Monterey County
Board of Supervisors

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Salinas, CA 93901
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Board Order

Upon motion of Supervisor Alejo, seconded by Supervisor Salinas and carried by those members present, the Board of Supervisors hereby:

Accepted and approved the Emergency Medical Services Agency (EMS) Annual Report for Fiscal Year 2016-17.

PASSED AND ADOPTED this 12th day of December 2017, by the following vote, to wit:

AYES: Supervisors Alejo, Phillips, Salinas, Parker and Adams
NOES: None
ABSENT: None

I, Gail T. Borkowski, Clerk of the Board of Supervisors of the County of Monterey, State of California, hereby certify that the foregoing is a true copy of an original order of said Board of Supervisors duly made and entered in the minutes thereof of Minute Book 80 for the meeting December 12, 2017

Dated: January 3, 2018
File ID: 17-1171

Gail T. Borkowski, Clerk of the Board of Supervisors
County of Monterey, State of California

By Denise Hancock
Deputy

2016
2017

Monterey County Emergency Medical Services Agency Report to the Monterey County Board of Supervisors

ANNUAL REPORT

COUNTY OF MONTEREY | Health Department

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MONTEREY COUNTY EMERGENCY MEDICAL SERVICES

Contents

Comments from the EMS Director

During the 2016-2017 Fiscal Year, the EMS Agency focused on rebuilding, improving the practices and infrastructure of the EMS System, introducing clinical reporting and enhanced operational reporting, and revising numerous policies and procedures to assure that the Monterey County EMS System provides clinically-sound medical care to the people of Monterey County.

Two of the larger initiatives of the year, the EMS Data System and provider-based quality improvement programs, are closely interrelated. In 2016, the EMS Agency seated a stakeholder-based working group to select a countywide EMS Data System, which is being offered at no cost to all EMS providers. In early 2017, the working group selected the ESO Solutions Data System, which we expect to be implemented by the end of this calendar year. This single data system will allow meaningful quality improvement activities and benchmarking throughout the EMS System. The EMS Agency has also worked closely with EMS Providers for the past year to help them develop provider-based quality improvement plans. The EMS Agency has provided training and focused assistance to help each EMS provider meet the submission and approval deadlines.

As we start the 2017-2018 Fiscal Year, the EMS Agency, the EMS consulting firm of Fitch and Associates, and the County Counsel's Office are leading a comprehensive EMS System Assessment, Strategic Planning, and RFP Process to redesign the Monterey County EMS System and to select an Exclusive Operating Area Paramedic Ambulance Service Provider for the 2020 to 2030 period. This competitive process and the resulting RFP are closely monitored and regulated by the California EMS Authority to assure that the process or the RFP does not provide a competitive advantage or competitive disadvantage to any special interest or group of special interests, either public or private-sector. The California EMS Authority must approve the competitive process and the RFP to receive state anti-trust immunity, which is necessary to safely select a single countywide ambulance provider. Consequently, the EMS Agency has designed a competitive process that maximizes stakeholder and public input, yet protects the fairness, equity, and objectively of the competitive process.

The EMS Agency would like to thank the Honorable Members of the Monterey County Board of Supervisors, Dr. Lew Bauman, Ms. Elsa Jimenez, community partners, first responders, emergency telecommunications professionals, EMTs and paramedics, and emergency department and specialty center personnel for your dedication, commitment, and effort in support of the Monterey County EMS System.

Respectfully submitted,

Michael Petrie

Michael Petrie, EMT-P, MBA, MA
EMS Bureau Chief/EMS Director

Comments from the EMS Medical Director

This past year the EMS Agency has continued to develop an integrated health delivery system. Quite simply, this has meant creating the means for better communication between hospitals and field medical personnel and between the hospitals themselves. This also means *first-time* and *right time* delivery to definitive care.

The EMS Agency is leading the implementation of a web-based real-time system to enhance communication between all four hospitals in our county and nearby out of county nearby facilities. The result is that resource availability from CT scan, to specialty services, to hospital capability and availability can be looked at in a moment's notice should there be system overload or disaster concerns.

Essential added EMS Agency staff has enhanced our ability to better clinically analyze many of the thousands of events of the past year. We are looking not only at the time to reach the patient; but, able to take a detailed look at several factors related to patient care such as at time-at-scene, time to *appropriate* facility, and most important, patient outcomes.

Having a capable epidemiologist on staff has enhanced data collection and analysis is helping us continue to process a smarter and more efficient system. Sometimes speed is essential; but, often first on scene is not as important as timely arrival of the most appropriate and *capable* assets to the patient and then transport to the best facility for definitive care.

Our hospitals continue to achieve high levels of service and excellent care. Natividad Medical Center (NMC) excels as one of the best trauma centers in our region. Community Hospital of The Monterey Peninsula (CHOMP) and Salinas Valley Medical Health Care System (SVMH) are striving to move from primary to comprehensive cardiac and stroke facilities. This will result is more services and higher levels of care within Monterey County and fewer out of county needs and transfers. Our EMS policies and protocols are continually analyzed and updated to incorporate these positive changes.

Policies are changed, when appropriate, to enhance EMT and basic levels of care to be initiated prior to paramedic or higher level of care arrival. Oversight of these changes, no matter how subtle, is and continues to be a highest priority clinical missions of the EMS Agency.

I am very glad to be a resident in our county; but, I feel privileged as the EMS Medical Director to provide oversight and direction in the continued development of one of the best prehospital delivery systems in California.

Sincerely,

James Stubblefield. M.D.

James Stubblefield, M.D., FACEP, FAAEM
Medical Director

Community Services Area (CSA) 74

In 1998, Monterey County sponsored a ballot measure to establish the CSA-74 benefit assessment on real property within the county to finance a countywide paramedic emergency medical services (EMS) program. On March 7, 2000, Monterey County voters approved Measure A, replacing the former CSA-74 benefit assessment with an equivalent special tax, in compliance with Proposition 218. The special tax is collected and administered by the EMS Agency and is used "for the purposes of" funding the countywide paramedic EMS system, which will provide advanced life-saving support to victims in response to emergency calls."

The special tax for CSA 74 is based on Monterey County Land Use Codes. The basic unit is a single-family dwelling. All other land uses are either a percentage or multiple of that basic unit. Trailer Spaces and Hotel Rooms are calculated differently as there may be many of them on a single parcel.

The break down for fiscal year 2016-17 is as follows:

CSA units	$1,600,886
Trailer spaces and hotel rooms	72,821
Total	**$1,673,707**

During FY16-17, the EMS Agency worked with the Monterey County Fire Chiefs Association to develop an equipment list and CSA-74 reimbursement process that is simple, quick, and minimizes the records that must be submitted in a review or audit while continuing to meet CSA-74 disbursement requirements and other applicable laws. To this end, on July 12, 2017, the Emergency Medical Care Committee (EMCC) voted to expand the CSA-74 allowable equipment/service costs to allow costs of communications equipment and operators and participation in the Monterey County NEXGEN Radio System prorated to the proportion of medical calls.

In addition, the EMS Agency proposed to use CSA-74 monies to pay for the initial and continuing costs of the implementation of a single integrated electronic patient care reporting (ePCR) system countywide to ensure compliance with Assembly Bill 1129, which revised the California Health and Safety Code, Section 1797.227 to require local emergency medical care

providers to submit electronic data. Using a single integrated ePCR will also help the EMS System to provide better patient care, which is the primary aim of all quality improvement efforts.

Lastly, in FY15-16, the EMS Agency assessed CSA-74 Fund utilization and determined a need to increase reserves to provide the equivalent of 45 days of operating expenses for 911 paramedic ambulance services, should the contracted 911 provider walk away or not be able to continue. The EMS Agency did not make progress in the achievement of this goal during FY16-17 but will continue to work toward this goal.

The EMS Agency goals for FY17-18 are to develop a process by which the CSA-74 reserve can be increased to the equivalent of 45 days of operating expenses for 911 paramedic ambulance service and to continue to implement CSA-74 payment process and audit improvements.

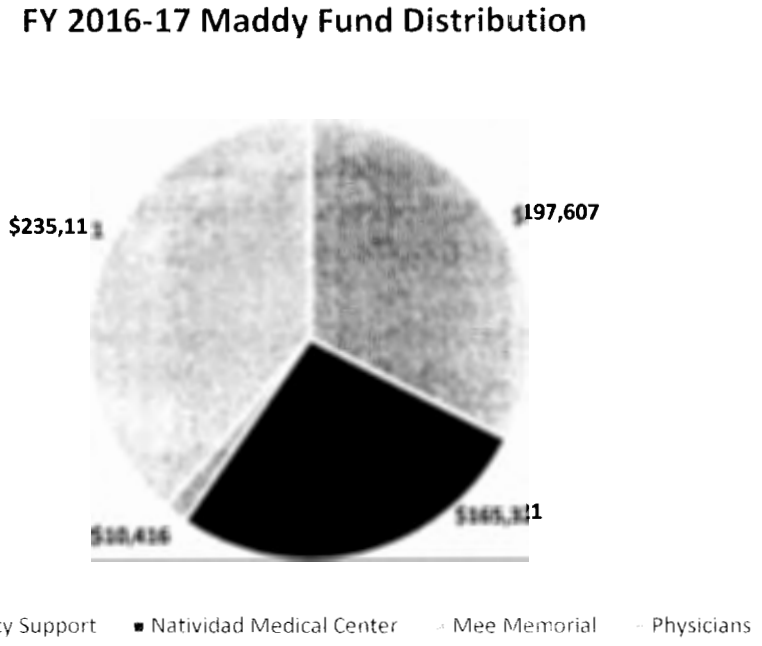
The Maddy Fund

In 1989, the Monterey County Board of Supervisors established the County Emergency Medical Services Fund (EMSF) pursuant to Section 1797.98 of the California Health and Safety Code (Maddy Fund) to provide for the collection and distribution of fine proceeds authorized by the Legislature's adoption of Senate Bill 612 and Senate Bill 1773. These laws allow counties to levy an assessment of $4.00 per $10.00 of fines for specified traffic violations.

Pursuant to state law, the money in the fund is disbursed and utilized in the following manner: Up to 10% of the proceeds are available to fund the program's administration. The remaining 90% compensates health care providers for emergency medical services provided to individuals who do not have healthcare insurance and cannot afford to pay for emergency medical care and is also used for discretionary EMS purposes. The distribution breakdown is as follows: 58% (or 52.2% of total collections) to reimburse physicians for a portion of unreimbursed indigent services/bad debt costs; 25% (or 22.5% of total collections) to reimburse hospitals which provide a disproportionate share of unreimbursed emergency medical care; and 17% (or 15.3% of total collections) for the Health Department's Emergency Medical Services Agency discretionary activities. The distributions from the fund to hospitals and the Health Department are made during the fiscal year. Distributions of the physician reimbursement are made on a quarterly basis.

During FY16-17, EMS Agency staff worked with Health Department Information Technology staff to develop a new EMS database to improve the review and approval of claims to increase efficiency and accuracy. EMS Agency staff also worked with providers to transition to a secure, electronic method to submit claims that will eliminate, or at least minimize, the need for manual data entry and thus increase the accuracy of data.

The EMS Agency goal for FY17-18 is to fully implement the new database and transition providers to a secure, electronic submittal of claims to increase data accuracy. A table showing the disbursement of Maddy Funds appears below:



Policy, Procedure and Protocol Revisions

During Fiscal Year 16-17, EMS Agency staff revised numerous policies and created new policies. Many of the new policies directly affects administration of the EMS system. An example of this is policy 1000 - "Policy and Procedure Development Process." This policy memorializes the intent of the EMS Agency to revise EMS policies and protocols only once a year and to establish the process by which policies are put into place. Through this process, the EMS Agency seeks to engage all members of the Monterey County EMS system in the policy revision and creation process through public comment as well as through the advisory committees. The EMS Agency is also committed to releasing the new and revised policies at least 90 days prior to their effective date to allow adequate time for education and training of field personnel.

One of the administrative policies that was revised is the one related to EMT certification. The EMS Agency has been performing criminal background checks for several years. The EMS Agency is now also performing medical license and certification background checks to ensure

that the EMT working within the Monterey County EMS System did not have their licenses suspended or revoked by other EMS systems nationwide.

The EMS Agency also created and revised policies related to patient care. Of note, guidance is now provided to ensure appropriate response by EMS personnel related to the End of Life Option Act as this can be a difficult situation to manage for EMS responders who arrive seeking to restore life and find an individual who has indicated this is not desired.

Policy changes specifying regular testing of the 800mHz radio and EMResource systems prepare users of these systems, such as hospitals and medical dispatch, to be use these systems should there be a significant Mass Casualty Incident (MCI) or disaster.

In all, twenty-nine new and revised policies were implemented on July 1, 2017. In the coming year, the EMS Agency will renew the focus on field care policies and treatment protocols in addition to ensuring effective administration of the EMS system.

Website and Social Media

Goal Seven in the EMS Agency's Strategic Plan is to communicate the EMS Agency's programs, activities, and services to EMS stakeholders. Throughout Fiscal Year 16-17, the EMS Agency continued to improve its Website and social media presence, which are the primary means of communicating with most EMS system stakeholders, especially field EMTs and paramedics. This year, the EMS Agency's outreach efforts focused in four areas: website redesign, expanding the use of the Facebook account, more frequent use of a Twitter account, and rebidding the Monterey County EMS App (smartphone application). These social media communication channels are increasingly important to reach the younger and more connected EMS professionals and the public within Monterey County.

Website Redesign

During FY16-17, the EMS Agency comprehensively redesigned and added significantly new content to its web page. This webpage can be accessed at: www.MoCoEMS.org. The content includes agendas and meeting packets for all EMS Advisory Committees, policies and procedures, clinical treatment protocols, EMS Plans, Trauma Plans, Quality Improvement Plans, and EMS provider performance data. During the next fiscal year, EMS provider contracts, and additional performance reports will be made available on this website.

Facebook Account

In March 2016, the EMS Agency created a Facebook page, which is used to primarily to

communicate with the public and members of the EMS system, especially emergency medical technicians and paramedics in the field. This Facebook page features forthcoming continuing education opportunities, announcements of meetings and other events, EMS System advisories, and pictures of EMS providers and the EMS System, and other related information. The EMS Agency has even used this Facebook page to query EMS Providers about their recommendations for policy and procedure and clinical protocol changes. This Facebook page directly links to sources of information on the EMS Agency's website. The page is www.facebook.com/mocoems. The page can also be found by searching for "Monterey County EMS" within Facebook. Since starting the page in March 2016, the Monterey County EMS Facebook page has more than 650 likes, an increase of about 300 likes during the past fiscal year.

Twitter Account

While the EMS Agency has used a Twitter account for two years, during the past year, the Health Department's Public Information Officer increased the frequency of tweets to the community. During the next year, use of the Twitter account will be increasingly integrated with the EMS Agency's Facebook and Web presence.

The Monterey County EMS System: 2016-2017

The 9-1-1 Emergency Medical Services System

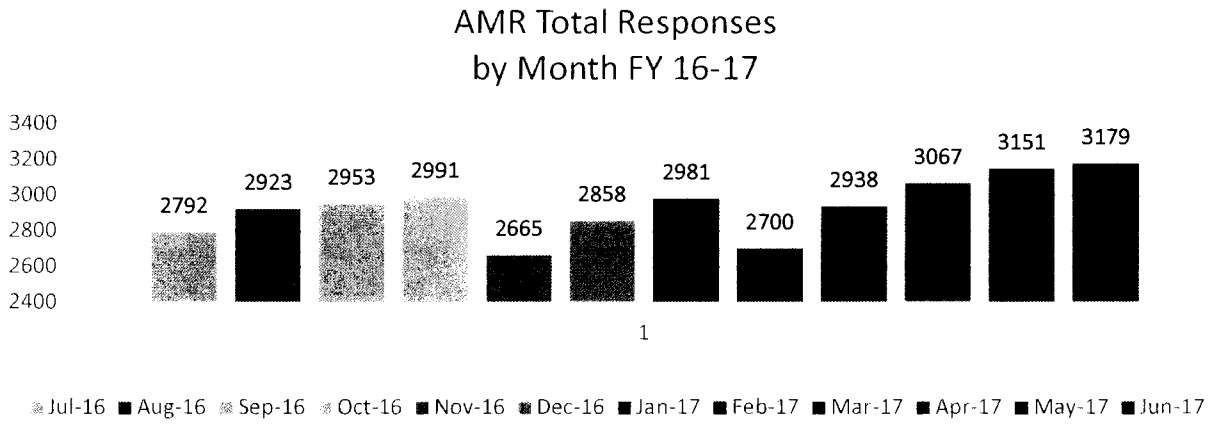
A functioning EMS system is composed of diverse components working together to meet the needs of those who call 9-1-1 for medical assistance. Coordination of these EMS system providers is the responsibility of the EMS Agency. The EMS Agency actively monitors the response to medical emergencies, approves EMS training providers for public safety first aid, Emergency Medical Responder (EMR), Emergency Medical Technician, Paramedic, and EMS continuing education. The EMS Agency also establishes systems of care for specialty services such as stroke, trauma, and heart attacks.

The medical response to 911 calls involves multiple EMS providers. Public safety agencies provide first response. These responders typically arrive before the ambulance and can initiate assessment of the patient and provide care. First response providers are mostly trained to the EMT level but some provide paramedic-level care in several areas of the County. In the rural areas, EMT and EMR levels of care are provided.

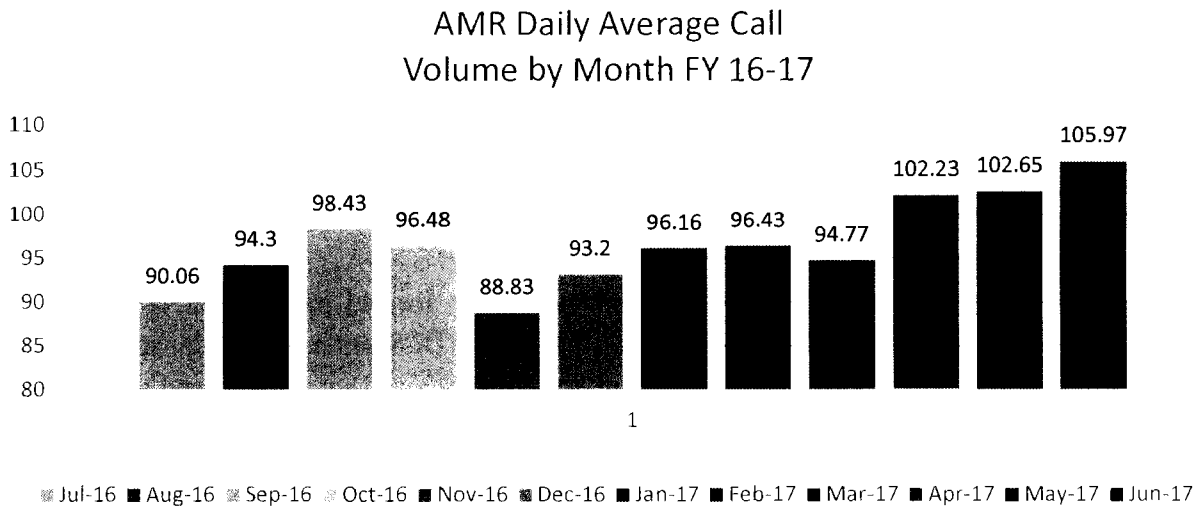
There are four ground ambulance providers in the county and all ambulances are staffed to provide paramedic level care. There are also two air ambulance providers with bases in

Monterey County. The CHP also sometimes provides air transport at the paramedic level of care.

American Medical Response (AMR), the contractor that provides ambulance services throughout most of Monterey County, had a very busy year. They responded to more than 35,000 requests for service. This is an increase of more than 1,000 calls for service over the previous year. Like ambulance providers throughout California, AMR's call volume has risen for the past few years and will likely continue to rise. The first chart shows the number of calls for service received by AMR in FY 2016-2017.



The chart below shows the average daily call volume for AMR in each month of FY 2016-2017.



The Monterey County Regional Fire District (MCRFD) provides ambulance service to the Carmel Valley area. MCRFD also saw an increase in requests for ambulance; they responded to 988 calls resulting in 930 transports.

Carmel Fire Department provides ambulance service to the City of Carmel-by-the-Sea and responded to 1,380 calls and transported 759 people.

The Fort Hunter Liggett Fire Department serves Fort Hunter Liggett and had 109 ambulance calls with 51 patient transports. The Fort Hunter Liggett Fire Department also provides mutual aid first response services to the area surrounding the military base.

CALSTAR has provided air ambulance services to Monterey County for nearly thirty years. In the FY 2016-2017 period, CALSTAR responded to 135 calls for service around the County. This resulted in 65 patient transports. CALSTAR also provides critical care air ambulance services to transfer patients from one hospital to another. CALSTAR provided 136 interfacility transfers.

Mercy Air has been contracted by Fort Hunter Liggett to provide air ambulance service on base. Fort Hunter Liggett has allowed Mercy Air to provide response and transport to air ambulance requests off post when possible. Mercy Air had 58 transports in FY 2016-2017.

REACH and Stanford Lifeflight also occasionally provide air ambulance services in the county. Air ambulances (helicopters) are used for the transport of critically injured or ill patients in the more rural parts of the county.

Exclusive Operating Area (EOA) Ambulance Provider: American Medical Response Monterey

American Medical Response (AMR – Monterey) is Monterey County's contracted ambulance provider for the Monterey County Exclusive Operating Area (EOA). State law allows the EMS Agency to contract with an ambulance provider for a specific EOA by way of an agreement, which grants exclusivity to the provider for calls generated in the EOA. The current agreement between the EMS Agency/County and AMR grants exclusivity for 911 paramedic (ALS) emergency calls, critical care transport, and basic life support (BLS) interfacility transports. The Monterey County Regional Fire Protection District, the Carmel Fire Department, and the area within Fort Hunter Liggett are not served by AMR. Those areas are served by their own respective fire departments, who maintain separate agreements with the County. AMR is by far the largest transport provider in the Monterey County EMS system and provides approximately 93% of the total transports.

The agreement with AMR sets standards for operational, clinical, and financial performance, and includes detailed provisions for monitoring and enforcement of the agreement. In past years,

much of the effort in monitoring the agreement revolved around response time compliance. Those efforts are important and are discussed in more detail in a later section of this report. Response time compliance is not the only standard to review however when examining the overall performance of AMR.

In the Fall of 2016, the EMS Agency began working with AMR to develop performance "metrics" – measurements that used to analyze AMR's performance beyond response time, involving clinical quality and operational performance. The EMS Agency started regular monthly meetings with AMR in January 2017 to review performance metrics with AMR management and EMS Agency staff. AMR has been responsive to requests for additional reports and has worked collaboratively with the EMS Agency to revise and expand reports.

The quality improvement reports provided by AMR contain information on responses (including mutual aid requested and provided), calls or transports upgraded from code 2 (non-emergency) to code 3 (emergency), total transports, standby hours, unit hours scheduled and actual unit hours (ability to staff scheduled shifts), mechanical failures and crashes, dispatch performance, clinical measurements such as cardiac arrest saves and advanced airway proficiency, staff turnover and tenure information, employee training, public education, complaints, and patient offload times at the hospital. Reviewing and discussing AMR's performance with AMR, based on the information in these reports, provides the EMS Agency a more comprehensive understanding of AMR's operations and performance. It can help to spot trends in the early stages before they become significant challenges or issues. Some issues, like staffing levels, are a frequently encountered challenge.

During the next year, the EMS Agency will begin to discuss more comprehensive reporting with additional EMS provider agencies. Lessons learned from the process with AMR will help to facilitate that process.

Financial Performance

The agreement between the County and AMR provides that if AMR's local financial reports show pre-tax profits greater than eight percent, the parties shall meet and confer regarding rates and rate increases. AMR's financial reports for calendar year 2015 show a pre-tax profit greater than eight percent. Consistent with the agreement, the EMS Agency and AMR discussed these profits. Based on the information provided by AMR, 2016 was the second of two consecutive years in which AMR's profits exceeded eight percent. This excessive profit is at least partially explained by an increase of call volume over the previous year and a persistent staffing shortage during nearly all the fiscal year. Almost perversely, AMR's staffing shortage was the primary cause of their recurring failure to comply with contractual response time performance standards, yet this same staffing shortage forced those working to be busier—hence more productive, generating extraordinary profits.

Based on the provisions and limitations of the current contract, and recent actions by the U.S. Department of Justice against counties who have profit caps or other subsidies considered "kickbacks" in their contract with ambulance providers, the EMS Agency cautions against changes to the current contract or rate structure.

There are effective methods to closely monitor financial performance and to more closely link financial performance to clinical and operational performance that will be explored in the next EOA contract.

Dispatch Time Compliance

The AMR agreement stipulates dispatch time interval performance standards. Specifically, AMR dispatchers must dispatch 911 emergency calls (Priority 1, 2, or 3) within 59 seconds of the dispatcher receiving the call information.

The first graph on page 15 illustrates AMR's dispatch time performance for the period July 2016 through January 2017. The report only goes through January 2017 because a new Computer Aided Dispatch (CAD) system went online in the Communications Center in early February. It took several months to resolve various technical issues with that implementation. The EMS Agency intends to retroactively measure dispatch time performance from March 1st on once a new system for measuring and monitoring times is in place. This new system is discussed in a later section of this report. The chart demonstrates that AMR dispatches calls in a timely manner, in keeping with regional, state, and national standards. The standard here is strict; systems in other jurisdictions allow 75 – 90 seconds for call processing. It is a challenge for any system, sometimes impossible, to achieve 100% perfection. AMR is consistently dispatching emergency calls in under 59 seconds 95% of the time or higher – which is excellent performance. They have performed at this level in past annual reports.

The EMS Agency recently added staff with expertise in dispatch issues and in the Medical Priority Dispatch System (MPDS) and has elevated programmatic and planning efforts in this arena. The EMS Dispatch Center will play an increasingly important role in EMS system evolution and design going forward. It will be an important part of the EMS system assessment, Strategic Plan development, and RFP/contracting process discussed in a later section of this report.

Response Time Performance

The AMR agreement also stipulates response time performance standards based on the perceived acuity of the call and the population density of the area in which the call is located. For 9-1-1 calls, there are three priorities:

Priority 1 calls are life-threatening emergencies, such as cardiac arrests, choking, and major hemorrhage. Priority 1 calls receive a red light and siren response from first responders and ambulance.

Priority 2 calls are non-life-threatening emergencies that require an urgent red light and siren response.

Priority 3 calls do not require a red light and siren response, but require an immediate response due to an urgent, but not life-threatening, medical condition.

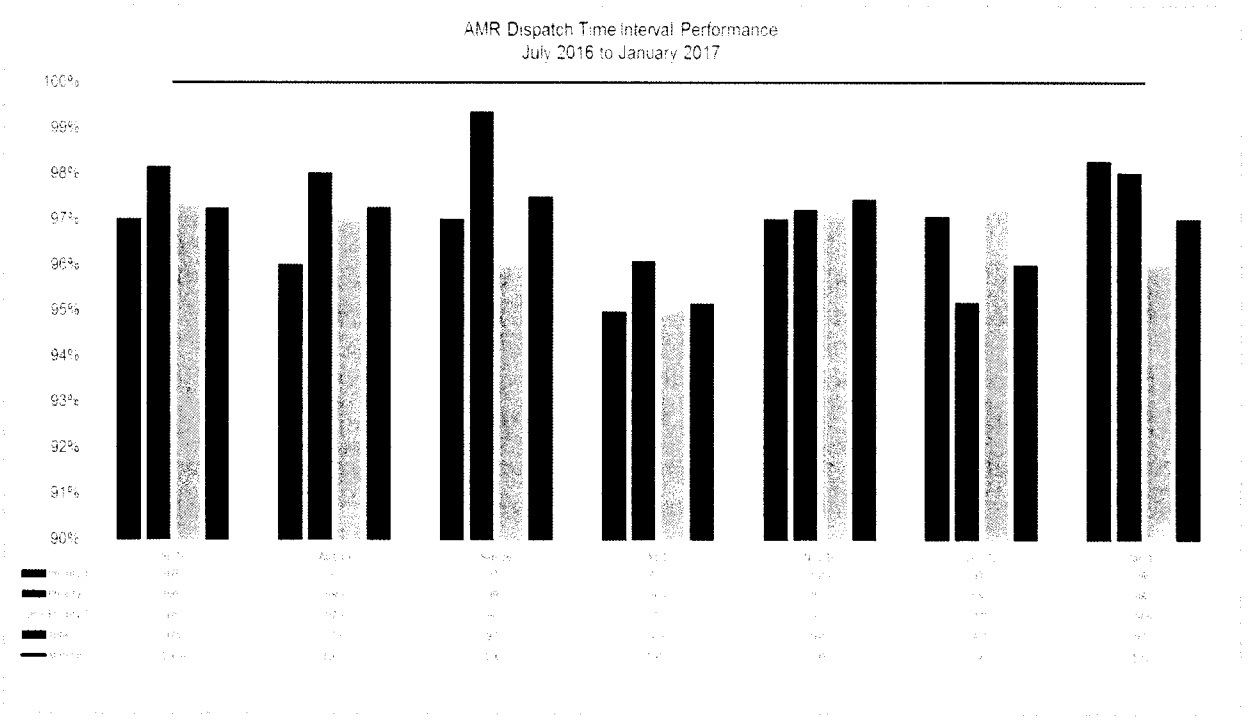
The required response times for each emergent priority and zone (based on population density) are indicated in the table below. The map in Appendix A identifies the location of each color zone, based on population density. The green zone represents the highest population density (i.e. areas around Salinas and the Peninsula), yellow is less populated (cities such as Castroville, Carmel, and Soledad), orange (areas like the 101 corridor), and red (wilderness areas). Per the agreement, late calls can sometimes be exempted for reasons such as disasters, extraordinary weather, road closures, or call "spikes" in the system. When exemptions are granted, those calls are no longer considered to be non-compliant.

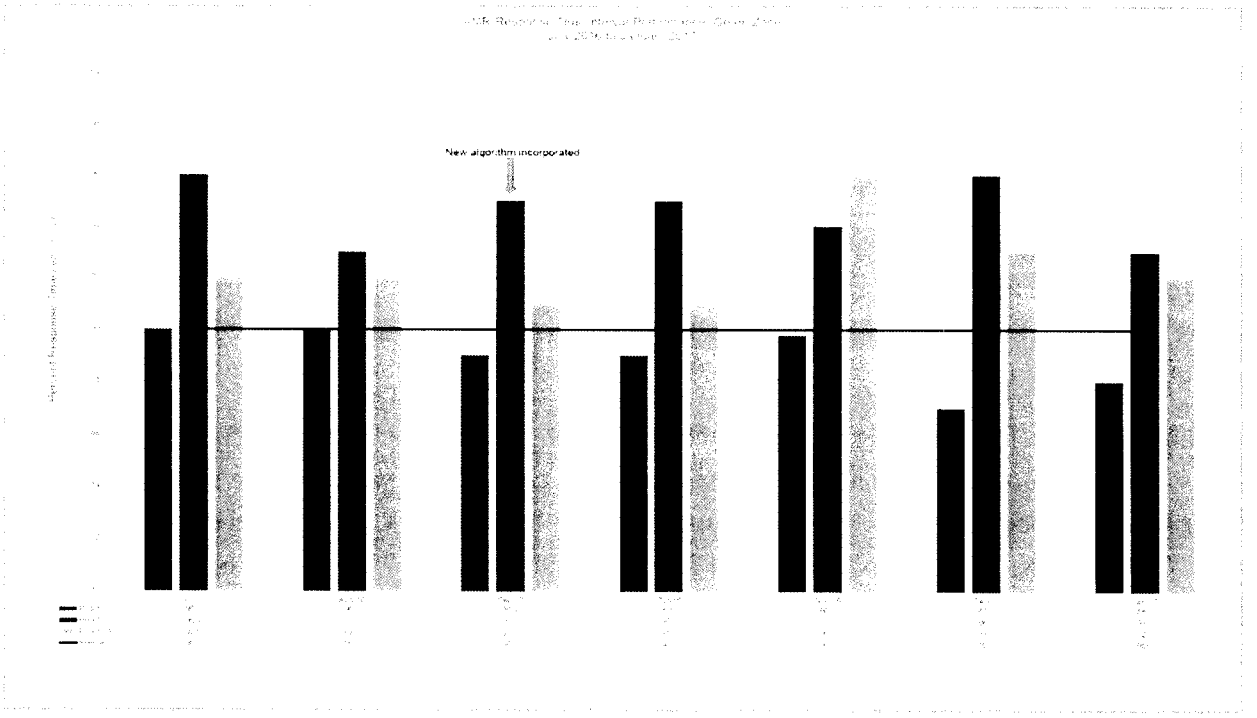
Time are calculated in minutes	Green	Yellow	Orange	Red
Priority 1	8	12	16	ASAP
Priority 2	10	16	20	ASAP
Priority 3	12	20	24	ASAP

AMR Response Time Performance

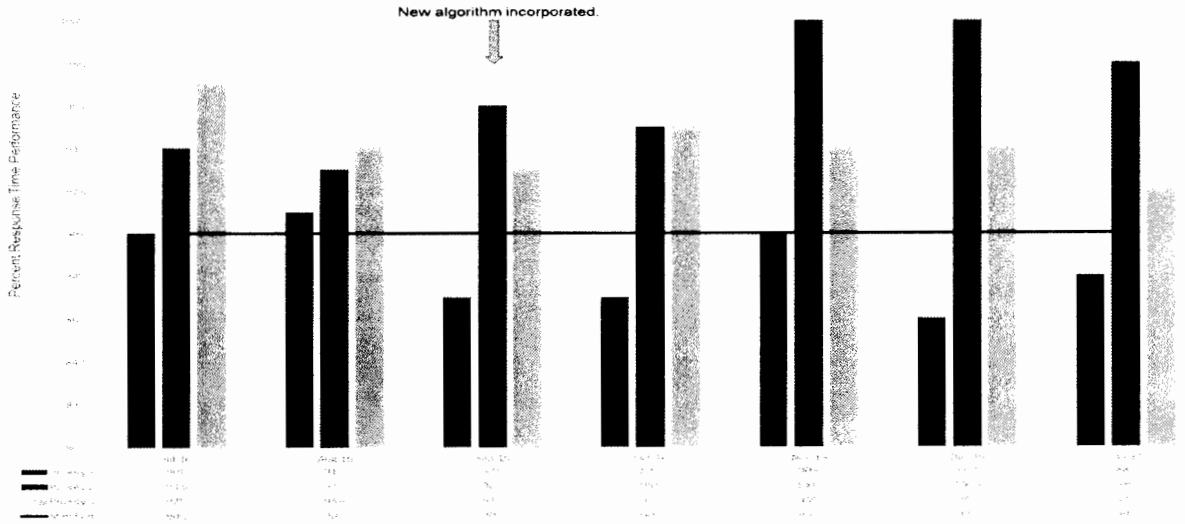
In last year's Annual Report, the EMS Agency reported that AMR failed to meet contractually required response time standards for at least one priority in at least one zone, during nine of the twelve months in Fiscal Year 15 - 16. AMR's problems with response time performance have continued since that time.

Starting in July 2016, the EMS Agency (with assistance from a neutral third-party vendor called Inspironix) began reporting that AMR remained out of compliance with specific response time requirements, especially on the highest acuity (Priority 1) level calls. This trend continued in subsequent months, off and on, throughout 2016 and into early 2017. That data is reflected in the following charts – beginning with the Green Zone:

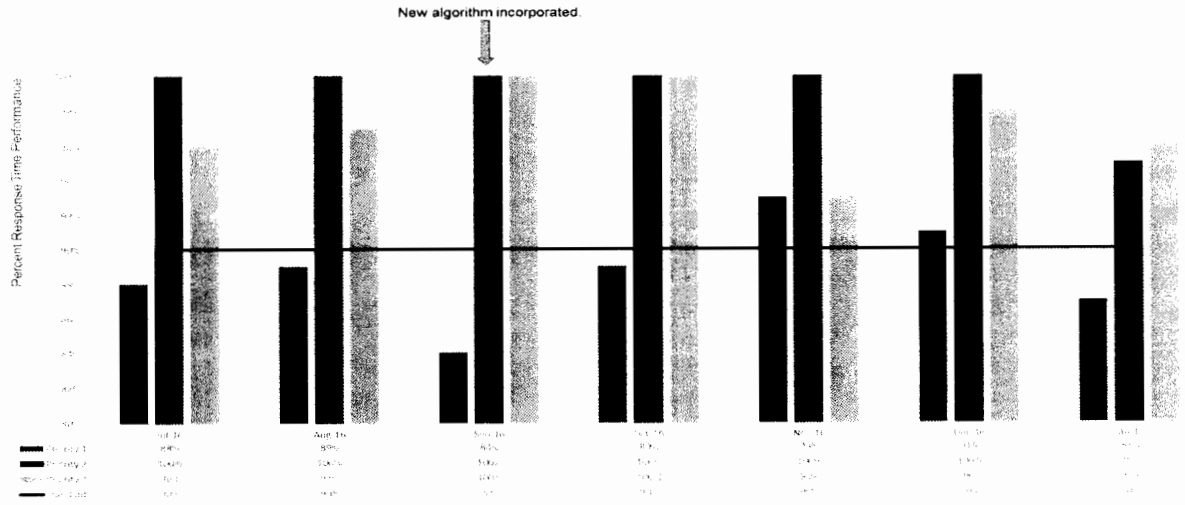

AMR Dispatch Time Interval Performance
July 2016 to January 2017
100%
99%
98%
97%
96%
95%
94%
93%
92%
91%
90%

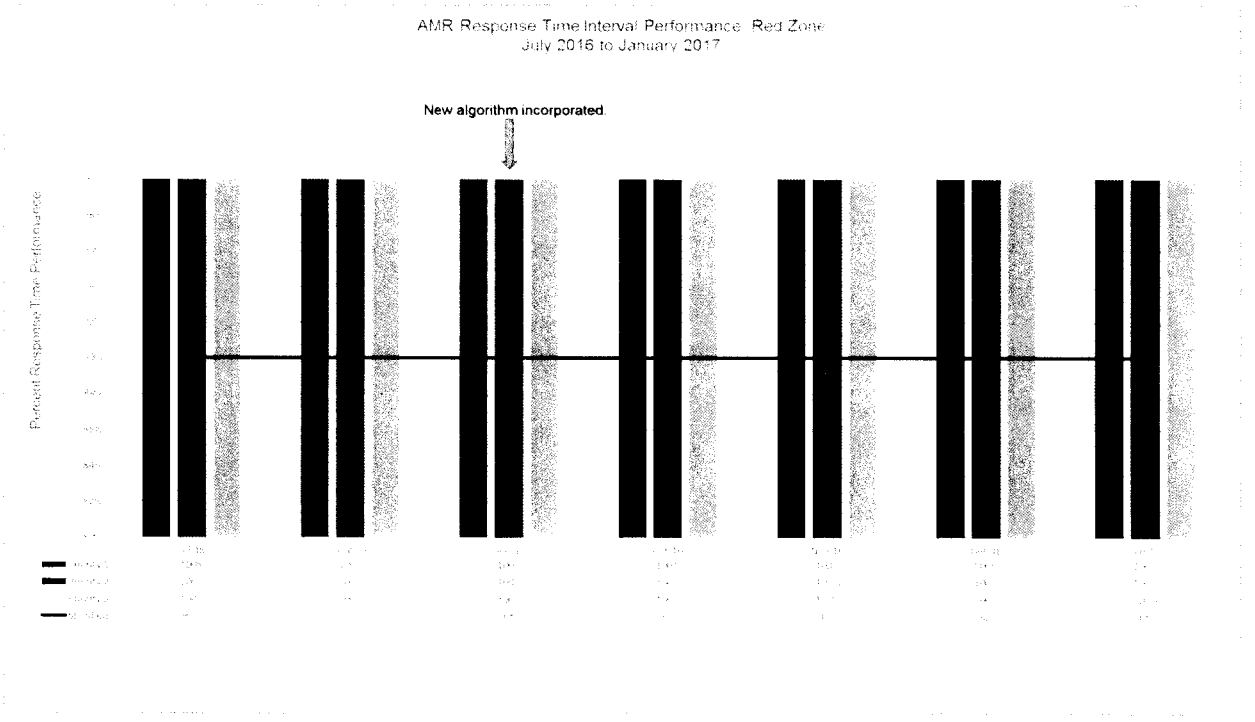

New algorithm incorporated

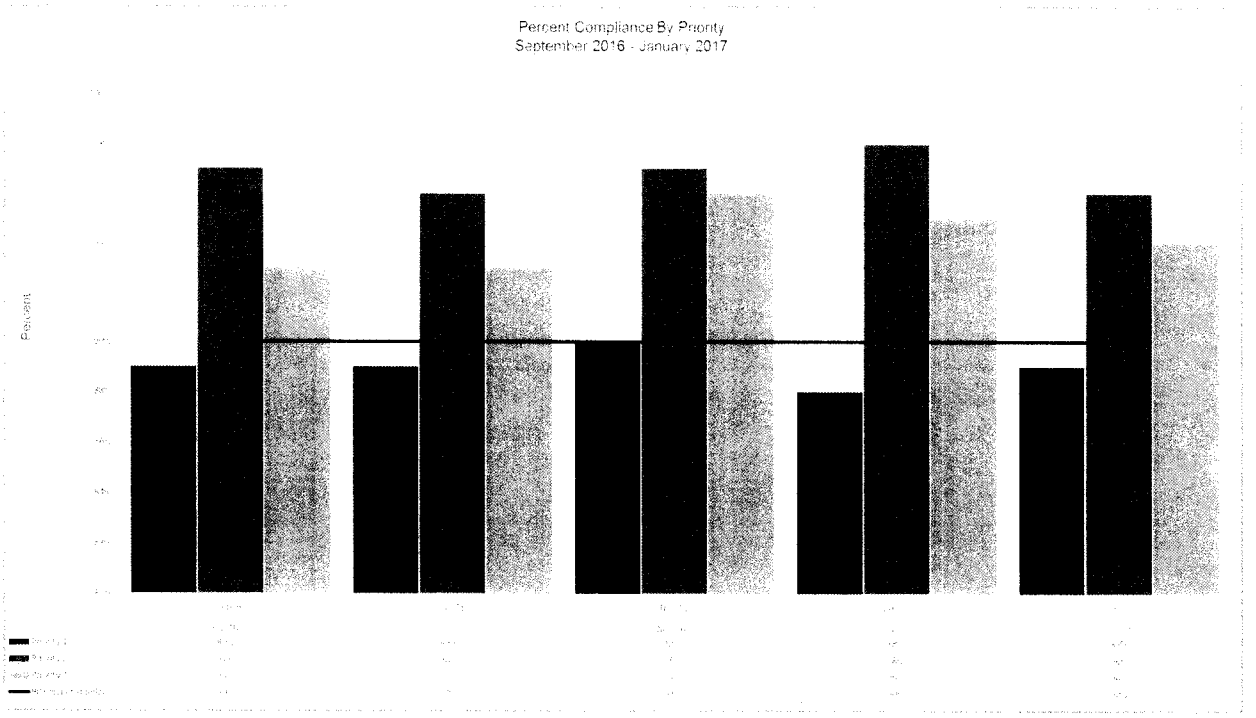
AMR Response Time Interval Performance: Yellow Zone
July 2016 to January 2017



AMR Response Time Interval Performance: Orange Zone
July 2016 to January 2017




AMR Response Time Interval Performance - Red Zone
July 2016 to January 2017
New algorithm incorporated.
Percent Response Time Performance


Percent Compliance By Priority
September 2016 - January 2017
Percent

The EMS Agency reported this information at numerous meetings, including the Contract Compliance Working Group (CCWG), the Medical Advisory Committee (MAC), and the Emergency Medical Care Committee (EMCC). The EMS Agency has communicated many times with AMR management, and has received documents from them describing how they intend to resolve the issue. Examples of strategies to improve performance include the revision of deployment plans, hiring bonuses, and paying for paramedic education for their EMTs.

In October of last year, AMR expressed a concern that their reporting indicated they were compliant with required response times. The EMS Agency, again in concert with the third-party vendor, and AMR initiated an extensive process to evaluate the accuracy of its' response time compliance measurement, analysis, and reporting. That evaluation led to the discovery that AMR and the EMS Agency had slightly different methods for calculating compliance. Differences identified included 1) which calls were included or excluded from the calculations by both parties and 2) usage of the "100 Response Rule" as interpreted in the contract. Essentially, that rule ensures that there are enough calls to obtain a statistically significant measurement. The different methodologies led to slight differences in the reports from AMR and the EMS Agency – but those slight differences were enough to mean the difference between compliance and non-compliance. These findings were discussed at length with AMR and a common understanding of how response time compliance measurement is to be accomplished was agreed to. The addition of a staff Epidemiologist at the EMS Agency helped tremendously with this analysis.

The EMS Agency considers AMR's consistent failure to meet response time requirements to be a serious deficit in performance. That concern has been communicated numerous times, including in a letter sent to AMR management in May 2017 - a letter titled "Notice of Breech of Agreement." AMR replied with a letter in June questioning some of the findings in the letter from the EMS Agency. EMS Agency staff met with AMR leadership later that month to discuss the issue further and to reiterate the Agency's concern about response time performance. The expectation is that AMR will continue to do whatever is necessary to meet contractual response time performance standards. As noted earlier, this is not a new problem.

Charts on preceding pages show AMR's response time compliance by zone and priority for the time-period July 2016 to January 2017. That timeframe is explained in detail in the next section.

<u>New Computer Aided Dispatch (CAD) System and Transition from Inspironix to First Watch</u>

Two important changes occurred this year that significantly impacted AMR and the EMS Agency's ability to measure response time compliance after January 2017 – hence the time period reflected in the charts above.

The first change, as noted earlier in this report, is the fact that a new CAD system went "online" on February 7, 2017. There have been several challenging technical issues with the new CAD since implementation, which is common in CAD transitions. Most of those technical issues have

been resolved over the past several months. Nonetheless, the EMS Agency has not had access to the dispatch data required to do response time compliance measurement. The EMS Agency and AMR agreed that response time compliance measurements would be held for February 2017, due to the number of technical issues experienced in the first weeks after implementation of the new system, which were beyond AMR's control. Subsequent months will be adjudicated.

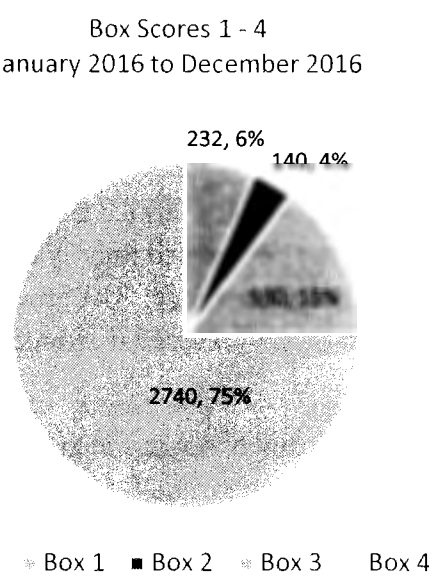
The second change is that AMR and the EMS Agency agreed to use a new third-party vendor to assist with response time compliance measurement and analysis. That new vendor is called FirstWatch. FirstWatch will replace the vendor Inspironix. FirstWatch is recognized as an industry leader for measuring response time compliance - and many other aspects of an EMS system. They are used by some of the largest and busiest EMS systems in the country and should reduce or eliminate completely the kinds of discrepancies in processes described above. Both AMR and the EMS Agency have been working closely with FirstWatch to create the Online Compliance Utility (OCU) – the electronic tool that imports data from the dispatch center and does response time compliance calculations. Once the OCU "build-out" has been finalized, the system will retroactively analyze data from March 1, 2017 on. Eventually, the FirstWatch system may be able to help the Monterey County EMS system measure other operational and clinical performance metrics more accurately as well.

The Monterey County Trauma System and Natividad Trauma Center

Natividad Medical Center was designated as Monterey County's Level II Trauma Center in 2014 and began operations on January 5, 2015. In 2016, Natividad underwent a consultative visit from the American College of Surgeons Committee on Trauma (ACS-COT) to identify areas in need of improvement to obtain the ACS-COT's designation as a Level II Trauma Center. Since that time, Natividad and the EMS Agency have worked closely together to implement the necessary changes needed to ensure a successful verification site visit. Although this was initially to have occurred within 18 months of the consultative site visit, issues with the trauma data registry have delayed the readiness of Natividad to seek full accreditation. That site visit is now expected to occur in the fall of 2018.

The Monterey County EMS Agency uses the Centers for Disease Control (CDC) Field Triage Criteria, which uses four "boxes" to categorize the severity of the trauma patient's injury. Box 1 patients are the most seriously injured patients based on vital signs and level of consciousness. Box 1 patients are transported to a trauma center. Box 2 patients have significant injuries as assessed by field personnel, based on anatomical findings, such as penetrating injuries to head, neck, torso, and extremities close to the torso; serious chest, pelvic or skull injuries; paralysis, and other serious injuries. These patients are also transported to a trauma center. Box 3 patients are categorized based upon the mechanism of injury, such as falls from greater than 20 feet, serious motor vehicle accidents, motorcycle accidents, or auto versus pedestrians. These patients are transported to the trauma center as well. Box 4 patients are the least serious of the "box"

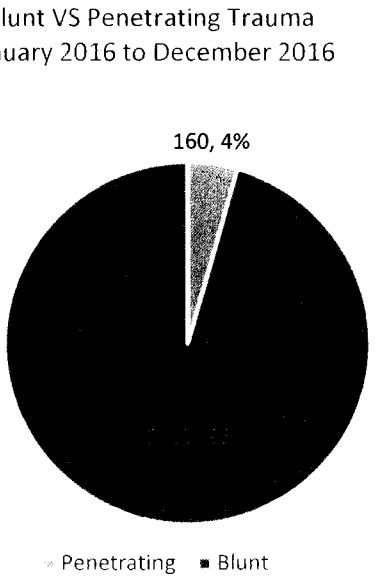
trauma patients. Box 4 trauma patients are often transported to non-trauma center hospitals in the Monterey County EMS system, since those facilities can effectively care for those patients' injuries. This chart identifies EMS system trauma patients during calendar year 2016 based on their "box" categories.



During 2016, the Monterey County EMS system treated over 3,600 trauma patients. That number is an increase of over 100 from 2015, and includes patients throughout the spectrum of trauma care, from patients with minor injuries to patients with life-threatening and ultimately fatal injuries.

Beginning on January 1, 2017, the EMS Agency further refined the definition of box 4 patients to be in closer compliance with the Centers for Disease Control and Prevention (CDC) Box 4 criteria. Future reports will show a decrease in the number of these patients due to better definitions.

Trauma patients are also classified as "blunt" or "penetrating" trauma. Blunt trauma refers to injuries sustained in motor vehicle collisions, motorcycle or bicycle accidents, pedestrians struck, falls, various kinds of assaults, and other related mechanisms of injury. Penetrating trauma results from shootings and stabbings. The chart to the right identifies the number and percentage of blunt and penetrating trauma patients in Monterey County during calendar year 2016:



Additionally, the EMS Agency has worked closely with Natividad and with the other hospitals within the system to obtain, aggregate, and report on countywide data to show more of a "systems" approach to the trauma system in Monterey County. Data from 2017 will reflect this

change. A full-time epidemiologist was hired in 2016 to assist with trauma related data gathering and analysis. The EMS Agency has notified Natividad that an analysis of the time and money spent monitoring the trauma system will be done in late 2017, and that the annual fee paid by the trauma center will increase to cover the EMS Agency costs.

Also in 2017, the EMS Agency formed a Helicopter EMS (HEMS) Utilization Task Force, a multi-disciplinary group assembled to fully evaluate each use of an airship within the 9-1-1 system to ensure appropriate usage. The group is working on standardizing a scoring mechanism to objectively evaluate airship usage in Monterey County, and plans to have a report by mid-2018.

Both the EMS Agency and Natividad attend and participate in Santa Clara County's Trauma Executive Committee. Santa Clara County, San Mateo County, Santa Cruz County and San Benito County EMS Agencies are all represented at this committee, as well as all trauma centers within those counties. This committee offers comparison and insight from other trauma centers to provide peer review to Natividad's Trauma Center. Natividad and the EMS Agency also attend and participate in Santa Clara County's Trauma Care System Quality Improvement Committee, a multi-disciplinary group from the 3 previously mentioned EMS Systems, as well as Santa Cruz and San Benito County EMS Agencies. This committee reports on various trauma system indicators, and discusses issues relevant to trauma systems in the 5-county area.

Ongoing goals for the trauma system are summarized in the following general areas:

- Continued monitoring of the care provided in the trauma center by way of data analysis, the reporting of relevant data as appropriate, and participation in local and regional trauma audit committees.
- Further development of the trauma data system to ensure the availability of accurate data for use by local system stakeholders and reporting to other entities as required by statute and regulation.
- Continued analysis of the care being provided to trauma patients at the field level – to include patient assessment, treatment, and destination decisions.
- Revision and development of policies and procedures based on new information and identified need.
- Continued integration of non-trauma center hospitals in Monterey and adjacent counties in trauma system planning and quality improvement efforts.
- Continued analysis of trauma system funding streams, cost, and reimbursement to ensure long term financial viability of the system.
- Evaluation of the Trauma Data Registry to ensure that data entered and reports generated are accurate, valid and easily utilized. by users of the system.

Trauma Evaluation Quality Improvement Committee (TEQIC)

The Trauma System Quality Improvement Committee (TEQIC) reviews trauma system care and advises the EMS Agency on trauma system policy, organization, training, and equipment. Its goals include evaluating and administering the trauma system (including resolving system vulnerabilities), developing policy and/or approaches to related issues such as major trauma and burn related prehospital care, conducting injury surveillance, optimizing trauma transfers and patient repatriation, and improving long-term outcomes.

TEQIC meetings are held quarterly and involve representatives from the trauma center, the other hospitals in Monterey County, hospitals from other counties that send trauma patients to Monterey County, EMS Agency staff, and air and ground field provider representatives. TEQIC evaluates trauma care from a system-wide perspective. Because TEQIC evaluates trauma care of individual patients in the form of case reviews, the meetings are confidential and not open to the public. Agenda items include updates on policy development or protocols, continuing education opportunities, trauma data review, review of field triage and patient inclusion criteria, and other indicators.

In 2017, TEQIC meetings were reduced from bi-monthly to meeting quarterly. The trauma center now submits individual patient data directly to the EMS Agency on EMS transported trauma patients, and the EMS Agency presents a data report inclusive of both prehospital and trauma center data. Non-trauma centers are beginning to submit outcome data on patients who meet trauma criteria and are transported to their hospitals. Once all hospitals are submitting data, the EMS Agency will be able to present an aggregate report on all trauma patients transported via EMS in Monterey County.

Since the "re-set" of TEQIC described in last year's report, TEQIC has continued to discuss and resolve system wide issues, and to better involve the prehospital perspective in the cases presented for discussion.

The Monterey County Cardiac Care STEMI System

S-T Elevation Myocardial Infarction, or STEMI, is the medical term that describes those patients who are suffering from the most life-threatening type of heart attack. The STEMI Quality Improvement Committee reviews the STEMI care system and advises the Monterey County EMS Agency on STEMI system policy, organization, training, and equipment. EMS Agency staff report on the committee to the Medical Advisory Committee.

The Monterey County STEMI system, which began in 2005, improves patient access to life-saving cardiac interventions by accurately identifying these patients, transporting them to one of the two STEMI Receiving Centers in Monterey County - Community Hospital of the Monterey Peninsula (CHOMP) and Salinas Valley Memorial Hospital (SVMH) - where rapid, specialized

treatment can be immediately initiated. Both hospitals have achieved accreditation from the Society of Cardiovascular Patient Care (SCPC) as "Chest Pain Centers." This accreditation demonstrates that these hospitals have met or exceeded stringent criteria established by the SCPC for the treatment of these patients.

Paramedics can obtain an electrocardiogram (ECG) in the field, transmit it directly to the STEMI Receiving Center - and to the interventional cardiologist's cell phone. This early notification of the critical nature of the patient results in faster activation of the cardiac catheterization lab, and a shorter time to the time-sensitive interventions taken there.

STEMI Quality Improvement (QI)

The STEMI QI Committee meets quarterly to discuss issues with the system, review data from the two STEMI Receiving Centers and from the prehospital providers, and reviews specific cases. The committee is comprised of representatives from the STEMI Receiving Centers, prehospital providers and EMS Agency staff. Beginning in 2017, the STEMI Receiving Centers began reporting outcome data on the individual STEMI patients to the EMS Agency, allowing the EMS Agency to create aggregated reports on the STEMI system county-wide. Metrics, such as the number of patients seen, the number of those patients transported via EMS, "door to balloon" and "EMS to balloon" times are reported to the EMS Agency. The STEMI QI Committee reviews these metrics and can advise on any changes that might help to further improve STEMI care in Monterey County. Because the committee reviews and discusses specific cases, the meetings are confidential and are not open to the public.

The Monterey County Stroke System of Care and QI Committee

The Stroke QI Committee reviews stroke system care and advises the EMS Agency on stroke system policy, organization, training, and equipment. EMS Agency staff report on Stroke QI Committee meetings to the Medical Advisory Committee. Early recognition of stroke by EMS personnel, rapid transport to a designated Stroke Center and specialized care for these patients has been documented to vastly improve outcomes and decrease morbidity and mortality for patients suffering from a stroke. Like STEMI, stroke care is very time-dependent. Stroke patients who access emergency care through the 9-1-1 system have been shown to receive faster care and have better outcomes. The two designated Stroke Centers in Monterey County are the Community Hospital of the Monterey Peninsula (CHOMP) and Salinas Valley Memorial Hospital (SVMH). Both hospitals have achieved national certifications, verifying that they have met specific quality standards in the care of stroke patients.

The Stroke QI Committee meets quarterly to discuss system issues, do case reviews, and to review system-wide data on stroke patients. Since specific cases are reviewed in the Stroke QI Committee, this committee is confidential and is not open to the public.

Monterey County EMS Data System

Decisions in EMS should be driven by accurate and meaningful data. EMS-related data comes from several sources; the most important source is the patient care report (PCR) completed for every patient contact. Currently, the various EMS providers in the county use many different PCR types, both electronic and handwritten. This makes the collection and analysis of system-wide data very difficult. In some cases, it is impossible.

A state law passed in 2015 requires emergency medical service providers to submit electronic data to the EMS Agency. That data must follow state and national standards for data reporting. In early 2016, the EMS Agency began a process for implementing a single county-wide electronic patient care reporting (ePCR) system. A working group, made up of system stakeholders, prepared a charter document which described the responsibilities of the providers in the system, including the EMS Agency, and helped draft an RFP for a qualified vendor. A seven-member panel of that group reviewed proposals from three vendors and unanimously selected the company ESO Solutions to provide the ePCR system for the county. The panel looked at ease of use, analytic capabilities, and the system's ability to integrate with other data systems. ESO scored very high on all counts. The County finalized an agreement with ESO Solutions in April of 2016.

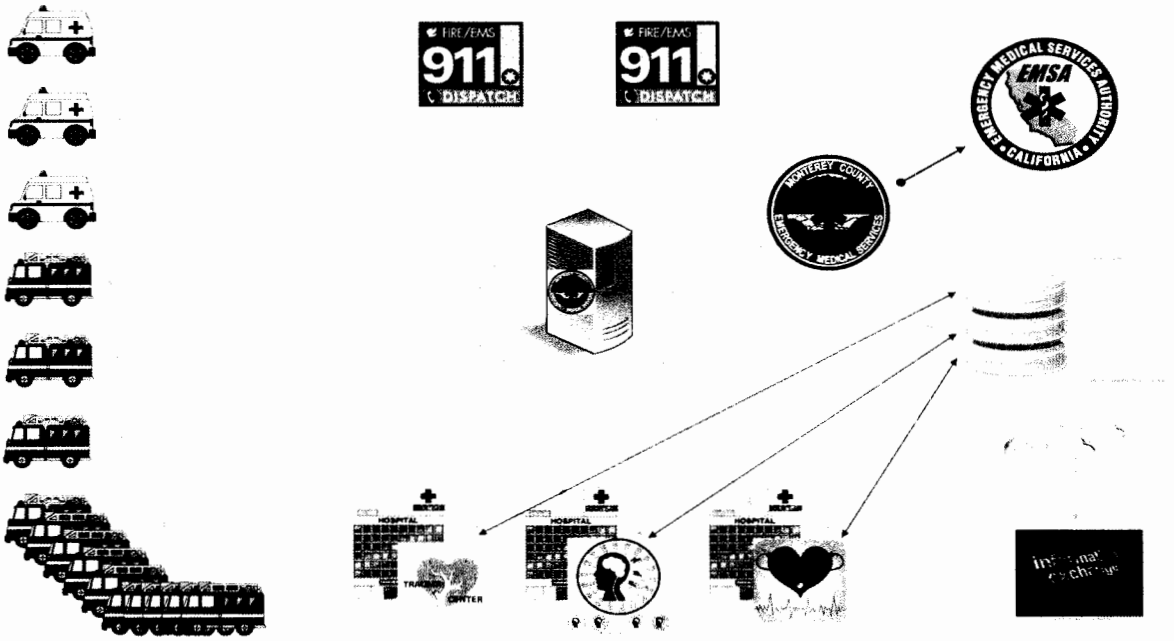
CSA-74 funds will be used for the initial implementation and maintenance costs of the system. EMS providers cannot be compelled to use the County ePCR system, but they can be compelled to provide data in a format that integrates seamlessly into that system. The expense of that integration process would be the responsibility of the provider agency if they choose not to use the County system. Fortunately, almost all the provider agencies in the county have indicated their intention to use the County system. Helicopter services that serve our county (and others) will not be using the system but have promised to integrate their data. Dispatch data from the Communications Center will also integrate into the County system. Eventually, the system will be able to receive certain data elements from hospitals such as emergency department and discharge diagnosis data. Receiving data from hospitals will provide a much-needed look at outcomes. Outcome data is vital in determining the efficacy of the treatment provided in the prehospital setting.

A data sharing agreement has been drafted which will be signed by the provider agencies and the County. This agreement memorializes the responsibilities of both parties to ensure the security of protected health and personal information. Once that agreement has been signed, training on the system will begin. The goal is to have the system implemented in most of the county by January 1, 2017.

The implementation of a single integrated ePCR system county-wide is a vitally important step for the Monterey County EMS system. It will provide more reliable data and hence will enable the system to more accurately analyze clinical and operational issues across the entire system. It

will better inform policy and protocol development and will help to integrate the EMS system into the larger healthcare system. That includes participation in Health Information Exchanges (HIE) which allows for the sharing of patient data to improve the care provided at every level of the system. The continuous improvement of the care we provide is the primary aim of all our quality improvement efforts. This new ePCR/Data system will be an important tool in those efforts.

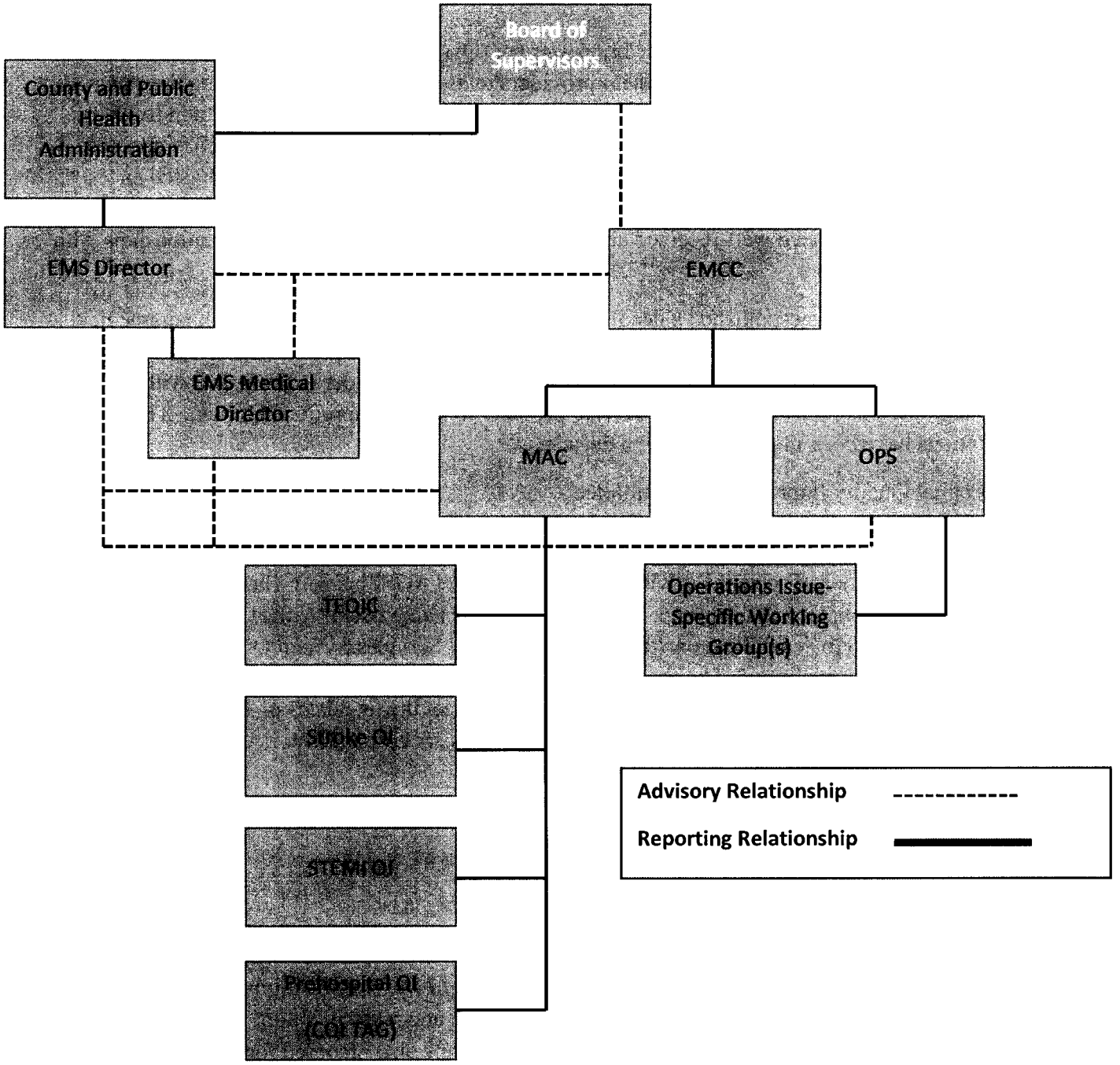
Monterey County EMS Agency Preliminary Data System Topography



EMS Advisory Committees

The EMS Agency seeks to continually improve the EMS system. The input of those who function within the EMS system is invaluable to the EMS Agency. The primary conduits for this feedback come from the EMS advisory committees. The EMS Agency obtains input from committee members who represent all areas of the EMS system - from 9-1-1 communications, first responder personnel, ambulance provider personnel, EMS provider leadership, hospital staff, and ED physicians. This input informs the development and implementation of EMS policies, procedures, and treatment protocols. The Medical Advisory Committee (MAC) and EMS Operations Subcommittee (EMS Ops) both provide excellent input into policies and protocols related to patient care and operations. The EMCC assists with administrative policy development and provides a forum for discussion of financial issues in the EMS system. The advisory committees discuss draft policies and protocols both prior to and after public comment periods.

Monterey County EMS Advisory Committee Structure



Improving Patient Care and System Quality Improvement

The EMS Quality Improvement Program

The EMS Agency completed a Quality Improvement (QI) Plan last year. This year, the EMS Agency started working with EMS system providers to assist them with developing their own QI plans. EMS Agency staff conducted training in QI plan development and met with individual EMS service providers to offer guidance on QI plan development. The EMS Agency adopted the "Just Culture" concept to help ensure proper application of QI processes and hosted an introductory session on Just Culture for those with primary QI responsibilities. These trainings and assistance have been well-received and should result in improved working relationships with EMS system providers.

The EMS Agency has established a deadline for submission of QI plans from each paramedic provider of November 1, 2017 and January 1, 2018 for BLS service providers. The deadline for submission of the QI Plan is to ensure that each EMS service provider is compliant with the EMS regulations requiring each EMS service provider to have an approved QI plan. These regulations have been in place for over a decade.

Prehospital Quality Improvement Committee

The Prehospital Quality Improvement Committee was renamed in 2017 to the Continuous Quality Improvement Technical Advisory Group, or CQI TAG. This name better reflects the multidisciplinary nature of the group, and is the preferred name listed by the California State EMS Authority in their publication, "Emergency Medical Services System Quality Improvement Program Model Guidelines." The focus of the CQI TAG in 2017 has been training of providers and base hospitals on the writing of a QI Plan that will meet the mandates of Title 22. Looking forward, the CQI TAG will be used for data collection on specific indicators countywide for the monitoring and improvement of the EMS system in 2018.

EMS Personnel Certification, Accreditation and Discipline

EMT Certification/Recertification

Fiscal Year 16-17 was another busy year for processing of EMT certifications. The EMS Agency processed 338 applications for EMT certification and recertification. Of these, 74 applications were for initial certification. The EMS Agency also prepared for more thorough review of EMT applicants by securing access to the National Practitioner Data Bank (NPDB). Through the NPDB, the EMS Agency will begin checking the medical license and certification background of the EMT applicants for initial and continued certification. This is another way in which the EMS Agency fulfills its responsibility to protect the public health and safety.

Paramedic Accreditation

The EMS Agency processed 36 applications for new paramedic accreditation and 79 applications for continued accreditation. In California, paramedics receive their license from the State after meeting the educational and testing requirements found in the EMS statutes and regulations. To use their paramedic skills, the paramedic must be employed by a paramedic service provider organization that is approved by the EMS Agency and may only function as a paramedic as a part of the EMS system.

Prehospital Discipline

The EMS Agency continued to improve its process for monitoring and tracking of individuals who have been subject to discipline on their EMT certification. Through participation in the LiveScan criminal background check and NPDB medical license check programs, the EMS Agency can prevent individuals with backgrounds causing concern from obtaining an EMT certificate. Some certificate holders may be monitored for an appropriate time to ensure compliance with requirements of probation or performance improvement plans. This statutory requirement to protect the public health and safety is an important function of the EMS Agency.

EMS Education

The past fiscal year saw the EMS Agency approve training programs for Emergency Medical Responder (EMR) to replace out of date First Responder training programs. The Agency also renewed approval for the three EMT training programs operating in Monterey County. In response to the national opioid overdose crisis, the EMS Agency developed policies to approve the use of Naloxone by law enforcement officers. Naloxone reverses the effects of opiates such as heroin and oxycontin. Several police departments are expected to start such a program.

The EMS Agency continues to support EMS education through the disbursement of CSA-74 funds to local fire departments to help defray the cost of providing EMS education for their personnel and in some cases, personnel from other fire departments and districts. By accepting these funds, the fire departments and districts have committed to having their EMS education made available to any EMT who wishes to participate. This is of great benefit to those EMT's who may not be working for an EMS service provider or who work for one of the smaller fire districts that are challenged to provide EMS continuing education (CE).

The Agency also regulates the provision of EMS CE by approving EMS CE providers as required by California Code of Regulations, Title 22, Division 9. There are currently 14 active EMS CE providers based in Monterey County. The EMS Agency regulates EMS CE providers by ensuring that the key positions of program director and clinical director are filled with qualified individuals who meet the requirements found in Title 22. The program director must have documented training in educational methods meeting or exceeding state minimum

requirements. The clinical director must have a current license as a paramedic, RN, or physician. Next fiscal year, the EMS Agency will conduct an administrative evaluation of EMS CE providers who applied for continued approval.

Monterey County is fortunate to have a paramedic training program within the County; training is conducted in Seaside at the Monterey Peninsula College Public Safety Training Center. Primary oversite of the training program rests with the Sierra-Sac EMS Agency as the headquarters for the NCTI training program is in their jurisdiction. The EMS Agency did join with the Sierra-Sac EMS Agency when they came to review the NCTI Monterey paramedic training program. The review found a training program that met the standards found in state regulations and Sierra-Sac EMS policy.

Other EMS System Activities

EMS Week 2017 Event

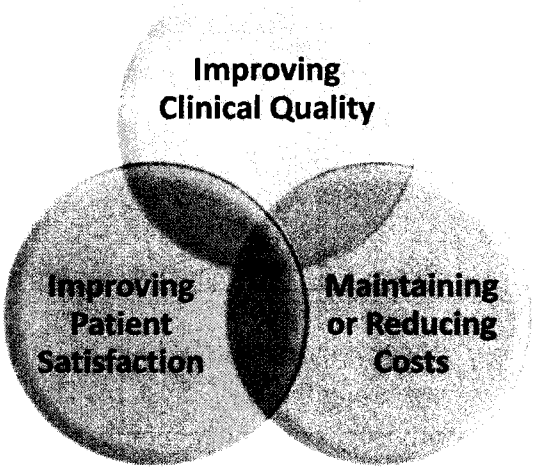
Every year, the EMS Agency celebrates EMS Week – a nation-wide effort to recognize the people who serve in our EMS systems. The Board of Supervisors prepared a proclamation thanking our local EMS providers for all that they do to respond when someone needs help in a medical emergency – something the Board has done for several years.

The EMS Agency decided to show its' appreciation for the work done by providers in our EMS system by personally distributing pins and thank you notes throughout the county during EMS Week. EMS Agency staff visited fire stations, ambulance deployment centers, hospital emergency departments, dispatch centers, and even some ambulance posting locations to hand out the pins and cards and to thank the people who work so hard to keep our communities safe. Staff enjoyed getting out into the system and talking with their "field-based" colleagues. Those who received the pins and cards seemed to appreciate it as well. Many months later, the pins have been spotted on various uniforms.

EMS 2020: Monterey County's Process to Assess, Design and Implement a Triple Aim-Focused EMS System for the next decade

EMS System Assessment, Strategic Planning and RFP Process

Starting in mid-June, the EMS Agency began working with the County Counsel's Office and the EMS consulting firm of Fitch and Associates to develop a three-phase process to assess the Monterey County EMS System, to conduct stakeholder-based EMS System strategic planning, and to develop, release and award a Request for Proposal (RFP) to select a paramedic ambulance provider to serve the County of Monterey EOA for the February 2020 to January 2030 period. A guiding principle for this process will be the "healthcare triple aim" which seeks to improve clinical quality, improve patient satisfaction, and maintain or reduce costs.



The graphic on the following page identifies the schedule and high-level activities that will occur in each of the three phases of the EMS System Assessment, EMS System Strategic Plan, and RFP Process. During this process, all EMS stakeholders will have ample opportunity to provide the EMS Agency and our consultants with your recommendations for the future of the Monterey County EMS System.

Preliminary Schedule

- *June 15, 2017 to November 30, 2017*
- Assessment of Status Quo of EMS System
- Consultant to provide recommendations on desired future state of EMS System

- *December 1, 2017 to March 31, 2018*
- Agnostic Strategic Plan
- Includes Mission, Vision, Values, Goals and Objectives

- *April 1, 2018 to January 29, 2019*
- RFP developed by consultant and EMS Agency
- RFP Reviewed and Approved by EMS Authority
- RFP Contract Awarded by Board of Supervisors

Phase 1: EMS System Assessment

Since approximately June 15, 2017, the EMS consulting firm of Fitch and Associates has been assessing the EMS System. They have met with key stakeholders, including County leaders, advisory committee members, fire chiefs, labor representatives, ambulance management representatives, and EMS System clinical leaders, to solicit their perspectives on the Monterey County EMS System. Fitch and Associates has also reviewed thousands of pages of policies and procedures, protocols, reports, and other documents. They have directly observed components of the EMS System to understand the system's strengths and weaknesses. Public hearings in each supervisorial district are also a part of the process to secure comment from the public. Further, and for the first time, consultant meetings with county and city planning departments to understand the direction of the county development during the 2020-2030 planning period are included in the assessment. Phase 1 will conclude in November 2017 with the release of an EMS System Assessment Report. This report will be a public document and will be distributed widely, including being placed on the EMS Agency's website.

Phase 2: EMS System Strategic Plan

Following completion of the EMS System Assessment, Fitch and Associates will coordinate the development of a stakeholder-based EMS System Strategic Plan, which will help guide the Monterey County EMS System during the 2020 to 2030 planning horizon. This plan will be agnostic, that is it will not advocate one organization over another. The plan will also be larger in

scope than the RFP, which will be developed in Phase 3. Numerous stakeholder and public meetings will be held throughout the County to seek input. The plan will state the Mission, Vision, and Values of the EMS System, and will identify and describe the broad goals of the EMS System during the planning period. Examples of strategic goals selected in other EMS systems include researching and designing an enhanced contemporary EMS medical direction model, developing an EMS System-wide public coordinated education and training program, and partnering with public health to integrate high service users into alternate treatment models. The strategic plan will be released between March and June 2018.

Phase 3: RFP Development, Release, and Award

The RFP for ambulance service will be developed by Fitch and Associates, the EMS Agency, and the County Counsel's Office. The development of an RFP for emergency ambulance services is a complex, highly technical, and professionally driven process, involving experts in the fields of emergency medicine and emergency medical services. Following the drafting of the RFP, the document will be sent to the California EMS Authority for review and approval. The EMS Authority must approve the RFP and the competitive process used to create the RFP to assure that it is fair and equitable, and that it does not provide a competitive advantage or disadvantage to any organization or group of organizations, either public or private-sector. The stated preference of the State EMS Authority is for the EMS agency to rely on technical expertise and technical criteria. California Health and Safety Code requires that the local EMS Agency be responsible for the competitive process for selecting providers and determining the scope of their operations. The EMS Agency anticipates releasing the RFP by summer 2018, and hopes to bring a recommendation to award the EOA to the Board of Supervisors by January 2019, a full year before the start of the EOA contract on February 1, 2020.