

Ventura County EMS System Assessment Report



VENTURA COUNTY EMS AGENCY

Submitted by



November 12, 2019*

*This report is based on data and information collected through June 2019.

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Executive Summary

The Ventura County EMS system compares favorably to other EMS systems we have assessed in California and nationally. The system enjoys many structural advantages such as centralized dispatch with EMD, robust quality improvement, a strong clinical focus, experienced providers, cutting edge community paramedicine programs, excellent cooperation between stakeholders and a relatively strong socioeconomic population base. Stakeholders are generally quite satisfied with the system and no stakeholders recommended elimination of the current contracted ambulance providers in favor of a new system design with competitively procured ambulance contractors.

Our overriding considerations in reviewing an EMS system are (1) whether it is focused on providing excellent clinical care; (2) whether it utilizes evidence-based practices as opposed to entrenched practices simply because “we’ve always done it this way”; and (3) whether the system is economically sustainable given available revenues for the desired level of service. We find that the Ventura County EMS System is highly focused on providing excellent clinical care. We conclude that incentivizing evidence-based practices and safety should be pursued in the next cycle of EOA provider contracts. Finally, we found that the system appears to presently have no major indicators of imminent financial unsustainability, though we do note some issues of concern in this report.

We make a number of recommendations in this report. Because the Ventura County EMS system has such a solid fundamental structure and is functioning well, these recommendations should be seen as “next level” recommendations designed to help the EMS system prosper even more in the coming decade. Our recommendations should most definitely not be seen as implying any criticisms of the existing excellent system.

A sequential summary of all recommendations is contained in the final section of this report. However, the major recommendations are:

- Negotiate new contracts with the existing, grandfathered providers instead of undertaking a competitive procurement process;
- Implement a BLS response and transport tier;
- Expand the existing response time-based penalty system to include evidence-based clinical performance standards and safety;
- Establish a single EOA for Critical Care Transports;
- Implement Critical Care Paramedics;
- Apply response time penalty reduction provisions to EOA 4 in its entirety instead of its sub-zones;
- Eliminate the Level I/Level II paramedic policy
- Eliminate non-emergency rate regulation



Summary of Major Recommendations

A complete list of the recommendations contained in this report is included in the final section of this document. However, the following is a summary of the major recommendations that are made in this report. Please note that these are not the only options, but the ones chosen for presentation in this report are based on stakeholder input, the present EMS system design, and analysis of pertinent documents. Below we summarize major recommendations that are discussed in the report and provide page references to where the complete discussions can be found. Again, the complete list of recommendations can be found on pp. 100-102.

1. Contracting Options for Next Cycle – we recommend that VCEMSA negotiate renewed contracts with the existing providers who are eligible for “grandfathering.” This recommendation is based on several conclusions. First and foremost, the incumbent providers are substantially meeting existing performance expectations and no stakeholders interviewed recommended abandoning the grandfathered providers in favor of a competitive procurement process. Another significant factor is that the California EMS system on a statewide basis is presently in a state of significant upheaval and uncertainty, and recent competitive procurements undertaken by other local EMS agencies have incurred significant opposition and unexpected added expense due to this unsettled environment. In addition, in an EMS system that is functioning well, as Ventura’s is, the time and cost of a competitive process will not result in a better system than what VCEMSA can achieve by negotiating new contracts with the existing providers. Finally, once an EOA in California is competitively bid, it is likely that grandfathered eligibility is thereafter lost and cannot ever be restored in the future, and this assessment revealed no compelling reasons to forever abandon the grandfathered status that the Ventura County EMS system enjoys.

See
pp. 100-
102

2. Elimination of Level I/Level II Paramedic Policy – we recommend eliminating the VCEMSA Level I/Level II paramedic policy and instead adopting a more conventional, employer-based preceptorship system for ensuring necessary and desired levels of paramedic experience among practitioners. A combination of factors make this requirement duplicative, costly and burdensome. The existing, robust QA/QI program, coupled with stakeholder reports of frequent exceptions being granted under the existing policy, as well as cost and delay in bringing personnel into the system, suggest that the elimination of this policy is appropriate.

See
pp. 20-
21

3. Apply the Penalty Reduction Provisions to EOA 4 as a Whole Instead of its Sub-Zones – we recommend the elimination of the individual sub-zone response time compliance standards within EOA 4 that the percentage reduction in penalties for achieving response time compliance at 92.5% and

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pp. 53-
54



higher be applied to EOA 4 in its entirety instead of to each of its subzones separately. No other EOA in the County is divided into sub-zones, and considering that the purpose of an EOA is to award an exclusive contract for a populated area in exchange for a requirement to serve less-populated areas, the separate calculation of response time compliance for sub-zones that are more and less profitable for an EOA provider to service is anomalous. We recommend that the incentive for achieving a response time compliance rate of 92.5% or higher be earned only if it is achieved for the EOA as a whole as is the case with other EOAs in the County.

4. Implement a BLS Response and Transport Tier - we recommend that VCEMSA implement a BLS emergency response tier for its ambulance transport contractors. Because Ventura County currently benefits from centralized, priority-based emergency medical dispatch (EMD) via the Ventura County Fire Communications Center (FCC), it has the capability to safely and effectively distinguish between 911 calls which require ALS transport capabilities and those that can be appropriately handled by a BLS ambulance. All-ALS deployment is costly, can lead to paramedic fatigue and “burnout,” and can result in dissatisfaction among EMTs whose skills are often underutilized. If it implements this recommendation, VCEMSA may wish to provide additional training for EMTs, monitor BLS-only calls through its QA/QI program, and implement other steps to evaluate the safety and efficacy of a BLS tier.

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pp. 56-
58

5. Supplement the Response Time Penalty System to Include Penalties for Failing to Satisfy Clinical Metrics- we recommend that VCEMSA supplement its ambulance contractor penalty system to include the implementation of penalty provisions based on clinical performance metrics that have a proven impact on patient care. There are a number of clinical metrics, such as those presently incorporated into VCEMSA’s QI Plan, which would serve as appropriate disincentives for poor performance in areas which are shown to directly impact patient care. Research and published literature demonstrates that ambulance response times do not make a difference in patient outcomes for the vast majority of cases, yet deployment to meet these standards is the single biggest cost driver for the ambulance transport component of an EMS system. To the extent VCEMSA requires provider fees to sustain certain aspects of LEMSA operations, we recommend that consideration be given to having the assessments be in the form of cost-based annual assessments for costs directly related to system oversight, contract administration and/or that directly benefit the contracted providers, and that these payments be in the form of pre-established and predictable assessments so as to eliminate any financial incentive for VCEMSA to impose penalties upon its contracted providers.

See
pp. 87-
88



6. **Consider Establishing a Single EOA for Critical Care Transports** – because CCTs represent a low-volume, high-cost level of service, their ongoing economic sustainability is a concern. This is particularly true because none of the providers which furnish CCTs in Ventura County are under any contractual obligation to maintain or continue to operate those programs indefinitely and are free to discontinue those vital programs essentially at any time. Granting an EOA for CCTs to a single provider would ensure greater volume against which to offset the expense of CCT operations, which helps to maintain economic viability of a CCT program on an ongoing basis. For this reason, we recommend that this option be considered.

See
pp. 90-
91

7. **Implement Critical Care Paramedics for CCTs** – in addition to, or as an alternative to, the recommendation to consider CCT exclusivity, we recommend that VCEMSA consider implementing Critical Care Paramedics (CCPs) as a minimum level of staffing for CCTs. There is no data specific to the critical care transport environment demonstrating better patient outcomes with nurse-level CCTs, and CCPs are now recognized by the State of California for staffing CCTs. In addition, the use of CCPs does not in any way preclude the use of additional advanced practitioners, such as nurses, physicians, respiratory therapists or other providers, during CCTs when the patient condition requires it. Importantly, the use of CCPs would significantly improve the potential for economic sustainability of CCT programs into the future.

See
pp. 92-
93

8. **Eliminate Non-Emergency Rate Regulation** – because the EOAs in the County are limited to emergency ambulance services, it is appropriate that the County's rate-setting policy address those exclusive services. However, because the non-emergency market is open and competitive, we do not see a rationale for including non-emergency rates in the County's rate regulation policy. In order for a competitive market to truly function in a competitive manner, those rates should be the result of negotiations between the providers and consumers of those services.

See
pp. 30-
31



Introduction

On January 18, 2019, the County of Ventura (County) on behalf of the Ventura County Emergency Medical Services Agency (VCEMSA or the “EMS Agency”) entered into a contract with Page, Wolfberg & Wirth, LLC (PWW), a national EMS industry law and consulting firm, to assess the County’s EMS System. Pursuant to this engagement PWW is to conduct the analysis by facilitating focus group discussions, interviewing stakeholders and reviewing data and documentation provided by the County and EMS System stakeholders. When appropriate, PWW is to also compare national, state, and regional benchmarks, as well as best practices, to the County’s core EMS System elements.

PWW is required to assess, at a minimum, the following and its subcomponents:

- County Demographics
- System Financials
- EMS System Deployment
- EMS System Communications (Emergency and Non-Emergency)
- Response Times
- Critical Care Transports
- Non-Emergency Transports

PWW was also requested to provide its recommendations on whether the EMS Agency should pursue new contracts with its existing Exclusive Operating Area (EOA) providers pursuant to the “grandfather” provisions of the state EMS law or whether the County should undertake a competitive process for the award of new contracts for the EOAs.

Although PWW has not been engaged to conduct a focused review of the County’s STEMI, Stroke, Trauma, Cardiac Arrest Registry to Enhance Survival (CARES) for the Sudden Cardiac Arrest, and Cardiac Arrest Management (CAM) Specialty Care Programs, it is to address these programs in the context of the County’s EMS System.

PWW is to provide an on-site presentation to the Board of Supervisors of its SWOT analysis and recommendations for EMS System enhancements.



Methodology

The methodology for this project included the following:

- On-site focus group meetings;
- Remote focus group meetings (via phone/video);
- On-site individual stakeholder interviews;
- Remote stakeholder meetings (via phone/video);
- Review of data and documentation submitted by EMS System stakeholders;
- Review of data and documentation submitted by VCEMSA; and
- Research of comparative data and documentation from external sources

A list of the documents and information initially requested from the County and EMS System stakeholders is attached as Appendix A.

Document and data collection and review by PWW was initiated on March 28, 2019 and continued as new data and documents were received. Documents were collected from VCESMA, the providers assigned an exclusive operating area (EOA) in the County (EOA providers) and fire departments that provide first response services. The documents were collected via a secure file transfer site. Additional data was provided to PWW on the County's behalf through its EMS data analytics vendor, FirstWatch.

PWW accessed data from sources such as United States Census Bureau reports and QuickFacts, other Internet resources, the 2017 Annual Report of the Ventura County Public Health Emergency Medical Services Agency, the 2016-17 Annual Report of the County of Ventura Human Services Agency, and other public data sources to gather current and projected demographic data regarding the County and its population.

On March 8, 2019, PWW provided an on-site presentation to EMS System stakeholders to explain how it intended to conduct the EMS System assessment and to obtain input from this focus group. That was immediately followed by one-on-one interviews of EMS System stakeholders by three PWW staff members separately conducting interviews in 30-minute increments throughout the day. Stakeholder representatives who signed up to be interviewed, but were not available on March 8, were later interviewed by telephone or video conference.

On April 3, 2019, PWW conducted an additional stakeholder focus group meeting with members of the Ventura County EMS Advisory Committee via video conference.

A summary of selected stakeholder comments is included in Appendix B.

Additionally, we conducted extensive literature searches and research regarding comparative data sources. Footnotes to source material are included in the text of this report and a Project Bibliography is included in Appendix C.



Limitations and Disclaimers

Our firm was engaged in a consulting capacity, not in a legal capacity. Accordingly, it is beyond the scope of this engagement for us to provide a legal analysis of issues presented.

Methodologies employed to conduct this review (i.e., stakeholder meetings and review of certain available data) have inherent limitations. Stakeholder input, while important to any EMS system assessment, naturally tends to reflect built-in biases and political considerations of the stakeholders. In addition, any assumptions or options presented based on available data will inevitably depend upon the accuracy, completeness and suitability of the data provided.

This report is provided with the expectation that it will become a public record.



County Demographics¹

Background and Discussion

The County has a total area of 2208 square miles, which includes 43 miles of coastline, two offshore islands, two military installations, several lakes, and a large area of national forest and state park land.² Approximately 53% of this area is occupied by the Los Padres National Forest and other national forest land.³ 365 square miles are water area, 1,843 square miles are land, area and 675 miles are rural land area.

Estimated population of Ventura County is 850,967 people. Population in the County grew approximately 3.3% between April 1, 2010 and July 1, 2018, which is less than the 6.2% rate of growth in California generally over that time period. Most of the population resides in the County's cities. The city population centers of the County, which together comprise approximately 87.8% of the County's population, are found in Table 1 below.

Table 1: Ventura County City Populations

City	Population Estimates ⁴
City of Oxnard	209,879
City of Thousand Oaks	129,557
City of Simi Valley	127,716
City of San Buenaventura	108,170
City of Camarillo	69,880
City of Moorpark	37,020
City of Santa Paula	30,779
City of Port Hueneme	23,526
City of Filmore	15,925
City of Ojai	7,769

¹ Unless otherwise indicated, the data under this topic is taken from the U.S. Census Bureau tables as of July 1, 2018.

² Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report.

³ Wikipedia.

⁴ These population estimates are based upon worksheets prepared by the Demographic Research Unit of the California Department of Finance. They are population estimates as of January 1, 2019 released by the California Department of Finance on May 1, 2019. The Department's population estimate for the County as of January 1, 2019 is 856,598.



Persons under 18 years of age comprised 23.2% of the population, which is slightly above the statewide 22.9%. Persons over 65 years of age comprised 15% of the population, which is a higher percentage than the statewide 13.9%. Approximately 50.5% of the population was female. The statewide figure is 50.3%. The white population of the County was 84.3 % which was considerably higher than the 72.4% statewide. Of these percentages, in the County 45.2% were not Hispanic or Latino, and in California the percent was 37.2%. The next highest percentage by race was Asian, which was approximately 7.8% in the County compared to 15.2% statewide.

With respect to housing and family living arrangements, 63.2% of the County's population lived in owner-occupied housing compared to 54.5% statewide. Persons per household were 3.09 in the County and 2.96 statewide.

Between 2013 and 2017, the median household income in the County was approximately \$81,972. That was 12.2% above the state median. It is estimated that 9.5% of the County's residents had incomes below the Federal Poverty Level (FPL), while the statewide figure was 13.3%. For persons 25 years of age, 84% of County residents had at least a high school education, compared to 82.5% statewide, and in both Ventura County and statewide, 32.6% of the population had a bachelor's or higher degree. For persons over 16 years of age 65.6% were in the civilian labor force compared to 63.0% statewide.

Major employers in the County are Amgen, Inc., Baxter Healthcare, City of Simi Valley, Community Memorial Health System, Dole Berry Company, Haas Automation, Inc., Harbor Freight Tools USA, Inc., Kaiser Permanente Ventura, Los Robles Hospital & Medical Center, Moorpark College, Muranaka Farm, Inc., Nancy Reagan Breast Center, National Guard, Naval Base Ventura County, Ojai Valley Inn & Spa, Oxnard College, Pentair Aquatic Systems, Ventura Sheriff's Department, Simi Valley Hospital, St. John's Regional Medical Center, Sullstar Technologies, Ventura County Medical Center, and Ventura County Office of Education, among others.⁵

In ascertaining which counties might be similar to Ventura County for purposes of comparative analysis, it is readily apparent that Ventura County is rather unique and that direct comparisons are difficult. Santa Barbara, Los Angeles, and Kern Counties are geographically adjacent to Ventura County. Counties with populations comparable to that of Ventura County within a range of +/- 20% include Kern, San Francisco, San Mateo, Fresno and San Joaquin Counties. Counties with population densities (i.e., persons per square mile) comparable to that of Ventura County within a range of +/- 20% include Solano, San Joaquin and Marin Counties. Counties with land areas comparable to that of Ventura County within a range of +/- 20% include Madera, Merced, El Dorado, Butte,

⁵ State of California Employment Development Department, extracted from the America's Labor Market Information System (ALMIS) Employer Database, 2019 1st Edition.



Sonoma and Stanislaus Counties.⁶ Unfortunately, there is no county in California comparable to Ventura County within a +/- 20% range across all three of these metrics (population, population density and land area).

Because of the lack of directly comparable counties in California across all three of these comparability metrics, this report will, as appropriate, utilize data and findings from different counties for different purposes. We will throughout this report clearly state the counties and the data sources utilized where such comparisons are made.

For purposes of EMS system sustainability, the key demographic trends of note in Ventura County are those pertaining to income and socioeconomic status. Because Ventura County has a significantly higher median household income and a lower percentage of individuals living below the poverty line as compared to California statewide, healthcare providers in the County, including EMS providers, should enjoy a higher revenue-per-transport and fewer uncollectable accounts as compared to providers in many other counties in California. While this does not assure EMS system financial sustainability throughout future EOA contracting cycles, it is worth noting that the Ventura County EMS System does not have the same built-in disadvantages as confront more economically depressed areas of the state.

⁶ A couple of stakeholders asked why we did not use Contra Costa for comparison purposes. We did not do so because it is not a county that satisfied the +/- 20% ranges of Ventura County's population, land area or population density we felt were most appropriate to choose other counties for comparison purposes. Our purpose was not to make direct comparisons of other EMS system configurations or models, which presumably was the point of those stakeholder inquiries.



SWOT Analysis – County Demographics

Strengths

- Median income above CA average
- Percentage of persons in poverty is below CA average
- VCEMSA staff run a responsive and thorough program which receives high marks from stakeholders despite a staffing level lower than most other LEMSAs on a per population basis

Weaknesses

- Population growth rate below CA average

Opportunities

- Higher % of 65+ population than statewide average
- Slightly higher % of population in civilian labor force than CA average

Threats

- Higher % of population without health insurance than CA average



Local EMS Agency/System Overview

VCEMSA Organization and Staffing

VCEMSA⁷ is the lead agency for the Ventura County EMS System. Its responsibilities include:

- Coordinating all system participants in its jurisdiction, encompassing both the public and private sectors.
- Monitoring and evaluating the quality of advanced life support (ALS) and basic life support (BLS) emergency medical care provided to the residents of and visitors of the County through a comprehensive quality improvement program
- Providing EMS system guidance and direction through policy development
- Ensuring medical disaster preparedness
- Ensuring prehospital personnel excellence through training, certification, accreditation and continuing education program review

VCEMSA is a Division of the Ventura County Department of Health and is staffed with eight (8) full time personnel, a half-time medical director and an assistant medical director. Other positions include an EMS Administrator, a Deputy Administrator, a Senior Specialty Care Systems Coordinator, an EMS Program Coordinator, an Administrative Assistant, and EMS Certification Specialist and two (2) Program Administrators, Administrative Assistants and one (1) EMS Certification Specialist.

When compared to other Local EMS Agencies in selected counties in California, VCEMSA's level of staffing is lower than the statewide average of LEMSA staff-per-population served. VCEMSA has 1 LEMSA staff member for every 99,172 persons served. According to our research, the number of LEMSA staff (including contracted medical directors) is approximately 1 staff member per 77,735 persons served statewide, among all LEMSA types (i.e., single counties and multi-county JPAs). The ratio is 1:76,648 for single-county LEMSAs. The ratio is 1:81,359 for multi-county JPA-model LEMSAs. VCEMSA compares unfavorably in terms of LEMSA staffing when compared both to single-county and multi-county JPA model LEMSAs in California.⁸

⁷ The information provided under this heading was taken from the Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report.

⁸ This research is based on Local EMS Agency websites for single counties and multi-county JPA-model LEMSAs that report their staff information on a website (most commonly in a "staff directory"). Staffing numbers include LEMSA-contracted and/or employed medical directors. Some LEMSA staffing figures may also include Emergency Preparedness Office (EPO) staff. However, it is our understanding that most LEMSA EPO staffing is in a separate government unit.



Quality Assurance/Quality Improvement Structure

State Structure

The California EMS Authority (EMSA) has developed a statewide EMS Quality Improvement Program.⁹ The EMS QI Program means the methods of evaluation of prehospital EMS that are composed of structure, process, and outcome evaluations which focus on improvement efforts to identify root causes of problems in prehospital EMS, intervene to reduce or eliminate those causes, and take steps to correct the process and recognize excellence in performance and delivery of prehospital EMS.¹⁰

There are four primary levels of EMS prehospital QI responsibility: the EMSA, local EMS agencies (LEMSAs), base hospitals and alternative base hospitals, and EMS service providers. The EMSA has developed statewide planning and implementation guidelines for EMS systems which address the following components:¹¹

- Manpower and training
- Communications
- Transportation
- Assessment of hospitals and critical care centers
- System organization and management
- Data collection and evaluation
- Public information and education
- Disaster response

VCEMSA Program Structure

Under the County's Prehospital Emergency Medical Care Quality Improvement Program (VCEMSA Policy 120, June 1, 2009) each hospital provider, ambulance provider and first response agency is to use the County's Continuous Quality Improvement (CQI) Plan with respect to the EMS part of their activities.¹² The VCEMSA QI Program covers LEMSA, hospital and EMS provider responsibilities. It requires prehospital care providers

⁹ EMSA's development and implementation of a statewide EMS Quality Improvement (QI) Program is required by 22 CCR § 100405. The prehospital EMS QI responsibilities of EMSA and other entities within the prehospital EMS QI structure are set forth at 22 CCR §§ 100400 -100405.

¹⁰ 22 CCR § 100400.

¹¹ EMSA #166. Emergency Medical Services System Quality Improvement Program Model Guidelines.

¹² County of Ventura Health Care Agency Emergency Medical Services (VCEMSA) Policy No. 120. Prehospital Emergency Medical Care Quality Improvement Program.



to establish in-house procedures which identify methods of improving the method of patient care provided.

VCEMSA monitors and evaluates the quality of advanced life support (ALS) and basic life support (BLS) emergency medical care provided to the residents of and visitors to the County by prehospital personnel, provider agencies, and hospitals.¹³ In this role, VCEMSA:

- Serves as the lead agency for the emergency medical services system in the county and coordinates all system participants in its jurisdiction, encompassing both public and private sectors;
- Provides system guidance and direction through provider and community driven policy development aimed at establishing and maintaining standards for care;
- Monitors patient care through a comprehensive quality improvement program;
- Ensures medical disaster preparedness through the emergency planning process and coordinates response to local disasters and incidents with multiple casualties; and
- Ensures prehospital personnel excellence through training, certification, accreditation and continuing education program review.¹⁴

The VCEMSA CQI Program uses patient care data from its stakeholders to evaluate system performance. Hospitals submit data through the Outcome Sciences Registry for the County's Stroke Program, Cardiac Arrest Registry to Enhance Survival (CARES) for its Sudden Cardiac Arrest Program, Trauma Registry data for its Trauma System, and uses American Heart Association (AHA) program and registry guidelines for both STEMI and stroke data. Dispatch data is collected through the County Fire Department TriTech Computer Aided Dispatch System and Medical Priority Dispatch System (MPDS). Data is collected from the pre-hospital EMS agencies and hospitals in order to follow a patient from a 911 call to activities done in the hospital.¹⁵

In 2018 VCEMSA continued a process of redefining its QI Plan by reorganizing the program's structure as it relates to how the program's core measure data is collected and disseminated to key stakeholders. The goal has been to ensure that the core measures are patient focused and that implementation of changes for improvement is timely and sustainable. EMSA tracks State Core Measures, primarily focused on trauma patient management, STEMI patient care, and stroke patient care, with additional indicators for

¹³ This information is provided by the Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report.

¹⁴ Id.

¹⁵ Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report.



pediatric respiratory assessment and red light and siren usage. In 2016 VCEMSA's compliance rate in satisfying those Core Measures was 80%, while in 2017 the compliance rate was 100%.¹⁶

Some products of VCEMSA's QI initiatives realized in 2017 and 2018 have been the addition and changing of policies, accompanied by the development of a training program for EMTs to administer Epinephrine by auto-injector, administer Naloxone intranasal, and perform finger stick blood glucose tests. These additional skills were added to an EMT's scope of practice in the second half of 2018 and the training of EMTs for the expanded scope of practice began. In addition, new policies and procedures were implemented to designate Thrombectomy Capable Acute Stroke Centers (TCASCs) and to identify patients with emergency large-vessel occlusion (ELVO) for transport to the closest TCASC. Also, paramedics are required to attend four airway lab stations over a two-year period along with one paramedic skills day annually. Included in the labs are education stations covering some low frequency, high risk procedures. VCEMSA has an electronic Patient Care Reporting System. Advanced airway, transcutaneous pacing, and intraosseous infusion are critical procedures monitored regularly by VCEMSA through this system.¹⁷

Provider Participation

Each of the EOA providers have a QI plan and program. They have a QI team and their CQI processes cover such matters as new employee orientation, new employee EMS training, new employee monitoring, chart review, continuing education, patient care record auditing, incident review, a performance improvement plan and performance recognition.¹⁸

The three EOA providers pay their appropriate share of fees to the County for the QI oversight, medical oversight, and contract administration costs incurred by VCEMSA relative to the operation and functioning of the emergency ground ambulance system in the County. Their collective fees for these VCEMSA services were \$423,076 in 2016, \$432,402 in 2017, and \$447,150 in 2018.¹⁹

Analysis

On paper, the VCEMSA QA/QI program appears to meet all applicable state standards. More importantly, stakeholders interviewed for this project indicate that the program works very well, and that EMS agency staff take a collaborative approach to the

¹⁶ Ventura County EMS Plan 2017 Quality Improvement Program Annual Update (August 2018).

¹⁷ Id.

¹⁸ AMR and Gold Coast Quality Improvement Plan 2019 and LifeLine Medical Transport Quality Improvement Committee Report 2018.

¹⁹ VCEMSA spreadsheet entitled VCEMSA Quality Assurance Fees 2016-2018.



QA/QI process. Many stakeholders reported that the substantial and ongoing involvement of hospital stakeholders in the EMS QA/QI process makes the program work very well. This continuous dialogue appears to have also paid dividends in helping EMS stakeholders address and mitigate other problems, such as patient offload time, EMS wait time for IFTs, and other similar issues involving the interface between EMS and hospitals.

VCEMSA meets regularly with its STEMI, Stroke, Trauma and Sudden Cardiac Arrest committees and EMS system stakeholders to review system performance, resolve issues identified through the QI process, and consider opportunities for EMS system improvement. The collection and evaluation of data, as well as stakeholder input, have resulted in the changing of policies and the implementation of new programs such as those we have already mentioned to expand the scope of practice of EMTs with additional training and education requirements. The QI process has also contributed to the establishment of other programs that deal with prehospital EMS concerns. such as the County's stress management, Stop the Bleed, Hands Only "Sidewalk CPR", and Public Access Defibrillator programs

Four of the five LEMSA's overseeing EMS systems with populations or territories within 20% of the Ventura County population or territory—Kern County, San Mateo County, San Francisco County and San Joaquin County—also satisfy the EMSA minimum standards and guidelines for a CQI program.²⁰ Like VCEMSA they have developed QI programs adhering to the EMSA statewide Quality Improvement Program and the EMSA QI regulations. They collect data that they evaluate for EMS system issues and opportunities and have committees contributing to their QI Program that work with their EMS system stakeholders. For example, the Kern County EMS System uses the following committees and meetings as part of its QI program: Emergency Medical Dispatch Committee, Trauma Evaluation Committee, ST Elevation Myocardial Infarction Committee, Stroke System of Care QI Committee, Pediatric Advisory Committee, Emergency Medical Care Advisory Board, and EMS System Collaborative Meeting.²¹

The Ventura County CQI Plan and Program are comparable to those in these four counties with populations or territories within 20% of the Ventura County population or territory. VCEMSA, through its CQI Plan and Program has demonstrated its commitment and enthusiasm to the task of continuous quality improvement of the Ventura County EMS System.

²⁰ The most recent EMS Plan or EMS Plan Update for each of these LEMSAs. Solano County may have also met the standards and guidelines, but that could not be ascertained by reviewing its most recent EMS Plan Update.

²¹ Kern County Emergency Medical Services Policy 1002.00. EMS Quality Improvement Program (EQIP).



Prehospital Education and Training

EMS personnel levels in California are emergency medical technician (EMT), advanced emergency medical technician (AEMT), paramedic (EMT-P), critical care paramedic (CCP), mobile intensive care nurse (MICN) and flight nurses. Basic EMT training²² must involve at least 170 hours of training, including at least 24 hours of clinical training and 146 hours of didactic and skill training. The training also requires at least 10 patient contacts. To become an EMT a person must have a high school diploma or GED certificate and be at least 18 years of age by the end of the training program. The scope of practice of an EMT is defined in VCEMSA Policy No. 300. Emergency Medical Technician Scope of Practice. However, the VCEMSA Medical Director has established policies and procedures, including additional training requirements, for local accreditation of an EMT to perform the following optional skills:

- Administration of epinephrine by prefilled syringe and/or drawing up the proper drug dose into a syringe for suspected anaphylaxis and/or severe asthma.
- Administration of Atropine and Pralidoxime Chloride, utilizing the DuoDote autoinjector following an exposure to a nerve-agent.²³

AEMT training²⁴ involves at least 160 hours of additional training, including at least 80 hours in didactic and skills training, 40 hour of clinical training, and 40 hours to be completed in a field internship. The training must also include a minimum of 15 patient contacts.

Paramedic training²⁵ involves at least 1,090 hours of training and at least 40 ALS patient contacts. Of the training, at least 450 must be didactic and skills training, 160 hours in hospital clinical training, and 480 hours in a field internship. There are level I and II paramedics. All ALS response units must be staffed by a level II paramedic. Additional ALS response unit staff must be a level I or II paramedic or an EMT satisfying VCEMSA Policy No. 306. EMT: Requirements To Staff an ALS Unit. CCP training must involve at least 202 hours of additional training, including 108 hours of training in didactic and skills and 94 hours in hospital clinical training. An individual must have at least three years-experience working as a paramedic before beginning CCP training.

²² EMT program training requirements are found at 22 CCR § 100074 and VCEMSA Policy No. 1100. Emergency Medical Technician Training Program Approval.

²³ VCEMSA Policy No. 303. EMT Optional Skills.

²⁴ AEMT program training requirements are found at 22 CCR § 100119.

²⁵ Paramedic program training requirements are found at 22 CCR § 100154 and VCEMSA Policy No. 1135. Paramedic Training Program Approval.



It is somewhat atypical for a county or local-level EMS oversight agency to have in place a policy implementing specific, experience-based paramedic levels. The more traditional approach is for an EMS oversight agency or system medical director to establish preceptorship requirements pertaining to minimal skill experience and proficiency (e.g., establishing a minimum required number of successful intubations, etc.) and then to permit the individual EMS company's medical director to oversee each paramedic's attainment of the required skills, resulting in a "sign off" for each qualifying paramedic. Stakeholders interviewed for this project had a variety of opinions on this topic. Some indicated that the EMS Agency's "Level I/Level II" policy works fairly well, and that VCEMSA has worked with provider agencies to grant exceptions when they have acute hiring needs, such as may be caused by unusual levels of employee turnover, to accommodate their needs. But some stakeholders also assert that the Level I/Level II policy is a costly and inefficient anachronism from a time when the "2 paramedic vs. 1 paramedic/1 EMT" debate was raging in California (and elsewhere) some 30+ years ago.

Stakeholders also note that the local EMS agency also has other safeguards in place that make moot the need for the Level I/Level II policy. For instance, the County's robust QI program is capable of determining if patient care is being jeopardized by inexperienced providers. In addition, EMS employers have a strong incentive to ensure that they do not deploy inexperienced providers, who can open them up to liability, customer dissatisfaction and other business consequences.

It is our recommendation that the County eliminate the Level I/ Level II paramedic policy in favor of an internal EMS company sign-off process involving the company's medical director in adherence to established County guidelines regarding skill acquisition and maintenance.

To obtain authorization by VCEMSA to serve as a MICN²⁶ in the County a registered nurse (RN) must have a minimum of 1040 hours of critical care experience as an RN, be employed in a County base hospital, and within the previous six calendar month period been assigned for 520 hours to clinical duties in an emergency department responsible for directing prehospital care, or had responsibility for management, coordination or training prehospital care personnel, or served as a staff member of VCEMSA. Additionally, the RN must have successfully completed a Mobile Intensive Care Nurses Development Course. The RN must all ride with a County paramedic unit for a minimum of eight hours and observe at least one emergency response patient contact or simulated drill and then pass a written examination approved by VCEMSA and serve an internship.

²⁶ MICN authorization requirements are found in VCEMSA Policy No. 321. [Mobile Intensive Care Nurse Authorization Criteria](#). VCEMSA Policy No. 323. [Mobile Intensive Care Nurse Authorization Challenge](#) provides a procedure for an RN who is currently authorized as an MICN in another California county or state to challenge for MICN authorization in the County.



To receive certification as an EMT or AEMT, or licensure as a paramedic, one must successfully complete applicable National Registry EMT tests. To receive certification as a CCP one must pass the certification exam of the Board for Critical Care Transport Paramedic Certification.

VCEMSA has primary responsibility for approving and monitoring the performance of emergency medical responder (EMR) training programs in the County.²⁷ EMT training programs in the County may be approved either by the California EMS Authority (CEMSA) or VCEMSA.²⁸ AEMT programs in the County are approved by VCEMSA.²⁹ Paramedic and CCP training programs may be approved by EMSA or VCEMSA.³⁰ Ventura College provides the only fully accredited paramedic training program in the County.³¹

All EMS personnel need to satisfy certain requirements for their on-going authorization or accreditation to provide prehospital care in the County.³² All EMS personnel must attend initial basic or advance mass casualty incident (MCI) training within six months of starting the certification or accreditation process and complete bi-annual refreshers. Also, all such personnel excluding EMTs, but including EMT-ALS Assist search and rescue (SAR) EMTs, must annually attend mandatory education on updates to local policies and procedures or complete a test on the updates.

Additional ongoing training requirements include grief training (MICNs are exempt), emergency response to terrorism training, and Advanced Cardiac Life Support (ACLS) (EMTs and SAR EMTs are exempt). Paramedics are required to take a paramedic skills refresher course during both the first and second year of licensure, paramedics and SAR flight nurses are required to take a field intubation refresher course per six-month period based upon their license cycle, and paramedics and MICNs are required to take a Pediatric Advanced Life Support (PALS) or Pediatric Education for Prehospital Providers (PEPP) course within six months of starting the accreditation process and then remain current. MICNs may, alternatively, take the Emergency Nurse Pediatric Course (ENPC).

VCEMSA also offers approvals for Public Safety First Aid and CPR, and Tactical Casualty Care training programs.³³

²⁷ VCEMSA Policy No. 1102. Emergency Medical Responder (EMR) Training Program Approval.

²⁸ 22 CCR § 100057.

²⁹ 22 CCR § 100101.

³⁰ 22 CCR § 100137.

³¹ www.vchca.org/education-and-training

³² VCEMSA Policy No. 334. Pre-Hospital Personnel Mandatory Training Requirements.

³³ VCEMSA Policy No. 1602. Public Safety-First Aid (PSFA) and CPR/Tactical Casualty Care Training Program Approval.



Future Considerations and Outlook of EMS Training and Education

The EMS Agenda 2050, published by the U.S. Department of Transportation, National Highway Traffic Safety Administration, is a people-centered vision for the future of EMS. The goal of the report was to explore and address what EMS could be by the year 2050. A primary component of that goal is for EMS professionals to receive the education and training to adequately prepare them to not only provide lifesaving and disease-treating care, but also to become an integral part of a public health and healthcare system that focuses on preventing injuries and illnesses as well as care that reduces physical, emotional and psychological suffering. In short, the vision is for EMS professionals to be educated, trained and permitted to play a much larger role in managing the health of patients in coordination with other health care professionals.

The EMS Agenda 2050 describes six guiding principles to pave the way for its vision. EMS systems must be:

- Inherently safe and effective
- Integrated and seamless
- Reliable and prepared
- Socially equitable
- Sustainable and efficient
- Adaptable and innovative

EMS professionals in the Ventura County EMS System are educated and trained to perform the traditional roles of EMS providers—respond to emergency and non-emergency calls, assess the patient to determine what type of care the patient requires, and provide the care to the patient until transported to the patient’s destination. The EMS Agenda 2050 stresses that education and training for EMS professionals needs to cover all aspects of clinician and patient safety with a focus on evidence-based methods of harm reduction. The vision for the future is that EMS professionals, particularly paramedics, also receive a comprehensive orientation to public health, social services, mental health and social determinants of health in a way that empowers them to provided integrated care.

To make the EMS agenda 2050 vision a reality, the Ventura County EMS System needs to, and to some extent already has, embraced the six guiding principles of the EMS Agenda 2050. The County has been out front in the California community paramedicine pilot program to train paramedics to serve the public, in coordination with other health professionals, in non-traditional EMS roles. This is a step in the right direction to have EMS professionals play a much larger role in managing the health of patients in Ventura County. As the EMS Agenda 2050 states in adopting a common saying, “The best way to predict the future is to create it.” To achieve by 2050 the people-centered vision of the EMS Agenda 2050, the Ventura County EMS System planners need to continue to be forward thinking to



adapt the system to serve the changing needs of its citizens, understand the potential of its EMS provider workforce to serve those changing needs, and have the system evolve to harness that potential to maximize the contribution of the EMS workforce to the health and wellbeing of the County's citizens.

SWOT Analysis – Local EMS Agency/System Issues

Strengths

- Stakeholders report general satisfaction with LEMSA
- Robust QI program involves an active collaborative process with all clinical stakeholders, including hospitals

Weaknesses

- LEMSA staffing level below CA average
- Stakeholders report stringent and inflexible staffing requirements
- Non-competitive EMS wages create EMS practitioner retention issue
- Level I/II paramedic policy reported as creating inefficiency and expense

Opportunities

- Continue movement toward patient-focused QI metrics
- Potential implementation of preceptorship model

Threats

- Need to keep pace in provider education and training to provide expanded range of integrated care services in future



System Financials

System Revenue

For FY 17-18, VCEMSA had an annual budget of \$3,894,819 derived from a mix of service fees, provider charges and penalties, traffic fine collections, and County general funds. It also administered the Maddy Fund, which is used to reimburse physicians and emergency rooms for a portion of uncompensated care with traffic fine funding. From the \$3,894,819, the Maddy Fund disbursements were \$1,505,231 in FY 17-18 to settle hospital and physician claims for uncompensated care.³⁴ For FY 16-17 the annual budget was \$3,588,795, with \$1,575,713 disbursed from the Maddy Fund³⁵ and for FY 15-16 the annual budget was \$3,534,742, with \$1,585,461 disbursed from the Maddy Fund.³⁶ For 2016, 2017 and 2018 response time penalty fees paid to VCEMSA were \$202,463, \$229,251 and \$221,027 respectively.³⁷

While relatively steady for the past three years, the response time penalties are not guaranteed. As for factors which influence ambulance fee-for-service revenue nationally, there is currently a 2% reduction in Medicare payments caused by the “sequestration” provision of the Budget Control Act of 2011. This is projected to continue indefinitely. Two percent may seem like a minor adjustment, however based on a combined 2018 revenue of approximately \$45,000,000 and 50% Medicare payor mix, the resulting loss is in excess of \$450,000 per year for the three ambulance service providers in Ventura County.

There are several issues that may affect the future of reimbursement and therefore have a financial impact on the EMS system in Ventura County, the State of California and the United States:

1. Payment for Treatment without Transport (“TNT”): Beginning with dates of service on or after September 1, 2018, Anthem Blue Cross began paying for ambulance service response and treatment of patients on-scene without the requirement of transport. This affected claims in California and 13 other states.³⁸ The payment for this is approximately \$380 per transport. It is unknown at this time whether the ambulance service suppliers in Ventura County are taking advantage of this payment policy and it is not known what

³⁴ FY 2017-18 budget information from VCEMSA.

³⁵ FY 2016-17 budget information from VCEMSA.

³⁶ FY 2015-16 budget information from VCEMSA.

³⁷ VCEMSA Response Time Penalties 2016-2018 spreadsheet.

³⁸ <https://providernews.anthem.com/california/article/update-regarding-hcpcs-code-a0998-ambulance-response-and-treatment-with-no-transport>



- percentage of the commercially insured population has Anthem coverage, but the potential impact of this is two-fold. First this may be a source of revenue to fund some of the claims in the “uncompensated care” bucket noted in the *Provider Financials* section below. Second, it may allow for treatment in place in lieu of unnecessary transports, which could result in the providers being back in service quicker after the initial patient encounter. Both of these could have a positive financial impact on the individual ambulance service providers.
2. The CMS ET3 payment model: Beginning in 2020, CMS will be selecting a limited number of ambulance service suppliers to participate in the Emergency Triage, Treatment, and Transport program.³⁹ If selected, participants would qualify for Medicare payment for patients treated on-scene (similar to the Anthem policy outlined above) as well as for transport to destinations other than a hospital. Application to enroll in this five-year pilot program is voluntary. The impact of this program on reimbursement is again similar to that of the Anthem program; specifically it would allow for payment for some types of transports or treatment that are not currently covered by insurance and it could allow EMS resources to be back in service more quickly after the patient encounter, either by treating on-scene and immediately getting back in service or transporting a patient to a clinic that is closer than the nearest hospital. There should be a positive financial impact on the ambulance service providers, however there will be a reduction in mileage-based charges, so the overall net financial impact may be difficult to calculate without a year’s worth of data to analyze. It is not known whether any of the three ambulance service providers in Ventura will apply or be chosen for this program.
 3. CMS Cost Data Collection Requirement- Beginning in 2020, CMS will require ambulance service suppliers to collect and report cost and revenue data.⁴⁰ The results of this process will determine whether ambulance service suppliers are being paid a sufficient amount under the Medicare fee schedule. If the study results show that Medicare payments are in excess of costs, then it is likely that the current 2% urban, 3% rural, and 22.6% super-rural ambulance add-on payments will end. However, if the study shows that the current Medicare rates are not sufficient to cover costs, then it is likely that these bonuses will be made permanent and potentially even increased. Prior studies by the Government Accounting Office have shown that Medicare payments are in fact lower than the cost of providing the care⁴¹, therefore the Cost Data Collection process should not result in a payment decrease. It should also be noted that CMS has the

³⁹ <https://innovation.cms.gov/initiatives/et3/>

⁴⁰ <https://www.cms.gov/Outreach-and-Education/Outreach/NPC/Downloads/2018-06-28-Ambulance-Services-Transcript.pdf>

⁴¹ <https://www.gao.gov/assets/650/649018.pdf>



authority to impose a 10% reduction on future payments for any ambulance service which does not “substantially” comply with the cost data reporting requirement. The impact of the Cost Study will not be felt until the final report comes out in 2022 and a determination is made regarding the rates for 2023. We note that the provider contracts set forth a Chart of Accounts (e.g., Exhibit D). After CMS issues its final ambulance cost data collection regulations (proposed regulations for ambulance cost data collection were issued on July 29, 2019), we recommend for future contracts that VCEMSA include language adopting the CMS ambulance cost methodology for this purpose.

4. Commercial Insurance Deductibles and Co-Pays: There is a trend toward higher deductibles and co-payments in commercial health insurance. According to a study by the Kaiser Family Foundation⁴² that compared data from 2013 to 2018, 58% of employees had a deductible of more than \$1,000 in 2018 compared to only 38% of employees in 2013. Similarly, deductibles of over \$2,000 rose from 15% in 2013 to 26% in 2018. These higher deductible plans create a larger self-pay balance which has a lower rate of collection per dollar when compared to other payors.
5. Repetitive Non-Emergency Prior Authorization Program: CMS on December 1, 2019 was scheduled to conclude a model payment program which is currently in effect in 8 states and the District of Columbia. CMS has indicated that this program could go nationwide. However, on September 16, 2019 CMS published its decision to extend the program through December 1, 2020 for just the 8 states and the District of Columbia where the program is currently in effect. Though CMS's futures plans for this model payment program are currently not known, it is possible that this program could go nationwide during the next contracting cycle for providers in Ventura County. In the states where repetitive prior authorization has been implemented, there has been a denial rate of approximately 1/3 of all scheduled, repetitive non-emergency transports. In addition, CMS beginning in October 2018 reduced by a total of 23% its reimbursement amount for BLS non-emergency transports for patients going to and coming from dialysis visits. While these policies do not directly affect reimbursement for ALS-level and emergency 911 calls, many ambulance providers in effect “subsidize” their costs of readiness for the provision of emergency ambulance services with the revenues generated by non-emergency ambulance transports, including dialysis and other repetitive non-emergency transports. These factors have the potential to create additional financial pressures for providers in Ventura County and nationwide.

⁴² <http://files.kff.org/attachment/Summary-of-Findings-Employer-Health-Benefits-2018>



The extent to which these factors may influence future payment should be monitored, however none are expected to have an impact that would require major system change.

Payor Mix

For the provider of EOAs 2, 3, 4, 5 and 7, over the five-year period 2014-2018, Medicare was the predominant payor of ambulance service claims, accounting in each year for slightly more than 50% of the paid claims. In 2018 the figure was 53.1%, which is the largest percent of paid claims attributable to Medicare over the five-year period. The combination of Medicare and Medi-Cal paid claims over that period ranged from 65% in 2014 to 71.9% of paid claims in 2017. In 2018 the percentage was 71.2%.

Commercial and Self-Pay were the next highest categories of paid claims over the five-year period, with the two switching positions in rank. In 2014, combined, they accounted for 29.6% of paid claims, the highest percent of paid claims attributable to these two payor classifications over the five-year period, while in 2018 they accounted for 24.8% of paid claims, the lowest percent of paid claims over the five-year period. During this period the percent of paid claims attributable to commercial payors dropped from 13.9% to 13.0%. The decline in paid claims attributable to Self-Payers was more pronounced. In 2014 it was 15.7%; in 2018, 11.8%. That was actually a higher percentage than in 2017, which was only 10.9%. The remaining sources of paid claims were attributable to Facility Contracts, Contracted Insurance and HMOs, Capitated and VA, which collectively made up 5.4% of paid claims at their highest in 2014.

In terms of dollars, between 2014 and 2018 the percentage of reimbursement attributable to Medicare and Medi-Cal rose from approximated 65% to 70% and between 2014 and 2018 the percentage of reimbursement from Commercial and Self-Pay payors dropped from around 30% to 25%.



Table 2: Ventura County Ambulance Provider Payor Mix, 2018*
Percentage of Transports
 [*Provider-Supplied Data]

Payor	AMR	Gold Coast	LifeLine (9-1-1)
Medicare	53.1%	44.2%	54.8%
Medi-Cal	18.1%	25.8%	21.7%
Commercial/Contract	17.0%	19.2%	18.6%
Self-Pay	11.8%	10.8%	4.9%

Table 3: Comparative Ambulance Payor Mixes for Selected California Counties

Payor	Monterey⁴³	Alameda⁴⁴	Stanislaus⁴⁵
Medicare	39.43%	33%	41.6%
Medi-Cal	27.99%	34%	34.5%
Commercial	17.78%	16%	14.6%
Self-Pay	14.31%	17%	9.4%

As can be seen from the tables above, Ventura County’s payor mix is generally more favorable than that of the selected counties, as it represents a lower proportion of Medi-Cal recipients and of self-pay patients in the payor mix, and a higher percentage of commercially-insured patients, for whom reimbursement amounts are generally higher than those paid by government healthcare programs.

We note that the payor mix reported by the ambulance providers serving Ventura County also compares favorably to that reported in 2018 by the California Health Care Foundation. The ED payor mix for hospitals in the Central Coast of California (which includes Ventura County in this study) is reported as 23% Medicare, 42% Medi-Cal, 25% private insurance, and 6% self-pay.⁴⁶

⁴³ Monterey County RFP published 1/10/19

⁴⁴ RFP # EMS-900616 for bid on 1/6/2017

⁴⁵ RFP#MVEMS-2018-12 (2017 data)

⁴⁶ California Health Care Foundation, California Emergency Departments: Use Grows as Coverage Expands, August 2018. These payor mix data are reported from 2016. We also note that these payor mix data are



Rates/Billing

Pursuant to Ventura County Ordinance Code Section 2423-3, ambulance rates are approved by the County Board of Supervisors and are established based upon the cost to the ambulance operators to provide emergency ambulance service to the citizens of Ventura County. The rates listed are revised annually as needed and are the maximum rates that may be charged in the County by all ambulance companies. The maximum rates that may be charged effective July 1, 2019 are as follows:⁴⁷

Table 4: Current VCEMSA-Approved Ambulance Rates		
Level of Service	Charge	Definition
Non-Emergency Base Rate	\$940.50	Transport from site of illness or injury to hospital or from hospital to home or other facility resulting from a non-emergency request
ALS Base Rate	\$1,795.00	Transport from site of illness or injury to hospital as the result of an emergency request or for provision of ALS level services during the request for service
SCT Nurse Hourly Rate (two- hour minimum)	\$277.00	Rate per hour for providing a specially trained nurse to accompany a critically injured or ill patient during transport by a ground ambulance vehicle, which includes the provision of medically necessary supplies and services, at a level of service beyond the scope of the EMT-Paramedic
Mileage	\$37.25	Rate per mile from point of pickup to hospital. This charge is prorated among the patients if more than one (1) patient is transported
Oxygen Administration	\$117.50	Charge made to patient for administration of oxygen and related adjuncts

No charge is permitted for a dispatch that is cancelled or that results in no provision of prehospital care.⁴⁸ We note that VCEMSA policy establishes rates for non-emergency transports. Because the EOA contracts establish exclusivity for emergency ambulance service only, non-emergency services are provided to facilities, patients and consumers on a competitive basis within the County. For that reason, including scheduled rates for competitive services as a condition of exclusivity for the EOA contracts is atypical and

based on number of visits, compared with payor as a percentage of revenue as reported by the ambulance providers in Ventura County.

⁴⁷ VCEMSA Policy No. 112. [Ambulance Rates](#).

⁴⁸ This policy should be revisited in the event that a contractor is selected for participation in the CMS ET3 program or similar initiative for low-acuity patients.



appears to us to be inconsistent with having an open market for non-emergency transports. We recommend that VCEMSA consider eliminating non-emergency rates from its maximum rate schedule policy so that the non-emergency market can function in the competitive manner it was intended.

AMR and Gold Coast have a Compassionate Care Program (CCP).⁴⁹ They provide reduced cost ambulance services to patients who are uninsured or underinsured, and able to provide documentation of hardship. Accounts that have not been referred to an outside collection agency and are no older than one year from the date of transport at the time the patient or responsible person requests participation in the CCP will be considered for reduced costs. If the account is older than one year it may also be considered for participation in the CCP if requested by the operations site or management. Otherwise, accounts that are overdue after repeated requests for payment are referred to a collection agency to resolve the outstanding balance.

AMR and Gold Coast will provide a CCP application to an applicant if the applicant's household income for the previous year (or current income) less medical expenses is equal to or less than 125% of the federal poverty level, unless the county in which the transport took place otherwise defined hardship levels, provided the defined levels are no lower than the federal poverty level. This determination will be made based on the applicant's most recent tax return or other documentation. In the discretion of the AMR patient advocate, approval for reduced payment can be valid for six months.

The documentation required to establish financial hardship depends upon the status of the applicant as follows: employed, unemployed or retired, self-employed, student with no proof of income, non-US resident, Medicaid active, or applicant with a hospital charity approval letter. A sliding scale is used to determine the waiver percentage based upon various factors. Waivers of applicant cost may be partial or full.

LifeLine also has a hardship request policy. Requests for accommodation for financial hardship are initially received by LifeLine's contracted billing company. The billing company requests that the patient submit a written appeal, along with documentation of financial status. After it receives the requested documentation, the billing company is authorized to offer a payment plan option, but is not permitted to write off the balance. If the applicant requests something other than a payment plan, the applicant is directed to contact LifeLine directly for additional options. If the applicant contacts LifeLine, the request is considered on an individual basis by administrative staff for partial or complete write-off, or for other options that might be available for resolution.

⁴⁹ Based upon the documentation provided by Gold Coast it appears that the CCP for both organizations is administered by AMR.



As seen in the tables below, Ventura County ambulance rates are significantly lower than some other counties. However, the Medicare and Medicaid fee schedules and “usual and customary” rate limits applied by most payors may not allow full payment of these rates, relegating balances to be written-off or shifted to private pay status.

Table 5: Comparative Ambulance Rate Schedules for Selected California Counties			
Level of Service	Monterey⁵⁰	Alameda⁵¹	Stanislaus⁵²
Non-Emergency Base Rate	\$2,327.84	\$2,001.03	\$2,584.21 (ALS) \$1,445.65 (BLS)
Emergency Base Rate	\$2,327.84	\$2,001.03	\$2,811.61 (ALS) \$1,927.00 (BLS)
SCT Base Rate	\$3,682.03	Not Listed	\$4,816.59
Mileage	\$50.21	\$47.54	Not Listed
Oxygen Administration	\$150.08	\$157.40	Not Listed

Finally, we noted some potentially aberrant patterns within some of the service mix data submitted by some of the providers. Service mix refers to the specific types and levels of service billed to payors for ambulance services provided, stratified by HCPCS code. In particular, we noted a particularly high percentage of billed ALS-level claims compared to BLS-level claims when compared to the ratio of ALS to BLS claims based upon Medicare national claims data. According to Medicare’s most recent national claims data, this ratio is approximately 63% ALS-to-37% BLS for emergency responses nationwide.⁵³

Although contractors are mandated to respond at the ALS level on all emergency calls, this does not mean that all claims are eligible to be billed at the ALS level. For example, numerous calls are dispatched at the BLS level, and those are not eligible for application of the CMS “paramedic assessment” rule. Although a specific billing and coding audit of provider claims was beyond the scope of this review, we recommend that future ambulance provider contracts include a requirement for an annual billing/coding audit, at each contractor’s expense, of a random sample of claims by a qualified outside claim auditing firm selected by VCEMSA. We also recommend a requirement that each contractor have a compliance program adhering to the OIG’s Compliance Program Guidance for Ambulance Suppliers, as well as a requirement that contractors have personnel certified in ambulance coding on their billing, coding and/or revenue cycle staff.

⁵⁰ Source: Monterey County RFP published 1/10/19

⁵¹ Source: RFP # EMS-900616 for bid on 1/6/2017

⁵² Source RFP#MVEMS-2018-12 (2017 data average of 5 providers)

⁵³ Medicare Provider Utilization and Payment Data: Physician and Other Supplier, CY 2017, <https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/medicare-provider-charge-data/physician-and-other-supplier.html>



Provider Financials

Note that provider financials discussed in this section are based on self-reported information from the contracted providers. We were not engaged to, nor did we, perform independent audits of provider financial statements.

AMR

According to AMR financial statements, for calendar year 2016, its total operating expense for its operations in the County was \$25,717,210, and its revenue net of contractual provisions was \$26,438,864, leaving it with net income before taxes and interest of \$721,654. The four largest components of its operating expense were \$8,272,851 in uncompensated care, \$8,857,103 in salary expense, \$1,764,418 in benefits and payroll taxes, and \$1,124,523 in first responder fees. The net profit margin for 2016 was +2.8%

For calendar year 2017 its total operating expense and revenue net of contractual provisions was \$25,812,737 and \$26,440,527 respectively, leaving it net income before taxes and interest of \$627,790. The four largest components of its operating expenses were the same as for calendar year 2016, with increases in each of those expenses except for uncompensated care. The uncompensated care expense decreased significantly to \$7,121,985. The net profit margin for 2017 was +2.4%

For calendar year 2018 its records reflect that it had a net loss of income before taxes and interest of \$770,909 based upon revenue net of contractual provisions of \$26,009,715 and a total operating expense of \$26,780,624. Once again there was a reduction in the expense for uncompensated care, this time by approximately \$20,000. There was also an approximate \$50,000 increase in its benefit and payroll taxes expense. Over the three-year period the largest expense increase was the salary expense, which increased from \$8,857,103 in 2016 to \$10,057,022 in 2018. The 2018 net loss margin was -3%.

We note that AMR reports approximately \$2 million per year in “shared support services,” which presumably are fees paid by regional AMR affiliates to a centralized AMR entity for services which benefit the local operation.



Gold Coast⁵⁴

According to Gold Coast's financial statements, for calendar year 2016, its total operating expense for its operations in the County was \$10,734,932, and its revenue net of contractual provisions was \$11,111,175, leaving it net income before taxes and interest of \$376,244. The three largest components of its operating expenses were \$4,309,791 in uncompensated care, \$3,200,914 in salary expense, and \$476,285 in benefits and payroll taxes. Unlike AMR, it had no first responder fees expense. That is also the case for calendar years 2017 and 2018. The 2016 net profit margin was 3.4%.

For calendar year 2017 its total operating expense and revenue net of contractual provisions was \$10,446,298 and \$11,404,768 respectively, leaving it net income before taxes and interest of \$958,470. The uncompensated care and salary expense remained its two largest operating expenses, but its third largest expense became its management expense under direct shared support services, increasing from \$350,025 to \$529,806. As for AMR, it saw a significant reduction in its uncompensated care expense. It decreased from \$4,309,791 to \$3,669,136. The 2017 net profit margin was 8.4%.

For calendar year 2018 its records reflect that it again had a net income before taxes and interest, for this year, of \$1,315,010 based upon revenue net of contractual provisions of \$13,225,805 and a total operating expense of \$11,910,795. For this calendar year, however, its uncompensated care expense increased to \$4,696,180, and its benefits and payroll taxes expense again became one of its three largest operating expenses. The net profit margin for 2018 was 9.9%

We note that Gold Coast reports approximately \$1.1 million per year in "shared support services," which presumably are fees paid by regional AMR affiliates to a centralized AMR entity for services which benefit the local operation.

LifeLine

According to LifeLine's financial statements, for calendar year 2016 its total operating expense for its operations in the County was \$4,265,640, and its revenue from those operations was \$4,551,310, leaving it net operating income of \$285,670. With other income and expenses, its net income was \$262,595. Its largest operating expenses were associated with its payroll, which was broken down into different categories and collectively were well over \$2 million. The three largest sources of its revenues were BLS-NE (\$1,764,856), 911 emergency (\$800,304), its Kaiser contract (\$753,094) and ALS-NE (\$630,9443). AMR's and Gold Coast's financial statements did not specify the sources of its

⁵⁴ Gold Coast, while a corporation separate from AMR, is an affiliate of AMR and operates under AMR's management.



revenue. Unlike AMR, it had no first responder fees expense. The net profit margin for 2016 was 6.3%

For calendar year 2017 its total operating expense for its operations in the County was \$5,227,768, and its revenue from those operations was \$5,542,845, leaving it net operating income of \$315,078. With other income and expenses, its net income was \$315,203. Again, its largest operating expenses were associated with its payroll, which was broken down into different categories. Collectively, they were well over \$2 million and were a significant increase from that in 2016. The three largest sources of its revenues were non-911 (\$3,835,253), BLS-NE (\$443,025), and 911 emergency (\$934,835), The 2017 net profit margin was 5.7%.

For calendar year 2018, its total operating expense for its operations in the County was \$5,612,291, and its revenue from those operations was \$5,772,252, leaving it net operating income of \$159,961. With other income and expenses, its net income was \$223,894. Again, its largest operating expenses were associated with its payroll, which was broken down into different categories and collectively were well over \$2 million. The three largest sources of its revenues were 911 emergency (\$1,010,209), non-911 (\$4,293,358) and CCT RN (\$369,117). The 2018 net profit margin was 2.8%

Summary and Discussion – Provider Financials

The following table summarizes key aspects of the financial reports of the three contracted EOA providers in Ventura County. In this table, “Revenue” is total revenue net of contractual allowances as reported by each provider. “P/L” refers to net profit (or loss). “Net π” refers to the percentage profit margin as reported by each provider.

Table 6: Ventura County Providers - Financial Comparison, 2016-2018									
Data Based on Provider-Reported Financials									
Entity	AMR			GOLD COAST			LIFELINE		
	Year	Revenue	P/L	Net π	Revenue	P/L	Net π	Revenue	P/L
2016	26,438,864	721,654	2.8%	11,111,175	376,244	3.4%	4,551,310	285,670	6.3%
2017	26,440,527	627,790	2.4%	11,404,768	958,470	8.4%	5,542,845	315,078	5.7%
2018	26,009,715	-770,909	-3%	13,225,805	1,315,010	9.9%	5,772,252	159,961	2.8%

The trends in profit and loss margins between the three ambulance service providers are not consistent. While AMR and LifeLine have shown a consistent downward trend in margin, Gold Coast has shown annual growth over each of the last three years. The cause of this disparity is not readily apparent.



The reporting by any provider of a negative net profit (as was the case in 2018 by AMR⁵⁵) should be a cause for concern. Although there is generally minimum financial regulation by LEMSAs of their contracted EOA providers, a local EMS agency should ensure that it monitors the financial position of a contracted EOA provider for any signs of financial unsustainability that may arise. It appears that in 2018 AMR reported a revenue drop of \$431,000 compared with 2017, and an increase in operating costs of \$1.2 million, of which \$900,000 of the increase was attributed to salary expense.

The Reality of Ambulance Revenues. It is important to frame the issue that underlies every EMS system design: an EMS system can perform only to the level of the revenues that support it. An EMS system that places mobile emergency departments with an emergency physician and critical care nurse every 3 miles throughout a county would be publicly and politically desirable, but utterly unaffordable. On the other hand, a system with one BLS ambulance serving 100,000 people would be highly affordable, but completely undesirable from a public health and safety perspective.

Somewhere between those extreme examples lies the optimum EMS system configuration for each county. EMS system design is always an accommodation of necessity between the public's desire for the fastest EMS response and the highest level of care with the reality of the resources available to support that system. The challenge in every EMS system is to find that balance, that equilibrium.

To Payers, EMS is a Transport Commodity. Though Medicare is undertaking the five-year ET3 model, as discussed above, and some commercial insurers are reimbursing for non-transport services, EMS is still, unfortunately, viewed primarily as a transport commodity by healthcare payers. Insurers pay for ambulance transports, not EMS systems. Thus, revenues are available only for calls that result in covered transports. Most payer criteria require that the transport meet medical necessity guidelines, that the patient be transported to a covered destination, that the patient receive covered services at the origin or destination, and other stringent criteria. Unfortunately, reimbursement is insignificant for cancelled calls, "treat no transport" responses, standbys, patient refusals of care, waiting time, extra crew members when needed, non-transport intercept services and other services. Patient transport is only part of what an EMS system does, but it comprises nearly all the revenue available to support all of the vital EMS system activities apart from patient transport.

Even when an EMS response does result in a patient transport, it is important to note that many payers are limiting, denying or retrospectively recouping reimbursement for transports that the payer believes fail to meet medical necessity and other payment criteria. It is vital to understand that while EMS systems must respond to all 911 calls, not

⁵⁵ We recognize that while AMR showed a 3% loss its affiliate, Gold Coast, showed a 9.9% profit.



every ambulance response to a 911 patient will result in reimbursement – even when the patient is transported. This is because Medicare, Medi-Cal, and commercial payers often refuse payment for transports where they unilaterally determine that the patient could have been safely transported by means other than an ambulance. The simple fact in most communities is that a number of patients who call 911 do not have true emergencies and do not genuinely require transport by ambulance from a clinical perspective. Yet, legal duties of care obligate EMS systems to respond to all 911 calls (within the mandated response times, of course) and transport the vast majority of these patients. So, even though EMS system reimbursement is available only for patient transports, there is a subset of patient transports that simply are not reimbursable.

Therefore, most direct revenue available to an EMS system is strictly transport-related, despite the fact that many responses – and even some transports – do not result in reimbursement. Many responses are not reimbursable, even though the cost of readiness for those responses is substantial. The federal government is the single largest payer for ambulance services, yet federal studies have demonstrated that ambulance transport revenues fall short of compensating most ambulance services for their transport costs. And again, reimbursement is generally not even available for the multitude of responses that do not result in patient transport. Put simply, a non-subsidized EMS system must survive only on the revenues generated by a subset of that EMS system’s responses.

Most EMS Reimbursement Falls Short of Costs. A study by the United States Government Accountability Office (GAO)⁵⁶ found that Medicare reimbursement results in an average Medicare margin of negative 6 percent for ambulance providers without shared costs.⁵⁷ Put another way, the rates paid by Medicare, which is the single largest payer in the payer mix for most ambulance services in the United States, falls short of covering costs by an average of 6%. Again, reimbursement from Medicare and most other payers is available only for calls which result in a medically necessary ambulance transport, not for responses which terminate without transport, or for transports deemed to be medically unnecessary. By extension, the costs for most responses that terminate without transport or that result in non-covered transports must therefore necessarily be shifted onto those patients who receive covered transports.

In California, the average losses from the transport reimbursement offered by governmental payers like Medicare and Medi-Cal are even more pronounced. One study

⁵⁶ Ambulance Providers: Costs and Expected Medicare Margins Vary Greatly. United States Government Accountability Office, Report GAO-07-383, May 2007.

⁵⁷ In the context of the GAO report, “providers without shared costs” meant those ambulance services that were not part of a hospital or a municipality. The GAO concluded that it was impractical to evaluate costs in EMS agencies that were operated as departments of larger entities like hospitals or cities. Accordingly, the GAO report focused on independent ambulance services whose revenues and costs could be allocated only among ambulance transport services and not other, unrelated products or services.



identified the average costs of a private sector ambulance transport to be \$589.⁵⁸ Medi-Cal pays an average of \$124 to \$135 per transport. Medicare pays about \$507 for an average ALS transport and comprises between 44-54% of the payor mix for EOA providers in Ventura County, as reported by those providers.

The Reality of “Zero-Subsidy” EMS Systems. The challenge of operating a high-performance EMS system is particularly acute in “zero subsidy” systems; that is, systems in which the ambulance transport provider is required to subsist entirely on the transport revenues collected from patients and third-party payers.⁵⁹ EMS agencies in California that wish to sustain one or more EOAs must recognize that an EMS system is challenged to sustain itself in the new healthcare environment when it must subsist solely on transport revenues and some of those revenues go to penalties or fees for the local EMS agency, and some go to subsidies or are reallocated to other components of the EMS system (i.e., first responder agencies). A recent white paper focused on EMS reimbursement in California pointedly concluded, “EMS systems in California may require subsidies, may have to significantly restructure their operations or will become insolvent.”⁶⁰ Although the overall payor mix and financial strength of the EOA providers in Ventura County appears to be sound, a negative margin reported in one of those years by one of those providers should be monitored closely by VCEMSA. A LEMSA must look forward and give serious consideration as to what measures need to be taken to prevent system insolvency from becoming a reality in its county.

It has been suggested that the implementation of the Affordable Care Act should be increasing provider revenues, as more individuals become insured. However, the white paper⁶¹ on EMS reimbursement in California stated the nature of this fallacy succinctly:

“The significant growth in the number of Medi-Cal insured, Medi-Cal’s exceptionally low reimbursement rate, and Medi-Cal’s prohibition against balance billing suggests that EMS system that have high proportions of Medi-Cal insured are not financially solvent now, or will not be financially solvent, if: (1) the proportion of high paying commercial insurance plans decreases; or (2) the average amount paid by commercial plans decreases; or, (3) populations transition from higher-paying commercial insurance to Medi-Cal. Conversely, in those EMS systems where the proportion of uninsured and private pay decreases, while the

⁵⁸ California Ambulance Association, California’s Ground Emergency Ambulance Transportation (GEMT) Certified Public Expenditure, July 17, 2013.

⁵⁹ We note that the provider for EOA 1, LifeLine Medical Transport, does receive an annual subsidy of \$48,000 as well as a per-call “helicopter dry run” fee in cases where ground EMS is dispatched but an air ambulance ultimately transports the patient, which is more likely in the more rural geography of EOA 1. For all intents and purposes, however, the Ventura County EMS System is primarily a “zero subsidy” system.

⁶⁰ Petrie, M., EMS Reimbursement in California: Discerning the Facts, April 2016.

⁶¹ Petrie, M., EMS Reimbursement in California: Discerning the Facts, April 2016.



proportion of Medi-Cal insured increases, and the proportion and reimbursement of other payer groups remain unchanged, average net revenue may increase.”

Meeting Operating Expenses is One Thing, Making Capital Investments is Another. Even when a contractor can cover operating expenses with its transport revenues, other needed investments in people and capital may lag. Part of every dollar earned ought to go to the replacement of vehicles, medical equipment and other capital expenditures, and part should ideally be invested in cash reserves to cover contingencies. As discussed in more detail below, these longer-term investments also need to be taken into account when designing an EMS system that requires the contractor to be self-sufficient in reliance on its transport revenues.

Two recent cases are particularly noteworthy:

- In Alameda County in 2015, the system was deemed to be unsustainable and the contractor was paid an outright cash subsidy of \$4 million during the term of the contract.
- In Santa Clara County in 2016, concessions given during the term of the contract such as elimination of franchise fees and dispatch fees, elimination of contractor negative subsidy requirements such as funding county software and equipment purchases, elimination of late penalties and other such modifications were estimated at a value of \$7 million in contractor subsidies.

Notably, the Santa Clara County Executive, in his memos to the Board of Supervisors regarding these contractual changes, wrote the following revealing passages:

“We continue to be concerned about the sustainability of the system and [the contract amendment] attempts to continue balancing costs and response times is a way that we believe still yields a high quality, cost effective product for everyone involved.”

“While there have been criticisms regarding [the contractor’s] original bid...we must focus on the current state of the EMS system and the need to take steps to assure the continuity of effective emergency medical services into the future.”

-Santa Clara County Executive⁶²

⁶² May 5, 2015 and February 9, 2016 memoranda from Jeffrey V. Smith, County Executive, to the Santa Clara County Board of Supervisors.



Investment in the EMS System. One theme raised by some of the stakeholders interviewed for this assessment centered on “investment in the EMS system” by the EOA providers. Stakeholders who raised this issue were primarily representatives of fire service organizations within the County. While above we discuss the lessons learned from EMS system failures, near-failures and bailouts in other California counties, which in some cases have, at least in part, been attributable to unsustainable financial burdens placed on contractors by local EMS agencies, there is another reality that merits discussion as well. That is, fire service stakeholders indicated that they hold a core expectation that Ventura County’s ambulance contractors make appropriate levels of investment in the local EMS system and that corners are not cut in terms of service in order to maximize profits for shareholders, owners or parent companies. Coupled with that expectation was communication of the fact that fire service organizations would reserve the right to seek to enter the EMS market and to displace contractors should the level of investment in the system by contractors be deemed insufficient by fire service leadership.⁶³

Of course, there is a fundamental difference between a public and private entity in terms of “profit,” and there must be a sufficient profit incentive for any private company when it offers any service or product to the public. But one reality that a local EMS agency must confront in this day and age in California is the evolving role of the fire service and the increasing involvement and influence that statewide fire organizations (representing both chiefs and unions) are having on local EMS systems. When all is said and done, both local and statewide fire service organizations are well within their rights as participants in the system to ask – and to expect – that investment in a local EMS system by ambulance contractors is sufficient to timely deliver the level and type of services deemed to be appropriate for that system.⁶⁴

During the stakeholder interviews the consulting team asked some of the fire service representatives to provide examples or specifics regarding contractors’ system investment they would deem to be sufficient. No stakeholders responded to the consultants’ request for more specific information in this regard.

It is therefore vital that VCEMSA – as part of any EMS system choices it makes for the future – continue to engage in facilitated discussions with all stakeholders to determine their degree of satisfaction with contractor investment in the system. We recommend

⁶³ We do not express a legal opinion on the right of any such entities to enter the EMS transport market.

⁶⁴ We note that even in public-sector EMS systems, resources are not limitless. Just as fire service representatives have justifiably indicated their concern regarding system investment by contracted providers, tax-supported public EMS agencies also face pressures from local taxpayers to deliver services as efficiently as possible and to avoid unnecessary local tax increases. Notably, some studies have looked quite critically at costly, outdated and often inefficient response models of fire departments that have become entrenched in many communities in California. Notable among these is the 2010-2011 Santa Clara County Civil Grand Jury Report, *Fighting Fire or Fighting Change? Rethinking Fire Department Response Protocol and Consolidation Opportunities*, http://www.scsccourt.org/court_divisions/civil/cgj/2011/FDResponse.pdf



continued, focused dialogue to address these concerns expressed by fire service stakeholders. Ultimately the “level of investment” is a determination that must be made on a continuous basis after balancing the realities of EMS system sustainability and investment as we have discussed.

Fines and Penalties

Response time requirements imposed upon the EOA providers are discussed later in this report. The County’s contracts with those providers provide for fines and penalties to be assessed against them for failing to satisfy those requirements.

Various monetary penalties may be imposed upon the EOA provider on a per-call basis. They include penalties for the following:

- Each minute or fraction thereof exceeding the response time standard.
- Each call over the response time. If an on-scene time is not documented, the call is considered to have exceeded the maximum response time.
- If a delay in response to a 9-1-1 call is due to non-availability of a unit in violation of VCEMSA Policy No. 605. Interfacility Transfer of Patients.⁶⁵

However, there are also contractual incentives for the EOA providers in the form of percentage decreases in total penalties that are or would be assessed against them based upon the above-referenced violations. If the EOA provider exceeds response time standards in a calendar month the monetary penalties will be reduced beginning with a 92.5% compliance rate (20% of the total penalty amount) up to 98 -100% (100% of the total penalty amount).

Between January 1, 2016 and December 31, 2018, AMR had an overall compliance rate of 93.32% in EOA 2, 92.09% in EOA 3, 90.43% in EOA 4, 92.37% in EOA 5, and 93.93% in EOA7, Gold Coast had an overall compliance rate of 94.58% in EOA 6, and LifeLine had an overall compliance rate of 96.07% in EOA1.⁶⁶

After receiving monthly percentage deductions for exceeding response time standards providers’ net fines are as follows:

⁶⁵ This policy requires that non-emergency transfers be transported in a manner which allows the provider to comply with response time requirements.

⁶⁶ First Watch data.



**Table 7: Ventura County Provider Response Time Compliance
and Penalties Paid
2016-2018**

Based on VCEMSA First Watch Data

Entity	AMR (All EOAs)		GOLD COAST		LIFELINE	
	Compliance	Fines	Compliance	Fines	Compliance	Fines
2016	91.92%	157,851	94.75%	39,159	96.18%	4,864
2017	91.84%	168,214	93.96%	48,898	94.99%	11,689
2018	91.81%	178,076	95.06%	40,412	97.04%	2,735
Total	91.86%	504,141	94.59%	128,468	96.07%	19,288

The annual average of collected fines by VCEMSA is therefore approximately \$217,299 per year. Although there are no aggregated or reported statewide data on penalties paid to local EMS agencies for response time deficiencies, anecdotally this amount is less than amounts collected by LEMSAs in many other counties. For instance, in 2017-18, the Yolo County EMS Agency reported fines totaling \$355,000 were leveled against its contracted provider.⁶⁷ It is reported that fines in Stanislaus County totaled more than \$4 million over the five year period from 2013-17, averaging over \$800,000 per year.⁶⁸ As of 2017, penalties assessed against the EOA provider in Merced County exceeded \$100,000 per month.⁶⁹ Of course, to the contrary, penalties were far less in some counties, or nonexistent in others. However, we note that no penalties are assessed in some counties simply because of the contractor’s performance, though those systems typically have penalty provisions in their provider contracts. For example, penalties are authorized in Solano County, though none have been assessed due to the contractor’s compliance with its performance obligations.⁷⁰

Below for comparison purposes are examples of penalty provisions from other California counties alongside those of Ventura County:

⁶⁷ Yolo County EMS Agency, 2017-18 Annual Report,

<https://www.yolocounty.org/home/showdocument?id=55773>

⁶⁸ Why \$4 million in fines not fixing problem with ambulance response times in county, Modesto Bee April 23, 2018, www.modbee.com/news/article209628224.html

⁶⁹ See, however, a recent article indicating a significant reduction in assessed penalties in Merced County due to its implementation of a recommendation, made in a 2017 report prepared by PWW, to implement a tiered response and transport system. Murphy and Taigman, *Response time performance improvement through system re-design*, June 20, 2019, EMS1.com, <https://www.ems1.com/response-performance/articles/394171048-Response-time-performance-improvement-through-system-re-design/>

⁷⁰ EMS System Review and Blueprint Report, Solano Emergency Medical Services Cooperative, October 11, 2018, <https://www.solanocounty.com/civicax/filebank/blobdload.aspx?BlobID=29305>



**Table 8
Response Time Penalties: Selected County Comparisons**

Alameda County⁷¹	Stanislaus County⁷²	Ventura County⁷³
On the first occurrence of failure to meet response time requirements, the EMS Agency will require the contractor development and implement a corrective action plan	Extended Response Time over specific zone requirement: \$500 between 10-15:59 min \$750 for greater than 16:00 min	\$20 for each minute or fraction thereof exceeding the response time requirement not to exceed \$250 per incident
\$30,000 If within 30 days of implementing the corrective action plan there is another response time violation	Failure to meet 90% requirement 89-89.99% \$1,000 88-88.99% \$1,500 87-87.99% \$2,500 86-86.99% \$4,000 85-85.99% \$6,000 <85 % \$8,000	\$250 for each call over the maximum response time, including calls where response time was not documented
\$60,000 If within 60-calendar-day period, and the violations are repetitive	\$250 if the crew fails to document response times on scene and on scene time is not verifiable by other pre-agreed reliable means	\$250 If the crew fails to document on scene time
\$120,000 if there is a three consecutive monthly repetitive pattern of response time violations		
\$250,000 if there is a four consecutive monthly repetitive pattern of response time violations <u>and</u> possible finding of material breach of the contract		
\$500 every time an emergency ambulance is dispatched, and the ambulance crew fails to report and document on-scene time.		
\$50,000 failure to respond. Defined as failure of an ambulance to arrive within 250% of the response time requirement		

⁷¹ Data from the Alameda EMS RFP No. EMS-901017 Section 16

⁷² Data from the Mountain-Valley Stanislaus RFP No. MVEMS-2018-12 Enclosure 7

⁷³ Data from County of Ventura EOA contracts section 5.2



Imposing penalties for instances of non-compliance – primarily with response time standards – on ambulance contractors serving exclusive operating areas is most common in California. Although that anecdotally seems to be the state in which penalty provisions are most utilized at the county level, they are utilized in other EMS system configurations as well, often by individual cities with exclusive or primary ambulance contracts in place.⁷⁴

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Although contractor fine payment in Ventura County is modest compared to some other California counties, it is more than others. We note that in some EMS systems, penalty revenue has become a budgeted source of revenue on which some local EMS agencies depend to sustain their programs and personnel. While nothing suggests that is the case in Ventura County, it is our belief that EMS system oversight authorities should work closely with their contracted providers to make “zero penalties” a reality. That is in the interest both of providers and oversight agencies, because on one hand it means providers can avoid wasteful spending on penalty payments and local EMS agencies are assured that their providers are meeting the expectations set out for their EMS system. As we discuss below in the Response Times section of this report, we recommend the transition of financial disincentives (i.e., penalties) away from response time compliance and more toward clinical performance standards with a documented effect on patient care and outcomes.

Accordingly, to the extent that a local EMS agency requires provider fees to sustain certain aspects of LEMSA operations, we recommend that these assessments be in the form of cost-based annual assessments for costs directly related to system oversight, contract administration and/or that directly benefit the contracted providers, and that these payments be in the form of pre-established and predictable assessments so as to eliminate any financial incentive for a local EMS agency to impose penalties upon their contracted providers.⁷⁶

⁷⁴ Ala. city considers fines for slow ambulance response times, The Decatur Daily, March 31, 2019, <https://www.ems1.com/response-times/articles/393678048-Ala-city-considers-fines-for-slow-ambulance-response-times/>

⁷⁵ Ambulance company to pay \$2M in fines, service for slow response times, <https://www.11alive.com/article/news/ambulance-company-to-pay-2m-in-fines-service-for-slow-response-times/85-581527848>, August 7, 2018

⁷⁶ VCEMSA currently imposes administrative fees upon its contracted provider for QI and related activities.



SWOT Analysis – System Financials

Strengths

- Favorable payor mix compared to other California counties
- Lower provider charges than in many counties
- Lower assessed fines than many other California counties

Weaknesses

- Commercial plans moving to higher deductibles, creating more non-insured patient healthcare debt
- Regulation of non-emergency rates when system exclusivity is limited to emergency ambulance services

Opportunities

- Generally positive profit margins among the three providers
- New payment models such as ET3 and cost collection

Threats

- Pressure for rate increases likely to grow
- One provider reported negative profit margin in 2018
- Impact of provider fees and ongoing system sustainability needs to be kept in the forefront
- Provider susceptibility to Medicare overpayment demands



EMS System Deployment

Review of Current Structure

Exclusive Operating Areas (EOAs)

Ventura County is divided into seven (7) Ambulance Service Areas (ASAs), each of which is assigned to an ambulance service provider as an exclusive operating area (EOA) for 911 emergency ambulance calls only. ASA 1 is assigned to LifeLine Medical Transport (LifeLine or LMT) and includes a combination of metropolitan/urban, suburban/rural and wilderness areas, including the City of Ojai. ASAs 2, 3, 4, 5, 7 are assigned to American Medical Response (AMR) and include a combination of metropolitan/urban, suburban/rural and wilderness areas including the Cities of Fillmore, Santa Paula, Simi Valley, Moorpark, Thousand Oaks, Camarillo, and Ventura. ASA 6 is assigned to Gold Coast Ambulance (Gold Coast or GCA, an AMR subsidiary) and includes a combination of metropolitan/urban, suburban/rural and wilderness areas including the Cities of Oxnard and Port Hueneme.^{77,78}

Each of these assignments was made under the “grandfather provision” of Section 1797.224 of the California Health and Safety Code.⁷⁹ Section 1797.224 confers upon a LEMSA the right to grant an EOA to an ambulance service provider by developing and implementing an EMS plan that continues the use of an existing provider within a local EMS area to provide ambulance services in the same manner and scope in which it has provided those services without interruption since January 1, 1981. VCEMSA has done that and implemented the EOA assignments by entering EOA contracts with AMR, Gold Coast and LifeLine. Those contracts began January 1, 2005⁸⁰, and with extensions will expire on July 1, 2021.

The County entered into contracts with each of the EOA providers for each of the EOAs assigned to them, and those contracts were amended several times over the years, the last contract amendments occurring on July 1, 2015.

Exclusive operating areas are defined in Sections 1797.85 and 1797.224 of the California Health and Safety Code, and the State of California has recognized the following types of services as eligible for inclusion in EOAs in California: 911 Emergency Response, 7-

⁷⁷ Ventura County 2017 EMS Plan Update.

⁷⁸ In addition, the Federal Fire Department – Ventura covers all areas of the Naval Base Ventura County, including San Nicholas Island with BLS first response and BLS ambulance service.

⁷⁹ Ventura County 2017 EMS Plan Update.

⁸⁰ Ventura County 2013 EMS Plan.



Digit Emergency Response, ALS Ambulance, Interfacility Transport (IFT), ALS IFT, BLS Non-Emergency and IFT, BLS Non-Transport, Standby Service, Standby Service with Transport Authorization, and Specialty Care Transport (SCT).⁸¹

Public Private Partnerships

Ventura County Fire Protection District.⁸² On December 14, 2004, AMR entered into a contract with the Ventura County Fire Protection District (VCFPD), which is still in effect. Under the agreement VCFPD is to provide ALS first response service in concert with AMR and its backup provider's authority (i.e., mutual aid agreements with LifeLine and Gold Coast) in EOAs 2, 3, 4, 5 & 7. VCFPD is also to provide BLS first response services in those EOAs, including EMT defibrillation services in the urban areas of those EOAs, so that VCFPD and AMR meet VCEMSA's response time standards for the delivery of those services.

To compensate VCFPD for its first response service AMR was to pay a \$450,000 base payment to VCFPD in the first year of the contract. This compensation was based on the anticipated emergency call volume for VCFPD's Engine Companies 36 and 40, which the parties agree was 845 for the time period between June 1, 2003 and May 31, 2004.⁸³

After the first year, if VCFPD's Engine Companies 36 and 40 emergency call volume increases or decreases by 3% or more, the base rate is to increase or decrease by the same percent. However, in no year may the amount paid by AMR to VCFPD be below \$450,000 unless the compensation to VCFPD exceeds its actual cost in providing first response service. The parties agreed that VCFPD's compensation for its services under the agreement shall at no time be greater than its cost.

Also, if both parties determine that increases in VCFPD ALS staffing or the addition of VCFPD ALS engine companies in other areas of the County will result in a reduction of AMR expenses, the increases may occur, and compensation by AMR to VCFPD for those ALS resource increases will increase as mutually agreed by the parties. AMR agreed to provide VCFPD with financial information that may be used for an independent evaluation of the AMR cost-savings attributable to the additional VCFPD staffing or engines.

Various penalties may be imposed on VCFPD if it does not satisfy time performance requirements in AMR's service area (FS 40 & 36). The time performance requirements and

⁸¹ Ambulance Zones, Ground Exclusive Operating Areas (EOA) Status Determinations by EMSA as of August 2018.

⁸² The information provided under this heading is taken from the December 14, 2004 Emergency Ambulance Transportation Services Subcontract Agreement between AMR and VCFPD.

⁸³ As discussed below, there was also a \$450,000 base fee paid to the City of Ventura. However, the relative volume covered by this base fee differs markedly between VCFPD (845 projected responses) and COV (6023 projected responses).



the penalties for not meeting those requirements, as well as incentives for exceeding those requirements, are discussed later under the Response Time heading.

In addition to the PPP arrangement, AMR replaces VCFPD's disposable supplies and nonregulated drugs disposed of during VCFPD's ALS and BLS first response service at AMR's own cost. Also, the agreement provides that all provisions of a previous agreement between AMR and VCFPD relating to VCFPD's provision of dispatch services, and payment for such services, shall continue in full force and effect. Under that agreement, AMR is to pay VCFPD \$15.45 per call VCFPD dispatches to AMR, but that rate can be adjusted up or down annually to reflect savings or actual net cost increases realized by VCFPD, as mutually agreed by the parties. A \$15.45 per call rate for 22,400 calls (the initial expected call volume) amounts to \$346,080.

City of Ventura.⁸⁴ AMR also entered into an agreement with the City of Ventura (Buenaventura) ("COV") on December 20, 2004, containing many of the same PPP provisions as AMR's agreement with VCFPD. Pursuant to this agreement COV will provide ALS first response services in the incorporated part of EOA 7 in concert with AMR and its backup provider's authority and is to respond elsewhere in EOA 7 when requested by AMR. COV is also to provide BLS first response services in the incorporated part of EOA 7, including EMT defibrillation services, so that COV and AMR meet response time standards for delivery of those services.

As with VCFPD various penalties may be imposed on COV if it does not satisfy time performance requirements, in this case in EOA 7. Here, too, the time performance requirements and the penalties for not meeting those requirements, as well as incentives for exceeding those requirements, are discussed later under the Response Time heading.

Base compensation for its first response service is also \$450,000 in the first year of the contract. That is based upon the anticipated emergency call volume in the incorporated area of EOA 7, which the parties agreed was 6,023 for the time period June 1, 2003 through May 31, 2004. Changes in the base rate in subsequent years are subject to the same criteria as agreed upon by VCFPD and AMR. Again, the parties agreed that COV's compensation for its services under the agreement shall at no time be greater than its cost.

In addition to the PPP arrangement, AMR is to replace at AMR's cost COV's disposable supplies and nonregulated drugs disposed of during COV's ALS and BLS first response service.

⁸⁴ The Information provided under this heading is taken from the December 20, 2004 Emergency Ambulance Transportation Services Subcontract Agreement between AMR and the City of Ventura (City of San Buenaventura).



Hospitals⁸⁵

There are eight (8) acute care hospitals within Ventura County that have emergency departments and serve as receiving facilities to which patients may be transported by ambulance or otherwise. They are Community Memorial Hospital, Los Robles Regional Medical Center, St. John’s Pleasant Valley Hospital, St. John’s Regional Medical Center, Simi Valley Hospital, Ventura County Medical Center, and VCMC Santa Paula Hospital. Ojai Valley Community Hospital has a standby emergency department and is a standby receiving facility. Their capabilities are shown in Table 9.

Table 9: Hospital Capabilities							
Hospital	Standby Receiving Facility	Receiving Facility	Base Hospital	STEMI Receiving Center	Acute Stroke Center	Thrombectomy Capable ASC (TCASC)	Level II Trauma Center
Adventist Health Simi Valley (SVH)		X	X	X	X		
Community Memorial Hospital (CMH)		X		X	X		
Los Robles Regional Medical Center (LRH)		X	X	X	X	X	X
Ojai Valley Community Hospital (OVH)	X						
Santa Paula Hospital (SPH)		X					
St. John’s Pleasant Valley Hospital (PVH)		X			X		
St. John’s Regional Medical Center (SJO)		X	X	X	X	X	
Ventura County Medical Center (VMC)		X	X		* <i>Pending</i>		X

⁸⁵ Unless otherwise noted, the information provided under this heading is taken from the Ventura County 2017 EMS Plan Update.



We note that California population growth is generally exceeding hospital bed capacity, and that hospital beds-per 1,000 population – a standard metric for facility capacity – is the lowest in California among the most populated states. California reports 1.9 beds per 1,000 population, compared to a U.S. average of 2.5 beds per 1,000 population.⁸⁶ In addition, while ED visits increased 35% between 2005 and 2014, and ED beds during this period increased by 29.8%, a metric developed by Chow, et al., ED beds per visit, shows that this number *decreased* by nearly 4% in that time period in California.⁸⁷ The authors conclude that the supply of ED beds in California cannot keep pace with the growth in ED demand. In addition, these authors noted a statewide reduction in psychiatric beds.⁸⁸ This is echoed in a 2018 report from the California Hospital Association, which noted specifically a deficit of 425 inpatient psychiatric beds in Ventura County.^{89, 90} Jointly addressing the issues of ED utilization and psychiatric care resources, one paper noted that 10-12% of all ED utilization is directly attributable to mental health emergencies, and that these “frequent visitors to EDs due to poorly controlled behavioral health require their own urgent treatment pathways to preserve ED capacity.”⁹¹

System Status Plan

Ambulances are deployed countywide based on established System Status Management plans. Table 10 shows, by EOA number, the System Status Management Plans for stationing ALS emergency ambulances throughout the County.

⁸⁶ Hospital Beds per 1,000 Population by Ownership Type, Kaiser Family Foundation, 2017, <https://www.kff.org/other/state-indicator/beds-by-ownership/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

⁸⁷ Chow, JL, et al., Trends in the supply of California’s emergency departments and inpatient services, 2005-2014: a retrospective analysis, *BMJ Open*, 2017; 7(5), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5566591/>

⁸⁸ Id.

⁸⁹ California Hospital Association, *California’s Acute Psychiatric Bed Loss*, March 28, 2018. <https://www.calhospital.org/sites/main/files/file-attachments/psychbeddata.pdf>

⁹⁰ We note that a four-bed psychiatric crisis unit opened in April 2019 at Ventura County Medical Center. See Kiskan, T., *Psych care shortage gets boost from new crisis unit at county hospital*, VC Star, April 18, 2019, <https://www.vcstar.com/story/news/local/2019/04/18/psych-care-shortage-gets-boost-new-crisis-unit-county-hospital/3453619002/>

⁹¹ Fields, W., The Acute Care Continuum in California, *Rev. Med. Clin. Condes*, 2017;28(2), <https://www.sciencedirect.com/science/article/pii/S0716864017300317>



**Table 10:
Ventura County EMS Station Locations and Staffing By EOA**

EOA 1		
Ojai	11544 N. Ventura Ave., Ojai, CA 93023	MED501, 24-hr, 7 days, 0700-0700 MED503, 24-hr, 7 days 0700-0700
Ventura	632 E. Thompson Blvd., Ventura, CA 93001	MED502, 12-hr, 7 days, 0800- 2000
Thousand Oaks	88 Long Court, Thousand Oaks, CA 91360	MED506, 24-hr, 7 days, 0700-0700
EOA2		
Santa Paula	623 E. Main St., Santa Paula, CA 93060	MED421, 24-hr, 7 days, 0700-0700
Fillmore	743 Sespe Place, Fillmore, CA 93015	MED422, 24-hr, 7 days, 0700- 0700
Hungry Valley	49680 Gorman Post Road, Gorman, CA 93243	MED423, 12-hr, 7 days, 0900-2100
EOA 3		
Simi Valley East	4322 Eileen St, Simi Valley, CA 93063	MED431, 24-hr, 7 days, 0700-0700
Simi Valley West	665-C Los Angeles Ave, Simi Valley, CA 93065	MED432, 24-hr, 7 days, 0700-0700
EOA 4		
Thousand Oaks, South	166 N. Moorpark Road #101, Thousand Oaks, CA 91360	MED441, 24-hr, 7 days, 0700-0700
Oak Park	652A Lindero Canyon Road, Oak Park, CA 91377	MED442, 24-hr, 7 days, 0700- 0700
Newbury Park	700 Wendy Dr. #24, Newbury Park, CA 91320	MED443, 24-hr, 7 days, 0700-0700
Moorpark	616 Fitch Ave, Moorpark, CA 93021	MED444, 24-hr, 7 days, 0700-0700 MED491, 12-hr, 7 days, 0730-1930 MED433, 12-hr, 7 days, 0900-2100 MED494, 8-hr, 5 days, 1400-2200
Thousand Oaks, North	2667 N. Moorpark Rd #103, Thousand Oaks, CA 91362	MED445, 24-hr, 7 days, 0700-0700
EOA 5		



Camarillo, West	109 S Glenn Drive, Camarillo, CA 93010	MED451, 24-hr, 7 days, 0700-0700 MED453, 12-hr, 7 days, 0800-2000
Camarillo, East	5800 Santa Rosa Rd, #115, Camarillo, CA 93012	MED452-24-hr, 7 days, 0700-0700
EOA 6		
Oxnard	200 Bernoulli Circle, Oxnard, CA 93030	MED691, 12-hr, 7 days, 1000-2200 MED692, 24-hr, 7 days, 0700-0700
Oxnard	401 North A Street, Oxnard, CA 93030	MED662, 24-hr, 7 days, 0700-0700 MED663, 24-hr, 7 days, 0700-0700
Port Hueneme	2675 South Ventura Rd Port Hueneme, CA 93033	MED664, 24-hr, 7 days, 0700-0700
Oxnard	4225 Saviers Rd #7, Oxnard, CA 93033	MED665, 24-hr, 7 days, 0700-0700
EOA 7		
Ventura, Central	3418 Loma Vista Rd #2a, Ventura, CA 93003	MED481, 24-hr, 7 days, 0700-0700 MED482, 24-hr, 7 days, 0700-0700
Ventura, East	1593 Los Angeles, Ave #9, Ventura, CA 93004	MED483, 24-hr, 7 days, 0700-0700

The three EOA providers also have established ambulance move-up plans when units assigned to a station are committed to responses. Ambulances not currently committed to a response are repositioned to a location where they are most likely to be needed.⁹²

Discussion – Structure/System Status Plan

Response times will be discussed in more detail below. However, for purposes of assessing deployment within the Ventura County EMS System, it is helpful to look at response time compliance data from the VCEMSA EOA zones and sub-zones.

⁹² One fire department informed us that the EOA providers revise their move-up plans without first sharing a draft with the fire department so that the EOA provider has the benefit of its feedback. We believe the EMS system would be better served if the EOA providers shared their draft revised move-up plans with relevant fire departments to receive their input before finalizing revisions to their move-up plans. We recommend that such a requirement be included to the next cycle of provider contracts.



In reviewing Ventura County response time data for the years 2016 – 2018 provided to us by First Watch, there are no individual months reported in which response time compliance fell below 90% in EOA 1 (LMT), EOA 2 (AMR), EOA 4 (AMR), EOA 6 (GCA) and EOA 7 (AMR).⁹³ There are two (2) individual months in this same 36-month period in which response times were below 90% in EOA 3 (AMR), and in both instances those shortfalls were less than 1%. In EOA 5 (AMR), there is one month (January 2016) in this 3-year period where response times fell below 90% (and that was also a deficiency of less than 1%). Collectively, these data show that deployment is generally sufficient to meet the response time performance standards set forth in the contracts for EOAs 1, 2, 3, 4, 5, 6, and 7.

However, EOA 4 is divided into four sub-zones. Because monthly reports are provided for each sub-zone, we were able to consider the data not only for EOA 4 in its entirety, but for each sub-zone. Our review revealed that for three of the four sub-zones deployment was often not sufficient to meet response time requirements. The collective 108 reports for those three sub-zones over the three-year period showed that on 40 occasions the 90% monthly response time requirement was not satisfied. Of those 40 occasions, 20 were attributable to one sub-zone.

The 2005 EOA 4 provider contract provided that a penalty would be imposed for each individual failure to meet the response time requirement but, if the monthly rate of satisfying the response time requirement met or exceeded 92.5% in an EOA 4 sub-zone, the provider would be credited a percentage discount of the total month's penalty for that sub-zone. As we read the 2011 amendment to the contract, that changed, so that the provider would be credited a percentage discount based upon achieving a 92.5% compliance rate for EOA 4 in its entirety, and compliance rates for individual sub-zones would no longer be considered. However, we were advised by the EMS Administrator that the contract for EOA 4 has continued to be administered to grant a percentage discount for meeting the 92.5% compliance rate on a sub-zone by sub-zone basis, such that no percentage discount is applied to the penalties incurred in a sub-zone if the compliance rate in that sub-zone does not reach at least 92.5% for the month.

The EOA 4 deficiencies are particularly apparent in the Moorpark sub-zone (n = 13 deficient months) and Oak Park sub-zone (n = 20 deficient months). The Newbury Park sub-zone had a total of 7 deficient months in the 3-year period. This level of data analysis suggests that the contractor's deployment is insufficient within these sub-zones to meet response time obligations within three of the four EOA 4 sub-zones approximately 2/3 of the months in the preceding three-year period. The Thousand Oaks sub-zone had no deficient months.

⁹³ Data for EOA 4 was compiled from the 2016 and 2017 VEMS Annual Reports.



It is also worth noting that in no other Ventura County EOAs are response times measured in separate sub-zones, and surely it is possible that contractor deployment in other EOAs would appear to be insufficient if discrete sub-zones within those EOAs were analyzed separately. It is also important to note that the EOA 4 call volume is concentrated in the Thousand Oaks sub-zone; in fact, this sub-zone by itself has more calls than every other full EOA in Ventura County except EOA 7. In addition, the call volume of the other three EOA 4 sub-zones, taken together, is less than most other EOAs in Ventura County.⁹⁴ Thus, the fact that the EOA 4 volume is concentrated in the Thousand Oaks sub-zone, coupled with the fact that the response time data show no deficiencies in this sub-zone during the period 2016-2018, means that overall EOA 4 response time compliance is met.

Nevertheless, it is unclear why this EOA is divided into sub-zones for percentage discount purposes based upon satisfying response time requirements at least 92.5% of the time in a sub-zone, particularly when some of those sub-zones have relatively lower call volumes compared to the population center of the Thousand Oaks sub-zone. Sometimes this is reflective of local, municipal concerns regarding response times within discrete areas of a larger EOA. Stakeholders interviewed for this project indicated that this division of EOA 4 into sub-zones was a longstanding practice going back several decades.

The EOA 4 contract and its amendments which impose the breach condition only for non-compliance in the *whole* EOA means that the provider can essentially assure contract compliance by upholding response times in the Thousand Oaks EOA – and so long as the penalties incurred for non-compliance in the other three sub-zones are less than the unit hour cost of deploying additional ambulances at a level sufficient to avoid the penalties, the provider can continue to under-deploy in those sub-zones without consequence. This essentially merely becomes a recurring and more predictable stream of penalty revenue as opposed to creating a real incentive for prompt service in those sub-zones.

However, the primary objective of EOA development is to require coverage in less-populated areas as a condition of granting providers exclusive access to the calls in the more heavily populated areas of an EOA. It seems anomalous to separately measure response time performance in the less-populated areas of an EOA when (1) no other EOAs are evaluated in this manner, and (2) most systems in California recognize different response time standards for more and less-densely populated areas of EOAs as a whole. Accordingly, we recommend that VCESMA consider eliminating the EOA 4 sub-zones for

⁹⁴ We note, however, that population density in Moorpark (2830 p/sm) and Oak Park (2810 p/sm) rank comparably with that of Thousand Oaks (2330 p/sm), though, of course, the population differs considerably.



response time incentive purposes, particularly given the discussion regarding the true effectiveness of response times, later in this report.^{95,96}

Configuration Options

There are many types of tiered EMS response systems that are used to respond to emergency calls. Some require a response by a non-transporting BLS first responder unit and an ALS ambulance to a scene. Others send an ALS first responder unit and a BLS ambulance to a scene, while others have ALS first response coupled with ALS transport. Some are hybrid systems that use a mixture of these resources. Still others do not rely on first responder resources at all and send a BLS ambulance or ALS ambulance depending on the condition of the patient as reported in the call-intake process.

The County's EMS response system is a hybrid. For all 911 calls the current EOA providers must respond with an ALS ambulance to all dispatches. For each of these calls a fire department first responder unit is also dispatched and responds. Some fire

⁹⁵ As with other legal issues, we express no opinion on whether the elimination of the EOA 4 sub-zones would affect grandfathering eligibility under Cal. Health & Safety Code §1797.224.

⁹⁶ Some stakeholders recommended that we not eliminate the sub-zones in EOA 4. We are not recommending eliminating the sub-zones in EOA 4. Data is collected each month for each sub-zone regarding the percentage of calls for which response time requirements are met. We are not recommending that this data collection by sub-zone be discontinued. What we are recommending is the discontinuation in each subzone of the application of a response time compliance rate of 92.5% and higher to reduce by at least 20% the monthly penalty in the sub-zone that is based upon individual response time violations. We believe this incentive should apply only if response time compliance for EOA 4 in its entirety meets or exceeds 92.5%.

The provider assigned EOA 4, like the providers assigned the other six EOAs, is contractually responsible for meeting response time requirements 90% of the time for the entire EOA. Failure to satisfy that requirement for three consecutive months or for four months in a fiscal year constitutes a breach of contract. The provider assigned EOA 4 has met the 90% compliance rate every month of the 36-month period from 2016 through 2018.

However, unlike the penalty-reduction incentive granted the providers assigned the other six EOAs, which applies only if they meet or exceed a 92.5% monthly response time compliance rate for the entire EOA, the provider serving EOA 4 does not need to meet or exceed a 92.5% compliance rate for the entire EOA to receive a percentage reduction in penalties. Under the current arrangement, it receives some reduction in penalties if its response time compliance rate meets or exceeds 92.5% in at least one of the subzones. We do not believe the provider should receive any percentage reduction in monthly penalties simply by meeting or exceeding a 92.5% response time compliance rate in a sub-zone. For this reason we are recommending that the percentage reduction in penalties for meeting or exceeding a 92.5% response time compliance rate apply in EOA 4, as it does in the other six EOAs, only if the provider meets or exceeds that response time compliance rate for the entire EOA.



departments respond at the ALS level and some respond at the BLS level. It depends upon which fire department is dispatched and that fire department's resources and level of service provided.

There are several fire departments in Ventura County that provide 911 first response services. The VCFPD Fire Department provides both ALS and BLS first response services depending upon the dispatch. The Ventura City Fire Department and the Fillmore Fire Department provide ALS first response.⁹⁷ The Oxnard Fire Department had provided only BLS first response until November 15, 2018, but then increased its level of first response to ALS first response for high acuity emergencies.⁹⁸ The Ventura County Sheriff's Office provides both ALS and BLS air rescue services as part of the EMS system.⁹⁹

All-ALS transport systems have evolved to become a common, perhaps even a predominant, model in California EMS systems. In the early development of EMS systems, the implementation of ALS was universally seen as an aspirational system design goal. Over time, all-ALS EMS transport systems became the *de facto* standard in California. However, all-ALS ambulance deployment is unquestionably more costly than a tiered BLS-ALS system, and it negates the built-in advantages that can come with implementation of a medical priority dispatch system (MPDS). MPDS, when implemented properly, can effectively distinguish between those calls which require ALS, and those which can safely be handled with a less costly but more appropriate BLS response. Additionally, MPDS can distinguish between calls in which first responder support is necessary in addition to ambulance response, and those calls for which there is no demonstrated patient benefit to deployment of first responders.

PWW was engaged in 2016-2017 to perform an EMS system assessment in Merced County, California. Merced's EMS system can be described as financially distressed, owing largely to the demographics and depressed socioeconomics of parts of the Central Valley of California, with a payor mix far less favorable than that enjoyed by providers in Ventura County. In our 2017 report, we recommended implementation of a BLS-only option for low-acuity calls properly triaged through an MPDS system. According to a newly-published article,¹⁰⁰ this recommendation was implemented in 2018 through a four-step process (new policies, new training, supervised practice and full launch) and then evaluated closely for the subsequent year. With assistance of First Watch, Merced County's EMS agency evaluated the results of this tiered deployment implementation and found the following:

- Quick adaptation by fire first response agencies;

⁹⁷ 2017 Ventura EMS Plan Update.

⁹⁸ <https://www.oxnard.org/advanced-life-support-als/>.

⁹⁹ 2017 Ventura EMS Plan Update.

¹⁰⁰ Murphy and Taigman, Response time performance improvement through system re-design, EMS1.com, June 20, 2019, <https://www.ems1.com/response-performance/articles/394171048-Response-time-performance-improvement-through-system-re-design/>



- Improvement from 87% to 92% in response times for high-priority patients due to improved deployment;
- Decrease in assessed average response time penalties from over \$109,000 per month to \$12,000 per month, including months with zero penalties;
- No adverse patient events;
- Improved satisfaction among paramedics (running fewer calls) and among EMTs (expanded opportunity to utilize their skills)

Clearly, similar benefits can be expected in EMS systems that currently require all-ALS ambulance deployment. Although Ventura County is not burdened with the same payor mix and socioeconomic challenges that precipitated the changes in Merced County, no system's resources are limitless, and tiered system configuration options which utilize BLS-only deployment when appropriate can generate efficiencies and advantages both clinically (through optimized availability of ALS for those calls in which there is a demonstrated clinical benefit) and economically (through reduced penalties and deployment costs, as well as the potential for increased job satisfaction among EMTs and reduction of fatigue for paramedics).

It has been recognized in the literature that the vast majority of 911 calls do not require an ALS intervention (less than 5%), that patients in cardiac arrest account for fewer than 1-2% of calls, and that fewer than 15% of patients require any type of ALS procedure or even ALS-level monitoring by ALS personnel.^{101, 102}

Some stakeholders interviewed for this project indicated that implementing a BLS tier makes sense, but questioned whether an associated reduction in revenue would be damaging to the system (Medicare and most other payors pay less for BLS transports than for ALS calls). To the contrary, where proper billing rules are followed, using paramedics to respond to a call when only BLS services are required does not generate any more revenue than if the response was handled by EMTs only. Medicare and Medi-Cal are predominant payors for most ambulance services. Regardless of whether there is an ALS response, if only a BLS response is required based on the dispatched condition of the patient, they pay at the BLS rate of reimbursement, not the higher ALS rate of reimbursement.¹⁰³

The costs of employing paramedics and deploying ALS ambulances are greater than the costs of employing EMTs and deploying BLS ambulances. Because they use paramedics

¹⁰¹ Pepe PE, Mattox KL, Fischer RP, Matsumoto CM. *Geographical patterns of urban trauma according to mechanism and severity of injury*. J Trauma. 1990;30:1125-32.

¹⁰² For a discussion of the advantages and disadvantages of both an all ALS and a tiered response ambulance system see Stout J, Pepe PE and Mosesso VN. *All-Advanced Life Support vs Tiered-Response Ambulance System*. Prehospital Emergency Care. January/March 2000, Vol. 1, No. 4.

¹⁰³ See discussion under Rates/Billing section above, p. 32, for further discussion of the ALS-vs.-BLS billing issue.



to respond to calls where only BLS skills are required, ambulance services are incurring greater costs than warranted from a clinical perspective. And, as mentioned above, reimbursement is not based upon the level of vehicle (BLS vs. ALS) that is deployed; it is based upon the information communicated to the dispatcher and the services required by the patient. Therefore, there is a large subset of responses for which comparatively expensive ALS units are deployed when only BLS-level reimbursement can properly be received.

It has long been recognized as an industry standard of care that medically validated dispatch protocols with differential ALS-BLS response determinants can safely and effectively support tiered EMS system deployment. Accordingly, we recommend that VCEMSA should consider implementation of a BLS response and transport tier for those calls in which the FCC's dispatch protocols permit a BLS-level response.¹⁰⁴ Although tiered deployment is a long-recognized standard of care in EMS, VCEMSA may wish to require some additional training for EMTs and to incorporate focused review of BLS-only emergency responses into its systemwide QI plan for a prescribed time period to ensure that the dispatch response determinants are resulting in appropriate BLS responses.¹⁰⁵

Specialty Care

STEMI

The VCEMSA's goal for a patient who is having a STEMI is for the patient to have rapid assessment and transport to a STEMI Center to receive a Percutaneous Cardiac Intervention (PCI) to quickly restore blood flow to the heart. Under the County STEMI System paramedics use field transmission of 12-Lead ECGs and "STEMI Alerts" to provide early notification of cardiac intervention teams. Goals developed by the American College

¹⁰⁴ It is important to note that implementing a BLS-tier into an existing, "grandfathered" ALS system under Cal. Health & Safety Code §1797.224 raises the question of whether that can be accomplished via contract with existing "grandfathered" EOA providers, without compromising the grandfathered exclusivity, or whether implementation of a BLS tier would necessitate a competitive process. As with other legal issues raised in this report, providing a legal opinion on this question is beyond the scope of this project. We recommend that VCEMSA address this separately with qualified legal counsel, and we would be happy to assist in working with County Counsel to provide further analysis of that legal question under an attorney-client consultation should that be something that VCEMSA desires.

¹⁰⁵ In comments we received to Version 1.0 of the EMS System Assessment Report a stakeholder asked whether our recommendation for adding a BLS response and transport tier applied to not only the EOA providers, but fire department first responders. Our recommendation to add a BLS tier applies to the system as a whole. In other words, if a call is for an ALS-level patient, an ALS first response, where available (or a BLS first response when an ALS first response capability is not available) and an ALS ambulance would be appropriate. If it was for a low-acuity, BLS patient, only a BLS ambulance response may be warranted, and, in some cases, an accompanying BLS first response. But that is all subject to the choices made in the system design phase, either through a renegotiated set of contracts or RFP process as the County decides.



of Cardiology, the American Heart Association and the California Department of Public Health are to achieve the following, in less than 90 minutes:

- 911 call to PCI
- First Medical Contact to PCI
- Positive EMS STEMI 12-Lead to PCI
- Arrival at STEMI hospital to PCI

The County routinely exceeds these goals. Also, in 2017, the Ventura County STEMI System received Gold Plus Level recognition from the American Heart Association's Mission LifeLine Program, which was the third year in a row that it received Gold level or higher recognition. The Mission LifeLine Program recognizes Systems of Care that meet the following performance measures: First Medical Contact to Intervention in less than 90 minutes 75% of the time, and 12-Lead ECGs obtained on patients having chest pain 75% of the time. In 2017, 109 EMS STEMI patients received PCI.

Stroke

In 2017 the County had 1397 patients who were diagnosed with strokes and who were treated at one of the County's Stroke Centers. Paramedics are trained to evaluate patients using the Cincinnati Prehospital Stroke Scale (CPSS) and provide early notification by calling in a "stroke alert" to the hospital so resources can be mobilized to provide immediate treatment of a possible stroke patient upon arrival. The primary objective of a stroke system is to coordinate care between the emergency medical system and hospitals so patients possibly suffering from a stroke will receive care within 3 to 4 ½ hours of their first symptoms. Among other standards of performance, the County Stroke Program achieved the following percentages:

- 12% of ischemic stroke patients treated with IV Tissue Plasminogen Activator (tPA) who arrived within 4.5 hours of time last known to be well (national average, 1-7%)
- 92% of patients treated with IV tPA within 60 minutes (national average, 50%)
- 59% of patients treated with IV tPA within 45 minutes (national average, 50%)

The EMS Agency tracks a patient's care from the 911 call through their hospital stay. One interval tracked is the time dispatch is notified to the time a neurologist receives the brain image report. In 2017 the median time for this interval was 52 minutes. The on-scene time was 13 minutes. The time of arrival at the hospital to the time the clot-busting medication tPA was administered was 42 minutes. The benchmark goal is within 60 minutes.



There are a Ventura County Stroke Committee and the Ventura STEMI Committee that provide input to the VCEMSA Medical Director and VCEMSA Administration on matters pertaining to the County Stroke Specialty System and the County STEMI Specialty System.

Staffing

With few exceptions, no vehicle may be operated as an ambulance unless it is under the immediate supervision and direction of two people, one of whom must be at least an EMT-1A¹⁰⁶ certified and authorized by Ventura County.¹⁰⁷ In the County, all ALS Response Units (First Response ALS Units, Paramedic Support Vehicles, ALS Ambulances), with the exception of Paramedic Support Vehicles, must generally be staffed with a minimum of one Level II paramedic and either an EMT or a Level I or II paramedic. An ALS Response Unit may also be staffed with a non-accredited paramedic if it is also staffed with an authorized Field Training Officer (FTO) or Paramedic Preceptor, unless the non-accredited paramedic is functioning in a BLS capacity. A Paramedic Support Vehicle may be staffed with a single Level II paramedic.¹⁰⁸

A Level I paramedic is a paramedic licensed by EMSA who has current accreditation as a Level I paramedic by VCEMSA. To maintain Level I accreditation the paramedic must maintain employment with a County approved ALS service provider and complete at least 288 hours of practice as a paramedic or have at least 30 patient contacts, including 15 ALS patient contacts, every six months. However, in lieu of these hour and patient contact requirements, with the approval of the EMS Medical Director, those paramedics with a minimum of 1 year of field experience in the County, who are employed as a field paramedic in another county or work in an acute care setting (registered or licensed vocational nurse) on a full-time basis, may qualify by completing a minimum of 144 hours of practice, or 20 patient contacts (minimum 10 ALS patient contacts), in the previous 6-month period in the County. To maintain Level I paramedic status the paramedic must complete VCEMSA continuing education.

A Level II paramedic is a paramedic who has completed the Level I paramedic requirements and a minimum of 240 hours of direct field observation by a County Paramedic Field Training Officer (FTO). During this time the paramedic must have at least 30 patient contacts including at least 15 ALS patient contacts. However, in lieu of these hour and patient contact requirements, with the approval of the FTO and prehospital care coordinator (PCC) the hour and patient contact requirements, under direct field observation, may be reduced to 144 hours or 20 patient contacts with at least 10 ALS

¹⁰⁶ An EMT-1A is a person who has successfully completed a basic EMT-1A course that meets EMSA requirements and has been certified as such by the VCEMSA Medical Director.

¹⁰⁷ Ventura County Ordinance Code §§ 2423-1.3 and 2423-2.

¹⁰⁸ VCEMSA Policy No. 506. Paramedic Support Vehicles.



patient contacts. The paramedic must also complete competency assessments involving scenario base skills, and written policy and arrhythmia recognition and treatment assessment administered by VCEMSA.

To maintain Level II status the paramedic must maintain employment with a County approved ALS service provider and complete at least 576 hours of practice as a paramedic or have at least 60 patient contacts, including 30 ALS patient contacts, every six months. For paramedics with a minimum of three years field experience, no more than 144 hours of this requirement may be met by documentation of actual instruction at approved PALS, PEPP, ACLS, Prehospital Trauma Life Support (PHTLS), Basic Trauma Life Support (BTLS), EMT or paramedic training programs. However, in lieu of these hour and patient contact requirements, with the approval of the VCEMSA Medical Director, there are alternatives to meeting these hour and patient contact requirements.

The continuing education requirements for Level I and II paramedics include ACLS certification within three months and either PALS or PEPP certification within six months, to be kept current; 12-hour field care audits every two years with at least six of the hours in the County; one skills refresher session in the first year of the license period and one every year thereafter; education or testing on updates to local policies and procedures; completion of the County Multi-Casualty Incident training; and successful completion of any additional VCEMSA-prescribed training.

As we discussed above in the Local EMS Agency/System Overview section of this report, under the “Prehospital Education and Training” subheading, we recommend that the Level I/Level II VCEMSA policy be eliminated, as issues of provider experience are more typically left up to EMS company employers as an industry standard.

We also note that existing provider contracts stipulate that paramedics may be required to work additional consecutive hours that are equal to one normal shift length, but may not work more than 72 consecutive hours.¹⁰⁹ There is increasing concern that longer shift lengths contribute to provider fatigue and increase the potential for medical errors, ambulance crashes and other potentially catastrophic events.¹¹⁰ Accordingly, we recommend that VCEMSA amend future contracts so that EMS practitioners’ shift lengths are no more than 24 hours in length, and include other shift requirements in accordance with published national standards reasonably designed to eliminate EMS practitioner fatigue as a significant work impediment.

¹⁰⁹ See, e.g., Schedule B, Section 11.1 of existing provider contracts.

¹¹⁰ Patterson, P. D. Et al (2018). 2018 Fatigue Risk Management Guidelines for Emergency Medical Services. Falls Church: National Association of State EMS Officials .



Influencing Factors

Emergency Department Diversion

Across California, emergency department diversion reached a peak in the early-to-mid 2000s. Subsequently, many jurisdictions have significantly limited or eliminated ED diversion practices.¹¹¹ Data suggest that ED diversion of inbound ambulances has been markedly reduced in the period between 2006 and 2016. In the August 2018 California Health Care Foundation ED study discussed above, it was also reported that statewide ambulance diversion hours fell from 182,642 in 2006 to 94,687 in 2016, or a 48% decrease. In the Central Coast counties, which includes Ventura, ambulance diversion hours decreased by 79% during the same period, from a high of 13,327 hours in 2006 to 2,754 in 2016.

Stakeholder interviews also suggested that ambulance diversion hours in Ventura County were not among the more pressing concerns affecting the EMS system. Nevertheless, continued vigilance and monitoring regarding ED diversion should remain a focus, as diversion and offload delays, discussed in more detail below, both have a significant negative impact on unit hour costs, deployment, response times and patient care.

Ambulance Patient Offload Times (APOT)

CEMSA was mandated by statute¹¹² to develop a Statewide methodology for LEMSA's to calculate and report APOT at hospitals. It has done that. The statute defines APOT as the time interval (in minutes and seconds) between the arrival of an ambulance patient at an emergency department and the time the patient is transferred to the emergency department gurney, bed, chair or other acceptable location and the emergency department assumes the responsibility for care of the patient.¹¹³ This applies to all 911 emergency transports to an emergency department with available time data. LEMSAs are also given the discretion to monitor APOT for IFTs, 7-digit and other transports to an emergency department.¹¹⁴ Based upon the data provided to us by VCEMSA it appears that VCEMSA is collecting and reporting APOT data only for 911 emergency transports.

¹¹¹ Backer, et al., Statewide Method of Measuring Ambulance Patient Offload Times, *Prehosp. Emerg. Care*, 2019 May-Jun;23(3):319-326, online publication date October 25, 2018.

¹¹² Cal. Health & Safety Code § 1797.120.

¹¹³ Cal. Health & Safety Code § 1797.120(b).

¹¹⁴ Ambulance Patient Offload Time (APOT) Standardized Methods for Data Collection and Reporting, as revised by the EMS Commission on November 21, 2016.



Beginning the first quarter of 2017, and continuing on a quarterly basis, VCEMSA has gathered the required information and reported it to EMSA. The required reports are for APOT 1 and APOT 2. These are as follows:

- APOT 1 – an ambulance patient offload time interval measure. This metric is a continuous variable measured in minutes and seconds then aggregated and reported at the 90th percentile.
- APOT 2– an ambulance patient offload time interval process measure. This metric demonstrates the incidence of ambulance patient offload times expressed as a percentage of total EMS patient transports within a twenty (20) minute target and exceeding that time in reference to 60, 120 and 180 minute time intervals.

VCEMSA collects this data from its providers through ImageTrend from the eight acute care hospitals in the County. In the first month of 2017, for APOT 1, VCEMSA collected data on 3,278 transports. The 90th percentile APOT for the eight hospitals collectively was 18.16 minutes with the lowest hospital 90th percentile APOT being 09.43 minutes and the highest being 23.34 minutes. For the last month of 2018, for APOT 1, VCEMSA collected data on 3,751 transports. The 90th percentile APOT for the eight hospitals collectively was 18.15 minutes with the lowest hospital 90th percentile APOT being 12.42 minutes and the highest being 21.38 minutes.

The target for APOT time established by the Commission on EMS is that it not exceed 20 minutes, though local EMS agencies are free to set their own benchmarks, with some choosing longer ones. Beginning the second quarter of 2017, VCEMSA began reporting the median APOT time for each of the hospitals and for the hospitals collectively. For an individual hospital the lowest median APOT was 2.55 minutes and highest median was 14.26 minutes. For the hospitals collectively the lowest median APOT was 8.45 minutes and the highest median APOT was 10.41 minutes.

The APOT 2 reports reflect that for the eight hospitals collectively over 90% of patients transported to an emergency department by ambulance pursuant to a 911 dispatch experience a transfer of care to the hospital within 20 minutes of arrival at the emergency department, and less than 10% experience a transfer of care to the hospital between 21 and 60 minutes of arrival. Over the course of the APOT 2 data collection period for 2017 and 2018, only a very few such patients (much less than 1%) experienced a transfer of patient care to the hospital within 61 to 120 minutes of arrival at the emergency department, and even fewer such patients experienced a transfer of patient care to the hospital within 121 to 180 minutes. No such patient experienced a transfer of patient care to the hospital more than 180 minutes after arrival at a hospital emergency department. In 2018 no patient transported to an emergency department by ambulance pursuant to a 911



dispatch experienced a transfer of care to the hospital more than 120 minutes after arrival at the emergency department.

As of the compiling of this report, there is still no centralized, statewide database of APOT data in California, as reporting by local EMS agencies is still generally ramping up. In addition, a paper published in 2018 indicated that there is “substantial variation” in APOT times across California.¹¹⁵ Nevertheless, some comparative data are illuminating.

The 2018 Backer study, which utilized data from local EMS agencies which reported a full year of APOT data in 2017, showed a mean offload time of 36 minutes. This report also revealed that the majority of hospitals in the areas reporting complete 2017 data had a 90th fractile APOT between 15 – 45 minutes.¹¹⁶

An April 2019 report in San Joaquin County showed 90th percentile APOTs ranging from approximately 26 – 49 minutes during the fourth quarter of 2018.¹¹⁷ In February 2019, the Riverside County EMS Agency reported APOT 1 times between 11 minutes and nearly two hours. The Santa Clara County EMS Agency reported 90th percentile APOTs for the first half of 2018 ranging from 10 – 56 minutes, and, interestingly, those times ranged from 10 – 37 minutes in the second half of 2018.¹¹⁸ Between January and May 2019, the reported 90th percentile range was 9 – 52 minutes.¹¹⁹

Though direct comparisons with other California counties are dubious, it appears from available statewide data and some comparative local data that Ventura County at present compares favorably in terms of ambulance patient offload times. Anecdotally, stakeholders reported overall satisfaction with APOT in Ventura County, especially compared to what other counties have experienced. In addition, the views expressed by stakeholders in our interviews confirms what studies in California are showing; i.e., that to the extent there was a problem, it is improving in Ventura County as it has elsewhere in the state. Some stakeholders noted that APOT tends to increase in periods of low ED staffing, which, of course, constitutes a hospital subsidy at the expense of the EMS system. Fortunately, this is not reported to be a common occurrence.

Somewhat problematic for APOT is that the actual transfer of care time from the ambulance crew to the hospital is manually entered. This can create inconsistencies in the

¹¹⁵ Backer, et al., Statewide Method of Measuring Ambulance Patient Offload Times, *Prehosp. Emerg. Care*, 2019 May-Jun;23(3):319-326, online publication date October 25, 2018

¹¹⁶ Id.

¹¹⁷ San Joaquin County EMS Agency, April 11, 2019 EMS Liaison Committee Report, https://www.sigov.org/ems/pdf/liaison_committee_meeting_agenda_apr2019.pdf

¹¹⁸ Santa Clara County EMS System Reports, APOT Reports, 2018 Summary, https://www.sigov.org/ems/pdf/liaison_committee_meeting_agenda_apr2019.pdf

¹¹⁹ Santa Clara County EMS System Reports, APOT Reports, December 2018 through May 2019, https://www.sigov.org/ems/pdf/liaison_committee_meeting_agenda_apr2019.pdf



reporting of APOT. In order for the transfer of care time to be more reliable, an automated process for offload time capture needs to be pursued.

Finally, it should be noted that stakeholders report a high overall level of satisfaction in terms of coordination between the hospitals and the EMS providers in addressing APOT problems when they do arise, and also with VCEMSA in mediating those issues as necessary. That is a positive and constructive role for the local EMS agency to play. Continued vigilance should be exercised on this issue, as it can have significant negative consequences for deployment, wasted unit hours, costs and patient care. But, again, this appears to be an area where Ventura County compares favorably to other counties in California.

Community Paramedicine/Mobile Integrated Healthcare

In November of 2014 the California Office of Statewide Health Planning and Development (OSHPD), a California Office that waives scope of practice laws to test new and innovative models of care, approved Health Workforce Pilot Project (HWPP # 173), a pilot project to test six different concepts for the practice of community paramedicine in ten (10) geographic areas across California. Two (2) of those projects were sponsored by the California EMS Authority for Ventura County. One was a Tuberculosis Pilot Project implemented June 1, 2015 and the other was a Hospice Pilot Project implemented August 1, 2015.¹²⁰

To participate in a community paramedic pilot project a paramedic requires special training. A paramedic is eligible to be trained to perform new roles as a community paramedic if the paramedic has at least four (4) years of experience, volunteers to participate in the pilot, and is sponsored by its local EMS agency. The California Community Paramedic Educational Taskforce developed a core curriculum that OSHPD reviewed and approved. The curriculum was adapted from the Paramedic Foundation's National Community Paramedic Curriculum to better align with the standards and requirements of practice in California. The curriculum includes 48 hours of didactic, classroom-based instruction and 48 hours of clinical, hands-on training, for a total of 96 hours of instruction. Community paramedic trainees are also required to complete 56 hours of study outside the classroom, which includes required readings and other assignments.¹²¹

¹²⁰ University of California San Francisco Report on Implementation of HWPP #173-Community Paramedicine – Quarter 1 2018 (June 29, 2018).

¹²¹ Healthforce Center at University of California San Francisco Update of Evaluation of California's Community Paramedicine Pilot Program (February 7, 2018).



Tuberculosis Pilot Project¹²² - The Tuberculosis Project is designed to improve the treatment for people with tuberculosis (TB) by providing directly observed treatment to TB patients in the field, in support of the Ventura County Public Health Department's TB Specialty Clinic and the patients they serve. This is being accomplished by improving patient compliance with directly observed treatment (DOT), increasing the percentage of patients who complete the full course of treatment for TB, and identifying and treating side-effects and mal-absorption issues early, with physician involvement as needed. In 2017, community paramedics assisted an average of 6 patients per month (some patients were seen multiple times a day). This number included 11 new patients who entered the program throughout the year.

This pilot project was launched in 2015 and is continuing. All three of the EOA providers participate in this project. They were asked to participate because the Ventura County TB clinic does not have sufficient staff to monitor DOT for all TB patients in the County. Because of the length of time that it takes for the medication to render the patient non-communicable, and because the treatment regimen differs depending upon whether the patient is drug-resistant, the length of time TB patients are enrolled in the DOT program varies, but generally enrollment is for multiple months.¹²³ Community paramedics are stationed throughout the County and can usually reach patients within 15 minutes.¹²⁴

Hospice Pilot Project - The Hospice Project is designed to provide hospice patients with the medical care and the support necessary to remain in their location of choice, rather than being transported to an emergency medical facility. If the 911 dispatcher or a first responder or scene determines that a patient is under the care of a hospice agency, a community paramedic is dispatched to the patient's residence. The community paramedic will assess the patient, talk to any family members present, and contact a hospice agency registered nurse for direction on the care to provide for the patient until the hospice team arrives. In a majority of cases, the patient's wish to stay out of a hospital environment can be maintained.¹²⁵

Community paramedics responded to assist 148 hospice patients in 2017, with only 31 of these patient contacts resulting in a transport to the hospital.¹²⁶ It is projected that this saved an average of \$755 per patient by reducing ambulance transports and emergency department visits.¹²⁷

¹²² Unless otherwise indicated, the information provided under this heading is taken from the Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report.

¹²³ University of California San Francisco Report on Implementation of HWPP #173-Community Paramedicine – Quarter 1 2018 (June 29, 2018)

¹²⁴ Overview: Community Paramedicine—California's Community Paramedicine Pilot Projects (April 2018). <https://www.chcf.org/wp-content/uploads/2018/05/CommunityParamedicinePilotProjects.pdf>

¹²⁵ Id.

¹²⁶ Ventura County Public Health Emergency Medical Services Agency 2017 Annual Report at 12.

¹²⁷ Overview: Community Paramedicine—California's Community Paramedicine Pilot Projects (April 2018), <https://www.chcf.org/wp-content/uploads/2018/05/CommunityParamedicinePilotProjects.pdf>.



A preliminary statewide review of California’s community paramedicine pilot programs released in 2019 concluded:

Californians benefit from these innovative models of health care that leverage an existing workforce operating at all times under medical control – either directly or by protocols developed by physicians experienced in emergency care. The projects have improved coordination among providers of medical, behavioral health, and social services and reduced preventable ambulance transports, emergency department visits, and hospital readmissions. They have not resulted in any adverse outcomes for patients.¹²⁸

Potential savings per patient ranged from \$975 - \$2619 in other programs summarized in the statewide review.¹²⁹

Clearly, community paramedicine programs have the potential to benefit patients and EMS systems, both clinically and financially. These programs can reduce 911 and emergency department demand for conditions which do not require emergency response or emergency treatment, improve unit hour utilization, reduce deployment costs, and promote less costly care in more appropriate care settings. VCEMSA has taken positive first steps to be on the leading edge of community paramedicine implementation in California through participation in the early pilot process. We recognize that these programs are likely to transition out as currently administered, but support the continuation of community paramedicine programs where research identifies community needs that can be effectively addressed by such programs.¹³⁰ VCEMSA should continue assessment of County needs that can be served by community paramedicine programs and also integrate lessons learned in paramedic practice where feasible.

Technology in EMS

The use of Electronic Health Records is required for all EMS providers in California, making it possible for all EMS agencies in the State to exchange electronic patient

¹²⁸ Coffman, et al.,

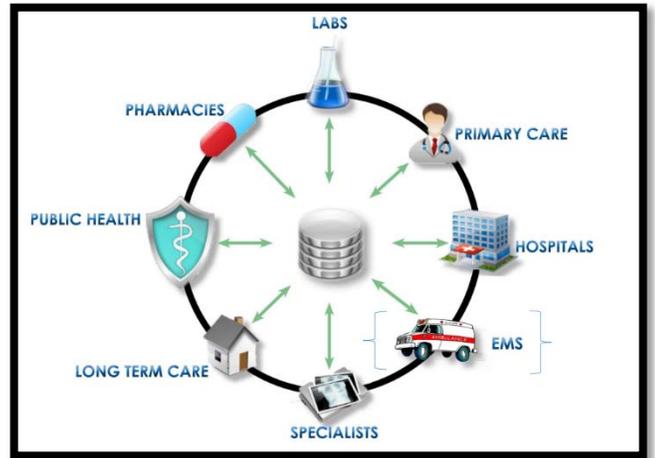
¹²⁹ Id.

¹³⁰ As of the writing of this report, it should be noted that legislative initiatives in California might affect the implementation of community paramedicine programs on a statewide basis, including proposed legislation that would essentially give fire departments a “right of first refusal” in CP program implementation at a local level. Regardless of whether such legislation is enacted, including all stakeholders in a community-based CP program design that reflects local needs and healthcare priorities is advised.



information across healthcare providers.¹³¹ Although few EMS agencies nationwide are currently connected to a health information exchange (HIE),¹³² HIE participation is steadily rising in California.

The integration of EMS agencies into the HIE world has been slow due to a lack of funding, disparate proprietary systems, insufficient collaboration between EMS and other healthcare providers, and privacy concerns.¹³³ But, these challenges are being overcome as more grants become available, benefits are realized from EMS/HIE pilot projects, and providers are increasingly incentivized (primarily by readmission penalties) to improve integration with EMS partners. We believe that EMS agencies in Ventura County could take advantage of expanded HIE initiatives in the State of California in the next ambulance contracting cycle. We also believe that participation in HIE in could offer many benefits for the Ventura County EMS system, its stakeholders, and the patients of the County.



EMS Data in the Broader Health System

“EMS data is health care data. Information from EMS is an important part of the medical record and it has incredible value to patients and downstream health providers. Seamlessly integrating this information and making it available in electronic health records is vital to the continuum of care, but that has not yet been realized in much of the country.”

Noah Smith, EMS Specialist, NHTSA Office of Emergency Medical Services, U.S. Department of Transportation.

Health Information Exchange or “HIE” is the exchange of health information among organizations according to nationally recognized standards. The goal of HIE programs is to facilitate secure access to health care data by appropriate individuals to provide effective, equitable, patient-centered care. An HIE organization is an entity that oversees or facilitates the exchange of health information among healthcare stakeholders.

¹³¹ See, “Implementing HIE in EMS,” available at: <https://emsa.ca.gov/wp-content/uploads/sites/71/2017/07/Adopting-HIE-For-EMS-Providers.pdf>.

¹³² See, <https://emsa.ca.gov/hie/>.

¹³³ Id.



HIE can encompass all aspects of the EMS patient care continuum, including dispatch, scene care, transport, transfer to the emergency department or other destination, hospital admission, hospital discharge, and other practitioner care. For that reason, HIE can benefit EMS in many ways. Having access to relevant health data (such as past medical problems, medications, allergies, and end-of-life decisions) is valuable, and sometimes critical, for EMS providers and their patients at the time of the call. Sometimes patients or their caregivers may be unable to provide basic, reliable health information about the patient. In disaster situations, an HIE organization connected with EMS can help to ensure patient tracking and resource coordination is available to those who may be displaced from their normal location or health care team. In addition, EMS agencies increasingly provide scheduled nonemergent care in partnership with local health systems. Conveying information gathered at the scene can be vital to the receiving facility and impact patient care decisions and the ability to bill the proper payer. HIE also enables EMS agencies and EMS systems to conduct more robust quality improvement and quality assurance because facility admission, treatment and discharge data could reveal issues with the prehospital care provided. It can also enhance EMS education, protocols, and provider training because access to outcome data can expose what procedures and interventions are effective or ineffective. HIE can also cultivate more collaborative relationships between hospitals and providers that function within the EMS system, and can facilitate more effective community paramedicine programs at such time as they become fully implemented.

Benefits:

- > **Improve clinical decision making**
- > **Improve clinical decision support**
- > **Better transitions of care**
- > **Improve patient care**
- > **Build better longitudinal patient record**
- > **Improve population health**

The Federal government recognizes the benefits of, and strongly endorses the integration of EMS data into HIE systems. The Federal Health IT Strategic Plan 2015-2020 noted:

“EMS practitioners provide stabilizing care and transportation services; having access to a patient’s salient clinical information as a first responder can improve patient health and safety. Access to linked outcomes data from hospitals can help EMS systems measure performance, improve their provision of care, and provide timely feedback to providers.”¹³⁴

The Office of the National Coordinator for Health Information Technology (ONC) touts the electronic prehospital care record (ePCR) as “an important part of the patient’s overall

¹³⁴ See, https://www.healthit.gov/sites/default/files/9-5-federalhealthitstratplanfinal_0.pdf.



health record [that] should be integrated with the patient’s longitudinal health record.”¹³⁵ Interoperability between EMS providers and hospitals leads to improved measurement of EMS system performance and population health.

In addition, Federal privacy laws do not stand as an obstacle to the use of HIE in EMS. The Department of Health and Human Services (HHS) Office for Civil Rights (OCR) issued explicit guidance making it clear that EMS providers are providing “treatment” within the meaning of the Health Insurance Portability and Accountability Act (HIPAA) when exchanging healthcare information with providers involved in the patient’s care.¹³⁶ As such, disclosures or transmissions of patient information to or from other providers are permissible without the need to obtain patient consent.¹³⁷ EMS providers may participate in an HIE arrangement and utilize an HIE organization to exchange patient information for HIPAA-permitted activities, such as treatment, payment or healthcare operations.¹³⁸

Health Information Exchange in California

In 2013, EMSA began exploring ways to improve technology for EMS providers who were not *eligible professionals* under the Incentive Programs under the HITECH Act.¹³⁹ EMSA received funding from the California Office of Information Integrity to study EMS HIE integration (EMSA Dispatch). Initial research revealed that many California EMS agencies were not yet aware and did not understand the concept of HIE and the potential and benefits for EMS. Then, in July 2015 EMSA was awarded a \$2.75 million grant under a cooperative agreement from ONC to develop technology, infrastructure, policies and agreements that enable interoperable HIE

S	SEARCH	Paramedics and EMTs may look up and display patient problem list, medications, allergies, POLST and DNR in the field on ePCR screen
A	ALERT	Display patient information on hospital dashboard at ED to alert and share incoming EMS patient information to assist in time-sensitive therapies
F	FILE	Incorporate ePCR data into hospital EHR in HL7 format (using NEMESIS 3.4 CDA standards)
R	RECONCILE	Receive patient disposition information from hospital EHR to add to EMS provider patient record

¹³⁵ Emergency Medical Services (EMS) Data Integration to Optimize Patient Care THE SEARCH, ALERT, FILE, RECONCILE (SAFR) MODEL OF HEALTH INFORMATION EXCHANGE, available at: https://nasemso.org/wp-content/uploads/emr_safr_knowledge_product_final.pdf.

¹³⁶ <https://www.hhs.gov/hipaa/for-professionals/faq/273/when-an-ambulance-delivers-a-patient-can-it-report-its-treatment-without-authorization/index.html>; See also, 45 CFR § 164.506.

¹³⁷ 45 CFR § 164.506.

¹³⁸ Depending on the nature of the relationship with between the provider and HIE partner, a business associate agreement may be required.

¹³⁹ Health Information Technology for Economic and Clinical Health (HITECH) Act, Title XIII of Division A and Title IV of Division B of the American Recovery and Reinvestment Act of 2009 (ARRA), Pub. L. No. 111-5, 123 Stat. 226 (Feb. 17, 2009) (full-text), codified at 42 U.S.C. §§300jj et seq.; §§17901 et seq.



between multiple EMS and other healthcare providers. This was a two-year initiative. The funding also enabled EMSA to pilot new EMS HIE workflows in two local regions by connecting EMS providers with hospitals using two different HIE organizations' vendors. Under the ONC grant, EMSA developed the Search, Alert, File, Reconcile (SAFR) model to describe the minimum functional aspects of EMS HIE data exchange.

EMSA began two pilot SAFR implementations through San Diego Health Connect and Orange County Partnership Regional Health Information Organization. The pilot implementations were largely successful and EMSA continues to endorse the widespread integration of EMS into HIE.

Most recently in May 2019, EMSA issued a \$4.9 million state grant to Manifest MedEx, a California HIE organization, to fund another HIE initiative.¹⁴⁰ The initiative involves six local EMS agencies, 13 EMS agencies and 16 hospitals across eight counties—Riverside, San Bernardino, Fresno, Tulare, San Joaquin, Merced, Amador, Stanislaus and Calaveras—and will serve more than 7.6 million Californians.¹⁴¹ The data exchange framework follows the ONC's SAFR model.¹⁴² Starting with a two-year program, the initiative is designed to create capabilities that can be scaled to other areas in California in the future. More than 400 healthcare organizations in California are currently participants in Manifest MedEx.

Steps Necessary for Ventura County for EMS HIE Integration

There are several steps that can help begin the process toward integration in Ventura County:

1. **Identify a Lead Person.** Identify an EMS leader who can engage the County stakeholders, articulate the value of information exchange, and lead the charge for HIE.
2. **Assess ePCR Capability.** Evaluate the ePCR capabilities of the ePCRs solution used in the County and ensure they are compliant with the most recent NEMESIS standards and can be easily integrated into an HIE.

¹⁴⁰ Landi, H. (2019, May). California HIE to use \$4.9M grant to connect ambulances with hospital patient data, available at: <https://www.fiercehealthcare.com/tech/california-hie-to-use-4-9m-grant-to-connect-ambulances-to-patient-data-hospital-ehrs>.

¹⁴¹ Id.

¹⁴² Emergency Medical Services (EMS) Data Integration to Optimize Patient Care THE SEARCH, ALERT, FILE, RECONCILE (SAFR) MODEL OF HEALTH INFORMATION EXCHANGE, available at: https://nasemso.org/wp-content/uploads/emr_safr_knowledge_product_final.pdf.



3. **Funding Sources.** It is possible that EMSA currently has additional resources to allocate for HIE and/or Ventura County could participate with Manifest MedEx; or, EMSA may have resources available in the future.
4. **Adopt SAFR Model.** Ventura County participants would have to implement and include the core data elements in California's pilot projects.
5. **Outreach and Cooperation.** Ventura County would have to establish early cooperation with all involved parties, including community leaders from EMS, HIE organizations, local health systems, hospitals, and ePCR vendors.

We recommend that VCEMSA take the lead in establishing EMS/HIE integration for providers in Ventura County. Future ambulance provider contracts should require HIE participation by an appropriate target date. California has an existing, tested HIE model and may have the resources to fund HIE in Ventura County. The County should reach out to communities and vendors who have already begun EMS HIE integration in the State and use the resources developed by the EMSA Health Information Exchange Knowledge Bank.¹⁴³

¹⁴³ Available at: <https://emsa.ca.gov/HIE-Knowledge-Bank/>



SWOT Analysis – EMS System Deployment

Strengths

- Ventura County has grandfathering eligibility for all providers in all EOAs, giving it the option to maintain system continuity and avoid the expense of a competitive procurement
- Effective voluntary public-private partnerships with fire departments for EMS first response
- Good specialized facility capabilities
- Efficient EMS-hospital interface and relatively low APOT
- Leadership in community paramedicine needs assessment

Weaknesses

- Zone 4 deployment in three of the less-populated sub-zones inadequate to cover demand
- Inefficient deployment of all-ALS resources regardless of severity of EMD response determinant
- No current EMS HIE participation

Opportunities

- Ability to add a BLS response and transport tier to more effectively match resources with dispatch condition
- Build on community paramedicine model program success to fulfill other identified community needs
- Implement HIE participation by EMS

Threats

- Population growth exceeding hospital bed capacity



EMS System Communications

Background and Discussion

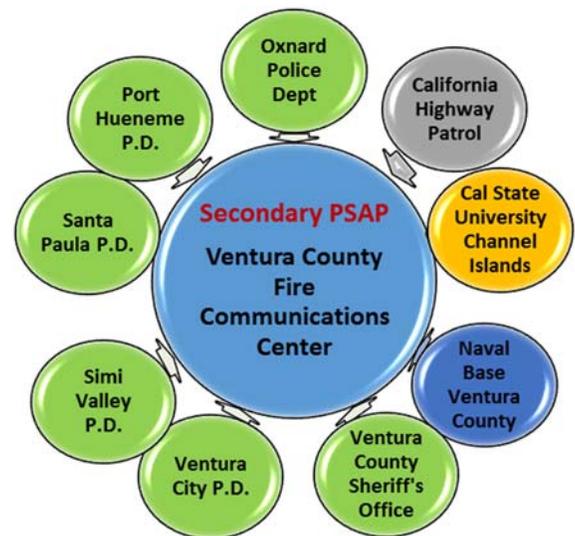
Ventura County has a two-tiered dispatch system where all 9-1-1 calls are initially received by a primary public safety answering point (PSAP) and then EMS calls are transferred to a secondary PSAP.

Nine (9) primary PSAPs serve the County. Six (6) of the primary PSAPs are covered by the Ventura County EMS Plan: (1) Oxnard Police Department; (2) Port Hueneme Police Department; (3) Santa Paula Police Department; (4) Simi Valley Police Department; (5) Ventura City Police Department; and (6) Ventura County Sheriff's Department. In addition, the California Highway Patrol, California State University Channel Islands, and Naval Base Ventura County PSAPS serve as primary PSAPs in Ventura County.

The Ventura County Fire Communications Center (FCC) is a secondary PSAP. When a primary PSAP receives a call for a medical or fire emergency in the County, the call is transferred to FCC. FCC is the exclusive dispatcher for emergency ambulance calls in the County, whether initiated by a 9-1-1 call, a walk-in or a seven-digit emergency call.

All EMS resources dispatched in Ventura County are dispatched by FCC using CentralSquare Technologies CAD software. FCC dispatches the closest available ALS ambulance to an emergency, in accordance with VCEMSA policies and procedures. Ambulances are deployed based on established System Status Management plans and all ambulances are equipped with modern mobile dispatch computers and an automatic vehicle location (AVL) system. AVL utilizes a combination of radio communications and other hardware that is integrated with the VCFPD dispatch center's computer aided dispatch (CAD) system to provide a visual image of the location of vehicles. The AVL system communicates the geographic location of the vehicles to the CAD system.

FCC also uses the Emergency Medical Dispatch (EMD) program when dispatching ambulances. EMD is a program designed to provide predetermined instructions to victims and bystanders before the arrival of first responders. EMD dispatchers use Medical Priority Dispatch Systems ProQA Dispatch Software to move through case entry and key questioning to determine the level of acuity of the call and to assess the potential condition of the patient. Ventura



County is fortunate to have a secondary PSAP with full EMD capabilities to provide priority dispatch services for EMS throughout the County. Perhaps a worthwhile aspirational goal is for the FCC to obtain the IAED ACE (Accredited Center of Excellence) designation to add to its already excellent reputation and services. In addition, the secondary PSAP could explore use of the NAED Omega protocol and/or Emergency Nurse Communication System (ECNS) to provide additional options for non-EMS response or alternative referral when EMS is determined to be unnecessary.

If LifeLine or AMR/Gold Coast receive a call for an ambulance response and/or transport, the agencies assess whether the call is for an emergency or non-emergency ambulance service. If, based upon call-intake information received, LifeLine or AMR/Gold Coast determine that the call requires an emergency response, the agency refers the call to FCC.¹⁴⁴ If based upon the call-intake information it receives it determines that the call requires a non-emergency/interfacility transport, the agency will dispatch one of its own ambulances and not transfer the call to FCC.

All ambulances are equipped with mobile and portable radios programmed to the County's uniform channel listing, which allows all first responders and ambulance personnel to communicate on common radio frequencies. Radios are also required to provide two-way communication between the crew and base hospitals for needed communications. Cellular phones are also permitted to be used for this purpose.

The two-way radios for the ambulances have push to talk features and multiple line and frequency capabilities with at least 32 channels. Most ambulance-related communications in Ventura County are transmitted over VHF radio frequency bands ranging between 151 – 155 MHz. EOA providers need to re-program the radio channels to be compatible with approved recommendations of the County Fire Chief's Association and VCEMSA. These radios are also used for multiple agency access, operations in varied terrain, and communications capacity in driver and patient compartments. The patient compartment part of the radio system is required to include a speaker, microphone and volume control.

EOA providers must have one hand-held radio per ambulance and a radio charger or spare battery pack for each portable radio and stock a surplus of portable radios so that they are available to replace portable radios undergoing repairs. Surplus radios are also available for use in incidents requiring more EMS radios than otherwise available on ambulances participating in the incidents. Ambulances that have radios purchased by the EOA provider are the property of the EOA provider. If the County purchased the radio it is the property of the County. Regardless, the EOA provider is responsible for maintenance of the radio.

¹⁴⁴ March 26, 2019 memo from Chris Rosa to PWW.



As of February 2019, communication equipment that VCEMSA has deployed as front-line or reserve equipment is specified in the following table:¹⁴⁵

Table 11: Communications Equipment Deployed By VCEMSA		
TYPE	MODEL	COUNT
Portable Radios		
	Motorola APX 7000X	2
	Motorola HT 1250	71
Mobile Radios		
	Motorola CDM 1550	16
	Motorola CDM 1550 LS	6
	Motorola Astro	2
	Motorola APX 1500	6
HAM Radio		
	Kenwood TM-D710	1
HAM Radio Packet		
	Alinco DR-135 MK111	2
HAM Radio - Portable		
	Wouxun KG-UV3D	10
	Kenwood TH-F6A	12
HAM Radio - Mobile		
	Motorola TM-D710A	12
Satellite Phone		
	Iridium	7

VCEMSA is in the process of upgrading its front-line communications equipment to Motorola APX model radios, some of which will be multi-band or all-band, and all of which will be P25 compliant. VCEMSA expects the transition of its front-line equipment to be complete by the end of FY 19-20.¹⁴⁶

The County also has an operational area disaster communication system.¹⁴⁷ It uses 154.055 as the radio primary frequency. It participates in the Operational Area Satellite Information System (OASIS) and has a plan to utilize the Radio Amateur Civil Emergency Services (RACES) as a back-up communication system. Also, HAM radio units are placed in the emergency rooms of all County hospitals.¹⁴⁸ In the event of a disaster, members of RACES respond to the hospitals to provide emergency radio communications. There are

¹⁴⁵ February 22, 2019 memo from VCEMSA to PWW.

¹⁴⁶ Id.

¹⁴⁷ Ventura County 2017 EMS Plan Update.

¹⁴⁸ Ventura County 2013 EMS Plan.



also HAM radios in the County Emergency Operations Center, in the Health Department's Operations Center and in Disaster Response Vehicles. All County hospitals have the ability to communicate with each other through the ReddiNet system and satellite backup service is available for that system in the event of a failure of regular Internet connections.¹⁴⁹

SWOT Analysis – EMS System Communications

Strengths

- Centralized secondary PSAP for all EMS dispatch
- EMD on all EMS emergency calls
- Strong partnership for EMS dispatch operations

Weaknesses

- EMD response determinants not effectively utilized since all response is at ALS level

Opportunities

- Obtain ACE accreditation for secondary PSAP through IAED

Threats

- Interoperability in a multi-jurisdictional event

¹⁴⁹ Id.; VCEMSA Policy No. 920. [ReddiNet Communications Policy](#).



Response Times

Background and Discussion

The Ventura County EMS system is what is typically referred to as a “high performance system,” that is, it incorporates response time standards and associated penalties. Response time is calculated from the time of first notification of the ambulance until the time the ambulance notifies the dispatcher of its arrival (wheels stopped) at the scene. Response time criteria varies based on population density and call priority.¹⁵⁰

A detailed analysis of response time compliance by zones and sub-zones is discussed in the Deployment section of this report. As discussed in that section, response time compliance is overall satisfactory for each EOA with minimal deficiencies, with the exception of three of the four less-populated sub-zones in EOA 4.

Based upon call-intake information the secondary PSAP dispatches EMS resources to respond as either an EMD Priority I Response or an EMD Priority II Response. An EMD Priority I Response is an EMS response to a patient whose medical condition, as determined by EMD protocol, requires an emergency response. An EMD Priority I Response requires the use of lights and sirens. An EMD Priority II Response is an EMS response to a patient whose medical condition, as determined by EMD protocol, requires a prompt but not emergency response. An EMD Priority II Response does not require the use of lights and sirens.

For metropolitan/urban areas, suburban/rural areas, low density/remote areas and wilderness areas EMD Priority I Response time requirements are set forth in the following chart:

¹⁵⁰ EMD Priority I and II Responses are defined in VCEMSA Policy No. 910. [Emergency Medical Dispatch System Standards](#).



Table 12
Ventura County Ambulance Response Times

Area	Emergency Response/ 90% of Time	Maximum/ 100% of Time
Metropolitan/Urban	8.00 ^{151,152}	15.00 ¹⁵³
Suburban/Rural	20.00	40.00
Low Density/Remote	30.00	40.00
Wilderness	45.00 ¹⁵⁴	ASAP

Ambulance response time compliance is monitored through the FirstWatch Online Compliance Utility program. Non-compliant responses, without an approved exemption, are assessed a financial penalty based on the contract guidelines. Exceptions to the response time requirements include, but are not limited to, 16 reasons listed in the contracts. In 2018, months where the 90% requirement was not met were rare, and were confined to three of the EOA 4 sub-zones as discussed above in the Deployment section of this report.

Also, if the County determines that the EOA provider has failed to maintain a 90% response time performance level in an EOA assigned to it for three consecutive months or a total of four months during a fiscal year, the County may determine that there is a material breach of the contract and pursue its remedies for the breach, which include termination of the contract and possible immediate control by the County of the provider’s emergency ambulance service operations in the EOA directly or through a designated operator. There have been no occasions where a 90% response time performance level for an EOA has not been satisfied for three consecutive months or a total of four months during a fiscal year.

To aid response time compliance EOA provider ambulances are deployed countywide based on established System Status Management plans. The EOA providers also have ambulance back-up plans to address occasions when the dispatch of ambulances deployed in an area have left that area with an ambulance shortage.

¹⁵¹ For each EOA provider, for each EOA assigned to it, pursuant to its contracts with the County its response time for metropolitan/urban area Priority I calls is increased from 8 minutes to 10 minutes if an ALS first responder unit arrives at the scene prior to the ALS ambulance and within 8 minutes.

¹⁵² The non-emergency response time requirement is 15 minutes 90% of the time.

¹⁵³ Not all of the EOA contracts imposed this maximum response time. In 2011 those EOA contracts that did not impose this requirement were amended to include it.

¹⁵⁴ This is for reporting purposes only.



All responses dispatched by the secondary PSAP are dispatched at the ALS level. Collectively, between AMR, Gold Coast and LifeLine, they have responded to emergency calls and conducted emergency transports as follows:¹⁵⁵

Table 13 Emergency Responses and Transports by Year, 2013-2017		
Year	Emergency Responses	Emergency Transports
2013	53,730	38,890
2014	53,032	40,242
2015	57,987	43,395
2016	57,216	43,415
2017	58,862	44,739

Response Time Requirements for Other Counties

We looked at the response time requirements for the counties with populations +/- 20% and population density per mile +/- 20% of the population and population density of Ventura County, for which there were single county LEMSAs. Those requirements were as follows:

- **Kern County.** This county uses 9 priority codes and applies them to 5 zones— Metro, Urban, Suburban, Rural and Wilderness. Only 5 of the priority codes have response time requirements, and only 3 of the codes apply to prehospital transports. They are Priority Code 1 for life-threatening emergencies, Priority Code 2 for time-sensitive emergencies, and Priority Code 3 for urgent. The response time requirements in minutes applicable to each zone are as follows:
 - Priority Code 1—Metro (8), Urban (15), Suburban (25), Rural (50), Wilderness (75)
 - Priority Code 2—Metro (10), Urban (15), Suburban (25), Rural (50), Wilderness (75)
 - Priority Code 3—Metro (20), Urban (25), Suburban (30), Rural (50), Wilderness (75)
- **San Mateo County.** This county uses 2 priority codes and applies them to 3 zones—Urban/Suburban, Rural and Remote. The response time requirements

¹⁵⁵ Except for 2018, these amounts are based on the numbers of emergency responses and emergency transports listed in the 2013 Ventura County EMS System Plan and the 2014-2017 EMS System Plan Updates.



in minutes and seconds applicable to each zone are as follows:

- Priority Code 1—Urban/Suburban (12:59), Rural (19:59), Remote (25:59)
- Priority Code 2— Urban/Suburban (59:59), Rural (19:59), Remote (59:59)
- **San Joaquin County.** This county applies a single response time in minutes and second to each zone as follows:
 - Metro/Urban (7.29), Suburban (9.29), Rural (17.29), Wilderness (29.29)

Ventura County Fire Protection District¹⁵⁶

Pursuant to its public/private partnership (PPP) agreement with AMR, VCFPD is to provide ALS first response service in concert with AMR and its backup provider's authority (i.e., mutual aid agreements with LifeLine and Gold Coast) in EOAs 2, 3, 4, 5 & 7, within 8 minutes 90% of the time on all Priority 1 calls for metro/urban areas. For suburban areas it is to respond within 20 minutes, and for rural areas it is to respond within 30 minutes, both at least 90% of the time. For all other areas VCFPD is to respond as soon as possible. Just as for the EOA providers, exceptions to the time requirements include, but are not limited to, 16 listed reasons.

The same monetary penalties as imposed upon the EOA providers may be imposed upon VCFPD on a trip-by trip basis. AMR is responsible to pay the County for failure to meet its response time requirements whether due to its own failure or the failure of VCFPD, but, under the PPP agreement, if any of those fines are due to VCFPD failing to meet its response time requirements, VCFPD is responsible to indemnify AMR for those fines. Incentives for VCFPD in the form of percentage decreases in total penalties that would be assessed against it are granted if VCFPD exceeds response time standards in a calendar month beginning with 92.5% (20% of the total penalty amount) up to 98 -100% (100% of the total penalty amount).

If VCFPD fails to maintain a 90% response time performance level in an EOA assigned to AMR for three consecutive months or a total of four months during a fiscal year, AMR may determine that there is a material breach of the contract and pursue its remedies for the breach, which include termination of the contract and possible immediate control by AMR of VCFPD's first response ALS service in all or a portion of VCFPD's first response ALS service area.

¹⁵⁶ The information provided under this heading is taken from VCFPD's contract with AMR.



City of Ventura¹⁵⁷

As with AMR's contract with VCFPD, AMR's contract with COV imposes response time standards, but only an 8 minute response time requirement 90% of the time on all priority 1 calls in the incorporated portion of EOA 7. Here, too, there are exceptions to this time requirement that include, but are not limited to, 16 listed reasons.

Also, as with the VCFPD contract with AMR, the same monetary penalties may be imposed upon COV on a trip-by trip basis for the same violations. The incentives given to VCFPD in the form of percentage decreases in total penalties that would be assessed against it are also granted to COV if COV exceeds response time standards in a calendar month beginning with 92.5% (20% of the total penalty amount) up to 98 -100% (100% of the total penalty amount).

AMR is directly responsible for payment of the monetary penalties to the County. AMR and COV will meet to determine the applicability of the fines imposed on COV. Ultimately, if VCEMSA determines that a fine is applicable to COV, COV will remit the amount of the fine to AMR.

Likewise, as with VCFPD, if COV fails to maintain a 90% response time performance level in EOA 7 for three consecutive months or a total of four months during a 12-month period, AMR may determine that there is a material breach of the contract and pursue its remedies for the breach, which include termination of the contract and possible immediate control by AMR of COV's first response ALS service in all or a portion of COV's first response ALS service area.

Non-Emergency and Interfacility Response Times

Because non-emergency transports (NETs) and interfacility transports (IFTs) are not part of the EOA contracts, there are no binding response time standards for these services. In addition, no data were provided to us through the First Watch system pertaining to NETs and IFTs.

Nevertheless, we believe it is appropriate that a local EMS agency not impose response time standards on providers of NET and IFT services where the market is non-exclusive with respect to those services, as it is in Ventura County. Because hospitals, SNFs and other facilities within the County are free to contract with and utilize the services of any providers of NET and IFT services, market forces suffice to ensure that performance of those providers is within parameters acceptable to those facilities which originate NETs and IFTs.

¹⁵⁷ The information provided under this heading is taken from COV's contract with AMR.



VCEMSA does have several policies which classify certain IFTs as emergency responses, therefore making response time requirements applicable to those specific types of transports. For instance, Policy 440, “Code STEMI,” indicates that transports of STEMI patients to a STEMI Receiving Center (SRC) shall be directed to the ambulance dispatch center, and that the closest available ALS ambulance will be dispatched, requiring an immediate response by that provider. The policy specifically states that these types of transports are not to be considered interfacility transports as it pertains to contract compliance.

Similarly, Policy 460, dealing with acute stroke patients, requires dispatch of the closest available ALS ambulance and specifies that those calls are not to be considered interfacility transports for purposes of contract compliance. The flowchart on page 4 of this Policy further specifies that the “ambulance will arrive within 8 minutes,” making it apparent that the metropolitan area/Priority I response times are applicable to these calls.

Likewise, Policy 1404, “Guidelines for Interfacility Transfer of Patients to a Trauma Center,” imposes an obligation on ambulance services to respond to community hospital trauma transfer requests, and perform re-triage transports of community hospital trauma patients if the ALS ambulance was the one that initially transported the patient to the emergency department, provided it is still on premises. Although the Policy does not specify the response time requirement for emergent trauma IFTs, it does indicate that for emergent IFTs the ambulance company will “not be required to consider emergency transports as an ‘interfacility transport’ as it pertains to ambulance contract compliance.” Though this language is somewhat unclear and differs from the language used in the two policies referenced above, we believe the intent is the same – i.e., that trauma IFTs are to be treated as emergency calls for purposes of response time performance standards (i.e., 8 minutes) and counted toward contractual compliance.

Also, with respect to trauma IFTs, Policy 1404 stipulates that urgent transfers require a response time of 30 minutes, though it does not appear that these calls are counted either for response time or contractual compliance purposes (i.e., they are treated as IFTs per the Policy). It is also worth noting that the Policy imposes ED on-scene time standards of ten minutes¹⁵⁸ for emergent trauma IFTs and 20 minutes for urgent transfers. VCEMSA may wish to consider implementing an “urgent” category for the other mandated IFTs, i.e., STEMI and stroke. This can provide an option for ensuring timely response in those cases where the hospital may require some additional time to prepare the patient for transport.

¹⁵⁸ We note that the Policy in one place (subsection c on p. 4) makes this an express requirement on the sending hospital ED: “maintain an ambulance arrival to ED departure time of no longer than ten minutes” – but in another place, the Policy appears to backtrack on this directness somewhat: “every effort will be made to limit ambulance on-scene time in the transferring hospital ED to ten minutes.” (P. 5, item #5.)



What is not clear in the policy is the amount of time that incoming ALS ambulances can be held for re-triage transports (i.e., “Trauma Call Continuation” transports under Policy 1404). It appears that the Policy allows the ED to “direct” the incoming ambulance to remain in the ED for the trauma re-triage IFT if it is still on the premises, but does not expressly indicate whether the ambulance must remain indefinitely, regardless of whether the hospital has the patient ready for transfer within 10 minutes. As written, this Policy could incentivize an incoming ambulance to leave the ED and the hospital premises as quickly as possible after handing off care of a patient. While the data available to us do not show an acute problem or a significant impact on ambulance unit hour utilization, VCEMSA may wish to consider clarifying this in future versions of this Policy. Anecdotally, however, stakeholders indicate that these re-triage transports and holding of incoming ambulances are not occurring with enough frequency to have an appreciable impact on deployment or 911 resource availability.

While the clinical justification for including certain condition-based IFTs is apparent, in some systems we’ve evaluated, this can lead to some inappropriate utilization, which can lead to deployment and availability issues for 911 calls from the community. In some cases, hospitals may “downgrade” the condition of the patient and classify it as an emergency simply because they cannot obtain a contracted transport provider within an acceptable amount of time, or to improve the hospital’s throughput and improve bed turnover and availability. It is worth noting that VCEMSA reviews 100% of these urgent and emergent IFTs and pays attention to these considerations.

The potential impact on stakeholders from hospitals utilizing emergency ambulances for IFTs likely will differ depending upon the provider. For instance, incumbent contractor AMR’s business in Ventura County is primarily emergency/911 with relatively low IFT volume. For that reason, the deployment of 911 ambulances for IFTs becomes more likely, since more of their resources are dedicated 911 resources. On the other hand, LMT’s business in Ventura County is overwhelmingly IFT-focused, so more of its resources are devoted to that line of business, and the need for re-deployment of its 911 assets to emergency IFTs becomes less likely. Overall, however, stakeholders indicate that the emergency IFT policy has not proven to be a significant issue for emergency/911 deployment in Ventura County, though we recommend that continued vigilance be maintained on this issue.

As for non-emergency IFTs, aside from the emergency conditions mentioned above which are treated as emergencies for response time and contract compliance purposes, there are no published or accepted data which offer any clinical support for improved patient outcomes by which to justify what would surely be costly NET/IFT response time standards. Finally, to the extent such standards were imposed, they would essentially constitute a subsidy to facilities in terms of improving their throughput by imposing costly performance standards on IFT/NET transport providers where there is no evidence of uniformly applicable clinical benefit.



Response Times as a Measurement of EMS System Quality and Accountability

EMS oversight requires that LEMSAs ensure that their contracted ambulance service providers are held accountable for providing responsive quality service for the people they are contracted to serve. Historically, the primary tool EMS systems use for determining and measuring performance has been establishing response time requirements and imposing fines for failing to meet those requirements. This is the primary tool that VCEMSA uses to measure and ensure EOA provider performance pursuant to the existing contracts. However, research has shown, that except for a few patient conditions, quicker response times do not equate to better patient outcomes.

The goal of an EMS system should be to improve the outcomes of the patients it serves. Yet, the literature suggests that there is no correlation between quicker response times and improved patient outcomes for most patient conditions. Some of the studies over the last quarter of a century that support the conclusion that quicker response times for most patient conditions are not indicative of improved patient outcomes are summarized here:

- A 2002 study, conducted in a metropolitan county with a population of 620,000, examined the correlation between specified response times and survival in an urban EMS system. The EMS system employed a single tier response at the ALS level and a 90% fractile response time specification of 10:59 minutes for Priority 1 (emergency life-threatening) calls and 12.59 minutes for Priority 2 (emergency non-life-threatening) calls. All studied calls resulted in patient transports to a Level 1 trauma center. The review covered 5,424 transports. Seventy-one patients died, but the study found no significant difference in median response times between survivors and non-survivors. Response times equal to or less than 5 minutes were associated with improved survival when compared to response times exceeding 5 minutes. The study's conclusion was that "changing the system's response time specifications to times less than [10:59 minutes for Priority 1 calls and 12.59 minutes for Priority 2 calls], but greater than 5 minutes, would [not] have any beneficial effect on survival."¹⁵⁹
- A retrospective cohort study published in 2005 evaluated the effect of paramedic response time on patient survival to hospital discharge. The patients were transported to a single urban county teaching hospital. The study revealed that "a paramedic response time of ≤ 8 minutes was not associated with survival to hospital discharge after controlling for several important cofounders, including level of illness severity. However, a survival

¹⁵⁹ Blackwell et al., *Response time effectiveness; comparison of response time and survival in an urban emergency medical services system*, 9 *Academy of Emergency Med.*, (2002).



benefit was identified when the response time was ≤ 4 minutes.” Further, when only medical noncardiac arrest patients were considered the effect of even the ≤ 4 minute response time was not significantly associated with survival to hospital discharge. Response time considered was the interval from the initiation of the 911 call to the arrival of the ambulance at the scene.¹⁶⁰

- In 2006, the results of a study were published examining 20 paramedic accounts of the effects on patient care and on their own health and safety in an effort to respond within 8 minutes of dispatch in cases involving prehospital thrombolysis. The conclusion reached was “[t]he 8-minute response time is not evidence-based and is putting patients and ambulance crews at risk.”¹⁶¹
- A study published in 2009 conducted a review of mortality of and the frequency of critical procedural interventions performed on 373 Priority 1 patients. The study was conducted in a county in which a single-tiered ALS response time limit of 10:59 minutes was imposed for Priority 1 calls. Response time considered was the interval between when the address and chief complaint were verified or at 30 seconds after call receipt, whichever was less and the arrival of the ambulance at the scene. The study found that for those 373 Priority 1 patients, patients who waited longer than 10:59 minutes for an ambulance, when compared to patients who did not wait longer than 10:59 minutes, experienced between a 6% increase and a 4% decrease in mortality. The study concluded that “[n]either the mortality nor the frequency of critical procedural interventions varies substantially based on [a] prespecified [advanced life support response time].”¹⁶²
- A one-year retrospective study published in 2012 evaluated response times in 7,760 cases to determine whether an 8-minute EMS response time was associated with mortality at time of hospital discharge. Response time was defined as 911 call receipt to ALS unit arrival on scene. The study focused on adults with a life-threatening event as assessed at the time of the 911 call. For patients who had a response time of 8 minutes or more, 7.1% died, while for patients who had a response time of 7:59 minutes or less, 6.4% died.

¹⁶⁰ Peter Pons et al., *Paramedic Response Times: Does it Affect Patient Survival?*, 12 *Academic Emergency Medicine*, (2005).

¹⁶¹ L Price, *Treating the clock and not the patient; ambulance response times and risk*, 15 *Quality Safety in Health Care*, (2006).

¹⁶² Blackwell et al., *Lack of association between prehospital response times and patient outcomes*, 13 *Journal Prehospital Emergency Care*, (2009).



Those who conducted the research concluded there was “[questionable] clinical effectiveness of a dichotomous 8-minute ALS response time on decreasing mortality for the majority . . . [n]ot suggest[ing] that rapid EMS response is undesirable or unimportant for certain patients.”¹⁶³

- The results of another study designed to determine the influence of shorter ambulance response times on patient outcomes were published in 2013. The study was conducted in an EMS system covering both urban and rural areas. It reviewed responses to Priority 1 dispatches for patients 13 years of age or older involving motor vehicle crash injuries, penetrating trauma, difficulty breathing, and chest pain complaints. The review covered 2,164 transports, 569 of which were transports to a trauma center. The study found that “[i]n cases seen at a major trauma center, longer response times were not associated with worse outcomes for the diagnostic groups tested.”¹⁶⁴
- A 2016 study of 503 ambulance response times for people 65 years of age or older who had fallen to the floor found that 8% of them died within 90 days, but that those who died within that period did not wait significantly longer for an ambulance than those who survived within that period.¹⁶⁵

Modern healthcare is moving towards the “triple aim” of improving population health, improving the experience of care, and reducing the per capita cost of healthcare.¹⁶⁶ One of the driving forces behind this movement is the adoption of evidence-based requirements. VCEMSA should consider working toward the implementation of a fully evidence-based EMS system. We are not suggesting that VCEMSA abandon response time requirements and penalties for failing to satisfy those requirements as a tool to ensure provider accountability and responsiveness to customer needs. Yet because the clinical evidence does not support high-cost features such as stringent response time standards, we do recommend that those features be de-emphasized and that VCEMSA move toward ensuring better EMS system performance by holding contracted EOA providers accountable based upon metrics that have a proven positive impact on clinical outcomes.

Unlike several EMS systems, the Ventura County EMS system not only penalizes the system’s contracted ambulance service providers for failing to meet response time standards, but also rewards them for exceeding response time requirements. It does the

¹⁶³ Ian Blanchard et al., *Emergency Medical Services Response Time and Mortality in an Urban Setting*, 16 *Journal Prehospital Emergency Care*, (2012).

¹⁶⁴ Steven Weiss et al., *Does Ambulance Response Time Influence Patient Condition among Patients with Specific Medical and Trauma Emergencies?*, 106 *Southern Medical Journal*, (2013).

¹⁶⁵ Emily Cannon et al., *Ambulance Response Times and Mortality in Elderly Fallers*, 33 *Emergency Medicine Journal*, (2016).

¹⁶⁶ Institute for Healthcare Improvement, <http://www.ihl.org/engage/initiatives/tripleaim/pages/default.aspx>



latter by reducing or possibly eliminating monthly penalties for individual violations based upon overall excellent performance during the month. We believe this is a step in the right direction to de-emphasizing response time requirements for which compliance does not improve patient outcomes.

On the other hand, we believe the contracted ambulance service providers should be held accountable for meeting clinical and other standards under their control that evidence has shown do improve patient outcomes. For example, VCEMSA has recognized that patient outcomes can be improved by paramedics using field transmission of 12-lead ECGs and STEMI alerts to provide early notification of a STEMI to a cardiac intervention team. We recommend that VCEMSA impose field transmission of 12-lead ECGs and STEMI alerts as a contractual requirement when a patient is suffering from a STEMI and penalize the provider for not satisfying this standard. This is just one clinical performance standard VCEMSA could consider imposing as a penalized non-compliance measure to shift the focus away from “speed” and instead focus on incentivizing patient outcomes. While the following list is not exhaustive, we recommend that VCEMSA should consider transitioning its system penalties away from response time compliance penalties and toward establishing disincentives for such clinical performance deficiencies as:

- Failure to perform 12-lead EKG on any patient with a chief complaint of chest pain or signs/symptoms of cardiac distress
- Failure to recognize an apparent STEMI on a 12-lead EKG tracing
- Failure to issue a STEMI alert prior to departing the scene with a patient with an identified STEMI
- Failure to transport a STEMI patient to a designated STEMI center
- Failure to document a prehospital stroke score in accordance with approved VCEMSA protocols on patients with chief complaint and/or signs/symptoms of possible stroke
- Failure to issue a stroke alert prior to departing the scene with a patient with a positive prehospital stroke score
- Failure to transport a patient with a positive prehospital stroke score to a designated stroke center
- Failure to transport a trauma patient to a VCEMSA-designated trauma center
- Failure to notify the receiving hospital of a cardiac arrest prior to departing scene
- Failure to alert public safety dispatch centers of a mass casualty incident (>3 patients) within 5 minutes of arrival on scene at any MCI incident
- Material non-compliance with VCEMSA clinical protocols

We note that the list of clinical indicators in the State Core Measures as contained in Attachment A to the VCEMSA 2017 QI Program Annual Update (dated August 2018) contains many similar clinical quality improvement indicators to those listed here. We



believe that performance standards based on these clinical care expectations make more sense, and have a more direct relationship to patient outcomes, than response times.

Red Lights and Siren (RLS) Usage

We note that red light and siren (RLS) usage is fairly extensive in both prehospital and some interfacility emergency responses. VCEMSA's 2017 QI Plan Update incorporates the state core measures, including RLS usage during response (85%) and during transport (10%). There are no studies that support that the use of red lights and sirens are linked to improved patient outcomes. In fact, studies have shown that the use of red lights and sirens is dangerous to EMS professionals, the public, and patients. One study found that red lights and sirens were activated in 80 percent of all crashes involving ambulances.¹⁶⁷ This same study went on to conclude that an "essential issue verified in the analysis of these data is the fact that the use of lights or sirens often places the responding ambulance and the civilian population at risk." A second study found that 60 percent of crashes and 58 percent of fatalities involving ambulance crashes occurred while red lights and sirens were activated.¹⁶⁸

National consensus standards for EMS state that EMS systems should strive to achieve RLS usage targets of less than 50% during response and 5% during transport.¹⁶⁹ We recommend that applicable VCEMSA policies that address or require the use of lights and sirens (as some existing VCEMSA policies do) be systematically reviewed and revised as appropriate to consider response and transport types for which RLS use can be eliminated. Accordingly, we recommend that the VCEMSA medical director and assistant medical director establish new and revise existing policies and that VCEMSA work with FCC to revise policies and response determinants regarding the use of RLS to limit their use to where medical considerations warrant RLS use, that penalties be imposed for non-compliance with RLS policies, and that exceptions to response time requirements be granted when reasons against the use of RLS outweigh extraordinary circumstances that might prevent compliance with response times without RLS use.

¹⁶⁷ Sanddal, et al., Ambulance Crash Characteristics in the US Defined by the Popular Press: A Retrospective Analysis. *Emergency Medicine International*, Vol 2010, Article ID 525979 (2010).

¹⁶⁸ Kahn, et al., Characteristics of Fatal Ambulance Crashes in the United States: An 11-Year Retrospective Analysis. *Prehospital Emergency Care*, Vol. 5, No. 3 (July/September 2001).

¹⁶⁹ Kupas, D., Lights and sirens use by Emergency Medical Services: above all do no harm, Maryn Consulting under Contract with National Highway Traffic Safety Administration, May 2017



SWOT Analysis – Response Times

Strengths

- Robust, data-driven monitoring of current performance standards
- Good contractor performance under current standards except in less-populated EOA 4 sub-zones

Weaknesses

- Primary reliance on response time metrics for contractual compliance
- Subdivision of EOA 4 into sub-zones leads to response time deficiencies in 3 of the 4 less-populated sub-zones

Opportunities

- Shift in contractual compliance metrics away from response times and toward implementation of clinical performance standards and metrics which have a proven impact on patient care

Threats

- Response time focus for penalty assessment incentivizes practices without a proven connection to patient care or outcomes
- Overutilization of red lights and siren (RLS)



Critical Care Transport¹⁷⁰

Background and Discussion

To provide critical care transports (CCTs)¹⁷¹ in the County, except for one exception, a ground ALS ambulance service provider must be approved by VCEMSA to do so. The only ambulance service providers that have been so approved and have an active CCT program are AMR and LifeLine.¹⁷² However, an entity authorized to provide CCTs outside of the County may conduct CCTs that originate in the County as long as the patient's destination is not within the County.¹⁷³

To be approved by VCEMSA to conduct CCTs an ALS ambulance service provider must employ or contract with a registered nurse (RN) to staff CCTs. The RN must satisfy several requirements and supplement the BLS or ALS ambulance crew participating in the CCT. The RN must have at least two years-experience in a critical care area within the previous three years, have current BLS and ACLS certification, successfully complete an in-house orientation program sponsored by the CCT providers, and have one or more certifications specified by VCEMSA Policy No. 507 or challenge and pass the County's MICN certification examination. In addition, if the ambulance service provider is to provide Pediatric CCTs, an RN member of the ambulance crew would need to have PALS, PEPP or ENCP certification.

There are also requirements for the RN to maintain authorization as a CCT nurse. They include working a minimum of 384 hours in critical care nursing unless the RN is employed full time as a CCT nurse, maintaining ACLS certification, and maintaining a certification required of a Pediatric CCT if the RN is to participate in Pediatric CCTs.

For CCTs there also requirements for the CCT nurse-staffed ALS units to include equipment in addition to that required for an ALS ambulance; to have medical protocols approved and signed by a physician that the CCT RN is to follow; to have a Physician Director or Nursing Coordinator who has medical personnel ongoing training

¹⁷⁰ Unless otherwise indicated, the information provided under this heading is taken from VCEMSA Policy No. 507, Critical Care Transports.

¹⁷¹ A CCT in the County is not the same as a specialty care transport (SCT) is defined by Medicare regulations at 42 CFR § 414.605. An SCT is defined by Medicare as: "Interfacility transportation of a critically injured or ill beneficiary by a ground ambulance vehicle, including medically necessary supplies and services, at a level of service beyond the scope of the EMT-Paramedic. SCT is necessary when a beneficiary's condition requires ongoing care that must be furnished by one or more health professionals in an appropriate specialty area, for example, nursing, emergency medicine, respiratory care, cardiovascular care, or a paramedic with additional training."

¹⁷² Memo from VCEMSA to PWW.

¹⁷³ Id.



responsibilities to ensure the quality of patient care transfers by conducting patient care audits, and is familiar with applicable patient transfer laws. Satisfaction of CQI responsibilities is also required.

After all CCT program approval requirements are met, and VCEMSA approves the CCT program, VCEMSA may perform on-site audits of records to ensure compliance with CCT program requirements, and may suspend or revoke CCT program approval if those requirements are not satisfied.

One concern raised in this assessment is the overall financial sustainability of CCT programs within Ventura County, particularly given the relatively low volume and high costs for the current providers. Where nurse-level staffing is required, this problem can be particularly pronounced. While we received no indication that any providers are contemplating discontinuing their CCT programs, there is no contractual obligation for any provider to maintain or operate a CCT program in Ventura County. This means any provider can terminate its CCT program without notice and without consequence.

For this reason, we recommend that VCEMSA consider granting CCT exclusivity to a single provider in Ventura County.¹⁷⁴ An exclusive CCT contract would have the effect of securing adequate volume for a single provider to increase the possibility of ongoing CCT program sustainability. An exclusive contract specific to CCTs could allow VCEMSA to implement other contractual protections and safeguards as well.

As an alternative (or in addition) to granting a sole, exclusive CCT contract, we recommend that VCEMSA consider implementing Critical Care Paramedics (CCPs) and allowing CCPs to meet the minimum crew configuration for CCTs in Ventura County. CCP-level staffing is permitted by current EMSA guidelines.¹⁷⁵ While this issue continues to generate some controversy among national organizations, the use of CCPs is not inconsistent with major national standards on the issue,¹⁷⁶ and there is no definitive data suggesting worse patient outcomes with CCPs. While at least one national organization has taken the position that a nurse should constitute a minimum staffing requirement for CCTs,¹⁷⁷ we note that this organization did not support its recommendation with any evidence-based, published data specific to critical care transport crew configurations (and its bibliography includes an *anonymous* source), and its recommendation appears more

¹⁷⁴ As with our discussion of the impact of implementing a BLS emergency tier on the grandfathering of EOA providers, it would likewise be necessary for VCEMSA to obtain a legal opinion on the implementation of CCTs into a grandfathered EOA contract and whether a competitive process would be necessary, and, if so, whether that process could be limited to CCTs only. In addition, the potential impact of a competitive CCT process on existing ALS EOA contracts and their continued eligibility for grandfathering should also be part of such a legal opinion.

¹⁷⁵ *California's Emergency Medical Services Personnel Programs, 6th Rev.*, California EMS Authority, 2017.

¹⁷⁶ *Critical Care Transport Standards, v. 1.0*, Association of Critical Care Transport, 2016.

¹⁷⁷ Air and Surface Transport Nurses Association (ASTNA), *Staffing of Critical Care Transport Services*, 2010.



based on economic protection of nurses than on any clinical evidence in the critical care transport environment.

Another vital reason for making our recommendation to permit CCP staffing of CCTs is that the economic sustainability of this vital level of service is enhanced with a CCP model. Many CCTs are for patients on drips using IV pumps where the particular medication may be beyond the scope of a traditional paramedic, but could be handled within the scope of a CCP. Of course, in cases where additional personnel are required during transport, such as a nurse, respiratory therapist, physician or other advanced practitioner, arrangements could be made to supplement the CCT crew with hospital personnel.¹⁷⁸ If VCEMSA decides not to implement an exclusive CCT contract with a sole provider, it should give even stronger consideration of the CCP staffing option, since it would be important to manage the cost structure of CCTs in the face of continued low volume-per-provider.

¹⁷⁸ We are mindful of the fact that there are costs that would be incurred by hospitals to send advanced practitioners on CCT transports. However, we note that the ultimate responsibility – both clinically and legally – for the transport of critical patients does rest with the sending hospital. Requiring EMS companies to staff CCTs at the nurse level is unquestionably an EMS subsidy for hospitals, since the hospital bears the responsibility for the critical care transfer of its patient. This is a subsidy that most EMS companies cannot afford over the long term and it threatens the ongoing sustainability of CCT programs. Therefore, if nurse-or-higher - level CCTs are desired (despite the lack of clinical evidence that patient outcomes are better with nurse CCTs than with paramedic CCTs), this portion of the cost is rightly borne by the hospital, if they deem it necessary to have advanced practitioners caring for their patient during transport to the receiving facility. As one stakeholder interviewed for this project put it succinctly, “EMS exists to transport patients from the field to the hospital. After that, it has to be a collaborative effort to move the hospital’s patients.”



SWOT Analysis – Critical Care Transport

Strengths

- CCT provider availability; 2 of 3 EOA providers in county furnish this level of service

Weaknesses

- Relatively expensive staffing standards with no proven patient benefit; for cases which require a level of care beyond the scope of a CCP, hospital personnel can be utilized

Opportunities

- Exclusive Operating Area authority for a single CCT provider to assure sustainable volume

Threats

- Insufficient call volume to ensure CCT sustainability with staffing standards as currently configured
- Without a contracted provider for CCT, entities furnishing this level of service can exit market at any time



Non-Emergency

Background and Discussion

Generally, there appears to be relatively minimal impact of non-emergency and interfacility transport operations on 911/EMS system deployment and operations. Because the majority of IFTs are low-acuity, non-emergency transports, most are appropriately handled at the BLS level. Therefore, those units are dedicated to these low-acuity, non-emergency IFTs and do not represent displaced capacity for 911/emergency responses.

On the other hand, when there are ALS IFTs, those may necessitate the utilization of ambulances from the 911/emergency operations side. Stakeholders interviewed indicate that this does not place an undue strain on 911/emergency deployment, and, overall, the response time compliance data indicate this is the case (with the notable exception of the three EOA 4 sub-zones discussed earlier in this report).

Ordinarily non-emergency volume provides a subsidy for 911/emergency deployment. In other words, many companies rely on the non-emergency transport revenue in order to financially support the level of deployment necessary to meet the fractile response time requirements in place in most so-called “high-performance” EMS systems. However, because of the relatively favorable payor mix in Ventura County, this is less of a concern. In addition, stakeholders interviewed for this project report that payment on their 911/emergency volume has generally been *more* favorable than the non-emergency volume, which is atypical.

We recognize that ALS units deployed for emergency response are sometimes pulled to conduct IFTs that a BLS unit could conduct if available. However, we have seen no evidence that non-emergency deployment is affecting contractors’ 911 obligations. Nevertheless, we recommend VCEMSA continue to monitor response time compliance and also look at patient outcomes to see if those late responses caused by the pulling of ALS units for BLS-level IFTs are actually resulting in patient harm.

Behavioral Health

When a person, as a result of a mental health disorder, is a danger to others, or to himself or herself, or gravely disabled, a peace officer, professional person in charge of a facility designated by a county for evaluation and treatment, member of the attending staff as defined by regulation of a facility designated by the county for evaluation and treatment,



designated members of a mobile crisis team, or professional person designated by the county may, upon probable cause, take, or cause to be taken, the person into custody for a period of up to 72 hours for assessment, evaluation, and crisis intervention, or placement for evaluation and treatment in a facility designated by the county for evaluation and treatment and approved by the State Department of Health Care Services.¹⁷⁹

County policy provides that a patient may be taken into custody if, as a result of a mental disorder, there is a danger to self and others or is gravely disabled. A California peace officer, a California licensed psychiatrist in an approved facility, Ventura County Health Officer or other County-designated individuals, can take the individual into custody, but it must be enforced by the police in the field.¹⁸⁰

County policy further provides that a minor may be taken into custody if, as a result of a mental disorder, there is a danger to self and others or the minor is gravely disabled. A California peace officer, a California licensed psychiatrist in an approved facility, Ventura County Health Officer or other County-designated individuals, can take the individual into custody, but it must be enforced by the police in the field.¹⁸¹

If the patient at the commencement of or during ambulance transport exhibits behavior that presents a danger to the patient or members of the ambulance crew, the patient may be restrained verbally, physically or chemically.¹⁸² Before the crew may use physical or chemical restraints, every attempt to calm the patient verbally should be employed. If physical restraints are required, they are to be soft padded restraints. Chemical restraints should be considered only if while in physical restraints the patient engages in behavior that could result in harm to the patient or others on the ambulance. When transporting the patient to the emergency department of a base hospital, prior to arriving, the crew shall notify the hospital when physical or chemical restraints are used and the circumstances that required them.

The Ventura County Behavioral Health Department (VCBH) has a Crisis Stabilization Unit (CSU)¹⁸³, which is a four-bed designated receiving center in North Oxnard for the assessment of youths 6 to 17 years of age, who are on a WIC 5585¹⁸⁴ application for a civil commitment hold for danger to self or others or have a grave disability due to a mental disorder, and those individuals voluntarily referred to the CSU by the Mobile Crisis Team.

¹⁷⁹ Cal. Welfare & Institutions Code § 5150.

¹⁸⁰ VCEMSA Policy No. 705.4. Behavioral Emergencies.

¹⁸¹ Id.

¹⁸² VCEMSA Policy Nos. 705.4 and 732. Use of Restraints.

¹⁸³ The remaining information provided under the Behavioral Health heading is taken from a December 8, 2016 memo from the VCEMSA Medical Director and EMS Administrator to ambulance provider personnel re Ventura Crisis Stabilization Unit (CSU)

¹⁸⁴ Cal. Welfare & Institutions Code § 5585.



The CSU is only for medically stable clients in urgent crisis due to a mental disorder, and whose needs may be met in less than 24 hours.

Law enforcement or a VCBH certified clinician may contact FCC at a designated phone number to request an ambulance transport of the individual to the CSU. They are to ask for a “Juvenile Behavioral Transport.” However, before requesting such transport they are to conduct a medical screening of the individual and contact the CSU to determine bed availability and to secure authorization for the transfer.

If the individual as assessed by the law enforcement officer or VCBH certified clinician is in an emergency situation or has a potential life threatening condition, the call is to be dispatched to the ambulance as a normal EMS response and with the request that the individual be transported to the nearest appropriate emergency department. However, the ambulance crew is to screen the individual for a medical condition, even if the ambulance is dispatched to transport the individual to the CSU and, if the crew makes findings establishing a medical condition requiring transport of the individual to an emergency department, the crew shall transport the individual to an emergency department.

EOA provider ambulances are often used to transport mental health/behavioral patients. When these ambulances are involved the patient is to be transported to the most accessible emergency department for medical assessment and clearance prior to approval for admission to a psychiatric hospital. However, stakeholders have reported this to be a critical issue in Ventura County, one which has significant impact on EMS deployment given the substantial resources being consumed for mental and behavioral health transports. One stakeholder reported that this issue poses “the biggest, most acute threat to the EMS system,” adding that it devotes an average of 11 unit hours per day to mental health transports. Stakeholders noted that some of these transports involve long-distance destinations (including some in Northern California and Nevada) due to bed unavailability in Southern California, placing units out of service for prolonged times.

Stakeholders also noted that a substantial number of these transports occur in the evening hours, adding to the possibility of crew fatigue. We were also told that many of these patients are medically cleared, and that ambulances are often utilized due to the fact that mental health vans are no longer in service in the County. We note that in some cases, providers may be party to facility contracts which may obligate them to perform certain transports for their facility partners. An analysis of such contracts is beyond the scope of this assessment. Therefore, it may be incumbent upon the EMS companies in the County to address this in their contracts and business arrangements with facilities.¹⁸⁵ However, we were also told that when this issue has arisen in the past, and complaints about ambulance

¹⁸⁵ For example, one stakeholder reported that they plan to eliminate mental health transports occurring after 8:00 p.m. from their contractual rate schedule and plan to charge full, County-allowed retail rates for such transports.



availability for mental health transports have been made to the local EMS agency, VCEMSA has been perceived as advocating for the hospitals instead of indicating that this is not an EMS system issue. We recognize that this has been a perplexing and largely intractable issue for behavioral health, EMS, elected officials and healthcare policymakers throughout California, but the EMS system cannot be the failsafe or the “safety net” for interfacility transfers of otherwise stable behavioral health patients at the expense of maintaining capacity for 911 emergencies in the communities of the state.

We recommend that VCESMA ensure that its position on this issue above all preserves the integrity of the EMS system rather than ensuring the ready availability of ambulances for mental health transports for patients who can often be transported safely by means other than ambulance.

Paratransit/Ambulette

There are several paratransit services in the County. They include, but are not limited to, Agoura Hills Dial-A-Ride, Camarillo Area Transit Dial-A-Ride, Go Access, Help of Ojai, Moorpark City Transit Dial-A-Ride, Simi Valley Transit ADA/Paratransit Dial-A-Ride, Thousand Oaks Transit Dial-A-Ride and Valley Express. Among other paratransit services, they operate a paratransit service for people with disabilities. All of these programs operate transportation vehicles that are equipped with wheelchair lifts or ramps. The vehicles are not designed to provide highly personalized service such as escorting passengers who cannot be left unattended, or operating a customer's electric mobility device. Personal care attendants are allowed to ride with passengers who require personal care, to provide assistance to them. Reservations are taken the day prior to transport. We identified no entities currently providing ambulette (stretcher van) services based in the County.



SWOT Analysis – Non-Emergency

Strengths

- Competitive non-emergency transport market appears to be meeting demand of facilities and patients
- Contractors report that non-emergency utilization not placing undue strain on emergency deployment, which is generally supported by the data

Weaknesses

- Stakeholders report that behavioral health transports are consuming excessive unit hours and that ambulance resources are being utilized merely due to unavailability of more appropriate resources

Opportunities

- Deregulate non-emergency rates to allow open market to function as intended

Threats

- Inappropriate reliance on ambulance resources for behavioral health transport can result in increased system cost and may require subsidy



Findings and Recommendations

Discussion

The Ventura County EMS system is, overall, an outstanding system with a great many strengths. It compares favorably to other systems we have evaluated in California and nationally. Among the major structural advantages enjoyed by the Ventura County EMS system are:

- Relatively affluent and well-insured population base
- Centralized dispatch with EMD
- Experienced and stable contracted providers with longstanding community ties
- Excellent cooperation between providers and public safety agencies
- Outstanding integration of prehospital and hospital entities
- A robust quality improvement program with strong clinical focus
- Relatively short patient offload times
- Experienced and accessible Local EMS Agency staff which maintains open communications with stakeholders
- Two of California's community paramedicine pilot programs are taking place in Ventura County

Because the fundamental components of a robust EMS system are already in place in Ventura County, our recommendations should not be seen as criticisms of this outstanding system, but more as "next level" recommendations designed to benefit the system, its stakeholders and its patients in the coming decade.

Summary of All Recommendations

Major recommendations made in this report are summarized at the beginning of this report. The following is a summary of all the recommendations contained in this report, in the order they are presented in the report:

- Eliminate Level I/Level II paramedic policy (p. 21)
- Adopt CMS ambulance cost data collection methodology for contractor cost accounting and reporting (p. 27)
- Eliminate non-emergency rates from rate regulation policy to allow non-emergency market to function in a true competitive manner (p. 30-31)



- Require annual outside billing/coding audits of contracted providers (p. 32)
- Require each contractor to implement a compliance program in accordance with OIG guidance (p. 32)
- Continued, specific engagement of fire service stakeholders regarding appropriate levels of contractor investment in EMS system (p. 40-41)
- Add penalties and economic incentives that promote clinical performance and safety (p. 44, 88)
- Exclude from local EMS agency operating budget any reliance on provider penalties and budget only predictable cost-based fees for costs directly related to system oversight, contract administration and costs that directly benefit contracted providers (p. 44)
- Eliminate incentive structure for separate EOA 4 sub-zones and allow for incentives to be earned in EOA 4 only if response time compliance is met in the EOA as a whole (p. 54)
- Implement BLS transport tier for low acuity 911 calls (p. 56-58)
- Limit EMS practitioner shift lengths to no more than 24 hours (p. 59)
- Impose other shift requirements reasonably designed to eliminate EMS practitioner fatigue as a significant work impediment (p. 61)
- Continue assessment of County needs that can be served by community paramedicine programs and also integrate lessons learned in paramedic practice where feasible (p. 67)
- Establish a target date for requiring contractor participation in health information exchange (p. 72)
- Consider IAED ACE accreditation for FCC secondary PSAP (p. 75)
- Consider Omega protocol and ECNS implementation as part of dispatch system (p. 75)
- Implement clinical metrics as penalty disincentives (p. 88)
- Systematically review and update VCEMSA policies regarding RLS use (p. 89)
- Revise existing policies and dispatch response determinants to lower the rate of RLS use by disallowing use of RLS except when based upon medical considerations that warrant RLS use and impose penalties for non-compliance. Make policy and dispatch revisions that work toward achievement of national benchmarks of RLS use of <50% during response and <5% during transport (p. 89)
- Grant CCT exclusivity to a single provider (p. 92)
- Implement Critical Care Paramedics (p. 92)
- Continue to monitor response time compliance and also look at patient outcomes to see if those late responses caused by the pulling of ALS units for BLS-level IFTs are actually resulting in patient harm (p. 95)



- Include a provision in new contracts expressly permitting VCEMSA to enter into a competitive procurement process in the event VCEMSA concludes that existing contractors are not meeting the needs of the EMS system (p. 104)

Options for Future Contracting Cycle

One of the threshold issues facing VCEMSA is how it should approach the next contracting cycle. In California, a local EMS agency essentially has the following options:

- 1) Maintain EOAs by contracting with existing providers who are eligible for grandfathering under Health and Safety Code §1797.224
- 2) Conduct a competitive procurement process in some or all existing EOAs – or create a single new EOA or new EOAs – and enter into exclusive contracts with new providers selected as a result of the competitive process (note that VCEMSA can also include non-emergency, interfacility and CCT services in its competitive process(es) if it so chooses)
- 3) Open the market in some or all EOAs so that any qualified providers which enter into contracts with VCEMSA can provide services



All of these options have benefits and drawbacks. We summarize some of them in this table:

Table 13: Benefits and Drawbacks of Contracting Options		
Option	Benefits	Drawbacks
Contract with existing grandfathered providers	<ul style="list-style-type: none"> -Maintains continuity -Avoids disruption and possibility of “lame duck” providers -Avoids necessity of costly procurement process -Assures sufficient call volume for providers 	<ul style="list-style-type: none"> -Deprives potentially qualified new contractors from participating in the system -Cannot redraw EOA boundaries and maintain grandfathering eligibility
Conduct new competitive procurement process	<ul style="list-style-type: none"> -Allows potentially qualified new providers to participate in system -May improve price sensitivity among contracted providers -Ensures sufficient call volume for providers -Can redraw EOA boundaries or form single EOA if desired -Can explore other EMS delivery models based on design of an RFP 	<ul style="list-style-type: none"> -Costly -County forever forfeits its grandfathering option -Potentially controversial -May not result in selection of new providers at conclusion of the process
Become an open, competitive market	<ul style="list-style-type: none"> -Allows any qualified provider to participate -May increase available resources within County -May foster greater price sensitivity 	<ul style="list-style-type: none"> -May not provide sufficient volume for provider(s) -Providers under no obligation to provide services, can exit market at any time

Based on all considerations, it is our conclusion that VCEMSA should negotiate renewed contracts with the existing providers who are eligible for “grandfathering.” This recommendation is based on several conclusions. First and foremost, the incumbent providers are substantially meeting existing performance expectations and there was no significant stakeholder support for abandoning the grandfathered providers in favor of a competitive procurement process.

Another significant factor is that the California EMS system on a statewide basis is presently in a state of significant upheaval and uncertainty, and recent competitive



procurements undertaken by other local EMS agencies have incurred significant opposition and unexpected added expense due to this unsettled environment. In addition, in an EMS system that is functioning well, as Ventura's is, the time and cost of a competitive process is likely not to result in a better system than what VCEMSA can achieve by negotiating new contracts with the existing providers.

Finally, once an EOA in California is competitively bid, it is likely that grandfathered eligibility is thereafter lost and cannot ever be restored in the future. This assessment revealed no compelling reasons to forever abandon the grandfathered status that the Ventura County EMS system enjoys. We do, however, recommend the inclusion of provisions in the next cycle of provider contracts which expressly permits VCEMSA to enter into a competitive process for the selection of new contractors anytime VCEMSA concludes that existing contractors are not effectively meeting the needs of the EMS system, though we believe the threshold for exercising such an option should be quite high and should not be utilized unless absolutely necessary.



Appendices



Appendix A
Project Document Request List





**EMS System Review
County of Ventura**

**Initial Document and Data Request
January 30, 2019**

***Note – all requests should be for three (3) year period unless otherwise specified**

Category	Requested Documents	N/A	Fulfilled	Comments
A. Plans/Annual Reports	1 2018 Annual Report (or draft) 2 2018 EMS Plan (or draft)			
B. EMS Agency Organization and Staffing	1 VCEMS organization chart 2 VCEMS staff list with areas of responsibility			
C. EMS Agency QA/QI Program	1 Individual provider QA/QI plans 2 VCEMS system-wide QA/QI plan			
D. Prehospital Education and Training	1 List and descriptions of current VCEMS-sponsored EMS education programs 2 List of VCEMS-approved approved agency-level training programs 3 VCEMS policies and procedures regarding EMS education and training			
E. County Budget & Revenue	1 Annual VCEMS budget 2 Ventura County EMS and/or dispatch-related budget expenditures 3 VCEMS schedule of approved charges 4 VCEMS revenues derived from providers, by the following categories: -Franchise fees/annual contract fees -Fines/penalties -QA/QI or other similar program fees -Other fees			
F. Ground EMS Documents	1 VCEMS contract with each ground EOA provider (including any amendments) 2 VCEMS contracts with each first response agency (ALS and/or BLS) 3 All contracts between ground EOA providers and first response agencies 4 Any current mutual aid agreements to which any ground EOA providers are a party			
G. Ground EOA Contractor Performance Documents	1 Ground ambulance response data by category: - Emergency/911 calls (by dispatch level) -Interfacility transports -Non-emergency transports			



<p>(all data should be monthly)</p>	<ul style="list-style-type: none"> -Specialty/critical care transports (SCT/CCT) 2 Transport data by above categories 3 Call declination data (all calls for which contractor was unable to respond and utilized mutual aid, by above categories) 4 Contractor self-dispatch data (all emergency response requests received directly by EOA contractors) 5 Service mix (level-of-service transport data by HCPCS code for each EOA provider) 6 Emergency response time compliance data (including response time performance by month, deviations from required standards and financial penalties assessed by month) 7 Response time data for: <ul style="list-style-type: none"> -Interfacility transports -CCTs/SCTs -Non-emergency transports 8 Average transport distance (contractor data of average loaded mileage per transport for HCPCS code A0425. If possible, include overall average loaded mileage-per-transport, and average loaded mileage-per-transport for each level of service – A0428, A0429, A0427, etc.) 9 Average total call time (contractor and/or dispatch center data measuring average interval of time responded through time available, both overall and for each level of service, if available) 10 Ambulance Patient Offload Times (APOT) data 11 Transports originating at healthcare facilities (total number and percentage of total transport volume) 12 VCEMS policies and procedures regarding fines and penalties 13 Identification of fines and penalties imposed 14 Any current listing of paratransit providers serving the County and services provided 15 Policies and procedures regarding transport of 5150 patients (VCEMS and provider-level policies) 16 Any county ordinances, laws or resolutions regarding EMS permits, operations, or other regulatory issues 			
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H. Dispatch Documents and Data	<ul style="list-style-type: none"> 1 List of all primary PSAPs answering 911 calls for areas within Ventura County (even if PSAP is outside of County) 2 List of all secondary EMS PSAPs (ambulance and/or first response dispatch, including function(s) performed and agencies dispatched by each) 3 Description of EMD protocols utilized by each PSAP (including copies if non-commercial, or any local modifications to commercial EMD protocols) 4 Identification and description of individual EOA contractor dispatch centers 5 Any contracts regarding dispatch between municipal entities and/or County/Fire for dispatch or PSAP operations within Ventura County 6 Emergency dispatch data – contractor (all 911 dispatches of EOA provider by response determinant) 7 VCEMS and provider policies on red lights and siren responses 			
I. Clinical Documents	<ul style="list-style-type: none"> 1 Current ground EMS clinical protocols 2 Applicable transport destination protocols (trauma, STEMI, stroke, peds, etc.) 			
J. EMS Resource Inventory Documentation and Data	<ul style="list-style-type: none"> 1 By contractor, total number of contractor transport-capable ambulances dedicated to in-county utilization 2 By contractor, total number of contractor transport-capable ambulances dedicated exclusively to 911 response 3 Identification of all contractor station and substation locations (including # of ambulances garaged at each location and staffing at each) 4 Total number of contractor transport-capable ambulances stationed out-of-county that are utilized for in-county 911 response 5 Each EOA contractor’s staffing plan and/or staffing schedules 6 VCEMS ambulance staffing policies 			
K. Hospital Resource Inventory Documentation and Data	<ul style="list-style-type: none"> 1 Total number of hospital-based EDs in county (including number of facilities and estimated ED bed capacity) 			



	<p>2 Total number of out-of-county based hospital EDs that regularly serve in-county patients (including number of facilities and estimated ED bed capacity)</p> <p>3 Designated specialty hospitals serving the county (trauma, PEDS, STEMI, stroke, etc.; include LEMSA-designated facilities as well as “verified” facilities)</p> <p>4 Non-designated specialty care facilities serving the county (behavioral health, etc.)</p>			
<p>L. Contractor Revenue Cycle Data</p> <p>(Provide for each EOA provider), for previous five (5) years</p>	<p>1 Total billable transports by level of service (i.e., by HCPCS code)</p> <p>2 Chargemaster or contractor list of retail charges, by level of service</p> <p>3 Identification of payor contracts to which contractor is a party (including payor and rates, by level of service)</p> <p>4 Contractor financial hardship policy and forms</p> <p>5 Contractor write-offs (including hardship, bad debt, etc.)</p> <p>6 A/R aging report by payor</p> <p>7 Payor mix (contractor revenues by payor, by the following categories: - Medicare (including fee-for-service and Medicare Advantage) - MediCal (FFS and managed care) - Commercial (including all non-government FFS and managed care payors) - Self-Pay</p> <p>8 Net collection percentage (total and by payer, after refunds and contractual allowances)</p> <p>9 Average revenue per transport (total and by level of service)</p>			
M. Contractor Financial Data	1 Provider financial reports (audited, reviewed, or compiled, as applicable) for previous 5 years			
N. Special Programs (health care and HIE programs)	<p>1 Identification and available documentation of special health care programs (i.e. community paramedicine, Nalaxone administration, stop the bleed, PulsePoint, community CPR and public access defibrillation, etc.)</p> <p>2 Any health information exchange (HIE) programs operating in Ventura County</p> <p>3 Special Procedures implemented to enhance efficiency i.e., Emergent Large Vessel Occlusion</p>			



	(ELVO) alerts, critical incident stress management, tec.) 4 Identification of existing community paramedicine programs (pilot or ongoing) 5 Curriculum/training models for community paramedics			
O. First Responders	1 List of fire departments providing first response by level(s) of service provided 2 Available first response-specific cost data 3 Identification of funding sources for first response services (i.e., city budget, first response fees from transport providers, patient charges) 4 Total number of responses by first response agency, by level of service 5 First response time data 6 First response staffing policies			
P. System Status/Move-up Plan	1 Most current system status/move-up plan 2 Individual provider deployment plans			
Q. Communications	1 Identification of all communication systems in use (radio, redundant communications, etc.) 2 Inventory of communication assets 3 Non-emergency and IFT communications structure			
S. Critical Care Transports	1 List of providers approved to provide CCTs 2 Applicable CCT regulations, policies and procedures			
T. Stakeholders	1 List of stakeholders recommended for interviews/focused stakeholder meetings (include names, titles, agency affiliation and contact information)			



Appendix B

Summary of Selected Stakeholder Comments



SELECTED STAKEHOLDER COMMENTS **(Individual Commenter Identities Withheld)**

General EMS System

- The field criteria for the issuance of trauma, STEMI and stroke alerts is pretty good
- VCEMS policies and procedures are excellent
- There are no major concerns regarding responsiveness and quality of interfacility transports (IFTs), critical care transports (CCTs) and nonemergency transports (NETs)
- The EMS system is doing great with evidence based practices for conditions such as STEMIs
- The EMS system is running well—not sure a new EMS system review is needed
- More resources should be devoted to QA/QI
- The State EMS authority has hindered our LEMSA and we need more authority to do things like treat no transport
- The Medical Director should have more leeway in developing programs for treating patients at home
- The LEMSA rules with an “iron fist.” “Recently, we tried to bring something to their attention, and they wouldn’t even hear us out.”
- Putting the EOA provider service out for bid would jeopardize what we’ve established and that could harm patients
- Response to mass casualty incidents has been phenomenal

Mental Health

- Mental health calls for ambulance transports take ambulances out of service to respond to emergencies too much
- Tying up ambulances for long distant transports of mental health patients is a particular problem
- There needs to be a better system to deal with mental health patients. The current process places too much strain on hospitals and the system.
- More training of Sheriff and EMS personnel is needed to better identify 5150 situations
- 50% of our calls to sheriff’s office involve some mental health aspect. EMS’s role in these calls needs to be better defined.

Fire Departments

- Firefighters share a strong EMS culture
- Firefighters are satisfied with central dispatch
- Taxpayers want to see their taxes at work



- Firefighters are employed to serve the public and need to be dispatched on all emergency calls for the public's benefit
- The EMS Agency should not be dictating the calls to which fire departments respond
- The working relationship between the fire departments and the private ambulance companies was bad at one time, but is now much better
- Fire departments can provide first response services but should not be transport providers
- The fire departments and the residents are open to a system revamp where the City fire departments are getting the reimbursement for ambulance services
- There is no need for five paramedics to be on scene for a patient with a broken ankle
- Skill degradation is a concern if fire does not get to respond and treat
- Interfacility transfers do not need a fire/ambulance joint response

EOA Providers

- The turnover rate for ambulance company EMS personnel is too high
- Ambulance company providers are leaving for higher paying fire department jobs
- Issues include personnel burnout, working conditions, call loads and not enough ambulances deployed
- If we don't address workload – 24 hour shifts – folks could leave
- The County is diverse. The EMS system needs to meet the needs of all residents
- Not all needs are being currently met. Some patients need to wait too long for an ambulance
- The more field providers in the EMS system causes lower skill proficiency due to providers responding to fewer calls
- Difficult for Level 2 paramedics in rural areas to maintain Level 2 status and they have to continuously rotate in and out of the rural area to maintain Level 2 status and get more calls
- Response time penalties should not be imposed on a per call basis
- Patients receive no real benefit from response time penalties
- "I like that we have a paramedic on board our ambulances, you never know if the patient's condition is going to change."
- We have too many paramedics—most ALS responses aren't necessary. More BLS units should be run
- Ambulance responses that do not result in a transport, and therefore payment, is a big issue
- Recommend removal of the Level 1 and Level 2 paramedic categories and just have paramedics



Dispatch

- About 20% of dispatches get downgraded
- Ambulances are sent on calls that are not likely to result in an ambulance transport
- There is a great need to address dry runs
- The time from call receipt by a primary PSAP to its transfer to a secondary PSAP cannot currently be tracked
- ECNS or OMEGA protocols to permit referral to resources other than ambulances could be beneficial when call intake does not warrant an ambulance response
- Tiered response—we have to do it. It's the waive of the future. I don't know how we can't do it.
- Don't believe a tiered response model works for the County's EMS system
- For critical calls, County can ensure that the closest unit is always dispatched even if the unit is not usually first due in the area
- Measures need to be taken to address patients who abuse the 911 system
- Having a nurse in the Communication Center is a must for the future

Hospitals

- Hospital often has to provide its own RNs for CCTs
- Hospitals frequently request ALS IFTs when ALS is not needed, and this creates 911 response problems
- Diversion is a large problem
- EOA providers should receive more information from hospitals on patient outcomes
- It is easier for some of the larger hospitals to comply with the LEMSA's policies

Community Paramedicine

- The community paramedicine pilot programs have been effective
- Community paramedicine – we know they are saving the County money, but we need to demonstrate that. We need to turn this from pilot into permanent program
- The homeless are a drain on the EMS system. The situation can be solved by community paramedicine



Appendix C

Project Bibliography



Project Bibliography

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