



Mountain-Valley  
Emergency Medical Services Agency

2018 ANNUAL TRAUMA SYSTEM STATUS REPORT

Created May 28, 2019

Lance Doyle  
Executive Director

Kevin Mackey, MD  
EMS Agency Medical Director

Jim Whitworth  
QI/Trauma Care Coordinator

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## **Section 1: TRAUMA SYSTEM SUMMARY**

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The Mountain-Valley EMS Agency Trauma Care System Plan was developed in compliance with Section 1798.160, et seq., Health and Safety Code and the Mountain-Valley EMS Agency 2001-2002 Emergency Medical Services Plan. This plan outlines the structure and operations of the trauma care system within the counties of Alpine, Amador, Calaveras, Mariposa, and Stanislaus. In addition, it outlines the interfaces, including patient flow and shared services, with neighboring trauma care systems, particularly Merced, Tuolumne, and San Joaquin Counties.

To provide leadership to the development of the trauma care system and to provide a mechanism for input from all system stakeholders, Mountain-Valley EMS Agency established a Trauma Steering Committee in 2001. The committee developed policies and procedures based on the recommendations of the American College of Surgeons and the requirements of California State Regulations. These policies and procedures provide the framework for the overall trauma system. In February 2004, the Trauma Care System Plan was implemented.

Mountain-Valley proudly designated two Level II Trauma Centers to serve our region, Doctors Medical Center (DMC) and Memorial Medical Center (MMC). Both facilities are centrally located in Stanislaus County (Modesto), which has the highest population and is the only metropolitan area within the Mountain-Valley region. Because of this Stanislaus County has the highest level of medical resources and is able to maintain high standards which are expected with a Level II Trauma Center designation. The Mountain-Valley EMS region is mostly rural in nature which provides unique challenges to the overall system design. Many of the community hospitals within the region lack the resources and commitment needed to provide for the complexity of a major trauma patient; therefore, requiring pre-hospital personnel to bypass closer facilities and transport these patients to a Level II Trauma Center in Stanislaus County.

An organized trauma system has been shown to decrease morbidity and mortality rates caused from intentional and unintentional injuries. Mountain-Valley EMS Agency seeks to improve the care provided to trauma patients in its service areas through an inclusive trauma care system. The overall system design is made from the following points:

- Maintain the designation of the Two Level II Trauma Centers in Modesto.
- Encourage community hospitals within our region to obtain the designation of Level III and Level IV trauma centers which would allow them to receive trauma patients and either provide care up to the level of their capability or transfer the patient to a higher designated trauma center, based on hospital-specific transfer guidelines.
- Trauma policies and protocols are based upon the most current evidence based practices.

- Trauma patients meeting triage criteria will be transported directly to the designated Level II trauma center in the quickest, most appropriate manner, either by ground or air. Appropriate patients meeting pediatric trauma triage criteria will be transferred to a designated pediatric trauma center in another region when weather conditions permit or unless the patient is too unstable for transport to an out of county pediatric center.
- The quality review process includes a comprehensive evaluation of the entire trauma system, which is accomplished in several ways;
  - The Trauma Audit Committee providing ongoing medical and system evaluation with case reviews
  - Trauma data analysis will be used to identify system trends
  - Prehospital QI committee(s) to review and evaluate prehospital care; and
  - Periodic trauma center site reviews from an outside resource to ensure the quality of care within our region.
- Comprehensive trauma data collection is essential to include in the overall evaluation of trauma care. Data Collection exceeds the minimum requirements identified by California EMS Information System (CEMSIS) data dictionary. Collection of data occurs at dispatch, pre-hospital, and designated Trauma Centers; it is sent to the EMS Agency for evaluation and analysis.
- On-going Training will be provided for pre-hospital and hospital personnel regarding clinical treatment of trauma patients and system policies; and,
- Policies will be evaluated and updated as necessary to ensure proper operation of the trauma system.

## **Section 2: CHANGES IN THE TRAUMA SYSTEM**

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In 2017 both Level II Trauma Centers in the Mountain-Valley trauma system underwent reverification reviews by the American College of Surgeons. MMC received reverification with no deficiencies for a period of 3 years ending July 10, 2020. DMC received reverification for a period of 1 year with deficiencies ending June 20, 2018. DMC then underwent an additional Focused Review on June 4, 2018, receiving an additional 2 year reverification until July 9, 2020.

MMC and DMC participate in Trauma Quality Improvement Program (TQIP) sponsored by the ACS. System participants are actively involved in the Central California Regional Trauma Care Committee.

From 2015 until July, 2018 the Agency's Trauma Care Coordinator position was filled by Lance Doyle. In July, 2018 the Trauma Coordinator position was taken over by Jim Whitworth who splits his time and responsibilities as the Quality Improvement and Trauma Care Coordinator

### **Section 3: NUMBER AND DESIGNATED LEVEL OF TRAUMA CENTERS**

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Mountain-Valley EMS Agency has two designated level II Trauma Centers within its jurisdiction. There are several areas of the region that use neighboring Trauma Centers because of proximity and/or specialty needs such as, pediatric and burn care.

### **Section 4: TRAUMA SYSTEM GOALS AND OBJECTIVES**

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**Objective 1:** Collect, validate and research trauma data for area(s) to improve or enhance the system of care provide to our trauma patients.

- a. Participate in the EMS and Trauma data uploads to the newly created NEMSIS compliant CEMSIS database. Upload NEMSIS v3.4 data from the ambulance providers able to export this version to the EMSA EMS database hosted by ICEMA.
- b. Ensure all trauma data meets and exceeds Mountain-Valley and NTDS data standards by performing data audits to ensure compliance with data dictionaries.
- c. Run validation programs and correct all errors with trauma data before submission to the EMS Agency and NTDS.
- d. Utilize trauma data reports to identify trends of injuries, areas of improvement, and benchmarking to enhance the care provided to trauma patients and to direct injury prevention activities.
- e. Continue to encourage all local Trauma Centers within our region to participate in the American College of Surgeons, TQIP program.

**Objective 2:** Increase trauma primary prevention activities.

- a. Continue to participate in primary injury prevention activities as time permits.
- b. Encourage an environment where all EMS providers contribute to community injury prevention activities.
- c. Monitor prevention activities

**Objective 3:** Expand trauma care in the region to include the designation of Level III and Level IV Trauma Centers.

- a. Encourage the designation of Level III and Level IV Trauma Centers in rural counties within the region.

b. Foster relationships with community based non-trauma centers by including them in trauma system activities.

c. Continue outreach activities such as the Rural Trauma Team Development Course and use of the inter-facility trauma transfer poster.

**Objective 4:** Participate in the development of the California State Trauma Plan and the Central California Regional Trauma Coordinating Committee.

a. Encourage system participants to be involved in the development of the State Trauma Plan, regional and state trauma system and to attend annual trauma summits. The MVEMSA QI/Trauma Care Coordinator attends the annual State Trauma Summit as well as regional trauma symposiums.

b. Encourage system participants to participate and attend RTCC committee meetings, activities and educational programs.

c. Collaborate with regional partners to develop interfacility transfer guidelines for level non-trauma centers within the region. This will include a comprehensive data evaluation from regional centers as the basis for guideline development.

**Objective 5:** Evaluate trauma care policies and procedures to ensure processes are current and quality care is provided.

a. Continue to evaluate local policies and procedures with current standards of care to ensure policies remain up-to-date.

b. Continue to evaluate the care provided to our trauma population through the various quality care committees, such as; pre-hospital Local Quality Improvement Groups, System Status Committee, Trauma Audit Committees, Regional Trauma Coordinating Committee, etc.

**Objective 6:** Provide trauma care education to system participants on current trends, new standards and quality issues that affect the care of trauma patients.

a. Continue to provide educational training to system participants through programs such as; Pre-hospital Trauma Symposium, Seldom Used Skill Training, MVEMSA Train the Trainer events, pre-hospital case review at TAC, etc.

b. Continue training and certification requirements outlined in policy and contracts to include *basic trauma life support, pre-hospital trauma life support, international trauma life support, trauma nurse core curriculum, etc.*

**Objective 7:** Coordinate Performance Improvement Program activities with system participants.

- a. Provide staff to organize and support various quality committees and encourage participation from system constituents.
- b. Evaluate system performance indicators on annual basis to assess, track and trend different aspects of trauma care.
- c. Trauma Centers will maintain ACS verifications and Title 22 designation requirements. They will participate and pass site surveys every two years.

## **Section 5: IMPLEMENTATION SCHEDULE**

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No implementations

## **Section 6: SYSTEM PERFORMANCE IMPROVEMENT**

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The American College of Surgeons (ACS) reviewers, Drs. David Plurad and James Fred Luchette, provided a site reverification review on June 20-22, 2018. Memorial Medical Center received a 3-year reverification as a Level II trauma center. Doctors Medical Center received a 1-year verification due to 2 Type II deficiencies. A site focused review was scheduled on June 4, 2018 and DMC was re-verified as a Level II trauma center for an additional 2 years.

System Performance Improvements:

1. The Agency, in cooperation with the Merced County EMS Agency, re-established a Merced Trauma Advisory Committee with participation by Stanislaus County Trauma Centers as well as Agency personnel. The Agency QI/Trauma Coordinator and Executive Director regularly attend this meeting
2. The Merced County Executive Director and EMS Medical Directors from both the EMS Agency and Ambulance Provider regularly attend the MEVMES TAC.
3. Continue to encourage catchment area referral hospitals to host the RTTDC at their facilities.
4. Continued to educate hospitals through on-site education as well as case review at TAC regarding expediting “Door In/Door Out” for critical trauma patient transfers. Specifically, the incorporation of expedited patient movement through hospital transfer centers.
5. Continue to distribute and re-educate non-trauma centers in the trauma system catchment area to the regional trauma transfer guideline poster.
6. The Agency, in cooperation with TAC, regularly reviews trauma treatment and transport policies. The following policy changes have been incorporated within the last 3 years:
  - a. MVEMSA acted as the lead LEMSA for the CA EMSA approved Ketamine study. This resulted in Ketamine being added to the paramedic scope of practice statewide for traumatic injury.
  - b. Implemented LUCAS devices throughout Stanislaus County.

- c. Added Fentanyl to the local paramedic scope of practice for traumatic injuries.
  - d. Added hemostatic dressing use to local EMT scope of practice
7. The Agency designated Valley Regional Emergency Communication Center as the Stanislaus Disaster Control Facility (DCF) in early 2017. This moved the DCF function to a dedicated EMS dispatch center with a resulting improvement in service and access to significant data collection and quality improvement oversight.

**Section 7: EMS AUTHORITY TRAUMA SYSTEM PLAN COMMENTS**

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No Comments

**Section 8: OTHER ISSUES**

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None





August 23, 2017

Daryn J. Kumar  
Chief Executive Officer  
Memorial Medical Center  
1800 Coffee Road  
Modesto, CA 95355

Dear Mr. Kumar:

Please accept our apologies for the delay in releasing your report.

The Committee on Trauma would like to extend its congratulations to the Memorial Medical Center on its reverification as a Level II trauma center for a period of 3 years, expiring on July 10, 2020. The Verification Review Committee (VRC), a subcommittee of the Committee on Trauma of the American College of Surgeons, have very carefully reviewed the enclosed reverification report written by Drs. David Plurad (lead reviewer) and James Fred Luchette, after the visit of June 21 and 22, 2017.

The Committee on Trauma's certificate of verification will arrive under separate cover within the next several weeks.

Thank you for your continued participation and support of the Verification, Review, & Consultation Program of the Committee on Trauma of the American College of Surgeons. As always, we will be glad to answer any questions you may have and look forward to working with your trauma center in the future.

Sincerely,

R. Todd Maxson, MD FACS  
Chair, Verification Review Committee

Daniel Margulies, MD FACS  
Vice-Chair, Verification Review Committee

cc: Tony Tam, MD  
Michael Taylor  
California Department of Health



AMERICAN COLLEGE OF SURGEONS  
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Highest Standards, Better Outcomes*

100years



August 17, 2017

Richard Murdock  
Executive Director  
Mountain Valley Emergency Medical Services  
1101 Sandiford Avenue, Suite D1  
Modesto, CA 95350

Dear Mr. Murdock:

The Committee on Trauma would like to extend its congratulations to Doctors Medical Center on its reverification as a Level II trauma center for a period of one year through July 9, 2018. The Verification Review Committee (VRC), a subcommittee of the Committee on Trauma of the American College of Surgeons, has very carefully reviewed the enclosed reverification report written by Drs. Fred Luchette (lead reviewer) and David Plurad after the visit of June 20 and 21, 2017. The VRC agrees with the report as it is written.

To extend the verification period an additional two years, the hospital must undergo an onsite Focused review to ensure the deficiencies and weaknesses noted in the Executive Summary of the report have been addressed. The Focused visit must occur on or prior to June 20, 2018. A corrective action plan must be submitted 30 days prior to the scheduled onsite focused review.

Thank you for your continued participation and support of the Verification, Review, & Consultation Program of the Committee on Trauma of the American College of Surgeons. As always, we will be glad to answer any questions you may have and look forward to working with your trauma center in the future.

Sincerely,

R. Todd Maxson, MD FACS  
Chair, Verification Review Committee

Daniel Margulies, MD FACS  
Vice-Chair, Verification, Review Committee

cc: Warren Kirk, Chief Executive Officer, Doctors Medical Center  
Niamh Seavy, MD FACS, Trauma Medical Director, Doctors Medical Center  
Belinda Bearden, RN, Trauma Program Manager, Doctors Medical Center





THE  
COMMITTEE  
ON TRAUMA

July 2, 2018

Warren Kirk  
Chief Executive Officer  
Doctors Medical Center  
1411 Florida Avenue  
Modesto, CA 95352

Dear Mr. Kirk,

The Committee on Trauma would like to extend its congratulations to the Doctors Medical Center on its verification as a Level II Trauma Center through July 9, 2020. The Verification Review Committee (VRC), a subcommittee of the Committee on Trauma of the American College of Surgeons, has very carefully reviewed the enclosed focused report written by Dr. David Plural (lead reviewer) and Ms. Vicki Bennett after the site visit of June 4, 2018, in conjunction with the initial reverification report from June 20 and 21, 2017.

The Committee on Trauma's certificate for the additional 2 years of verification will arrive under separate cover within the next several weeks.

Thank you for your patience and participation of the Verification, Review, & Consultation Program of the Committee on Trauma of the American College of Surgeons. As always, we will be glad to answer any questions you may have and look forward to work with your trauma center in the future.

Sincerely,

Daniel Margulies, MD, FACS  
Chair, Verification Review Committee

William Marx, DO, FACS  
Vice-Chair, Verification Review Committee

cc: Rohini Bagineri, MD  
Jan Cartner, RN  
Mountain Valley CMS Agency



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100 years

VRC  
VERIFICATION  
REVIEW  
COMMITTEE  
*For excellence in trauma centers*

POLICY: 554.47  
TITLE: Ketamine for Analgesic Use

EFFECTIVE: 02/13/2019  
REVIEW: 02/2024  
SUPERCEDES:

APPROVAL SIGNATURES ON FILE IN EMS OFFICE

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**KETAMINE FOR ANALGESIC USE**

- I. **AUTHORITY:** Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9
  - II. **PURPOSE:** To serve as a patient treatment standard for Paramedics within their scope of practice.
  - III. **PROTOCOL:** Every patient deserves to have his or her pain managed. Consider reassurance, position of comfort, ice and gentle transport as part of pain management. Privacy and separation from parents may benefit adolescents. Do not attempt to completely relieve the patient's pain, but treat aggressively enough to make it bearable.
- ❖ **If a Non-Transport ALS first response provider starts the administration of Ketamine, that provider must accompany the patient to the hospital and maintain primary care of the patient UNLESS handing that patient off to another paramedic that has received Ketamine training.**

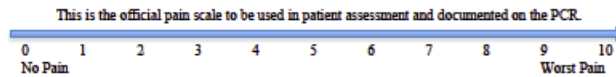
**Eligibility Criteria:**

1. 15 years of age or older
2. GCS of 15
3. Acute Traumatic or Burn injury

**Exclusion Criteria**

1. Known/Suspected pregnancy
2. Allergy to Ketamine

STANDING ORDERS	
GENERAL ASSESSMENT	CAB
OXYGEN	Oxygen delivery as appropriate to maintain O <sub>2</sub> saturation 92 – 98%
MONITOR	
PULSE OXIMETRY	
IV/IO ACCESS	TKO
ASSESS PAIN	Utilize pain scale found below. Note and document initial pain score.
KETAMINE	If pain score is 5 or above, mix 0.3 mg/kg Ketamine (max dose = 30mg) in 50 - 100cc NSS or D5W, and administer IV/IO drip over at least 5 minutes.
PLACE BAND	Place "Ketamine Administered" wrist band on patient.
REASSESS	Assess and document pain score every 5 minutes for duration of transport.
KETAMINE	If after 15 minutes or more, the pain score is 5 or higher, may administer a second dose of 0.3 mg/kg Ketamine (max dose = 30mg) in 50 - 100cc NSS or D5W IV/IO drip over at least 5 minutes.



APPROVED: Signature On File In EMS Office  
Executive Director

Signature On File In EMS Office  
Medical Director

EFFECTIVE DATE: 4/15/2016  
SUPERCEDES: \_\_\_\_\_

REVIEW DATE: 4/2021  
PAGE: 1 of 1

**PAIN MANAGEMENT**

- I. AUTHORITY: Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9
- II. PURPOSE: To serve as a patient treatment standard for EMTs, AEMTs and Paramedics within their scope of practice.
- III. PROTOCOL: Every patient deserves to have his or her pain managed. Consider reassurance, position of comfort, ice and gentle transport as part of pain management. Privacy and separation from parents may benefit adolescents. Do not attempt to completely relieve the patient's pain, but treat aggressively enough to make it bearable.

STANDING ORDERS	
ASSESS	CAB
OXYGEN	Oxygen delivery as appropriate to maintain O <sub>2</sub> saturation 92 – 98%
MONITOR	
PULSE OXIMETRY	
IV/IO ACCESS	TKO
MORPHINE	0.1 mg/kg slow IV/IO push (maximum 10mg) if BP>90 Systolic. Repeat doses 0.05 mg/kg slow IV/IO push (maximum 5mg) may be given as needed at 5 minute increments.  May give 5 – 10 mg IM if no IV/IO access ONCE.
FENTANYL	1 mcg/kg slow IV/IO push (maximum 100 mcg) if BP>90 Systolic. Repeat doses of 0.5 mcg/kg slow IV/IO push (maximum 50 mcg) may be given as needed at 5 minute increments.  1.5 mcg/kg (maximum 75 mcg) IN. Repeat doses every 10 minutes as needed.  May give 1 mcg/kg IM (maximum 100mcg) if no IV/IO access ONCE. Consider IN route instead.  <b>Morphine is BETTER for Visceral pain; Fentanyl for Somatic pain (try to use them this way if BOTH are carried)</b> <b>MAXIMUM TOTAL OPIOID DOSE IS 20 MG MORPHINE EQUIVALENT (20 mg Morphine = 200 mcg Fentanyl)</b>
END TIDAL CO <sub>2</sub>	Indicated when repeat doses (>1) dose of pain medications are administered
BASE PHYSICIAN ORDERS	
MORPHINE OR FENTANYL	Additional Opioid Above 20mg Morphine Equivalent per Base Physician Order.  Base Physician Order required to switch between Morphine and Fentanyl in the same patient.

This is the official pain scale to be used in patient assessment and documented on the PCR. Document a minimum of two pain scales (initial and on arrival at hospital).

