

SAN FRANCISCO EMERGENCY MEDICAL SERVICES AGENCY

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LEVEL I TRAUMA CARE STANDARDS

I. Purpose

To define standards for Level I Trauma Care facilities. Level I Trauma Care Standards are adapted from California Code of Regulations Title 22 Trauma Care System Standards (§100236 – 100266).

II. Authority

- A. California Health and Safety Code 1797.198, 1797.204, 1797.224, 1798.160 – 165.
- B. CCR Title 22 100236 – 100266.

III. Trauma Center Requirements: Level I Trauma Centers

- a. A Level I or II trauma center is a licensed hospital which has been designated as a Level I or II trauma center by the EMS Agency. While both Level I and II trauma centers are similar, a Level I trauma center is required to have staff and resources not required of a Level II trauma center. The additional Level I requirements are located in Section III of these standards. Level I and II trauma centers shall have appropriate pediatric equipment and supplies and be capable of initial evaluation and treatment of pediatric trauma patients. Trauma centers without a pediatric intensive care unit, as outlined in Section III.e.1. of these standards, shall establish and utilize written criteria for consultation and transfer of pediatric patients needing intensive care. A Level I or Level II trauma center shall have at least the following:
 - 1. A trauma program medical director who is a board-certified surgeon, whose responsibilities include, but are not limited to, factors that affect all aspects of trauma care such as:
 - a) recommending trauma team physician privileges;
 - b) working with nursing and administration to support the needs of trauma patients;
 - c) developing trauma treatment protocols;
 - d) determining appropriate equipment and supplies for trauma care;
 - e) ensuring the development of policies and procedures to manage domestic violence, elder and child abuse and neglect;
 - f) having authority and accountability for the quality improvement peer review process;
 - g) correcting deficiencies in trauma care or excluding from trauma call those trauma team members who no longer meet standards;

- h) coordinating pediatric trauma care with other hospital and professional services;
 - i) coordinating with local and State EMS agencies;
 - j) assisting in the coordination of the budgetary process for the trauma program; and
 - k) identifying representatives from neurosurgery, orthopaedic surgery, emergency medicine, pediatrics, and other appropriate disciplines to assist in identifying physicians from their disciplines who are qualified to be members of the trauma program.
2. A trauma nurse coordinator/manager who is a registered nurse with qualifications including evidence of educational preparation and clinical experience in the care of the adult and/or pediatric trauma patient, administrative ability, and responsibilities that include, but are not limited to:
- a) organizing services and systems necessary for the multi-disciplinary approach to the care of the injured patient;
 - b) coordinating day-to-day clinical process and performance improvement as it pertains to nursing and ancillary personnel; and
 - c) collaborating with the trauma program medical director in carrying out the educational, clinical, research, administrative, and outreach activities of the trauma program.
3. A trauma service which can provide for the implementation of the requirements specified in these standards and provide for coordination with the EMS Agency.
4. A trauma team, which is a multi-disciplinary team responsible for the initial resuscitation and management of the trauma patient.
5. Department(s), division(s), service(s) or section(s) that include, at least the following surgical specialties, which are staffed by qualified specialists:
- a) general;
 - b) neurologic;
 - c) obstetric/gynecologic;
 - d) ophthalmologic;
 - e) oral or maxillofacial or head and neck;
 - f) orthopaedic;
 - g) plastic; and
 - h) urologic
6. Department(s), division(s), service(s) or section(s) that include, at least the following non-surgical specialties, which are staffed by qualified specialists:
- a) anesthesiology;
 - b) internal medicine;
 - c) pathology;

- d) psychiatry; and
- e) radiology;
- 7. An emergency department, division, service or section staffed with qualified specialists in emergency medicine who are immediately available.
- 8. Qualified surgical specialist(s) or specialty availability, which shall be available as follows:
 - a) general surgeon capable of evaluating and treating adult and pediatric trauma patients shall be immediately available for trauma team activation and promptly available for consultation;
 - b) On-call and promptly available:
 - i. neurologic;
 - ii. obstetric/gynecologic;
 - iii. ophthalmologic;
 - iv. oral or maxillofacial or head and neck;
 - v. orthopaedic;
 - vi. plastic;
 - vii. reimplantation/microsurgery capability. This surgical service may be provided through a written transfer agreement; and
 - viii. urologic.
 - c) Requirements may be fulfilled by supervised senior residents as defined in EMS Agency Policy #1020, *Glossary*, who are capable of assessing emergent situations in their respective specialties. When a senior resident is the responsible surgeon:
 - i. the senior resident shall be able to provide the overall control and surgical leadership necessary for the care of the patient, including initiating surgical care;
 - ii. a staff trauma surgeon or a staff surgeon with experience in trauma care shall be on-call and promptly available;
 - iii. a staff trauma surgeon or a staff surgeon with experience in trauma care shall be advised of all trauma patient admissions, participate in major therapeutic decisions, and be present in the emergency department for major resuscitations and in the operating room for all trauma operative procedures.
 - d) Available for consultation or consultation and transfer agreements for adult and pediatric trauma patients requiring the following surgical services:
 - i. burns;
 - ii. cardiothoracic;
 - iii. pediatric;

- iv. reimplantation/microsurgery; and
 - v. spinal cord injury.
9. Qualified non-surgical specialist(s) or specialty availability, which shall be available as follows:
- a) Emergency medicine, in-house and immediately available at all times. This requirement may be fulfilled by supervised senior residents, as defined in EMS Agency Policy #1020, *Glossary*, in emergency medicine, who are assigned to the emergency department and are serving in the same capacity. In such cases, the senior resident(s) shall be capable of assessing emergency situations in trauma patients and of providing for initial resuscitation. Emergency medicine physicians who are qualified specialists in emergency medicine and are board certified in emergency medicine shall not be required by the EMS Agency to complete an advanced trauma life support (ATLS) course. Current ATLS verification is required for all emergency medicine physicians who provide emergency trauma care and are qualified specialists in a specialty other than emergency medicine.
 - b) Anesthesiology. Level II shall be promptly available with a mechanism established to ensure that the anesthesiologist is in the operating room when the patient arrives. This requirement may be fulfilled by senior residents or certified registered nurse anesthetists who are capable of assessing emergent situations in trauma patients and of providing any indicated treatment and are supervised by the staff anesthesiologist. In such cases, the staff anesthesiologist on-call shall be advised about the patient, be promptly available at all times, and be present for all operations.
 - c) Radiology, promptly available; and
 - d) Available for consultation:
 - i. cardiology;
 - ii. gastroenterology;
 - iii. hematology;
 - iv. infectious diseases;
 - v. internal medicine;
 - vi. nephrology;
 - vii. neurology;
 - viii. pathology; and
 - ix. pulmonary medicine.
- b.** In addition to licensure requirements, trauma centers shall have the following service capabilities:
- 1. Radiological service. The radiological service shall have immediately available a radiological technician capable of performing plain film and computed tomography imaging. A

- radiological service shall have the following additional services promptly available:
- a) angiography; and
 - b) ultrasound.
2. Clinical laboratory service. A clinical laboratory service shall have:
 - a) a comprehensive blood bank or access to a community central blood bank; and
 - b) clinical laboratory services immediately available.
 3. Surgical service. A surgical service shall have an operating suite that is available or being utilized for trauma patients and that has:
 - a) Operating staff who are promptly available unless operating on trauma patients and back-up personnel who are promptly available; and
 - b) appropriate surgical equipment and supplies as determined by the trauma program medical director.
- c.** A Level I and II trauma center shall have a basic or comprehensive emergency service which has special permits issued pursuant to Chapter 1, Division 5 of Title 22. The emergency service shall:
1. designate an emergency physician to be a member of the trauma team;
 2. provide emergency medical services to adult and pediatric patients; and
 3. have appropriate adult and pediatric equipment and supplies as approved by the director of emergency medicine in collaboration with the trauma program medical director.
- d.** In addition to the special permit licensing services, a trauma center shall have, pursuant to Section 70301 of Chapter 1, Division 5 of Title 22 of the California Code of Regulations, the following approved supplemental services:
1. Intensive Care Service:
 - a) the ICU shall have appropriate equipment and supplies as determined by the physician responsible for the intensive care service and the trauma program medical director;
 - b) The ICU shall have a qualified specialist promptly available to care for trauma patients in the intensive care unit. The qualified specialist may be a resident with two (2) years of training who is supervised by the staff intensivist or attending surgeon who participates in all critical decision making; and
 - c) the qualified specialist in b) above shall be a member of the trauma team.
 2. Burn Center. This service may be provided through a written transfer agreement with a Burn Center.
 3. Physical Therapy Service. Physical therapy services to include personnel trained in physical therapy and equipped for acute care of the critically injured patient.

4. Rehabilitation Center. Rehabilitation services to include personnel trained in rehabilitation care and equipped for acute care of the critically injured patient. These services may be provided through a written transfer agreement with a rehabilitation center.
 5. Respiratory Care Service. Respiratory care services to include personnel trained in respiratory therapy and equipped for acute care of the critically injured patient.
 6. Acute hemodialysis capability.
 7. Occupational therapy service. Occupational therapy services to include personnel trained in occupational therapy and equipped for acute care of the critically injured patient.
 8. Speech therapy service. Speech therapy services to include personnel trained in speech therapy and equipped for acute care of the critically injured patient.
 9. Social Service.
- e. A trauma center shall have the following services or programs that do not require a license or special permit.
1. Pediatric Service. In addition to the requirements in Division 5 of Title 22 of the California Code of Regulations, the pediatric service providing in-house pediatric trauma care shall have:
 - a) a pediatric intensive care unit approved by the California State Department of Health Services' California Children Services (CCS); or a written transfer agreement with an approved pediatric intensive care unit. Hospitals without pediatric intensive care units shall establish and utilize written criteria for consultation and transfer of pediatric patients needing intensive care; and
 - b) a multidisciplinary team to manage child abuse and neglect.
 2. Acute spinal cord injury management capability. This service may be provided through a written transfer agreement with a Rehabilitation Center;
 3. Protocol to identify potential organ donors as described in Division 7, Chapter 3.5 of the California Health and Safety Code;
 4. An outreach program, to include:
 - a) capability to provide both telephone and on-site consultations with physicians in the community and outlying areas; and
 - b) trauma prevention for the general public;
 5. Written interfacility transfer agreements with referring and specialty hospitals;
 6. Continuing education. Continuing education in trauma care shall be provided for:
 - a) staff physicians;
 - b) staff nurses;
 - c) staff allied health personnel;
 - d) EMS personnel; and

e) other community physicians and health care personnel.

IV. Additional Level I Criteria

In addition to the above requirements, a Level I trauma center shall have:

- a.** One of the following patient volumes annually:
 - 1. a minimum of 1200 trauma program hospital admissions, or
 - 2. a minimum of 240 trauma patients per year whose Injury Severity Score (ISS) is greater than 15, or
 - 3. an average of 35 trauma patients (with an ISS score greater than 15) per trauma program surgeon per year.
- b.** Additional qualified surgical specialists or specialty availability on-call and promptly available:
 - 1. cardiothoracic; and
 - 2. pediatrics;
- c.** A surgical service that has at least the following:
 - 1. operating staff who are immediately available unless operating on trauma patients and back-up personnel who are promptly available.
 - 2. cardiopulmonary bypass equipment; and
 - 3. operating microscope.
- d.** Anesthesiology immediately available. This requirement may be fulfilled by senior residents or certified registered nurse anesthetists who are capable of assessing emergent situations in trauma patients and of providing treatment and are supervised by the staff anesthesiologist.
- e.** An intensive care unit with a qualified specialist in-house and immediately available to care for trauma patients in the intensive care unit. The qualified specialist may be a resident with 2 years of training who is supervised by the staff intensivist or attending surgeon who participates in all critical decision making.
- f.** A Trauma research program; and
- g.** An ACGME approved surgical residency program.

V. Quality Improvement

Trauma centers of all levels shall have a quality improvement process to include structure, process, and outcome evaluations which focus on improvement efforts to identify root causes of problems, intervene to reduce or eliminate these causes, and take steps to correct the process. In addition, the process shall include:

- a.** A detailed audit of all trauma-related deaths, major complications and transfers (including interfacility transfer);
- b.** A multi-disciplinary trauma peer review committee that includes all members of the trauma team;
- c.** Participation in the trauma system data management system;
- d.** Participation in the EMS Agency Trauma System Audit Committee; and
- e.** Each trauma center shall have a written system in place for patients, parents of minor children who are patients, legal guardian(s) of children who are patients, and/or primary caretaker(s) of children who are patients to provide input and feedback to hospital staff regarding the care provided to the child.
- f.** Following of applicable provisions of Evidence Code Section 1157.7 to ensure confidentiality.