RIVERSIDE COUNTY
Emergency Medical Care Committee

EMCC Members Per Board of Supervisors Resolution No. 2013-052:

PMAC Physician Representative
1.a. Stephen Patterson, MD

Hospital Association Representative
1.b. Megan Barajas

Riverside County Medical Association
1.c. James Rhee, MD

County Contracted Emergency Ambulance
1.d. Peter Hubbard

Ambulance Association Representative
1e. Dawn Downs

County Permitted Air Ambulance Provider
1.f Brian Harrison

Riverside County Fire Chiefs' Association
1.g. Brian Young

Coachella Valley Association of Governments
1.h. Mark Scott

Western Riverside Council of Governments
1.i. Gary Nordquist (primary)
Chris Mann (secondary)

Riv Co Law Enforcement Agency Admin Assoc
1.j. Vacant

PMAC Prehospital Representative
1.k. Magdalena Robles

Riverside Co Fire Dept Rep
1.l. Vacant

Supervisorial District One
1.m. David McCarthy

Supervisorial District Two
1.m. Stan Grube

Supervisorial District Three
1.m. Jerry Holldber

Supervisorial District Four
1.k. Claudia Galvez

Supervisorial District Five
1.m. Jock Johnson

The next meeting of the EMCC is on:

Wednesday, October 20, 2021
9:00 AM – 10:30 AM
Microsoft Teams
Public Conference Call Information (Audio Only)
(951) 465-8390 United States, Riverside
Conference ID: 647 850 205#

1. CALL TO ORDER
   Chair—Stan Grube

2. ROUNDTABLE INTRODUCTIONS (5 Minutes)
   Chair—Stan Grube

3. APPROVAL OF MINUTES (5 Minutes)
   June 23, 2021 Draft Minutes—Stan Grube (Attachment A)

4. UNFINISHED / NEW BUSINES (20 Minutes)
   4.1 EMCC Membership – Dan Bates
   4.2 Chairperson and Vice-Chairperson Nominations – Dan Bates
   4.3 COVID-19 Situation Update – Misty Plumley
   4.4 RUHS Public Health Report – Marie Weller

5. EMS AGENCY REPORTS (30 Minutes)
   5.1 Administrative Unit Updates – Dan Bates
   5.2 Clinical Unit Updates – Shanna Kissel/Dustin Rascon
   - Specialty Care Updates
   - Pediatric Readiness Survey
   - 2021 Policy Manual Update
   - EMS Plan Update

   5.3 Data Unit Updates – Catherine Farrokhi
   - Electronic Patient Care Record Report FY21-22 (Attachment B)
   - EMS Suspected Overdose Report FY18-21 (Attachment C)
   - WIC – 5150 Impact Report FY20-21 (Attachment D)
   - Patient Care Continuum Report FY20-21 (Attachment E)

6. OTHER REPORTS (20 Minutes)
   6.1 PMAC - Steven Patterson, MD / Magdalena Robles
   6.2 EMD Preparedness Division – Anne Accurso
   6.3 EMD Operations Division - Mark Bassett

7. OPEN COMMENTS (5 Minutes)

8. NEXT MEETING / ADJOURNMENT (1 Minute)
   Wednesday, December 8, 2021; 9AM – 10:30AM

NOTICE: Items on the agenda: Any member of the public may address this meeting of the Emergency Medical Care Committee or any items appearing on the agenda by raising their hand to be recognized by the Chair or acting Committee Chairperson. If a member of the public desires to speak, they must do this before or anytime during discussion of the item. All comments are to be directed to the Emergency Medical Care Committee and shall not consist of any personal attacks. Members of the public are expected to maintain a professional, courteous decorum during their comments. A three-minute limitation shall apply to each member of the public, unless the Chair extends such time. No member of the public shall be permitted to "share" his/her three minutes with any other member of the public.

Items not on the agenda: Any member of the public may address this meeting of the Emergency Medical Care Committee on any item that does not appear on the agenda, but is of interest to the general public and is an item upon which the Committee may act. All comments are to be directed to the Emergency Medical Care Committee and shall not consist of any personal attacks. Members of the public are expected to maintain a professional, courteous decorum during their comments. A three-minute limitation shall apply to each member of the public who wishes to address the Committee on a matter not on the agenda. No member of the public shall be permitted to "share" his/her three minutes with any other member of the public. Usually, any items received under this heading are referred to the staff for further study, research, completion, and/or future action.

It is the responsibility of the members of the committee to disseminate information from EMCC meetings to the organizations they represent. Any questions regarding meeting or agenda items may be addressed to Dan Bates, Riverside County EMS Agency at (951) 358-5029.

Next meeting:
TBD.
EMCC agendas with attachments are available online at www.rivcoems.org

The County of Riverside does not discriminate on the basis of disability in admission to, access to, or operations of its programs, services or activities. It is committed to ensuring that its programs, services, and activities are fully accessible to and usable by people with disabilities. If you have a disability and need assistance, contact Dan Bates at (951) 358-5029.

EMCC meetings are audio recorded to facilitate dictation for minutes.

TOPIC	DISCUSSION	ACTION
1. CALL TO ODER **Stan Grube**	Stan Grube called the meeting to order at 9:00AM	
2. ROUNDTABLE INTRODUCTIONS **Stan Grube**	Dan Bates performed the introductions	
3. APPROVAL OF MINUTES **Stan Grube**	Minutes approved by James Rhee, Chief Brian Young, Fire Chief and Stan Grube	Approved at 9:05
4. UNFINISHED /NEW BUSINESS		
4.1 Chairperson and Vice-Chairperson Nominations: **Dan Bates**	No nominations for Chair nor Vice Chair It was determined that email nominations will be conducted No objections	
4.2 RUHS Public Health Report – **Marie Weller**	• COVID -19 vaccine still continues – • Public Health has 1 site at the Moreno Valley Mall. • We have 3 mobile teams that travel throughout the county • Next week the teams will go from a Tuesday to a Saturday schedule. • Inform people to go to MyTurn.co.gov it will find the nearest vaccine location. • We are "doing very well" administering vaccines. Administered over 2.1 doses. There are multiple sites where they can get vaccinated, not just through public health centers. • Everyone 12 and over can be vaccinated. • We have the capability to arrange transportation for those who need it. • If there are any questions about access to vaccines – please reach out to Marie Weller	
4.3 COVID-19 Situation Update **Misty Plumley**	Misty reports that she and Marie Weller work together in the department public Medical Health, - Operations section. She elaborated on the details that Marie gave: • We have 243 active community vaccine partners. This is a shift from 285. It is common for our vaccine partners numbers to shift once we get into later stages of having delivered vaccine. Individuals that were participating actively in the emergent part of the response have shifted back to the more primary care / long term care partners. They now continue to offer support with long term care. • The retirement of the blueprints: The blueprint provided tier assignments to the counties and the state of California related to COVID case rates. Specific guidance related to healthcare facilities, jails, schools and other youth centers, as well as transportation hubs • you will find the various tier assignment still visible located on the COVID-19.ca.gov website. • We are now working with is a 7-day case average – 7-day lag. In Riverside County at the start of June we were dealing with 304 new cases per day • As of today. we are at 278 new cases per week	

	• We anticipate a fluctuation in the number as business return to full capacity or pre-pandemic operations. • Positivity remains below 2% we are at 1.3 overall positivity and 0.9 percent in our most underserved disadvantaged communities. • Milestone – We have vaccinated over 52 percent of the eligible population in Riverside County. • 44.6 percent of the eligible population has been fully vaccinated. • We maintain relationships with Curative and Optum Serve as well as the 243 community vaccine partners. Curative and Optum are running fixed sites and mobile teams in the county supporting our operations in cortile 1, which is the most under served and disadvantaged census tracks that we have. We are continuing to provide access-availability, education and support in those communities. • On June 30th – will continue to see some shifts in vaccines operations as various sites adjust their operations with new agreements as terms comes to an end. This will affect the Perris Fair Grounds and Palm Springs Convention Center. There will be PIO releases that highlights these changes happens. • **Questions for Misty Plumley**: Are we still having everyone wear the same PVEs Answer: Dan will give updates within a day or two	
5 EMS AGENCY REPORTS (30 Minutes)		
5.1 Administrative Unit Updates **Dan Bates**	Dan reported that David Gibson will be joining our team as the new EMS Specialist - Discipline coordinator. • The role will be split between EMT discipline and Paramedic Discipline enforcement with Karleen Wade our existing EMS Specialist. David will be overseeing the discipline and enforcement of the paramedics and Karleen Wade will over the discipline and enforcement of the EMTs along with the allover all alert warning for alert-RivCo for the County of Riverside. Karen Petrilla has rejoined our team and has been appointed the task of the new EMS specialists • Henry Olsen will continue to perform ambulance permitting and inspections. We have received all of the applications from our providers. We are in the process of reissuing of new permits. Since Covid started we had been extending their existing permits. • EMS is transitioning back to its normal roles and responsibilities • We continue to work with our AMR compliance. Were currently working on the system distribution monies	

	• As July/August s approaches we will get back into getting our zone meetings scheduled for the system in August. And hopefully we can try to do an in-person meeting for our providers. Want to encourage our hospital and city partners so that they have a good understanding of the AMR contract and how the system enhancement monies are distributed. • We have a Business Process Analyst PA 1 position added. That person will do a split role managing LMS system as well as the WEB EOC for the operations division for the county. Catherine Farrokhi will give a complete update shortly. • We are back filling our GIS specialists position as well	
5.2 a. 2021 Policy Manual Update **Dustin Rascon**	Dustin Rascon – Management of the policy manual as well as the new policy manual app. • The app Soft-launched at the beginning of the year – Officially launched on April 1st , 2021 • The app is web based – So it's a progressive web app • Stats on the App: • So far 2214+ user views 56% the entire EMS System – we are getting good traction • 470 individuals' users who have created accounts so far. • Most viewed page in the app – which has had the most views. The treatment protocols with 35,000 views – drug index 13,000, facilities contact had 9,500. The Policy Manual has been viewed 72 times. • User engagement time is 8.35 minutes with majority of the time looking as the ALS drug index, followed by the protocol • Also, the index and skills list is new to the spring cycle. This has proved to be a valuable addition to the policy manual Dustin gave a tour of the different components of the app and how to use it. • Drug index, • Home medication list with detail of different drug/medications. • Skills list with included indications • Facilities contacts, which is a comprehensive list of destinations/facilities according to specialties and distances • Drug calculator which includes pediatric calculations • Education Section which includes protocol updated, information on Strokes, STEMI, PMAC, EMCC, Stroke Committee, SEQILT • The site is constantly being updated in real time. The updates are published within seconds so that all information is available immediately. Purpose: was to give all access to all information at their fingertips.	

	Questions: How did the marketing information go out to the partner fire agencies? Answer: Dustin explained that the QR Code is in the app under "share" as well as the link to the app in the spring 2021 video which was made available to all the agencies in the release that we sent in the "Train the Trainers" information in February 2021.	
5.2 b. Clinical Unit Updates: First Pass and CQI Updates Specialty Care Updates **Shanna Kissel, RN**	Shanna reported on the Clinical team: • The team is continuing to update the mobile application with recommendations from the providers. If there's anything you would like to have added, please email her or Dustin Rascon and they will have it updated on the app • We are continuing to work with First Pass for clinical CQI which includes using the treatment audit tools for all 3 specialties - STEMI - Stroke – Trauma To see if we can improve any of the clinical practices that we have. Specifically, for STEMI, we have performance metrics reports –which are continuously being updated to improve tracking and guidance for CQI initiatives. We are doing ETB times and they are continuingly being audited for improvement • The STEMI system advisory committee meets quarterly. We have been collaborating with ICEMA to make it a regional committee. • STEMI Destination: We are auditing our hospital cardiac arrests incidence. This was completed in the first quarter of 2021 of this year with opportunities for improvements identified which will be reflected in the fall policy education sessions. • Stroke – spring updates – which included stroke education that was completed in quarter 1 of this year. The team decided to have 1 annual regional meeting to review practices and inconsistencies across counties. Leslie has created a form for the non-stroke designated centers for feedback for the improvement of stroke and STEMI patient care. • Trauma – Not much updated since previous meeting. RUHS received their American College of Surgeons level 1 certification. This is significant as this is the first trauma center within our county that has received this level of certification.	
5.3 Data Unit Updates: **Catherine Farrokhi**	Expounded on the new BPA position: • We will have a Business Process Analyst (BPA) that will join our team within the next few months. This position is a modification of the Research	

	Specialist position that was held by Patrice Shephard who is no longer with EMD. This was mainly to assist with system administration. Nicholas Ritchie is our EPCR system. We will acquire oversight of WEB EOC as well as doing more with LMS, the company Javari who owns WEV EOC who is also acquiring Live Process. As the two-systems merge, we plan to be more involved in the oversight. This is where the Business Process Analyst position comes is relevant. • We are also back filling a GIS specialist Project Updates: • RHODA: The surveillances is ongoing in partnership with Public Health as well as the Sheriff's Office reviewing at overdose deaths/cases in the EMS system. We saw a spike in activity that emerged with 2020 which stabilized back to the levels we saw in 2019 so there's nothing remarkable to report • We've had a roll out of trauma informed care training going on as well as a partnership with behavior Health as well as Public Health with the support of the RHODA grant to create crisis response teams that will be available for overdose responses and 51/50's. Shawn Hakam will give report update presentation.	
5.2 b "Riverside County Overdose Data to Action (RODA) **Shawn Hakam**	Shawn presented on RODA program: RHODA is a program they've been collaborating with Public Health, Behavior Health and RSL. "**R**iverside **O**verdose to **A**ction" – Shawn's' team has been working on the "Action" section of RHODA– Collecting data and using the data to have an impact on the system. The initiatives are: • Trauma informed care training. There have been 7 training sessions and have trained approximately 45 first responders on trauma informed care practices. Purpose is to create more resiliency among first responders with Pechanga Fire and Riverside County Fire Departments. We also have upcoming training with AMR which is in collaboration with Dr. McFlair- psychologist specializing in treating first responders. • Leave Behind Naloxone Program is a new program for REMSA funded by a State grant that allows providers to get Naloxone for free from the state. Purpose is to distribute the kits to the providers for treating patients. • CATT Team – Crisis response collaboration with PH, AMR and BH. An MOU is being developed. Reviewed ED & EMS STATS which are broken down by encounters, visits age groups, fatality and gender in 2021.	

	It was discovered after participating in the review of opioid overdose / fatal overdoses that on average people had 4 to 5 encounters with EMS for overdose before having a fatal overdose. After reviewing the data, it was identified that the area for intervention which was to distribute Naloxone to prevent fatal overdose from happening. There are a number of agencies throughout the county and outside of the county that distributes the kits. The data has been quite positive for other counties. Shawn went over the outline of the Naloxone state project which is funded by SEMSA., he also reviewed the application process, the Program Requirements, as well as noting policy # 3310 related to the Leave Behind Naloxone" kit distribution by EMS Providers" program, Noted the EMS provider agencies websites, such as CDPH & DHCS Dan Bates thanked Shawn and his team for their work.	
5.2 c " Riverside EMS Medication and Procedures report 2020". **Catherine Farrokhi**	"Riverside EMS Medication and Procedures report 2020". The overview Covers: • 51/50 Empact report • 2203 Report = Patient time continuum Response time standards report as well as emergency Medical Dispatch report • She describes the complicated process of collecting data that is shared at the system, agency or state level. Records by agency, provider types: • The report is broken down by agencies and showcases: documenting medication procedures administered, missed documentations., and the frequency of implementation. This determines the focus on the area for improvement in terms of quality assurance and quality improvement • In the index of the report there is a complete breakdown of the frequency of the administration, which is available online. **EPCR Report: Breakdown of the 7701** **The breakdown of the patient records system.** Generation EPCRs – concerns of the breakdowns: Timelines, time of day, agency, and record input Starts with how its generated following an incident. Most record are generated the same day. Over a 3-to-6-month period. Mostly within hours of the incidents. Report was broken down by days of the week Transport agencies Patient disposition, by scene – (majority at private residents) Records by agency are provided. Questions: none	
6 Other Reports (20 Minutes)		

6.1 PMAC Meeting **Steven Patterson, MD**	PMAC meeting on May 17th Items approved - scope of practice • Dr. Patterson reported that during the last PMAC meeting which took place on May 17th , he covered most of the topics presented in today's meeting, as well as the RODA and CQI updates. • During the PMAC meeting, they also discussed the Riverside County Chief Fire Association efforts to fill a Non transport position effort – which currently do not have candidates to fill the position, but the efforts to fill the position continues. • PMAC Committee reached a unanimous approval a Unified Scope of practice – after a detailed review of data presented, and with consideration of liability, this was a collaboration with multiple agencies such as, Mercy Air and REACH. The scope provides a unified support of ALS providers as well as additional support to the nurse located on the shift and should be employed soon.	
6.2 EMD Preparedness Division **Dan Bates**	Dan Bates gave an overview: Noted there were 2 projects that relate to countywide alert and warning funded from homeland security: • Historical ALERT-RIVCO – swift reach was extended until 09-01-2021 –software Web based service model – still have the ability to do a traditional alert and warning. A new contract was awarded to a company named Genesis based on a robust scope of work that was designed by the operational area along with stakeholder feedback – combined with best practices and lessons learned along with the incorporation of the state Cal OES alert and warning guidelines… signed on April 20th 5-year contract with the ability to do 5 additional 1-year contract extensions. • Mountain Top Project – referred to as the nonexclusive operating zone of the San Jacinto mountains. Focusing on building out the existing traveler information station radio "winky" to cover the entire mountain plateau area as well as putting outdoor warning stations in place – there will be clear text as well as audio sounds including air-raid sirens. This is a current project - In Phase I - design phase – a multiple year project • Pharmaceuticals (UASI 18/ SHSP 19)): purchased of Doxycycline – funded by UASI and homeland security - inventory being updated by our planning division as well. • Medical and health grants. (HPP, PHEP, CRI and Pan Flu) Currently working on the F/Y 2021/2022 grant applications which will be doue at the in the present fiscal year. Announcement of Newly selected Health Care Coalition Coordinator –Jan Merrick - Preparedness Division – disaster coordinator within our system. She has Additional experience outside of California focusing on the same areas. Great resource to have taking care of our Health Care Coalition.	

	Hospital Preparedness supplementals funds for COVID -19 response will close at the end of this month, June 2021. • Vaccines IMT Transition to DOC – the county's all hazard type 3 IMT transition to the department's operation center - will be primarily run by public health. Our Misty Plumley from EMS will remain on loan assisting Public Health with this project. Education is still the purview of Shanna Kissel's clinical team of the EMS Agency with the continued assistance of Bryan Hanley while Misty Plumley away on assignment with public health. The D.O.C. will continue to coordinate allocation, distribution, and the administration of COVI-19 vaccines. We are currently operating and providing logistical support for the walk-in sites as well as the mobile vaccination teams.	
6.3 EMD Operations Division **Mark Bassett**	Mark Bassett – Emergency Services Division Manager • EMD Continues to support any COVID-19 un-met needs as they are demonstrated. • Fire season has begun: Reported fire on June 13th in the Pinion Pines area – There were evacuations of that fire. • Boarder surge response - we are still assisting the United States Customs and Border Protection with the influx of migrants seeking asylum into the US – The migrants are considered to be the non-title 42 migrants (every other country except central American and Mexico) However, there is a possibility that the title 42 amendment may end so we may see an increase of migrants should title 42 ends. We are still receiving migrants from the Murrieta station which is out of the San Diego sector. Every migrant that comes out of San Diego comes through different ports with Murrieta being the furthest Riverside County station. Regarding the Blythe station (Yuma Sector) and Indio station (El Centro sector): there have not been any migrants released to us for the past several weeks. We are monitoring that situation and if Title 42 goes away there may be an increase in the number of migrants. The individuals are tested at the US CBP Station with an antigen CRP test. The antigen determines what mode of travel they will take. Once that's determined they are either placed in isolation or quarantine at a hotel and will be assisted at that point. If they have a negative antigen, they are free to travel to their sponsors destinations. State of California has established a hub in Indio; however, they have placed the hub on "warm" status	

	because of the lack of migrants coming in through Blythe and Indio. • Storms will impact - monsoonal flows of Riverside County receives during the summer months. Last year Riverside County experienced the Eldorado, Apple and the Snow fires which burned the mountain ranges highlighting the concerns for heavy rains which may impact those burn areas. We are monitoring the storms that are coming. Currently there's little moisture in the air that would create larger monsoonal events. But we are concerned about lightning strikes coming out of these events that may cause fires. Comments: None	
on 7. OPEN COMMENTS		
7.1	Dan Bates: • Hospital Association of Southern California – Megan Baraja has been selected as the regional Vice President for HASC taking over for Kevin Porter who has retired. • Dan thanked HASC and DCPH, our local Riverside District office for license and certification for assisting our planning division with the information and cyber security survey. This related to our general care facilities, vulnerability of our Skilled nursing facilities in addition to licensing, intermediate care and community licenses facilities. • Terecita Reyes – She's been promoted as Field Operations Branch Chief for Southern California • She stated that if you're looking to reach out to the local CDPH Riverside offices, please contact the EMS agency for assistance.	
7.2	Chief Rawlings, Phil – Moreno Valley College: Key Elements: • The Partnership with Riverside County workforce development and AMR– will provide direction and guidance for individuals who are entering into EMS and • Fire Services will be the training/education facility to assist with some of the EMT training. • Developing a program for licensed Paramedics to come into the Moreno Valley college to be assessed for the paramedic and for the nursing degree program. As a paramedic you will have credit for your first year of nursing covered through the program and start as a 2nd year nursing student within the program. • Dual enrollment with high schools through EMR program for students looking for a public safety career.	

	Students can enter in to our EMT program through the EMR program. Our EMR program will become a prerequisite for the EMT training. • Emergency management program has been approved through the inland empire – desert regional consortium to allow for us to pursue emphasis tracks and degree programs for emergency management – Will have 3 emphasis tracks, Administration of Justice, EMS Leadership and Fire.	
8. NEXT MEETING ADJOURNMENT	Today's Meeting was adjourned at 10:28 am	

FOR CONSIDERATION BY EMCC

DATE: October 20, 2021

TO: EMCC

FROM: Catherine Borna Farrokhi, Ph.D. - Data & Reporting Unit

SUBJECT: Electronic Patient Care Record Report, FY21-22

ACTION: Received and File Information

Please see attached Riverside County EMS Agency Electronic Patient Care Record Report, FY21-22.

http://remsa.us/documents/reports/annual/Policy7701_All_ePCR_Submissions_Report_FY2020_2021_FINAL_20210923.pdf

RIVERSIDE COUNTY EMS AGENCY

ELECTRONIC PATIENT RECORD REPORT

FY 2021-22

SEPTEMBER 23, 2021

PREPARED FOR RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

ELECTRONIC PATIENT RECORD REPORT FY 2020-21

Fiscal Year 2020-2021 presented unique challenges and trends in the provision of Emergency Medical Services (EMS). Following the Covid-19 shutdowns and stay at home orders, the volume of EMS electronic patient care records and overall responses were dramatically reduced. This report aims to create a comprehensive view into the EMS system from the perspective of electronic patient care report (ePCR) submission.

REMSA policy 7701 requires ePCRs to be completed in compliance with Title 22, Chapter 4, Article 8, Section 100170, and uploaded into the electronic system *within two hours* of patient transfer to an emergency department, or prior to the end of shift when subsequent emergency response is required. An analysis was done on the electronic patient record system which found that less than 1% of records were entered or modified beyond 24 hours, suggesting most records are entered in compliance with ePCR documentation standards. Less than 3% of ePCRs were entered and/or modified the following day, and nearly none (0.01%) were entered after 7 days. To get a more in depth look at the efficiency of the ePCR entry, data was pulled each day in 1-day increments, mean changes of ePCR totals were calculated, and evaluated based on any changes in count or record for the previous days. The data was also evaluated for total count of ePCR submissions, hour of day, day of week, transport type, location, and response.

For Fiscal Year 2020-21, there was a total of 462,859 reports generated. December displayed the greatest number of ePCRs generated for the 2020-2021 fiscal year with 42,599 reports in that month. Hour-15 or 3PM was the busiest hour of day accounting for approximately 6% of all reports. Fridays generated the greatest volume of incidents according to ePCR submissions with 14.7% of total ePCRs occurring on that day. Ambulance transports made up the majority of reports submitted each month. Emergency responses compared to non-emergency transport (interfacility/medical) also accounted for most, nearly 90%, of all ePCRs for the fiscal year (87.7%, 405,909 reports). Riverside County Fire Department and AMR-Riverside submitted the majority of ePCRs for the year (61.1%, 282,923 reports). According to EMS zone analysis, the Northwest zone of Riverside County carried the highest number of responses with 27.5% (125,315 records) of all ePCRs generated within this zone.

METHOD

Data between July 1st, 2020 and June 31st, 2021 was extracted from the Riverside County Imagetrend® Elite system using Imagetrend® Reportwriter. For Figure 2, data was extracted each day over several weeks. Record fields extracted were Incident Date, Incident Month Name-Year, Incident Week, Disposition (eDisposition.19), Agency Name (dAgency.03), Response Type of Service Requested (eResponse.05), Incident Patient Disposition (eDisposition.12), Scene Incident Location Type (eScene.09), and Count of Incident Patient Care Record Number-PCR (e.Record.01). Data was then de-duplicated by patient care record number and incidents conducted outside of Riverside County were removed for relevancy. For Figures 1 and 3-10, data included all of the previously mentioned fields. Then, categories were developed and collapsed as follows: for NEMSIS fields eResponse.12 (Emergency- 911 Response, Non-Emergency- Interfacility Transport & Medical Transport, Other- Intercept, Mutual Aid, Public Assistance, and Standby), transport type was determined by response EMS Vehicle Unit Number (eResponse.13), and scene incident location type was collapsed based on variable consistencies detailed in Appendix A.

Figure 1: Total Number of ePCRs Generated in July 2020-June 2021 by Month

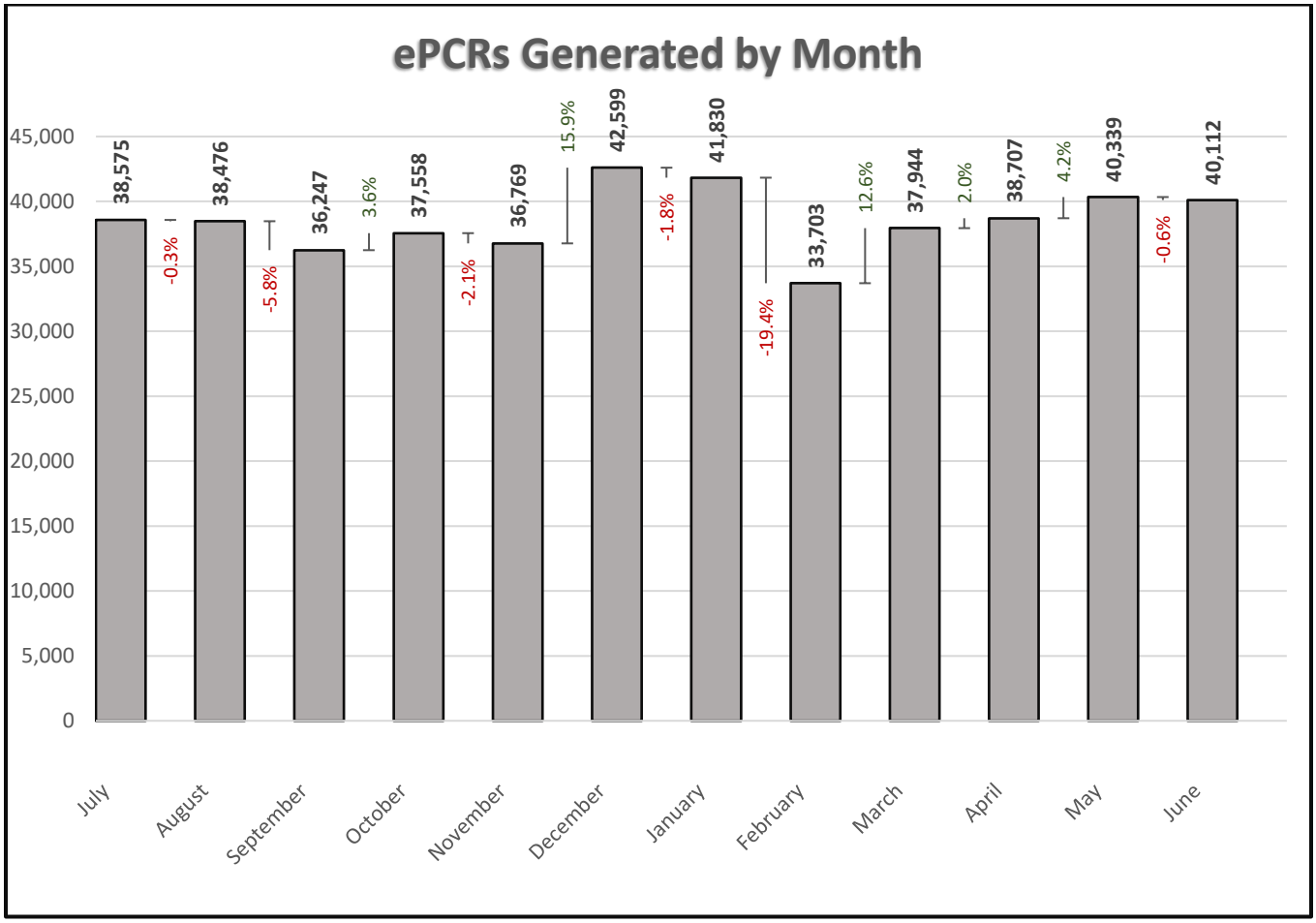


Figure 1 above displays the counts of ePCRs that were generated each month and the variation from month to month. The greatest decrease in ePCR volume occurred from January 2021 to February 2021 (-19.5%). This decline in volume followed the COVID-19 epidemic spikes which correlated with an overall increase in EMS services. The greatest increase occurred from the month of November to December in 2020 (+15.8%).

Figure 2: Mean Variation in PCR Delivery by Day

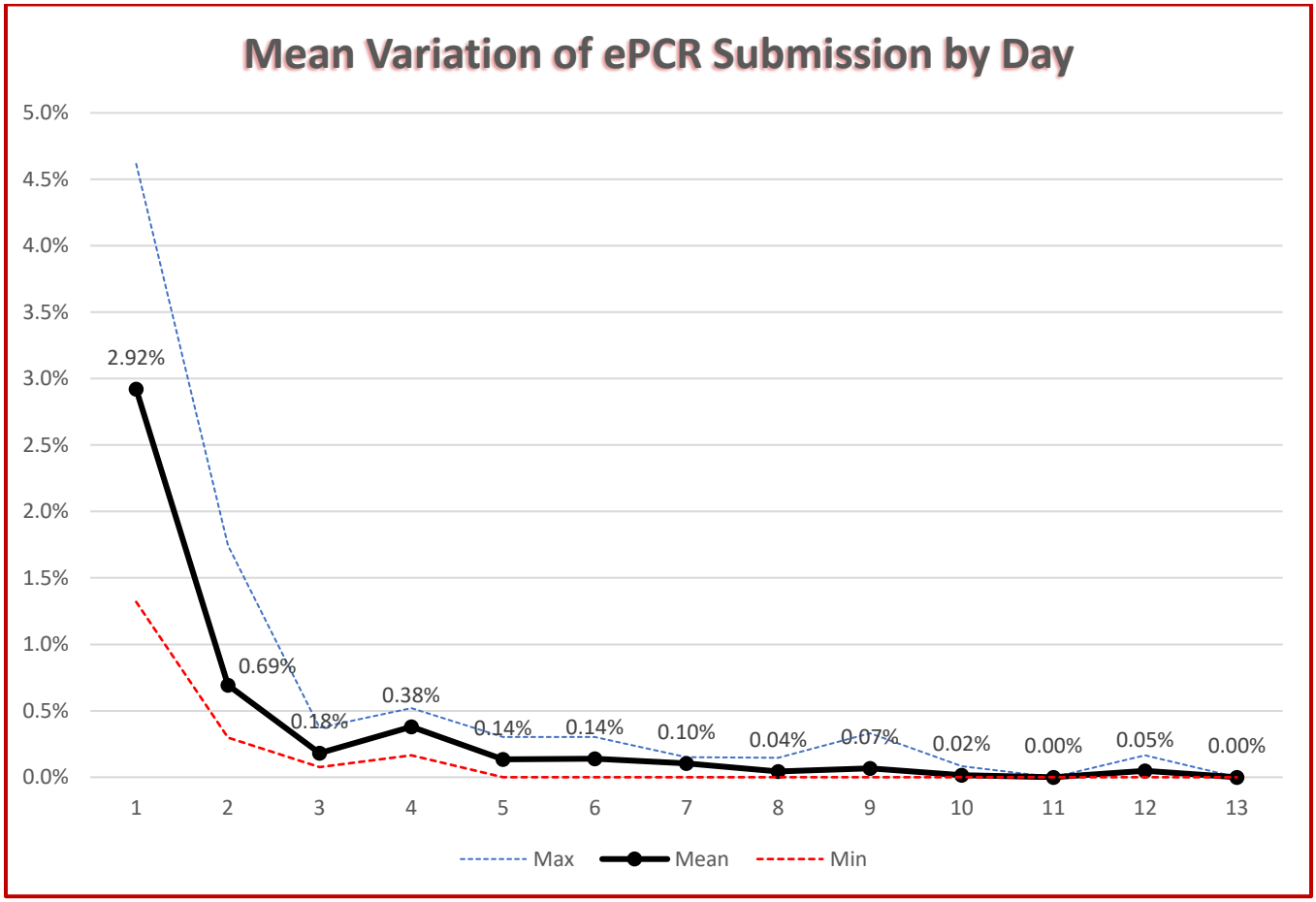


Figure 2 represents the mean variation in ePCR submission 1-13 days prior. Each day at 10 am records were collected for the previous day (12:00 AM-11:59 PM). This data collection was done at the same time each day to increase the validity of measure. A total of 7 total days were collected to calculate mean variations. The highest rate of change occurred 1 day later with a 2.92% mean increase in the count of ePCRs, and that rate incrementally decreased on days 2-13. These findings state 97.08% of all intended ePCRs were submitted within 1-day of the incident. Interestingly, the 9th day and 12th day displayed slight fluctuations in delayed ePCR submissions.

Figure 3: Total ePCRs Generated from July 2020-June 2021 by Incident Hour of Day

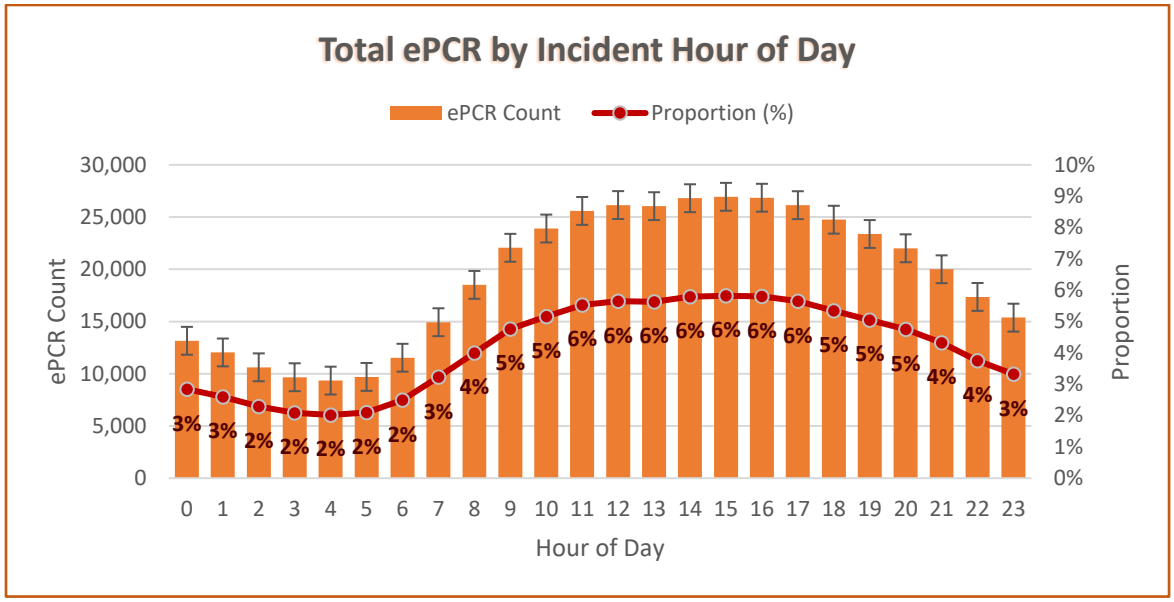


Figure 3 above represents the distribution of EMS incidents by the hour of day reported in each ePCR generated. It can be seen that the majority of incidents occurred between the hours of 9AM-9PM (69.3%). This figure shows the hour of day with the most significant EMS activity. The error bars that do not overlap show significant difference among those hours. For instance, there is a significant difference in EMS incidents that occurred at 7AM and 8AM.

Figure 4: Total ePCRs Generated in 2020 by Incident Day of Week

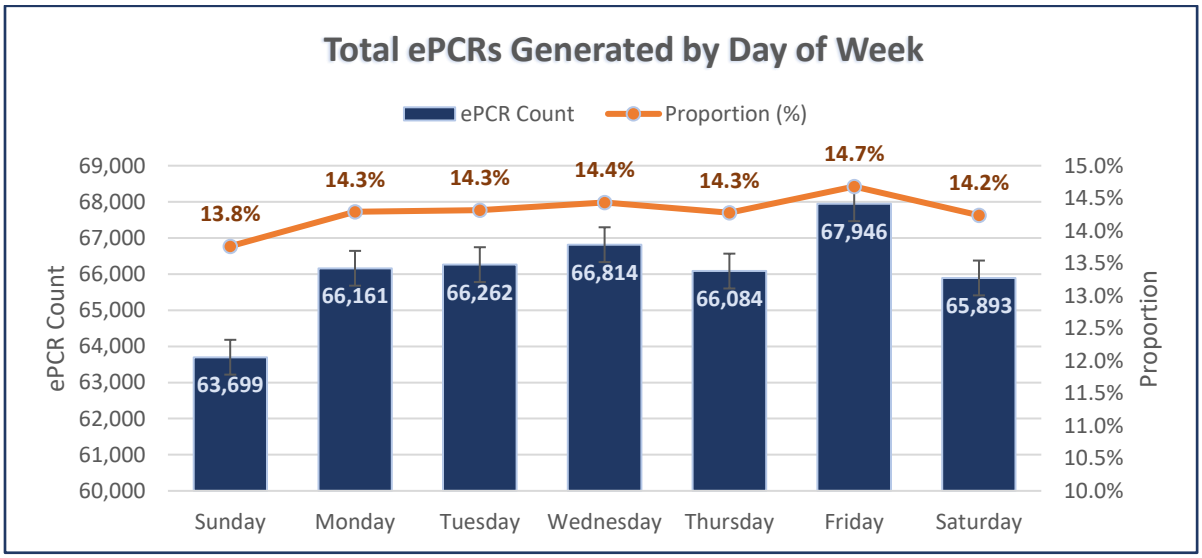


Figure 4 above represents the distribution of EMS incidents by the day of the week reported in each ePCR generated. It can be seen that the majority of incidents occurred on Wednesday and Friday with 14.4% and 14.7% of the ePCR distribution respectively. Sunday represents the day of the week with the fewest ePCRs generated/fewest EMS incidents at 13.8%. The error bars that do not overlap show significant difference among those days. For example, there is a significant difference in EMS incidents that occurred on Friday (14.7%) compared to Saturday (14.2%).

Figure 5: Total ePCRs Generated by EMS Transport from July 2020-June 2021 (Monthly Aggregate)

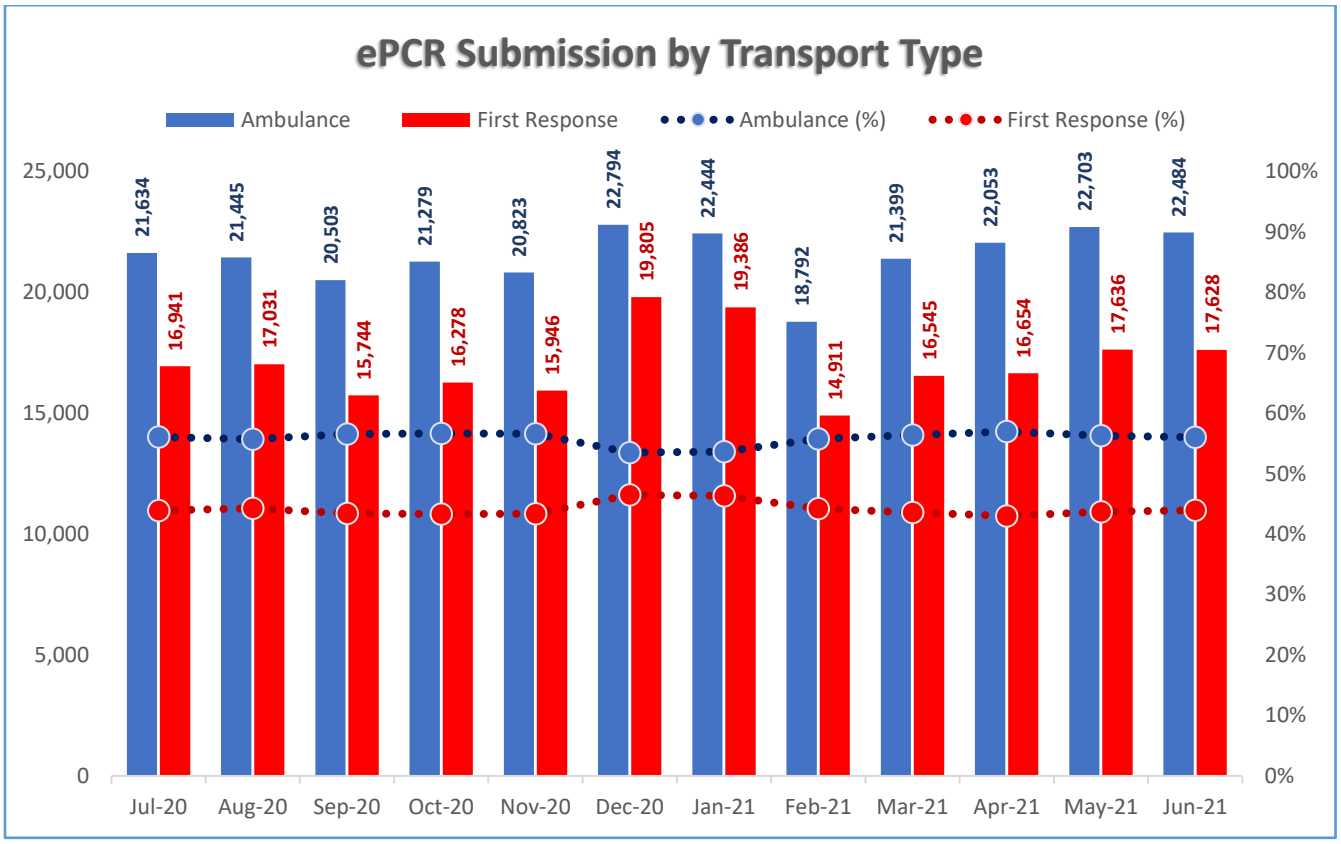


Figure 5 above represents the total number of electronic patient care records generated by EMS transports. December was the month with the greatest number of ePCRs for both Ambulance and First Response transports. December and January represent the months with the least difference ePCR submissions for ambulance (53.5%,53.7%) and first responders (46.5%,46.3%). February was the month with the lowest number of ePCRs generated for both Ambulance and First Response transports (18,792 and 14,911 reports respectively).

Figure 6: ePCR Submission from July 2020-June 2021 by Response Type

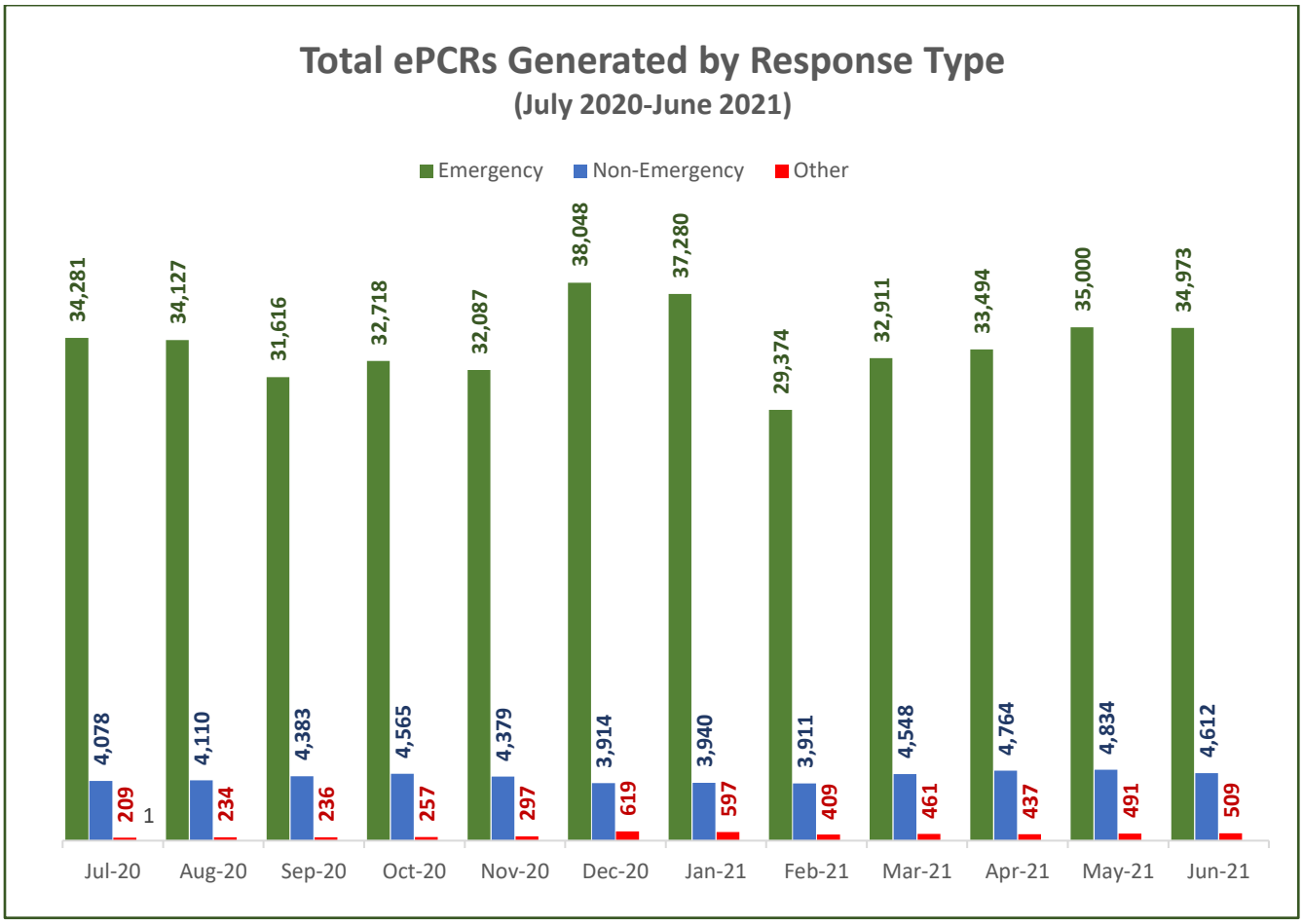
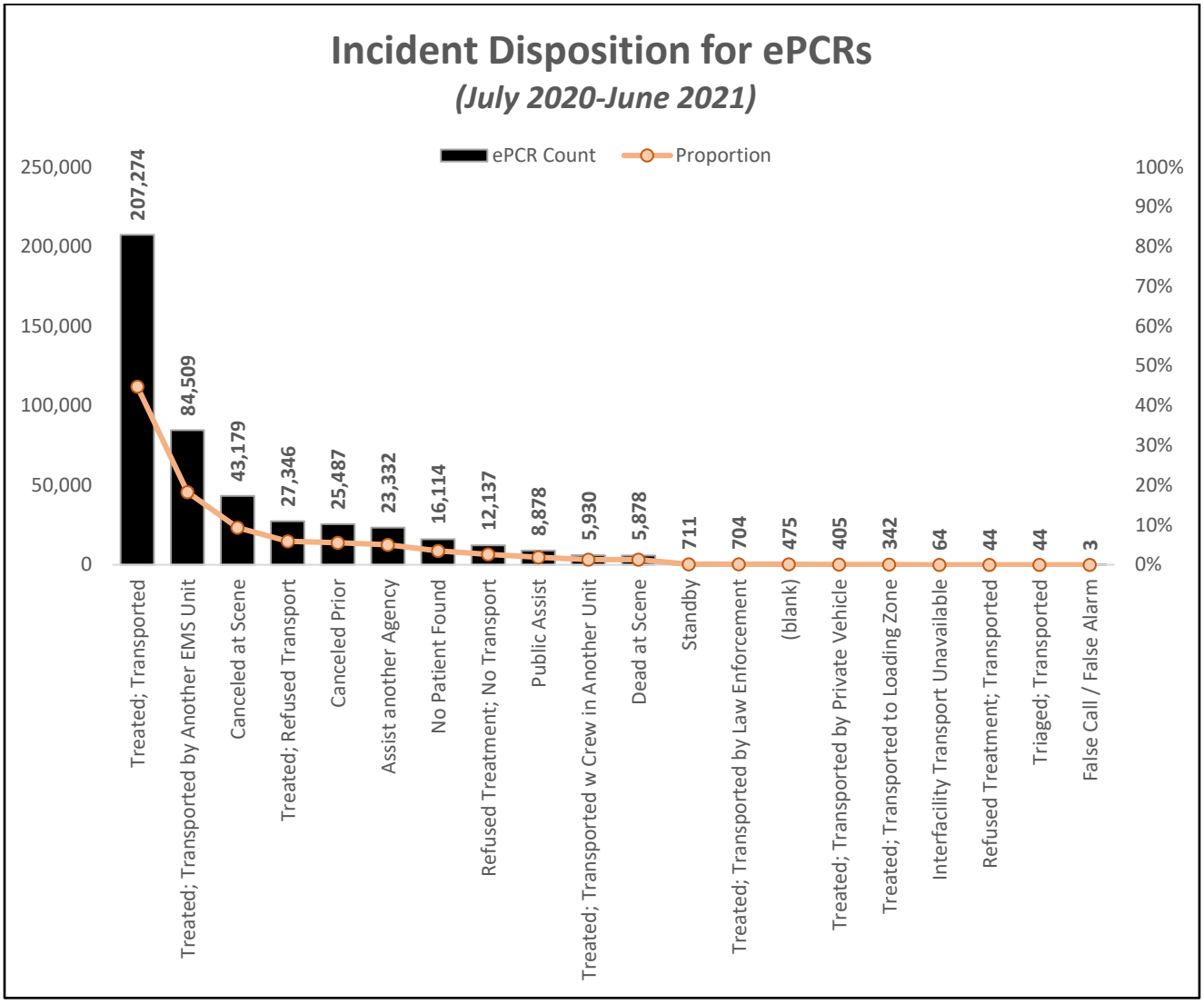


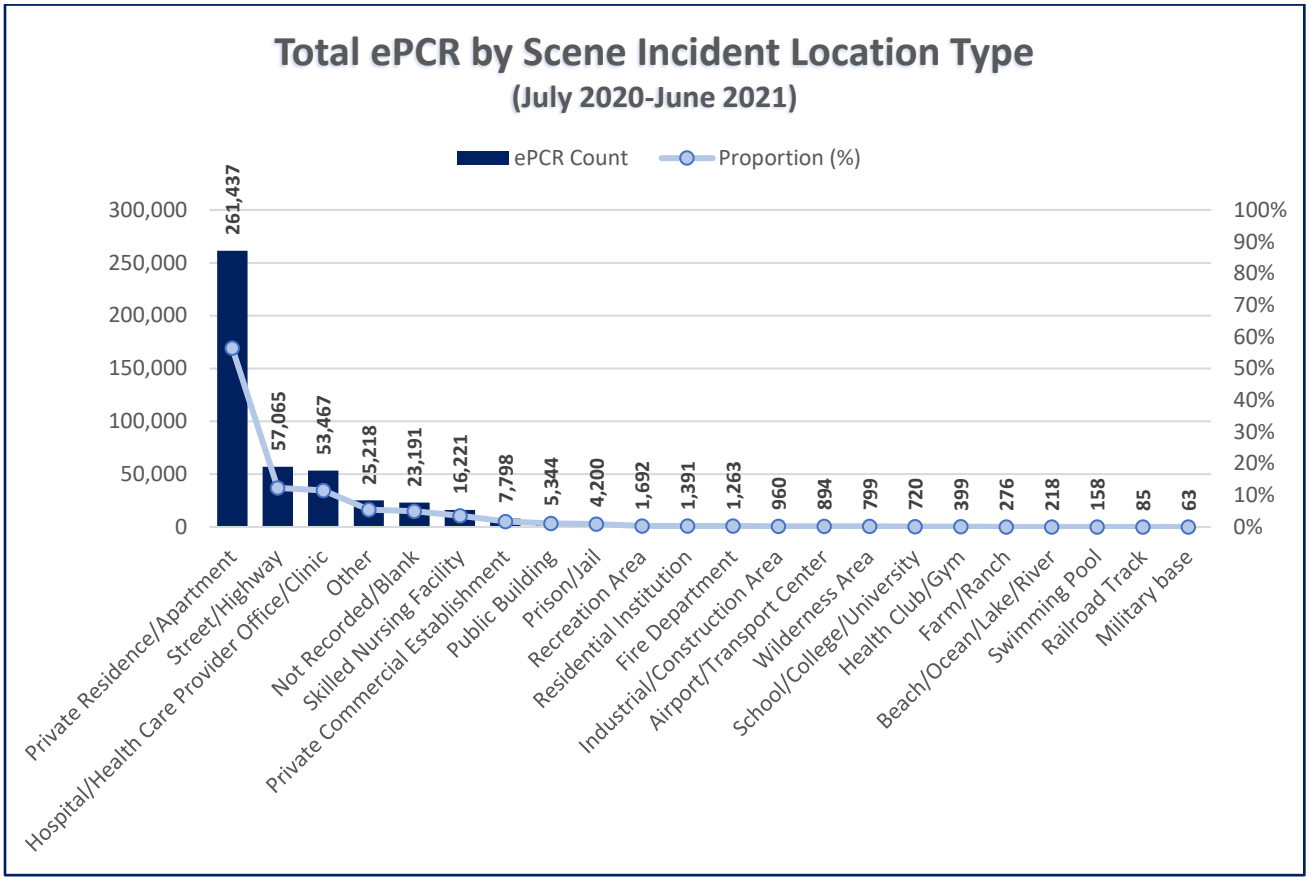
Figure 6 above represents the distribution of ePCRs generated by each type of EMS response. Emergency responses made up the majority of ePCRs generated throughout the 2020-2021 fiscal year (405,909 reports; 87.7%). December displayed the greatest number of emergency responses (38,048; 9.4%) and May 2021 showed the greatest number of non-emergency responses according to ePCRs generated (4,834 reports;9.3%).

Figure 7: Incident Patient Disposition by Total Count/Proportion of All ePCRs



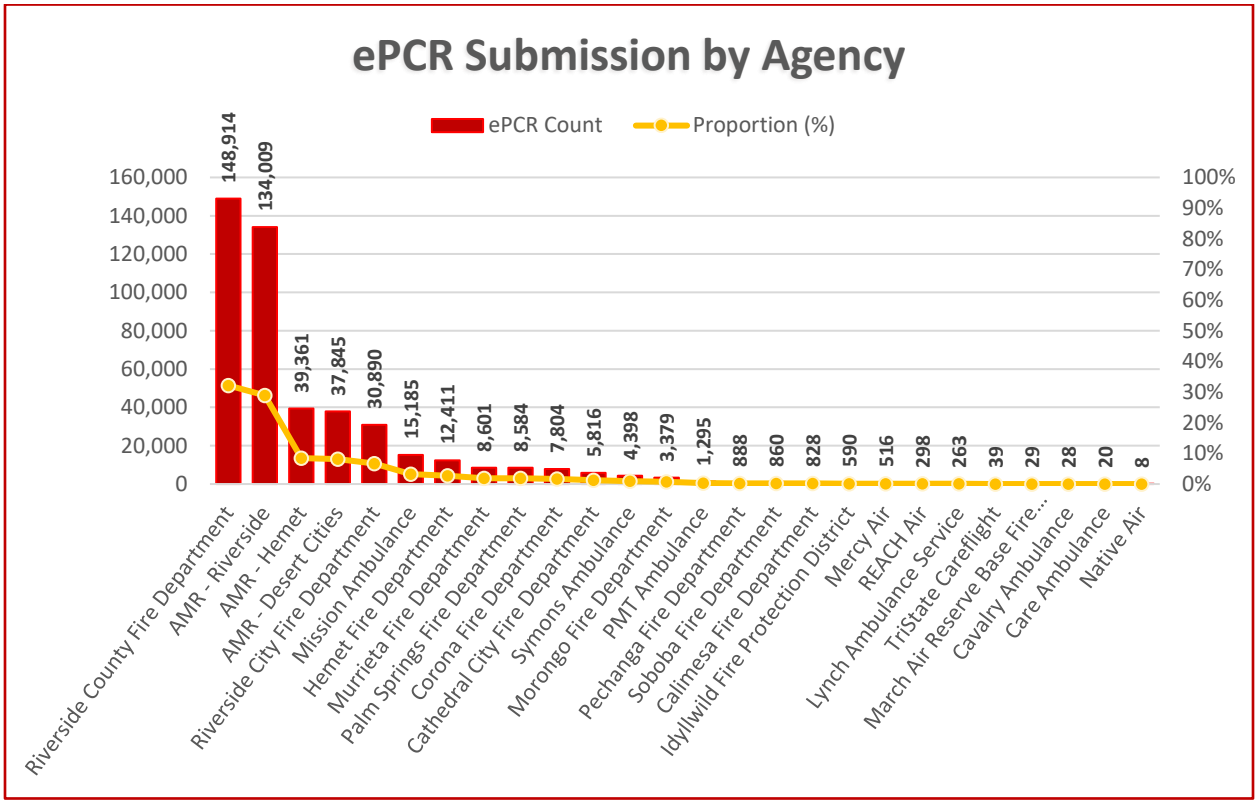
The figure above represents the total number and proportion of ePCRs in 2020-2021 by Incident Patient Disposition. Patient incident disposition is taken from ImageTrend NEMSIS value eDisposition.12. From the data, it can be seen that the majority of patients encountered were treated and transported by the same EMS unit (207,274 records, 44%). Approximately, 14.8% of the reports submitted were due to calls that were canceled at the scene or prior to EMS arrival.

Figure 8: Total ePCR Count by Scene Incident Location Type ***(see Appendix for Breakdown)***



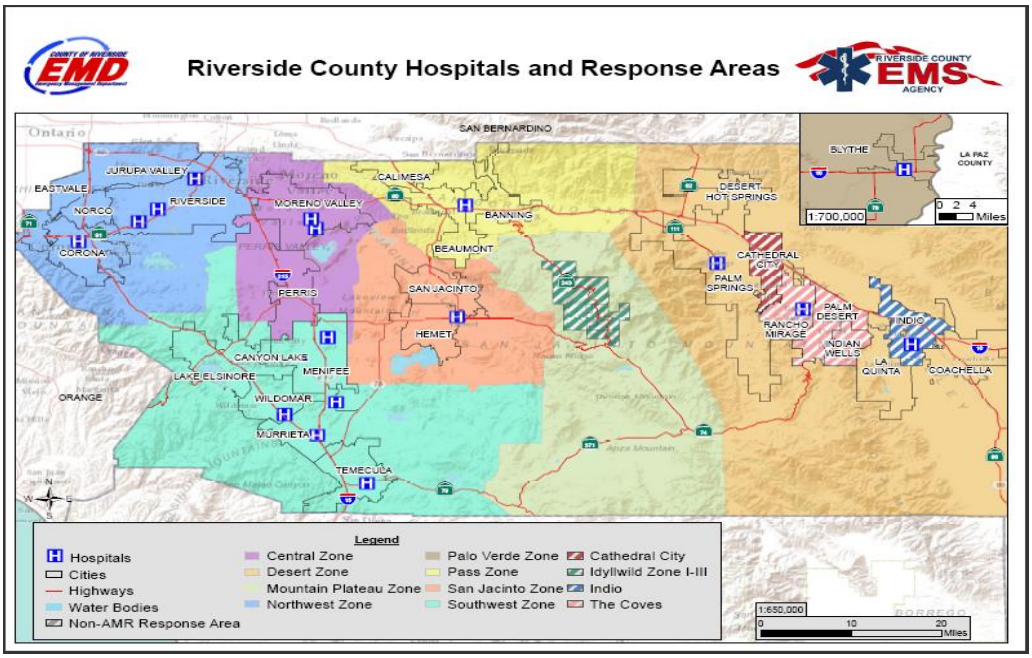
The figure above displays the total number and proportion of ePCRs by Scene Incident Location Type in 2020. The 15 scene incident location types with greatest frequency of records are shown in this figure. There were more than 65 different location types that had to be collapsed into 29 categories (shown in appendix). Most of the incidents that were reported occurred in the private residence or apartment of the EMS patient (253,220 records, 57%). 5% (22,371 records) of the total ePCRs submitted did not include a scene incident location type, shown as "Not Recorded/Blank".

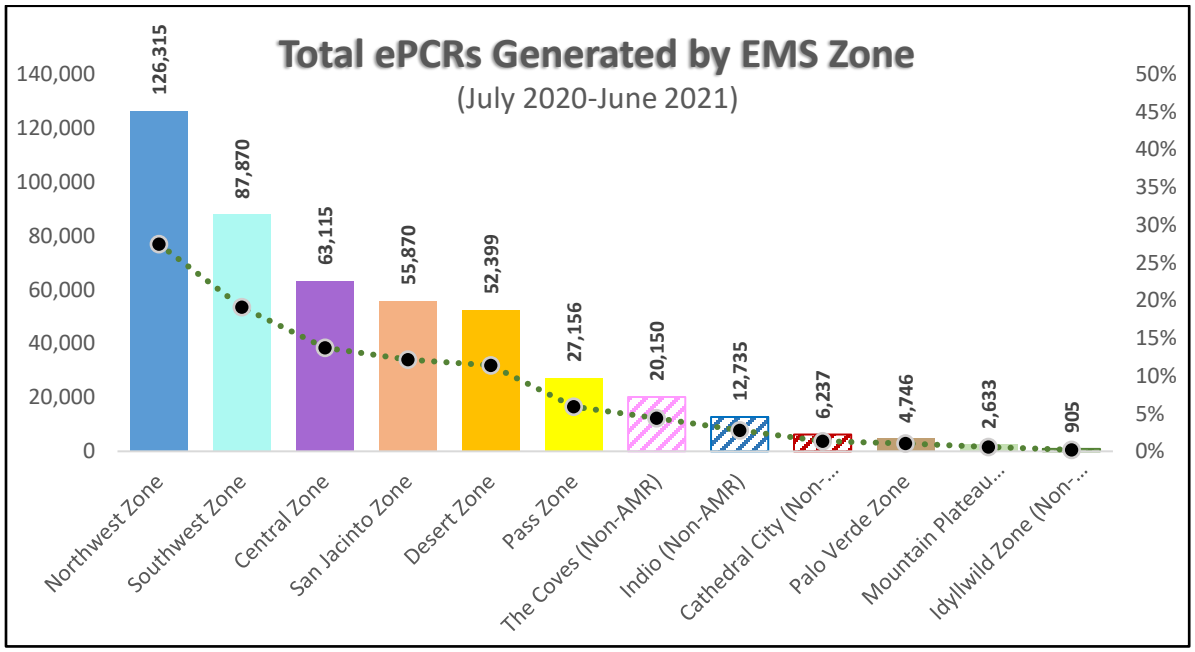
Figure 9: Total Number of ePCRs Generated from July 2020-June 2021 by Agency



The figure above shows the distribution of EMS patient care reports submitted by each provider agency from July 2020-June 2021. Riverside County Fire Department represents the agency that makes up the largest proportion of ePCRs received during this time with 148,914 reports (32.2%). AMR Riverside was the second agency with the most ePCRs generated during that time with 134,009 reports (29%).

Figure 10: Total Number of ePCRs Generated by EMS Zone





The figure above represents the number and proportions of ePCRs generated within each EMS Zone from July 1st,2020-June 30th, 2021. The majority of records originated within the Northwest EMS Zone with 126,315 records (27.5%). The EMS zone with the lowest frequency of generated records was the Idyllwild Zone (Non-AMR) with 905 records. This analysis was done using data extracted from ImageTrend Elite using the scene incident city name (escene.17) and matched to corresponding zones. Less than 1% (2,644) of the records were removed from this analysis due to occurrences within unincorporated areas or incident city was missing/blank.

References

- Riverside County Emergency Medical Services Agency. https://www.remsa.us/policy/7701.pdf
- State of California. California Code of Regulations, Title 22. Social Security, Division 9. Prehospital Emergency Medical Services. State of California Emergency Medical Services Authority / Health and Human Services Agency. 2014. http://www.emsa.ca.gov/Media/Default/PDF/Title%2022%20Division%209%20Regulations.pdf#View=Fi tV
- Madrid, L., "All EMS System ePCRs-Week 15". 2019. http://remsa.us/documents/reports/APOT/Week15ePCRs.pdf

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 Stephani Harrington & Catherine Borna Farrokhi, Data & Reporting Unit, Riverside County EMS Agency.

For more information, please contact Riverside County EMS Administrator, Trevor Douville tdouville@rivco.org

Appendix A

Original Scene Location Type	Count	Scene Location Type	Count	Proportion (%)
Airport/Transport Center	894	Airport/Transport Center	894	0.2%
Beach/Ocean/Lake/River	218	Beach/Ocean/Lake/River	218	0.0%
Farm/Ranch	276	Farm/Ranch	276	0.1%
Fire Department	1,263	Fire Department	1,263	0.3%
Healthcare provider office/clinic	9,215	Hospital/Health Care Provider Office/Clinic	53,467	11.6%
Hospital	42,397			
Urgent care	1,855			
Health Club/Gym	399	Health Club/Gym	399	0.1%
Industrial and construction area	960	Industrial/Construction Area	960	0.2%
Military base	63	Military Base	63	0.0%
Not Recorded	69	Not Recorded/Blank	23,191	5.0%
(blank)	23,122			
Skilled Nursing Facility	16,221	Skilled Nursing Facility	16,221	3.5%
Other	25,218		25,218	5.4%
Prison/Jail	4,200	Prison/Jail	4,200	0.9%
Private Commercial Establishment	7,798	Private Commercial Establishment	7,798	1.7%
Private Residence/Apartment	261,437	Private Residence/Apartment	261,437	56.5%
Public Building	5,344	Public Building	5,344	1.2%
Railroad Track	85	Railroad Track	85	0.0%
Recreation area	1,692	Recreation Area	1,692	0.4%
Residential institution	1,391	Residential institution	1,391	0.3%
School/College/University	720	School/College/University	720	0.2%
Street and Highway	57,065	Street/Highway	57,065	12.3%
Swimming Pool	158	Swimming Pool	158	0.0%
Wilderness area	799	Wilderness Area	799	0.2%

FOR CONSIDERATION BY EMCC

DATE: October 20, 2021

TO: EMCC

FROM: Catherine Borna Farrokhi, Ph.D. - Data & Reporting Unit

SUBJECT: EMS Suspected Overdose Report, FY18-21

ACTION: Received and File Information

Please see attached Riverside County EMS Agency EMS Suspected Overdose Report, FY18-21.

http://remsa.us/documents/reports/annual/RODA3YRComprehensiveReport_2018_2021_FINAL_20210923.pdf

RIVERSIDE COUNTY EMS AGENCY

EMS SUSPECTED OVERDOSE REPORT

FY 2018 - 2021

SEPTEMBER 23, 2021

PREPARED FOR RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

EMS SUSPECTED OVERDOSE REPORT

This report was developed to monitor and describe the level of suspected opioid overdose EMS incidents in the County of Riverside from January 1st, 2018 through June 30th, 2021. During this time, there was a total of 8,941 suspected opioid overdoses. Of those, 434 were suspected overdose fatalities according to EMS records.

Suspected opioid overdose was also displayed by several other factors: age, gender, geography, narcan administration, specific drug use, frequency of EMS encounters, and patients experiencing homelessness and/or mental health crisis. Analysis of age groups and gender determined that the 25–44 year-old category comprises 41% of all suspected opioid overdose cases and males account for 71% of all suspected opioid overdose fatalities. Spatial analysis indicated that the Northwest EMS Zone accounted for the largest number of opioid overdose fatalities by zone with 931 overdoses (27%), nearly one third of all incidents which is consistent with the most populous region in the county. In addition, Riverside city experienced an average of 15.1% (1,351 incidents) of suspected opioid overdoses from 7/1/2018-6/30/2021. Narcan was documented to have been administered in an average of 58% of suspected opioid overdose EMS calls (1.3% of the time narcan was administered by someone other than EMS providers). In addition, heroin and alcohol were the most common causes of suspected overdose fatalities cases in Riverside County from 7/1/2018-6/30/2021.

Comparing the frequency of suspected opioid overdose patient encounters from Jan 2018-June 2021 showed that 2020 incurred the highest average of repeat patient encounters for suspected opioid overdose (1.3 times). However, the partial year data from 2021 suggests that 2021 will be higher than 2020 by the end of the year. In other words, since June 2018, patients that experienced a suspected opioid overdose utilized EMS services on average more than once.

Methodology

Data from this report was extracted from FirstWatch® "Trigger OD 2: Opioid Overdose" (July 1st,2018- June 30th, 2021). A total of 8,941 unique electronic patient care reports were used out of 12,119 total records pulled. The data was de-duplicated based on incident location, name, time, age, and gender. This process removed 3,178 duplicate records.

Spatial data was analyzed with Arc GIS. Map layers for EMS Zones (Ambulance and Fire Zones) and Riverside cities were used for figure 6A, 6B, 7A, and 7B. The cities and zones were tagged to fatality data from FirstWatch® "Trigger OD 2: Opioid Overdose" (July 1st, 2018-June 30th, 2021).

Data for figures 8A and 8B was extracted from FirstWatch® "Trigger OD 3: Opioid & All Drugs" (January 1st, 2020-June 30th, 2021). A total of 8,301 unique electronic patient care reports were used out of 14,650 total records pulled. Data that contained records where no drug was mentioned in the narrative were excluded for analysis (N=3,073). The data was de-duplicated based on incident location, time, age, and gender. This process removed a total of 6,349 duplicate records.

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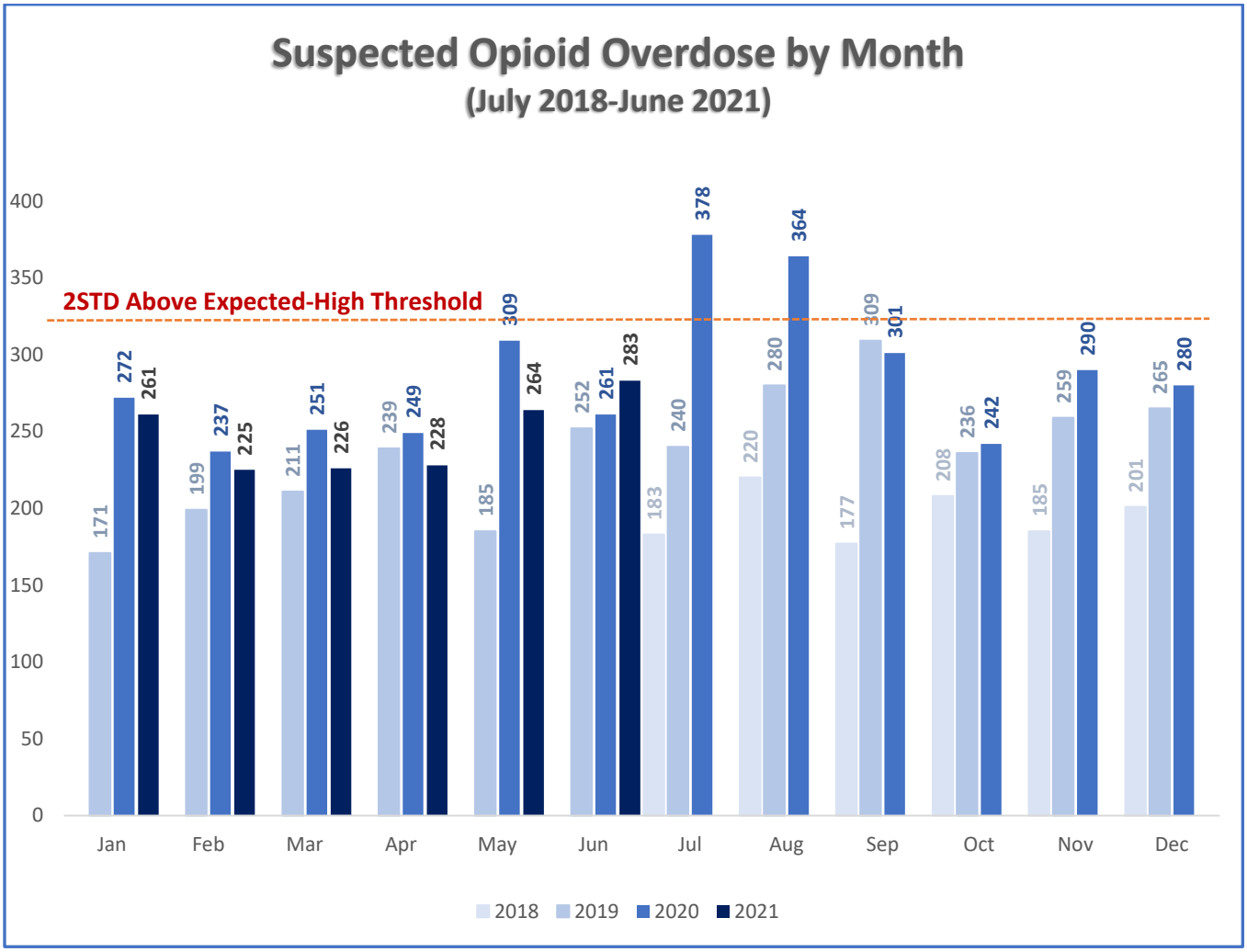
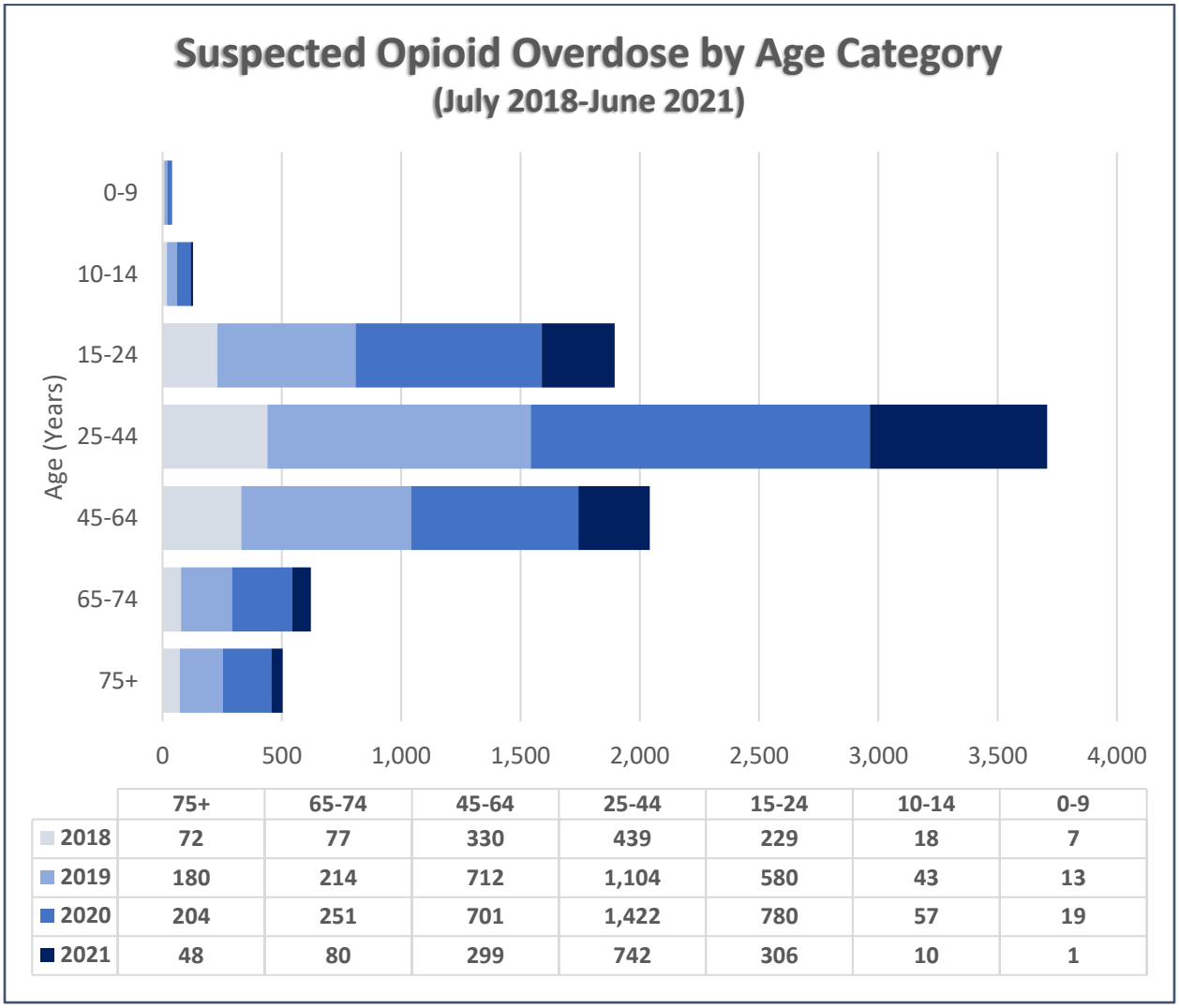
Figure 1: Surveillance of Suspected Opioid Overdoses in the County of Riverside



The following data was extracted from FirstWatch OD2- Opioid Overdose from July 1st, 2018- June 30th, 2018 (N=8,941). The frequency of suspected opioid overdose cases was monitored and shown here as a monthly aggregate. This figure represents the number of suspected overdose cases by month. The red lines shows 2 standard deviations above the mean frequency per month of opioid overdoses, calculated from 2018 data. There were a total 2 months that exceeded 2 standard deviations above the monthly mean frequency in July-August 2020. Months that displayed a higher frequency of incidents were monitored closely.

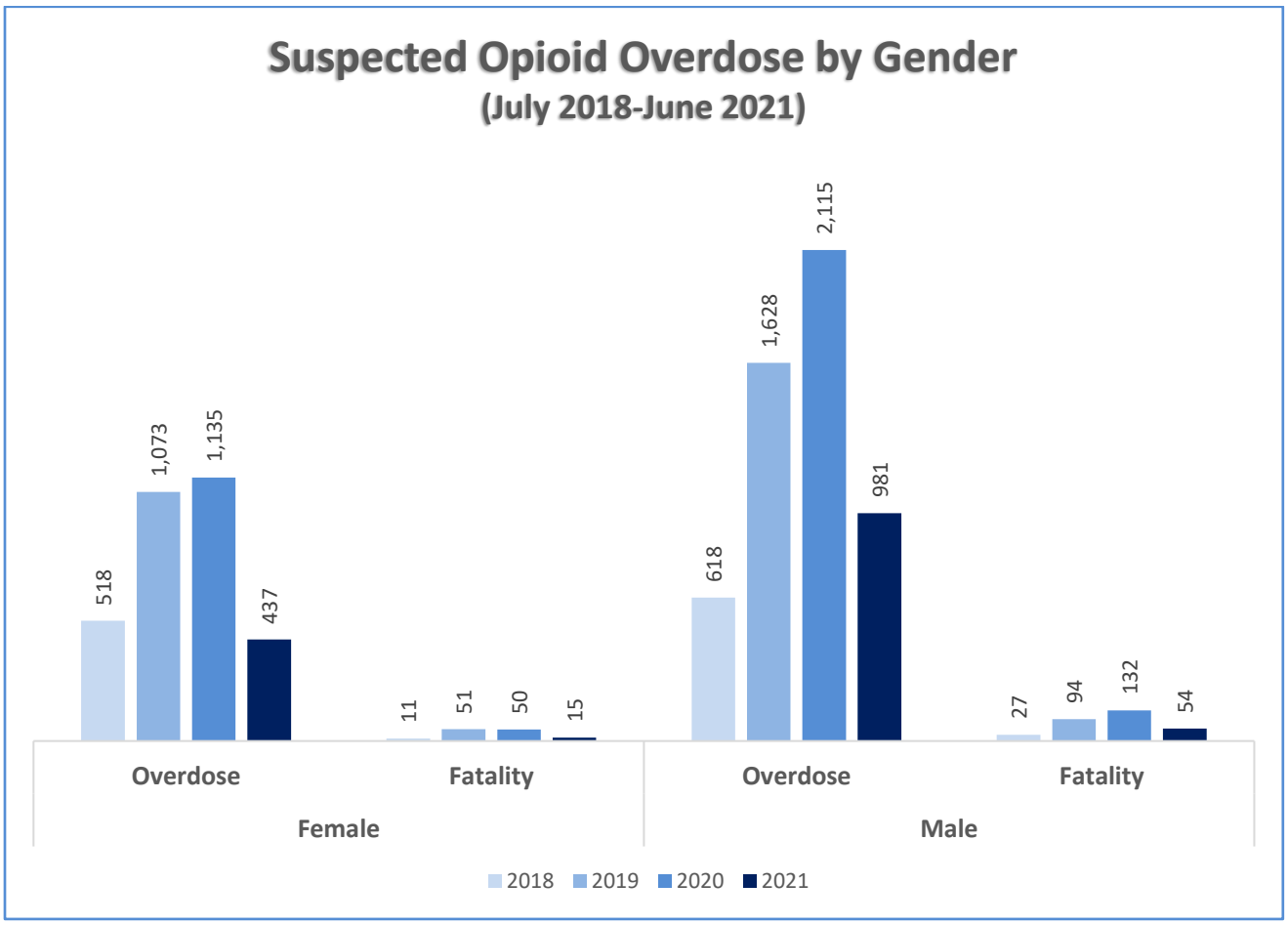
Figure 2: Suspected Opioid Overdoses by Age Category & Year



	75+	65-74	45-64	25-44	15-24	10-14	0-9
2018	72	77	330	439	229	18	7
2019	180	214	712	1,104	580	43	13
2020	204	251	701	1,422	780	57	19
2021	48	80	299	742	306	10	1

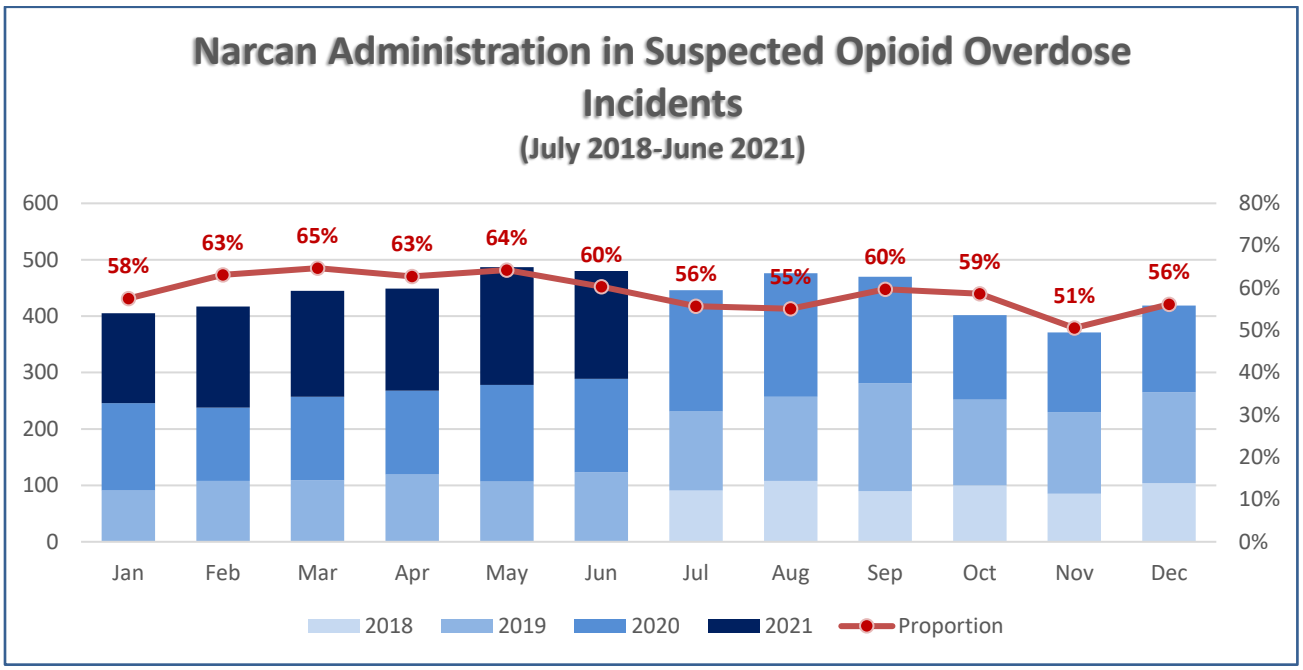
The following data was extracted from FirstWatch OD2- Opioid Overdose from July 1st, 2018- June 30th, 2021 (N=8,941). The 25-44 age group consistently represented the most significant age category for suspected opioid overdoses each year consisting of an average of 41% (3,707 patients) of the total suspected opioid overdoses. The proportion of 25-44 year old suspected opioid overdose patients has been increasing each year from 2018-2021, increasing from 37% (439 patients) to 50% (742 patients).

Figure 3: Suspected Opioid Overdoses by Gender & Year



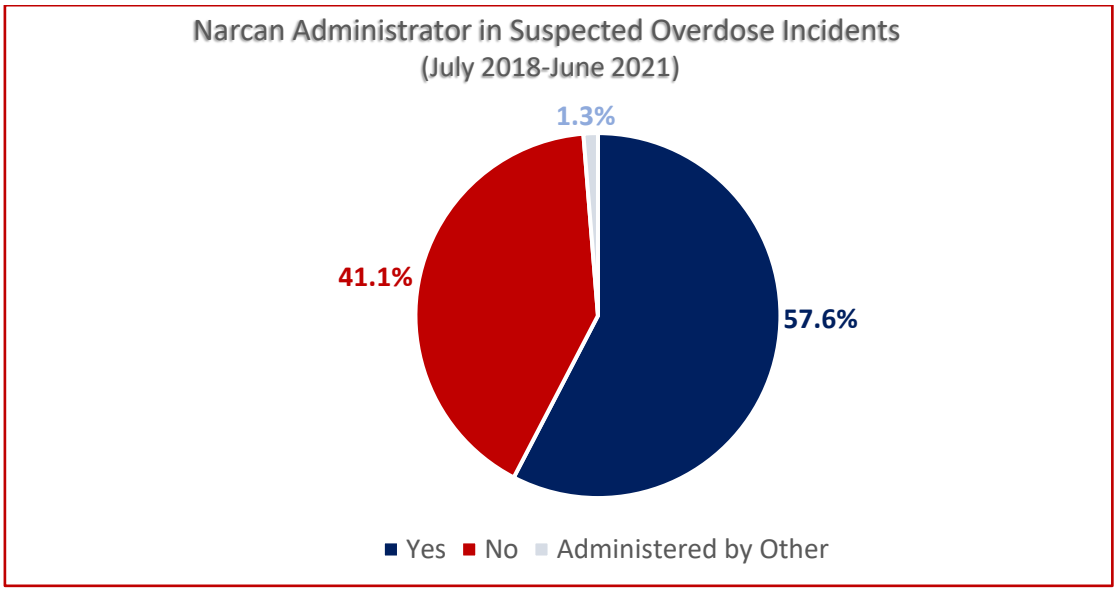
The following data was extracted from FirstWatch OD2- Opioid Overdose from July 1st, 2018- June 30th, 2021 (N=8,939). Records in which gender was labeled "Unknown", "Unable to Determine", or "blank" were removed (2 records). Males made up 60% of all suspected opioid overdoses and 307 of all 434 suspected opioid overdose fatalities (71%).

Figures 4A: Narcan Administration in Suspected Opioid Overdose Incidents



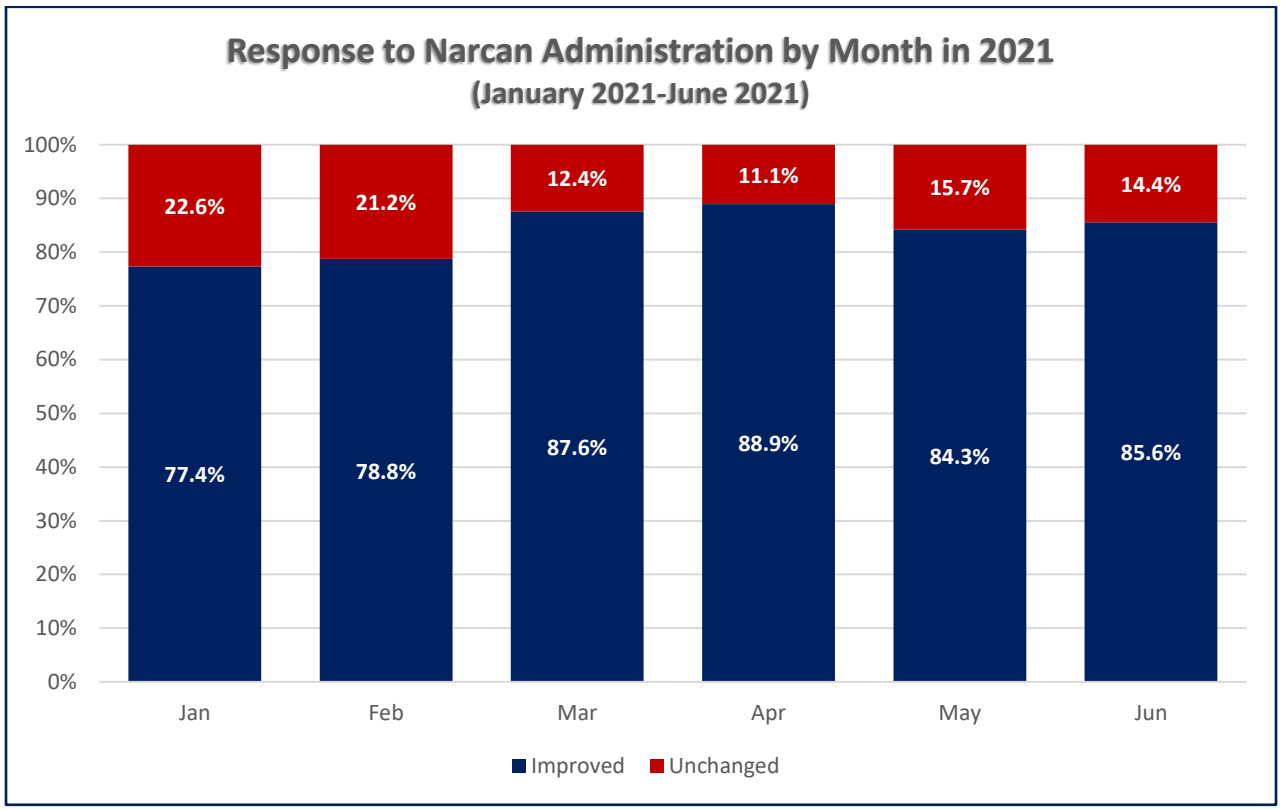
The following data was extracted from FirstWatch OD2- Opioid Overdose from July 1st, 20218- June 30th, 2021 (N=3,460). Narcan was administered in 58% of all suspected opioid overdose incidents. July had the greatest volume of suspected opioid overdose incidents where narcan was administered with close to 406 incidents (64%).

Figures 4B: Narcan Administrator in Suspected Opioid Overdose Incidents



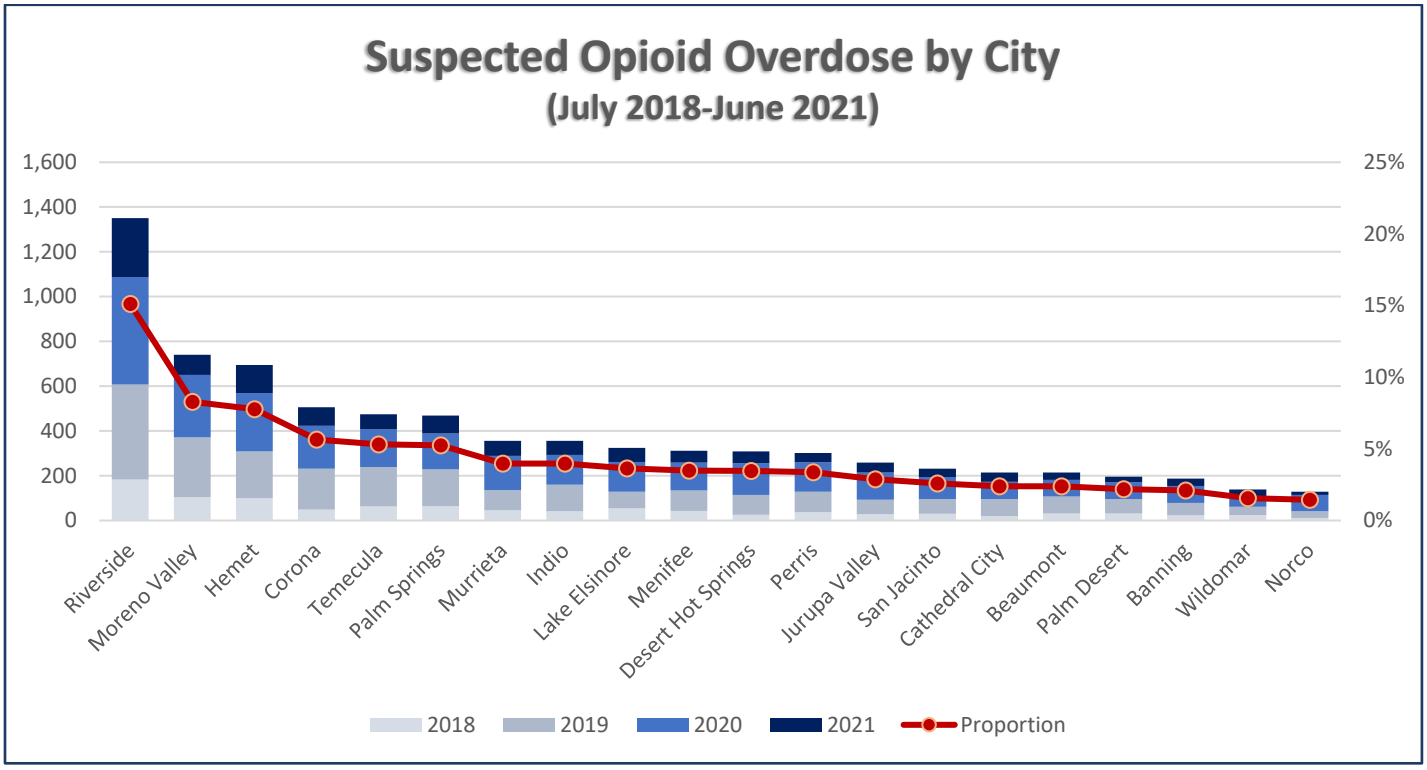
The following data was extracted from FirstWatch OD2- Opioid Overdose from July 1st, 20218- June 30th, 2021 (N=3,460). In this analysis, narcan was either administered by EMS providers, law enforcement/bystanders/others, or not at all. Narcan was administered by EMS providers in suspected opioid incidents nearly 58% of the time. Records also indicated that narcan was administered by someone else in 1.3% of incidents.

Figures 5: Treatment Efficacy of Narcan Administration in Suspected Opioid Overdose Incidents (NEW METRIC)



The following data was extracted from FirstWatch OD2- Opioid Overdose from January 1st, 2021- June 30th, 2021 (N=1,306). The response to narcan treatment in suspected opioid overdose calls was evaluated based on whether or not there was an improvement in patient mentation and/or respiration rate. Since the beginning of 2021, there has been an overall improvement in patient response to narcan administration. For example, approximately 77.4% of suspected opioid overdose patients experienced an improvement following administration compared to June with approximately 85.6% improvement. The month with the greatest level of improvement was in April with close to 89% improvement in patient response.

Figure 6A: Suspected Opioid Overdoses by City

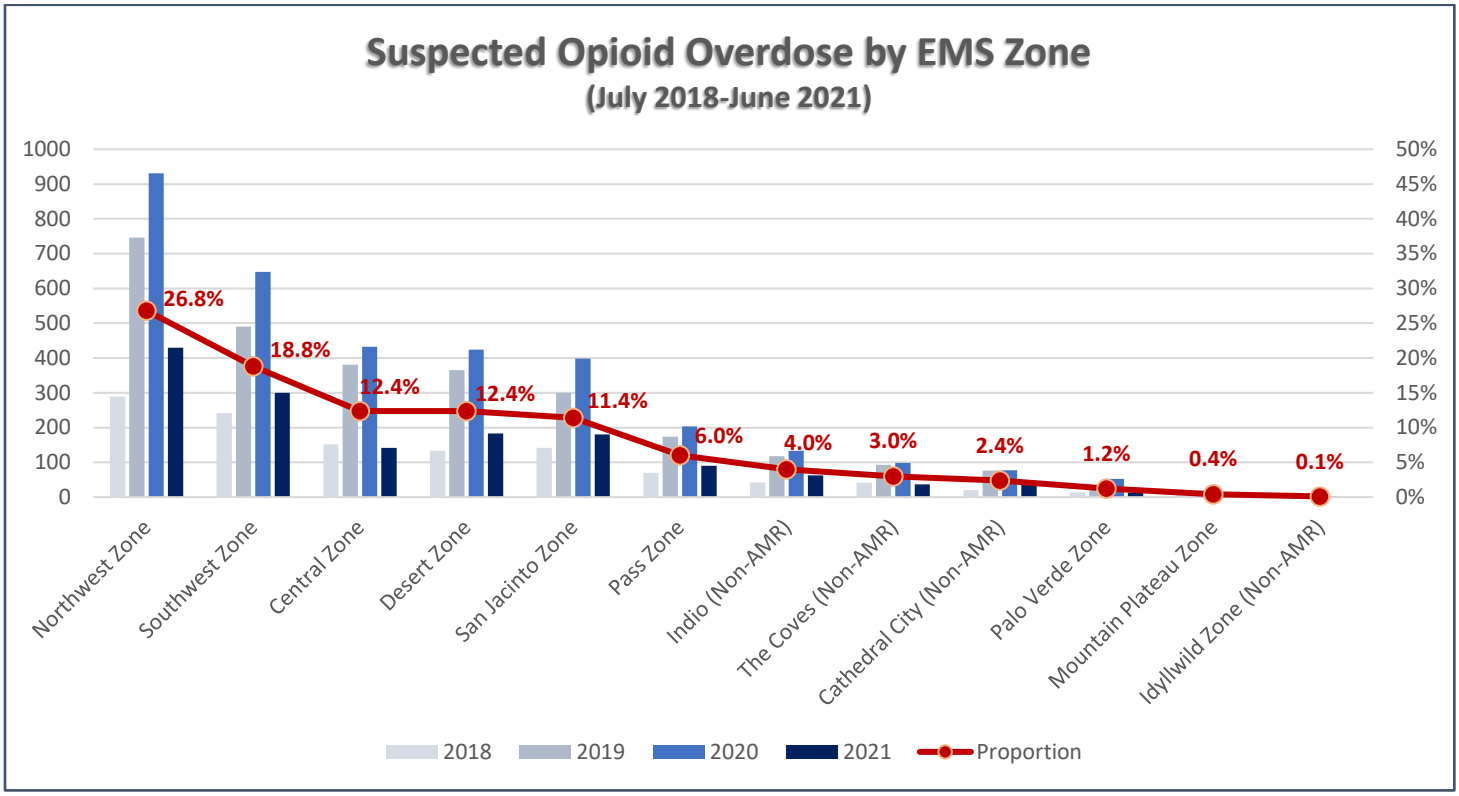


The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021) (N=8,941). The frequency of suspected opioid overdoses is greatest in Riverside (15.1%), Moreno Valley (8.3%), and Hemet (7.8%). It is important to note that the greatest number of suspected opioid overdoses with 1,351 incidents, but the population is much greater which is to be expected.

Figure 6B: Suspected Opioid Overdose Fatality by City

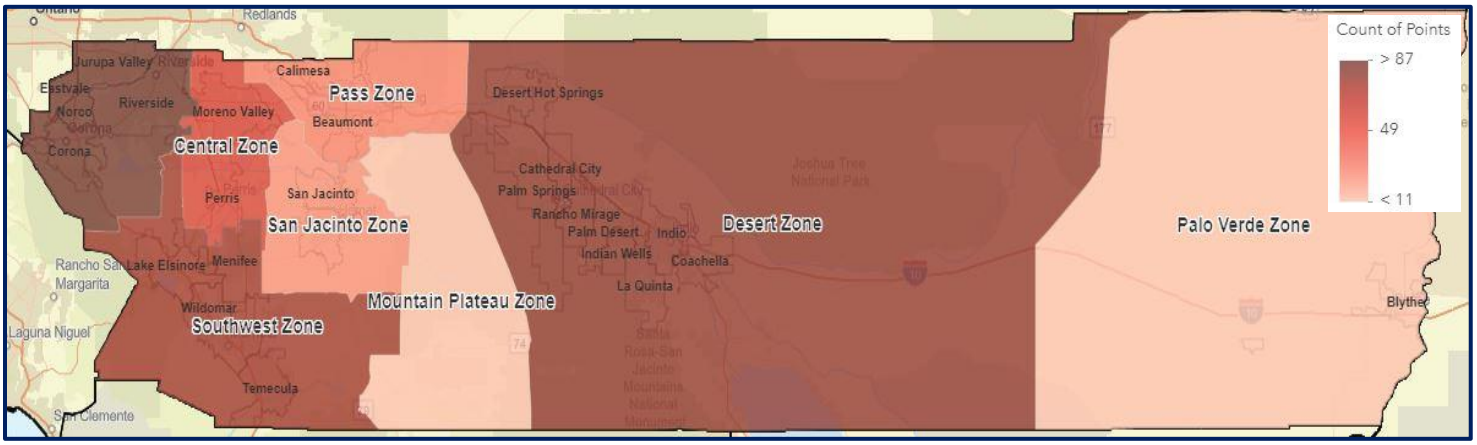
The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021). (N=434). The GPS coordinate data was then mapped on ArcGIS online as an aggregation of incidents by Riverside County city. Dark blue areas are considered cities with higher concentrations of opioid overdose fatality incidents encountered by EMS providers (>23 incidents). Riverside, Moreno Valley, and Indio displays the greatest frequency of suspected opioid overdose fatalities.

Figure 7A: Suspected Opioid Overdose Fatality by EMS Zone (Ambulance/Fire Zones)



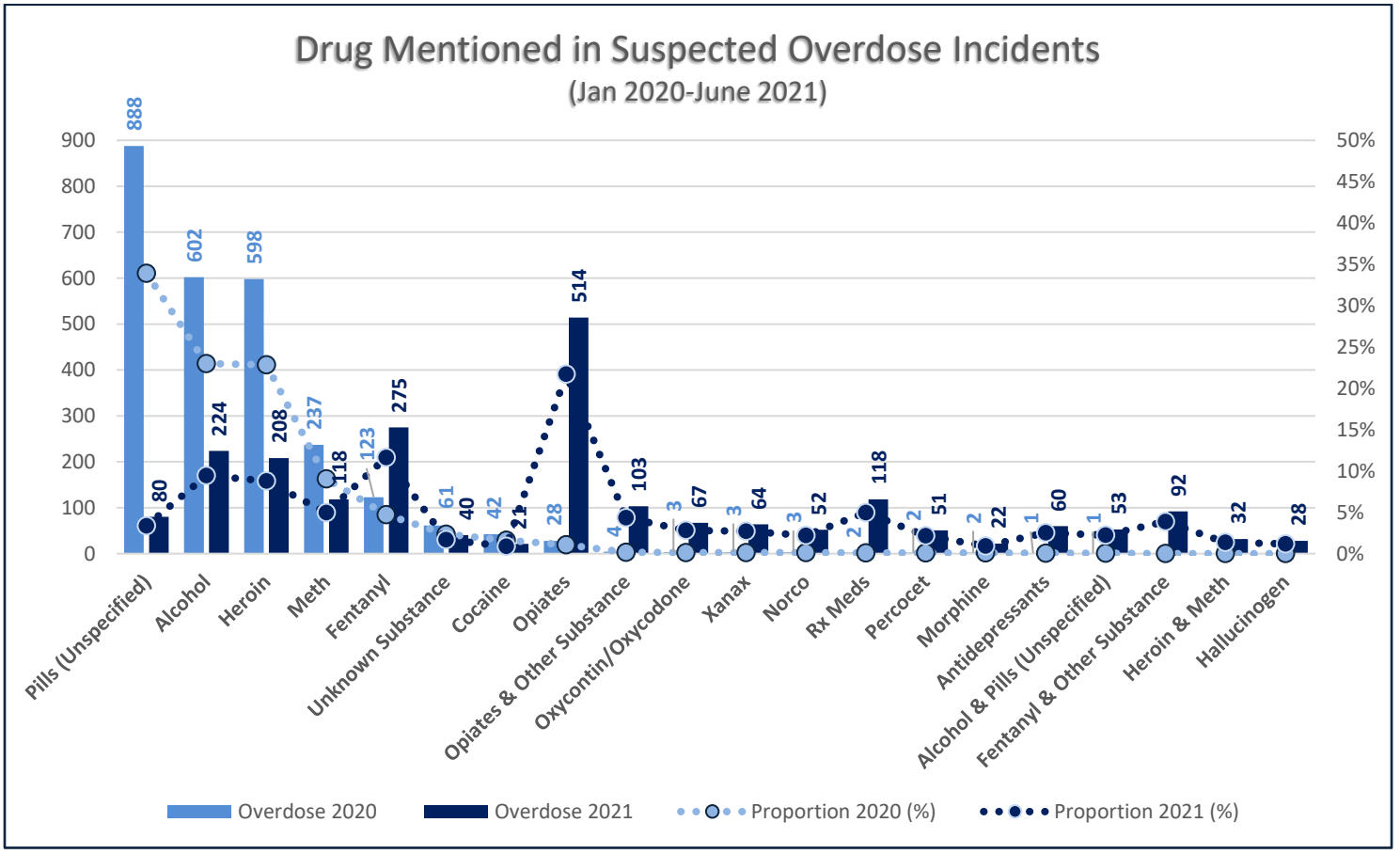
The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021); N=8,941. The ambulance/first responder zone data was taken from the GIS map layer-EMS Zone. That fatality data was tagged by zone accordingly. The Northwest EMS zone encountered the greatest proportion of suspected opioid overdoses at 26.8% and the largest number of suspected opioid overdoses in 2020 (931 overdoses).

Figure 7B: Map of Suspected Opioid Overdose Fatality by EMS Zone (Ambulance/Fire Zones)



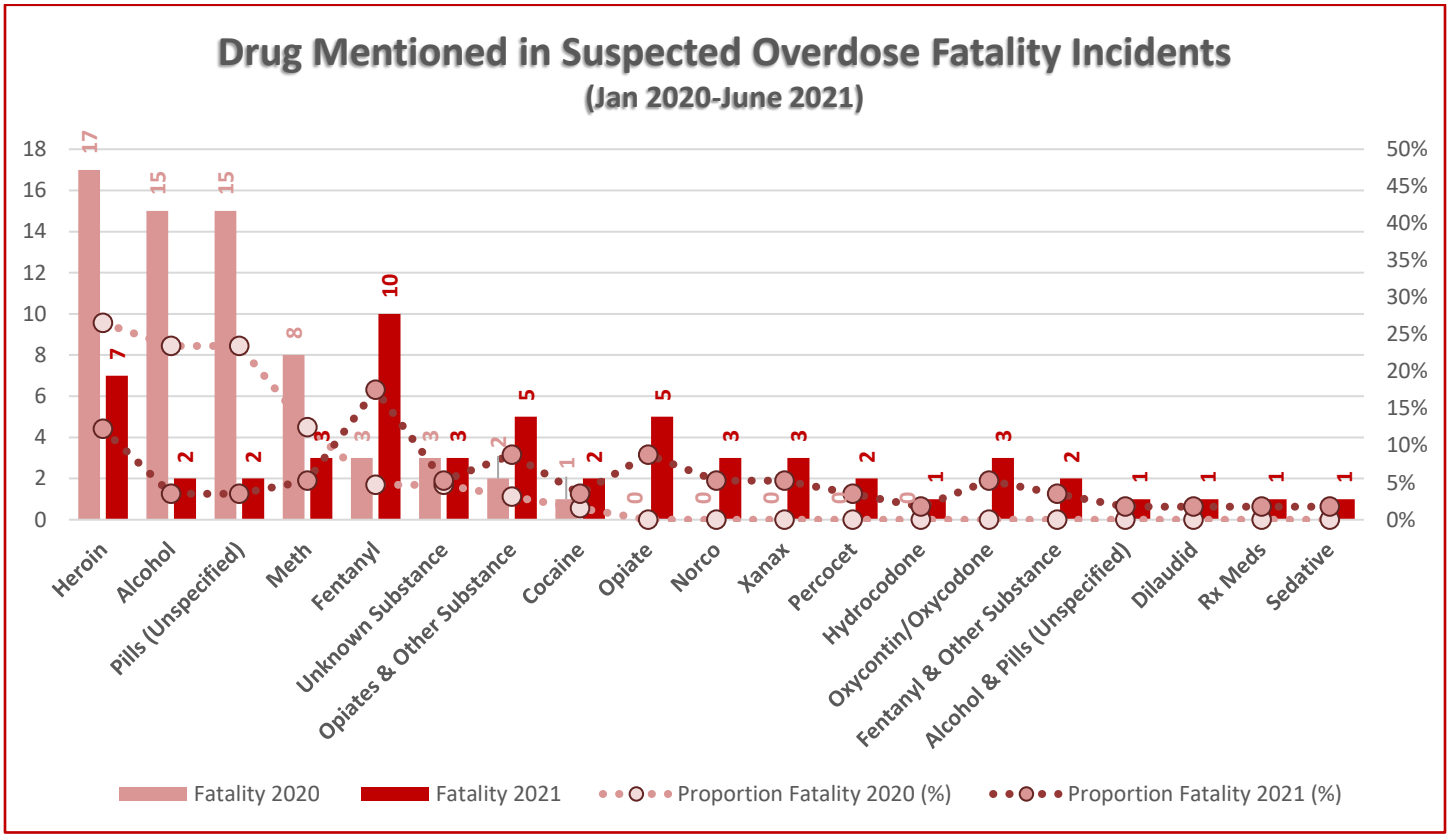
The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021). (N=434). The GPS coordinate data was then mapped on ArcGIS online as an aggregation of incidents by EMS Zone. Dark red areas are considered cities with higher concentrations of opioid overdose fatality incidents encountered by EMS providers (>87 incidents). The Northwest zone accounted for the greatest number of fatalities.

Figure 8A: Frequency of Overdose by Drugs Mentioned in Patient Care Report Narrative



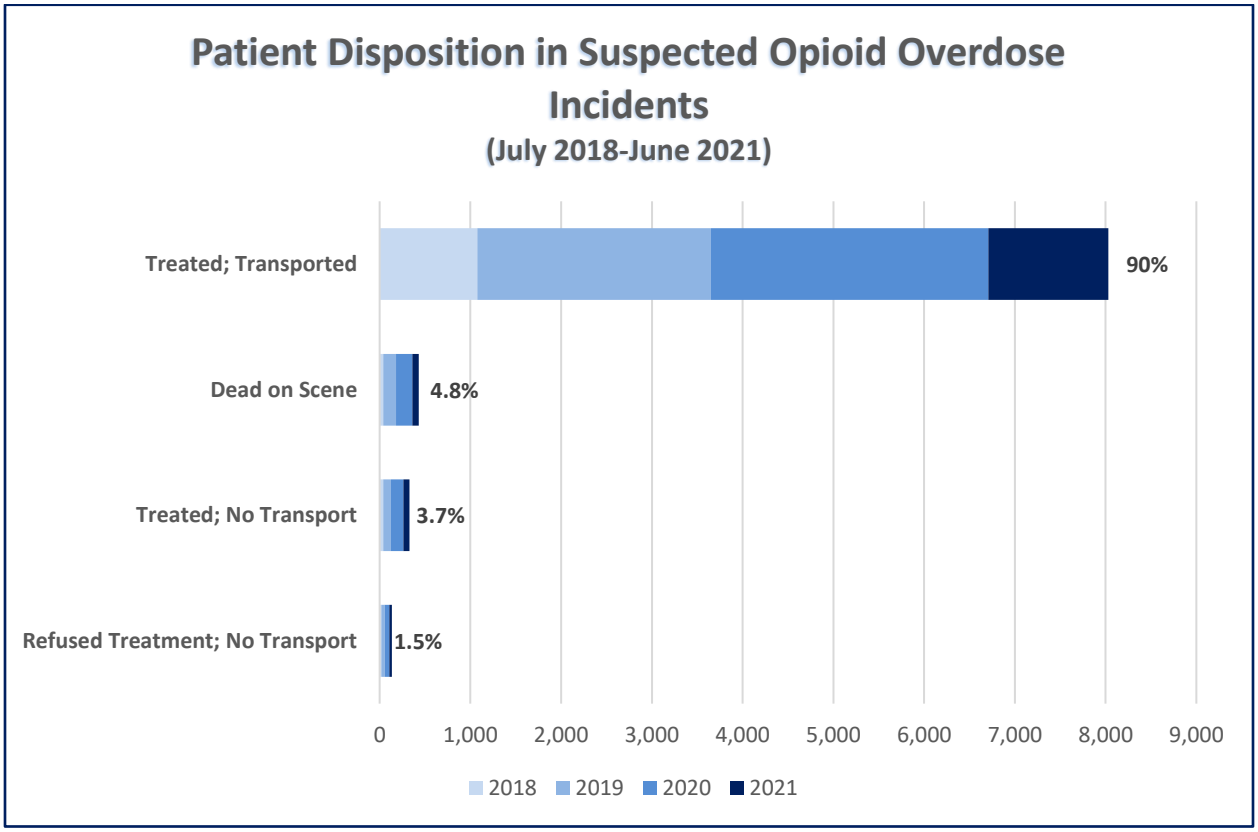
The following data was extracted from FirstWatch OD 3: Opioid & All Drugs (January 1st, 2020-June 30th, 2021); (N=8,301). *Pills-unspecified, Alcohol, and* Heroin were the most common cause for suspected overdose incidents in 2020. "Pills" were used to code all different types of narcotics, most commonly used for opiates such as *Oxycodone* and *Percocet.* Narratives that did not contain specific drug terminology were excluded in the analysis (40% of total).

Figure 8B: Frequency of Fatal Overdose by Drugs Mentioned in Patient Care Report Narrative



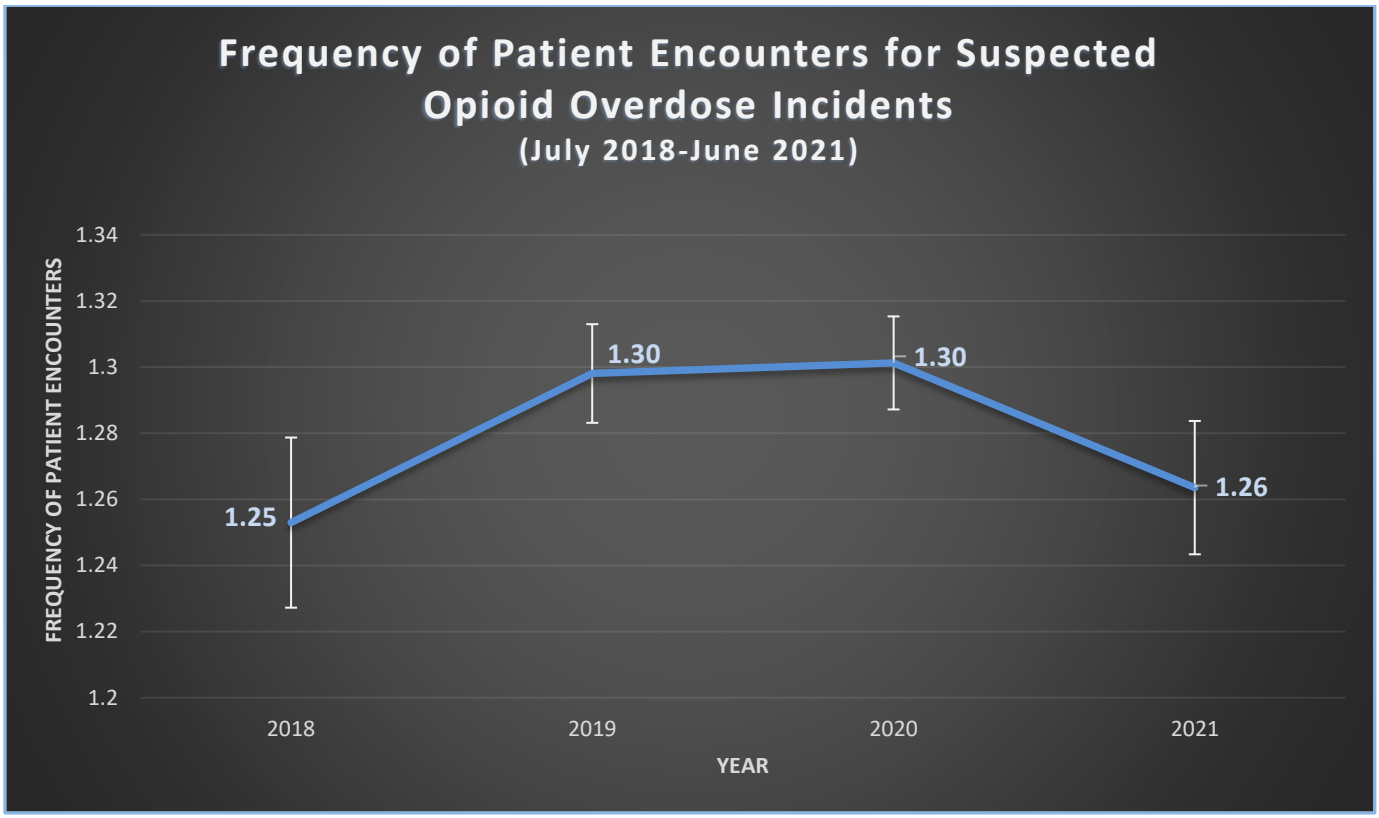
The following data was extracted from FirstWatch OD 3: Opioid & All Drugs (January 1st, 2020-June 30th, 2021); (N=348). Opioid-related drugs were the most commonly named narcotic in fatal drug overdose narratives (~70%). Many of the narratives did not contain specific drug terminology and were therefore excluded in the analysis (N=226, 65%).

Figure 9: Suspected Opioid Overdose Incidents by Patient Disposition



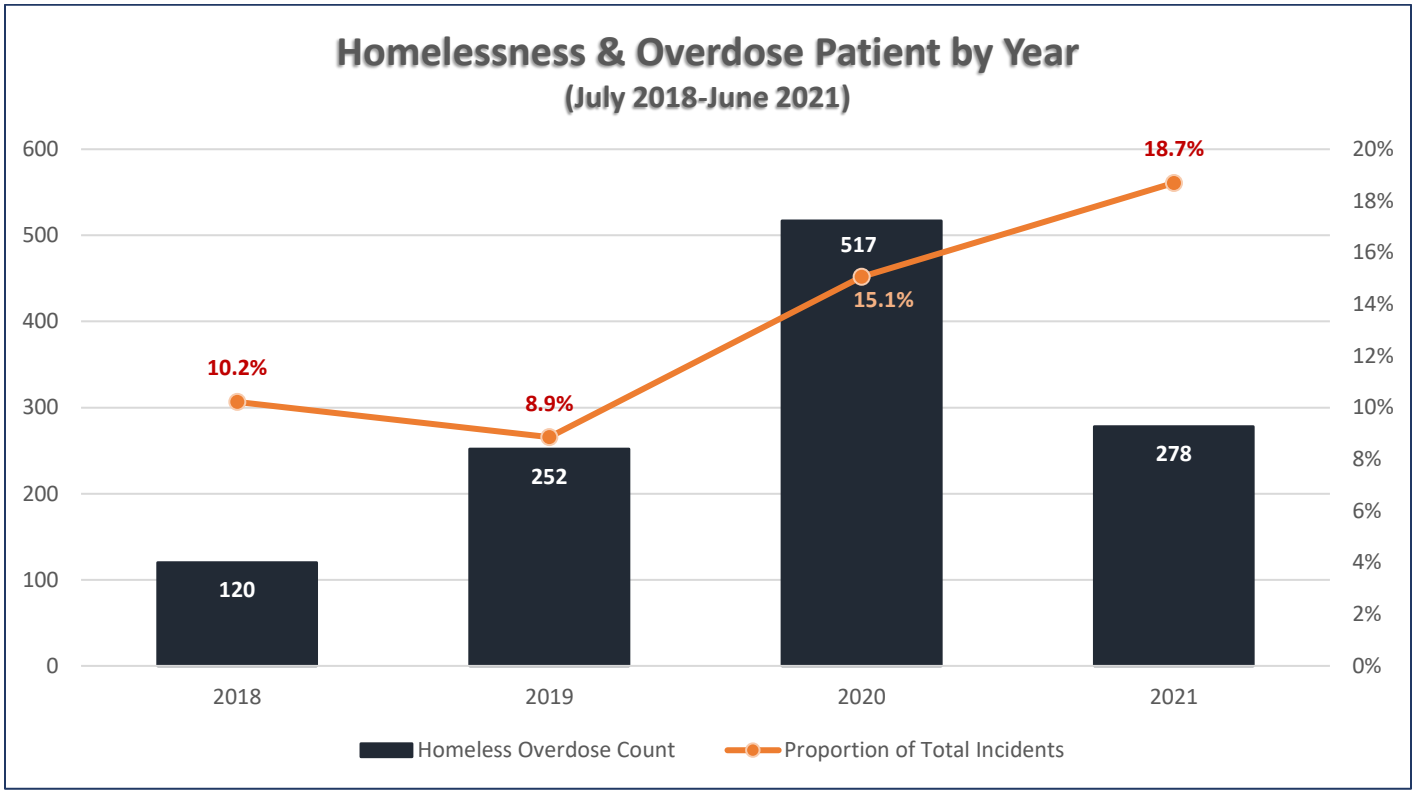
The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021)(N=8,924). Incident/Patient disposition (eDisposition.12) was evaluated to determine willingness of patient to comply with EMS provider recommendations. It was found that while the majority of patients were willing to be treated and transported by the EMS unit (90%), 5.2% were either unwilling to be treated and/or transported. The overall proportion of patient willingness to be treated and transported has increased each year. Nearly 5% of the incidents were from suspected opioid overdose fatalities. This could have antagonistic effects on the health of opioid overdose patients in the future.

Figure 10: Frequency of Patient Encounters with EMS Providers by Year



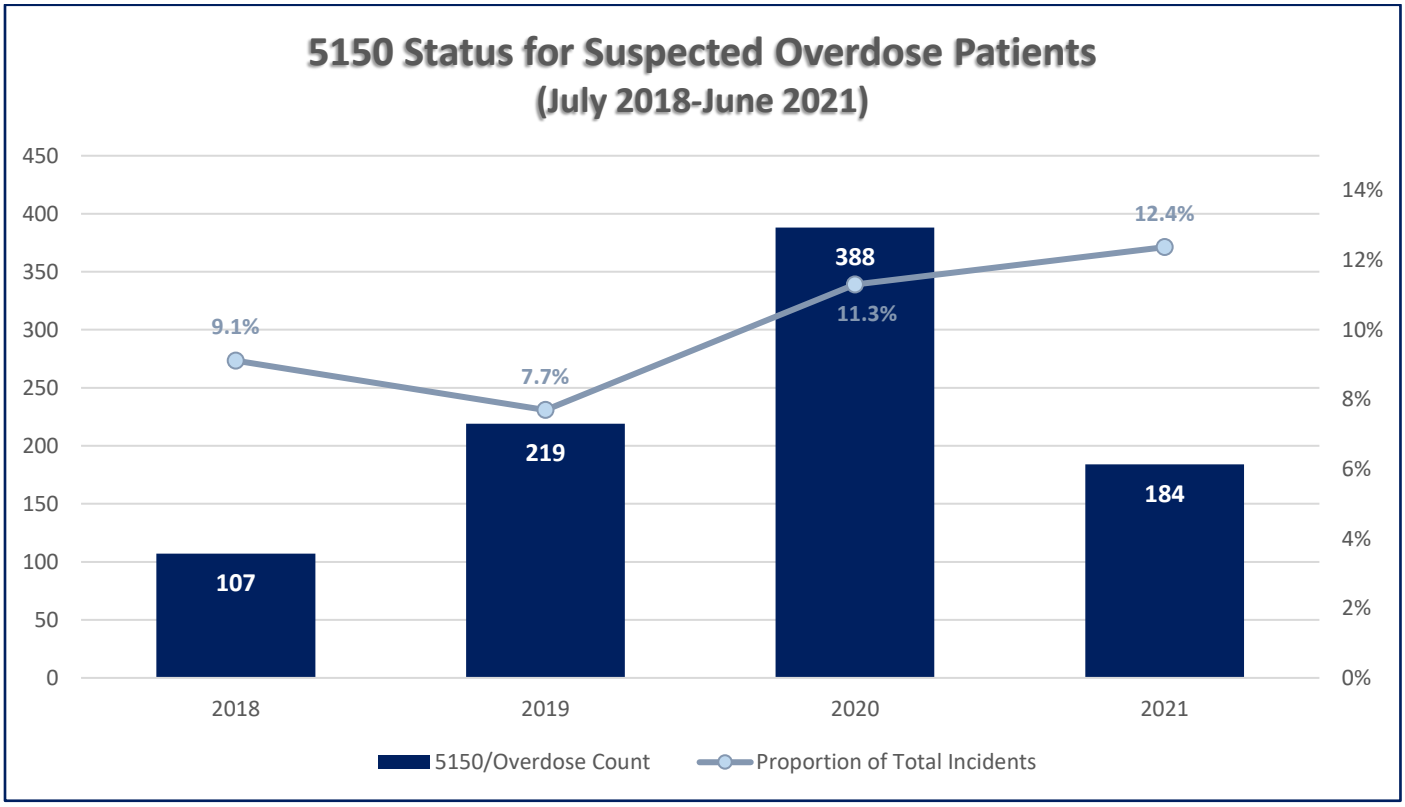
The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021, N=8,941). The number of times that individual patients utilized EMS services for suspected opioid overdoses was calculated each year. The greatest frequency of EMS encounters by suspected opioid overdose patients occurred in 2020 at an average of 1.3 encounters. The error bars represent the standard error of the mean frequency for each year. There was a significant difference in the frequency of patient encounters from 2020 to 2021. However, it must be mentioned that 2021 only includes data from January 1st, 2021-June 30th, 2021 so this average can be expected to increase pending data from the rest of the year.

Figure 11: Homeless Status of Suspected Overdoses by Year



The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021, N=1,167) and ImageTrend ELITE using the field itpatient.025 "Is patient homeless?" to match records. The matched records were then aggregated as yearly totals. The highest number of suspected overdose patients with homeless status occurred in 2020. However, it should be noted that totals from 2018 and 2021 only include half of the year and the total patients in 2021 (Jan-June, 278 patients) exceeds the same time period from 2020. Also, 2021 displayed the greatest proportion of suspected overdose patients with homeless status compared to the total number of suspected overdoses (18.7%) that year.

Figure 11: 5150 Status of Suspected Overdoses by Year



The following data was extracted from FirstWatch OD 2: Opioid Overdose (July 1st, 2018-June 30th, 2021, N=898) and ImageTrend ELITE using provider primary & secondary impression to determine whether or not a 5150 was issued during the incident. Electronic patient care record numbers were used to match records. The matched records were then aggregated as yearly totals. The highest number of suspected overdose patients with 5150 status occurred in 2020. However, it should be noted that totals from 2018 and 2021 only include half of the year and the total patients in 2021 (Jan-June, 184 patients) exceeds the same time period from 2020. Also, 2021 displayed the greatest proportion of suspected overdose patients issued a 5150-status compared to the total number of suspected overdoses (12.4%) that year.

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.

This report was developed by Riverside County EMS Agency Research Specialist, Stephani Harrington, MPH, with the Data & Reporting Unit, and with support from the Riverside County Overdose Data to Action (RODA) Public Health Grant Partnership project. RODA is awarded by the Centers for Disease Control and Prevention (CDC) Overdose Data to Action (OD2A) Program.

For more information, please contact Riverside County EMS Administrator, Trevor Douville tdouville@rivco.org

FOR CONSIDERATION BY EMCC

DATE: October 20, 2021

TO: EMCC

FROM: Catherine Borna Farrokhi, Ph.D. - Data & Reporting Unit

SUBJECT: WIC – 5150 Impact Report, FY20-21

ACTION: Received and File Information

Please see attached Riverside County EMS Agency WIC – 5150 Impact Report, FY20-21.

http://remsa.us/documents/reports/annual/REMSA_WIC-5150_Report_FY2020-21_FINAL_20210929.pdf

RIVERSIDE COUNTY EMS AGENCY

WIC-5150 IMPACT REPORT

FY 2020-21

SEPTEMBER 23, 2021

PREPARED BY RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

WIC-5150 EMS IMPACT SUMMARY

California Welfare and Institutional Code (WIC) 5150 enables law enforcement and designated medical professionals to place individuals posing imminent risk to self or others on involuntary 72-hour hold. These holds are intended for psychiatric evaluation at a designated mental health facility; however, many of these patients are transported to emergency departments (ED) based on proximity and lack of alternative resources. **In FY 2020-21, Riverside County Emergency Medical Services (EMS) providers made approximately 13,400 emergency and non-emergency WIC-5150 responses.** In Riverside County alone, this amounts to over one-thousand 5150 responses made every month by EMS providers. This comes to a conservatively estimated annual cost of $3 million. While many WIC-5150 patients require immediate behavioral health intervention to ensure safety and transport, most are not experiencing an imminent medical risk consistent with the life-saving response EMS is intended to provide. As a result, 5150 responses can overutilize complex and costly emergency services.

Alternative behavioral health response and transport strategies can reduce the current impact of WIC-5150 on the EMS system, deploy more suitable care for this patient population, and help ensure emergency services are more rapidly available for those experiencing life-threatening medical conditions.

Methodology

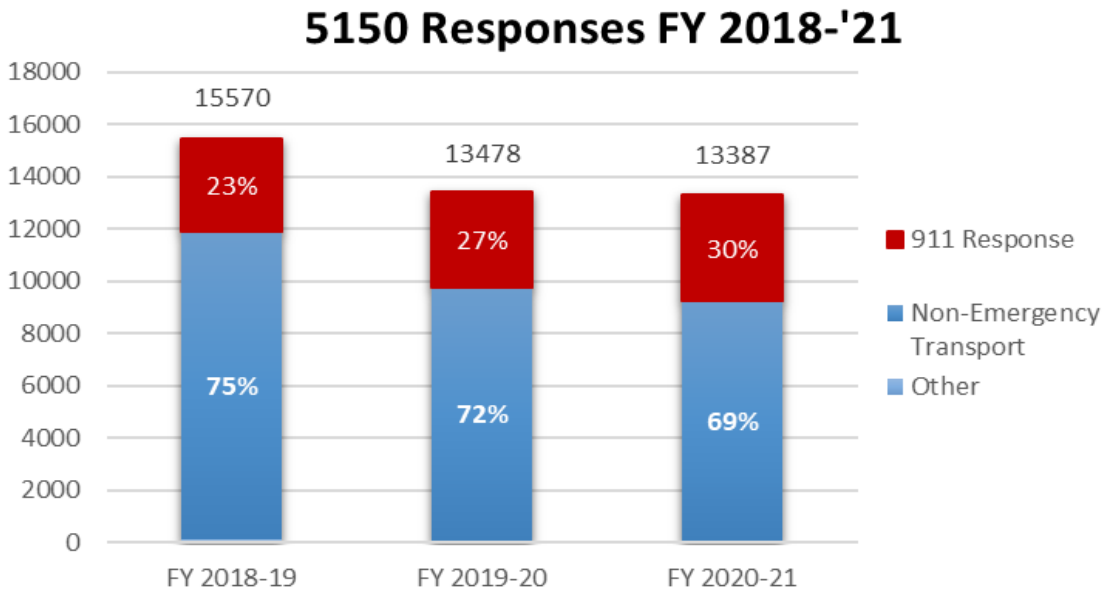
To determine the frequency of WIC-5150 responses by Riverside County EMS, **electronic patient care reports (ePCRs)** completed by on-scene 9-1-1 emergency providers, and non-emergency transport providers between July 1, 2020 through June 30, 2021 were analyzed. Patient records were entered into ImageTrend® Elite and extracted from the Elite Reportwriter feature. While a 5150-hold can be identified by 9-1-1 dispatch as the call reason, it is not a nationally recognized value defined by the National Emergency Medical Services Information System (NEMSIS). Therefore, medics cannot document it in the ePCR as a specific presenting problem in the appropriate field (eSituation.11 or.12). Instead, medics typically and consistently use the term "5150" in a narrative field. Using the ImageTrend® Report Writer analysis tool, the following parameters were used to identify and extract WIC-5150 records from the ePCRs:

- Inclusion of ePCRs with the terms "5150", "51/50", "51-50", "Psych Hold", or "5585" (minor code for 5150) in the *Patient Care Report Narrative* (eNarrative.01) or *Situation Primary Complaint Statement* (eSituation04)
- Exclusion of records where on-scene time was equal to zero
- Selection of "Distinct Only" rows to account for duplication

The following data reflects all responding agencies in Riverside County including 9-1-1 emergency responders (fire), and ambulance transport agencies (emergency and non-emergency). Riverside County has a dual response EMS system where a fire and ambulance unit respond to the same 9-1-1 medical incident. Therefore, counts reflect the number of responses and not patients, while percentages can represent either.

Findings

Analysis of electronic patient care reports (ePCRs) indicates Riverside County EMS agencies generated ***13,387*** **WIC-5150 responses** between July 1, 2020 and June 30, 2021. This count is **16% below** the total count observed in FY 2018-19. This reduction in FY 2020-21 is consistent with a significant drop in total 9-1-1 and non-emergency responses since the emergence of COVID-19 and the response to it. However, despite the significant reduction in total responses, **9-1-1 response alone to WIC-5150 increased by 12%;** from 3,568 records in FY 2018-19 to 4,035 in FY 2020-21.



<u>Response Types *vs* Acuity Levels</u>

In FY 2020-21, nearly **70% of 5150 responses were for Non-Emergency transports while 29% involved 9-1-1 Emergencies.** Only 1% fell into an "Other" category consisting of calls classified as Intercept, Public Assistance, or Mutual Aid. Call types were further classified by patient acuity.

Initial Patient Acuity (eSituation.13) is a universal standard description code (Lower, Emergent, Critical, or Dead) defined by the NEMSIS and assigned by EMS responders to broadly describe the patient's condition upon encounter. A systemic review of ePCRs using randomly selected samples revealed "Initial Acuity" level can be used to predict when an EMS response involved a WIC-5150 alone *(lower acuity) or* involved additional risk factors or comorbidity such as self-inflicted injury, overdose or neurological condition *(emergent/critical acuity)*.

Findings were as follows:

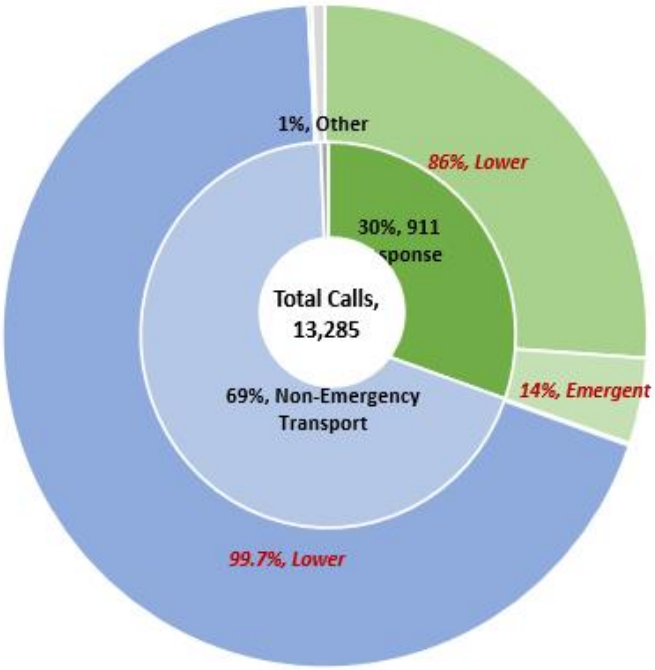
- Approximately **86% of 9-1-1 responses** and over **99% of non-emergency transports** (interfacility or medical) were coded as **Lower Acuity** calls.
- The 2nd most frequently used acuity was 'Emergent' making up less than 5% of the total responses.
- Of the nearly 13,400 records, less than 20 were designated as Critical Acuity calls.

Final Patient Acuity (eDispostion.19) is defined by NEMSIS as the acuity of the patient after EMS care. It was also evaluated to determine change in the condition of these patients from EMS encounter to intervention.

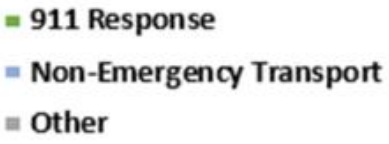
Key points noted are as follows:

- 31% of *Emergent* Acuity cases were downgraded to *Lower* acuity.
- 74% of *Critical* Acuity cases were downgraded to *Emergent* or *Lower* Acuity.

WIC- 5150 Response Type by Initial Acuity

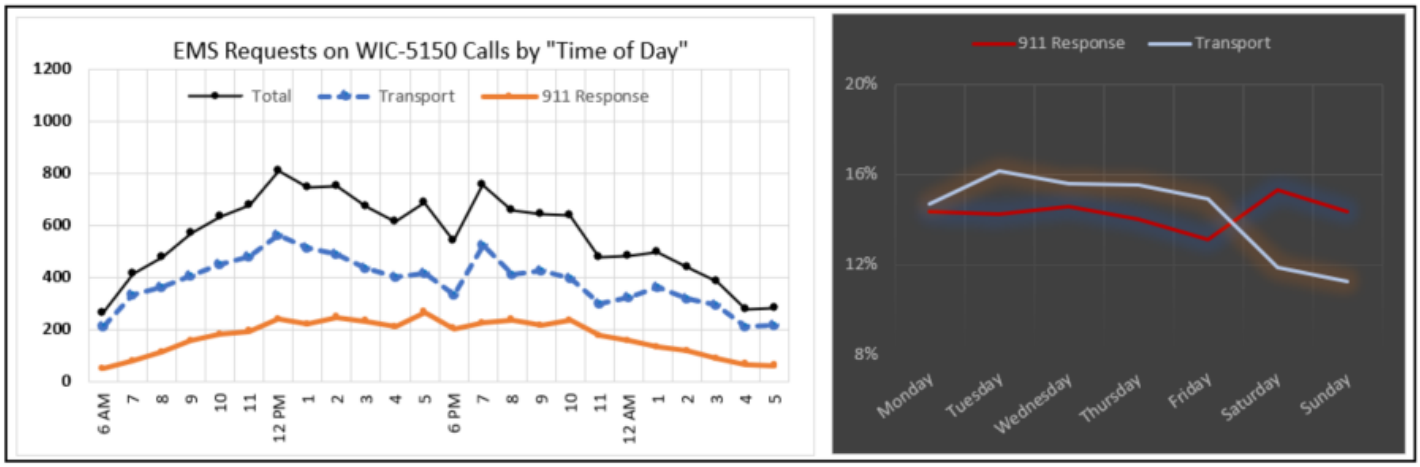


	911 Response	Non-Emergency Transport	Other	
Lower	3464	9138	84	*95.5%*
Emergent	557	21	1	*4.4%*
Critical	13	6		*0.1%*
	30%	*69%*	*1%*	



Day and Time Factors

Peak times for WIC-5150 responses occur between 10AM and 10PM. This can be a function of resource availability during business hours as most calls are for transport, however 9-1-1 responses which are less influenced by peak operating times follow a similar pattern. For both transport and 9-1-1 responses, WIC-5150 calls are greatly reduced between 11PM and 7AM. Interestingly, a similar pattern exists for non-transport responses reduced on weekends; however, 9-1-1 responses tend to decrease on Fridays and increase again on weekends with the highest numbers occurring on Saturdays.

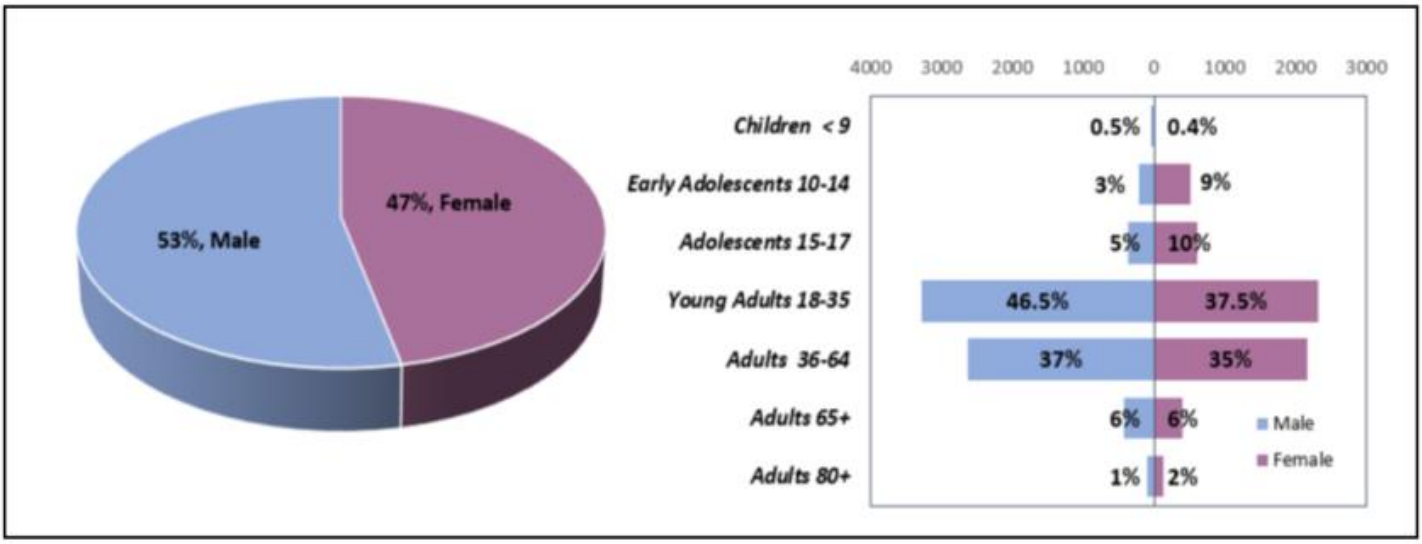


Patient Demographics

13,245 valid data points were used to analyze patient demographic information. Below is the graphical representation of gender distribution and categorical age distribution by gender.

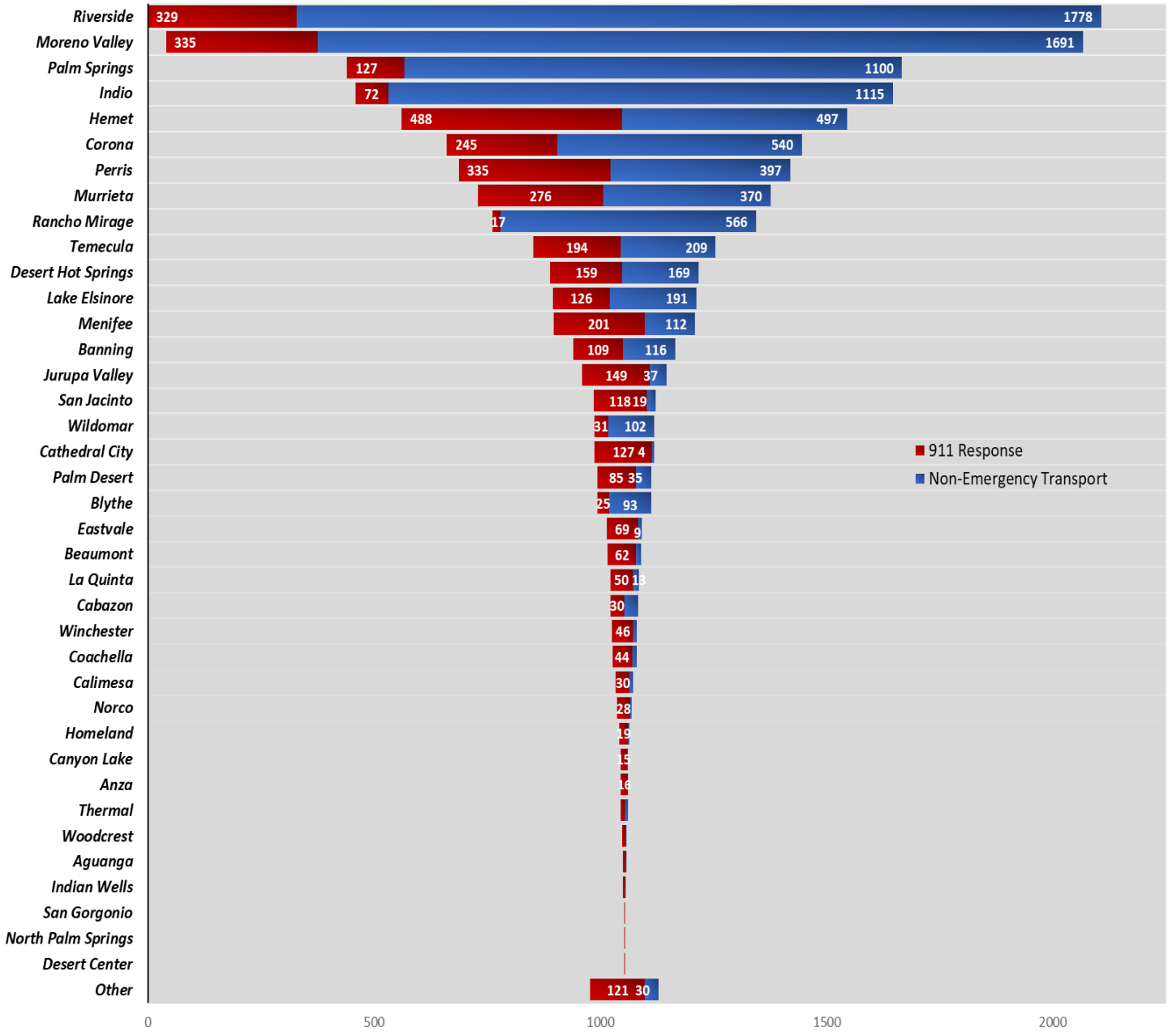
Notable finding on patient demographics are as follows:

- Males make up a greater proportion of WIC-5150s at 53% of the total number of responses
- The most common age group are young adults making up 43% of all responses *(Age:18-35)*
- Adolescents are the only age group where WIC-5150s occur more commonly in females than males



Response Type by City

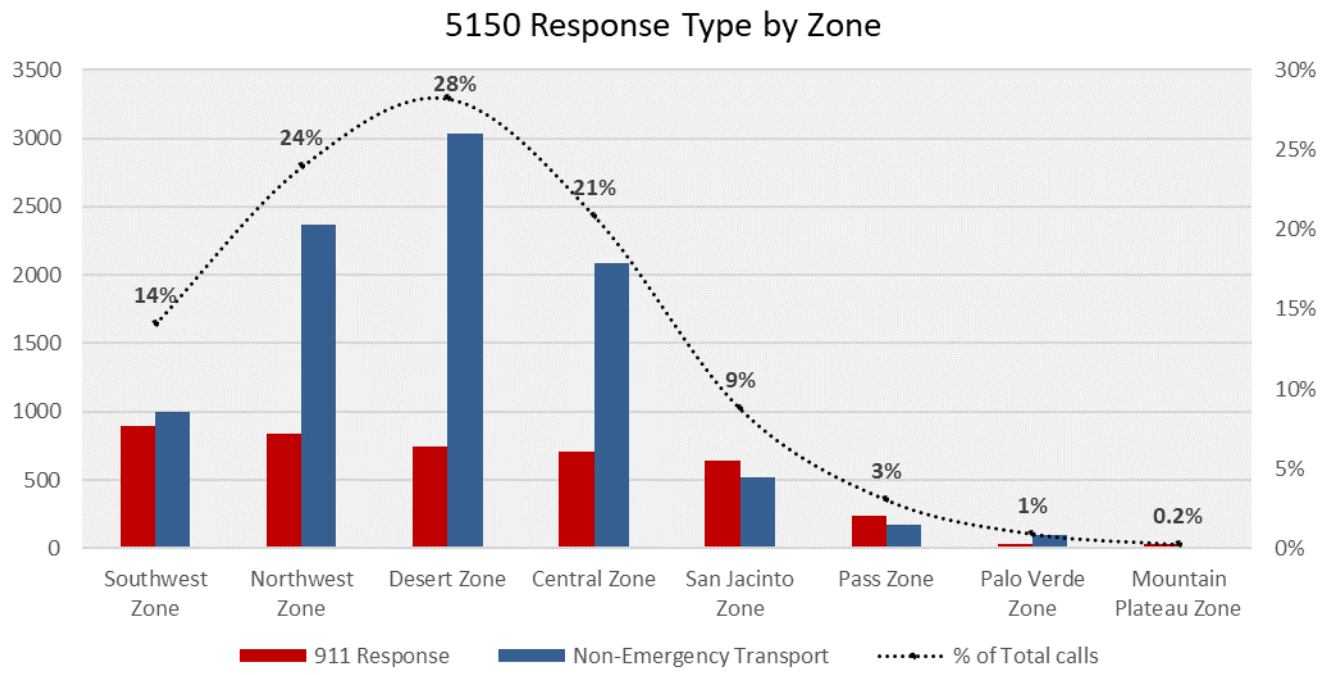
Cities with the highest density of WIC-5150 Non-Emergency Transports vs. 9-1-1 Responses exhibit different characteristics. The majority of 5150 responses involve Interfacility Transport, thus higher densities for transport are expected in cities with hospitals embedded, notwithstanding predictive factors such as population. **The following is a graph of *5150 call origin by city and response type* between July 2020 and June 2021.**



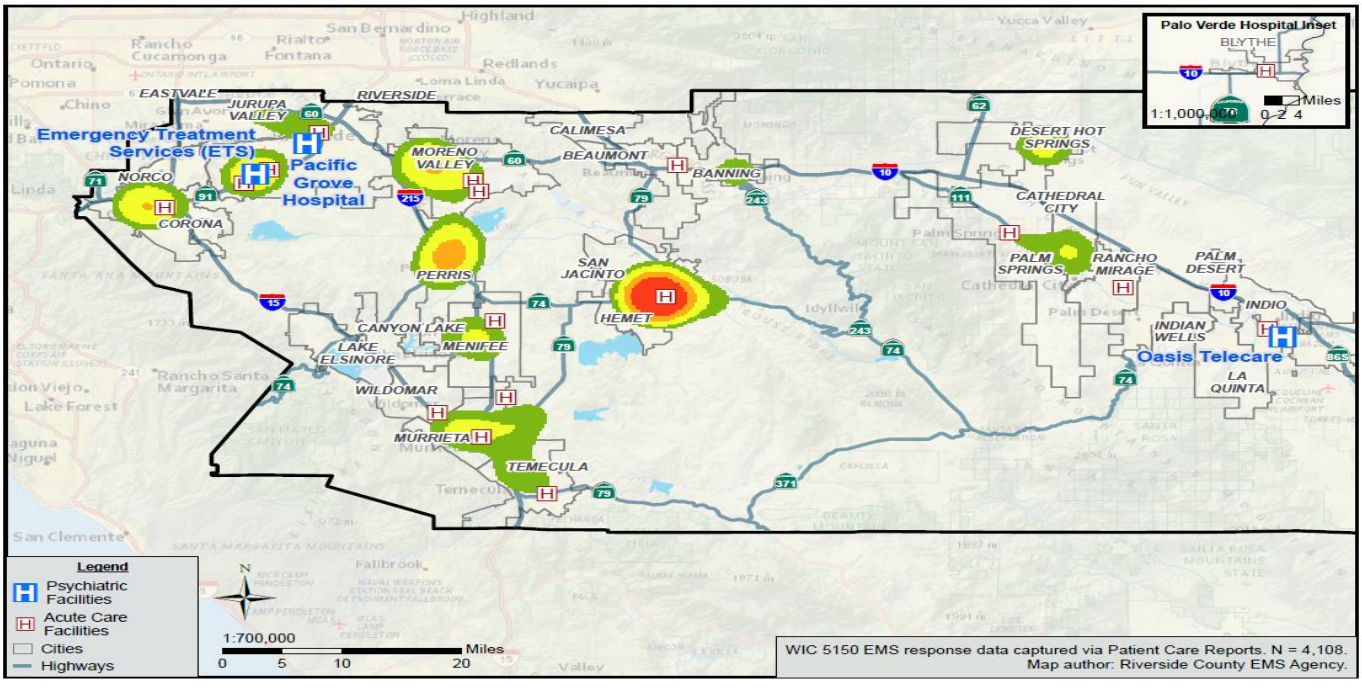
Response Types by Ambulance Zones:

Zones are defined by the transporting agency. Based on the data, the findings are listed below:

- Desert Zones has the highest 5150 total responses (28%) compared to the other zones
- Southwest has the highest number of 9-1-1 responses to 5150, followed by the Northwest zone which is the most populated zone.
- While most regions have proportionately more non-emergency 5150 responses, San Jacinto zone has more 9-1-1 responses than non-emergency, and Southwest zone has nearly equal call types generated.



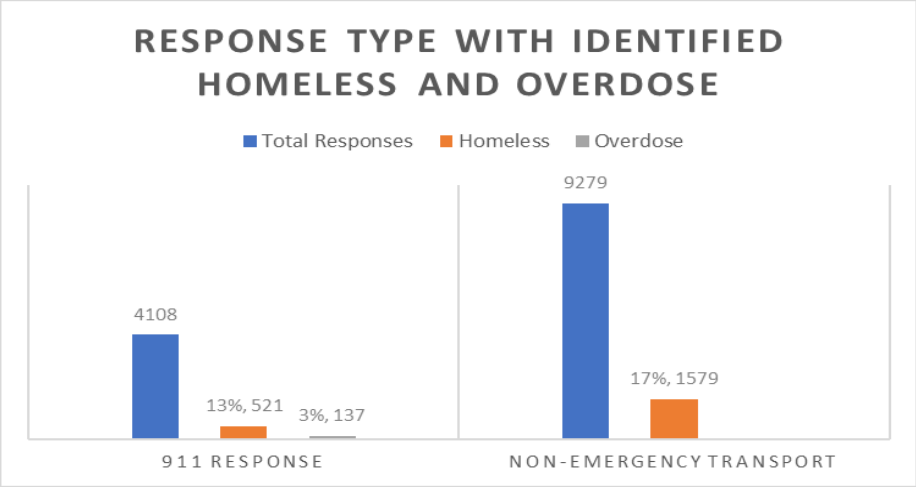
Heat Map Distribution of WIC 5150 9-1-1 Responses



5150 with identified Homeless and Overdose:

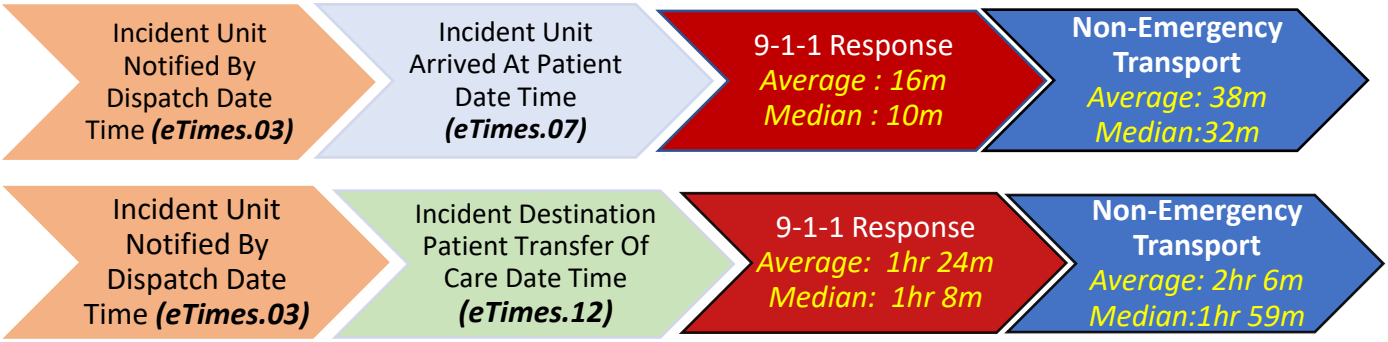
With the increase in homelessness and overdose reported in Riverside County, the relationship with 5150 calls and these factors were evaluated. The finding are as follows:

- 16% of total 5150 records had patients identified as being homeless
    - This accounted for 13% of 9-1-1 emergency response calls and 17% of Non-Emergency transport calls
- 1% of all 5150 records were identified as involving a patient who had overdosed with the majority of them being 9-1-1 responses (3% of 9-1-1 records alone).



Response TImes

EMS response timestamps are standardized and defined by the National Emergency Medical Services Information System (NEMSIS). REMSA Policy 2203 further defines some time intervals between timestamps for data collection and reporting. In this report, the time at which a unit was notified (eTimes.03) to the time at which the unit arrived at the patient (eTimes.07), along with the time at which a unit was notified (eTimes.03) to when a transfer of care occured (eTimes.12), were analyzed for the available WIC-5150 emergency and non-emergency transports. The findings are as follows:



Summary of Findings / Recommendations

- In Riverside County alone, approximately 1,100 WIC-5150 responses are made by Emergency Medical Services (EMS) each month. There was a marked reduction in total responses in 2020 compared to previous years. However, this was dependent on call type: non-emergency transports were reduced while 9-1-1 responses increased.

- Approximately 70% of WIC-5150 responses were documented as non-emergency EMS transport requests ('Interfacility' or 'Medical'). This is in stark contrast to how the Riverside County EMS system typically operates with approximately 90% allocated toward 9-1-1 medical emergencies versus 10% on non-emergency transports.

- While the causes are not yet known, a shift in WIC-5150 EMS volume and response patterns in FY 2020-21 particularly in January 2021, may be attributed to COVID-19 and the response to it.

- 95% of all WIC-5150 responses are for patients coded 'lower acuity'; suggesting that in most cases little to no medical attention beyond transport to an appropriate facility was required.

- Approximately 1 in 6 WIC-5150 responses involve patients identified as.

- Developing alternative transportation, resources, and response protocols to WIC-5150 incidents in Riverside County can greatly reduce impact on the EMS system and provide better, more appropriate care for these patients.

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

Report prepared by Sudha Mahesh & Catherine Borna Farrokhi, Data & Reporting Unit, Riverside County EMS Agency

For more information, please contact Riverside County EMS Administrator, Trevor Douville tdouville@rivco.org

FOR CONSIDERATION BY EMCC

DATE: October 20, 2021

TO: EMCC

FROM: Catherine Borna Farrokhi, Ph.D. - Data & Reporting Unit

SUBJECT: Patient Care Continuum Report, FY20-21

ACTION: Received and File Information

Please see attached Riverside County EMS Agency Patient Care Continuum Report, FY20-21

http://remsa.us/documents/reports/annual/PCC_Response_Time_Report_FY_2020_2021_De_Identified_FINAL_20210923.pdf

RIVERSIDE COUNTY EMS AGENCY

RIVERSIDE COUNTY EMS AGENCY
PATIENT CARE CONTINUUM REPORT
FY 2020 - 2021

SEPTEMBER 23TH, 2021

PREPARED BY RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

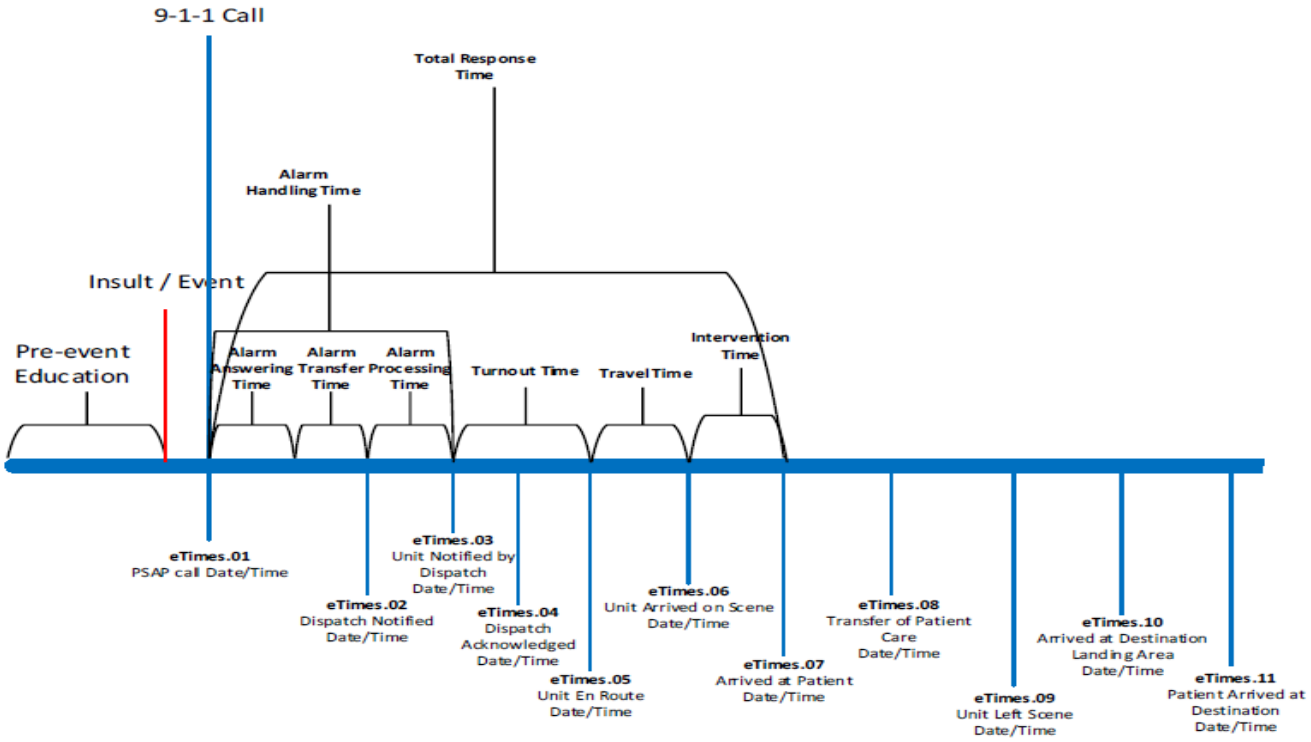
PATIENT CARE CONTINUUM REPORT

The purpose of this report is to provide analysis of the prehospital time intervals identified in REMSA Policy 2203-Patient Care Continuum Time Standards. Additional time intervals were added to the analysis to further measure the prehospital continuum of patient care from dispatch to hospital arrival.

Below are time interval definitions and their corresponding NEMSIS 3.4 timestamps. Time intervals in italics are intervals not currently in Policy 2203.

- Alarm Answering Time – eTimes.01 to eTimes.02
- Alarm Transfer Time – eTimes.01 to eTimes.02 (when the call is transferred to another designated entity)
- Alarm Handling Time – eTimes.01 to eTimes.03
- Alarm Processing Time – eTimes.02 to eTimes.03
- Turnout Time – eTimes.03 to eTimes.05
- Travel Time – eTimes.05 to eTimes.06
- Intervention Time – eTimes.06 to eTimes.07
- *Unit Response Time – eTimes.03 to eTimes.06*
- Total Response Time – eTimes.01 to eTimes.07
- *Arrived On Scene To Arrived At Destination Time – eTimes.06 to eTimes.11*
- *Total On Scene Time – eTimes.06 to eTimes.09*
- *Total Time On Scene With Patient – eTimes.07 to eTimes.09*
- *Transport Time – eTimes.09 to eTimes.11*
- *Unit Prehospital Time With Patient – eTimes.07 to eTimes.11*
- *Total Unit Prehospital Time – eTimes.03 to eTimes.11*
- *Total Prehospital Time – eTimes.01 to eTimes.11*

Pre-hospital Patient Care Continuum from dispatch to arrival at destination. *Adapted from REMSA Policy 2203.*



Methodology

Data

411,109 ePCRs (electronic patient care reports) were initially identified on ImageTrend® Elite Report Writer between 7/1/2020 and 6/30/2021. *Sixty-seven* fields were generated for each ePCR utilized, resulting in a possible **27,544,303 datapoints** for analysis. **256,777 (62.5% of total ePCRs)** were then identified for use in time interval analysis after downloading, compiling, and cleaning the raw data. The final dataset was created utilizing **17,204,059 datapoints.**

Exclusions

154,332 (37.5% of total) ePCRs were excluded due to missing data points, incorrect times, disposition, or a combination of these. ePCRs were excluded for the following dispositions: Canceled Prior to Enroute, Canceled Enroute, Canceled at Scene by Another Unit, No Patient Contact, No Patient Found, Standby: No Services or Support Provided, Standby: Public Safety, Fire, or EMS Operational Support Provided, or for leaving the disposition field blank. ePCRs were excluded for missing time stamps for eTimes.01, eTimes.02, and eTimes.07. Additional ePCRs were excluded due to having any time interval greater than three standard deviations above the mean for each time interval.

Inclusions:

Data from **10 timestamps** were included and used to create the time intervals from REMSA Policy 2203 as well as the additional intervals created. **Sixteen (16) time intervals** were included in this dataset. Data from 16 agencies were included in the dataset. To be included, the agency had to be a fire department or transport agency providing 9-1-1 services in Riverside County. Disposition and EMD card data were also included in the dataset.

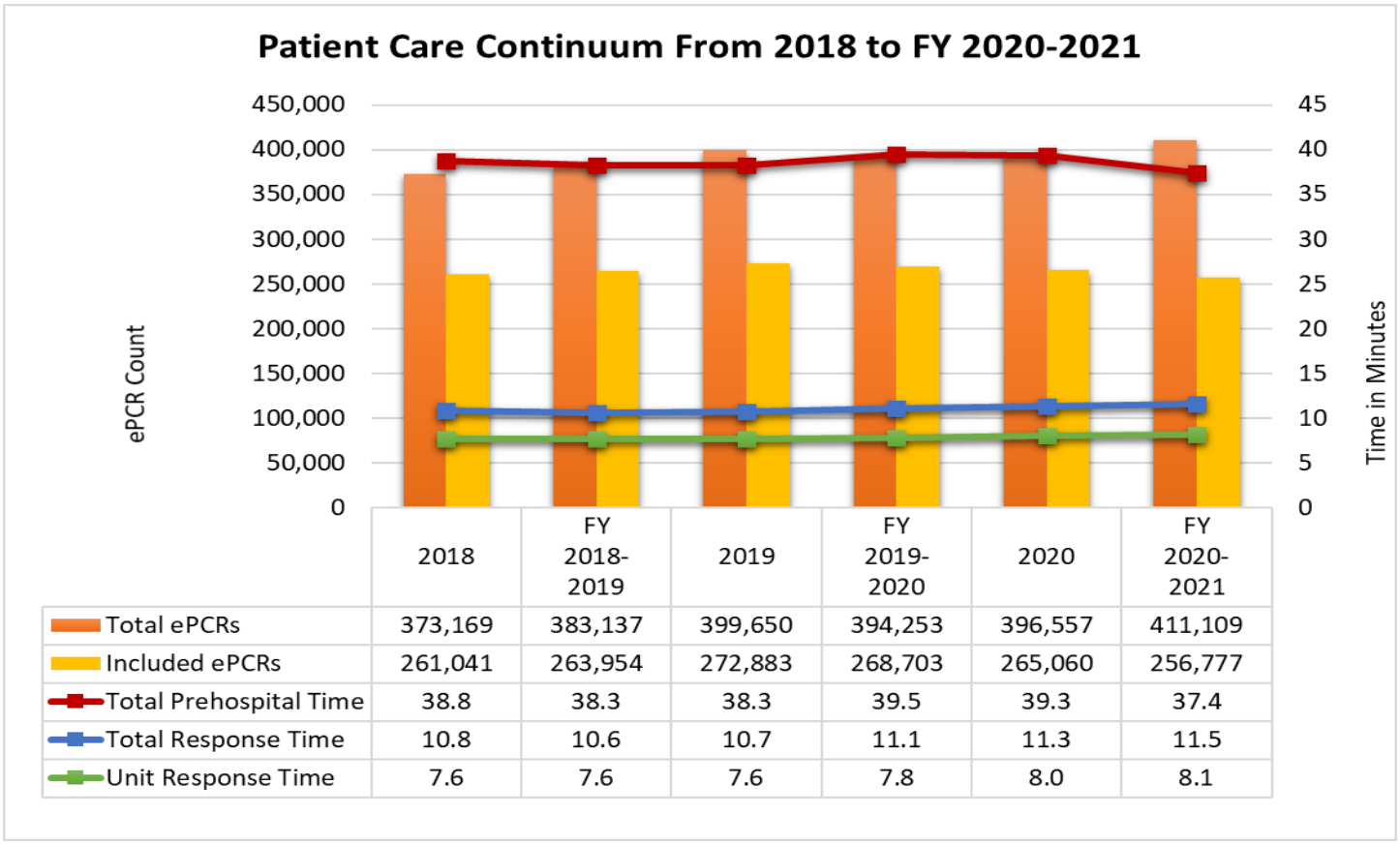
The tables below contain time interval statistics for all fire department and transport agencies providing 9-1-1 services in Riverside County. The intervals are listed at the top of the tables along with their corresponding NEMSIS 3.4 timestamps.

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.

Change in Patient Care Continuum Over Time

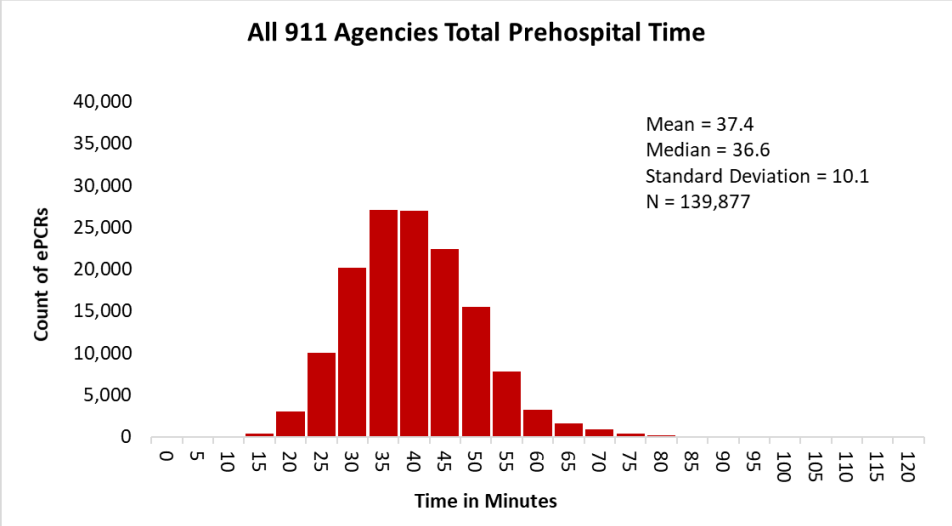
The combination bar and line chart below show the change over time in key response intervals as recorded in our semiannual Patient Care Continuum Reports. Total ePCR count has grown by 10.2% between 2018 and FY 2020-2021. Mean Total Prehospital Time increased by 1 minute (2.6%) between 2019 and 2020 and decreased by 1.9 minutes (4.8%) between FY 2019-2020 and FY 2020-2021. Mean Total Response Time has slightly but consistently increased since FY 2018-2019 with a total mean increase of 0.9 minutes (8.5%) between FY 2018-2019 and FY 2020-2021. Mean Unit Response Time stayed consistent between 2018 and 2019 and gradually increased by 0.5 minutes (6.6%) between 2019 and FY 2020-2021.



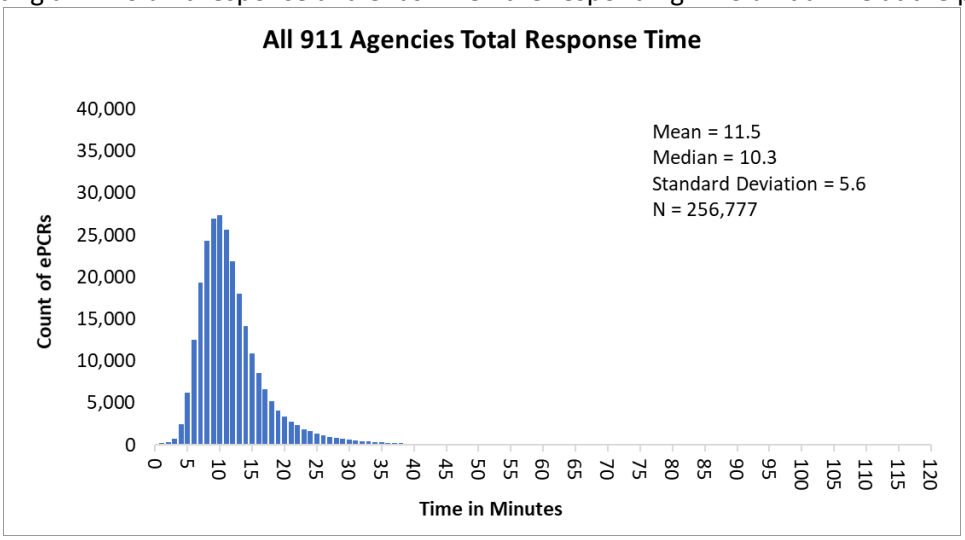
	2018	FY 2018-2019	2019	FY 2019-2020	2020	FY 2020-2021
Total ePCRs	373,169	383,137	399,650	394,253	396,557	411,109
Included ePCRs	261,041	263,954	272,883	268,703	265,060	256,777
Total Prehospital Time	38.8	38.3	38.3	39.5	39.3	37.4
Total Response Time	10.8	10.6	10.7	11.1	11.3	11.5
Unit Response Time	7.6	7.6	7.6	7.8	8.0	8.1

Timeline and Findings

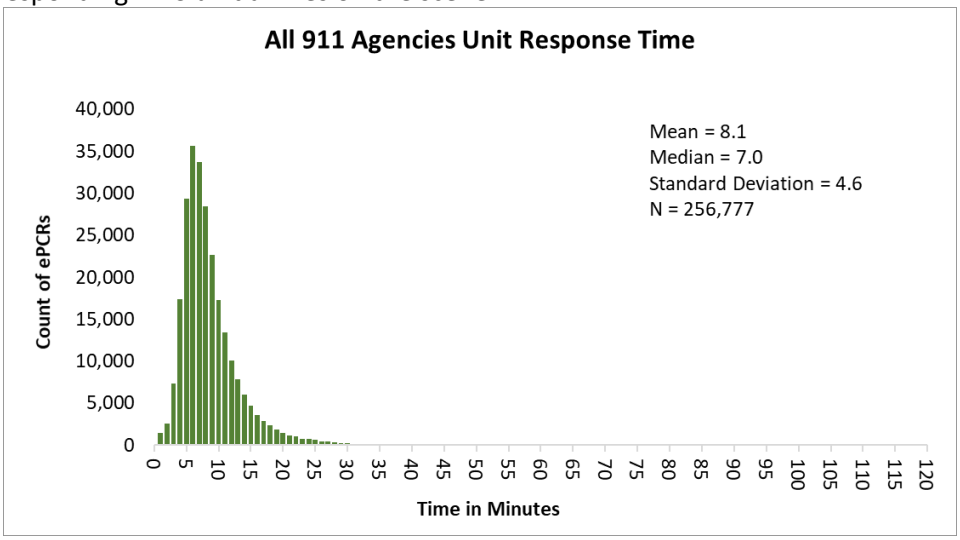
Histogram I. *Total Prehospital Time – eTimes.01 to eTimes.11* begins when a 9-1-1 call is made to a public safety answering point (PSAP) requesting an EMS unit response and ends when the responding EMS unit arrives with the patient at the hospital or alternate destination.



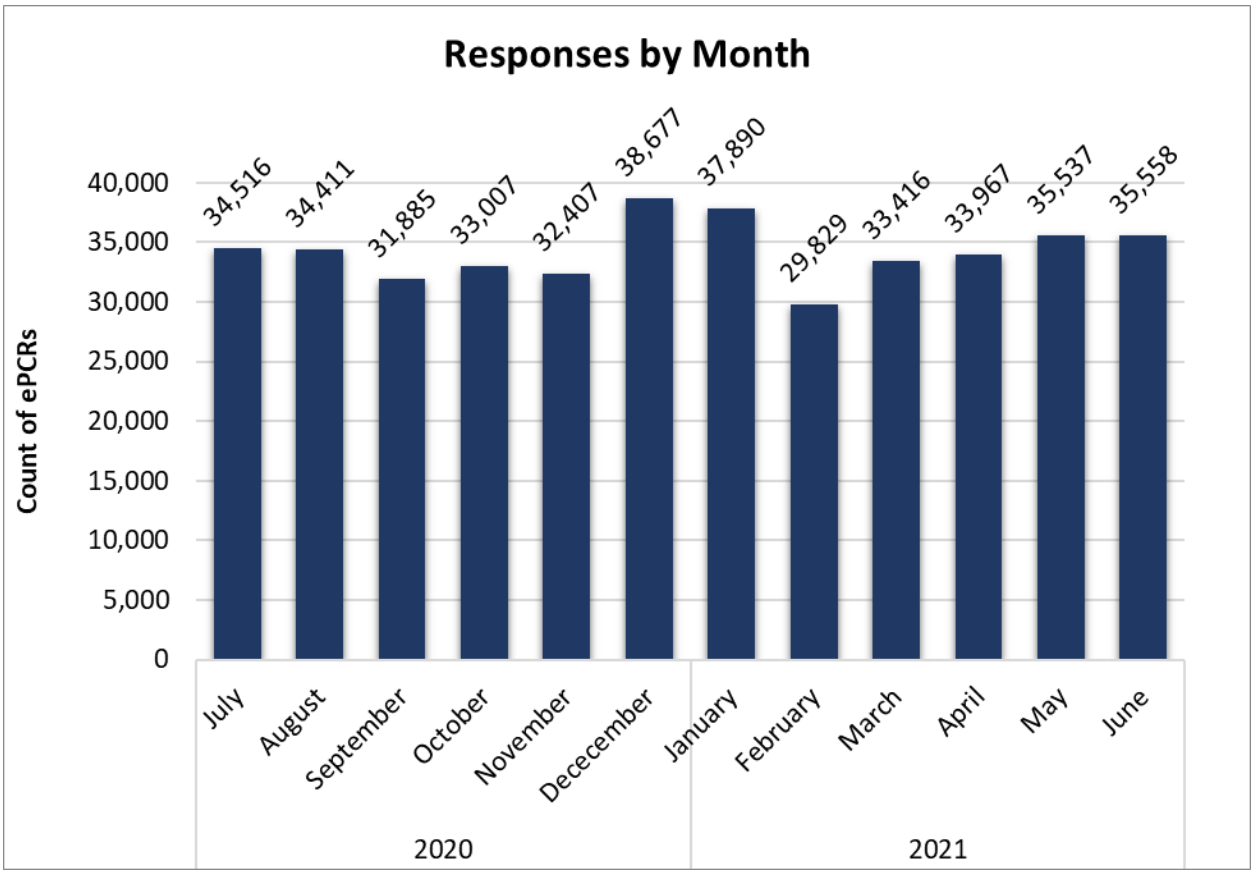
Histogram II. *Total Response Time – eTimes.01 to eTimes.07* begins when a 9-1-1 call is made to a public safety answering point (PSAP) requesting an EMS unit response and ends when the responding EMS unit arrive at the patient's side.



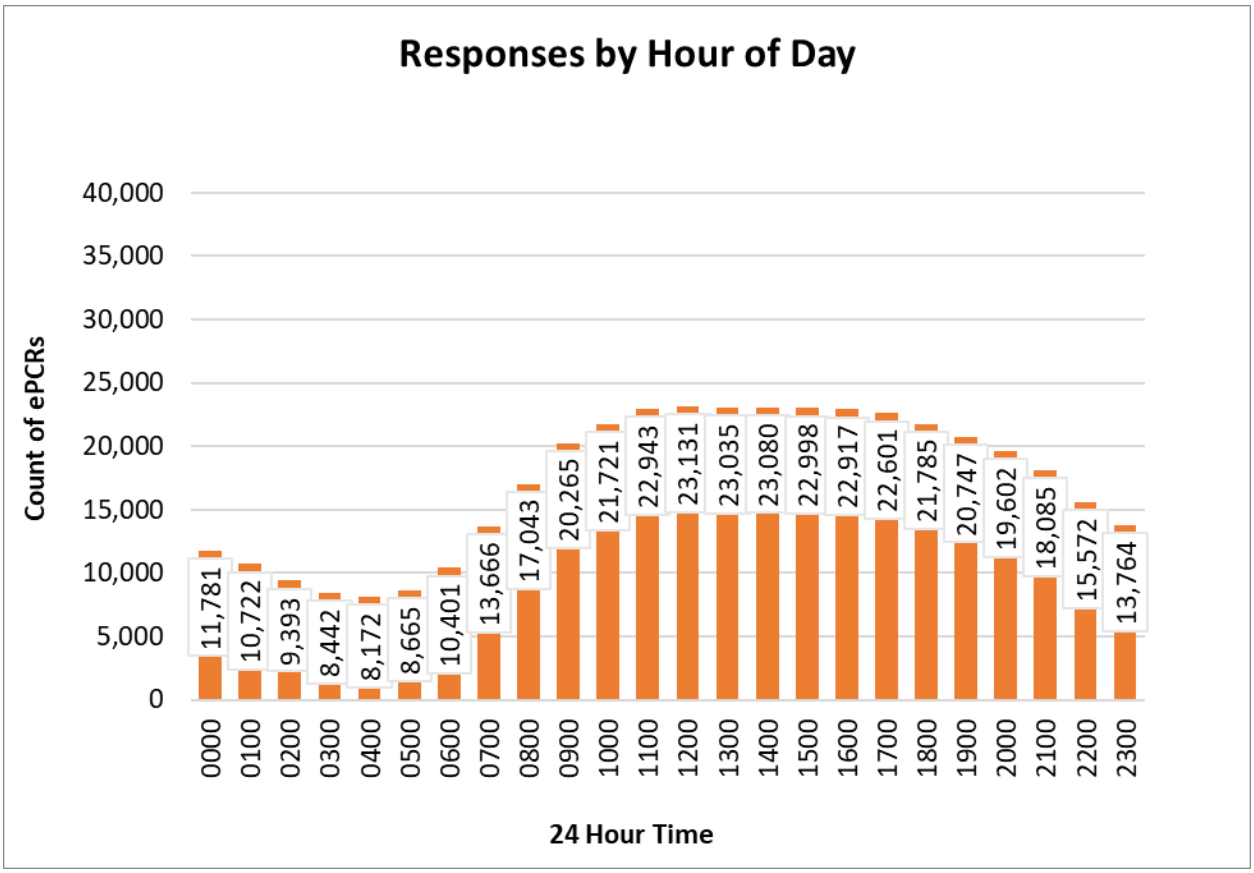
Histogram III. *Unit Response Time – eTimes.03 to eTimes.06* begins when the responding EMS unit is notified by dispatch and ends when the responding EMS unit arrives on the scene.



Graph I. *Responses by Month* shows ePCR volume by month and allows for a month-to-month comparison of volume.



Graph II. *Responses by Hour* shows call volumes by time-of-day and indicates which hours are busiest on average.



Time Interval Analysis

Tables I, II, & III. *All 9-1-1 Agencies* shows the time interval statistics for all fire department and transport agencies providing 9-1-1 services in Riverside County. The intervals are listed at the top of the tables along with their corresponding NEMSIS 3.4 timestamps.

All 911 Agencies		Alarm Answering/Transfer Time (eTimes.01 to eTimes.02)	Alarm Handling Time (eTimes.01 to eTimes.03)	Alarm Processing Time (eTimes.02 to eTimes.03)	Turnout Time (eTimes.03 to eTimes.05)	Travel Time (eTimes.05 to eTimes.06)
N	Total	411,109	411,109	411,109	411,109	411,109
	Valid	235,569	256,682	256,777	256,777	256,777
	Invalid	87,237	96,233	150,287	153,466	132,459
	Missing	88,303	58,194	4,045	866	21,873
Mean		0.8	1.6	0.9	1.0	7.1
Median		0.0	0.7	0.3	0.7	5.9
Standard Deviation		1.3	2.4	2.2	1.0	4.7
90th Percentile		2.6	3.5	1.7	2.3	12.9
95% Confidence Interval for Mean		(0.78-0.8)	(1.59-1.61)	(0.9-0.92)	(1.01-1.02)	(7.08-7.12)

All 911 Agencies		Intervention Time (eTimes.06 to eTimes.07)	Unit Response Time (eTimes.03 to eTimes.06)	Total Response Time (eTimes.01 to eTimes.07)	Total On Scene Time (eTimes.06 to eTimes.09)	Total Time On Scene With Patient (eTimes.07 to eTimes.09)
N	Total	411,109	411,109	411,109	411,109	411,109
	Valid	256,777	256,777	256,777	140,482	140,482
	Invalid	53,456	132,476	24,047	27,291	25,955
	Missing	100,876	21,856	130,285	243,336	244,672
Mean		1.7	8.1	11.5	13.9	12.3
Median		1.3	7.0	10.3	13.2	11.6
Standard Deviation		1.9	4.6	5.6	5.8	5.6
90th Percentile		3.0	13.6	17.9	21.6	19.8
95% Confidence Interval for Mean		(1.74-1.75)	(8.1-8.13)	(11.43-11.48)	(13.87-13.93)	(12.23-12.29)

All 911 Agencies		Transport Time (eTimes.09 to eTimes.11)	Unit Prehospital Time With Patient (eTimes.07 to eTimes.11)	Arrived On Scene To Arrived At Destination Time (eTimes.06 to eTimes.11)	Total Unit Prehospital Time (eTimes.03 to eTimes.11)	Total Prehospital Time (eTimes.01 to eTimes.11)
N	Total	411,109	411,109	411,109	411,109	411,109
	Valid	139,802	139,876	139,876	139,876	139,877
	Invalid	25,285	25,163	25,304	25,305	20,763
	Missing	246,022	246,070	245,929	245,928	250,469
Mean		12.8	25.1	26.7	36.0	37.4
Median		12.0	24.8	26.4	35.4	36.6
Standard Deviation		6.3	7.7	7.8	9.7	10.1
90th Percentile		21.6	35.7	37.4	48.5	50.1
95% Confidence Interval for Mean		(12.78-12.85)	(25.02-25.1)	(26.66-26.74)	(35.95-36.05)	(37.32-37.42)

Total Response Time by Unit Type

Table IV. *Non-Transport Units shows* time interval statistics from *dispatch to patient contact* for all *units* that respond to 9-1-1 calls but do not provide transport services in Riverside County. The intervals are listed at the top of the tables along with their corresponding NEMSIS 3.4 timestamps.

Non-Transport Units		Alarm Answering/ Alarm Transfer Time (eTimes.01 to eTimes.02)	Alarm Handling Time (eTimes.01 to eTimes.03)	Alarm Processing Time (eTimes.02 to eTimes.03)	Turnout Time (eTimes.03 to eTimes.05)	Travel Time (eTimes.05 to eTimes.06)	Intervention Time (eTimes.06 to eTimes.07)	Unit Response Time (eTimes.03 to eTimes.06)	Total Response Time (eTimes.01 to eTimes.07)
N	Total	204,202	204,202	204,202	204,202	204,202	204,202	204,202	204,202
	Valid	82,642	103,746	103,814	103,814	103,814	103,814	103,814	103,814
	Invalid	40,157	49,128	98,381	99,763	88,825	28,175	88,838	3,249
	Missing	81,403	51,328	2,007	625	11,563	72,213	11,550	97,139
Mean		1.9	2.0	0.6	1.6	5.0	1.9	6.6	10.5
Median		1.9	2.0	0.3	1.5	4.6	1.5	6.1	9.9
Standard Deviation		1.4	1.9	1.2	1.0	2.8	2.1	3.0	4.2
90th Percentile		3.2	3.7	1.4	2.7	8.2	3.4	10.0	15.2
95% Confidence Interval for M		(1.84-1.87)	(2.00-2.02)	(0.62-0.64)	(1.52-1.54)	(4.94-4.97)	(1.90-1.93)	(6.47-6.51)	(10.37-10.42)

Table V. *Transport Units* shows time interval statistics from *dispatch to patient contact* for all *units* providing 9-1-1 transport services in Riverside County. The intervals are listed at the top of the tables along with their corresponding NEMSIS 3.4 timestamps.

Transport Units		Alarm Answering/ Transfer Time (eTimes.01 to eTimes.02)	Alarm Handling Time (eTimes.01 to eTimes.03)	Alarm Processing Time (eTimes.02 to eTimes.03)	Turnout Time (eTimes.03 to eTimes.05)	Travel Time (eTimes.05 to eTimes.06)	Intervention Time (eTimes.06 to eTimes.07)	Unit Response Time (eTimes.03 to eTimes.06)	Total Response Time (eTimes.01 to eTimes.07)
N	Total	206,904	206,904	206,904	206,904	206,904	206,904	206,904	206,904
	Valid	152,927	152,936	152,963	152,963	152,963	152,963	152,963	152,963
	Invalid	47,080	47,105	51,906	53,703	43,634	25,281	43,638	20,798
	Missing	6,897	6,863	2,035	238	10,307	28,660	10,303	33,143
Mean		0.2	1.3	1.1	0.7	8.5	1.6	9.2	12.1
Median		0.0	0.4	0.4	0.3	7.3	1.1	8.0	10.7
Standard Deviation		0.8	2.7	2.7	0.9	5.2	1.8	5.2	6.3
90th Percentile		0.0	3.1	2.2	1.6	15.0	3.0	15.6	19.8
95% Confidence Interval for M		(0.19-0.20)	(1.20-1.23)	(1.01-1.04)	(0.65-0.66)	(8.30-8.35)	(1.63-1.65)	(8.95-9.00)	(11.80-11.86)

Total Response Time by Agency

Table VI, VII, & VIII. *Total Response Time – eTimes.01 to eTimes.07* begins when a 9-1-1 call is made to a public safety answering point (PSAP) requesting EMS services and ends when the responding EMS unit arrive at the patient's side. The tables below show Total Response Times by each agency providing 9-1-1 services in Riverside County.

Total Response Time (eTimes.01 to eTimes.07)	Agency 1	Agency 2	Agency 3	Agency 4	Agency 5
Mean	11.2	11.3	12.7	8.0	11.9
Median	9.3	9.5	11.4	7.3	11.2
Standard Deviation	6.8	6.7	6.3	3.4	4.0
90th Percentile	19.6	19.0	20.7	11.4	16.2
95% Confidence Interval for Mean	(11.1-11.29)	(11.18-11.34)	(12.7-12.78)	(7.97-8.06)	(11.84-11.9)

Total Response Time (eTimes.01 to eTimes.07)	Agency 6	Agency 7	Agency 8	Agency 9	Agency 10
Mean	9.5	9.4	9.6	9.4	8.5
Median	8.6	8.6	9.1	8.9	7.8
Standard Deviation	4.0	3.9	3.4	3.2	3.6
90th Percentile	13.5	12.6	13.2	13.0	11.9
95% Confidence Interval for Mean	(9.34-9.56)	(9.31-9.5)	(9.42-9.77)	(9.35-9.51)	(8.37-8.54)

Total Response Time (eTimes.01 to eTimes.07)	Agency 11	Agency 12	Agency 13	Agency 14	Agency 15	Agency 16
Mean	11.7	11.9	6.5	12.8	11.7	10.6
Median	11.4	10.8	6.3	12.6	11.1	10.2
Standard Deviation	3.6	5.0	5.0	4.1	4.1	3.9
90th Percentile	16.3	19.8	11.7	16.7	15.9	14.2
95% Confidence Interval for Mean	(11.42-11.98)	(10.57-13.19)	(3.33-9.68)	(12.51-13.16)	(11-12.41)	(10.11-11.07)

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