Mountain-Valley EMS Agency Regional STEMI Plan

Prepared for California Emergency Medical Service Authority April 2021
Plan prepared, reviewed and edited by:

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Jim Whitworth, QI/Trauma Coordinator
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Executive Summary

California statute requires the Emergency Medical Services Authority (EMSA) to adopt necessary regulations to carry out the coordination and integration of all state activities concerning Emergency Medical Services (EMS) (Health and Safety Code §1797.107).

In addition, State statute allows the EMS Authority to establish guidelines for hospital facilities, in cooperation with affected medical organizations, according to critical care capabilities (Health and Safety Code §1798.150).

As a result of these statutes, the EMS Authority established a multidisciplinary ST-Elevation Myocardial Infarction (STEMI) Care Committee for the development of STEMI System of Care Regulations for California.

California's Statewide STEMI Critical Care System is described in the California Code of Regulations; Title 22, Division 9, Chapter 7.1. These regulations outline the requirements of all components of the STEMI Critical Care System including the Local EMS Agency, pre-hospital providers, and hospitals.

Because data management, quality improvement and the evaluation process all have a vital role in providing high quality care to the cardiac patient; these items have also been identified in the regulations. The overall goal of the regulations is to reduce morbidity and mortality from acute heart disease by improving the delivery of emergency medical care within the communities of California.

The Mountain-Valley EMS Agency (MVEMSA) is a regional multi-county Joint Powers Authority (JPA) that serves as the Local EMS Agency (LEMSA) for the counties of Alpine, Amador, Calaveras, Mariposa and Stanislaus. The member counties have delegated all California Health and Safety Code, Division 2.5 and California Code of Regulations responsibilities for a LEMSA to the MVEMSA.

The Governing Board of Directors for the JPA consists of a County Supervisor from each of the member counties. The EMS system in these counties have been developed through a partnership between the EMS Agency, 9-1-1 Public Services Answering Points (PSAPS), EMS dispatch centers, Basic Life Support (BLS) Fire Department First Responders, Advanced Life Support (ALS) Fire Department First Responders, ambulance providers, base hospitals and specialty centers.

The five counties encompass an area of some 5,300 square miles with a resident population of approximately 632,161 people. The region ranges from remote rural areas to large urban areas. Extremes of weather are characteristic of the area, which encompasses the Sierra Nevada Mountains and the heat of the San Joaquin Valley region. Highway 99 runs through Stanislaus County from Merced County border to San Joaquin County Boarder and Interstate 5 touches the Western portion of Stanislaus County. Interstate 5 and Highway 99 are highly traveled freeways that run north and south through the counties. Some of the areas are densely populated and others are fairly remote with less population. Highway 49 runs through Alpine, Amador, Calaveras

and Mariposa Counties. Highway 88 also traverses through Amador and Alpine Counties through farmlands to wilderness areas.

The mission of the Mountain-Valley EMS Agency is to ensure the appropriate provision of quality pre-hospital care services to the public in a cost effective manner as an integrated part of the overall health care system and to provide the framework for quality emergency medical services to the citizens of Alpine, Amador, Calaveras, Mariposa, and Stanislaus Counties.

Mountain-Valley Emergency Medical Services Agency (MVEMSA) has many of these requirements in place since forming its Regional STEMI Systems of Care in 2004 including prehospital care policies to identify STEMI patients, designated STEMI receiving hospitals, and destination policies.

As a requirement of California Regulation, this document is to serve as a formal written plan for the MVEMSA STEMI Critical Care System.

Regional STEMI Overview

EMS Agency personnel who have a role in a STEMI system of care:

- Lance Doyle, EMS Executive Director
- Greg Kann, EMS Medical Director
- Jim Whitworth, QI/Trauma Coordinator
- Justin Murdock, EMS Critical Care Coordinator

STEMI designated facilities and agreement expiration dates:

- Memorial Medical Center, Modesto, Ca - STEMI Receiving Center
  - STEMI agreement expiration date: September 30, 2021
- Doctors Medical Center, Modesto, Ca - STEMI Receiving Center
  - STEMI agreement expiration date: December 31, 2023
- Emanuel Medical Center, Turlock Ca – STEMI Receiving Center
  - STEMI agreement expiration date: December 31, 2023

Policies related to STEMI Center Designation

- See Appendix 1A. (520.00 EMS STEMI Receiving Center Designation)

Mountain-Valley EMS Agency has designated Memorial Medical Center, Doctors Medical Center and Emanuel Medical Center as STEMI Receiving centers within the EMS region. For some areas within Calaveras and Amador Counties, it is often closer to transport identified STEMI patients to a STEMI Receiving Center outside of the Region including St. Joseph's Medical Center in San Joaquin County and Kaiser South Sacramento in Sacramento County. There is no written agreement between MVEMSA and these facilities; however, both are designated STEMI Receiving Centers by their respective LEMSAs. In addition to LEMSA County members, the STEMI catchment area extends to Merced and Tuolumne Counties.

Policies related to STEMI patient identification and destination

- See Appendix 1B. (530.00 STEMI Triage and Destination)
- See Appendix 1C. (554.09 Coronary Ischemic Chest Discomfort)

Policy for field communication to the receiving hospital-specific to STEMI patients:

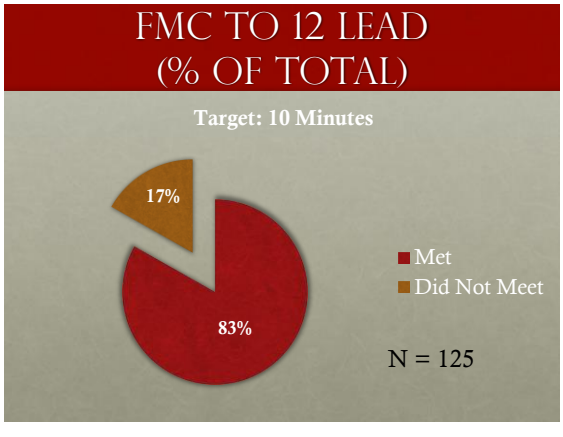
- See Appendix 1B. (530.00 STEMI Triage and Destination)

Data Collection:

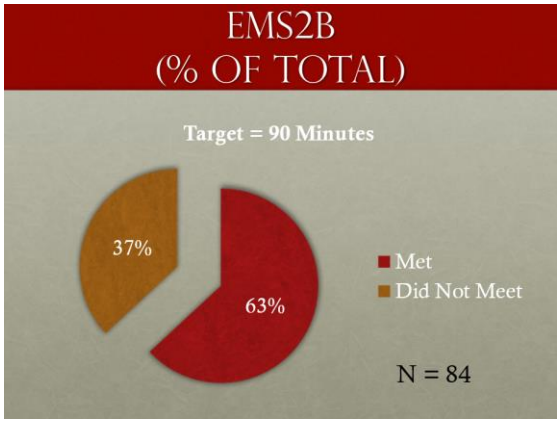
Mountain-Valley EMS Agency reviews select STEMI cases and all data quarterly at Regional STEMI meeting. This group is comprised of all stakeholders within our region that participate in STEMI care, including but not limited to EMS, Fire, STEMI Receiving Centers and STEMI Referral Hospitals. We track and trend all the following Pre-Hospital and hospital STEMI data metrics. Examples provided below include a summary of quarters 1 through 4 from the 2020 Calendar year:

Pre-Hospital STEMI Data Metrics

First Medical Contact, to 12 Lead acquisition.

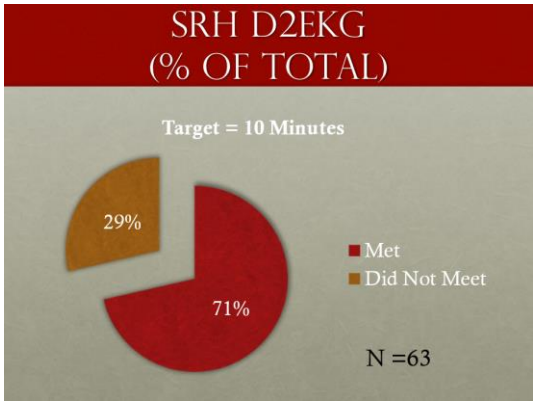


First Medical Contact to Device.

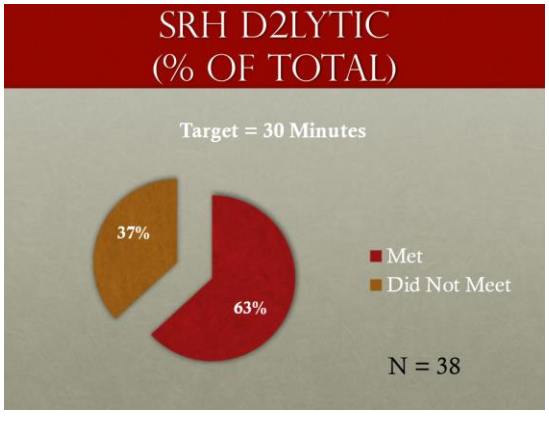


STEMI Referral Hospital Metrics:

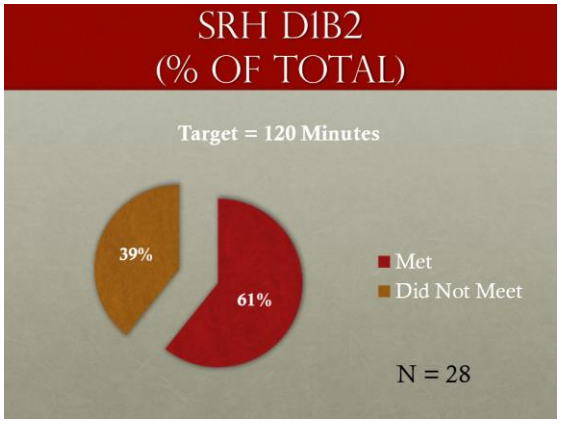
STEMI Referral Hospital Door to EKG acquisition time.



STEMI Referral Hospital Door to Thrombolytic administration.

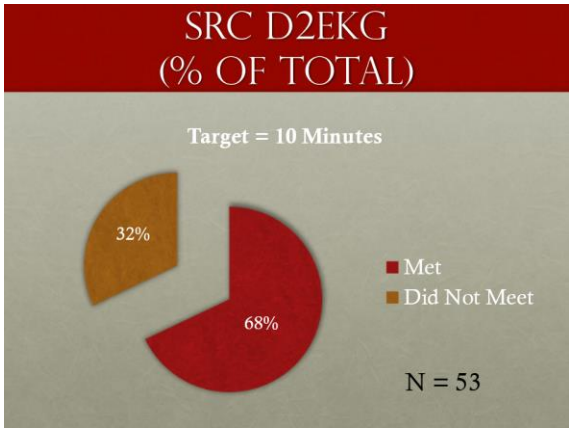


STEMI Referral Hospital Door to Device.

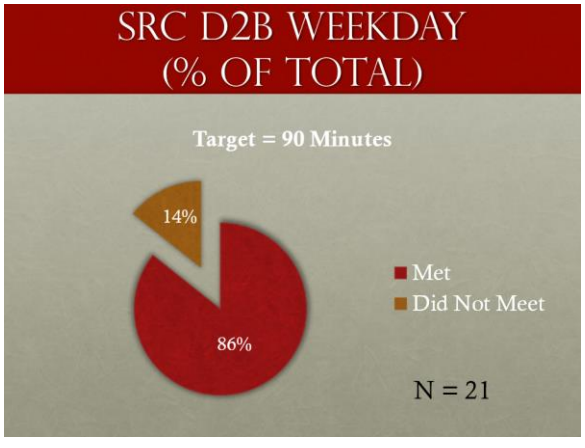


STEMI Receiving Center Metrics

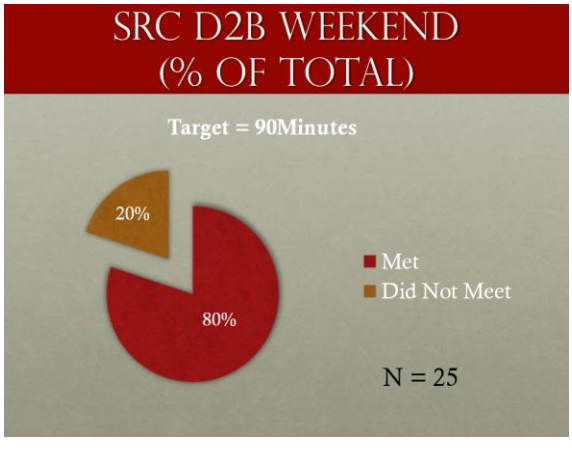
STEMI Receiving Center Door to EKG acquisition.



STEMI Receiving Center Door to Device Weekday (M-F, 0800-1500, no Calendar Holidays).



STEMI Receiving Center Door to Device, Weekend (Saturday, Sunday, M-F, 1500-0800, Calendar Holidays).



Inter-Facility Transfers

Within the region, 3 of 8 receiving hospitals are currently certified by The American Heart Association at a minimum of a STEMI receiving center. Although infrequent, there may be times when a STEMI patient needs to be transferred from one acute care facility to another. For this reason, STEMI Centers have plans developed that include:

- Pre-arranged agreements with STEMI receiving hospitals for transfer of patients.
- Pre-arranged agreements with EMS providers for rapid transport of patients who are eligible for time-sensitive treatments.

Occasionally, patients may benefit by being transferred emergently from a non-STEMI-receiving hospital to a STEMI-receiving hospital. In these cases, emergency transfer protocols are in place for an emergent interfacility transport.

MVEMSA has a policy in place to provide guidelines for ambulance transport of patients between acute care hospitals. Policy 580.11; Ambulance Transfers; outlines transfer agreements, medical control and levels of care to ensure that patient needs are being met while providing quality rapid transport to definitive treatment.

- See Appendix 1D (580.11 Ambulance Transfers)

EMS Thrombolytic Checklist

In collaboration with the Regional STEMI Committee, a thrombolytic checklist is required to be completed by the attending Paramedic for those patients identified as having a STEMI in Amador, Calaveras and Mariposa Counties. Because of the geography and distance to a STEMI Receiving center, if a patient identified in one of the above counties cannot be transported to a STEMI Receiving Center within 60 minutes and does not have contraindications to thrombolytics, the patient shall be transported to the closest facility.

- See appendix 1E. (Thrombolytic Checklist)

Quality Improvement

STEMI Quality Improvement Committee

Mountain-Valley EMS Agency hosts a Regional STEMI Systems of Care meeting quarterly. This is a multi-disciplinary advisory group to the EMS Medical Director and Agency QI Personnel whose purpose is to review STEMI care and drive process changes. It is comprised of designated representatives from the EMS Agency, designated STEMI Receiving Centers, in-county and out-of-county STEMI Referral Hospitals, and ALS provider agencies. This meeting links prehospital and hospital care to offer a high-level overview and drives system changes to improve cardiac care throughout the Mountain-Valley EMS Region and surrounding catchment area.

In Stanislaus County, all ALS providers utilize Physio Control Lifepack 15 cardiac monitors that can transmit real time 12-lead EKG's to our STEMI Receiving Centers. This process has proven to reduce the door to Cardiac Cath Lab time, thus enhancing patient care. Discussions have taken place to strategize a process for implementing 12 lead transmission in Calaveras and Amador Counties. These discussions are led by the Agency Medical Director, Dr. Greg Kann.

In February of each calendar year, the three designated STEMI Receiving Centers cooperatively host "Cardiovascular Conference." Due to restriction imparted during the COVID pandemic, the Cardiovascular Conference was postponed in 2020, and will be hosted with a tentative date of August 17th, 2021. Topics surround cardiovascular care, Stroke care, innovative ideas and EMS processes. These events are rotated evenly amongst our three designated centers annually with Emanual Medical Center hosting the event in 2021.

Public Education

Public education specific to cardiac care:

Public education is vitally important in the ongoing recognition and treatment of STEMI and cardiac arrest patients. Due to the COVID pandemic, and state mandated restrictions to social gatherings, public education could not be completed. We will resume public education in 2021, as the mandated COVID gathering restrictions allow. When the resumption of gatherings and training activities takes place, a few examples of the education that is typically provided are below:

- Community "Hands Only CPR". The amount of people trained at these events are tracked quarterly with a yearly average of 1500 community members trained.
- Regional "Cardiovascular Conference" annually.
- Annual "Heart Walk" conducted by the STEMI Receiving Centers.

Appendix 1A

MOUNTAIN-VALLEY EMS AGENCY
POLICIES AND PROCEDURES

POLICY: 520.00
TITLE: EMS STEMI RECEIVING CENTER DESIGNATION

APPROVED: Signature On File In EMS Office
Executive Director

Signature On File In EMS Office
Medical Director

EFFECTIVE DATE 9/1/2015
SUPERSEDES:

REVIEW DATE: 9/2020
PAGE: 1of 4

EMS STEMI RECEIVING CENTER DESIGNATION

I. AUTHORITY

Division 2.5, California Health and Safety Code, Sections 1797.67, 1798, 1798.101, 1798.105, and 1798.170

II. DEFINITIONS

A. "Percutaneous Coronary Intervention (PCI)" refers to a procedure, commonly referred to as angioplasty, which is used to open narrowed or blocked coronary arteries.

B. "STEMI" means an acute myocardial infarction that generates a specific type of ST-segment elevation on a 12-lead ECG.

C. "STEMI Alert" is a report from Pre hospital personnel that notifies a STEMI Receiving Center or STEMI Referral Hospital as early as possible that a patient has a STEMI, allowing the hospital to initiate internal procedures to provide appropriate and rapid treatment.

D. "STEMI Receiving Center (SRC)" is a hospital in the Mountain-Valley EMS Agency region that has an interventional cardiology catheterization lab licensed by the Department of Health Services which provides emergent primary interventional cardiac catheterization services 24 hours a day, 7 days a week, 365 days a year, with an established quality assurance program and a written commitment by the hospital administration supporting the center's interventional cardiology mission for STEMI patients

E. "STEMI Referral Hospital (SRH)" is any hospital in the Mountain-Valley EMS Agency region that lacks the availability or continuous availability of 24/7/365 primary PCI. These hospitals have the ability to administer thrombolytics to a STEMI patient. These hospitals will also have written transfer policies for STEMI patients to STEMI Receiving Centers.

III. PURPOSE

To define requirements for designation as a STEMI Receiving Center (SRC) within the Mountain-Valley EMS Agency region for patients transported by ambulance via the 911 system with ST-Elevation Myocardial Infarction (STEMI) who may benefit by rapid assessment and percutaneous coronary intervention (PCI).

IV. POLICY

A. To be designated as an SRC in the Mountain-Valley EMS Agency region; a hospital must meet the following requirements:

1. Possess current California licensure as an acute care facility providing Basic Emergency Medical Services.

2. Hold current status as a Base Hospital in the Mountain-Valley EMS Agency region.

3. Enter into a written agreement with the Mountain-Valley EMS Agency identifying SRC and MVEMSA roles and responsibilities.

4. Agree to accept all EMS patients meeting STEMI patient triage criteria and all "STEMI Alert" patients transferred from other hospitals within the Mountain-Valley EMS Region and provide a plan for the triage

and treatment of simultaneously presenting STEMI patients regardless of ICU/CCU or ED saturation status.

5. Meet STEMI Receiving Center Designation Requirements as defined in the Mountain-Valley EMS Agency STEMI Receiving Center Designation Criteria Application and Evaluation Matrix. The criteria includes:

   a. Hospital Services Including:

      i. Special permit for cardiac catheterization laboratory pursuant to the provisions of Title 22, Division 5, of the California Code of Regulations.

      ii. Intra-aortic balloon pump capability with necessary staff available 24 hours a day 7 days a week 365 days a year.

      iii. California permit for cardiovascular surgery or a written plan for emergency transport to a facility with cardiovascular surgery available with timely (within 1 hour) transfer steps and agreements.

      iv. Continuous availability of PCI resources 24 hours a day 7 days a week 365 days a year.

      v. Recorded Med-net radio or recorded phone line available 24 hours a day 7 days a week 365 days a year to be used for pre-hospital communication regarding "STEMI Alert" patients and for notifications of "STEMI Alert" transfers from other hospitals.

   b. Hospital Personnel Including:

      i. STEMI Receiving Center Medical Director who must be board-certified in Internal Medicine with a sub-specialty in cardiovascular disease.

      ii. STEMI Receiving Center Program Manager who must be an RN.

      iii. Cardiac Catheterization Lab Manager/Coordinator who must be an RN if not directly reporting to the STEMI Receiving Center Program Manager

      iv. A daily roster of interventional cardiologists who must:

         a) Be available and present in the SRC within 30 minutes of the activation of the SRC's internal STEMI/PCI system

         b) Have privileges in percutaneous coronary interventions (PCI).

      v. A daily roster of cardiovascular surgeons who must be available and present in the SRC within 30 minutes of documented request, or SRC's without cardiovascular surgery capability shall have written transfer guidelines and a plan for emergency transfer within 1 hour if medically necessary.

   c. Clinical Requirements Including:

      i. ACC/AHA guidelines for activity levels of facilities and practitioners for both primary PCI and total PCI events are adopted herein and may require periodic updating:

         a) Interventionalist shall perform a minimum of 11 primary (emergency) PCI procedures and 75 total (emergency plus elective) procedures per year.

         b) SRC shall perform a minimum of 36 primary (emergency) PCI procedures and 200 total (emergency plus elective) PCI procedures annually.

      ii. Performance and outcome measures will be assessed initially in the survey process, and will be monitored closely on an ongoing basis.

   d. SRC Internal Hospital Policies/Plans

      i. Base Hospital STEMI medical control and quality improvement plan

ii. ED STEMI patient management plan

iii. Cardiac Interventionalist activation plan

iv. Cardiac Catheterization Lab team activation plan

v. STEMI contingency plans for personnel and equipment

vi. Coronary angiography policy

vii. PCI and use of Fibrinolytic policy

viii. Interfacility transfer STEMI policies/protocols

ix. Transfer agreements for cardiac surgery, as appropriate

x. STEMI patient triage

e. Performance Improvement Program for EMS Patients including:

i. Participation in Mountain-Valley EMS SRC QI Committee, whose membership includes:

a) EMS Medical Director

b) EMS Quality Improvement Coordinator

c) Designated Cardiologist from each SRC

d) Designated quality improvement representative from each SRC

ii. Meetings to be held on a quarterly basis and in accordance with California Evidence Code 1157 (Regarding Confidentiality).

a) *The* proceedings and *records of this committee are confidential andare protected under section 1157 and 1157.5 of the Evidence Code, State of California. Members and invited guests of the SRC QI Committee are required to sign a Confidentiality Agreement, which is maintained on file at the EMS agency, as a condition of attendance.*

iii. Written internal quality improvement plan/program description for STEMI patients shall include appropriate evidence of an internal review process that includes:

a) Mortality Rate (within 30 days, related to procedure regardless of mechanism)

b) Emergency CABG rate (result of procedure failure or complication)

c) Vascular complications (access site, transfusion, or operative intervention required)

d) Cerebrovascular accident rate (peri-procedure)

e) Sentinel event, system and organization issue review and resolution processes

iv. Participation in Prehospital STEMI related educational activities

f. Data Collection, Submission and Analysis

i. Participation in National Cardiac Data Registry

ii. Participation in Mountain-Valley EMS Agency data collection as defined by Data Requirements for STEMI Centers.

iii. Participation in receiving 12 lead transmissions from EMS System ambulance providers

B. Designation

1. The STEMI Site Review Team, which reviews the written proposal and conducts site visits, will include an interventional cardiologist, emergency physician, nurse coordinator, and/or hospital administrator(s), EMS agency administrator(s), and/or similar experts as necessary.

2. Based on the recommendation(s) of the STEMI Site Review Team, the MVEMSA Board of Directors will designate the STEMI center(s).

3. SRC designation shall be awarded to a hospital following satisfactory review of written documentation and initial site visit and an agreement between the hospital and Mountain-Valley EMS Agency.

4. SRC designation shall be for a period of 2 years initially, then every three years thereafter, contingent on satisfactory reviews and payment of appropriate fees.

5. Basis for loss of designation

a. Inability to meet and maintain STEMI Receiving Center Designation Criteria

b. Failure to provided required data

c. Failure to participate in STEMI system QI activities

d. Other criteria defined and reviewed by the SRC QI Committee

Appendix 1B

MOUNTAIN-VALLEY EMS AGENCY
POLICIES AND PROCEDURES

POLICY: 530.00
TITLE: STEMI Triage and Destination

APPROVED: Signature On File In EMS Office
Executive Director

EFFECTIVE DATE 4/15/2016
SUPERCEDES:

Signature On File In EMS Office
Medical Director

REVIEW DATE: 4/2021
PAGE: 1of 4

STEMI TRIAGE AND DESTINATION

I. AUTHORITY
Division 2.5, California Health and Safety Code, Sections 1797.67, 1798, 1798.101, 1798.105, and 1798.170

II. DEFINITIONS

A. "STEMI" means an acute myocardial infarction that generates a specific type of ST-segment elevation on a 12-lead ECG.

B. "STEMI Alert" is a report from prehospital personnel that notifies a STEMI Receiving Center or STEMI Referral Hospital as early as possible that a patient has a specific computer-interpreted Prehospital 12-lead ECG indicating a STEMI.

C. "STEMI Receiving Center (SRC)" is a hospital in the Mountain-Valley EMS Agency region that has an interventional cardiology lab licensed by the Department of Health Services which provides emergent cardiac catheterization 24 hours a day, 7 days a week, 365 days a year, with an established quality assurance program and a written commitment by the hospital administration supporting the center's interventional cardiology mission for STEMI patients.

D. "STEMI Referral Hospital (SRH)" is any hospital in the Mountain-Valley EMS Agency region that lacks the availability or continuous availability of 24/7/365 cardiac catheterization. These hospitals will have the ability to administer thrombolytics to a STEMI patient. These hospitals will also have written transfer policies for STEMI patients to STEMI Receiving Centers.

E. "STEMI Patient" means a patient 18 years of age or greater who has received a 12 lead electrocardiogram in the pre-hospital environment that stipulates ***Acute MI Suspected*** or "ECG Suggestive of Acute MI" on the computer interpretation on the ECG.

F. "Pre-Hospital Care Provider" means the ambulance service provider, fire service agency, or any other emergency service provider authorized by Mountain-Valley EMS Agency.

G. "ALS" means Advanced Life Support, as defined in Section 1797.52, Division 2.5 of the Health and Safety Code.

III. PURPOSE

To establish guidelines for prehospital personnel to identify and transport patients with acute ST-Elevation Myocardial Infarction (STEMI) who may benefit from the rapid response and specialized services of a STEMI Receiving Center (SRC).

IV. POLICY

This policy applies to adult patients with chest pain or symptoms suggestive of Acute Coronary Syndrome (ACS) with a 12-lead ECG demonstrating elevated ST-segments indicating a specific type of myocardial infarction.

V. TRIAGE

A. Patients with chest pain or symptoms suggestive of Acute Coronary Syndrome (ACS) shall have a 12-lead ECG performed.

1. 12-lead ECG's showing suspected STEMI will be transmitted to SRC by Pre-hospital Care Provider's 12-lead ECG transmission device.

2. Exceptions include patients who are not cooperative with the procedure or patients in whom the need for critical resuscitative measures preclude performance of 12-lead ECG.

3. Paramedic shall review the 12-lead ECG tracing in all instances to assure that little or no artifact exists (steady baseline, lack of other electrical interference, complete complexes present in all 12 leads). Repeat ECG may be necessary to obtain an accurate tracing.

B. If computerized interpretation of accurately performed 12-lead ECG indicates either ***Acute MI*** or ***Acute MI Suspected*** or ***STEMI***, the patient qualifies as a candidate for transport to a STEMI Receiving Center. Patients without these findings shall be transported per MVEMSA Policy 511.00.

Note: Hypotensive STEMI patients should be transported to the closest ED.

VI. DESTINATION

A. With consent, a patient with an identified STEMI should be transported to a designated STEMI Receiving Center if estimated transport time is 60 minutes or less. If the patient has a preference or has a cardiologist associated with a designated STEMI Receiving Center, the patient shall be transported to their preferred hospital. If the patient does not have a preference, the patient shall be transported to the NEAREST STEMI Receiving Center.

B. If transport time to a STEMI Receiving Center is estimated to be greater than sixty (60) minutes, the patient shall be transported to a designated STEMI receiving center in an

adjoining county if transport time is less than 60 minutes to that center. In cases where there is no SRC within 60 minutes the patient shall be transported to the nearest STEMI Referral Hospital. Paramedics in Mariposa, Amador and Calaveras counties may exercise their judgment and, in communication with the base hospital, request air transport (if available) of STEMI patients to a SRC.

C. Unstable STEMI patients shall be diverted to the nearest emergency department. Unstable STEMI patients are defined as any ONE of the following:

1. Patients under CPR

2. Inability to ventilate and/or oxygenate the patient with BLS maneuvers.

D. A STEMI Receiving Center may request advisory status for incoming STEMI patients only when:

1. The STEMI Receiving Center is on internal disaster; or

2. The Cardiac Catheterization laboratory is closed for repair or upgrade.

VII. STEMI ALERT/PATIENT REPORT

A. The STEMI Alert should contain the following information:

1. Situation:

a. Identification of the call as a "STEMI Alert."

b. Estimated time of arrival in _____ minutes for STEMI.

c. Patient age and gender

d. Confirm ECG states ***Acute MI*** or ***Acute MI Suspected*** or ***STEMI***

e. If patient elects to go to a facility that is not a STEMI designation receiving center

f. Any urgent patient concerns

2. Background:

a. Patient presenting complaint including any duration and presence/absence of chest pain, pressure, jaw pain, or SOB.

b. Pertinent past cardiac history including presence of a pacemaker

3. Assessment:

a. General Impression

b. Patient improved or worse since on scene

c. Pertinent vital signs and significant abnormal physical examination findings

4. Treatment:

a. Prehospital treatment given and response to treatment

VIII. DOCUMENTATION

A. A copy of the 12-lead ECG shall be delivered to the nurse or doctor caring for the patient at arrival in the Emergency Department

B. A copy of the 12-lead ECG shall be generated for inclusion in the Prehospital Patient Care Report (PCR) or incorporated via electronic means into the record. The finding of STEMI on 12-lead ECG and confirmation of the STEMI Alert shall also be documented on the PCR.

Appendix 1C

Mountain-Valley
EMERGENCY MEDICAL SERVICES AGENCY

POLICIES AND PROCEDURES

POLICY: 554.09
TITLE: Coronary Ischemic Chest Discomfort

EFFECTIVE: 10/21/20
REVIEW: 10/2025
SUPERCEDES:

APPROVAL SIGNATURES ON FILE IN EMS OFFICE

CORONARY ISCHEMIC CHEST DISCOMFORT

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 EMRs, EMTs, and Paramedics within their scope of practice.

III. PROTOCOL
Characterized by: Substernal chest pain; chest or epigastric discomfort, heaviness, squeezing, burning or tightness; pain radiating to, or isolated to jaw, shoulders, arms or back; nausea; diaphoresis; dizziness; dyspnea; anxiety or back pain. Patient may have history of coronary artery disease. Up to 1/4 of coronary ischemia (Acute Coronary Syndrome) patients may have no chest discomfort at all-- this is more common in the elderly and diabetics.

Risk factors are more important than the pattern of chest discomfort. Prior history of ischemic heart disease, cigarette smoking, hypertension, high cholesterol, diabetes, and recent cocaine/amphetamine abuse are the strongest risk factors.

EMR STANDING ORDERS	
Patient Assessment	Circulation, Airway, Breathing, assess vital signs q 5 minutes and report findings to incoming Advanced Life Support providers
Oxygen Administration	Provide oxygen if appropriate and be prepared to support ventilations with BVM.
EMT STANDING ORDERS	
Note	Must perform items in EMR standing orders if applicable
Pulse Oximetry	Report initial reading to paramedic if applicable
Mentation	If Altered Level of Consciousness check blood sugar and refer to 554.31 Altered Level of Consciousness
Aspirin	324 mg chewed PO unless taken within past 6 hours or has allergy to ASA
Nitroglycerin	EMT's may assist a patient with their prescribed sublingual NTG. 0.4 mg sublingual (if systolic BP > 100). May repeat every 3 minutes to a max of 3 total doses (including patient administered doses). Contact Base Hospital before administering nitroglycerin to patients taking Viagra (Sildenafil) within the past 6 hours.
PARAMEDIC STANDING ORDERS	
Note	Must perform items in EMT standing orders if applicable
Cardiac Monitor	12 Lead EKG – If interpretation results reveal ***ACUTE MI/SUSPECTED*** or manufacturer equivalent, expedite transport to SRC as directed if transport time is less than 60 minutes. Transmit 12-Lead EKG (if capable) to SRC upon immediate recognition. It is preferable to obtain 12 lead prior to Nitro administration or transport. Repeat post-treatment if patient symptomatic and condition permits.

Nitroglycerin	0.4 mg sublingual (if systolic BP > 100). May repeat every 3 minutes to a max of 3 total doses. Contact Base Hospital before administering nitroglycerin to patients taking Viagra (Sildenafil) within the past 6 hours.
IV/IO Access	TKO. 250ml fluid challenge if systolic BP is <90mm/Hg. Repeat until BP improves
Pain Management	If after 3 total doses of Nitroglycerin patient continues to experience pain refer to policy 554.44 Pain Management

Clinical PEARLS

- Intravenous access is preferred over Intraosseous unless patient is unstable
- Secure airway with simplest technique, i.e. BLS airway unless unable to manage
- The use of capnography is highly recommended in all Respiratory patients and during Analgesic use.
- Patients in Amador, Calaveras and Mariposa counties meeting STEMI criteria shall be transported to closest facility if transport time to STEMI receiving facility is > 60 minutes and there are not contraindications to Thrombolytics
- EMS shall acquire 12 lead EKG on any suspected cardiac patient within 10 minutes of patient contact. If unable to obtain within 10 minutes the reason for delay shall be documented in the Patient Care Report.

Appendix 1D

MOUNTAIN-VALLEY EMS AGENCY
POLICIES AND PROCEDURES

POLICY: 580.11
TITLE: AMBULANCE TRANSFER POLICY

APPROVED: SIGNATURE ON FILE IN EMS OFFICE
Executive Director

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Medical Director

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AMBULANCE TRANSFER POLICY

I. AUTHORITY

In accordance with Section 1798.172 of Division 2.5 of the Health and Safety Code, the local EMS agency shall establish guidelines and standards for completion and operation of formal transfer agreements between hospitals with varying levels of care in the area of jurisdiction of the local EMS agency consistent with Sections 1317 to 1317.9a, inclusive, and Chapter 5 (commencing with Section 1798).

II. DEFINITIONS

A. "Interfacility transfer" shall mean the movement of a patient from a hospital emergency department or a hospital inpatient area hereafter referred to as "facility", to any other facility for the purpose of evaluation or treatment at a higher level of care.

B. "Transfer" shall mean the movement of a patient, determined to be a non-emergency medical patient, from a hospital's facilities at the direction of any person employed by or affiliated with the hospital. This includes transfers to another facility for diagnostic testing.

C. "Authorized Patient Transport Provider" shall mean an ambulance provider agency that has the contractual responsibility to provide service in the jurisdiction in which the hospital is located.

III. PURPOSE

To assure that all transfers that occur within the region are conducted in compliance with Federal EMTALA regulations. To serve as a treatment standard for EMT-Is and EMT-Ps in transferring patients between acute care hospitals and other facilities.

IV. POLICY

A. Direct Admission Transfers

1. The transferring hospital shall comply with all EMTALA documentation and destination requirements prior to the transfer of the patient to another facility.

2. The destination of patients being transferred from an Acute Care Facility shall not be directed by the DCF regardless of MCI or System Saturation status.

3. An Agency approved Interfacility Transfer Form shall be completed for each patient being transported on all transfers.

B. A patient is to be transferred in a vehicle that is staffed by qualified trained personnel and that contains life support equipment appropriate to the patient's condition. During transfers, pre-hospital personnel will follow MVEMSA policies, and use only those medications and procedures for which they are trained and authorized by MVEMSA policy are and within their own scope of practice.

C. It may be necessary for additional specialized personnel arranged by the transferring hospital to accompany the patient whenever appropriate.

V. PROCEDURE

A. Direct voice contact between transferring physician and receiving physician shall be made and agreement regarding all aspects of the transfer shall be reached prior to transfer.

B. The transferring facility shall make the necessary arrangements for the transfer (including accompanying personnel where appropriate) in compliance with the agreement reached between the transferring physician and receiving physician.

C. The transferring facility will call the authorized patient transport provider and arrange for appropriate transportation. If warranted by his or her condition, the patient shall be accompanied by appropriate medical personnel. The transferring facility is obliged to provide appropriate personnel if the patient's treatment needs are beyond the scope of practice of the transport personnel.

D. The following medical records shall accompany the patient:

1. A summary of care received prior to the transfer.

2. Copies of all current pertinent medical records including laboratory data, current physician's and nursing notes.

3. Copies/originals of all pertinent x-rays, sonograms, CT scans, ECGs and other diagnostic tests.

4. Copies of pre-hospital care forms including paramedic run reports and Emergency Department records where applicable.

E. A verbal report on the patient by a nurse or physician shall be made to the transport crew prior to transport.

F. Written orders shall be provided to the transport personnel, as appropriate, on the transfer sheet and signed by the transferring physician. If the written orders vary from the Mountain-Valley EMS Agency treatment policies, the written orders must be within the paramedic's approved local scope of practice and must also be approved by a Base Hospital physician.

G. The transferring facility personnel shall utilize an Agency approved Interfacility Transfer Form, with checklist and transfer orders, to ensure that the patient has been appropriately prepared for transport. This Transfer form shall accompany the patient, and the receiving facility shall review and complete the form when the patient arrives, and forward a copy of the completed form and the Patient Care Report, with arrival time, to the EMS Agency.

Appendix 1E

MVEMSA
FIBRINOLYTIC CHECKLIST FOR PRESUMED STEMI

Date_____ PCR#_____ Receiving Facility_____

Patient Name_____ DOB_____ Medic Unit_____

If ANY of the following is checked YES, AND your patient has a PRESUMED STEMI consider transport directly to a STEMI Receiving Center:

	YES	NO
1. Chest pain lasting greater than 12 hours	( )	( )
2. Systolic BP greater than 180 mmHg OR less than 100 mmHg	( )	( )
3. Diastolic BP greater than 100 mmHg	( )	( )
4. Age younger than 35 if male or 40 if female	( )	( )
5. History of stroke, brain tumor, A-V malformation, aneurysm or other CNS disease	( )	( )
6. Internal bleeding in past 4 weeks	( )	( )
7. Surgery or trauma in past 2 months, including laser eye surgery	( )	( )
8. Closed head/facial trauma past 3 months	( )	( )
9. Bleeding or clotting problems	( )	( )
10. Taking Eliquis (apixaban), Pradaxa (dabigatran etexilate mesylate), Savaysa (edoxaban), Xarelto (rivaroxaban), or Coumadin (warfarin)	( )	( )
11. Pregnant female	( )	( )
12. Terminal illness (hospice and comfort care patients to closest facility or patient requested destination)	( )	( )
13. Serious systemic disease, including liver or kidney disease	( )	( )
14. Previous hypersensitivity to TNKase	( )	( )
15. Contraindications to fibrinolytic therapy	( )	( )

_____ _____
Assessing Paramedic Signature *Paramedic License*

Mountain-Valley
EMERGENCY MEDICAL SERVICES AGENCY