SUMMARY REPORT
EMERGENCY MEDICAL DISPATCH
FY 2020-2021

EMERGENCY MEDICAL DISPATCH SUMMARY

The Medical Priority Dispatch System (MPDS) is utilized by Public Safety Answering Points 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 2020 calendar year.

This data in this report was collected by responding agencies between July 1st, 2020 through June 30th, 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.
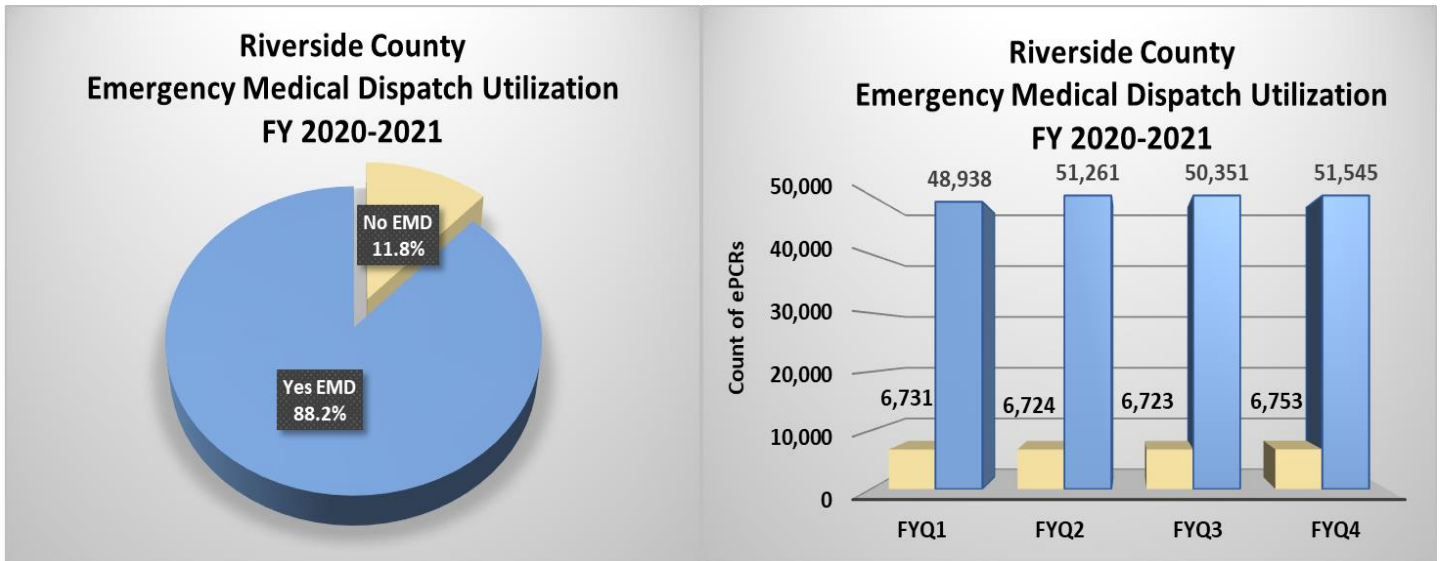

Riverside County
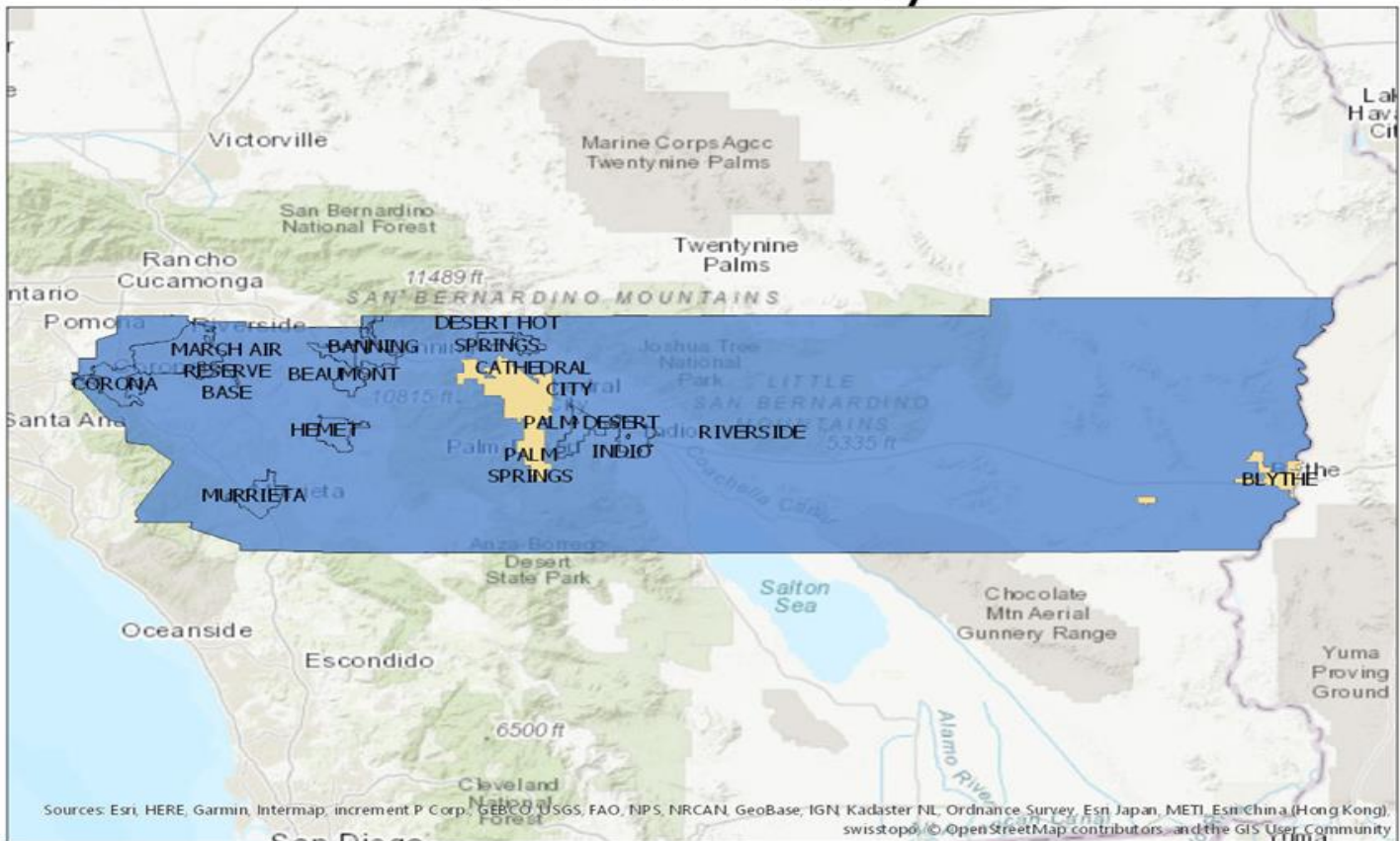
○ PSAP Without MPDS   ● PSAP With MPDS or Currently Implementing MPDS

EMD Utilization

The following data is shown to reflect EMD utilization in Riverside County in FY 2020-21. Electronic patient records (eRecord.01) were collected and grouped according to EMD participating and non-participating agencies, respectively. To reduce duplication, 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 88.2% between 2018 and FY 2020-2021.
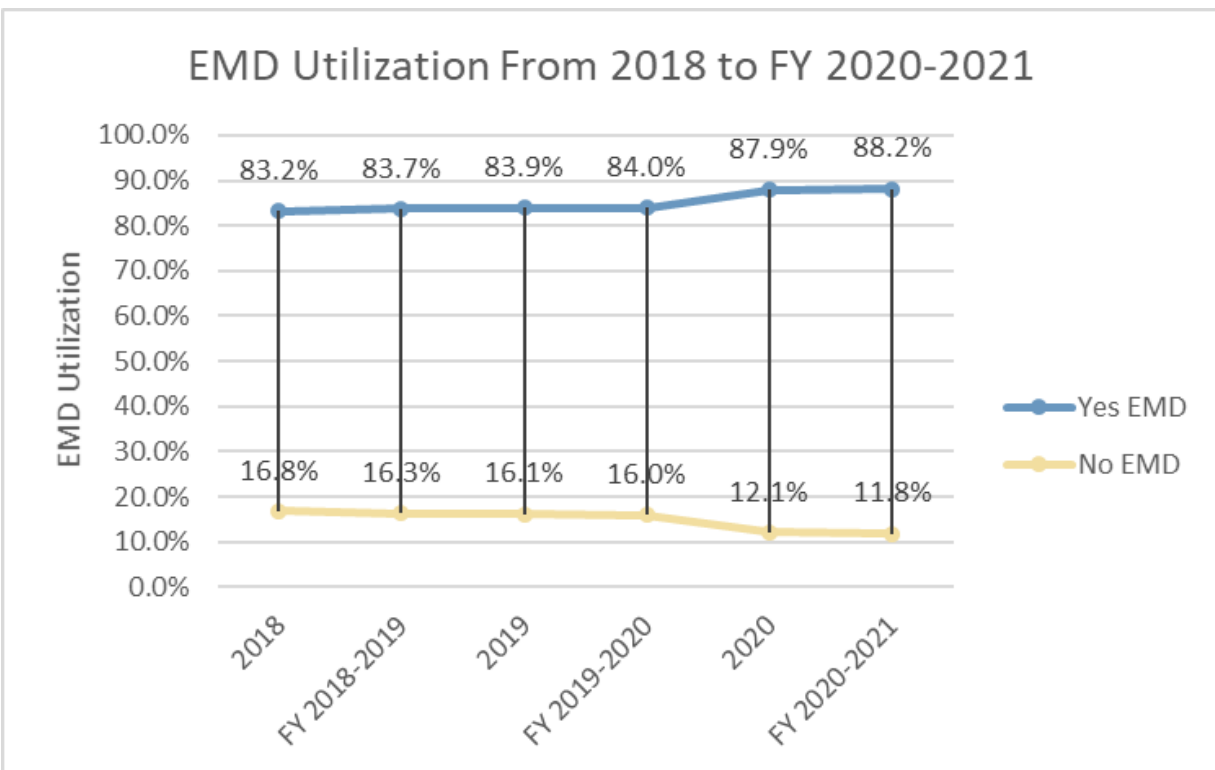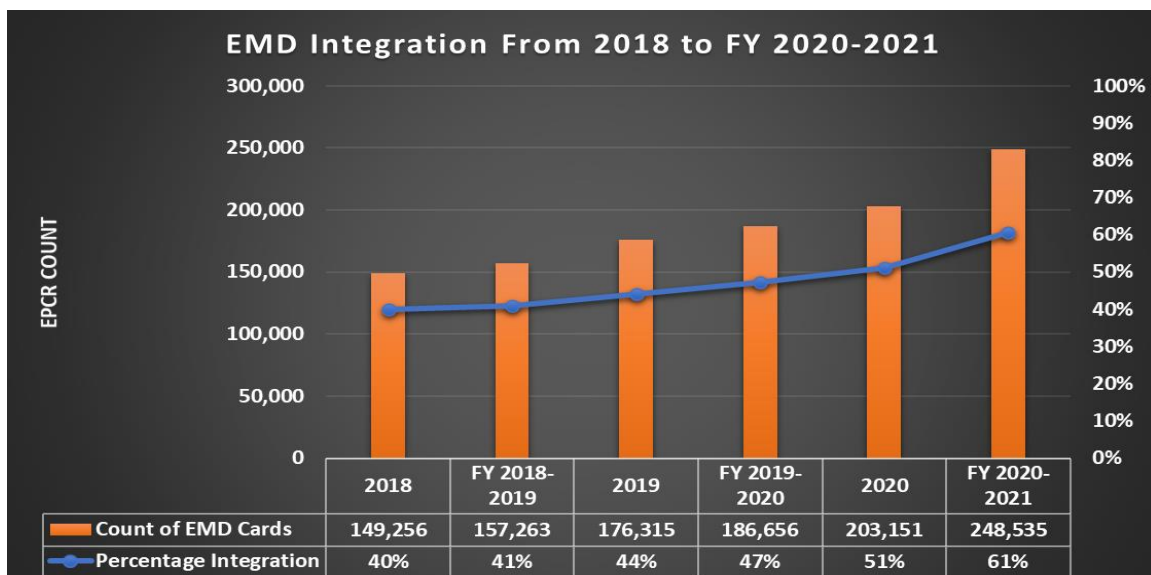
EMD Integration

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 theoretical integration of EMD by responding agency. *EMD Integration with ePCR* is a total count of eDispatch.03, the EMD card and dispatch determinant level, which is used to determine raw integration numbers of EMD by the responding agency. *EMD Card Missing* is defined here as an ePCR having a blank eDispatch.03, or no recorded EMD card and dispatch determinant level. *Percentage of EMD Integration* was 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	30,769	11,518	19,251	37.4%	No
AMR - Hemet	37,331	15,590	21,741	41.8%	No
AMR - Riverside	113,406	62,291	51,115	54.9%	No
Total EMD Integration	**181,506**	**89,399**	**92,107**	**49.3%**	**0/3**
911 Responders (Non-EMD)					
Cathedral City Fire Department	5,823	12	5,811	0.2%	No
Hemet Fire Department	12,527	0	12,527	0.0%	No
Palm Springs Fire Department	8,581	2	8,579	0.0%	No
Total EMD Integration	**26,931**	**14**	**26,917**	**0.1%**	**0/3**
EMD 911 Responders					
Calimesa Fire Department	828	800	28	96.6%	Yes
Corona Fire Department	7,339	5,105	2,234	69.6%	Yes
Idyllwild Fire Protection District	587	269	318	45.8%	Yes
March Air Reserve Base Fire Department	29	1	28	3.4%	Yes
Morongo Fire Department	3,375	1,085	2,290	32.1%	Yes
Murrieta Fire Department	8,599	6,130	2,469	71.3%	Yes
Pechanga Fire Department	888	801	87	90.2%	Yes
Riverside City Fire Department	30,865	415	30,450	1.3%	Yes
Riverside County Fire Department	148,740	143,719	5,021	96.6%	Yes
Soboba Fire Department	845	797	48	94.3%	Yes
Total EMD Integration	**202,095**	**159,122**	**42,973**	**78.7%**	**10/10**
Total EMD Integration for Riverside	**410,532**	**248,535**	**161,997**	**60.54%**	**10/16**

Change in EMD Card Integration Over Time

The combination chart below shows the change in the integration of EMD cards into ePCRs recorded in our semiannual Emergency Medical Dispatch Reports. Since 2018 the total count of EMD cards for all 911 agencies has grown by 66% while the Perctentage Integration of EMD cards into ePCRs for all 911 agencies has increased from 40% to 61%.

EMD Integration From 2018 to FY 2020-2021

	2018	FY 2018-2019	2019	FY 2019-2020	2020	FY 2020-2021
Count of EMD Cards	149,256	157,263	176,315	186,656	203,151	248,535
Percentage Integration	40%	41%	44%	47%	51%	61%

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 2020 calendar year distribution of determinant levels was analyzed using ePCR data. The chart on the right reflects determinant level distribution for 911 responding agencies with ePCR integration of dispatch data. While most of Riverside County 911 responding agencies utilize EMD, 40% do not integrate with the patient care record system, and those values are unknown.

FY 2020-2021 Dispatch Determinant Level Distribution

- Echo 8,494 (3%)
- Omega 1,392 (1%)
- Alpha 44,659 (18%)
- Bravo 56,275 (23%)
- Charlie 55,577 (22%)
- Delta 82,136 (33%)
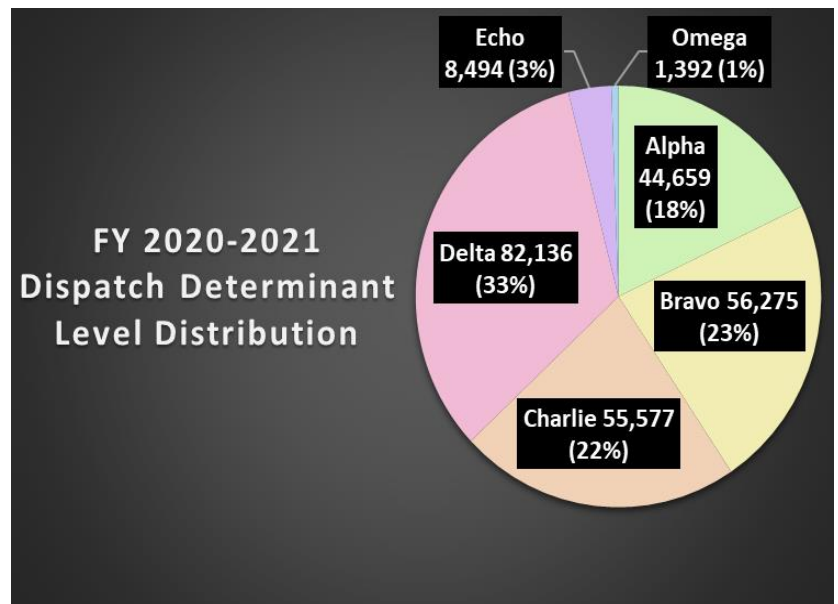
Top EMD Cards & Dispatch Complaints

EMD Card	Count	Percentage
26 Sick Person	35,133	14.1%
06 Breathing Problem	30,010	12.1%
17 Falls	27,465	11.1%
32 Unknown Problem (Person Down)	18,543	7.5%
31 Unconscious / Fainting (Near)	17,708	7.1%
10 Chest Pain / Chest Discomfort (Non-Traumat	17,556	7.1%
77 Vehicle Collision	14,723	5.9%
12 Convulsions / Seizures	9,015	3.6%
21 Hemmorrhage / Lacerations	8,458	3.4%
01 Abdominal Pain / Problems	7,436	3.0%
Other	*62,486*	*25.1%*
Total	**248,533**	**100.0%**
Dispatch Complaint	**Count**	**Percentage**
Sick Person	63,809	15.5%
Breathing Problem	44,439	10.8%
Unknown Problem/Person Down	44,151	10.8%
Falls	41,799	10.2%
Traffic/Transportation Incident	29,554	7.2%
Chest Pain (Non-Traumatic)	25,699	6.3%
Unconscious/Fainting/Near-Fainting	23,075	5.6%
Convulsions/Seizure	13,403	3.3%
Abdominal Pain/Problems	12,620	3.1%
Traumatic Injury	11,582	2.8%
Other Dispatch Complaint	*100,400*	*24.5%*
Dispatch Complaint Total	**410,531**	**100.0%**

The table to the left shows a comparison of Dispatch Complaints to EMD Card Numbers utilized by call takers at public safety answering points for FY 2020-21. 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 each emergency medical response request.

Key Performance Intervals by Dispatch Determinant Level

In Riverside County, Determinant Codes do not govern response times; however, determinant levels help describe how rapidly care is 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 60% of the county's EMD-based calls have been integrated with the ePCRs analyzed, so *these values do not represent average response times for individual agencies.*

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 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. This is a key performance interval because it measures all parts of the prehospital system and how they interact with each other to deliver a patient to definitive care.

Total Prehospital Time (eTimes.01 to eTimes.11)		Dispatch Determinant Level Not Recorded	OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	129,843	1,392	44,686	56,351	55,612	82,211	8,500
	Valid	41,963	330	13,931	11,402	20,328	28,431	2,236
	Invalid	5,740	46	2,099	2,127	2,440	3,856	413
	Missing	82,140	1,016	28,656	42,822	32,844	49,924	5,851
Mean		35.7	40.3	40.8	39.0	37.7	38.6	37.3
Median		34.9	39.0	39.9	38.4	37.1	38.1	36.9
Standard Deviation		9.8	10.7	11.0	10.0	9.5	9.3	9.1
90th Percentile		47.9	54.7	54.7	51.7	49.9	50.5	48.9
95% Confidence Interval for Mean		(35.55-35.74)	(39.15-41.46)	(40.59-40.96)	(38.83-39.19)	(37.55-37.81)	(38.47-38.69)	(36.94-37.7)

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. This is a key performance interval because it measures the experience of the patient accessing the 911 system.

Total Response Time (eTimes.01 to eTimes.07)		Dispatch Determinant Level Not Recorded	OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	129,843	1,392	44,686	56,351	55,612	82,211	8,500
	Valid	80,593	836	29,793	20,822	39,677	55,230	5,985
	Invalid	7,058	65	2,459	2,457	2,881	4,506	480
	Missing	42,192	491	12,434	33,072	13,054	22,475	2,035
Mean		9.9	13.7	13.9	12.3	11.8	11.8	10.8
Median		8.5	12.5	12.6	11.1	10.9	10.8	10.0
Standard Deviation		5.3	5.7	6.2	5.7	4.8	5.0	4.4
90th Percentile		15.9	20.5	21.4	19.1	17.2	17.6	15.8
95% Confidence Interval for Mean		(9.84-9.91)	(13.28-14.05)	(13.86-14.01)	(12.23-12.38)	(11.75-11.85)	(11.76-11.85)	(10.68-10.91)

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. This is a key performance interval because it measures the experience of the unit responding to the 911 emergency medical call.

Unit Response Time (eTimes.03 to eTimes.06)		Dispatch Determinant Level Not Recorded	OMEGA	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
N	Total	122,943	1,392	44,686	56,351	55,612	82,211	8,500
	Valid	80,593	836	29,793	20,822	39,677	55,230	5,985
	Invalid	35,450	469	12,982	30,096	14,258	23,285	1,896
	Missing	6,900	87	1,911	5,433	1,677	3,696	619
Mean		7.1	9.4	9.6	8.6	8.2	8.3	7.6
Median		6.1	8.4	8.5	7.4	7.2	7.3	6.6
Standard Deviation		4.3	4.8	5.0	4.9	4.3	4.4	4.0
90th Percentile		11.9	15.3	15.9	14.5	13.3	13.6	12.4
95% Confidence Interval for Mean		(7.1-7.16)	(9.09-9.74)	(9.54-9.66)	(8.52-8.65)	(8.12-8.21)	(8.28-8.35)	(7.46-7.66)

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.

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