

# EMS System Strategic Plan

September 2014



Riverside County EMS Agency

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# The Riverside County EMS System Strategic Plan

## Executive Summary

The Riverside County Emergency Medical Services (EMS) System is meeting the needs of Riverside County's nearly 2.27 million residents and visitors. The diverse population and geography of Riverside County are served by an equally diverse community of EMS System organizations including hospitals, fire service EMS first responders, several 9-1-1 ALS<sup>1</sup> emergency ambulance providers, and BLS<sup>2</sup> non-emergency ambulance providers, air EMS providers, mental health services, the Department of Public Health, healthcare payers, educational institutions, county public service providers, training organizations, and non-profit agencies. The current contracted County 9-1-1 ALS emergency ambulance provider, American Medical Response (AMR), has been providing services to eight of the County's 12 ambulance zones for at least 30 years.<sup>3</sup> Additionally, there are three other exclusive and non-exclusive 9-1-1 ALS emergency ambulance providers in the County. Currently there are two public-private partnership agreements within the EMS System, one between the City of Riverside and AMR and a second between the City of Corona

and AMR. In addition, there are: 17 Prehospital Receiving Centers, four Level II Trauma Centers with one designated as a pediatric trauma center, ten Stroke Receiving Centers, and six ST Elevation Myocardial Infarction (STEMI) Receiving Centers. These specialty hospitals provide services resulting in decreased morbidity and mortality rates for patients in Riverside County.

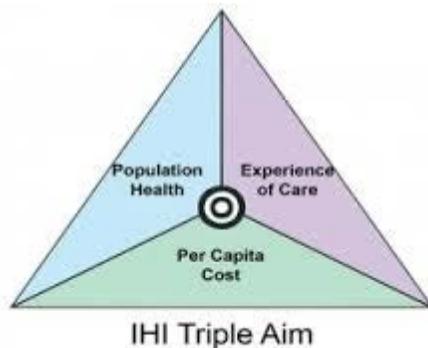
The Riverside County EMS System is well-regarded by EMS professionals throughout California due largely to the EMS System participants, the collaborative nature of the processes and policies of the EMS delivery system, and the Riverside County Emergency Medical Services Agency (REMSA). While some gaps and future capacity challenges loom, this strategic plan emphasizes opportunities to leverage the strengths and opportunities in the EMS System to close existing gaps and to move towards a more advanced and integrated healthcare delivery system, based upon the concepts of the Institute for Healthcare Improvement's (IHI) Triple Aim Initiative:

*Healthcare Reform and other anticipated healthcare changes offer an unprecedented opportunity to rethink, revitalize and reform Riverside County's EMS delivery system.*

<sup>1</sup> Advanced Life Support—care provided by paramedics.

<sup>2</sup> Basic Life Support—care provided by Emergency Medical Technician-Basics.

<sup>3</sup> "County Ambulance" is a term used to denote the provider of the County Service Area Exclusive Operating Area (EOA), which is currently served by contract with American Medical Response (AMR).



improving clinical care, maintaining or reducing costs, and improving patient and stakeholder satisfaction.<sup>4</sup>

Through the Riverside County EMS delivery system, patients receive high quality EMS and hospital care. However, some patients with complex underlying medical, social or behavioral health issues, such as serial inebriates, some mental health patients, and frequent EMS and Emergency Department (ED) users, may be more effectively treated in an alternative, non-ED setting. Many hospitals in Riverside County are at capacity and nearly all EDs have substantial historical patient demand growth. Projections with EMS and ED capacity demonstrate future capacity gaps with a lack of clarity of how these gaps will be filled. There are also opportunities to enhance the level of service provided by the EMS System. The Patient Protection and Affordable Care Act (PPACA or ACA and otherwise known as “Healthcare Reform” in this report) and other anticipated healthcare changes offer an unprecedented opportunity to **rethink, revitalize and reform** Riverside County’s EMS delivery

<sup>4</sup> The Institute for Healthcare Improvement (IHI) Triple Aim Initiative is described at <http://www.ihl.org/offerings/Initiatives/TripleAim/Pages/default.aspx>

system.<sup>5</sup> While taking into account cost-benefit analysis and focusing on the goals of the system in a prioritized fashion, the healthcare delivery system of the future will emphasize accountability and value over the current paradigm, which is primarily based on payments for services delivered. Riverside County is already considering some of these innovations, such as changes to their mental health assessment system and capacity, and REMSA is actively monitoring the evolution of other innovative EMS initiatives throughout the nation.

*...the community must address the reality that EMS delivery services are vulnerable to economic and other forces...*

Between 2014 and 2019, under Healthcare Reform, Riverside County’s healthcare system will potentially absorb the influx of nearly 200,000<sup>6</sup> newly-insured residents. EMS delivery services are vulnerable to economic and other forces and the community must address the reality that, they are expensive to maintain and inadequate to meet the growing healthcare needs of Riverside County.

<sup>5</sup> [Public Law 111-148](#), 124 Stat. 119, to be codified as amended at scattered sections of the [Internal Revenue Code](#) and in [42 U.S.C.](#)

<sup>6</sup> Source: The Abaris Group “As-Is Report”, Riverside County, February, 2014.

## The Riverside County EMS System Evaluation and Strategic Planning Process

Under the direction of the Riverside County Board of Supervisors,

Planning

Execution

Monitoring

REMSA initiated the EMS System Evaluation and Strategic Planning Process in response to projected changes in the healthcare, medical, public health, and public safety environments anticipated over the next three to seven years.

*This Strategic Plan's ultimate vision is to serve as a collaboratively developed roadmap that identifies the optimal route forward for the Riverside County EMS System during the next three to seven years.*

During the time period of this plan, Riverside County's EMS System will either react to these mandated changes or create its own roadmap to prepare for such changes under the leadership of the County, REMSA, and EMS System stakeholders<sup>7</sup>. As REMSA,

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<sup>7</sup> "Stakeholders" are defined as healthcare providers, persons within governance structures and consumers with an interest in quality and affordable EMS delivery systems for persons in need in the county.

the County, and EMS stakeholders define their own EMS roadmap for the future, the result will be an era of innovation and embracing the opportunities available within Healthcare Reform initiatives. Therefore, this strategic plan will guide the Riverside County EMS System into the future.

The Riverside County EMS System evaluation and strategic planning process started in November 2012, after the U.S. Supreme Court's decisions on cases relating to healthcare reform and implementation of the federal Patient Protection and Affordable Care Act.

The Abaris Group, the consulting firm selected to assist REMSA with the Riverside EMS System evaluation and strategic planning process, interviewed approximately 100 stakeholders from all disciplines within Riverside County's the EMS System. The Abaris Group observed ambulance staff, field supervisors, EMS Specialists, first responders, and EMS dispatchers as part of this review. The Abaris Group also reviewed policies, procedures, plans and reports of the Riverside County EMS System. This information was integrated with operational, economic, and demographic information about the County, its communities, its medical and healthcare stakeholder organizations, and its residents. The findings of this comprehensive assessment were

released in the County of Riverside EMS Evaluation (As-Is) Report in February 2014.

The Riverside County EMS System evaluation and strategic planning process began in November 2012 and was completed in September 2014. During that period, numerous steering group and stakeholder meetings were held to assess and provide feedback on the EMS as-is assessment process. More recently, a series of six strategic planning workshops were conducted with EMS stakeholders.. These workshops had the following objectives:

- To present and receive stakeholder feedback on the EMS System Strategic Assessment Report
- To identify the stakeholders' perceptions of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) facing the Riverside County EMS System
- To introduce EMS System stakeholders to innovative and best-practice EMS programs throughout the United States, including:
  - Reno, Nevada's EMS Medicare Innovation Grant awardees' activities and progress
  - San Diego County Resource Access Program or "RAP" program for mitigating frequent EMS users
  - San Mateo County's San Mateo Mental Assessment and Response Team (SMART)

- To develop consensus around a shared vision among EMS System stakeholders
- To collaboratively develop a comprehensive EMS System Strategic Plan, including memorializing for the first time, the EMS System's Mission, Vision, Values, and Goals

Following these workshops, The Abaris Group and REMSA conducted focused meetings with groups of EMS System leaders to test the validity of the goals, objectives and presumptions within the draft strategic plan, and to seek consensus and support. Focused meetings were held with representatives from the following stakeholder organizations: Riverside County Fire Chiefs' Association, Riverside County Law Enforcement Administrators Association, ED medical directors, hospital chief executives, specialty clinical services leaders, emergency and non-emergency ambulance managers, County of Riverside Department of Public Health, Riverside County Department of Mental Health, drug and alcohol programs, and other social services and Riverside County's Executive Office. Based on these meetings, the EMS System Strategic Plan was revised and recirculated to the larger EMS community for input. It is noted that the Riverside County EMS Strategic Plan is a living document in that it may be revised and changed as different dynamics are introduced into the healthcare and EMS fields.

## Riverside County's Current EMS System

The County of Riverside EMS Evaluation Report identified a number of critical issues impacting the stability and capability of the current EMS delivery system:

1. **EMS Continuous Quality Improvement (CQI) Program.** Despite significant progress in the last five years, the current quality improvement program lacks many of the components of a fully implemented comprehensive CQI program. Most significantly, it lacks a comprehensive program for the collection of patient outcome data from the hospitals and use of innovations that are becoming common in the healthcare field, such as "Just Culture," statistical measures of performance, and use of quality and efficiency tools such as Lean Six Sigma doctrine, Root-Cause Analysis and other such programs relevant to the goals of this strategic plan<sup>8</sup>. These tools have been demonstrated to be associated with improved patient clinical outcomes and reduced costs.
2. **Insufficient hospital and ED capacity.** Many hospitals and most EDs are usually full and cannot always respond quickly to the increases in ambulance volume, as evidenced by

*The ideal EMS delivery system should leverage information systems technology to the highest degree possible, in order to ensure accurate and comprehensive measures and analysis of key performance indicators.*

<sup>8</sup> <http://www.justculture.org/>

significant ambulance patient offload delays (APOD). Demand and patient volume is expected to increase, further exacerbating hospital and ED capacity problems and the likely overuse of EMS services by patients. Without strategic steps to "rethink" the management of EMS patients, this problem could escalate. The problems of insufficient ED and hospital capacity are exacerbated by unclear and poorly defined future reimbursement strategies for first responders and ambulance providers by government and other payers.

3. **Communication systems are fragmented.** There are 17 Public Safety Answering Points (PSAPs) in the Riverside County EMS System. This large number of centers allows undesirable variations in the EMS call reception and management delivery process including credentialing as an EMD dispatch center. The current system does not allow uniform and congruent tracking of call reception, transfer time points or time intervals from the reception of the call at the primary PSAP through call disposition. Moreover, the number of PSAPs and transfers between PSAPs and the EMS dispatch centers limits effective quality oversight and CQI.
4. **Data transparency, performance transparency and evidence-based research are not fully part of the EMS culture.** All prehospital providers are on or committed to be on a single countywide electronic patient care record (ePCR) system by January 1, 2015. However, access to patient outcome data from the hospitals for studies, research and access by EMS providers exists only at minimal levels within the current system. Additionally, the reporting of

response times, and their definitions, criteria and analysis, is not uniform and consistent among all providers. There is also a lack of published research on the current EMS System and its successes. These characteristics are contrary to fostering a culture that is committed to innovation and decision-making based on evidence and data.

5. **Community education programs are fragmented or lacking.** There are many EMS public education and injury prevention programs within Riverside County, but these programs are not coordinated or linked to data streams and formal quality initiatives that would enable tracking of impact.
6. **Customer service and patient satisfaction feedback is lacking.** During the evaluation phase of the project, it was identified that, while some fire departments do patient surveys, there are no uniform patient or customer satisfaction metrics reported from a systemwide standpoint.
7. **The current EMS system response configuration does not use Emergency Medical Dispatch (EMD) for tiered resource prioritization.** The City of Corona, the City of Riverside and the Riverside County Fire Department use EMD which provides for EMD to be used for the majority of the County's EMS responses. However, EMD is primarily utilized for pre-arrival and post-dispatch instructions only. While minor resource response prioritization is currently in place within the City of Riverside only, the balance of the county still sends an ALS or BLS first-response engine/truck/squad Code 3 (lights and siren) and ALS ambulance Code 3 regardless of the severity of a patient's condition. This is not consistent with treatment

urgency as categorized by nationally recognized Medical Priority Dispatch System (MPDS) protocols. There is significant opportunity to reconfigure the two-tiered response system in a way that will optimize resource utilization, meet medical priority response needs, improve response times to the most acutely ill patients and provide for a more cost-effective system.

8. **The EMS system administration activities require efficiency measures and appropriate resourcing.** The current EMS advisory committee structure is complicated, resource intensive and duplicative. There is tremendous overlap and excess resources are devoted to the "committee" process. However, oversight by REMSA will need to expand to be consistent with the goals and staffing of this strategic plan. Currently there is insufficient staffing within REMSA to support all of the proposed strategic initiative goals and objectives.
9. **The current state of EMS economics presents significant risk to system funding and system enhancement financing.** Like healthcare facilities, EMS services throughout California and the nation are experiencing serious challenges in reimbursement for services. While Healthcare Reform is providing access to some historically indigent patients into programs providing MediCal and other levels of reimbursement, the "Graying of America" is driving an increasing number of patients out of commercial and Managed Care Organization (MCO) insurance plans into Medicare. This change in payer mix combined with

increasing Medicare payment denials based upon “medical necessity,” alignment of traditional higher paying reimbursement rates with the Medicare allowable rate and high commercial/MCO plan deductibles is driving down overall collection rates for ambulance services. As Medicare and MediCal become a larger percentage of the Riverside County payer mix, it is important to note that current reimbursement rates for those government plans received by ambulance providers do not cover the current average cost of an ambulance transport in the county, state or nation. Additionally, government insurance and most commercial /MCO insurance plans do not reimburse for the services provided by the first response-tier of the current system. These economic realities necessitate prioritization of plan goals and

objectives that maximize EMS System efficiency and cost effectiveness. Highest priority must be given to those goals that can produce measurable improvement in patient outcomes.

## The Vision of a Successful EMS System in Riverside County

There have been a number of attempts by national committees and EMS experts to define the “ideal” EMS System for the future.<sup>9,10</sup> Research indicates that the Riverside County EMS System Strategic Plan should incorporate the principles of a world-class EMS delivery system, which include:

### **Collaboration**

The best EMS Systems are based on collaborations among the diverse organizations that comprise the EMS System. Collaboration allows for diverse organizational strengths to be combined and emphasized through system-wide integration and a culture of trust. In doing so, the EMS System can more effectively capitalize on new opportunities and mitigate threats to the system. This Strategic Plan calls for the maximum use of collaboration to achieve the desired world-class EMS delivery system.

### **Outcome Driven**

The best EMS Systems hold themselves accountable to meet performance standards and superior outcomes resulting from the EMS System’s optimal performance. This EMS System Strategic Plan targets the development of clear, measurable, and

<sup>9</sup> EMS Agenda For the Future, NHTSA, 2010,  
[http://www.ems.gov/pdf/2010/EMSagendaWeb\\_7-06-10.pdf](http://www.ems.gov/pdf/2010/EMSagendaWeb_7-06-10.pdf)

<sup>10</sup> Institute of Medicine (2006) Emergency Medical Services: At the Crossroads,  
[https://download.nap.edu/catalog.php?record\\_id=11629](https://download.nap.edu/catalog.php?record_id=11629)

literature-driven patient and customer outcomes consistent with a world-class EMS delivery system.

### **Cost Effective, Financially Sustainable, and Value Driven**

EMS Systems must be based upon a sound financial foundation. Successful EMS Systems of the future will be based on the ability to provide emergency and other services that add value, centered on a documented, evidence and outcomes-based evaluation. This will include innovations that have been tested for cost effectiveness and sustainability. In the future, EMS Systems that cannot produce services that improve outcomes, financial worthiness or document the addition of “value” will not be compensated and thus will not be sustainable.

### **Innovation and Excellence**

Successful EMS Systems of the future must innovate and reinvent themselves as clinical, operational, and economic environments transform. Innovation and excellence must be integrated into all efforts by the EMS delivery system.

*The Riverside County EMS System Strategic Plan should incorporate the principles of a world-class EMS delivery system.*

### **Prevention and Education**

Healthcare Reform emphasizes prevention in all aspects of medical care and community life. Prevention reduces the incidence of illness and critical injuries and contributes to a community's overall health. Through the prevention component of its mission, EMS systems should work to "put the EMS system out of business." While this goal will never be achieved, EMS systems should endeavor to reduce EMS utilization through education and information.

### **Customer Service**

The future EMS system must meet customers' and payers' expectations for service by providing value-driven and clinically superior patient care. Successful EMS systems will also accentuate customer service by emphasizing professionalism, dignity, and respect. These characteristics of professional public service must be embedded in the culture of the EMS delivery system and must be actively measured and monitored.

The ideal EMS delivery system should leverage information systems technology to the highest degree possible, in order to ensure accurate and comprehensive measurement and analysis of key performance indicators. The ideal EMS system should access and provide global medical and health systems data to measure efficiency, clinical care, and outcomes. The ideal EMS system should also be data transparent—informing stakeholders, payers, and consumers about the EMS system, to the extent permitted by law.

These increasingly essential, high-performance EMS delivery system characteristics should be integrated into the Riverside County EMS System Strategic Plan and the Riverside County EMS delivery system.

## SWOT Analysis and Recommendations from EMS Stakeholder Survey Results

### Methodology

REMSA and The Abaris Group conducted an online survey to obtain the input of the stakeholders on the strengths, weaknesses, opportunities and threats (SWOT) and on desired system priorities for this Strategic Plan of the EMS System in Riverside County. The survey was conducted during June and July of 2014. A total of 86 responses were received. The survey listed the SWOT identified previously by the stakeholders and asked respondents to select their top five for each category. In addition, respondents were also asked to identify their priorities for a set of recommendations.

The respondents who participated in the survey represented all facets of EMS in the community. The cohort with the largest response was County Fire Department(32), followed by Hospital Administrator (11). Below is a chart detailing the industry categories of those who responded:

Respondents		
Answer Options	Response Count	Response Percent
County Fire (Including fire ambulance providers)	32	41%
Hospital Administrator	11	14%
City Fire (Including fire ambulance providers)	8	10%
Hospital Clinician	6	8%
Policy Maker	5	6%
ALS Ambulance Provider	4	5%
EMS Provider (Not management including	2	3%
BLS Ambulance Provider	2	3%
Other (please specify)	8	10%
<i>answered question</i>	<b>78</b>	<b>100%</b>
<i>skipped question</i>	<b>8</b>	<b>-</b>
<i>total</i>	<b>86</b>	<b>-</b>

Other (please specify)
California Correctional Health Care Services / CDCR State Prisons
CCT provider
ED Director
Educational administrator
Local government
Mental Health
Public EMS customer
REMSA

## Strengths, Weaknesses, Opportunities & Threats (SWOT) Analysis

### Strengths

The survey results showed that “EMS system reliability” was the top strength, with 53 respondents voting for this choice. The second most voted strength was “Collaborative stakeholder involvement,” with 42 votes. “Resource capability,” “Attitude towards data (evidence-based model)” and “First-responder model is efficient (multi-disciplinary response)” rounded out the top five strengths.

Strengths			
Rank	Answer Options	Response Count	Percent of Total
1	EMS system reliability	53	15%
2	Collaborative stakeholder involvement (diversity)	42	12%
3	Resource capability	40	11%
4	Attitude towards data (evidence-based model)	38	11%
5	First-responder model is efficient (multi-disciplinary response)	34	10%
6	CQI process – similar throughout system	31	9%
7	Specialty care systems	30	9%
8	Well-structured service	29	8%
9	EMS infrastructure	27	8%
10	Cost-effective system	21	6%
11	Other (please specify)	3	1%
<i>total responses</i>		<b>348</b>	<b>100%</b>
<i>answered question</i>		<b>82</b>	-
<i>skipped question</i>		<b>4</b>	-

Other (please specify)
Flexibility
Leadership
System that backs field medics and is progressive in field care.
Blank

## Weaknesses

The top weakness was “EMS-to-hospital off-load delays” with 50 votes. Having “No common data system” was the second highest voted weakness (48 votes). “Lack of contemporary mental health resources” came in third (47 votes). “Lack of alternative destination programs (limited primary destinations – not with specialty services)” (44 votes) and “Communication between agencies” (34 votes) ranked fourth and fifth, respectively.

All of the identified weaknesses are covered in the goals presented in the Strategic Plan.

Weaknesses				
Rank	Answer Options	Response Count	Percent of Total	Addressed in Goal
1	EMS-to-hospital off-load delays	50	13%	5
2	No common data system	48	12%	1
3	Lack of contemporary mental health resources	47	12%	4
4	Lack of alternative destination programs (limited primary destinations - not with specialty services)	44	11%	3
5	Communication between agencies	34	9%	2
6	Transport surge capacity issues	33	8%	6
7	Funding	31	8%	7
8	Standardization in training/equipment/QI processes	29	7%	1, 12
9	ED utilization	21	5%	1
10	Comprehensive coordinated community education	21	5%	11
11	Poor medical communications for disasters	19	5%	2
12	Utilizing outcomes	16	4%	1
13	Other (please specify)	6	2%	-
<b>total responses</b>		<b>399</b>	<b>100%</b>	-
<b>answered question</b>		<b>84</b>	-	-
<b>skipped question</b>		<b>2</b>	-	-

Other (please specify)
Hidden agendas (politics) that stifle true collaboration
Inconsistent cost recovery
Lack of EMS system abuse/misuse policy and enforcement
Misuse by law enforcement using paramedics to “clear” patients
Private ambulance supervision, and lack of urgency upon arrival to calls
Weak Mobile Intensive Care Nurse (MICN) training - MICN's are unable to make decisions without asking an MD and have very little idea what life is like outside the hospital. Huge variability in MICN quality
Blank

## Opportunities

“Filling the gaps in healthcare services” was the top vote with 43 votes. The next two choices each had 41 votes and they were, “Integrated technology/data management systems” and “Utilizing lessons learned, avoiding mistakes that have already been made by other systems.” The fourth and fifth ranked were “EMS integrated into the healthcare system” (36 votes) and “Broader care for patients including their public health (not limited to the scope of ‘community paramedicine’)” (29 votes). All of the identified opportunities are included in the goals of the Strategic Plan.

Opportunities				
Rank	Answer Options	Response Count	Percent of Total	Addressed in Goal
1	Filling gaps in healthcare services (i.e., mental health, Department of Public Social Services)	43	11%	1, 3, 4, 10
2	Integrated technology/data management systems	41	11%	3, 10
3	Utilizing lessons learned, avoiding mistakes that have already been made by other systems	41	11%	3, 8, 10
4	EMS integrated into the health care system	36	9%	2, 3, 4, 10
5	Broader care for patients including their public health (not limited to the scope of “community paramedicine”)	29	8%	3, 10, 11
6	Cost-savings and funding opportunities	28	7%	3, 7, 10
7	Education (internally and externally of the public)/education system needed based on the different populations in Riverside County (i.e., general public, geriatrics, pediatrics, etc.)/development of targeted training	27	7%	10, 12
8	Collaboration of stakeholders	27	7%	2, 8, 10
9	Integration/coordination of communication/dispatch resources (EMD)	27	7%	2, 10
10	Better meet all needs of the community	21	5%	10
11	Affordable Care Act (ACA)	20	5%	3, 7, 10
12	Adjust increase resources to end user in order to maximize flexibility and adaptability of the system as a whole (different regions – urban and rural)	19	5%	2, 3, 10
13	Education system integration	17	4%	10, 11, 12
14	Other (please specify)	6	2%	-
<b>total responses</b>		<b>382</b>	<b>100%</b>	-
<b>answered question</b>		<b>79</b>	-	-
<b>skipped question</b>		<b>7</b>	-	-

Other (please specify)
Allowing Interfacility transports (IFT) companies to utilize paramedics for ALS level calls in order to save money and utilize RN's for actual critical calls. Will speed up the delivery system overall including 911.
Competitive ambulance contracts - If AMR is really the best for the county make them prove it
EVERY High School Graduate SHOULD have at the least CPR/AED Certification from any CERTIFIED Health Care Training Certification Source (not just AHA or ARC)!
More ALS ambulance providers
To enact system wide innovations that will improve EMS for Riverside County
Utilizing lessons learned, examining models that have already been made successful by other systems.
Blank

## Threats

The top threat was “Lack of complete integrated approach to healthcare system” which received 48 votes. This choice was followed closely by “Lack of mental health support and substance abuse resources” (47 votes). In third was the “Lack of infrastructure for key services” with 42 votes. Rounding out the top five threats was “Unknowns of the Affordable Care Act - ACA” (38 votes) and “Cost-shifting, loss of funding/unfunded mandates” (34 votes).

Threats			
Rank	Answer Options	Response Count	Percent of Total
1	Lack of complete integrated approach to health care system (i.e., political challenges, priorities, resistance to change, competing interests, silos, different views)	48	12%
2	Lack of mental health support and substance abuse resources	47	12%
3	Lack of infrastructure for key services (i.e., mental health patients, EMS alternative destinations, etc.)	42	11%
4	Unknowns of ACA	38	10%
5	Cost-shifting, loss of funding/unfunded mandates	34	9%
6	Communications infrastructure	28	7%
7	No dedicated funding source for first-response component of EMS	28	7%
8	Addressing the root problems that need to be fixed	28	7%
9	Lack of collaboration and coordination among all community partners	27	7%
10	Healthcare funding dropping and rising costs	24	6%
11	Loss of local control	20	5%
12	Public opinion/expectations	18	5%
13	Other (please specify)	4	1%
<b>total responses</b>		<b>386</b>	<b>100%</b>
<b>answered question</b>		<b>81</b>	<b>-</b>
<b>skipped question</b>		<b>5</b>	<b>-</b>

Other (please specify)
911 is being utilized in non-emergency medical situations.
Lack of triage ability at call taker(dispatch) level. Need to be able to triage a call
AMR Administration and focus of profit
Politics and politicians do not belong in the EMS delivery system!

## Recommendations Analysis

A set of recommendations was presented in the survey and respondents were asked to rank each one as either “Most Important,” “Indifferent,” or “Not Important.” The recommendation with the largest number of responses as “Most Important” was Recommendation number 10. Recommendation number 4 ranked second.. Recommendation number 6 received the most votes as “Indifferent.”

A table listing the recommendations begins on the next page.

Recommendation Responses Sorted by Most Important					
Rec. #	Most Important	Most Important % of Total	Indifferent	Not Important	Total
10	58	75%	16	3	77
4	56	72%	18	4	78
5	55	71%	20	3	78
3	52	68%	19	5	76
2	43	55%	32	3	78
1	42	55%	26	9	77
11	41	54%	34	1	76
9	38	51%	30	7	75
8	35	47%	34	6	75
7	31	40%	39	7	77
6	16	21%	46	15	77

Number	Recommendation
1	Commence an Emergency Medical Services (EMS) Innovations Project to better position the community for changes occurring both in the community and in healthcare with Healthcare Reform (The Affordable Care Act) and to define which initiatives should be targeted and implemented in Riverside County.
2	Continue the efforts of establishing a state-of-the art continuous quality improvement (CQI) consistent with the recommendations of the previously published recommendations report which includes a comprehensive customer feedback mechanism with loop closure and regular reporting.
3	Collaborate and document opportunities to create an EMS system where the most appropriate and available EMS resource responds to an emergency request regardless of geographical jurisdiction.
4	Explore and develop improved efficiencies for EMS services provided to mental health patients which might include Investigate alternatives to 72-hour holds (Welfare and Institutions Code Section 5150) for mental health patients including, determining if additional mental health training for EMS and law enforcement would be beneficial and determining if alternative destinations can be developed for mental health patients.
5	Address "EMS-to-ED (emergency department)" off-load ambulance delays in the form of a multidisciplinary collaborative, with parameters monitored by the EMS Agency.
6	Adopt stronger inter-facility transport (IFT) requirements and monitoring processes as recommended in the completed recommendations study of the overall system.
7	Adopt key communication recommendations from the previous completed study which will be based on cost and current financial status of the County and its providers.
8	Change the EMS governance structure to adjust EMS Agency staffing as comparable to benchmark EMS agencies, to assist with the implementation and monitoring of specialized programs as developed through this strategic planning process staff positions and achieving a full-time EMS medical director, assure staff resources to study and implement specialized programs (e.g., mental health, inebriates, etc.) recommended during the strategic planning process and review and consolidate the EMS advisory committee structure as appropriate.

Number	Recommendation
9	Evaluate and develop strategies to improve on-line medical direction to include Implementing optimal patient movement solutions, determining the ideal number of base hospitals to manage EMS direction in the field while maintaining a sufficient span of control from the EMS Agency and investigating ways to improve system coordination with a uniform medical control model (e.g., Medical Alert Center, Medical/Health Communications Center).
10	Address existing contract parameters with all of the county's 9-1-1 ambulance providers. This includes targeting key operational and performance issues required for a responsive and contemporary countywide ambulance delivery system, and creating or updating response times for each entity, including participating agencies that partner with private ambulance services. In addition, innovations approved during this strategic planning should be adopted via a variety of contract clauses based on adopted ambulance delivery system benchmarks that demonstrate a high potential for system enhancements and alignment with the "Triple Aim" of Health Reform.
11	Continue ongoing consideration of model EOA structures to also include obtaining commitments to achieve the ambulance and contracting performance from the current ambulance providers, as listed in the completed study recommendations.

# EMS System Strategic Plan Mission, Vision, and Value Statements

The following statements were developed collaboratively by the stakeholders of the Riverside County EMS System:

## Strategic Mission Statement

*The mission of the Riverside County EMS System is to assure the timely delivery of high quality, compassionate and cost-effective emergency medical services through collaborative groups and models.*

## Strategic Plan Vision

*The Riverside County EMS System's vision is to be the exceptional, outcome-focused EMS leader in the nation.*

## Strategic Value Statements

- *The patient, as the focus of what we do.*
- *Honesty and integrity.*
- *Personal and organizational accountability.*
- *Collaboration in our endeavors.*
- *Inclusive decision-making.*
- *Outcome focused change as an avenue to excellence.*

## EMS System Motto

The EMS System motto describes our goal of adaptation in an ever-changing world:

*Innovative, Quality and Compassionate Care, Fulfilling the Promise of EMS.*

## The Goals of the EMS System Strategic Plan

The Riverside County EMS System Evaluation and Strategic Planning Project's goals are designed to utilize a community-driven input process to develop the plan to enhance access, coordinate care, reduce unnecessary utilization, and improve the quality of the County's EMS delivery system. This Strategic Plan's ultimate vision is to serve as a collaboratively-developed roadmap that identifies the optimal route forward for the Riverside County EMS System's three to seven year goal of becoming an exceptional, outcome-focused system. The Abaris Group developed a matrix that includes each Goal/Objective with suggested priority, dates for completion and resource needs for this Strategic Plan. It is understood that this Action Plan addendum will be a living document, subject to workgroup input for each goal.

### Goal One

**Adopt and cultivate methodologies and collaborative practices that focus on system wide continuous quality improvement (CQI) activities that optimize patient outcomes.**

*...create a coordinated and collaborative CQI program that provides focus on achieving optimal patient outcomes...*

The Riverside County EMS System should build on the current quality improvement program and create a coordinated and

collaborative CQI program that provides focus on achieving optimal patient outcomes. This includes data collection, analysis and reporting, benchmarking, guidance for current and future EMS protocols, policies and procedures, EMS research initiatives, high reliability organizational (HRO) principles<sup>11</sup>, integration with healthcare system CQI and patient information, and integration with education/training programs.

### Goal Two

**Evaluate and implement EMS resource utilization, as well as response and coordination improvements designed to maximize the functional capacity and efficiency of an integrated and cooperative, two-tiered regional EMS system.**

The Riverside County EMS System should evaluate and adopt appropriate contemporary EMS delivery methods and processes for improving the functionality, coordination, capacity, cost effectiveness and value of services provided by the EMS System. These services should include full implementation of EMD throughout the County, integration with national Public Access Defibrillator (PAD) registry, interoperability of communications, integrated information systems, development of uniform definitions, nomenclature and standards for all time critical processes across the continuum of patient care, efficient mutual

<sup>11</sup> HRO principles are defined in the following *Journal of Emergency Medicine* article: <http://www.jems.com/article/administration-and-leadership/why-being-high-reliability-organization> (last accessed 7/18/14)

and automatic aid agreements based upon the closest available resource concept, EMS System surge capacity for Mass Casualty Incidents (MCIs) and equipment standardization.

### **Goal Three**

**Commence an EMS innovations delivery program that evaluates and develops projects designed to improve patient outcomes, service value and system cost effectiveness within an integrated healthcare delivery model.**

The Riverside County EMS System should develop project(s) to better position the system and the communities it serves for changes occurring both in the community and in healthcare with Healthcare Reform. The changing healthcare environment will require the EMS system to challenge many of its underlying assumptions on cost, efficacy and value, and reframe the delivery system to achieve the objectives of Triple Aim, using innovativesolutions.

### **Goal Four**

**Explore and develop improved efficiencies for EMS services provided to mental health patients which may include investigating alternatives to 72-hour holds (Welfare and Institutions Code Section 5150) and additional training for EMS and law enforcement personnel.**

The Riverside County EMS System should investigate and establish new contemporary programs for the management of psychiatric, substance abuse and other behavioral health patients in the field and in the hospital settings that emphasize access, throughput and lower cost delivery systems thus avoiding expensive EMS and ED services that are not engineered for this group of patients. This may include additional mental health training for EMS and law enforcement officials, if beneficial, and determining if alternative destinations can be developed for mental health patients.

### **Goal Five**

**Form a multidisciplinary collaborative approach, with parameters monitored by REMSA, to reduce ambulance patient off-load delays (APOD) at hospitals.**

The collaboration called for in this plan should include a focused effort on analyzing the root causes of ED offload delays and the adoption, where appropriate, of alternative and innovative models that emphasize improved access of EMS patients transported to EDs. This may include population strategies, utilization management and case management, with consideration of using engineering tools such as Lean Six Sigma, root-cause analysis and other operational concepts for both EMS providers and hospitals alike.

## **Goal Six**

### **Adopt stronger Interfacility Transport (IFT) and event medical service requirements including services at mass gatherings.**

The EMS System has witnessed a proliferation of IFT and event medical services providers. The current system for oversight has not kept pace with the need to oversee this growing industry through the development of standards, local educational requirements and a permitting process. This has especially become evident with a recent federal report that concludes there is poor compliance and overutilization of IFT services throughout the country.<sup>12</sup> A re-evaluation of the existing ambulance ordinance will be required to keep up with the current system oversight. An oversight of special event medical providers will be needed for providers who currently provide medical event services in Riverside County. Lastly, the County should explore the need for oversight in gurney van medical transportation industry in Riverside County.

## **Goal Seven**

### **Assure the long term financial solvency, stability and cost effectiveness of the EMS system.**

The Riverside County EMS System participants should continuously evaluate the system funding model and baseline cost of the existing system. Full attention should be paid to

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<sup>12</sup> Ambulance Providers: Costs and Medicare Margins Varied Widely; Transports of Beneficiaries Have Increased. Pub. Oct. 1, 2012 <http://www.gao.gov/products/GAO-13-6>

exploring all possible system funding opportunities, analyzing high avoidable cost user data, and the development of methodologies for evaluating the cost versus benefit of new and ongoing system enhancements. These steps will assure the long term economic viability and sustainability of the system.

## **Goal Eight**

### **Evaluate and redesign the EMS advisory committee structure and REMSA staffing to maximize productivity of committees and to ensure ongoing effective EMS system administration.**

The Riverside County EMS System should evaluate the EMS structure and develop more efficient advisory committee structures and their staffing to maximize and leverage stakeholder involvement. Alternative staffing models and resources should be adjusted as necessary. Plans should include the efficient use of current staff to provide effective and ongoing EMS system oversight, and successful attainment of goals without changing the collaborative model already in place.

## **Goal Nine**

**Evaluate and develop strategies to improve online medical direction and medical leadership including implementing optimal patient movement solutions and investigating ways to improve system coordination with a uniform medical control model (e.g., Medical Alert Center, Medical/Health Communications Center).**

The Riverside County EMS System should investigate and design a medical control model that is sustainable, permits oversight of new contemporary initiatives identified in this Strategic Plan and evaluates the inventory of base hospitals and other vehicles used to execute medical control oversight. This may include implementing optimal patient movement solutions and investigating ways to improve system coordination with a uniform medical control model, e.g., Medical Alert Center (MAC), and the Medical Health Operational Area Coordination Center.

## **Goal Ten**

**Adopt and continue improvements and system enhancements for Advanced Life Support (ALS) and Emergency Ambulance Contracts.**

The Riverside County EMS System participants should modify contract parameters with all of the County's 9-1-1 ambulance providers, targeting key operational and performance issues required for a responsive and contemporary countywide ambulance delivery system, creating or updating response times for each entity (including participating agencies that partner

with private ambulance services) and including innovations approved during this strategic planning process. The innovations, to be approved by the Riverside County Board of Supervisors, would be implemented with the adoption of a variety of emergency ambulance contract clauses that permit the contract to be amended based on researched and verified efficacy, and adopted ambulance delivery system benchmarks that demonstrate a high potential for system enhancements and alignment with the Triple Aim of Healthcare Reform.

Initiatives from this plan will call for steps to be taken by the 9-1-1 providers. These steps should be memorialized in the form of contract amendments and memorandums of understanding with the 9-1-1 ambulance providers to insure their speedy adoption and implementation. Agreement changes that are required will be carefully studied in advance and connected to verified literature and/or data-driven and pilot-tested results that meet the Triple Aim of Healthcare Reform and the EMS delivery system in Riverside County.

## **Goal Eleven**

**Partner with the Department of Public Health, public safety organizations, and the Department of Mental Health to align and enhance public education and prevention efforts.**

The Riverside County EMS System should enhance its public education and prevention program while integrating with existing and emerging public education and prevention programs to establish common topics, messages, and channels that ensure EMS-relevant public education and prevention messages are emphasized. This may include improvements in community based CPR and automatic external defibrillator (AED) education.

## **Goal Twelve**

**Structure a comprehensive system-wide education/training model for EMS personnel in Riverside County that is integrated with current stakeholder programs.**

REMSA should create and implement a system-wide education plan for continuous training of EMS personnel. This plan should include strong medical direction, as well as provisions for continuous updates that meet the needs of EMS patients in Riverside County and take into account the current collaboration of stakeholders. This continuous training plan should consider including all emergency care providers including IFT and event medical services.

## Strategic Planning Goals and Objectives

**Goal One – Adopt and cultivate methodologies and collaborative practices that focus on system wide CQI activities to optimize patient outcomes.**

*The Riverside County EMS System should build on the current quality improvement program and create a coordinated and collaborative CQI program that focuses on achieving optimal patient outcomes. This includes data collection, analysis and reporting, benchmarking, guidance for current and future EMS protocols, policies and procedures, EMS research initiatives, High Reliability Organizational (HRO) principles, integration with healthcare system CQI and patient information, and integration with education/training programs.*

■ Objective 1.1. The CQI Technical Advisory Committee will evaluate and modify REMSA’s EMS Quality Improvement Plan. The plan should:

- Incorporate the new EMS system medical direction models called for in this plan and new EMS system committee structure
- Integrate best practices from other EMS systems and specialty service credentialing organizations
- Emphasize a coordinated, functioning, and outcome-based CQI program
- Link CQI results and outcome drivers to development of EMS education and training programs
- Include the development of a CQI dashboard with indicators designed around the most significant quality indicators to aid all of the stakeholders in the monitoring and trending of these indicators across the County
- Assure complete “loop closure” on all studied elements, including findings of after-action reports and plans of correction

*...emphasize a coordinated, functioning, and outcome-based CQI program...*

- Integrate all EMS system participants, all clinical initiatives, and essential operational measures within the EMS system
  - Provide access to reliable EMS system data to stakeholders and public, as allowed by law
  - Establish research and publish studies of quality improvement results to advance the science of EMS
  - Integrate the principles and components of a high reliability organizational program
- Objective 1.2. Continue development and implementation of a comprehensive program for system data collection, analysis and reporting that includes:
- The continued use of a single prehospital ePCR for the entire EMS system with an associated technology refresh program
  - Integration of all system response data; Computer Aided Dispatch (CAD), EMD Priority QA IT models or their

equivalent and non-emergency out-of-hospital providers (IFT, event medical services providers)

- Use of, as appropriate, Lean Six Sigma, root-cause analysis, and other tools for data analysis, reporting and action planning
- Linkages to hospital provided patient outcome data and information
- Integration with hospital electronic medical records (EMRs)
- Integration with the Inland Empire Healthcare Information Exchange (HIE) for bi-directional patient information flow
- Evaluation of ongoing funding opportunities to support robust countywide data collection
- Objective 1.3. Evaluate all EMS continuing education and training programs for alignment with the goal of optimizing patient outcomes and system efficiencies.

- Objective 1.4. Implement an integrated and dynamic, performance-based education/training program that supports the COI program and optimal patient outcomes.
- Objective 1.5. Conduct Lean Six Sigma, Just Culture, root-cause analysis, or other appropriate tools training, including work that has already been done by the National Fire Protection Association (NFPA) and customized to EMS, to orient EMS System stakeholders to methods and processes that recognize the importance of outliers.
- Objective 1.6. Revise EMS System Policies and Procedures to support the new EMS System Quality Improvement Plan.
- Objective 1.7. Design and develop research programs that are publishable in credible medical and social sciences journals, based on the experiences and successes of the Riverside County EMS System.

**Goal Two - Evaluate and implement EMS resource utilization, as well as response and coordination improvements designed to maximize the functional capacity and efficiency of an integrated and cooperative, two-tiered regional EMS system.**

*The Riverside County EMS system should evaluate and adopt appropriate contemporary EMS delivery methods and processes for improving the functionality, coordination, capacity, cost effectiveness and value of services provided by the EMS system. These services should include full implementation of EMD throughout the County, interoperability of communications, integrated information systems, efficient mutual and automatic-aid agreements based upon the closest available resource concept, EMS system surge capacity for MCIs, and equipment standardization. Additionally, REMSA should develop uniform definitions that take into account the definitions used by the State EMS Authority including Primary PSAP, Secondary PSAP, and Emergency Dispatch Center, including nomenclature and standards for all time critical processes across the continuum of patient care.*

- Objective 2.1. Create a task force comprised of EMS and public safety leaders to develop an implementation plan for EMD and to evaluate the applicability of a prioritized and tiered EMS system resource response plan based upon Medical Priority Dispatch Protocols (MPDS) inclusive of the following elements:
  - Adoption of the National Academies of Emergency Medical Dispatch (NAEMD), MPDS with ProQA Software as the countywide standard for EMD program approval
  - EMS system development of uniform definitions, nomenclature and standards for all time critical processes and metrics across the continuum of patient care (e.g., dispatch processing times, response times, scene times, etc.)
  - Data collection, analysis and reporting of time critical performance metrics by all providers
- Establish timelines for all EMS dispatch centers to become accredited NAEMD Centers of Excellence
- Identify funding for the implementation of an online PAD registry that is fully accessible and integrated with the PSAP and their CAD
- Objective 2.2. Create an additional multidisciplinary EMS Communications Task Force comprised of EMS, public safety, and communication center leaders to discuss and develop a comprehensive EMS communication and resource coordination plan. The task force should focus on the following:
  - Developing a coordinated, consolidated, and integrated EMS communication and information system
  - Consider consolidating contracted emergency ambulance service dispatching within a single PSAP for better system coordination and safety

- Identifying and establishing essential (i.e., CAD-to-CAD interfaces, Automated Vehicle Location (AVL), Global Positioning Systems (GPS), etc.) and desirable technological upgrades and interfaces for EMS communication, integration and coordination
- Defining monitoring roles and tools for performance
- Defining resource needs necessary for alternate EMS deployment and disposition models including community paramedics and caller referral
- Developing a countywide master mutual aid agreement including, where appropriate, the concept of the “closest available unit” automatic aid process
- Developing criteria and implementing provisions within the emergency ambulance agreement(s) that support first responder programs where appropriate
- Developing viable and sustainable funding models for the communication and resource deployment system
- Objective 2.3. Establish an EMS equipment standardization program that includes the following components:
  - Continuous evaluation of the performance of medical equipment used by prehospital providers
  - Alignment of drug and equipment selection and requirements with evidence of medical efficacy and use as demonstrated by CQI and inventory control data
  - A technology refresh cycle for all durable medical equipment
- Evaluation and development of equipment policies for first responder requirements and ambulance requirements that fully complement each other (two-tiered)
- Exploration of opportunities for funding the purchase of provider equipment
- Objective 2.4. Develop an updated and comprehensive ALS program inclusive of the following:
  - Updating of all policies, protocols and procedures
  - Initiation of standardized accreditation, re-verification and performance based continuing education/training programs
  - Evaluation and creation of policies, protocols and procedures for the countywide continuity of event medical services, mass gatherings, and specialty services programs
- Objective 2.5. Develop and implement new ALS first responder agreements by July 1, 2015.
- Objective 2.6. Develop and implement a multiple patient management and EMS surge plan inclusive of an integrated medical and healthcare coordination center (e.g., MAC).

*...create a Task Force comprised of EMS and public safety leaders to develop an implementation plan for EMD...*

**Goal Three - Commence an EMS innovations delivery program that evaluates and develops projects designed to improve patient outcomes, service value and system cost effectiveness within an integrated healthcare delivery model.**

*The Riverside County EMS System should develop project(s) to better position the system and the communities it serves for changes in the community and in healthcare with Healthcare Reform. The changing healthcare environment will require the EMS system to challenge many of their underlying assumptions on cost, efficacy and value and reframe the delivery system to achieve the objectives of Triple Aim, using innovative solutions.*

- Objective 3.1. Develop and implement targeted contemporary EMS delivery methods. These targeted delivery methods include:
  - Mental health innovations to help curb the use of inappropriate EMS and ED services
  - A Resource Allocation Program (RAP, or high user identification and management system)
- Objective 3.2. Create one or more alternative delivery steering groups consisting of EMS, public safety, hospital, clinical, payer leaders, and other interested stakeholders to begin to identify and credential contemporary EMS delivery and service options. These options may include:
  - EMS-based mental/behavioral, substance abuse services featuring:
    - Integrated healthcare delivery model
    - Assess, treat and release
    - Alternate destinations options include private and treating physician offices
    - Frequent user case management, including non-compliant user case management
  - Chronic disease patient care, if system and scope is feasible
  - Post hospital discharge patient care, if system and scope is feasible
  - Community health services (e.g., immunizations) , if system and scope is feasible
  - Tiered prehospital response based on enhanced medical triage (e.g., The Omega© Model<sup>13</sup>)
  - Integration of mid-level practitioners (nurse practitioners and physician’s assistants) into the EMS system
  - Registered Nurse call referral at 9-1-1 dispatch center(s) (e.g., LowCode© Model<sup>14</sup>)
  - Use of EMS for “wrap” services (i.e., social services, case management, housing, etc.) for identified key patients
  - Integration into comprehensive medical and health data sharing infrastructure, enabling access to a patient’s EMR from any county EMS, ED or other organization evaluating

<sup>13</sup> The Omega responder classification, as outlined within the Advanced Medical Priority Dispatch System (AMPDS) protocol, is used to determine patients that may need referral or alternate care.

<sup>14</sup> LowCode© software electronically integrates and operates the Emergency Communication Nurse System™ (ECNS™).

or treating an EMS patient (similar to the San Diego Beacon model)

- Assessment of the skill level needs of these options
  - Other options deemed valuable by EMS system stakeholders
- Objective 3.3. The alternate delivery steering groups should collect data and develop a formal business plan for each alternative delivery model it wishes to consider for limited-term pilot studies.

- Objective 3.4. The EMS system should collect data and field test potentially viable models through limited-term pilot studies.
- Objective 3.5. Develop viable and sustainable long-term funding models for the accepted alternate delivery models.
- Objective 3.6. Submit draft plans and models for EMS stakeholder input.
- Objective 3.7. Formally integrate desired alternative delivery models into the Riverside County EMS System.

**Goal Four - Explore and develop improved efficiencies for EMS services provided to mental/behavioral health and substance patients which may include investigating alternatives to 72-hour holds (Welfare and Institutions Code Section 5150) and additional training for EMS and law enforcement personnel.**

These mental/behavioral and substance abuse patients should have planning along with the law enforcement partners which may include health efficiencies such as alternative field response and transport systems, investigating alternatives to 72-hour holds (Welfare and Institutions Code Section 5150) for mental/behavioral and substance abuse health patients including evaluating if additional mental health training for EMS and law enforcement and if it would be beneficial and assessing if alternative destinations can be developed for mental health patients.

- Objective 4.1. REMSA, EMS system stakeholders, law enforcement and mental health experts should conduct a baseline assessment of mental health needs for EMS patients to at least include:
  - The number and extent of mental health patients assessed and transported by law enforcement and EMS providers
  - Impact of mental health patients on law enforcement, EMS and EDs including volume, cost, patient flow and necessity of current delivery models
  - Inventory best practices for mental health delivery in the EMS setting
- Objective 4.2. Prepare a plan of action for recommended innovations to include:
  - The progress of Riverside County's efforts to address mental health patients in accordance with Senate Bill (SB) No. 82
  - Cost and volume impacts
  - Patient outcome expectations and key performance indicators
  - Location and depth of revised services to be offered
  - Level and extent of any needed pilot testing
- Objective 4.3. Develop and present a report and conduct early monitoring of these mental/behavioral and substance health initiatives.

**Goal Five – Form a multidisciplinary collaborative approach, with parameters monitored by REMSA, to reduce ambulance patient off-load delays (APOD) at hospitals.**

***Develop a collaborative model to prevent and respond to ED/hospital capacity problems and resulting EMS System delays. This approach should include the study, design and implementation of long-term solutions to address ED off-load delays.***

- Objective 5.1. REMSA should work with the Hospital Council of Southern California (HASC), the Inland Counties EMS Agency (ICEMA) and all hospitals within the Inland Empire to collaboratively study and respond to capacity problems identified in the EMS As-Is Assessment Report. These capacity issues are typified by frequent delayed patient “off-loads,” and other delays at some hospital EDs. This collaborative should consider the following tenets:
  - The collaborative should be endorsed and monitored by the senior leadership of all participating entities
  - The desired end result and measurements of success should be defined upon initiation
  - The topics of the collaborative should include prehospital, hospital, and population strategies
  - The collaborative should consider best and promising practices identified in other EMS systems
  - The collaborative should be briefed on other related initiatives driven by this strategic plan, including alternate EMS delivery models
  - The collaborative should develop actionable and measurable short- and medium-term objectives, which can be used to demonstrate progress toward meeting the outcome of this goal
- Objective 5.2. This initiative should consider multicounty collaboration and incorporation of findings of the recent California Hospital Association (CHA) study, including underlying surveys of these findings of best practices in EMS systems and hospitals.
- Objective 5.3. REMSA should develop EMS system policies and procedures to implement and monitor the results of the collaborative that are likely to have the greatest success.
- Objective 5.4. Hospital leaders should develop hospital policies to implement and monitor the results of the collaborative that are likely to have the greatest success.
- Objective 5.5. The collaborative should publish its results that are likely to have the greatest success to assist other EMS systems to prevent and respond to ED/hospital capacity issues and resulting EMS system delays.

*...implement long-term solutions to address ED/hospital capacity problems and to reduce resulting EMS system delays.*

## Goal Six – Adopt stronger Interfacility transport (IFT) and event medical service requirements including services at mass gatherings.

*The objective calls for the study and implementation of new IFT and event medical service oversight and regulatory review of the growing number of IFT and event providers in the County to strengthen the review process and its credentialing and to allow a base-line of confidence of the minimum requirements and expectations required of these providers.*

- Objective 6.1. Assemble a group of relevant experts to advise REMSA for the IFT and event medical services regulatory and permit update process. This group should at a minimum:
  - Conduct felony background and Medicare “excluded-provider” checks and disclosures of all current or past Office of Inspector or other payer investigations
  - Insist on current audited or reviewed financial statements from Riverside County Ambulance Permit Holders to ensure provider credibility and solvency
  - Require a physical presence within the County at a credible base of operations (i.e., formal dedicated office) for the applicant
  - Create REMSA policies and procedures that provide for effective span-of-control, oversight and enforcement
  - Require progress on reaching accreditation by the Commission on Accreditation of Ambulance Services (CAAS)
  - Realign the Provider Permit fee schedule
  - Require the appropriate education requirements consistent with EMS System needs
  - Assure that REMSA staffing and resources are commensurate with carrying out the oversight of the Ambulance Ordinance
- Set a “floor” for fee rates that provides a minimum rate for ambulance charges
- Integrate regulation of ALS IFT medical providers as one of the provider categories within the ordinance
- Integrate regulation of special event medical providers as one of the provider categories within the Ambulance Ordinance
- Objective 6.2. This group should study and consider larger policy questions of IFT including:
  - How the County can best maintain a competitive IFT and event market with ongoing evaluation and adjustments
  - Strengthening medical control policies, operational procedures, standardized training (i.e., Incident Command System “ICS” training, National EMS Information System “NEMIS” training) and requirements for integration of non-emergency ambulance providers into the EMS System during MCI, while addressing staffing issues during MCI
- Objective 6.3. Submit draft revised EMS IFT and event medical service regulations and permit standards for consideration by the appropriate EMS committees.

- Objective 6.4. The group should develop protocols and clinical expectations for hospital Interfacility transfers that call for stricter medical oversight.
- Objective 6.5. Explore the need for oversight of gurney van/wheelchair van providers. Medical transportation

that qualifies below the level of basic life support has been largely unregulated at the County level.

## Goal Seven - Assure the long term financial solvency, stability and cost effectiveness of the EMS system.

*The Riverside County EMS System should continuously evaluate the system funding model and baseline costs of the existing system. Attention should be paid to exploring all possible system funding opportunities, analyzing high avoidable cost user data, and the development of methodologies for evaluating the cost versus benefit of new and ongoing system enhancements to assure the long-term economic viability and sustainability of the system.*

- Objective 7.1. Establish methodologies and metrics to identify and quantify the baseline costs of the current system.
- Objective 7.2. Identify current funding sources for first response, ambulance transportation, education/training, disaster medical preparedness and response and other EMS related services.
- Objective 7.3. Establish methodologies and metrics to identify and quantify the cost and cost savings of system improvements to be implemented under this strategic plan.
- Objective 7.4. Develop a mechanism that identifies funding that can sustain system improvements implemented under this strategic plan.
- Objective 7.5. Define and quantify the anticipated and probable funding changes driven by Healthcare Reform for traditional EMS delivery models.
- Objective 7.6. Identify and quantify opportunities to improve EMS system economics and value by comparing funding and cost of the current EMS delivery model against funding and/or cost savings that may be generated by alternate EMS delivery models.

**Goal Eight – Evaluate and redesign the EMS advisory committee structure and REMSA staffing to maximize productivity of committees and to ensure ongoing effective EMS system administration.**

*The Riverside County EMS System should evaluate the EMS structure and develop more efficient advisory committee structures and their staffing to maximize and leverage stakeholder involvement. Alternative staffing models and resources that can be adjusted as necessary should be considered and include the effective use of current staff in order to provide effective and ongoing EMS system oversight and successful attainment of the goals presented in this plan without changing the collaborative model already in place.*

- Objective 8.1. The County will study and recommend adjustments to REMSA staffing, if warranted, as comparable to like-sized counties (subject to funding and approval by the Board of Supervisors).
  - Add “EMS specialist” staff positions as appropriate
  - Develop a plan to fund and achieve a full-time EMS Medical Director
  - Study and implement specialized programs (e.g., mental health, inebriates, etc.)
- Objective 8.2. REMSA and EMS system stakeholders should conduct a baseline assessment of advisory and oversight committees using zero-based or clean-slate assumptions. The optimal committee structure should:
  - Provide for comprehensive coordination of EMS system planning, regulation, and quality improvement
  - Facilitate policy development and quality improvement functions for all components of the EMS system
- Minimize redundancies in committee responsibilities and authorities
- Efficiently utilize REMSA and EMS system stakeholders’ staff, resources, and time
- Provide maximum stakeholder and public transparency in areas other than those protected through the quality improvement processes
- Provide neutral REMSA -sponsored meeting forums for EMS system-related issues to assure transparency and access in decision making
- Objective 8.3. Submit draft EMS advisory group models for EMS stakeholders input.
- Objective 8.4. Revise EMS system policies and procedures to support the new EMS system stakeholder committee structure.

*...redesign the EMS advisory committee structure to improve collaboration, stakeholder input, REMSA oversight, and emphasize continuous quality improvement...*

**Goal Nine – Evaluate and develop strategies to improve online medical direction and medical leadership including implementing optimal patient movement solutions and investigating ways to improve system coordination with a uniform medical control model (e.g., Medical Alert Center, Medical/Health Communications Center).**

*The Riverside County EMS system stakeholders should develop a common integrated model for online medical direction to include the ideal number of base hospitals, EMS direction in the field with appropriate span of control oversight and to investigate ways to improve coordination with a uniform medical control model (i.e., MAC, Medical Health Operational Area Coordination Center).*

- Objective 9.1. Create a physician advisory group that is advisory to the EMS Medical Director for development and leadership on key medical control policy items. Considerations of membership on this group should at least include:
  - REMSA Medical Director (chair)
  - Representative EMS physicians from base hospitals
  - EMS provider agency medical directors
  - Public Health Officer
  - Primary care physician representation
  - Specialty care physician representation
- Objective 9.2. Evaluate the current base hospital model and determine the most effective number, catchment areas, roles and responsibilities to maintain consistent oversight and span of control by REMSA.
- Objective 9.3. Evaluate and define the role of a Medical and Health Coordination Center (MHCC) within the system.
- Objective 9.4. Develop and implement a Medical/Health Communications Center to support a centralized EMS medical control model and the Medical Health Operational Area Coordination Program (MHOAC).

*...develop a common integrated model for medical direction to assure an appropriate span of control and key medical control options...*

**Goal Ten – Adopt and continue improvements and system enhancements for the ALS and emergency ambulance contract(s).**

*The Riverside County EMS System should develop targeted key operational and performance goals required for a responsive and contemporary countywide ambulance delivery system. These changes should allow for updating responses for providers and any appropriate agencies, including agencies that partner with ambulance partners on response times, through the adoption of appropriate contract clauses. The targeted changes would be for delivery systems opportunities where there are clear benchmarks that are evidence based and that demonstrate a high potential for improving efficacy and performance.*

- Objective 10.1. Negotiate a new ALS and emergency ambulance service agreement with the existing contracted emergency ambulance provider and approved by the Riverside County Board of Supervisors. This agreement would include recommendations provided in the EMS System Recommendations and Observations Report.
- Objective 10.2. Implement the new ALS and emergency ambulance agreement by July 1, 2015.

**Goal Eleven – Partner with the Department of Public Health, public safety organizations, and the Department of Mental Health to align and enhance public education and prevention efforts.**

*The Riverside County EMS System should enhance its public education and prevention program while integrating with existing and emerging public education and prevention programs to establish common topics, messages, and channels, that ensure EMS-relevant public education and prevention messages are emphasized. This may include improvements in community-based CPR and AED education.*

- Objective 11.1. In partnership with the Department of Public Health Injury Prevention Program, the Department of Mental Health, and the Data Management Unit, conduct an assessment of leading causes of EMS system transports.
- Objective 11.2. Convene a multidisciplinary task force consisting of EMS, the Public Health Injury Prevention Program, County Office of Education and local school districts, public safety, hospitals, ambulance providers, and other interested stakeholders to continue to develop the EMS system's injury prevention and public education program:
  - Conduct best practice reviews of effective EMS-based public education and prevention programs and effective outreach and education prevention strategies, including an inventory of other county programs, national and state campaigns, and existing programs in Riverside County
  - Prioritize the outreach and education prevention strategies to be implemented through the EMS system, including identification of resources and development of an implementation plan
- Objective 11.3. Establish cooperative agreements across the EMS System and implement the priority outreach and education prevention strategies.
- Objective 11.4. Identify resources and funding components to implement these prevention/education programs.
- Objective 11.5. Implement the outreach and education prevention strategies outlined in the implementation plan and in coordination with public health, countywide injury prevention and community-based CPR campaigns.

**Goal Twelve – Structure a comprehensive system-wide education/training model for EMS personnel in Riverside County that is integrated with current stakeholder programs.**

***REMSA should develop, implement and coordinate a system-wide education plan for continuous training of EMS personnel that includes strong medical direction, collaboratively developed and integrated with current stakeholder programs and consistently updated to meet the needs of EMS patients in Riverside County.***

- Objective 12.1. REMSA should investigate curricula adequacy and alternative education techniques for all system provider groups including, those for primary and secondary education as well as for IFT and event medical services. Such investigations should be designed to provide improved understanding of the education that is optimal for serving various EMS roles. The results of such investigations should be widely disseminated.
- Objective 12.2. Objectives of all education programs must be updated sufficiently and frequently so that the needs of EMS patients are met. EMS education initiatives should be identified through current curriculum requirements, CQI processes, and/or data analysis (i.e., geared toward high risk patient groups/conditions, low frequency skill sets, or other system needs). Additions or modifications should ensure that objectives serve the current needs of EMS patients and the personnel who care for them, so community benchmarks and standards of practice can be achieved. Higher level EMS education programs must incorporate learning objectives regarding research, quality improvement, and management. This may include:
  - The scientific basis of EMS practice
  - Basic principles of clinical research
  - The importance of ongoing EMS research
  - The principles of quality improvement and management
- Objective 12.3. All EMS education must be conducted with the benefit of qualified medical direction. The physician medical director(s) and provider physician advisors should be involved in education program planning, presentation, and evaluation, including evaluation of faculty, and participants.
- Objective 12.4. REMSA should commission and coordinate the development of core contents for various levels of EMS providers. Core contents should be added to or replace current curricula and should be updated on a predetermined schedule to ensure their ongoing utility.
  - These core contents should include a standardized curriculum and requirements for accreditation/re-verification, skills competency verification, preceptor training, and protocol update initiatives, and adapt to other education initiatives as future system needs demonstrate.
- Objective 12.5. REMSA should explore opportunities to receive funding to supplement and support education programs and initiatives.

- Objective 12.6. Providers of primary EMS education should seek to establish relationships with academic institutions (i.e., colleges, universities, academic medical centers). Such relationships would enhance the academic basis of EMS education and facilitate recognition of advanced level EMS education as an accomplishment worthy of academic credit.
- Objective 12.7. EMS education providers and academic institutions should develop innovative education solutions that address cultural variation, rural circumstances and travel and time constraints. These should include programs that incorporate, for example, distance learning and advancing technology. Reports of such programs should be made widely available. In some cases, these institutions should develop their own EMS education programs that offer academic credit.
- Objective 12.8. EMS educators must develop bridging and transitioning programs. These programs should offer mechanisms for EMS providers to maintain existing credentials, enhance their credentials or transition to new healthcare roles. They should also provide other healthcare personnel the ability to transition to out-of-hospital EMS roles.
- Objective 12.9. Convene a task force of primary and secondary education providers that evaluates, analyzes and provides recommendations for continued education initiatives within the primary and secondary education arenas.
  - Evaluate and disseminate resources, best practices and strategies to ensure longevity, student involvement and program success.
- This task force will work with other national, state and local education groups and associations to share resources and educational initiatives to provide diversity and versatility to our Riverside County initiatives for education.

## Next Steps

Implementation is an essential part of this EMS system strategic planning process.

All those who are committed to improving the Riverside County EMS System, as well as policymakers at every level of government, need to prioritize the EMS delivery system transformation. Riverside County can seize the opportunity of Healthcare Reform to fundamentally strengthen healthcare quality in general and EMS quality specifically. It will take a sustained and concerted effort to fully realize the goals articulated in this strategic plan. There are three immediate steps that should be undertaken to start implementing the Riverside County EMS System Strategic Plan.

### Step 1 — Preparation

This is an ambitious work plan for the Riverside County EMS System. Before the EMS system can proceed, REMSA and EMS system stakeholders will need to identify:

- Key champions who will assist in leading this effort in our EMS system and who will bring other leaders to the table
- Resources (staff, funding, etc.) to support these leaders
- The right organizations that will sign on as partners
- Whether federal, state, and local political leaders and policies support the efforts described in this plan in both the short and long term
- Whether the region's leaders agree on what they want to accomplish
- If there is a real appreciation of what is necessary to implement this strategic plan
- Whether the funding and other resources to carry out the planning and program development is available

***The Riverside County EMS Agency (REMSA) must affirmatively answer these questions and establish one or more planning coalitions to make an informed decision to proceed with the projects outlined in this plan.***

*...seize the opportunity of Healthcare Reform to fundamentally strengthen healthcare quality in general and EMS quality specifically.*

## Step 2 — Implementation Vision

The Riverside County EMS System must have a strategic vision of how to achieve optimal patient outcomes, system efficiency and financial stability. A shared vision lets everyone know the desired end result and why that result is important. This step involves clarifying exactly how the elements of the strategic plan implementation will work.

## Step 3 — Assessment & Implementation Teams

***REMSA should establish workgroups and engage existing committees that have senior leadership, strong financial skills and experience, and professional support to develop an implementation strategy for achieving the objectives of the strategic plan .***

Teams composed of stakeholders who understand the Strategic Plan's purpose and implementation process will shepherd this plan from concept to reality utilizing the assess, design, develop, implement and evaluate (ADDIE) process. Principles of High Reliability Operations (HRO) will be integrated throughout the strategic plan execution lifecycle. Workgroups and committees supported by REMSA who can encourage progress, answer questions, and provide guidance will serve this purpose.

Generally, existing workgroups and committees will be tasked to implement each goal within their annual work plans. However, for certain goals new teams may be established to evaluate each service option or to plan pilot projects.

## Goal and Objective Prioritization

The following are guidelines to assist with and confirm priorities of these 12 goals and their associated objectives:

### Priority 1 – Immediate (1-2 year Goal)

There is general consensus that the goal is time critical to improve patient outcomes or EMS system efficiency or safety and must be achieved as quickly as possible regardless of complexity or cost.

### Priority 2 – Intermediate (2-4 year goal)

There is general consensus that the goal is needed to improve patient outcomes or EMS system efficiency but must be achieved over a longer time period because of the complexity or cost.

### Priority 3 – Long Range (4+ year goal)

There is general consensus that the goal is needed to improve patient outcomes or EMS system efficiency but achieving the goal will be highly complex, very costly or may require technological development or changes to applicable laws before the goal or objective can be achieved.

## Hierarchy for Outcome Focused Cost/Benefit Rating

During development of this plan, Riverside County EMS System partners should utilize the following guidelines to rate the cost versus benefit of system enhancements contained with the goals and objectives.

### A Rating: Benefit >>> Cost

Measurable and there is a body of evidence (scientific or empirical) and general agreement that it is beneficial and effective in improving patient outcomes.

### B Rating: Benefit >>Cost

Measurable and there is a body of evidence (scientific or empirical) and general agreement that it is beneficial and effective for EMS system efficiency but there is conflicting evidence and/or a divergence of opinion that it improves patient outcomes.

**C Rating: Benefit > or = Cost:**

Measurable and there is a body of evidence (scientific or empirical) and general agreement that it is beneficial and effective for EMS system efficiency but there is no evidence that it improves patient outcomes.

**D Rating: Cost > Benefit:**

Measurable (may or may not be difficult) and there is conflicting evidence that it is beneficial or effective for EMS system efficiency and no evidence that it improves patient outcomes and there is conflicting opinion that it would be beneficial and effective for EMS System efficiency.

**F Rating: No Benefit for the Cost:**

There is no evidence that it improves patient outcomes or EMS system efficiency.

**No Rating: Cost/Benefit cannot be determined**

It is not measurable or the cost cannot be calculated.

During implementation of this plan tactical detail and strategy developed for execution, the cost/benefit of potential system enhancements should be evaluated based upon the hierarchy.

## Conclusion

Under direction of the Riverside County Board of Supervisors, REMSA launched the Riverside County EMS System Evaluation and Strategic Planning Process in 2012 with the goal of charting a course to improve and advance the Riverside County EMS System's clinical care, operational efficiency and financial stability, as well as patient and stakeholder satisfaction. This strategic plan provides a road map to achieve that overarching goal of creating a stronger EMS delivery system to serve the

*...improve the Riverside County EMS System's clinical care, operational efficiency and financial stability, as well as patient and stakeholder satisfaction. ...create a collaborative, accessible, high quality, and culturally competent EMS delivery system.*

residents and visitors of Riverside County.

Certainly, the challenges facing the region are tremendous, but the transformative opportunities sparked by Healthcare Reform are equally great. This strategic plan charts the course that must be taken to achieve the Riverside County EMS System's vision in the new era of healthcare reform.

REMSA and EMS system stakeholders will need to work together and seize this unprecedented opportunity to create a collaborative, accessible, high quality, and culturally competent delivery of EMS from Riverside County's EMS system. Success is within reach, if those in the Riverside County EMS System reach together. The potential rewards are immeasurable: a healthier and brighter future for emergency care for all patients in Riverside County.