



Monterey County
Emergency Medical Services Agency

TRAUMA CARE SYSTEM PLAN

October 2014

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AUTHORITY AND PURPOSE

The purpose of The Monterey County Emergency Medical Services (EMS) Trauma Care System Plan is to identify the process for the designation of Natividad Medical Center (NMC) as an Adult Level II Trauma Center. The initial Trauma Care System Plan was developed in 2007 and revised in 2011 in compliance with the State of California Health and Safety Code, Division 2.5, Sections 1797.257 and 1797.258 (Trauma Statutes) and the California Code of Regulations, Title 22, Social Security Division 9, Pre-hospital Emergency Medical Services Chapter 7, Trauma Care Systems (Trauma Regulations) and the Monterey County Emergency Medical Services Plan. The Monterey County Trauma Care System Plan outlines the structure and operations of the proposed trauma care system within Monterey County. The new plan incorporates a design change from no Trauma Centers in Monterey County to the designation of an Adult Level II Trauma Center.

Specifically, the plan incorporates policies and procedures for system operations, which meet the minimum standards and regulations. In addition, the plan establishes a timeframe for implementation of system changes.

The Monterey County Emergency Medical Services Agency, would like to thank all of the individuals, organizations, and institutions that assisted in the development of this Plan.

I. SUMMARY OF THE PLAN

The Monterey County EMS Trauma Care System Plan was developed in compliance with California State Trauma Statute and Regulations.

A. Organizational structure:

Monterey County EMS Agency is a local emergency medical services agency designated by the Monterey County Board of Supervisors via Resolution 79-202 dated April 24, 1979.

B. Needs assessment:

Currently, the County system of care for trauma patients is to air transport the majority of trauma patients to Santa Clara County Trauma Centers. Mechanism-Anatomic-Physiologic (MAP) triage criteria (algorithm) are used within Monterey County to determine injury severity. When the patient meets MAP criteria, a helicopter is dispatched and patients are transported to a Santa Clara County trauma center.

A Request For Qualifications (RFQ) was sent to the hospitals within the county. This RFQ was returned by two (2) hospitals who were interested in becoming an Adult Level II Trauma Center. What followed was a competitive process where a group of outside experts recommended a preferred applicant. The selected hospital was Natividad Medical Center (NMC). NMC is the County safety net hospital and is under the guidance and authority of the Monterey County Board of Supervisors. NMC submitted an implementation timeline for acquisition of identified staffing and equipment. This timeline received approval from the Board of Supervisors on January 22, 2014.

C. Trauma system design:

Monterey County EMS seeks to improve the care provided to trauma patients in its service area through an inclusive trauma care system. The proposed system design is:

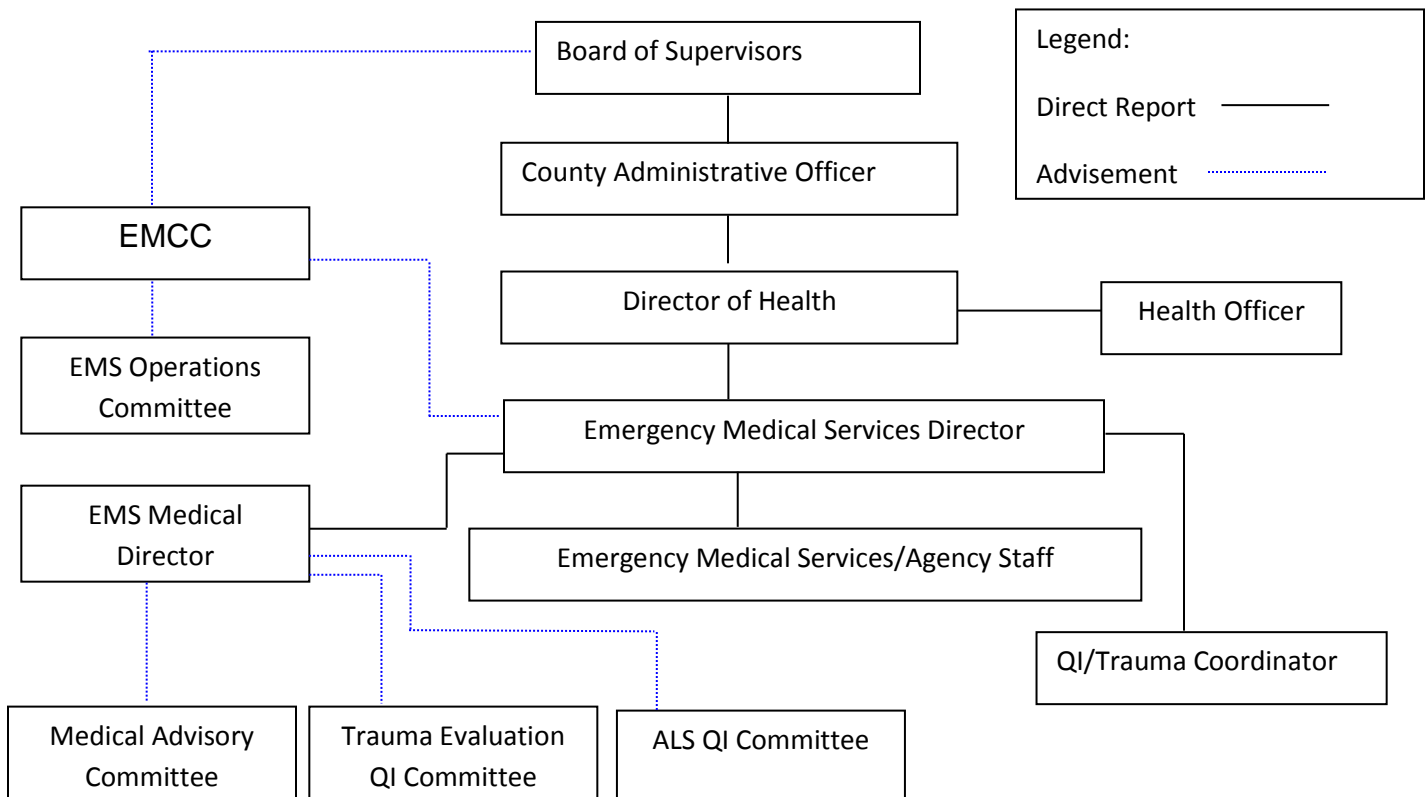
- The designation of an Adult Level II Trauma Center at Natividad Medical Center (NMC) in Salinas;
- Patients meeting Centers for Disease Control (CDC) field triage criteria will be transported to NMC's Adult Level II Trauma Center whenever possible;
- Appropriate patients will be transported to a designated pediatric Trauma Center in another county;

- Burn patients will be transported to a designated burn center in another county;
- A quality improvement process will be established which includes appropriate stakeholders;
- Training will be provided for pre-hospital and hospital personnel regarding local changes to EMS system policies including field trauma triage and hospital destination;
- Appropriate policies have been adopted for implementation and operation of the system; and,
- Local trauma patients within forty-five (45) minutes (via ground delivery) of the Monterey County Adult Level II Trauma Center will be transported directly to NMC. Any trauma patients greater than 45 minutes away from NMC will be transferred by air (weather permitting). Patients who are in excess of 45 minutes from NMC will be taken to the closest Trauma Center.

II. ORGANIZATIONAL STRUCTURE

The Monterey County Emergency Medical Service Agency (EMS) is an agency created and governed by the Monterey County Board of Supervisors via resolution 79-202 dated April 24, 1979. A map of Monterey County is provided in **Appendix A – California County Map**.

Current Organizational Structure



Monterey County Emergency Medical Care Committee (EMCC), created by the Board of Supervisors in 2002, acts in an advisory capacity to the Board of Supervisors and the EMS Director in regards to operational and medical issues. Per the April 6, 2010, EMCC bylaws (BOS Resolution #10-069), the EMCC shall advise the Board of Supervisors and EMS Director on EMS system issues, including CSA74 funding, the EMS Agency budget, and training; ensure that all EMS constituents will be actively engaged in decisions regarding EMS system resources; and provide input on the development and implementation of County EMS policies, protocols, and procedures.

The Monterey County EMS Agency utilized the Medical Advisory Committee (see Appendix I – Medical Advisory Committee Membership) to provide leadership with information in the development of the Monterey County Trauma Care System Plan and to provide a mechanism for input from system stakeholders and constituents.

III. NEEDS ASSESSMENT

Currently, the County system of care for trauma patients is to air transport the majority of trauma patients to Santa Clara County Trauma Centers. Mechanism-Anatomic-Physiologic (MAP) triage criteria (algorithm) are used within Monterey County to determine injury severity. When the patient meets MAP criteria, a helicopter is dispatched and patients are transported to Santa Clara County.

A request for qualifications (RFQ) was sent to the hospitals within the county. This RFQ returned two (2) hospitals who were interested in becoming an Adult Level II Trauma Center. What followed was a competitive process where a team of outside experts in trauma systems and care recommended a preferred applicant. The selected hospital was NMC. Due to NMC being a county safety net hospital, and under the guidance and authority of the Monterey County Board of Supervisors; NMC submitted an implementation timeline for acquisition of identified staffing and equipment, which received approval from the Board of Supervisors on January 22, 2014.

Appendix B – Trauma System Volume provides a summary of the work performed by the Abaris Group in 2011 showing anticipated population growth and increase in the number of trauma patients related to that growth. The population of Monterey County has increased by an estimated 26,700 since the 2007 Trauma Care System Plan was submitted. Population increase should not significantly change the anticipated trauma volume for the current version.

Appendix C – Trauma System Resource Assessment identifies the resources available for trauma care within Monterey County. The closest tertiary level service for trauma care is at Natividad Medical Center. There are two hospitals within the system that provide cardiac and stroke care. San Francisco and Santa Clara counties host the next closest tertiary level service for trauma. Natividad Medical Center has committed the resources to meet the standards for designation.

	Beds	ED	ICU	OR
Natividad Medical Center (City of Salinas)	172	19	10	5 (OR team in house 24/7 with additional back up team available 24/7)

IV. TRAUMA SYSTEM DEVELOPMENT

Monterey County EMS seeks to improve the care provided to trauma patients in its service areas through designating an Adult Level II Trauma Center. The proposed system design is:

- Designating Natividad Medical Center as an Adult Level II trauma center;
- Patients meeting CDC field trauma triage criteria will be transported to the Adult Level II Trauma Center when appropriate;
- Appropriate patients will be transported to a Pediatric Trauma Center in another county;
- Burn patients will be transported to a designated burn center in another county;
- A quality improvement process will be established which includes stakeholders;
- Training will be provided for pre-hospital and hospital personnel regarding field trauma triage policies, trauma patient destination, and other system policies;
- Appropriate policies will be adopted for implementation and operation of the system; and,
- Trauma patients within 45 minutes (via ground or air) of the Monterey County Adult Level II Trauma Center will be transported directly to NMC. All other patients will be transported to the trauma care destination determined by the Adult Level II Trauma Center (NMC).

A. Trauma system development

Adult Level II Trauma Center: On September 26, 2014, Monterey County's EMS Agency affirmed the selection of NMC through outside trauma experts. The outside trauma experts reviewed NMC's trauma treatment capabilities using Title 22, CCR, trauma center regulation. On October 6, 2014, patients meeting trauma triage criteria (CDC field triage criteria) were directed to NMC under medical control policies established by the EMS Medical Director. The purpose of the direction by the EMS Medical Director is to gather approximately two (2) months of data to confirm NMC's capabilities. In December 2014, after approximately two (2) months of data having been gathered, the Monterey

County EMS Agency will contract with trauma experts to perform a final review of NMC's capabilities to ensure NMC meets Title 22, CCR regulations. Designation of NMC as an Adult Level II Trauma Center will be determined after the full and final review. NMC's anticipated date of designation as an Adult Level II Trauma Center is January 5, 2015.

Patient flow: Trauma patients within 45 minutes (via ground) of the Adult Level II Trauma Center will be transported directly to NMC. Any trauma patients greater than 45 minutes away from NMC will be transferred by air (weather permitting). All other patients will be transported to the trauma care destination determined by the Adult Level II Trauma Center (NMC).

Quality management: Monterey County's Adult Level II Trauma Center will maintain internal quality assurance programs meeting state and county standards. Monterey County EMS has a Trauma Coordinator who, along with the EMS Medical Director, will be responsible for evaluating the trauma system's protocols, policies and procedures for appropriateness; reviewing, analyzing, and evaluating trauma case reports for system effectiveness; serving on and participating in the Trauma Audit Committee (TAC) in Monterey County and the Trauma Evaluation Quality Improvement Committee (TEQIC); and otherwise provide leadership related to trauma care. See the Trauma Quality Improvement and System Evaluation Policy for additional information.

B. Rationale for trauma system development and for number and location of trauma centers

The number of Trauma Centers needed in the system is based on four (4) criteria:

- **MINIMUM PATIENT LOAD:** Each designated trauma center must receive a sufficient number of major trauma patients to maintain a high skill level. California's Trauma Care System Regulations require a minimum population of 350,000 for each Level I or Level II Trauma Center to be designated.
- **PATIENT TRANSPORT TIMES:** If an area of the County is not within a reasonable distance from a designated Trauma Center, and if patient load permits, an additional Trauma Center should be considered. Both ground and air transport times must be considered.
- **RESOURCE AVAILABILITY:** Within each potential trauma service area, there must be a hospital or hospitals with the interest in and capability of meeting the minimum standards for Trauma Center designation, as provided for in the trauma regulations.

- **RESOURCE REQUIREMENTS:** Each trauma care system should have the total number of trauma teams, including personnel and facilities, necessary to care for the projected patient load.

These criteria have been applied to the Monterey County EMS trauma system as follows:

Patient load: According to the California Department of Finance, the Monterey County EMS region has an estimated 2010 permanent population of 435,878. A population density map is provided as **Appendix D – Population Density Map of Monterey County**. Due to the geography and population center, it is not anticipated that counties surrounding Monterey County would contribute any significant volume of trauma patients. Monterey County may receive a small number of patients from San Benito County when helicopters are unable to fly and it is possible that a few patients might be routed from southern Santa Cruz County. The “rule of thumb” of one trauma patient for every 1,000 population suggests an estimate patient load of 436 per year. Based on the data reviewed in 2006, the number of trauma patients is expected to support the 436 per year estimate.

Some patients from within the Monterey Region are closer to Trauma Centers in other systems. Patients from the southeast portion of the County may be closer to a Trauma Center located in Fresno County.

The current population would allow for designation of one Level II Trauma Center.

Transport times: The Monterey County EMS Trauma Care System includes 3,325 square miles. The majority of the population for the County is located in the northwestern portion of the county with the largest city, Salinas, located approximately ten (10) miles east of Monterey Bay. Other population centers are found along the coast in the cities of Monterey, Pacific Grove, Seaside, Marina and Carmel. In addition, some residents and tourists/visitors to Monterey County are located in rural, remote, or wilderness areas; and are distant from healthcare facilities and medical resources (See Tables 1 and 2 below):

Table 1: Travel Times from Monterey County Communities to Out-Of-County Trauma Centers

Community	Trauma Center Destination	Ground (miles/minutes)^a	Air (Surface miles/minutes)^b
Big Sur	Regional Medical Center (RMC) of Santa Clara	100/105 minutes	76/33 minutes
King City	RMC	106/105 minutes	89/38 minutes

Lake San Antonio Recreation Area (Lockwood)	RMC	128/143 minutes	103/44 minutes
Lucia	RMC	125/134 minutes	94/40 minutes
Monterey Peninsula Airport	RMC	71/73 minutes	52/23 minutes
Pinnacles	RMC	76/99 minutes	75/33 minutes
Parkfield	University Medical Center Fresno	100/138 minutes	86/37 minutes
Salinas	RMC	60/64 minutes	47/21 minutes
Tassajara Hot Springs	RMC	108/149 minutes	61/26 minutes

a. Source: Mapquest b. CALSTAR – Google Earth

Table 2: Travel Times from Monterey County Communities to In-County Trauma Center

Community	Trauma Center Destination	Ground (miles/minutes) ^a
Big Sur	NMC (b)	49/68 minutes
King City	NMC	47/52 minutes
Lake San Antonio Recreation Area	NMC	90/107 minutes
Lucia	NMC	73/97 minutes
Monterey (downtown)	NMC	19/29 minutes
Pinnacles	NMC	58/77 minutes
Parkfield	NMC	112/135 minutes
Salinas (Salinas Valley Memorial Hospital)	NMC	2/8 minutes
Tassajara Hot Springs	NMC	46/112 minutes

a. Source: CALSTAR – Google Earth

b. NMC= Natividad Medical Center

Resource availability: Monterey County has four acute care hospitals. Two of these are located in the City of Salinas, one is located in the City of Monterey, and the fourth hospital is in King City (south/central portion of the county). Only Natividad Medical Center in the City of Salinas and Mee Memorial in King City have functional helipads.

Resource requirements: The Monterey County EMS designation process has assessed and ensured that the designated Adult Level II Trauma Center has a sufficient number of trauma teams; including personnel and facilities to care for the projected patient load as per Trauma Regulations. NMC will undergo three

(3) different levels of review to ensure they meet the resource requirements. On September 16-20, 2013, an initial review was done to identify the best applicant. On September 26, 2014, an independent review panel reviewed NMC's capabilities prior to directing EMS patients meeting trauma triage criteria to be transported by EMS to NMC. In December, 2014, NMC will undergo a final review prior to designation.

Coordination with neighboring trauma systems: Santa Clara County allows patients from Monterey County to routinely be transported to their Level I and Level II Trauma Centers. Monterey County EMS will work with Santa Clara County to clarify policies for additional tertiary services at their Level I and pediatric facilities to support patients from Monterey County (See **Appendix I – Letter from Pediatric Trauma Center**). Patients in southeastern Monterey County may be transported to the University Medical Center of Fresno.

Monterey County abides by policies set by the region designating these centers.

Pre-hospital provider training: Monterey County EMS will provide oversight of the training for pre-hospital providers to ensure that they are appropriately trained in all trauma system related policies, including field trauma triage and hospital destination. The Monterey County EMS Agency will require trauma care system training for all emergency medical responders, emergency medical technicians, paramedics, and hospital personnel.

Communication equipment: Monterey County EMS requires that all ambulances be equipped with two-way radios with appropriate frequencies for medical control and hospital notification. (See **Appendix E – Excerpts from Ambulance Ordinance No. 5138; dated 9/22/2009**)

Hospital notification: The Monterey County EMS field trauma triage criteria states "a member of the pre-hospital transport crew MUST notify the receiving facility IMMEDIATELY when a major trauma victim is being transported."

C. Policies developed pursuant to Section 100255, Title 22, CCR and will support the Monterey County Trauma Care System Plan.

<u>Required area</u>	<u>Monterey County EMS Policies and Procedures Manual</u>
<ul style="list-style-type: none"> • System organization and management: 	<p><i>Trauma Care System Organization and Management Policy</i></p> <p>This policy outlines the responsibilities Monterey County EMS has as a lead agency in planning,</p>

implementing, and managing the trauma system. This policy identifies the relationship with the Adult Level II trauma center and the participation of Monterey County receiving facilities.

- Data collection and management

Trauma Data Collection and Management Policy

The purpose of this policy is to standardize the reporting of trauma care and system information gathered from the Trauma Center and other receiving facilities in Monterey County.

- Establishment of service areas for trauma centers

Trauma Service Area Policy

This policy defines the trauma service area of Monterey County as the whole county.

- Coordination of EMS and trauma system for transportation including inter-Trauma Center transfers and transfers from a receiving hospital to a Trauma Center

Trauma Patient Interfacility Transfer and Transportation Policy

The purpose of this policy is to facilitate transfer of trauma patients to the most appropriate facility. The policy recommends receiving facilities have agreements to facilitate transfers.

In addition, this policy requires a designated Trauma Center have agreements for pediatric patients, burn and spinal cord victims transfer.

EMS Aircraft Operations Policy

The purpose of this policy is to set guidelines for the field transport of major trauma patients (MTP). The policy recommends all patients considered MTPs who are further than 45 minutes by ground transport be flown to a Trauma Center if a helicopter is available and travel time requirements are met.

- Quality improvement and system evaluation to include responsibilities of the multidisciplinary trauma peer review committee

Trauma Quality Improvement and System Evaluation

This policy establishes and outlines in detail Monterey County EMS Trauma Quality Improvement program. It defines and outlines the various responsibilities and processes for internal quality improvement and external quality improvement.

- Trauma care coordination

Mutual Aid and Coordination with Neighboring

with neighboring jurisdictions, including EMS agency/system agreements

- Fees, including those for application, designation and redesignation, monitoring and evaluation
- Trauma Center designation/redesignation process to include a written agreement between the local EMS agency and the Trauma Center
- Coordination with health maintenance and other managed health care organizations within the trauma system to facilitate the transfer of an organization member
- Integration of pediatric hospitals, including pediatric triage criteria if applicable

Systems Policy

This section of the policy ensures that patients are transported to the nearest appropriate trauma center despite geopolitical boundaries. Monterey County EMS will have written mutual aid agreements with neighboring EMS systems. Monterey County EMS will maintain contact with neighboring EMS agencies to monitor their status, contact these systems if patients are to be transported outside the EMS system, and will attempt to seek patient information.

Trauma System Fees

This policy describes fee setting process for the application, designation and redesignation of an Adult Level II Trauma Center

Trauma Center Designation and Redesignation Policy

This policy describes the application, designation and redesignation processes for an Adult Level II Trauma Center.

Trauma Center Coordination with Health Systems

This policy sets guidelines for trauma center coordination with health maintenance and other managed health care organizations within the trauma service area.

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The purpose of this policy is to facilitate transfer of trauma patients to the most appropriate facility. The policy recommends receiving facilities have agreements to facilitate transfers.

In addition, this policy requires that a designated trauma center have agreements for pediatric patients, burn and spinal cord patient transfers.

- Trauma Center equipment

Trauma Center Standards

This policy outlines the equipment capabilities needed for designation of an Adult Level II Trauma Center.

- Assuring the availability of trauma team personnel

Trauma Team Availability And Activation

- Criteria for activation of trauma team

This policy outlines which trauma team members need to be immediately available and their required response times after pre-hospital notification. Trauma Centers must have response policies and procedures that include which position is responsible for notification and procedures for notifying the trauma surgeon, activating the trauma team, mobilizing backup trauma teams and personnel, and documentation of compliance with this policy.

- Mechanism for prompt availability of specialists

Field Trauma Triage Policy

- Field criteria for pediatric and adult trauma triage

This policy sets field triage criteria including physiologic factors, anatomic factors, mechanism of injury and age and co-morbid factors using the Centers for Disease Control (CDC) four (4) step field triage criteria. Specific pediatric factors are also defined.

Field Trauma Triage Policy

- All pre-hospital providers shall have a policy approved by the local EMS agency for the early notification of Trauma Centers of the impending arrival of a trauma patient.

This policy states that a member of the pre-hospital crew must notify the hospital from the scene immediately when a trauma alert is suspected. This policy outlines the physiologic factors, anatomic factors, mechanism of injury and age and co-morbid factors that are the criteria for a trauma alert using the CDC four (4) step field triage criteria.

- Integration of pediatric hospitals, including pediatric triage criteria if applicable

Trauma Patient Interfacility Transfer and Transportation Policy

The purpose of this policy is to facilitate transfer of trauma patients to the most appropriate facility. The

policy recommends receiving facilities have agreements to facilitate transfers.

In addition this policy requires a designated trauma center have agreements for pediatric patients, burn and spinal cord victims transfer.

- Trauma Center equipment

Trauma Center Standards

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- Criteria for activation of trauma team
- Mechanism for prompt availability of specialists

Trauma Team Availability And Activation

This policy outlines which trauma team members need to be immediately available and their required response times after pre-hospital notification. Trauma Centers must have response policies and procedures that include which position is responsible for notification and procedures for notifying the trauma surgeon, activating the trauma team, mobilizing backup trauma teams and personnel, and documentation of compliance with this policy.

- Field criteria for pediatric and adult trauma triage

Field Trauma Triage Policy

This policy sets field triage criteria including physiologic factors, anatomic factors, mechanism of injury and age and co-morbid factors using the Centers for Disease Control (CDC) four (4) step field triage criteria. Specific pediatric factors are also defined.

- All pre-hospital providers shall have a policy approved by the local EMS agency for the early notification of Trauma Centers of the impending arrival of a trauma patient.

Field Trauma Triage Policy

This policy states that a member of the pre-hospital crew must notify the hospital from the scene immediately when a trauma alert is suspected. This policy outlines the physiologic factors, anatomic factors, mechanism of injury and age and co-morbid factors that are the criteria for a trauma alert using the CDC four (4) step field triage criteria.

V. INTERCOUNTY TRAUMA CENTER AGREEMENTS

Currently, the majority of trauma patients in Monterey County are transported to Santa Clara County Trauma Centers. The Monterey County EMS Agency is anticipating the designation of Natividad Medical Center (NMC) as an Adult Level II Trauma Center. Monterey County EMS also coordinates with the Santa Clara County EMS Agency to ensure trauma patients that are transported to Santa Clara County for higher, or specialized, levels of care receive appropriate care; and participates on the Santa Clara County Trauma Audit Committee. The Monterey County EMS Agency participates with the Bay Area Regional Trauma Coordinating Committee (RTCC). RTCC is involved with the establishment for triage/ re-triage and transfer criteria. Recommendations from the RTCC are to educate transferring hospitals regarding the criteria and deemphasizing Memorandum of Understanding (MOU) establishment.

At this time, the volume of patients going to Fresno County is less than five (5) per year and no agreement will be sought with Central California EMS Agency. In the future, if the volume to these counties exceeds ten (10) patients per year, Monterey County EMS will entertain developing an agreement with the Central California EMS Agency.

VI. OBJECTIVES FOR IMPLEMENTATION

Objective #1: Approve the Trauma Care System Plan

Monterey County has implemented the current Trauma Care System Plan; held public hearing on the Trauma Care System Plan; received the endorsement from the Monterey County Emergency Medical Care Committee; forwarded the plan to the Board of Supervisors for approval; and has submitted it to the California Emergency Medical Services Authority.

Objective #2: Adopt Trauma Policies

The Monterey County EMS Agency, along with the Medical Advisory Committee, revising policies as required to support the new Monterey County Trauma Care System Plan; and obtaining the approval for implementing policies from the EMS Medical Director; and forward trauma policies to the EMS Authority.

Objective #3: Trauma Center Designation

Designate an Adult Level II Trauma Center, upon final verification of Natividad Medical Center's capabilities, on/or about January 5, 2015. The start-up date for the new Trauma Care System Plan implementation will be based upon trauma center designation.

Objective #4: Training Plan

Prior to the implementation of the Trauma Care System Plan (October 2014), all system providers will require training in the new and revised policies and procedures. A mechanism for training incoming employees on each of the EMS components affected by the Trauma Care System Plan and policies will be accomplished through Trauma Center personnel, field training officers (FTOs), and/or interactive CD ROM.

Objective #5: Trauma Data Collection

- A. Trauma data will be collected for all patients, including patients transported to the Coroner, Monterey County Trauma Centers or hospitals, or out-of-county Trauma Centers.
- B. Monterey County will have a trauma registry consistent with the Santa Clara County EMS registry. Appropriate Monterey County EMS Agency staff will be trained in the use of the registry.
- C. The EMS Medical Director will have participated in a trauma registry introduction.
- D. A truncated data abstract form designed by the trauma registry vendor will be used for trauma patients transported to non-Trauma Center hospitals or the Monterey County Coroner.

This objective will begin upon trauma center designation and be continuous.

Objective #6: Trauma Quality Improvement Process

Trauma quality improvement will consist of in-county monitoring and conducting bimonthly case reviews by the EMS Agency Staff, EMS Medical Director, and the Medical Advisory Committee. Currently, NMC performs a Peer Review Process for Trauma Qualified patients; an internal process that was set up by NMC's Trauma Program Manager. The EMS Agency's Trauma Coordinator attends these meetings in order to monitor performance improvement activities by the facility. Performance evaluation of Monterey County Trauma System will occur every other month via the Trauma Evaluation Quality Improvement Committee (TEQIC) — see attached Trauma Quality Improvement and System Evaluation policy. Monterey County EMS Agency has outlined in the Trauma Quality Improvement and System Evaluation Policy a Trauma Audit Committee (TAC) as well as the TEQIC

This objective will begin upon trauma center designation and be continuous.

VII. IMPLEMENTATION SCHEDULE

Objective	Completion Date
Objective #1: Approve the Trauma Plan	October 2014
Objective #2: Adopt Trauma Policies	October 2014
Objective #3: Trauma Center Designation	January 2015
Objective #4: Training Plan	October 2014
Objective #5: Trauma Data Collection	Continuous
Objective #6: Trauma Quality Improvement Process	Continuous

VIII. FISCAL IMPACT OF THE SYSTEM

The fiscal impact of the system is based on the marginal changes that would be required to implement the system. These include the costs of meeting identified trauma system requirements but do not include the costs of actual care provided to trauma patients.

In order to monitor trauma patient care, data must be collected. The Adult Level II Trauma Center would be required to submit trauma data and reports via an approved registry.

Non trauma center hospitals will provide Emergency Department (ED) patient disposition on patients identified as meeting trauma triage criteria or for those trauma patients admitted to the Operating Room (OR), Intensive Care Unit (ICU) or kept more than 24 hours on the floor. Monterey County will collect the data monthly and retain this information.

In addition, NMC will have a yearly assessed fee of \$125,000 to cover EMS office staffing and ongoing expenses for the monitoring of the trauma center.

On-going Expense	Frequency	Annual Cost
Trauma Coordinator (CN Coordinator)	0.5 FTE with benefits	\$60,043.60
EMS Analyst	0.5 FTE with benefits	\$60,043.60
EMS Medical Director	0.1 FTE	\$34,000.00
NMC yearly assessor's fee	Yearly	-\$125,000.00
Total		\$29,086.40

No data is currently available on the fiscal benefits from implementing a local Trauma Care System, however, benefits seen in similar systems include decreased morbidity and mortality; decreased length of hospital stay; and early return of patients to a productive life. Trauma patients will receive a significant fiscal benefit from a local Trauma Care System. Air transport fees for trauma patients cost upwards of \$30,000.00. Reduced expenses for family members not needing to travel out of the county, the ability for family members to easily return home for the night rather than pay for lodging, and smaller cost for EMS transport services will all benefit the patient and their family. In addition to anticipated lower expenses to the patients and their family, there should be positive local fiscal benefits. Money spent for trauma services will be spent locally rather than in another county.

IX. POLICY AND PLAN DEVELOPMENT PROCESS SYSTEM

The **Monterey County EMS Trauma Care System Plan** was reviewed and revised with participation from many interested parties. Since January 2011, the progress of the planning process has been reported and discussed at the Medical Advisory Committee and Emergency Medical Care Committee meetings.

A public hearing was held on October 8, 2014, at the Emergency Medical Care Committee meeting. The Monterey County Trauma Care System Plan has been revised to reflect NMC being designated as an Adult Level II Trauma Center. This plan was endorsed by the Emergency Medical Care Committee and forwarded to the Board of Supervisors for consideration.

On November 4, 2014, the Monterey County Board of Supervisors approved the Trauma Care System Plan and directed submission of the plan to the California Emergency Medical Services Authority. (See Attachment H – Board Resolution)

X. WRITTEN DOCUMENTATION OF LOCAL APPROVAL

Monterey County Board of Supervisors Resolution approving the Trauma Care System Plan (2011) and directing submission of the plan to the California EMS Authority (**See Appendix H – Board of Supervisors Resolution**)

XI. Data Collection

Monterey County EMS Agency has received a commitment from NMC to receive existing and future data. Monterey County EMS Agency is in the process of purchasing *Lancet Trauma One* registry. This database meets National Trauma Data Bank and CEMSIIS criteria. This database is compatible with NMC's registry; requiring no change to their data collection procedures. The Monterey County EMS Agency meets all elements of §100257 as described in Title 22, Division 9: Pre-hospital Emergency Medical Services.

Monterey County EMS Agency also collects and monitors medical data elements per §100129 and §100176.

XII. Trauma System Evaluation

Monterey County EMS Agency will establish a system-wide quality improvement (QI) program for evaluating the Monterey EMS Trauma Care System in order to foster continuous improvement in performance and patient care. In addition, a policy was created to assist Monterey County EMS Agency in defining standards; evaluating methodologies, and utilizing the evaluation results for continued system improvement. Currently, the Monterey County EMS Agency is in the process of purchasing *Lancet Trauma One* registry. This registry meets National Trauma Data Bank and CEMESIS criteria. In addition, NMC has committed to share existing and future data in accordance with NMC's Trauma Program Proposal.

On October 6, 2014, Monterey County EMS Agency Medical Director directed pre-hospital providers to follow the CDC's four (4) step field triage criteria; California Code of Regulations, Title 13, Division 2; §1105. This EMS Medical Director directive is for the purpose of gathering two (2) months of trauma data prior to the Adult Level II Trauma Center designation in January 2015.

NMC performs a Peer Review Process for Trauma Qualified patients. This is an internal process that was developed and implemented by NMC's Trauma Program Manager. The EMS Agency's Trauma Coordinator attends these meetings as a way to monitor performance improvement for the facility. Performance evaluation of Monterey County Trauma Care System will occur every other month via the Trauma Evaluation Quality Improvement Committee (TEQIC) — see attached Trauma Quality Improvement and System Evaluation policy. Monterey County EMS Agency has outlined in the Trauma Quality Improvement and System Evaluation Policy a Trauma Audit Committee (TAC) as well as the TEQIC. The Monterey County EMS Agency intends to use outside resources to perform trauma center verification survey every two (2) years from initial designation. The EMS Agency intends to seek and maintain independent verification by the American College of Surgeons (ACS).

XIII. LOCATIONS OF TITLE 22 REQUIRED INFORMATION

100254 Trauma system criteria	Page and Identifier Location
(a) System design criteria	Page 6 – Section IV.B
<ul style="list-style-type: none"> • Projected patient volume and projected number and level of trauma centers necessary 	Page 7 – Section IV.B and Appendix B (Trauma System Volume)
<ul style="list-style-type: none"> • Transport times 	Page 8-9 – Section IV.B
<ul style="list-style-type: none"> • Resource availability 	Page 9 – Section IV.B
<ul style="list-style-type: none"> • Distinct service areas 	Trauma Service Area Policy
<ul style="list-style-type: none"> • Coordination with neighboring trauma systems 	Page 10 – Section IV.B – QI & System Evaluation Policy
(d) Pre-hospital provider training	Page 10
(e) Communication equipment	Page 10 and Appendix E – Ambulance Ordinance Excerpt
(f) Hospital notification	Page 10 – EMS Aircraft Policy
100255 Policy development	Pages 10 through 14
100256 Trauma plan development	
(a) Plan contents	Page 2 – Section I
(1) Summary of the plan	Page 2-3 – Section I
(2) Organizational structure	Page 4 – Section II
(3) Needs assessment	Page 5 – Section III and Appendix B (Trauma System Volume)
(4) Inclusive system design	Page 6 – Section IV
(5) Inter-county agreements	Page 15 – Section V and Trauma Mutual Aid and Coordination Policy
(6) Objectives	Page 16 – Section VI
(7) Implementation schedule	Page 18 – Section VII
(8) Fiscal impact of the system	Page 19 – Section VIII
(9) Policy and plan development process	Page 20 – Section IX
(10) Documentation of local approval	Page 21 – Section X
(b) System design	Page 1 and Page 6 – Section IV.A
(1) Critical care capability	Page 9 “Resource Availability”
(2) Medical organization and management	Page 10 – Trauma System Organization and Management Policy
(3) Quality improvement	Page 11 – Trauma QI and System Evaluation Policy
100257 Data collection	Page 22 – Section XI
(a) Standardized data collection instrument and data management system	Page 11 – Trauma Data Collection and Management Policy
(b) Pre-hospital data elements	Page 11 – Trauma Data Collection and Management Policy
(c) Hospital data elements	Page 11 – Trauma Data Collection and Management Policy

XIV. APPENDICES

Appendix A – California County Map

Appendix B – Trauma System Volume

Appendix C – Trauma System Resource Assessment

Appendix D – Population Density Map of Monterey County

Appendix E – Excerpts From Ambulance Ordinance – Communications

Appendix F – Medical Advisory Committee Membership

Appendix G – Notice of Public Hearing

Appendix H – Board of Supervisors Resolution

Appendix I – Letter from Pediatric Trauma Center

Appendix A

California Map



Appendix B

Trauma System Volume

Projections and 2013 Data

Monterey County Population Projections			
Year	Population	Percent Change	Trauma Cases 2.75/1,000
2012	420,155	-	1,155
2013	422,117	0.5%	1,161
2014	424,087	0.5%	1,166
2015	426,067	0.5%	1,172
2016	428,057	0.5%	1,177
2017	430,055	0.5%	1,183
2018	432,063	0.5%	1,188

Source: State of California, DOF + The Abaris Group's Incident Rate

Projected Volume & Severity for a NMC Level II Trauma Center

Source of Trauma	ISS	0-8	9-15	16-24	24+	Total
Natividad Medical Center		119	28	8	1	156
Salinas Valley Medical Center		238	130	43	12	423
Trauma Triage Yield		144	104	40	12	300
Community Hospital of Monterey		257	140	55	4	456
Trauma Triage Yield		128	84	44	3	259
George Mee Memorial Hospital		41	12	3		56
Trauma Triage Yield		30	8	2		40
Santa Cruz & San Benito County		60	45	10	5	120
SCC Trauma Centers		88	74	64	52	278
NMC L2 Trauma Center Volume		569	343	168	73	1,153

Source: Greg Bishop 2011 Report: NMC Level II Trauma Center Feasibility

AMR Reported Patients Meeting Trauma Criteria for 2013

Month	Number of Patients
January	112
February	136
March	145
April	174
May	158
June	166
July	172
August	134
September	157
October	121
November	143
December	105
Total	1723

CALSTAR Transport Data for 2013

Description	Number of Patients
Scene Transports	208
Inter-facility Transports	129
Injury Types	
-Blunt	156
-Penetrating	55
-Other	128
Total Injury Types	339

An additional estimated 50 transports via Mercy Air Ambulance, CHP H-70, and other helicopter transport services are also noted and are separate from CALSTAR data.

Appendix C

Trauma System Resource Assessment

County Population: (Note *)

MONTEREY COUNTY POPULATION PROJECTIONS		
YEAR	POPULATION	CHANGE %
2012	420,155	-
2013	422,117	0.5%
2014	424,087	0.5%
2015	426,067	0.5%
2016	428,057	0.5%
2017	430,055	0.5%
2018	432,063	0.5%

Note *: State of California, Department of Finance and The Abaris Group's Incident Rate; (<http://www.dof.ca.gov/>)

Resources:

In-County Acute Care Hospitals:

- Community Hospital of the Monterey Peninsula, Monterey – Basic Emergency Service
- Mee Memorial Hospital, King City – Basic Emergency Service
- Natividad Medical Center, Salinas – Basic Emergency Service
- Salinas Valley Memorial Healthcare System, Salinas – Basic Emergency Service

Out-of-County Trauma Centers:

- Santa Clara Valley Medical Center, San Jose – Level I Trauma Center
- Stanford Medical Center, Palo Alto – Level I Trauma Center
- University Medical Center, Fresno – Level I Trauma Center
- Regional Medical Center of San Jose – Level II Trauma Center

Tertiary Services:

- Level II Trauma Center : Natividad Medical Center
- Stroke and STEMI Centers: Salinas Valley Memorial Healthcare System and Community Hospital of the Monterey Peninsula
- Burn, spinal/neurosurgical, pediatrics and re-implantation services in San Francisco and Santa Clara counties

Ground Transport:

ALS Emergency Transport – AMR

- Number of ALS units in county - 18
- Number of ALS units from Santa Cruz County – 6 (six total with 2 units in south county)
- Number of ALS units from San Benito County -- 3
- Number of BLS units in county - 0
- Number of CCT units in county -1

ALS Emergency Transport – City of Carmel

- Number of ALS units in county – 1

ALS Emergency Transport-Monterey County Regional Fire District

- Number of ALS units in county – 2

ALS Emergency Transport – Fort Hunter Liggett Fire Department

- Number of ALS units in county - 1

ALS Emergency Transport – San Luis Obispo Ambulance

- Number of ALS units out of county - 1

ALS Emergency Transport – Cambria Ambulance

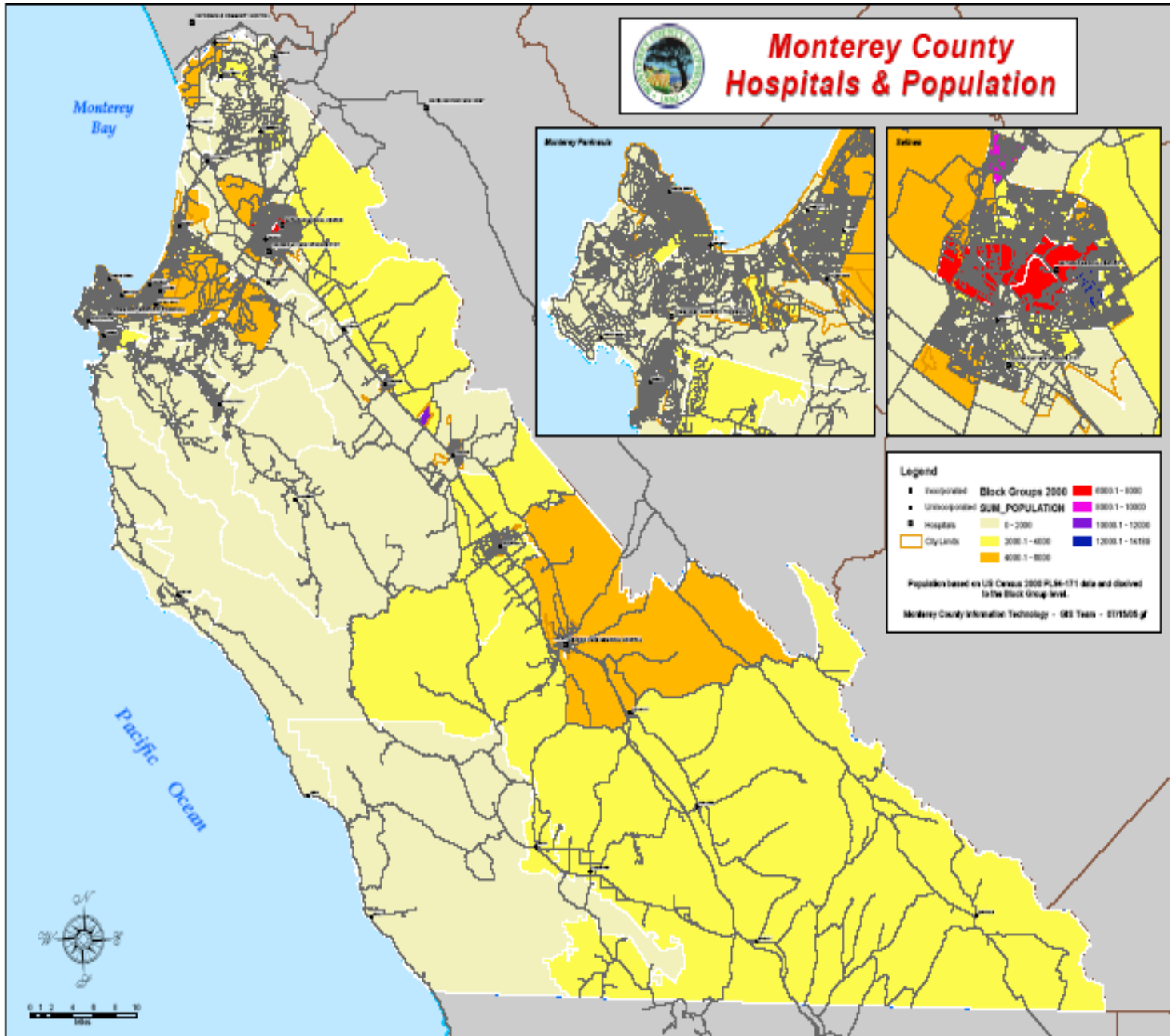
- Number of BLS units out of county -1

Helicopter Transport Services:

- CALSTAR 5 (Salinas Airport)
- CALSTAR 2 (Gilroy)
- CALSTAR 1 (Concord)
- CALSTAR 7 (Santa Maria)
- CHP H-70 (Paso Robles Airport)
- LifeFlight (Stanford Medical Center)
- Reach (Concord)
- Skylife (Fresno)
- Medi-Flight (Modesto)
- Mercy Air Ambulance (Fort Hunter Liggett)

Appendix D

Population Density Map of Monterey County



Appendix E**Excerpts from Ambulance Ordinance #5138 – Communications****15.40.048 Operational standards and requirements for ambulance and critical care transport services.**

- A. Emergency Ambulance Drivers and Attendants. Any emergency ambulance attendant or emergency ambulance driver utilized by an operator or provider shall be at least eighteen (18) years of age; shall be trained and competent in the proper use of all emergency ambulance equipment; shall hold current certification as an Emergency Medical Technician I-Ambulance (EMT-I) or Emergency Medical Technician-P (EMT-P); or be licensed as a physician or registered nurse in the State of California, and shall demonstrate compliance with all applicable State laws and regulations.
- B. Uniform and Appearance. Each person providing emergency ambulance transportation service subject to this Chapter shall staff each emergency ambulance with appropriate personnel who shall wear clean uniforms that identify the employer or sponsoring agency, have visible identification of name and certification level, and comply with the requirement of this Chapter.
- C. Dispatchers. Each person providing emergency ambulance transportation service subject to this Chapter shall assign at least one (1) person or an agency to be responsible for receiving calls and dispatching emergency ambulances. Such person or agency shall be located in Monterey County, unless otherwise specified by contract.
- D. Inspection. The emergency ambulance transport operator or provider shall allow the EMS Agency or its designee to inspect, on an announced or unannounced basis, all operational areas and equipment used to provide services in the County. The inspections should be held, whenever possible, during normal business hours; provided, however, that the inspection of an ambulance will be stopped should the ambulance be needed to respond to a request for immediate service. The purpose of such inspections may include, but need not be limited to, determining whether:
 - 1. The emergency ambulance is properly maintained and equipped for the provision of emergency ambulance service;
 - 2. The emergency ambulance and its equipment comply with the requirements of law for the level of service provided;
 - 3. The emergency ambulance contains two-way radios; the radios are in good working order and the radios are compatible with the County's Emergency Medical Communications and Dispatch System; and
 - 4. If the emergency ambulance is used for critical care transport, the communication system allows the emergency ambulance driver and emergency ambulance attendant to communicate with the medical staff at both the discharging and receiving facilities.

Appendix F**Medical Advisory Committee Membership**

Name	Affiliation
Dr. Michelle Kalinski	CHOMP -- Emergency Physician
Erica Sanborn	CHOMP – Base Hospital Coordinator
Vacant	Mee – Emergency Physician
Cindy Banuelos	Mee – Base Hospital Coordinator
Dr. Heather Taher	Natividad – Emergency Physician
Rhonda Rocker	Natividad – Base Hospital Coordinator
Dr. Andrew Kaminski	SVMH – Emergency Physician
Jeremy Hadland	SVMH – Base Hospital Coordinator
Scott Houchin	Fire Chiefs Association
Paul Miller	Law Enforcement Chiefs Association
Jeff Horner	Air Ambulance Provider
Paul Casolary	EMT and Paramedics
David Craddock	EMT and Paramedics
Tammera “T” Badano	Primary Ambulance Contractor
Dr. James Stubblefield	EMS Medical Director – Chair

Appendix G

MONTEREY COUNTY EMERGENCY MEDICAL CARE COMMITTEE
Meeting Announcement and Agenda
Wednesday, October 8, 2014

Monterey County Health Department (Whitney Conference Room)
1270 Natividad Road, Salinas, CA 93906

“The Emergency Medical Care Committee (EMCC) is appointed by the Board of Supervisors to advise the Board and the EMS Director on EMS issues, and to ensure all EMS constituents will be actively engaged in decisions regarding the use of County EMS funds and the development of County EMS policies.” Monterey County Code Sec. 15.40.030F.

I. CALL TO ORDER

- A. Welcome members/guests (Chief Paul Miller - Chair).
- B. Action: Approval of the 8/13/2014 Meeting Minutes (See Attachment 1).

II. ORAL COMMUNICATIONS

Any member of the public may address the Committee for a period not to exceed three minutes on any issue not on the Committee’s agenda. The EMCC will listen to all communications but may not take any action.

III. CORRESPONDENCE - None.

IV. REPORTS

- A. Report: Medical Advisory Committee (MAC)
- B. Report: EMS Operations Committee (EMS Ops)
- C. Report: Emergency Medical Services (EMS) Agency
 - Trauma Care System and Center
 - FY-14/15 CSA 74 Fund; FY-13/14 Audit
 - Contract Compliance Working Group (CCWG) and AMR Performance
 - Inspironix, Inc. and Citygate contracts/status
 - EMS Summit Activities
 - Revision of EMCC Bylaws and County Code (15.40)

V. OLD BUSINESS

- A. Report: Results of AMR’s August billing complaint audit (8/26/14).
- B. Report/Discussion: EMS Board of Supervisors’ Annual Report (9/26/14).
- C. Report: Consultant’s report on NMC’s readiness to accept field triaged patients that meet current trauma criterion.
- D. Report/Discussion: AMR and Salinas Fire pilot program to study unknown injury responses and system integration.

VI. NEW BUSINESS

- A. Discussion/Action: Review and request endorsement of the DRAFT of the Trauma Care System Plan (2014).
- B. Discussion/Action: Review and request endorsement of the DRAFT of the revised EMS Plan (2013).
- C. Discussion/Action: Review and consider FY-14/15 CSA 74 Special Fund requests. A total of \$xxxxx is available to fund submitted requests:
 - 1. Monterey County Sheriff's Office Search and Rescue (\$xxxxx): Request for medical supplies and first responder training.

VII. GOOD OF THE ORDER, ANNOUNCEMENTS, AND ADJOURNMENT

- A. Next EMCC Meeting is the Annual EMCC Workshop on Wednesday, December 10, 2014 at 10:30AM; Monterey County Health Department (Whitney Conference Room). No November meeting.
- B. EMS meeting schedules and locations for 2015 pending.

KEY DATES OF ANNUAL REPORTS/ACTIONS

- A. January – AMR Annual Report
- B. January – Paramedic/EMT Disciplinary Action Summary
- C. July – AMR Log of all complaints
- D. August – Audit (25%) of billing complaints/concerns
- E. September – EMS Director reports to BOS (State of the EMS)
- F. October – AMR's final contract extension
- G. November – EMS Plan submission to the EMS Authority
- H. December – EMCC Plan of Action and Milestones (workshop)

Attachments:

- (1) EMCC Minutes 9/13/14
Summit Matrix (July 2014)

Board of Supervisors Resolution
(To be inserted prior to submitting to the EMS Authority)

Letter from Pediatric Trauma Center
(To be inserted prior to submitting to the EMS Authority)