) hours of which should be in pediatric trauma care. There shall be written protocols to clearly establish responsibilities and define the relationship between the emergency department

pediatricians and other physician members of the pediatric trauma team (I-R, II-R, PC-R).

(F) A board-certified or board-admissible pediatrician credentialed in emergency care shall be available ~~to~~ in the emergency department twenty-four (24) hours a day. (I-R, II-R, PC-R)

1. ? [In a level I pediatric trauma center tThis requirement may be fulfilled by a physician who is board-certified or board-admissible in emergency medicine who demonstrates commitment by engaging in the exclusive practice of pediatric emergency medicine a minimum of one hundred (100) hours per month or has an additional year of training in pediatric emergency medicine. ?]

(Education)

**(J) Pediatric trauma medical director and the liaisons from neurosurgery, orthopedic surgery, emergency medicine, and critical care medicine must each must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external CME, of which at least 12 hours (in 3 years) must be related to pediatric trauma care. (I-R, II-R)**

**(I) General surgeons, orthopedic surgeons, neurosurgeons, emergency medicine physicians, and critical care medicine physician liasonss who take trauma call must document acquisition of 816 (eight) hours of CME annually or participate in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program (I-R, II-R, PC-R).**

### **(3) Standards for Special Facilities/Resources/Capabilities for Pediatric Trauma Center Designation.**

(A) The hospital shall meet emergency department standards for trauma center designation. There shall be a designated trauma resuscitation area in the emergency department. A level I pediatric trauma center shall have a pediatric emergency department area.

1. The emergency department staffing shall ensure immediate and appropriate care of the trauma patient. (I-R, II-R, PC-R)

2. The physician director of the emergency department in a Level I Pediatric Trauma Center shall be board-certified or board admissible in Pediatric Emergency Medicine (I-R)

3. The physician director of the emergency department shall be board-certified or board-admissible in emergency medicine (II-R, PC-R).

4. There shall be a physician trained in the care of the critically injured as evidenced by credentialing in ATLS and current in trauma CME in the emergency department twenty-four (24) hours a day. ATLS is incorporated by reference in this rule as published by the American College of Surgeons in 2003 and is available at American College of Surgeons, 633 N. St. Clair St., Chicago, IL 60611. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, III-R, PI-R) (Discussion about ACS requirement for 16 hours? PALS? APLS?)

5. All emergency department physicians shall be certified in ATLS at least once. Physicians who are certified by boards other than emergency medicine who treat trauma patients in the emergency department are required to have current ATLS status. (I-R, II-R, III-R, PI-R)
6. There shall be written protocols defining the relationship of the emergency department physicians to other physician members of the trauma team. (I-R, II-R, III-R, PI-R)
7. All registered nurses assigned to the emergency department shall be credentialed in trauma nursing by the hospital within one (1) year of assignment. (I-R, II-R, III-R, PI-R)
- (a) Registered nurses credentialed in trauma nursing shall document a minimum of eight (8) hours of trauma-related continuing nursing education per year, 4 of which shall be in pediatric trauma care. (I-R, II-R, III-R, PI-R)
- b. All registered nurses regularly assigned to pediatric care in the emergency department shall document a minimum of eight (8) hours per year of continuing nursing education on care of the pediatric trauma patient (level I?).
- c. All registered nurses regularly assigned to pediatric care in the emergency department shall be PALS certified within one (1) year of assignment to the unit and shall maintain a current PALS certification.
- (d) Registered nurses credentialed in trauma care shall maintain current provider status in the Trauma Nurse Core Curriculum or Advanced Trauma Care for Nurses and either Pediatric Advanced Life Support (PALS), Advanced Pediatric Life Support (APLS), or Emergency Nursing Pediatric Course (ENPC) within one (1) year of employment in the emergency department. The requirement for Pediatric Advanced Life Support, Advanced Pediatric Life Support, or Emergency Nursing Pediatric Course may be waived in centers where policy exists diverting injured children to a pediatric trauma center and where a pediatric trauma center is adjacent and a performance improvement filter reviewing any children seen is maintained. The Trauma Nurse Core Curriculum is incorporated by reference in this rule as published in 2007 by the Emergency Nurses Association and is available at the Emergency Nurses Association, 915 Lee Street, Des Plaines, IL 60016-9659. This rule does not incorporate any subsequent amendments or additions. Advanced Trauma Care for Nurses is incorporated by reference in this rule as published in 2003 by the Society of Trauma Nurses and is available at the Society of Trauma Nurses, 1926 Waukegan Road, Suite 100, Glenview, IL 60025. This rule does not incorporate any subsequent amendments or additions. Pediatric Advanced Life Support is incorporated by reference in this rule as published in 2005 by the American Heart Association and is available at the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231. This rule does not incorporate any subsequent amendments or additions. The Emergency Nursing Pediatric Course is incorporated by reference in this rule as published by the Emergency Nurses Association in 2004 and is available at the Emergency Nurses Association, 915 Lee Street, Des Plaines, IL 60016-9659. This rule does not incorporate any subsequent amendments or additions. (I-R, II-R, III-R, PI-R)(A) Hospitals shall meet emergency department standards for pediatric trauma center designation.
84. There shall be a minimum of two (2) registered nurses per shift specializing in pediatric trauma care assigned to the emergency department.

~~A. All registered nurses regularly assigned to pediatric care in the emergency department shall document a minimum of eight (8) hours per year of continuing nursing education on care of the pediatric trauma patient.~~

~~B. All registered nurses regularly assigned to pediatric care in the emergency department shall be PALS certified within one (1) year of assignment to the unit and shall maintain a current PALS certification.~~

92. Respiratory therapy technicians who work with pediatric trauma patients in the emergency department shall be experienced in pediatric respiratory therapy techniques.

103. There shall be a designated trauma resuscitation area in the emergency department equipped for pediatric patients. Equipment to be immediately accessible for resuscitation and to provide life support for the seriously injured pediatric patient shall include, but not be limited to:

A. Airway control and ventilation equipment for all size patients, including laryngoscopes, assorted blades, airways, endotracheal tubes and bag-mask resuscitator;

B. Oxygen, air and suction devices;

C. Electrocardiograph, monitor and defibrillator to include internal and external pediatric paddles;

D. Apparatus to establish central venous pressure monitoring and arterial monitoring;

E. All standard intravenous fluids and administration devices, including intravenous catheters designed for delivering IV fluids and medications at rates and in amounts appropriate for pediatric patients;

F. Sterile surgical sets for standard procedures for the emergency department;

G. Gastric lavage equipment; H. Drugs and supplies necessary for emergency care;

H. Drugs and supplies necessary for emergency care

I. Two-way radio linked with EMS vehicles;

J. End-tidal carbon monoxide monitor

J. Rapid infusion system for parenteral fluids

J. Equipment for spinal stabilization for all age groups;

K. Temperature control devices for patients, parenteral fluids and blood;

L. Blood pressure cuffs, chest tubes, nasogastric tubes and urinary drainage apparatus for the pediatric patient; and

M. Patient weighing devices.

11. There shall be documentation that all equipment is checked according to the hospital preventive maintenance schedule. (I-R, IIR, III-R)

12. There shall be X-ray capability with twenty-four (24)-hour coverage by technicians. (I-IH, II-IH, III-IA)

13. Nursing documentation for the trauma patient shall be on a trauma flow sheet approved by the trauma medical director and trauma nurse coordinator/trauma program manager. (I-R, II-R, III-R, PI-R)

~~(BN)~~ The Medical surgical floors of a designated trauma center vs pediatric acute care unit shall have the following personnel and equipment: (I-R, II-R, PCH-R)

1. There shall be a designated medical director who meets the continuing educational requirements in these regulations; (I-R, II-R, PC-R)

2. A physician who is not the emergency department physician shall be on duty or available twenty-four (24) hours a day, seven (7) days a week; (I-R/IA, II-R/IA, PC-R/IA)
3. Registered nurses and other essential personnel on duty twenty-four (24) hours a day, seven (7) days a week; (I-R, II-R, PC-R)
4. Registered nurses shall document a minimum of 8<sup>2</sup> hours of continuing education per year as determined appropriate by the trauma center medical director and as appropriate to the practitioner's level of responsibility; (I-R) (If this is the center's initial designation the center must be able to document at least half of the required continuing education hours, and must provide documentation of compliance to the Department within (1) one year of the date of designation.)
5. Registered nurses shall be credentialed yearly as determined by the hospital; (I-R, II-R, PC-R)
6. There shall be written care protocols for identification and treatment of pediatric trauma patients available to personnel and should be reviewed annually and revised as needed; (I-R, II-R, PC-R)
7. Equipment for resuscitation and to provide supports for the pediatric trauma patient including, but not limited to: (I-R, II-R, PCH-R)
  - A. Airway control and ventilation equipment including laryngoscopes, endotracheal tubes of all sizes, bag-mask resuscitator and sources of oxygen;
  - B. Suction devices;
  - C. Telemetry, Eelectrocardiograph, cardiac monitor and defibrillator;
  - D. All standard intravenous fluids and administration devices and intravenous catheters; and
  - E. Drugs and supplies necessary for emergency care;
8. Documentation that all equipment is checked according to the hospital preventive maintenance schedule. (I-R, II-R, PC-R)

(CB) Radiological capabilities for pediatric trauma center designation including a mechanism for timely interpretation to aid in patient management shall include: The hospital shall meet radiological capabilities for pediatric trauma center designation.

1. There shall be X-ray capability with twenty-four (24)-hour coverage by in-house technicians (I-R/IA, II-R/IA, PC-R/IA).
2. Angiography, including general, peripheral, and cerebrovascular, with interventional capability available twenty-four (24) hours a day with a one (1)-hour maximum response time from time of notification—I-R, II-R;
3. Sonography available twenty-four (24) hours a day with a thirty (30)-minute maximum response time—I-R, PI-R, PC-R;
4. In-house computerized tomography Mobile computerized tomography services, contracts for those services with other institutions or computerized tomography in remote areas of a hospital requiring transportation from the main hospital building shall not be considered in-house. I-R, II-R, PI-R;
5. Computerized tomography technician—I-R/IH, II-R/IA, PC-R/IA.
6. Nuclear Scanning- I-R/PA
7. Resuscitation equipment available to the radiology department—I-R, II-R, PC-R;

~~2. There shall be radiological capabilities promptly available, including general, peripheral and cerebrovascular angiography, sonography and nuclear scanning.~~

~~83. Adequate physician and nursing personnel shall be present with monitoring equipment to fully support the trauma patient and provide documentation of care during the time that the patient is physically present in the radiology department and during transportation to and from the radiology department. Nurses providing care for the trauma patients that are not accompanied by a trauma nurse while in the radiology department during initial evaluation and resuscitation shall maintain the same credentialing required of emergency department nursing personnel—I-R, II-R, PC-R;  
9. The pediatric trauma surgeon, neurosurgeon and emergency pediatrician shall each have the authority to initiate computerized tomography.  
10. There shall be a continuing review of the availability of computerized tomography services for the pediatric trauma patient.  
11. Documentation that all equipment is checked according to the hospital preventive maintenance schedule. (I-R, II-R, PC-R)~~

~~4. There shall be in-house computerized tomography with a technician available in-house twenty four (24) hours a day. Mobile computerized tomography services, contracts for those services with other institutions or computerized tomography in remote areas of a hospital requiring transportation from the main hospital building shall not be considered in-house.~~

~~5. The pediatric trauma surgeon, neurosurgeon and emergency pediatrician shall each have the authority to initiate computerized tomography.~~

~~6. There shall be a continuing review of the availability of computerized tomography services for the pediatric trauma patient.~~

~~7. There shall be adequate resuscitation equipment available to the radiology department.~~

~~(DC) The hospital shall meet pediatric intensive care unit standards for trauma center designation (I-R, II-R).~~

~~1. There shall be separate pediatric and adult ICUs or a combined ICU with nurses trained in pediatric intensive care. In ICUs providing care to children, registered nurses shall maintain credentialing in PALS, APLS, or ENPC (I-R, II-R, PI-R) Level I pediatric trauma centers shall have a dedicated pediatric intensive care unit.~~

~~1.~~

~~2. The medical director for the pediatric intensive care unit (PICU) shall be board-certified or board-eligible in pediatric critical care. (I-R)~~

~~32. A physician (pediatrician or senior pediatric resident) who is not the emergency department physician or the on-call trauma surgeon shall be on duty in the ICU or available in-house twenty-four (24) hours a day in a level I trauma center and shall be on call and available within twenty (20) minutes in a level II trauma center. There shall be a pediatrician or senior pediatric resident on duty in the PICU twenty-four (24) hours a day or available from inside the hospital. This physician shall maintain a current PALS certification.~~

~~The physician on duty in the PICU shall not be the emergency department pediatrician or the~~

~~on-call trauma surgeon.~~

3. The PICU patient shall have nursing care by a registered nurse who is regularly assigned to pediatric intensive care. (I-R, II-R)

4. The PICU shall utilize a patient classification system which defines the severity of injury and indicates the number of registered nurses needed to staff the unit. The minimum registered nurse/trauma patient ratio used shall be one to two (1:2). (I-R, II-R)

5. There shall be beds for trauma patients or comparable level of care provided until space is available in ICU. (I-R, II-R)

65. All registered nurses regularly assigned to the PICU shall document a minimum of eight (8) hours per year of continuing nursing education on care of the pediatric trauma patient. Registered nurses shall be credentialed in trauma care within one (1) year of assignment documenting a minimum of eight (8) hours of trauma-related continuing nursing education per year. (I-R, II-R, III-R.) At the time of the initial review, nurses assigned to ICU shall have successfully completed or be registered for a provider ACLS course. The requirement for ACLS may be waived in pediatric centers where policy exists diverting injured adults to an adult trauma center and where an adult trauma center is adjacent to the affected pediatric facilities, and a performance improvement filter reviewing any adult trauma patients seen is maintained (I-R, II-R).

76. Within one (1) year of assignment, all registered nurses regularly assigned to PICU shall be PALS-certified. Registered nurses in pediatric trauma centers designated before January 1, 1989 shall have successfully completed or be registered for a PALS course by January 1, 1991. (I-R, II-R)

8. Nursing care documentation shall be on a patient flow sheet. (I-R, II-R)

9.7. There shall be immediate access to clinical laboratory services. (I-R, II-R)

108. Equipment to be immediately accessible for resuscitation and life support for seriously injured pediatric patients shall include, but not be limited to: Equipment for resuscitation and to provide life support for the critically or seriously injured shall be available for the intensive care unit. In ICUs providing care for the pediatric patient, equipment with age appropriate sizes shall also be available. This equipment shall include, but not be limited to: (I-R, II-R)

A. Airway control and ventilation equipment for all size patients including laryngoscopes, assorted blades, endotracheal tubes, bag-mask resuscitator, end tidal carbon dioxide monitor and mechanical ventilator;

-B. Oxygen source with concentration controls and suction devices;

C. Cardiac emergency cart, including medications

D. Electrocardiograph, cardiac monitor and defibrillator, including internal and external pediatric paddles;

G. Electronic pressure monitoring and pulse oximetry

E.D. Apparatus to establish invasive hemodynamic monitoring, end tidal carbon dioxide monitoring and pulse oximetry;

F.E. All standard intravenous fluids and administration devices, including intravenous catheters designed for delivering IV fluids and medications at rates and in amounts appropriate for pediatric patients;

~~GF~~. Gastric lavage equipment;  
~~HG~~. Drugs and supplies necessary for emergency care;  
~~IH~~. Temporary transvenous pacemaker;  
~~J~~. Patient weighing devices;  
~~KJ~~. Cardiac output monitoring devices;  
~~LK~~. Pulmonary function measuring -devices;  
~~ML~~. Temperature control devices for the patient, parenteral fluids and blood;  
~~NM~~. Intracranial pressure monitoring devices;  
~~ON~~. Appropriate emergency surgical trays; and  
~~PO~~. Blood pressure cuffs, chest tubes, nasogastric tubes and urinary drainage apparatus for the pediatric patient.

10. There shall be documentation that all equipment is checked according to the hospital preventive maintenance schedule.

~~(ED)~~ The hospital shall meet post-anesthesia recovery room (PAR) standards for pediatric trauma center designation. Unless the hospital uses PICU to recover pediatric trauma patients, the following PAR standards apply:

1. The post-anesthesia recovery room shall be staffed with registered nurses regularly assigned to pediatric care and other essential personnel on call and available twenty-four (24) hours a day; registered nurses and other essential personnel who are not on duty shall be on call and available within sixty (60) minutes.(I-R, II-R, PC-R) and
2. Equipment to be accessible for resuscitation and to provide life support for the critically or seriously injured pediatric patient shall include, but not be limited to:
  - A. Airway control and ventilation equipment for all size patients including laryngoscopes, assorted blades, airways, endotracheal tubes, ~~and~~-bag-mask resuscitator, and; mechanical ventilator;
  - B. Oxygen and suction devices;
  - C. Electrocardiograph, cardiac monitor and defibrillator, including internal and external pediatric paddles;
  - D. Apparatus to establish and maintain hemodynamic monitoring, including central venous pressure monitoring;
  - E. All standard intravenous fluids and administration devices, including intravenous catheters designed for delivering IV fluids and medications at rates and in amounts appropriate for pediatric patients;
  - F. Sterile surgical sets for emergency procedures;
  - G. Drugs and supplies necessary for emergency care;
  - H. Temperature control devices for the patient, parenteral fluids and blood;
  - I. Temporary transvenous pacemaker; and
  - J. Electronic pressure monitoring.
  - K. Pulmonary function measuring devices—I-R, II-R, III-R, PI-R.

~~(E) The pediatric trauma center shall have hemodialysis capability.~~

~~(F) The pediatric trauma center shall have organized burn care or a written transfer agreement.~~

~~(G) The pediatric trauma center shall have spinal cord injury management capability or a written transfer agreement.~~

~~(H) There shall be documentation of adequate support services in assisting the patient's family from the time of entry into the facility to the time of discharge.~~

~~(F)~~ The operating room personnel, equipment, and procedures of a trauma center shall include, but not be limited to (I-R, II-R, PC-R)

~~1. A~~ There shall be an operating room adequately staffed in-house and available twenty-four (24) hours a day with a back-up operating room staff on call and promptly available. (I-R, II-R, PC-R)

2. Equipment for resuscitation and to provide life support for the critically or seriously injured pediatric patient shall include, but not be limited to:

1. Cardiopulmonary bypass capability; (I-R)
2. Operating microscope (I-R);
3. Thermal control equipment for patient, parenteral fluids and blood (I-R, II-R, PC-R);
4. Endoscopic capabilities, all varieties (I-R);
5. Instruments necessary to perform an open craniotomy (I-R, II-R);
6. Invasive and noninvasive monitoring equipment (I-R, II-R, PC-R);
7. Pediatric anesthesia equipment (I-R, II-R, PC-R);
8. Cardiac output equipment (I-R, II-R, PC-R);
9. Defibrillator and monitor, including internal and external pediatric paddles (I-R, II-R, PC-R); and
10. Blood pressure cuffs, chest tubes, nasogastric tubes and urinary drainage apparatus for the pediatric patient (I-R, II-R, PC-R);

F. Monitoring equipment (I-R, II-R, PC-R);

11. X-ray capability (I-R, II-R, PC-R)

3. Documentation that all equipment is checked according to the hospital preventive maintenance schedule—I-R, II-R, III-R, PI-R;

~~(G)~~ Clinical laboratory services shall be available twenty-four (24) hours a day. There shall be a comprehensive blood bank and access to a community central blood bank and adequate hospital storage facilities. There shall be provisions to provide and receive the following laboratory test results twenty-four (24) hours a day:

1. Microbiology;
2. Standard analyses of blood, urine and other body fluids;
3. Blood typing and cross-matching;
4. Coagulation studies;
5. Blood gases and pH determinations;
6. Serum and urine osmolality; and
7. Drug and alcohol screening.

8. Comprehensive blood bank or access to a community central blood bank and adequate hospital blood storage facilities—I-R,II-R, III-R, PI-R;

9. A written protocol that the trauma patient receives priority—I-R, II-R, III-R, PI-R.

(H) The pediatric trauma center shall have acute hemodialysis capability or a written transfer agreement. (I-R, II-R, PC-R)

(I) The pediatric trauma center shall have a physician-directed, organized burn care unit or a written transfer agreement. (I-R, II-R, PC-R)

(J) The pediatric trauma center shall have injury rehabilitation and spinal cord injury management and rehabilitation capability or a written transfer agreement. (I-R, II-R, PC-R)

(K) There shall be documentation of adequate support services in assisting the patient's family from the time of entry into the facility to the time of discharge. (I-R, II-R, PC-R)

(L) Hospital diversion information must be maintained to include date, length of time, and reason for diversion. This must be monitored as a part of the Performance Improvement and Patient Safety program, and available when the hospital is site reviewed.

(M) Each trauma center shall have a disaster plan. A copy of this disaster plan must be maintained within the trauma center policies and procedures and should document the trauma services role in planning and response.

#### **(4) Standards for Programs in Quality Assurance, Outreach, Public Education and Training for Pediatric Trauma Center Designation.**

(A) There shall be an ongoing pediatric trauma performance improvement and patient safety program (PIPS) designed to objectively and systematically monitor, review, and evaluate the quality and appropriateness of patient care, pursue opportunities to improve patient care, and resolve identified problems. (I-R, II-R, PC-R).

(B) The following additional performance improvement and patient safety measures shall be required:

1. Regular reviews of all trauma-related deaths; There shall be a mechanism in place to review all deaths and identify primary admitted patients versus transferred patients. Transferred patients shall be further identified as transferred after stabilizing treatment or direct admission after prolonged treatment. —I-R, II-R, PC-R;

2. A regular morbidity and mortality review, at least quarterly—I-R, II-R, PC-R;

3. A regular multidisciplinary trauma conference that includes representation of all members of the trauma team, with minutes of the conferences to include attendance, individual cases reviewed and findings—I-R, II-R, PC-R;

4. Regular reviews of the reports generated by the Department of Health and Senior Services from the Missouri trauma registry and the head and spinal cord injury registry—

I-R, II-R, PC-R;

5. Regular reviews of pre-hospital trauma care including inter-facility transfers and all adult patients seen in pediatric centers—IR, II-R, PC-R;

6. Participation in reviews of regional systems of trauma care as established by the Department of Health and Senior Services—I-R, II-R, PC-R; and

7. Trauma patients remaining greater than six (6) hours prior to transfer will be reviewed as a part of the performance improvement and patient safety program—IR, II-R, PC-R

~~(A) There shall be a special audit of all trauma-related deaths. There shall be a mechanism in place to review all deaths and identify primary admitted patients versus transferred patients. Transferred patients shall be further identified as transferred after stabilizing treatment or direct admission after prolonged treatment.~~

~~(B) There shall be a morbidity and mortality review.~~

~~(C) There shall be a regular multidisciplinary trauma conference that includes all members of the trauma team. Minutes of the conference shall include attendance, individual cases reviewed and findings.~~

~~(D)~~ (C) There shall be a medical and nursing quality assessment program and utilization reviews and tissue reviews on a regular basis. Documentation of quality assurance shall include problem identification, analysis, action plan, documentation and location of action, implementation and reevaluation. (I-R, II-R, PC-R)

~~(DE)~~ There shall be an outreach program that provides twenty-four (24)-hour availability of telephone consultation with physicians in the outlying areas. (I-R, II-R)

~~(EF)~~ The hospital shall demonstrate leadership in injury prevention in infants and children. A public education program shall be established to promote injury prevention and trauma care and to resolve problems confronting the public, medical profession, and hospitals regarding optimal care for the injured. These must address major trauma issues as identified in that program's performance improvement and patient safety process. (I-R, II-R, PC-R)

~~(FG)~~ The hospital and its staff shall document a research program in pediatric trauma (I-R).

~~(GH)~~ There shall be formal continuing education programs in pediatric trauma and rehabilitation provided by the hospital for staff physicians and nurses. (I-R, II-R, PC-R)

~~(HI)~~ The hospital shall provide programs in continuing education for the area physicians, registered nurses and emergency medical service providers concerning the treatment of the pediatric trauma patient. (I-R, II-R)

(I) The hospital shall be actively involved in local and regional emergency medical services systems by providing training and clinical resources. (I-R, II-R, PC-R)

(F) There shall be a hospital-approved procedure for credentialing nurses in trauma care. (I-R, II-R, PC-R)

1. All nurses providing care to severely injured patients and assigned to the emergency department or ICU shall complete a minimum of sixteen (16) hours of trauma nursing courses to become credentialed in trauma care. (I-R, II-R, PC-R)

2. The content and format of any trauma nursing courses developed and offered by a hospital shall be developed in cooperation with the trauma medical director. A copy of the course curriculum used shall be filed with the EMS Bureau. (I-R, II-R, PC-R)

3. Trauma nursing courses offered by institutions of higher education in Missouri such as the Advanced Trauma Care for Nurses, Emergency Nursing Pediatric Course, or the Trauma Nurse Core Curriculum may be used to fulfill this requirement. To receive credit for this course, a nurse shall obtain advance approval for the course from the trauma medical director and trauma nurse coordinator/trauma program manager and shall present evidence of satisfactory completion of the course. (I-R, II-R, PC-R)

**(5) Standards for the Programs in Trauma Rehabilitation for Pediatric Trauma Center Designation.**

(A) The hospital shall have a rehabilitation facility or a written transfer agreement with a rehabilitation center which is specifically equipped for the care of children.

(B) The pediatric trauma rehabilitation team shall develop and implement a procedure for discharge planning for the pediatric trauma patient.

(C) The pediatric trauma rehabilitation plan developed for the pediatric trauma patient shall be under the direction of a physiatrist or a physician with experience in pediatric trauma rehabilitation.

(D) The hospital shall develop a plan to document that there is adequate post-discharge follow-up on pediatric trauma patients, including rehabilitation results where applicable. This shall include identification of members of the rehabilitation team, discharge summary of trauma care to the patient's private physician and documentation in the patient's medical record of the post-discharge plan.

**(65) Standards for the Programs in Trauma Research for Trauma Center Designation.**

(A) The hospital and its staff shall support a research program in trauma as evidenced by any of the following: 1. Publications in peer reviewed journals—I-R;

2. Reports of findings presented at regional or national meetings—I-R;

3. Receipt of grants for study of trauma care—I-R; and

4. Production of evidence-based reviews—I-R.

(B) The hospital shall agree to cooperate and participate with the EMS Bureau in conducting epidemiological studies and individual case studies for the purpose of developing injury control and prevention programs. I-R, II-R, PC-R.

*AUTHORITY: sections 190.185 and 190.241, RSMo Supp. 1998. \* Emergency rule filed Aug. 28, 1998, effective Sept. 7, 1998, expired March 5, 1999. Original rule filed Sept. 1, 1998, effective Feb. 28, 1999. \*Original authority: 190.185, RSMo 1973, amended 1989, 1993, 1995, 1998 and 190.241, RSMo 1987, amended 1998.*