MERCED COUNTY
DEPARTMENT OF PUBLIC HEALTH

POLICY NO. 660.00

EFFECTIVE DATE: 11/1/98
REVISION DATE:
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EMERGENCY MEDICAL SERVICES AGENCY

This policy supercedes any other
Existing policy on this subject

Subject: **TRAUMA SYSTEM EVALUATION POLICY**

Authority: California Health and Safety Code, Section 1798.163, California Code of Regulations, Section 100256

Purpose: The purpose of the Merced County Trauma System Evaluation Policy shall be to assure that there are periodic medical audit and performance evaluations of each of the designated Major Trauma Patient Receiving Centers (MTPRC) and non-designated trauma receiving facilities as required by the County of Merced and the State of California.

Policy: All acute care hospitals within Merced County and facilities under contract for trauma services with Merced County shall ensure that they are in compliance with the quality improvement evaluation provisions, as appropriate for their facility and as described herein.

1. Definitions:

A. "*Agency*" – means the Merced County EMS Agency.

B. *"MTPRC"* – "Major Trauma Patient Receiving Center." A designation by the Agency signifying a hospitals commitment to meet and/or exceed the standards established by the State of California for a Level II Trauma Center and capable of managing the medical care needs of major trauma patients.

C. *"Level III Trauma Center"* – a designation by the Agency signifying a hospitals commitment to provide specialty trauma services available to respond to trauma patients in a prompt fashion. Level III Trauma Centers are not typically designated to receive major trauma patients unless stabilization is indicated prior to transfer to a higher level of care.

D. *"EDAT"* – "Emergency Department Approved for Trauma." A designation by the Agency signifying a hospitals commitment to receive moderately injured patients (and, in rural or isolated areas, major trauma patients) and provide stabilization services until arrangements can be made to transfer the patient to a higher level of care.

APPROVED:

ON-FILE

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Director of Public Health

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EMS Medical Director

2. Trauma Evaluation System:

The trauma system evaluation consists of three major elements: 1) an internal process within each MTPRC and non-designated trauma receiving facility; 2) an on-going external periodic trauma system medical audit of case reviews by the Trauma Screening Committee and the Trauma Audit Committee (TAC); and 3) a periodic audit of each MTPRC by the EMS Agency.

A. Internal and External Quality Improvement:

1) Internal Quality Improvement

a. Both MTPRC's and non-designated receiving facilities must have a formal and fully functional internal medical quality improvement program for their trauma service. As such, each facility shall have a written Quality Improvement Plan, which describes this program.

b. Responsibility for the trauma care at each institution, as well as compliance with the Merced County Trauma Plan and Trauma Standards, is that of the Medical Director of the Trauma Service at each of the MTPRC's and a physician representative from each trauma receiving facility.

2) External Quality Improvement, Trauma System Medical Audit:

The trauma system quality improvement process recognizes the multidisciplinary nature of trauma care and includes two key components:

a. Medical Audit Review Process:

1. MTPRC Standards of Care: Standard of care for the trauma patient, which is expected to be provided at the designated MTPRC, include the medical care rendered and the audit filters for monitoring purposes. The minimum medical audit filters which are acceptable for assessing the care rendered to a trauma patient at a designated MTPRC are defined in Appendix A. Trauma cases (including all deaths) and those cases, which do not meet the minimum medical audit filters, are identified by the Trauma Services Director for external quality improvement review.

2. Trauma Receiving Facilities Standards of Care: Standard of care for the trauma patient, which is expected to be provided at a non-designated trauma receiving facility, include the medical care rendered and the audit filters for monitoring purposes. The minimum medical audit filters, which are acceptable for assessing the care rendered to a trauma patient at a non-designated trauma receiving facility, are defined in Appendix B. Trauma Cases (including all deaths) and those cases which do not meet the minimum medical audit filters, are identified by the E.D. Medical Director for external quality improvement review.

3. Trauma Screening Committee: This confidential committee performs the initial screening of MTPRC and trauma receiving facility cases which meet the minimum medical audit criteria for case review, or have a special educational or scientific value. The Trauma Service Directors, the E.D.

Medical Directors, the Trauma Screening Committee, and/or the Merced County EMS Medical Director may select specific cases for review. This committee is comprised of: trauma coordinators from the designated MTPRC's; a nursing representative from each of the trauma receiving facilities; as well as, the Merced County EMS Medical Director and the Merced County EMS Specialty Services Operations Nurse. Selected cases shall be forwarded to the Trauma Audit Committee (TAC) where they will be presented and evaluated.

4. Trauma Audit Committee (TAC): The TAC conducts detailed mortality and morbidity review of cases which meet one or more of the medical audit filter criteria as determined by the Trauma Screening Committee. Other cases may also be reviewed which are regarded as having exceptional educational or scientific benefit. The TAC shall be comprised of representatives from surgical and non-surgical specialties, Trauma Nurse Coordinators, Prehospital ALS providers, Medical Directors, and the Merced County EMS agency.

b. On-Site Facility Visits:

1. Designated MTPRC Audits: Periodic reviews may be performed by the Merced County EMS Agency or an expert site survey team to assure MTPRC contract compliance. The audits may include random chart reviews, trauma registry data, and other records and documents as deemed necessary to confirm compliance with the trauma system standards.

2. Non-designated Trauma Receiving Facilities: Periodic reviews may be performed by the Merced County EMS agency to assure contract compliance. These audits may include random chart reviews, trauma registry data, and other records and documents.

3. Trauma Audit Committee (TAC)

A. The Committee is established and maintained pursuant to section 1157.7 of the Evidence Code, State of California. The TAC is charged with the responsibility of providing quality improvement for the trauma care system. The TAC discusses the appropriateness of medical care rendered and makes recommendations either to the provider organization or the EMS Agency (as appropriate) for improved care or system improvements. The TAC serves in an advisory capacity to the EMS Agency on other trauma care systems issues and may appoint subcommittees, either standing or AD Hoc, as needed to fulfil its functions.

B. Membership: The Committee shall be made up of a variety of individuals responsible, directly or indirectly for care of the trauma patient. Voting members shall include:

1) A medical staff representative from each non-designated trauma receiving facility in Merced County

2) Trauma Service Director from each MTPRC

3) Trauma Nurse Coordinator from each MTPRC

4) Emergency Dept Medical Director from each MTPRC

5) Emergency Dept Medical Director from each non-designated trauma receiving facility in Merced County

6) A nursing staff representative from each of the non-designated trauma receiving facilities in Merced County (this nurse should be staff in one of the following depts: E.D.,O.R. Critical Care)

7) A general surgeon from Merced County

8) EMS Agency Medical Director

The following positions are not required to routinely attend TAC meetings, but will be requested when a case being reviewed would benefit from their particular area of expertise:

9) An orthopedic surgeon

10) A neurosurgeon from each of the MTPRC's

11) A pediatric surgeon (if available from VCH)

12) A Pediatrician

13) Critical Care Directors from each MTPRC

14) Paramedic Representatives of the air ambulance services and ALS ground transport providers

15) Other EMS Community leaders as appointed by the TAC Chairman and in consultation with the EMS Agency

C. Appointment of Members:

1) Chairmanship: The TAC selects a member to serve as TAC chairperson for a one-year term. The chairperson shall have been an active member of the Trauma Audit Committee for at least one year (except for initial appointment) and shall be a surgeon unless one is unavailable for appointment. Elections are held every year on or before the regularly scheduled June meeting. The chairperson may appoint a vice-chairperson to fill his/her duties during absences. The chairperson presides over the committee and arranges for documentation of the results of the committee discussions. The chairperson corresponds or follows-up on committee matters as directed by the membership.

2) Election of Chairperson: Solicitation of nominations is mailed to committee members on or before May 1 of an election year. Nominations must be made to the EMS Agency in writing. Upon receipt and confirmation of eligibility of nominees and their willingness to serve, the EMS Agency shall mail a ballot to all members of the committee. Committee members are required to respond in writing or by fax, indicating their selection of the Chairperson, to the EMS Agency on or before June 1 of the election year. The EMS Agency tallies the return votes and reports the final result at the regularly scheduled June meeting. The newly elected chairperson will assume his/her responsibilities at the June meeting.

3) Quorum: On matters brought before the TAC requiring voting (i.e., election of chairperson and determination of case review) a quorum is required. A quorum consists of one voting member from each of the MTPRC's and five additional committee members.

4) Attendance: To be considered as an active voting member, a voting member must attend 80% of the annual scheduled meetings or receive an excused absence for good cause.

D. Meetings:

The TAC meets six (6) times a year. Periodically; trauma experts are invited to critique cases and to provide an educational presentation. Each MTPRC is responsible to assist the Merced County EMS Agency in providing one (1) guest lecture per year for the Trauma Audit Committee. Continuing education credits are provided for physicians, nurses, and paramedics in attendance. The EMS Specialty Services Operations Nurse facilitates the process of obtaining the credits from various providers. Minutes/correspondence of the TAC are maintained in a binder in the Merced County EMS Agency by the Specialty Services Operations Nurse to maintain confidentiality.

E. Preparation of Cases for TAC Review:

1) Each MTPRC and each non-designated trauma receiving facility prepares appropriate materials of its cases to be presented to the TAC, to include:

a. Clinical information
b. All pertinent radiologic examination, and
c. Autopsy findings, when appropriate

2) The EMS Medical Director, or designated representative, provides the Pre-Hospital Care Report and pre-hospital component for presentation when pertinent to the care of the trauma patient.

3) The EMS Agency provides staff support for:

a. preparation of overheads to be used during the meeting
b. distribution of meeting announcements/materials
c. preparation of TAC agenda
d. maintenance of the binder of proceedings

F. Conclusion of Trauma Audit Committee Case Review:

1) Categorization of Trauma Related Deaths:

Following presentation of trauma related deaths; a quorum of committee members present must make the determination as to the preventability of death. The Probability of Survival numeric designation shall serve as a guideline to the committee in its deliberations, and not an absolute as to the scoring of the case. Each trauma related death must be assigned one of the following designations:

NonP = non-preventable

a. Anatomic injury or combination of injuries considered non-survivable with optimum care.

b. Physiologic state at time of arrival of first responder important but not critical to judgment of non-preventability. Evaluation and management appropriate to ACLS and ATLS guidelines; suboptimal care, if identified, is deemed not to have influenced outcome.
c. Probability of survival (P.) < 0.25.

PotenP = potentially preventable
a. Anatomic injury or combination of injuries considered as very severe but survivable under optimal conditions.
b. Physiologic state at time of arrival of first responder critical to judgment of potential survivability.
c. Evaluation and management generally appropriate to ACLS and ATLS guidelines; any suboptimal care directly or indirectly implicated in patient's demise.
d. 0.50 > P. > 0.25

ProbP = probably preventable
a. Anatomic injury or combination of injuries considered survivable.
b. Physiologic state at time of arrival of first responder critical to judgment of preventability; patient generally stable; if unstable, patient becomes stable with treatment.
c. Suboptimal care clearly related to unfavorable outcome.
d. P. > 0.5.

Contributing Factors: The following factors may be considered related to morbidity/mortality:

a. delay in diagnosis
b. error in diagnosis
c. error in judgment/error in interpretation
d. error in technique
e. patient disease
f. system failure
g. inadequate protocol
h. care appropriate
i. care inappropriate

2) Information feedback to the MTPRC or the non-designated trauma receiving facilities is critical to the audit process. The members of the committee, in determining whether a death was potentially preventable or probably preventable, will provide justification for that determination.

G. Level of Care

1) All cases reviewed by TAC, in which patient care was administered, will receive a grade. This grade will be recorded as part of the permanent record. The grades shall be assigned based on the following criteria:

A. 4.0 - Exceeds expected Trauma Center care
B. 3.0 - Meets expected Trauma center care
C. 2.0 - Marginally acceptable care

D. 1.0 - Unacceptable or inappropriate care

2) Each grade must also have one of the following qualifiers:

+ The patient had a good or better than expected outcome
- The patient had a poor or worse than expected outcome

H. Action Steps:

At the conclusion of each case review, the Committee will discuss the case and arrive at a conclusion for action that may, among others, include one or more of the following:

1) No further comment or action is indicated
2) Request a follow-up report from the involved institution
3) Make a recommendation to the involved institution that is pertinent to the case
4) Request additional information for a subsequent meeting to allow for further discussion
5) Suggest that a specific educational program or action be implemented

I. Confidentiality of Committee Proceedings and Records:

1) The proceedings and records of this committee are confidential and are protected under Section 1157.7 of the Evidence Code, of the State of California.

2) Persons who are members of the Trauma Audit Committee and the Trauma Screening Committee are required to complete and sign a Statement of Confidentiality as a condition of membership on the committees and to participate in their proceedings. The Statement of Confidentiality will be reviewed on an annual basis.

3) Because of the confidentiality requirements, meetings of the TAC are closed to the public. Attendance at the meetings is limited to members of the Committee with the exception of special invitation approved by the TAC membership and the EMS agency.

J. Standing Committees:

Standing committees are ongoing committees that meet regularly to accomplish a specific function as requested by TAC. The TAC Chairperson or the EMS Medical Director can appoint members to a Standing or Ad Hoc Committee.

1) Trauma Screening Committee (TSC): The TSC is composed of the Merced County EMS Medical Director, the EMS Agency Specialty Services Operations Nurse, and the Trauma Coordinators from each trauma receiving facility.

2) Registry Users Group (RUG): The RUG is composed of the Trauma Coordinators and Trauma Registrars within the community. The RUG meets bi-monthly and more frequently as necessary to plan, implement, and monitor the trauma registry.

3) Ad Hoc Committees: Ad hoc Committees are time-limited committees with specific functions designed to assist the Trauma Audit Committee in achieving its overall objectives, and may be appointed as required.

APPENDIX A
MINIMUM RECOMMENDED SCREENING STANDARDS

Major Trauma Patient Receiving Centers

- The absence of an ambulance report on the medical record for the patient transported by prehospital EMS personnel (system filter)
- Any failure or delay of the trauma surgeon's response in accordance with existing policy
- Delay or failure to activate trauma team according to internal triage criteria
- A patient with a GCS of <14 who does not receive a CT scan of the head within 2 hours of arrival at the emergency department.
- A comatose trauma patient (GCS of <9) leaving the emergency department before a definitive airway is established.
- A patient sustaining a gunshot wound to the abdomen who is managed nonoperatively
- Patients with abdominal injuries and who are hypotensive (SBP <90mm HG) who do not undergo laparotomy within 1 hour of arrival in the ED; other patients undergoing laparotomy performed >4 hours after arrival in ED.
- Patients with epidural or subdural brain hematoma receiving craniotomy >4 hours after arrival at emergency department, excluding those performed for ICP monitoring.
- Interval of >8 hours between arrival and the initiation of debridement of an open tibial fracture, excluding a low velocity gunshot wound
- Abdominal, thoracic, vascular, or cranial surgery performed >24 hours after arrival
- A major trauma patient admitted to the hospital to a non-surgical service
- Unexpected return to the operating room after initial surgery
- Hourly determination and recording of B/P, pulse, respirations, and GCS, not done.
- Nonfixation of femoral diaphyseal fracture in patients greater than twenty four (24) months
- Missed diagnosis
- Readmission to hospital for complications related to prior admission
- All trauma deaths
- All outgoing trauma transfers performed within 24 hours of arrival
- Any case the MTPRC feels would benefit from a TAC review.

NOTE: The minimum audit filters are those identified in the ACS document " Resources for Optimal Care of the Injured Patient, 1993" and the Tri-Analytics Trauma registry. Trauma receiving centers may add additional audit filters for internal use for trends or sentinel events.

APPENDIX B
MINIMUM SCREENING STANDARDS
Trauma Receiving Facilities

- All trauma deaths
- Trauma patient transfer to a MTPRC or other specialty center
- Return of patient to surgery within 24 hours
- Emergency Department stay of greater than 2 hours with systolic B/P less than 90 mmhg.
- All trauma patients transported code 3 to the facility
- Any case the Trauma Receiving Facility feels would benefit from a TAC review.