

EMERGENCY MEDICAL SERVICES AUTHORITY

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Final Narrative Report to California HealthCare Foundation

Date	June 30, 2014
Project Title	California Emergency Medical Services Database Development and Implementation of Core Quality Measures
Grantee Contact	Daniel Smiley (916) 431-3700 Dan.Smiley@emsa.ca.gov
CHCF Grant Number	16933
Award Amount	Up to \$142,670
Period of Grant	July 1, 2013 through June 30, 2014
Period of Report	July 31, 2013 through June 30, 2014
Project Objective	The purpose of this project is to increase the accessibility and the accuracy of pre-hospital data for public, policy, academic and research purposes to facilitate system evaluation and improvement.

What were the accomplishments of this project? To what extent has your project achieved its objectives? What indicators did you use to measure your performance? Briefly describe what the project did to meet its objectives. If the objectives of the project have not been met, explain what happened and why. If there were additional accomplishments, describe them, and explain how and why the activities that led to these accomplishment were undertaken. If you worked in collaboration or cooperation with other organizations, describe those arrangements and their importance to the project. Be as specific as possible.

During the grant period, EMSA was able to continue development of a long term EMS Core Measures program. This was accomplished by updating the EMS Core Measures (*EMSA #166: Quality Improvement Model Guidelines, Appendix E*) and by creating a regulatory requirement for annual core measure submission. EMSA created a core measures task force comprised of experts from stakeholders and local jurisdictions to meet the grant objectives. Most importantly, EMSA has positioned the state of California for the national shift to a new, standard data dictionary (NEMSIS 3.x) by changing software vendors to improve the California EMS Information System (CEMSIS) and the state's EMS reporting capabilities. These changes allow EMSA to be more transparent and will improve access and accuracy of pre-hospital data, facilitating system evaluation and implementing system changes.

The grant awarded to the California Emergency Medical Services Authority (EMSA) for the *CALIFORNIA EMERGENCY MEDICAL SERVICES DATABASE DEVELOPMENT AND IMPLEMENTATION OF CORE QUALITY MEASURES* project completed or continued progress on all (5) grant deliverables.

1. Last year's review of CEMSIS by *Health Services Advisory Group* showed that the system capabilities were problematic. These weaknesses prompted EMSA to sub-contract through Inland Counties EMS Agency (ICEMA), with ImageTrend, through an established nationwide software vendor capable of capturing data using the NEMSIS 2.x data standards and dictionary as well as the new NEMSIS 3.x data standards and dictionary. This shift has staged California for national changes in standards as well as providing EMSA with more robust software that, in time, will be capable of providing core measures reports. Currently the system does not contain sufficient data to generate these reports; however, the reports will be built into the system in the near future. EMSA will continue to review and assess the core measure submissions and provide feedback to each LEMSA that can help to improve both their system and the core measures methodology. EMSA provided technical support to the LEMSAs that facilitated an increase in participation. This year, 32 of 33 LEMSAs submitted core measures reports for at least 1 measure generated from 2013 data, a vast improvement from the first year of data collection (2009-2011 data).
2. Through this project, EMSA has revealed opportunities for both short-term and long-term data improvement. EMSA, with the help of the task force, has

utilized feedback from LEMSA data and quality improvement experts to refine the measures for 2014 data collection, and we are already looking forward to 2015. In addition, EMSA is preparing for the shift to NEMSIS 3.x and urging all LEMSAs to make sure they are implementing compliant software before the change occurs. EMSA continues to work with our Core Measures Task Force to improve the collection methods, educate both LEMSAs and providers, and reinforce the importance of documentation.

3. In collaboration with the Core Measures Task Force, EMSA made changes to the reporting instructions allowing for more reliable and accurate information to be reported. The changes included asking LEMSAs to report the measures exactly as written. If they were unable to do so, they were asked to provide their specific methodology. This allows EMSA to better assess the measures by looking at alternative ways to obtain the same result among the 33 diverse EMS systems in California. The changes made from the previous year of data collection yielded a higher level of participation with significantly larger numbers of cases in the denominator and numerator of the results. In addition, there was an increase in both the averages as well as the medians for each of the measures.
4. EMSA and the task force refined the core measures specification sheets for the second year of data collection. The goal was to make only minimal changes to the methodology, not the content or intent of the measure, to keep the measurements as consistent as possible with the first year of the project. Upon completion of this task, EMSA presented the revised measures to the EMS Commission, who approved the document. Promptly following approval, EMSA published the document to the project webpage and distributed it to all LEMSAs. EMSA made sure to provide as much time as possible to the LEMSAs to develop and deliver their reports.
5. EMSA conducted three, 2-day workshops throughout the state in June 2014. Two new locations were selected from the similar workshops done last year to gain a wider audience and increase statewide education on California's EMS Core Measures. The workshops were held in San Diego (June 11-12), Rancho Cordova (June 16-17), and San Francisco (June 25-26). In addition, the updated curriculum provided new materials to attendees who participated last year. During day 1 of each session, attendees received instruction and participated in exercises related to quality improvement, developing indicators, and the importance of data quality. The second day featured an in depth review of the EMS Core Measures for California, national data trends, and the results from the second year of the project. Between all three workshops, over 100 individuals registered for the 2-day event. Attendees consisted of representatives from hospitals, EMS providers and local EMS agencies throughout California.

What impact do you think this project has had to date?

Describe what you believe to be the impact of the project, providing evidence for all statements (adoption of model by other organizations, media coverage, etc.).

This project has transformed EMS data and quality improvement throughout California. Some noteworthy impacts include:

- This project is being used as a guideline and template for other states that are developing their own EMS Core Measures Program.
- We have engaged EMS quality coordinators, data manager and system participants in the statewide effort. The task force has expanded to engage more system matter experts to further assess EMS performance throughout the state.
- Data collection methods have improved leading to an increase in the submission of data. Additionally, EMSA's change of the data system for CEMISIS will allow for more robust reporting and query tools.
- This project has encouraged many providers to implement an electronic patient care report software and data aggregation system. In addition to the providers, many LEMSAs have continued to make internal system improvements. This has also helped to build a foundation for health information exchange.
- This grant facilitated additional educational outreach on quality improvement, EMS core measures and the importance of documentation, the foundation of core measures.

Did the project encounter internal or external challenges? How were they addressed? Was there something CHCF could have done to assist you? Describe each challenge and the action you undertook to address it.

Through the second year of the core measures project, EMSA was faced with both internal and external challenges which acted as barriers to a completely successful project.

Internally, EMSA faced some issues related to the new system hosting CEMISIS. The core measures have not yet been completely built into the system. The system will automate these reports in the future. Additionally, there have only been a limited number of LEMSAs who have begun to transmit data into the new system, while other LEMSAs are not yet capable of submitting data into CEMISIS. It is important to note that submission of data into the new system is easier and can more readily receive data.

Currently, EMSA relies on the LEMSAs to collect data and run the core measures reports since CEMESIS is not ready to do so yet. There are 33 LEMSAs, each with a unique local system. Many issues limited the LEMSA's confidence in their reporting. These challenges are similar to those faced in the previous year of the core measures project. Variability in data collection methodology by LEMSAs was once again the key concern. For example, many EMS providers still use paper prehospital care reports (PCR) while others use electronic patient care record collection technology (ePCR). Abstracting information from paper forms is difficult, time-consuming, and inaccurate. EMS systems generally do not use trained registrars to extract the PCR data. Without prior training in the specific core measure, providers who actually enter the data may not have understood the importance of completing each data point. This issue is to be addressed through education on required fields in an ePCR.

Many LEMSAs migrated to new systems and were unable to aggregate old data, therefore they were only able to pull the most recent records from their system. This is reflected in the number of LEMSA who submitted 2012 data (25 of 32) and the increased submission of 2013 data (31 of 33).

Sampling and abstracting was still used by some LEMSAs, rather than conducting an analysis of all of their annual population data. While theoretically this should not make a difference, this was perceived as a concern and added to variability and potential reporting bias. This year, EMSA asked LEMSAs to note if they sampled. While few did use samples, it is a practice that EMSA is discouraging and reserving for LEMSAs who are using paper patient care records.

Obtaining hospital outcome data is still an ongoing challenge for LEMSAs. This was evidenced by the low response rate for specific cardiac arrest outcome measures (CAR-3 and CAR-4), which rely upon the hospital to report survival to emergency department discharge and to hospital discharge. This observation is a key policy issue to address in the future in conjunction with the California Hospital Association. EMSA continues to work with the LEMSAs to help them gather this information. In February 2014, EMSA distributed a letter, reviewed by CalOHII, regarding EMSA's authorization to receive protected health information.

For providers who still do not use electronic patient care records, the amount of time it takes to generate the core measures reports was a challenge. This problem stems from a lack of dedicated resources and manpower required to run the reports by hand and extract information from a non-machine readable format.

A significant challenge faced in both years core measures project is the "tiered" EMS system in California. Because there may be EMS non-transport responders and ambulance transport units that arrive separately, and not from the same EMS provider, often two records are initiated for each patient. In many cases, most LEMSAs still do not have a mechanism—either manually or technologically—to merge these under one patient encounter. This inability to match first responder data with transport provider

data could lead to a conclusion that care was not provided, when in fact, it may have been provided to the patient by a different provider. It is also possible that the patient self-administered care, perhaps at the direction of an emergency medical dispatcher. This observation serves as a critical policy issue and highlights the need for a “one patient, one record” system to allow for a complete picture of patient care.

When considering the design and implementation of this project, what lessons did you learn that might help other grantees implement similar work in this field? Describe what you have learned from designing and carrying out the project that might inform similar future projects

EMSA learned many lessons through this process. The most important is to set realistic deadlines and make sure there is ample time to design a project before implementation. The second year of this project went much smoother than the first as a direct result of giving the LEMSAs and providers having advanced notice of the reporting requirements and expectations. EMSA encourages other grantees to get all project components and players established as early on as possible. EMSA highly recommends being proactive, rather than reactive, in planning and deploying their project.

What are the post-grant plans for the project if it does not conclude with the grant? Who can be contacted a few years from now to follow up on the project?

The EMS Core Measures for California will continue to be refined to gain better insight into the delivery of patient care throughout California. LEMSAs will be relied upon to continue reporting of the core measures to EMSA on an annual basis. EMSA will work with the LEMSAs and other stakeholders to alleviate barriers to attain reliable pre-hospital data. EMSA will continue to push EMS providers and LEMSAs toward health information exchange readiness and provide support when necessary. The Core Measure project will continue following the conclusion of the grant period as an integral part of California EMS Systems and will be used as a quality improvement tool for years to come.

The Chief Deputy Director of the California EMS Authority may be contacted in the future for additional information.

Project Deliverables:

- **Core Measures Dedicated Webpage (“year two” documents to be published in July, 2014):**
http://www.emsa.ca.gov/ems_core_quality_measures_project
- **Core Measures Document (EMSA #166 Appendix E):**
http://www.emsa.ca.gov/Media/Default/PDF/CM_2013_FINAL.pdf
- **Quality Improvement and EMS Core Measures Workshop – Flyer**

<http://www.emsa.ca.gov/Media/Default/PDF/CoreMeasuresWorkshopFlyer2014.pdf>

- **Quality Improvement and EMS Core Measures Workshop – Presentations (uploaded to CHCF and to be published on webpage July, 2014)**
- **“EMS Core Measures Project - Reporting Capabilities of EMSA and LEMSA Data Systems and Results from Clinical Measures Reports Data Years 2012 - 2013 data (uploaded to CHCF and to be published on webpage July, 2014)**