



RIVERSIDE COUNTY EMS AGENCY
EMERGENCY MEDICAL DISPATCH REPORT
2021

APRIL 5TH, 2022
PREPARED BY RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

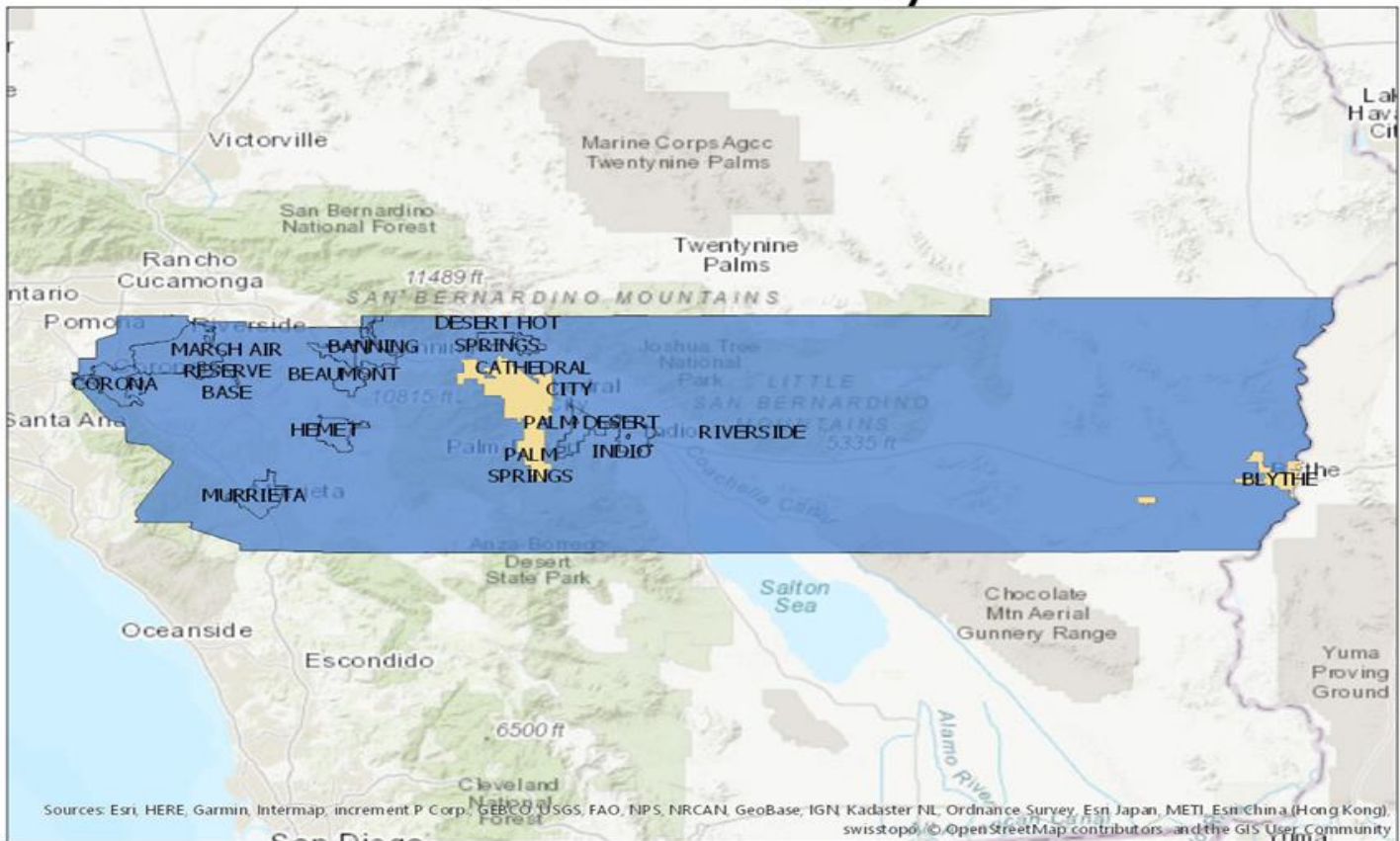
EMERGENCY MEDICAL DISPATCH SUMMARY

The Medical Priority Dispatch System (MPDS) is utilized by Public Safety Answering Points (PSAPs) to assist call-takers in rapidly narrowing down a caller’s medical or trauma condition, dispatching emergency services, and providing standardized medical instructions to callers before help arrives. The following is the Riverside County Emergency Medical Dispatch (EMD) Response Summary Report for the 2021 calendar year.

This data in this report was collected by responding agencies between January 1st, 2021, through December 31st, 2021. To be included, the EMD Card Number (eDispatch.03) had to contain at minimum, a two-digit card number followed by an alphabetic character.

The majority of Riverside County is covered by MPDS through the EMD program.

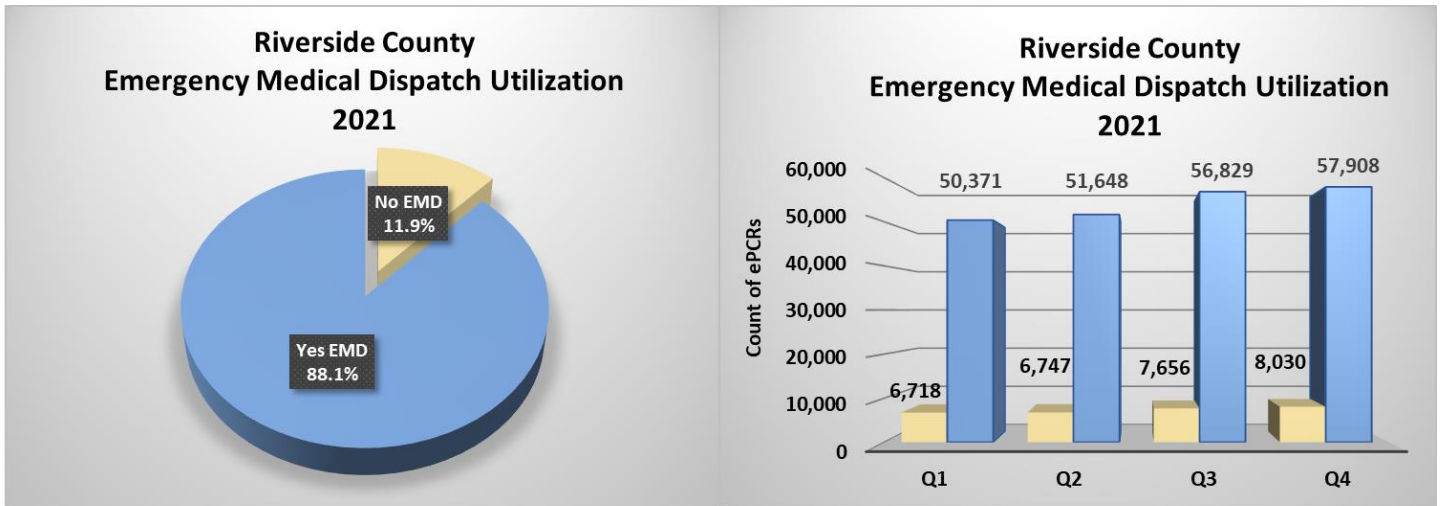
Riverside County



● PSAP Without MPDS ● PSAP With MPDS or Currently Implementing MPDS

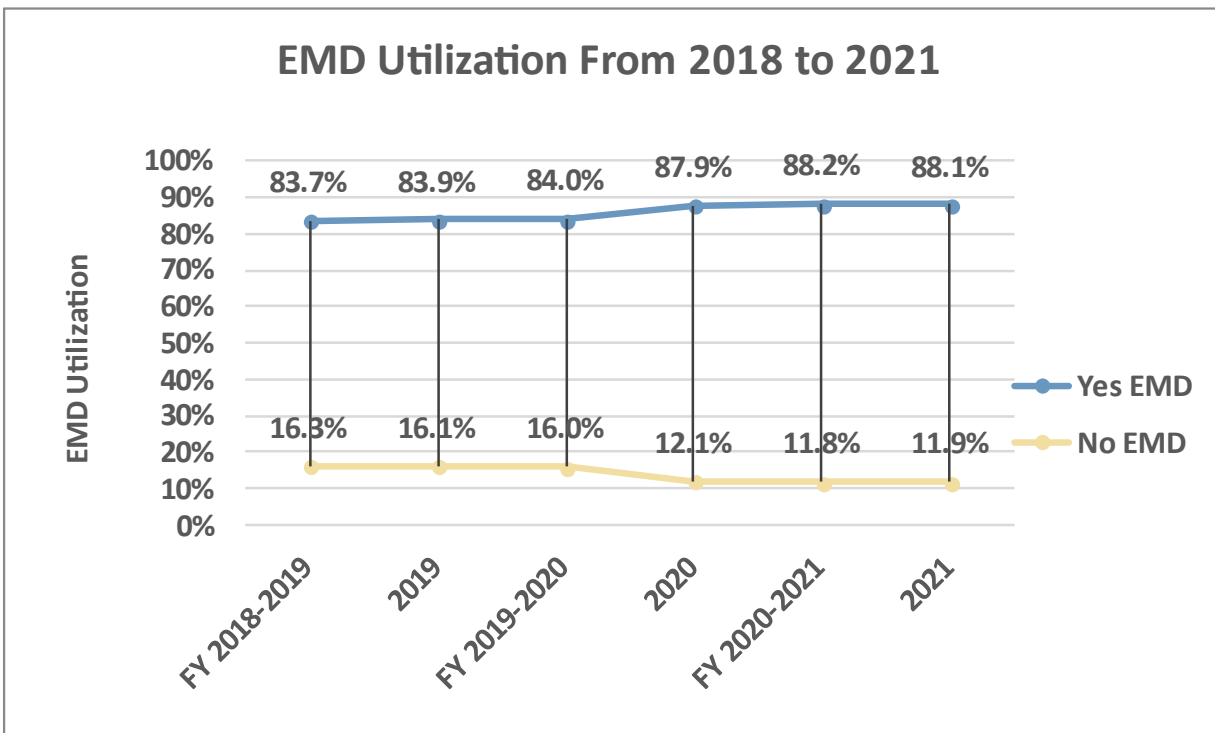
EMD Utilization

The following data is shown to reflect EMD utilization in Riverside County in 2021. Electronic patient records (eRecord.01) were collected and grouped according to EMD participating and non-participating agencies, respectively. To reduce duplicate counts for EMD participation on the same incidents, transport agency data was excluded from this analysis.



Change in EMD Card Utilization Over Time

The line chart below shows the change in the utilization of EMD by Riverside County PSAPs as recorded in the semiannual Emergency Medical Dispatch Reports. The percentage of EMD utilization increased from 83.2% to 88.1% between 2018 and 2021.



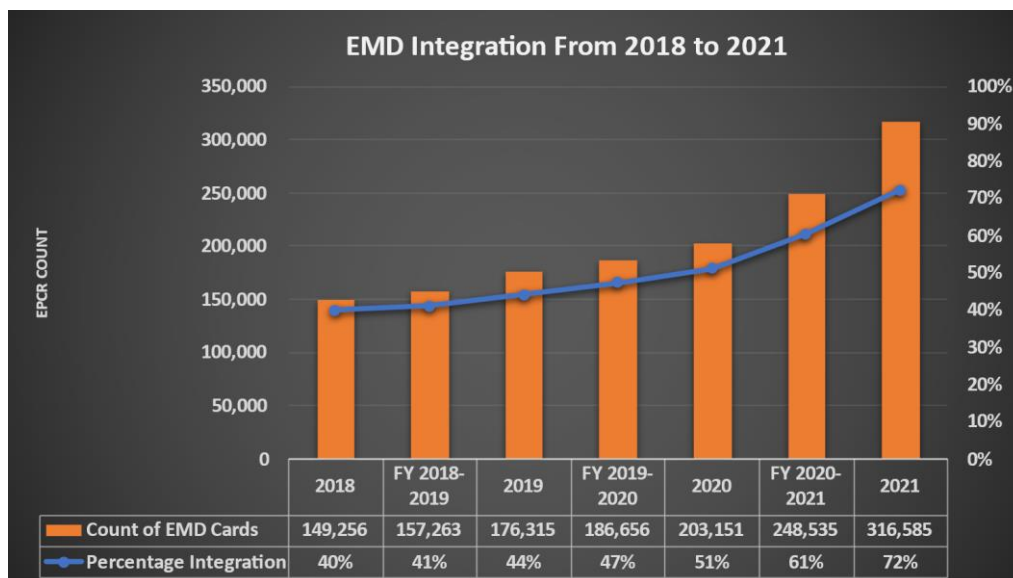
EMD Integration

The table below shows the *rate of EMD integration* with EMS Electronic Patient Care Reports (ePCRs) for all 911 provider agencies in Riverside County. A count of *eRecord.01*, a number generated with each ePCR created, was used to determine the proportional integration of EMD in Riverside County by responding agency. “*EMD Integration with ePCR*” is a total count of *eDispatch.03*, the EMD card and dispatch determinant level. “*EMD Card Missing*” is defined here as an ePCR having a blank or not recorded *eDispatch.03*. EMD cards would be missing if the incident is generated from a non-EMD 9-1-1 call center or if the EMD card is not transferred into the ePCR system. “*Percentage of EMD Integration*” is calculated by dividing the total ePCR count (*eRecord.01*) by the EMD Integration count (*eDispatch.03*).

All 911 Agencies	ePCR Count (eRecord.01)	EMD Integration w/ ePCR (eDispatch.03)	EMD Cards Missing from ePCR	Percentage of EMD Integration to ePCR (Actual/ePCR Total)	911 Agency With EMD Call Center
Transport					
AMR - Desert Cities	32,590	20,066	12,524	61.6%	No
AMR - Hemet	40,149	26,053	14,096	64.9%	No
AMR - Riverside	119,718	89,837	29,881	75.0%	No
Total EMD Integration	192,457	135,956	56,501	70.6%	0/3
911 Responders (Non-EMD)					
Cathedral City Fire Department	7,466	15	7,451	0.2%	No
Hemet Fire Department	12,028	4	12,024	0.0%	No
Palm Springs Fire Department	9,657	15	9,642	0.2%	No
Total EMD Integration	29,151	34	29,117	0.1%	0/3
EMD 911 Responders					
Calimesa Fire Department	980	932	48	95.1%	Yes
Corona Fire Department	7,887	5,413	2,474	68.6%	Yes
Idyllwild Fire Protection District	640	343	297	53.6%	Yes
March Air Reserve Base Fire Department	38	1	37	2.6%	Yes
Morongo Fire Department	3,477	1,059	2,418	30.5%	Yes
Murrieta Fire Department	9,285	7,248	2,037	78.1%	Yes
Pechanga Fire Department	972	866	106	89.1%	Yes
Riverside City Fire Department	32,608	9,622	22,986	29.5%	Yes
Riverside County Fire Department	160,038	154,332	5,706	96.4%	Yes
Soboba Fire Department	840	779	61	92.7%	Yes
Total EMD Integration	216,765	180,595	36,170	83.3%	10/10
Total EMD Integration for Riverside	438,373	316,585	121,788	72.2%	10/16

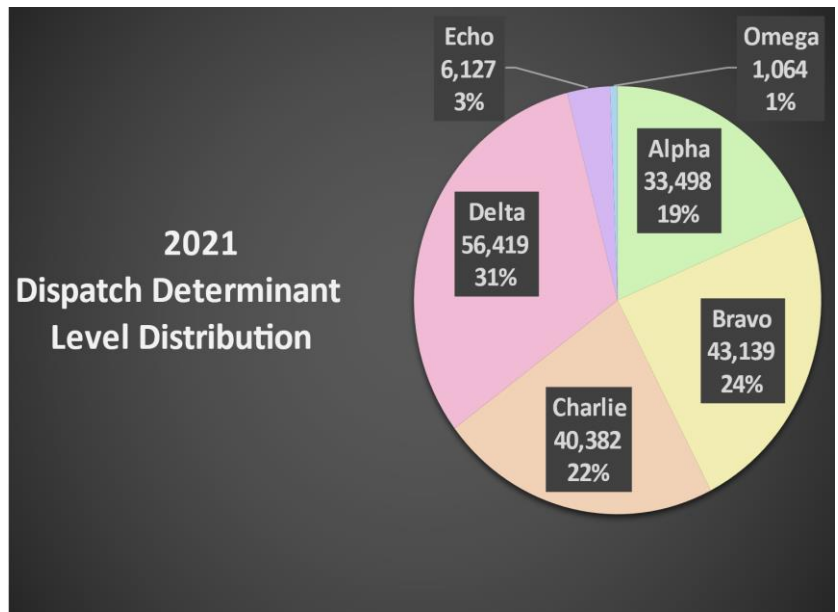
Change in EMD Card Integration Over Time

The combination chart below shows change over time in the integration of EMD cards into ePCRs. Since 2018 the total count of EMD cards for all 911 agencies has more than doubled while the Percentage Integration of EMD cards into ePCRs for all 911 agencies has increased from 40% to 72%.



Medical Priority Dispatch System Breakdown

The Medical Priority Dispatch System (MPDS) allows rapid assignment of call type using determinant levels (Alpha, Bravo, Charlie, Delta, Echo, Omega) which can identify response time and type of emergency services required (i.e. ALS vs. BLS). While Riverside County does not rely on EMD to guide response type and time, assigned determinant codes can define modes of response (whether lights and sirens are used) for emergency vehicles. The 2021 calendar year distribution of determinant levels was analyzed using ePCR data. The chart on the right reflects determinant level distribution for 911 first responding agencies with ePCR integration of dispatch data. While most of Riverside County 911 responding agencies utilize EMD, 28% do not integrate with the patient care record system, and those values are unknown. To reduce EMD Card duplication on the same incident, transport agency data was excluded from this analysis.



Top EMD Cards & Dispatch Complaints

EMD Card	Count	Percentage
26 Sick Person	24,824	13.7%
17 Falls	21,400	11.8%
06 Breathing Problems	19,709	10.9%
77 Vehicle Collision	15,010	8.3%
32 Unknown Problem (Person Down)	13,959	7.7%
31 Unconscious / Fainting (Near)	12,765	7.1%
10 Chest Pain / Chest Discomfort (Non-Trauma)	11,868	6.6%
12 Convulsions / Seizures	6,285	3.5%
21 Hemorrhage / Lacerations	5,755	3.2%
01 Abdominal Pains / Problems	5,291	2.9%
Other	43,763	24.2%
Total	180,629	100.0%

Dispatch Complaint	Count	Percentage
Sick Person	35,221	14.3%
Falls	27,195	11.1%
Breathing Problem	24,318	9.9%
Unknown Problem/Person Down	23,723	9.6%
Traffic/Transportation Incident	20,080	8.2%
Unconscious/Fainting/Near-Fainting	15,013	6.1%
Chest Pain (Non-Traumatic)	14,482	5.9%
Convulsions/Seizure	7,822	3.2%
Traumatic Injury	7,085	2.9%
Abdominal Pain/Problems	6,847	2.8%
Other Dispatch Complaint	64,125	26.1%
Dispatch Complaint Total	245,911	100.0%

The table to the left shows the top Dispatch Complaints and EMD Card Numbers utilized by call takers at Public Safety Answering Points who were using EMD in 2021. Dispatch complaints are the reason why an emergency medical response is required and are used to categorize each request. EMD Cards are similar in that they are utilized by public safety answering points participating in the Medical Priority Dispatch System to categorize or “prioritize” each emergency medical response request. To reduce EMD card duplication on the same incident, transport agency data was excluded from this analysis.

Key Performance Intervals by Dispatch Determinant Level

In Riverside County, Determinant Codes do not govern response times; however, determinant levels help describe urgency of care needed. As a result, providers may intrinsically respond more rapidly to higher acuity calls. To review potential differences in response time based on determinant levels, an aggregate analysis of key performance time intervals is described below. Only 72% of the county's EMD-based calls have been integrated with the ePCR system, so these times reflect response time by determinant level for agencies where the data is made available. Agency specific and overall response times will vary. Overall response times by determinant level are provided, as well as a by agency type (First Response and Ambulance)

Statistics Definitions Used

- **N Total** is the total number of ePCRs.
- **N Valid** is the number of cases which met criteria for the time interval analysis.
- **N Invalid** is the number of cases excluded from the N Valid cases for calculation of the time interval due to incorrect or erroneous data points.
- **N Missing** is the number of cases excluded from the N Valid cases for calculation of the time interval due to missing data points.
- **Mean** represents the average of the data in minutes.
- **Median** represents the midpoint in the data in minutes.
- **Standard Deviation** measures distribution of the data in minutes.
- **90th Percentile** represents time in minutes at which 90% of the responses fall under.
- **95% Confidence Interval For Mean** is the range for which we are 95% confident the true value of the mean exists.

Total Prehospital Response Time by Dispatch Determinant Level

Total Prehospital Time (eTimes.01 to eTimes.11) begins when a 911 call is placed and ends when the responding unit arrives at the hospital with the patient.

Total Prehospital Time (eTimes.01 to eTimes.11)		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,677	55,913	72,740	69,676	97,665	19,228
	Valid	473	20,202	19,327	29,221	39,044	10,390
	Invalid	13	447	298	279	431	132
	Missing	1,191	35,264	53,115	40,176	58,190	8,706
Mean		42.9	44.5	43.4	40.8	41.9	39.4
Median		40.1	42.4	41.4	39.1	40.2	37.3
Standard Deviation		13.9	14.3	13.4	12.4	12.5	13.1
90th Percentile		61.7	64.0	61.7	57.3	58.4	57.1
95% Confidence Interval for Mean		(41.59-44.1)	(44.34-44.73)	(43.2-43.58)	(40.68-40.96)	(41.81-42.06)	(39.15-39.65)

First Response Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,064	33,511	43,184	40,403	56,462	6,131
	Valid	61	2,847	1,581	4,494	5,701	810
	Invalid	3	98	40	88	117	34
	Missing	1,000	30,566	41,563	35,821	50,644	5,287
Mean		35.0	37.9	39.6	33.2	36.3	39.1
Median		31.7	35.3	37.3	31.4	34.0	37.1
Standard Deviation		11.1	12.1	12.6	10.0	11.3	12.2
90th Percentile		49.1	53.9	56.8	45.7	51.8	56.2
95% Confidence		(32.16-37.84)	(37.44-38.33)	(39.01-40.25)	(32.92-33.5)	(35.99-36.58)	(38.27-39.95)

*Valid N is low for First Response Agencies because most are not transporting patients to hospitals, missing eTimes.11.

Transport Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	613	22,402	29,556	29,273	41,203	13,097
	Valid	412	17,355	17,746	24,727	33,343	9,580
	Invalid	10	349	258	191	314	98
	Missing	191	4,698	11,552	4,355	7,546	3,419
Mean		44.0	45.6	43.7	42.2	42.9	39.4
Median		41.7	43.6	41.7	40.7	41.2	37.3
Standard Deviation		13.9	14.3	13.5	12.3	12.4	13.2
90th Percentile		62.8	64.9	62.1	58.6	59.3	57.2
95% Confidence		(42.67-45.35)	(45.41-45.84)	(43.53-43.92)	(42.05-42.36)	(42.77-43.04)	(39.16-39.69)

Total Response Time by Dispatch Determinant Level

Total Response Time (eTimes.01 to eTimes.07) begins when a 911 call is placed and ends when the responding unit arrives at the patient's side.

Total Response Time (eTimes.01 to eTimes.07)		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,677	55,913	72,740	69,676	97,665	19,228
	Valid	1,064	40,108	31,891	53,778	70,978	15,298
	Invalid	34	860	716	783	1,105	230
	Missing	579	14,945	40,133	15,115	25,582	3,700
Mean		13.9	14.2	12.6	11.9	11.9	11.4
Median		12.5	12.5	11.1	10.8	10.7	10.0
Standard Deviation		6.3	7.2	6.5	5.3	5.5	5.8
90th Percentile		21.4	22.7	20.5	18.1	18.5	18.7
95% Confidence Interval for Mean		(13.54-14.31)	(14.11-14.26)	(12.52-12.66)	(11.85-11.94)	(11.88-11.96)	(11.32-11.5)

First Response Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,064	33,511	43,184	40,403	56,462	6,131
	Valid	593	21,497	11,182	27,237	34,943	4,130
	Invalid	21	436	289	520	666	88
	Missing	450	11,578	31,713	12,646	20,853	1,913
Mean		12.7	12.5	11.5	11.0	10.8	10.0
Median		12.2	11.8	10.8	10.5	10.2	9.4
Standard Deviation		4.1	4.5	4.3	3.6	3.7	3.6
90th Percentile		17.4	17.9	16.0	15.0	14.8	13.8
95% Confidence Interval for Mean		(12.37-13.03)	(12.4-12.52)	(11.4-11.56)	(10.94-11.03)	(10.73-10.81)	(9.93-10.15)

Transport Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	613	22,402	29,556	29,273	41,203	13,097
	Valid	471	18,611	20,709	26,541	36,035	11,168
	Invalid	13	424	427	263	439	142
	Missing	129	3,367	8,420	2,469	4,729	1,787
Mean		15.5	16.2	13.2	12.8	13.0	11.9
Median		13.1	13.9	11.4	11.4	11.5	10.4
Standard Deviation		8.1	8.9	7.3	6.4	6.5	6.4
90th Percentile		26.8	28.0	22.7	21.2	21.5	20.3
95% Confidence Interval for Mean		(14.74-16.2)	(16.05-16.3)	(13.09-13.29)	(12.76-12.91)	(12.97-13.1)	(11.8-12.04)

Unit Response Time by Dispatch Determinant Level

Unit Response Time (eTimes.03 to eTimes.06) begins when a responding unit receives the call or page from the dispatcher and ends when the responding unit arrives on the scene.

Unit Response Time (eTimes.03 to eTimes.06)		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,677	55,913	72,740	69,676	97,665	19,228
	Valid	1,064	40,104	31,890	53,772	70,972	15,296
	Invalid	491	12,780	32,862	13,632	21,676	2,742
	Missing	122	3,029	7,988	2,272	5,017	1,190
Mean		9.9	9.9	9.0	8.4	8.6	8.4
Median		8.6	8.6	7.6	7.3	7.4	7.1
Standard Deviation		5.4	5.6	5.5	4.8	4.9	5.1
90th Percentile		16.8	16.9	15.7	14.3	14.6	14.8
95% Confidence Interval for Mean		(9.55-10.19)	(9.82-9.92)	(8.94-9.06)	(8.39-8.47)	(8.55-8.62)	(8.36-8.52)

First Response Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	1,064	33,511	43,184	40,403	56,462	6,131
	Valid	593	21,493	11,181	27,231	34,937	4,128
	Invalid	404	10,650	27,766	11,666	18,275	1,407
	Missing	67	1,368	4,237	1,506	3,250	596
Mean		8.2	7.9	6.8	6.7	6.8	6.4
Median		7.7	7.4	6.3	6.3	6.3	6.0
Standard Deviation		3.5	3.6	3.1	2.8	2.9	2.8
90th Percentile		12.9	12.4	10.3	9.9	10.1	9.6
95% Confidence		(7.95-8.51)	(7.88-7.97)	(6.76-6.87)	(6.64-6.71)	(6.74-6.8)	(6.32-6.49)

Transport Agencies		OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	613	22,402	29,556	29,273	41,203	13,097
	Valid	471	18,611	20,709	26,541	36,035	11,168
	Invalid	87	2,130	5,096	1,966	3,401	1,335
	Missing	55	1,661	3,751	766	1,767	594
Mean		11.9	12.1	10.2	10.2	10.3	9.2
Median		10.2	10.8	8.8	9.0	9.1	7.8
Standard Deviation		6.5	6.5	6.1	5.6	5.6	5.6
90th Percentile		20.6	20.6	17.9	17.5	17.6	16.2
95% Confidence		(11.35-12.53)	(12.03-12.21)	(10.1-10.26)	(10.16-10.3)	(10.28-10.4)	(9.08-9.29)

Data in this report is provided by the efforts of the Riverside County EMS System and its Providers in ensuring quality care and documentation of patient encounters.

Report prepared by Sean Hakam & Catherine Borna Farrokhi, Data & Reporting Unit, Riverside County EMS Agency

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