SUMMARY REPORT
EMERGENCY MEDICAL DISPATCH
FY 2019-2020

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 2019-2020 fiscal year. This data was collected by responding agencies between July 1st, 2019 through June 30th, 2020.

The majority of Riverside County is covered by MPDS through the EMD program.
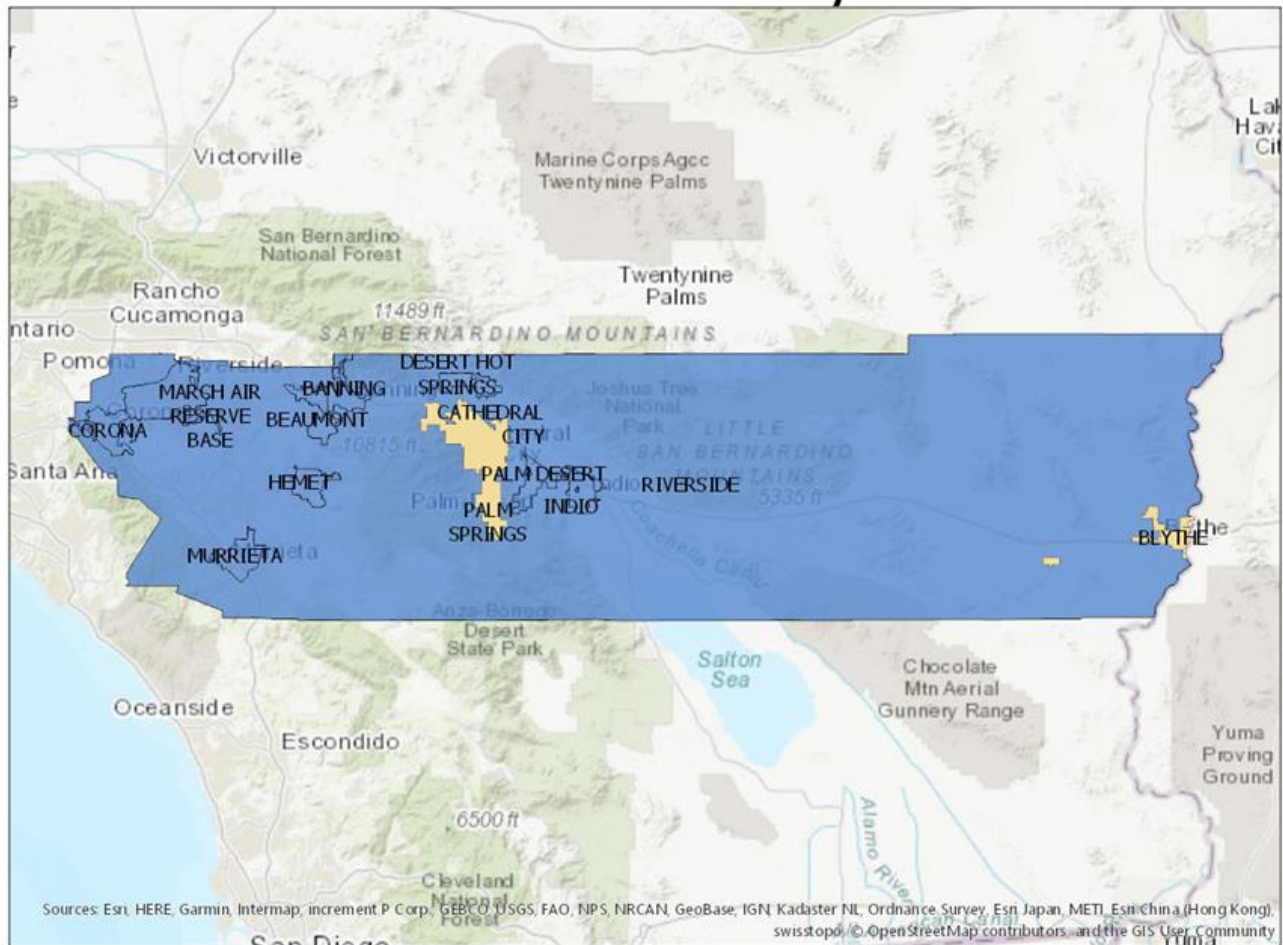
Legend
- Riverside County PSAP's Without MPDS
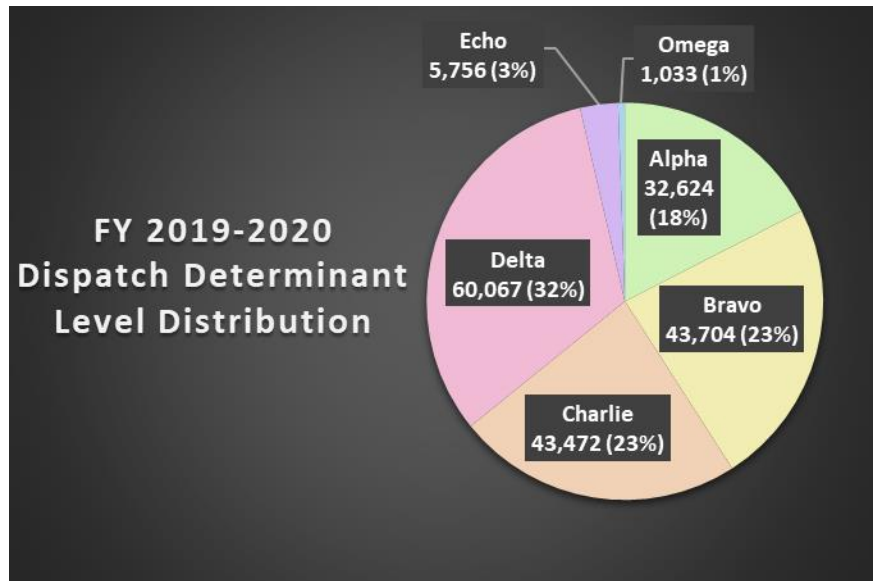- Riverside County PSAP's With or Currently Implementing MPDS

The following data is shown to reflect **EMD utilization** in Riverside County in fiscal year 2019-2020. 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.*
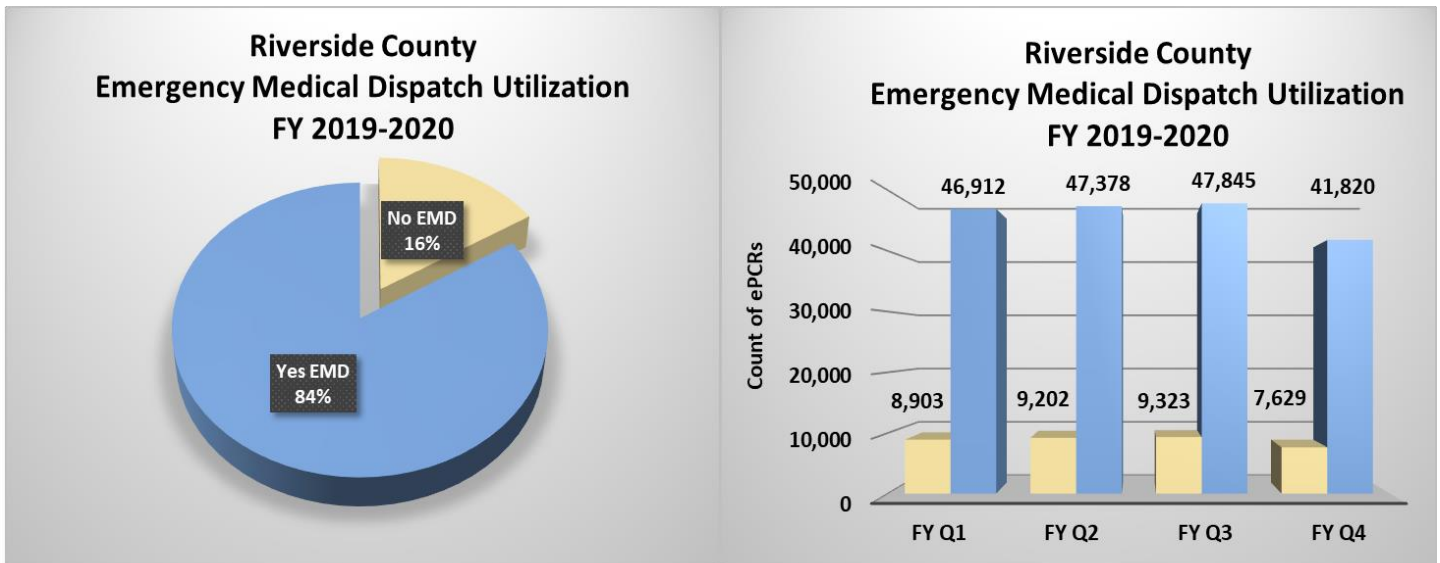
The table below shows the *rate of EMD integration* with EMS Electronic Patient Care Reports (ePCRs) for all 911 provider agencies in Riverside County. A count of *eRecord.01*, a number generated with each ePCR created, was used to determine the theoretical integration of EMD by responding agency. *EMD 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	29,242	3,715	25,527	12.7%	No
AMR - Hemet	35,976	8,997	26,979	25.0%	No
AMR - Riverside	110,023	31,129	78,894	28.3%	No
Total EMD Integration	**175,241**	**43,841**	**131,400**	**25.0%**	**0/3**
911 Responders (Non-EMD)					
Cathedral City Fire Department	5,695	3	5,692	0.1%	No
Hemet Fire Department	13,352	0	13,352	0.0%	No
Murrieta Fire Department	7,820	2	7,818	0.0%	No
Palm Springs Fire Department	8,190	0	8,190	0.0%	No
Total EMD Integration	**35,057**	**5**	**35,052**	**0.0%**	**0/4**
EMD 911 Responders					
Calimesa Fire Department	745	717	28	96.2%	Yes
Corona Fire Department	6,907	2,175	4,732	31.5%	Yes
Idyllwild Fire Protection District	604	102	502	16.9%	Yes
March Air Reserve Base Fire Department	51	0	51	0.0%	Yes
Morongo Fire Department	1,085	806	279	74.3%	Yes
Pechanga Fire Department	983	898	85	91.4%	Yes
Riverside City Fire Department	29,817	0	29,817	0.0%	Yes
Riverside County Fire Department	143,080	137,498	5,582	96.1%	Yes
Soboba Fire Department	683	614	69	89.9%	Yes
Total EMD Integration	**183,955**	**142,810**	**41,145**	**77.6%**	**9/9**
Total EMD Integration for Riverside	**394,253**	**186,656**	**207,597**	**47.34%**	**9/16**

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 do define modes of response for emergency vehicles. The 2019-2020 fiscal year distribution of determinant levels was analyzed using ePCR data. This data reflects determinant levels for 911 responding agencies with ePCR integration of dispatch data. While most Riverside County 911 responding agencies utilize EMD, less than half currently have ePCR integration.

FY 2019-2020 Dispatch Determinant Level Distribution

- Echo 5,756 (3%)
- Omega 1,033 (1%)
- Alpha 32,624 (18%)
- Bravo 43,704 (23%)
- Charlie 43,472 (23%)
- Delta 60,067 (32%)

EMD Card	Count	Percentage
26 Sick Person	25,328	13.6%
17 Falls	21,984	11.8%
06 Breathing Problems	20,645	11.1%
77 Vehicle Collision	14,660	7.9%
10 Chest Pain / Chest Discomfort (Non-Traumat	14,481	7.8%
31 Unconscious / Fainting (Near)	13,838	7.4%
32 Unknown Problem (Person Down)	12,679	6.8%
12 Convulsions / Seizures	7,681	4.1%
21 Hemmorrhage / Lacerations	6,204	3.3%
28 Stroke (CVA) / Transient Ischemic Attack (TI/	5,655	3.0%
Other	43,501	23.3%
Total	186,656	100.0%
Dispatch Complaint	Count	Percentage
Sick Person	59,815	15.2%
Falls	42,663	10.8%
Breathing Problem	40,032	10.2%
Unknown Problem/Person Down	37,199	9.4%
Traffic/Transportation Incident	29,596	7.5%
Chest Pain (Non-Traumatic)	26,816	6.8%
Unconscious/Fainting/Near-Fainting	23,089	5.9%
Convulsions/Seizure	14,313	3.6%
Abdominal Pain/Problems	12,102	3.1%
Traumatic Injury	11,343	2.9%
Other Dispatch Complaint	97,275	24.7%
Dispatch Complaint Total	394,243	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 the 2019-2020 fiscal year. Dispatch complaints are the reason why an emergency medical response is required and are used to categorize each request. EMD Cards are similar and 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, and providers may intrinsically respond more rapidly to higher acuity calls. In an effort to review potential differences in response time based on determinant levels, an aggregate analysis of key performance time intervals based is described below. Less than half of the county's EMD-based calls have been integrated with the ePCRs analyzed, so *these values may not represent average response times for individual agencies.*

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	207,597	1,033	32,624	43,704	43,472	60,067	5,756
	Valid	102,307	239	10,110	7,998	15,391	20,277	1,682
	Invalid	452	0	4	7	14	29	3
	Missing	104,838	794	22,510	35,699	28,067	39,761	4,071
Mean		39.0	41.9	43.3	41.4	39.0	40.2	40.0
Median		35.8	39.9	40.8	39.0	37.3	38.4	38.2
Standard Deviation		16.3	15.6	14.2	13.7	12.4	12.4	12.2
90th Percentile		56.1	58.5	61.5	58.0	54.5	55.4	55.2
95% Confidence Interval for Mean		(38.86-39.06)	(39.88-43.87)	(43-43.56)	(41.05-41.66)	(38.82-39.22)	(40.03-40.37)	(39.39-40.56)

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	207,597	1,033	32,624	43,704	43,472	60,067	5,756
	Valid	152,818	627	22,397	15,195	31,154	41,129	4,270
	Invalid	2,451	10	264	219	369	475	33
	Missing	52,328	396	9,963	28,290	11,949	18,463	1,453
Mean		10.3	14.1	14.1	12.3	11.6	11.5	10.5
Median		8.6	12.7	12.6	11.1	10.7	10.5	9.6
Standard Deviation		6.7	6.2	6.3	5.5	4.5	4.8	4.6
90th Percentile		16.6	20.5	21.1	18.0	16.4	16.4	14.9
95% Confidence Interval for Mean		(10.23-10.3)	(13.64-14.61)	(14.02-14.19)	(12.17-12.34)	(11.51-11.61)	(11.42-11.51)	(10.37-10.65)

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	207,597	1,033	32,624	43,704	43,472	60,067	5,756
	Valid	153,527	629	22,405	15,217	31,173	41,166	4,273
	Invalid	43,653	327	8,840	24,500	10,689	15,820	972
	Missing	10,417	77	1,379	3,987	1,610	3,081	511
Mean		7.5	9.7	9.6	8.2	7.8	7.9	7.2
Median		6.3	8.6	8.6	7.3	6.9	7.0	6.5
Standard Deviation		4.9	5.5	4.9	4.4	4.0	4.0	3.5
90th Percentile		12.6	16.1	15.7	13.3	12.4	12.6	11.4
95% Confidence Interval for Mean		(7.43-7.48)	(9.26-10.12)	(9.52-9.65)	(8.14-8.28)	(7.72-7.8)	(7.84-7.92)	(7.07-7.27)

References

Culley, Linda L. et al. (1994). **Increasing the efficiency of emergency medical services by using criteria based dispatch. Annals of Emergency Medicine**. Volume 24, Issue 5, 867 – 872.

https://www.emergencydispatch.org/articles/princdocpull03.pdf

https://www.emergencydispatch.org/articles/ArticleMPDS%28Cady%29.html

http://remsa.us/policy/2203.pdf

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