

Response Times
&
Fire ALS 1st Responders

Franchise Planning Project Meeting
September 20, 2007

Response Times

“While we await the next wonder drug, let's devote ourselves to the basics. It may be unglamorous, but rolling up one's sleeves and making the EMS system respond faster will translate into lives saved...”

Improving Survival From Out-of-Hospital Cardiac Arrest: Back to the Basics
Ann Emerg Med. 2007;49:314-316

Mickey S. Eisenberg MD, PhD, Department of Medicine, University of Washington, and
Public Health–Seattle and King County, Emergency Medical Services Division, Seattle,
WA

History of Current Response Time Standard

- 1996 “Future Search” process to develop recommendations for the Franchise RFP
- “Field Response & Emergency Delivery” (FRED). A focus group of EMS stakeholders that researched, debated and came to a consensus recommendation for the RFP over several months of meetings.

History of Current Response Time Standard

- Recommendation for the current “customer based” EMS response time standards. The standards were based on scientific studies and the State EMS Standards and Guidelines. Result: Adopted by Board of Supervisors
- Recommendation for a Private/Public partnership component for the RFP. Result: Adopted by Board of Supervisors

American Heart Association

- Brain death and permanent death start to occur in 4-6 minutes after someone experiences cardiac arrest.
- Cardiac arrest is reversible if treated within a few minutes with an electric shock and ALS intervention to restore a normal heart beat.
- Verifying this standard are studies showing that a victim chances of survival are reduced by 7-10% with every minute that passes without defibrillation and ALS intervention.
- Few attempts at resuscitation succeed after 10 minutes.

Response Times

- A convenience grouping of resuscitation interval data suggest that previously established benchmarks for:
 - “...Provision of ACLS (<8 min) is strongly correlated with improved survival”

Survival from prehospital cardiac arrest is critically dependent upon response time
Resuscitation, Volume 69, Issue 2, May 2006, Pages 229-234
Rade B. Vukmir

State EMS Agency Minimum Standards & Guidelines

Responders	Urban	Suburban	Wilderness
BLS First Responders	5 Minutes	15 Minutes	30 Minutes
EMT-D First Responders	5 Minutes	15 Minutes	30 Minutes
<u>ALS First Responder/Amb</u>	<u>8 Minutes</u>	20 Minutes	60 Minutes
<u>CVEMSA Current Standards (90%)</u>	<u>7 Minutes *</u>	14 Minutes	29 Minutes
ALS EMS Transport Unit	8 Minutes	20 Minutes	60 Minutes

4.05 Each local EMS agency shall develop response time standards for medical responses. These standards shall take into account the total time from receipt of the call at the primary public safety answering point (PSAP) to arrival of the responding unit at the scene, including all dispatch intervals and driving time.

*Measured from time of dispatch rather than primary PSAP. REDCOM has a standard of 70 seconds resulting in a standard of 8 Minutes 10 Seconds from Secondary PSAP notification.

CVEMSA State EMS Plan Compliance

- **CURRENT STATUS:** *meets minimum standard*
 - Response standards were developed for the EOA ALS ambulance providers in Sonoma County ...
 - All of the urban corridors within the three counties enjoy the ALS/ambulance/transport response standards as listed above (last slide)
 - Response times for the EMS transportation unit are measured from the time the secondary PSAP has enough information to send an ambulance (address, complaint, severity) to arrival on scene.

CVEMSA State EMS Plan Compliance

NEED(S):

Ensure the ability to measure response times from the primary PSAP to arrival on scene for ambulance and first response vehicles.

Development of a mechanism to measure or collect response times for first response agencies and the establishment of response time goals or standards for first response agencies in conjunction with a first responder master plan.

Excerpts from CVEMSA State EMS Plan Update 2006/2007

CVEMSA State EMS Plan Compliance

OBJECTIVE:

Create a mechanism and/or process to measure response times from receipt of call at PSAP to arrival on scene for both first responder agencies and transport units. Establish response time standards for non-EOA portions of the region.

Excerpts from CVEMSA State EMS Plan Update 2006/2007

How Do We Compare with Local Franchise Agreements?

- Sonoma County is one of the 9 Bay area counties associated with ABAG (Association of Bay Area Governments)

COUNTY	RESPONSE TIME	COUNTY	RESPONSE TIME
Sonoma	7:00 ALS FR/AMB (U) 11:00 Amb. Trans. 14:00 ALS AMB (S/R) 29:00 ALS AMB (R)	Alameda	8:30 ALS FR (U) 10:30 ALS AMB (U)
San Mateo	6:59 ALS FR (U/S) 8:59 ALS AMB (U/S) 6:59 FR, 14:59 AMB	Solano	9:00 ALS 90% (U)
San Francisco	7:00 ALS FR (U) 90% 10:00 ALS AMB (U) 90%	Contra Costa	10:00 (U) 11:45 -20 (R)
Santa Clara	7:59 ALS FR (U) 11:59 ALS AMB (U)	Marin	No LEMSA Standard
Napa	8:00 ALS AMB 90% (U) 11:00 ALS AMB 90% (R) 20:00 ALS AMB 90% (W)		

Response Time Segments

Current System

		Clock Starts (Secs)
■ 9-1-1 phone rings		
■ Call transferred to medical call taker from PSAP	10	<u>10</u>
■ Call entry, location pre-alert to dispatcher	35	
■ EMD call prioritization and/or pre-arrival instructions	30	
■ Resource pre-alert	10	
■ Resource selection / verification	15	
■ First responder & ambulance notification	20	
	110 (1:50)	<u>70 (1:10)</u>
■ Ambulance en route (out of chute)	90	
■ Ambulance arrives on scene	360	
	450 (7:30)	<u>420 (7:00)</u>
■ Crew reaches patient	60	60
	Total Elapsed Time 630 (10:30)	560 (9:20)
	(July 19, 2007 Est.)	(-1:10 Using Data)

“...while the franchise “standard” is 7 minutes, which is being met on a consistent bases 90+% of the time, the actual total elapsed time is between 10:30 and 11:00 minutes...”
 (CVEMSA Ambulance Franchise Meeting Minutes, July 19, 2007)

EOA Urban Response Times

- **REDCOM** (dispatch segment)
 - 95% of the time within 70 seconds
(current compliance)
- **Santa Rosa Fire Department** (response segment)
 - 57% of the time under 4 minutes of unit dispatch
 - 81% of the time under 5 minutes of unit dispatch
 - 93% of the time under 6 minutes of unit dispatch

Are the Current CVEMSA Response Time Standards Justified?

- The current CVEMSA Franchise Urban response time standards are:
 - Achievable. They provide adequate resources to deliver the best possible patient care in a system based (partnership) approach.
 - Fiscally sound through the Franchise's utilization of public/private partnerships
 - Equitable, providing the same level of care to all individuals in a designated response zone (Urban, Semi-rural, Rural)

Are the Current CVEMSA Response Time Standards Justified?

- Customer based. The system combines a tiered response with strategically located ALS/BLS first responder and transport units.
- Comply with State EMS Plan Standards and Guidelines, with the exception of measuring time from the primary PSAP.
- Comparable with similar Association of Bay Area Governments (ABAG) County Franchise standards

The Future...

- **New Federally Funded Research Program Aims to Improve Survival from Cardiac Arrest and Severe Trauma**

“Surviving traumatic injury and cardiac arrest is a serious public health issue. Tens of thousands of Americans die each year from sudden cardiac arrest and trauma. The good news is that there is a growing body of research — basic research and small studies — that suggests a significant number of these people can be saved.”

The Future...

Resuscitation Outcomes Consortium (ROC) will conduct collaborative clinical trials of promising new treatments for cardiac arrest (the stopping of the heartbeat) and severe traumatic injury.

Along with Emergency Medical Services (EMS) agencies, ROC will involve public safety agencies, regional hospitals, community healthcare institutions and medical centers in 11 regions in the United States and Canada and as many as 15,000 patients over a 3-year period.

Elizabeth G. Nabel, M.D., director of the National Heart, Lung, and Blood Institute (NHLBI) of the NIH, the lead federal sponsor of the research effort.

U.S. Department of Health and Human Services, *HIH News*,
National Institutes of Health
March 24, 2006

Fire ALS 1st Responders

- Fire ALS is provided through Paramedic Assessment Engines and in some jurisdictions by ambulance.
- Fire ALS 1st responders work in conjunction with the Franchise response contractor, supporting the franchise through mutual aid. The Franchise units also provide mutual aid to these jurisdictions.

Sonoma County Fire ALS First Responders

22 ALS Units, 5 Departments

Bodega Bay

Medic 811

Petaluma

Medic 991

Medic Engine 9382

Medic 993

Medic Engine 9383

Medic Engine 9381

Santa Rosa

Medic Engine 1

Medic Engine 4

Medic Engine 7

Medic Engine 11

Medic Engine 2

Medic Engine 5

Medic Engine 8

Medic Engine 3

Medic Engine 6

Medic Engine 10

Sonoma/Valley of the Moon

Medic 301

Medic Engine 3182

Medic 303

Medic Engine 3183

Medic Engine 3181

Russian River

Medic 577

Counties using a Model with Fire Dept. Paramedic 1st Responders

Total of 38 Counties with Fire Department Paramedic First Responders

- 9 Bay Area Counties with Fire Department Paramedic First Responders
- 29 Non Bay Area Fire Departments with Paramedic First Responders



Paramedic Assessment Engines

- Paramedic Assessment Engines (PAE's) are existing fire engines with 3 Firefighter's.
- One, and in some cases, two Firefighters on each PAE are trained as Paramedics. In many cases Firefighter's already have paramedic certification when hired.
- The PAE is then added to the ALS response matrix as a paramedic resource serving dual roles for fire and ALS response.

Paramedic Assessment Engines

- PAE's carry a full compliment of ALS equipment and operate the same as a paramedic on a transport (ambulance) unit with the exception of the ability to transport.
- Fire Stations are strategically located to meet a 4-6 minute response time based on the need to attack a fire prior to the flashover stage. PAE response time compliance in Santa Rosa is 93% under 6 minutes of alert. (1 minute earlier than the minimum Franchise urban response standard.)

Franchise Public/Private Partnership for Paramedic Assessment Engines

- “FRED” focus group recommended a provision in the RFP that encouraged public/private partnerships for 1st responder ALS. “FRED” identified that many jurisdictions were successfully using this model.
- AMR, the current franchise contractor, contracted with the Santa Rosa Fire Department to provide two PAE’s. The agreement was later extended to four PAE units.
- The public/private partnership contract requires PAE response time standards of 7 minutes 90% of the time from time of alert.

Franchise Public/Private Partnership for Paramedic Assessment Engines

- Santa Rosa Fire Department PAE's are successfully used as ALS resources throughout Santa Rosa, Rincon Valley, Windsor, Kenwood, Bennett Valley and Sebastopol fire jurisdictions within the urban franchise boundaries.
- In addition to the contracted four PAE's, Santa Rosa Fire funds an additional six PAE's that also stop the response time clock for the Franchise contractor and benefits the Franchise.

Benefits of Paramedic Assessment Engines

- Early ALS treatment care to the patient. Cardiac, airway, asthma, CVA, seizure, trauma
- Economical – The ability to Capitalize on existing resources 24/7 to provide expanding ALS service to customers. 1/6th the cost of an ALS 24/7 transport resource.
- Utilization of Paramedic Engine's in existing fire stations allow the franchise to utilize these units for initial ALS response.
- The PAE's can stop the response time clock upon their arrival and meet the 7-minute Franchise response standard. This provides the system flexibility. Ambulance transport can then arrive within 11 minutes.

Benefits of Paramedic Assessment Engines

- A Paramedic on a PAE can quickly assess the patient and appropriately upgrade or downgrade the ALS or BLS transport resource allowing flexibility to the Franchise
- Additional paramedic resources during disasters, allows PAE Paramedic to be used with a BLS ambulance at times when franchise resources are at low levels. Provides a second medic at scene. Allows for transport from critical calls and expands the capabilities of the EMS system.

Fiscal Benefit of Paramedic Assessment Engine to Franchise



* Annual Cost:

24/7 Ambulance: \$400,000

24/7 Paramedic Assessment Engine: \$63,000
(6 Units = \$378,000)

•Estimates are based on approximate staffing costs and current contract payments and do not include operational costs.

Paramedic Assessment Engines

Urban EMS Response Examples

- “...on arrival the crew of ME08 found bystander mouth to mouth being performed...agonal respirations at 6-10 minute...assisted respirations with BVM...gave him NARCAN...patient woke up...”

■ 3/10/07:	Dispatch	14:01:02
	ME08 Arrival	14:03:31 (2:29 Response) (5:09 Prior to M767)
	M767 Upgraded	14:04:05
	M767 Arrival	14:08:49 (7:47 Response)

Paramedic Assessment Engines

Urban EMS Response Examples

- “ME03 responding with Rincon Valley FD
... unresponsive patient with agonal respirations on the side of a dirt road... CSpine, assisted ventilations with BVM, administered NARCAN with no response...patient intubated...Ambulance arrived and patient loaded for immediate transport...rode into hospital...administered NARCAN...patient attempted to self extubate enroute...”
- 3/25/06:

Dispatch	20:32:59
ME03 Arrival	20:38:51 (5:52 Response) (3:02 Prior to M718)
M718 Arrival	20:41:53 (8:54 Response)

Paramedic Assessment Engines

Urban EMS Response Examples

- “...70 year old female choked on a steak... became unconscious and near cardiac arrest...paramedic engine company removed obstruction with laryngoscope and McGills, provided oxygen...patient awake and talking upon ambulance arrival...

■ 2/5/07:	Dispatch	18:24
	9382 Arrival	18:27 (3:00 Response) (3:00 Prior to M993)
	M993 Arrival	18:30 (6:00 Response)

Bay Area Jurisdiction Comparison

- 65 agencies within ABAG provide 1st responder ALS services.
- **Alameda** – Franchise contractor funds \$2 million annually to the County for 64 Paramedic Assessment Engines.
- **Contra Costa** – Franchise funds \$840,000 annually for 28 Paramedic Assessment Engines.
- **Marin** – There is no franchise system.
- **Santa Clara** – Franchise/JPA funds \$3.2 million for 77 Paramedic Assessment Engines/Trucks

Bay Area Jurisdiction Comparison

- **Solano** – Franchise funds \$839,556 for 16 Paramedic Assessment Engines.
- **City and County of San Francisco** – EMS (non franchise) system funds 22 Paramedic Assessment Engines.
- **Napa** – Paramedic Assessment Engines are utilized but are not funded by the Franchise.
- **San Mateo** – Franchise funds \$2.3 million towards funding 49 Paramedic Assessment Engines/Trucks

San Mateo Franchise Agreement

- San Mateo County awarded a franchise contract to AMR in January 1999. The system is based on public/private partnerships between AMR, the fire service and County of San Mateo.
- The system benefits patients with a faster paramedic response and better integrates the care provided by firefighters and ambulance paramedics.
- A single dispatch center performs dispatch services for the County as well as emergency ambulances.
- ALS 1st responder arrival in 6:59 minutes.

San Mateo Franchise Agreement

- System was awarded the 2000 National Council for Public/Private Partnerships Project Award
- San Mateo County has increased the number of trained and equipped firefighter paramedics from 60 to over 220. These paramedics staff 49 ALS fire engines throughout the County 24 hours a day, 7 days a week.
- The franchise system funds \$2.3 million towards 49 Paramedic Assessment Engines.

San Mateo Grand Jury Report

- In 2003 the San Mateo Grand Jury reviewed the San Mateo County Franchise System.
- The Grand Jury concluded “the interest of the citizens is well served by the present arrangement within the County for delivering quality medical response services. Advance life support, paramedic, and ambulance medical emergency transport provided by AMR, the JPA, dispatch center personnel, firefighters and paramedics are being provided effectively and in a professional manner.”
- “The emergency medical response and ambulance transport services are being provided in a manner that is in the interest of the County and Health and Safety of the ill and injured...”

Superior Court of California, County of San Mateo,
2003-2004 Report: San Mateo County EMS Contract

Summary

- The Coastal Valley EMS Agency's current ambulance franchise urban response time standards are substantially in compliance with State Standards and Guidelines, Industry Standards and provide a safe and reliable EMS system for the citizens.

Summary

- The inclusion of 1st Responder Paramedic Assessment Engines within the franchise contract is appropriate and successfully utilized in several Bay Area franchise models. PAE's provide a system model that is fiscally prudent, efficient and in the best interest of patient care.

Summary

- The Future Search committee work and consensus recommendations are an important part of our franchise model and set the stage for improved economical emergency prehospital care for the citizens of Sonoma County. Our current ambulance franchise model should be the baseline for improvement.