



Week 28 (07/10/22 – 07/16/22)

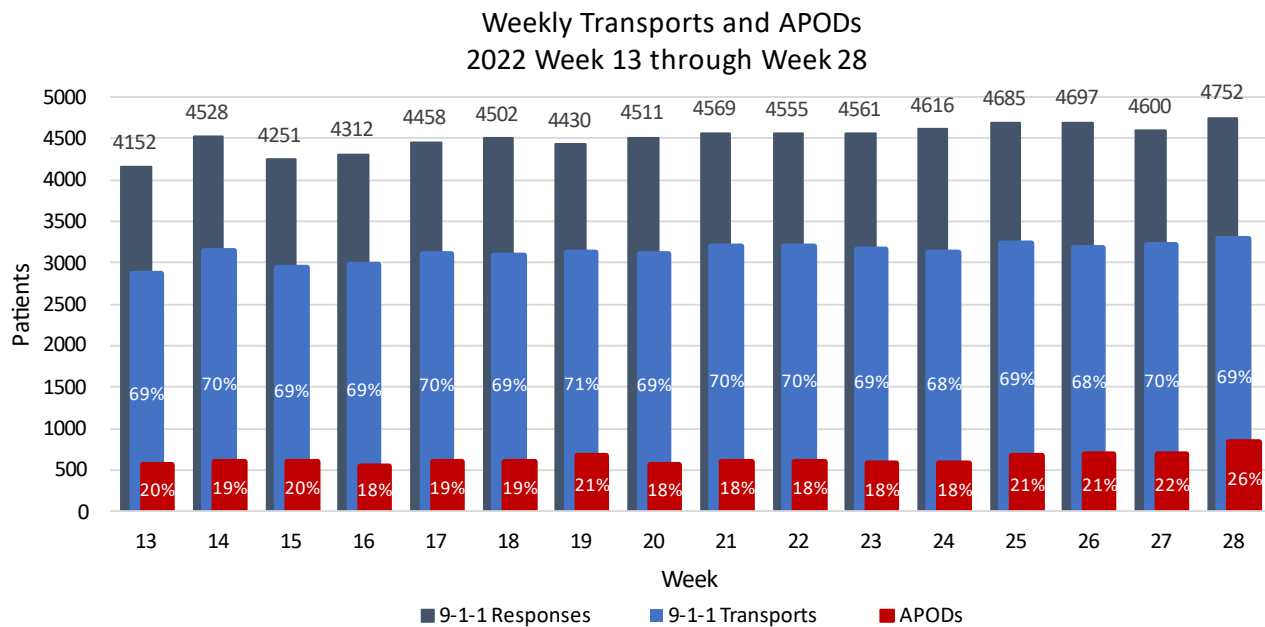
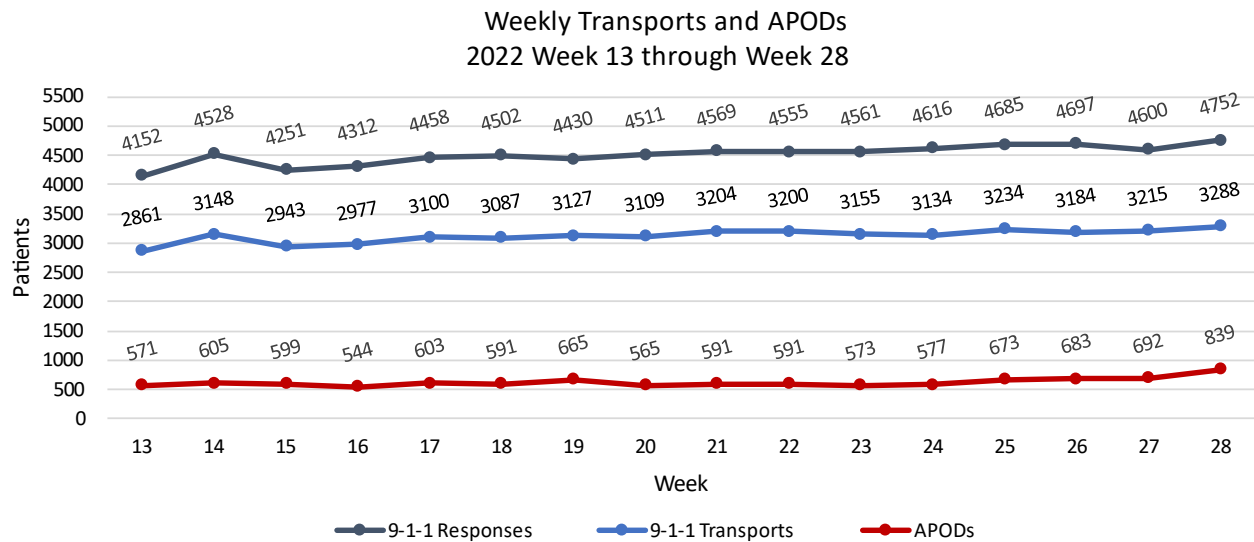
Riverside County EMS System Status		
Week 28 Summary		
ALS Responses	↑	4,752 ALS responses in Riverside County — 3.3% INCREASE from previous week - Pg 2
Transports	↑	3,288 transports in Riverside County — 2.3% INCREASE from previous week - Pg 2
Ambulance Patient Offload Delay (APOD)	↑	839 APODs in Riverside County — 21.2% INCREASE from previous week - Pg 2
APOD Hours	↑	426.1 hours — 39.4% INCREASE from previous week - Pg 3
APOD Compliance	↓	74.5% APOD Compliance in Riverside County — 5.1% DECREASE from previous week - Pg 4
Emergency Treatment Services APOD	↓	38 ETS APODs greater than 30 minutes — 11.6% DECREASE from previous week - Pg 6
EMS influenza-like-illness (ILI)	↔	Baseline – Page 8

This report and all published APOT reports can be found at:

<http://www.rivcoems.org/Documents/Reports-Current>

SPECIAL SEASONAL REPORT

In an effort to monitor Ambulance Patient Offload Time (APOT) and influencing factors such as seasonal surge, Riverside County EMS Agency is publishing weekly reports. The following charts represent weekly aggregates of 9-1-1 Responses, Transports, and Ambulance Patient Offload Delays (APOD) for the past 16 weeks.

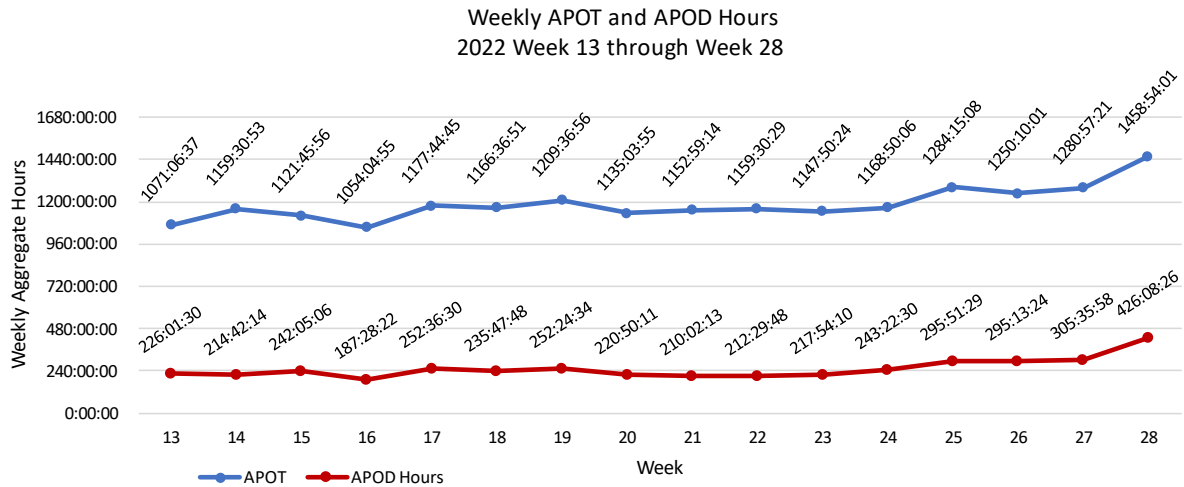


*Transports include only 9-1-1 transports to Riverside County hospitals

- During Week 28, there were a total of **4,752 ALS responses** in Riverside County—3.3% INCREASE from the previous week’s total of 4,600 responses.
- During Week 28, there were a total of **3,288 transports** in Riverside County—2.3% INCREASE from the previous week’s 3,215 transports.
- During Week 28, there were a total of **839 APODs** in Riverside County— 21.2% INCREASE from the previous week’s total of 692 APODs.

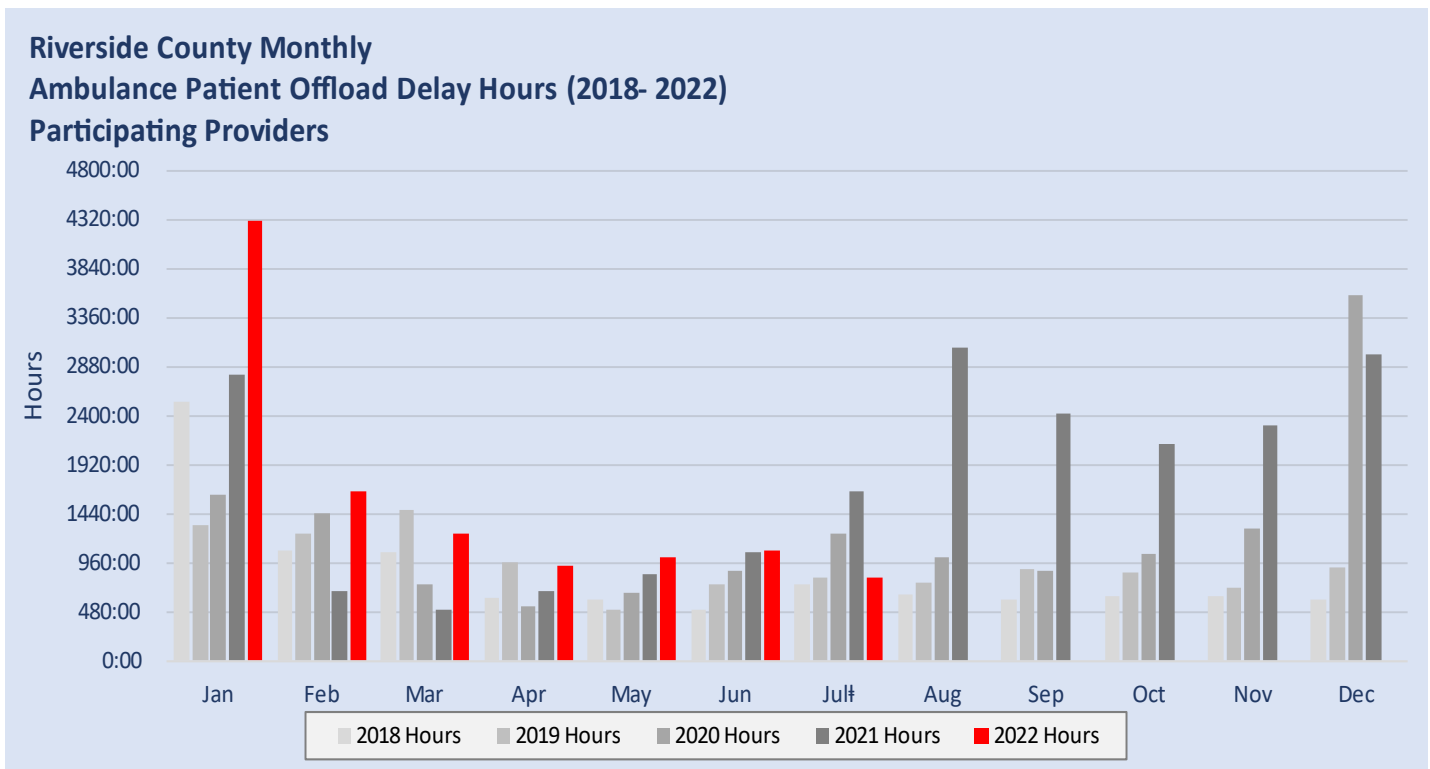
RIVERSIDE COUNTY AMBULANCE PATIENT OFFLOAD TIME

The following chart represent weekly aggregate APOT and APOD hours (hh:mm:ss) for the past 16 weeks. APOT begins at patient arrival at hospital (eTimes.11) and ends when patient care is transferred to the hospital (eTimes.12). APOD calculation begins when APOT exceeds the 30-minute transfer of care standard defined in REMSA [Policy 4109](#).



- During Week 28, **APOT county-wide totaled 1458.9 hours** — 13.9% INCREASE the previous week’s total of 1281.0 hours.
- County-wide **APOD hours for Week 28 totaled 426.1 hours**, a 39.4% INCREASE from the previous week’s total of 305.6 hours.

Data provided below illustrates total APOD time (hh:mm) by month over the last five years. This chart is a summation of offload time delays only and excludes the initial 30 minute period defined as the standard transfer of care time.

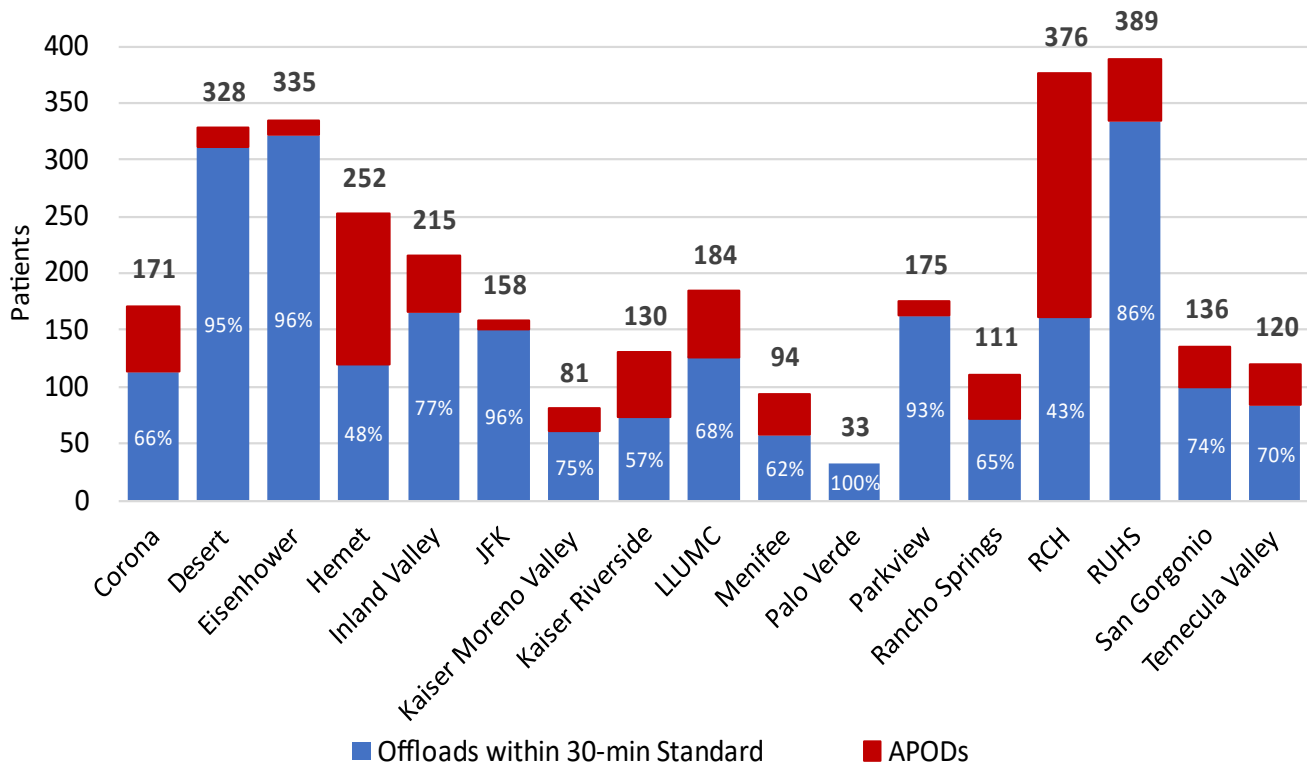


*Jul† is a partial month

AMBULANCE PATIENT OFFLOAD TIME BY HOSPITAL

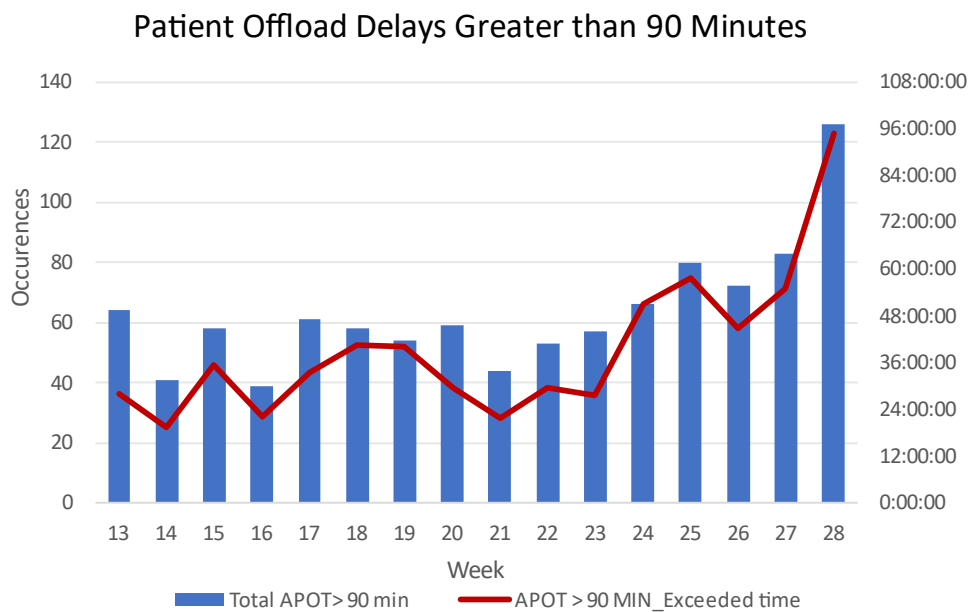
	APOT Snapshot				APOD Compliance
	ALS Transports	APOT	APOD Hours	APODs	
Corona Regional Med Ctr	171	87:04:15	26:34:33	58	66.1%
Desert Regional Med Ctr	328	73:20:19	3:06:22	17	94.8%
Eisenhower Health	335	70:01:33	2:23:15	13	96.1%
Hemet Valley Hospital	252	182:52:02	79:34:17	132	47.6%
Inland Valley Med Ctr	215	89:02:28	21:34:58	49	77.2%
JFK Hospital	158	31:07:35	2:44:41	7	95.6%
Kaiser Hospital Moreno Valley	81	43:49:10	18:05:09	20	75.3%
Kaiser Hospital Riverside	130	84:03:59	35:23:46	56	56.9%
Loma Linda Univ Med Ctr Mur	184	97:00:18	31:54:19	58	68.5%
Menifee Med Ctr	94	60:17:21	24:04:14	36	61.7%
Palo Verde Hospital	33	3:41:00	0:00:00	0	100.0%
Parkview Community Hospital	175	49:45:06	1:05:27	12	93.1%
Rancho Springs Med Ctr	111	62:20:43	22:50:22	39	64.9%
Riverside Community Hospital	376	284:05:28	126:26:57	215	42.8%
Riverside University Health System	389	129:15:31	7:37:00	55	85.9%
San Gorgonio Mem Hospital	136	61:56:09	14:55:24	36	73.5%
Temecula Valley Hospital	120	49:11:04	7:47:42	36	70.0%
Totals	3,288	1458:54:01	426:08:26	839	74.5%

Transports and APOD Compliance by Hospital



AMBULANCE REDIRECTION

REMSA [Policy 6104](#) allows redirection of ambulances away from hospitals experiencing significant Ambulance Patient Offload Delays (APOD) to the next most appropriate facility. *Significant* APOD is defined as a patient remaining on an ambulance gurney for **90 minutes or greater after arrival at the hospital** (APOT > 90 min). Standard transfer of care is 30 minutes or less (APOT<30 min). Until the transfer of care is complete (patient is removed from the gurney and hospital staff assume care of the patient), ambulance crews must remain at the hospital and continue care. While patients held on excessive APODs are generally those classified as lower acuity, approximately one-third of the County's ~600 daily 9-1-1 medical responses are determined by dispatch as critical, requiring immediate medical attention (e.g. cardiac arrest, stroke, traumatic injury). As a result, excessive, or multiple APODs within the same service area impact ambulance timeliness and availability in the field posing direct risk to 9-1-1 patient safety. Ambulance redirection is one strategy to reduce the consequential backlog of EMS services which occurs when there are excessive ambulance delays at hospital emergency departments. Below is the Week 28 countywide breakdown of APOD occurrences where ambulances were documented as held for greater than 90 minutes before transfer of care.



- During Week 28, **126 ambulances were delayed greater than 90 minutes** — 51.8% INCREASE from the previous week's total of 83.

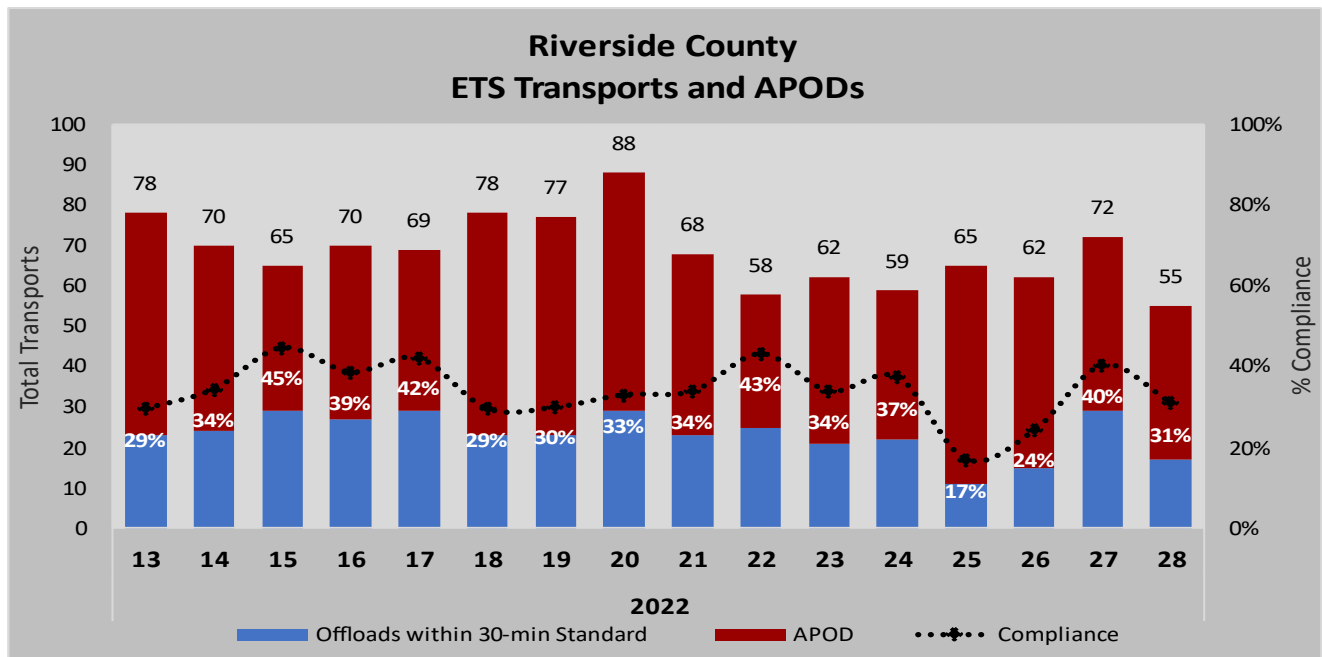
Facility	Total Time APOT>90 min (HR: MM: S)	Total Incidents APOT>90 min
Corona Regional Med Ctr	4:49:52	5
Desert Regional Med Ctr	0:00:00	0
Eisenhower Health	0:00:00	0
Hemet Valley Hospital	26:16:23	25
Inland Valley Med Ctr	2:15:18	6
JFK Hospital	0:00:00	0
Kaiser Hospital Moreno Valley	5:56:40	8
Kaiser Hospital Riverside	6:55:49	13
Loma Linda Univ Med Ctr Mur	9:24:06	12
Menifee Med Ctr	9:08:09	8
Palo Verde Hospital	0:00:00	0
Parkview Community Hospital	0:00:00	0
Rancho Springs Med Ctr	7:04:16	7
Riverside Community Hospital	21:19:05	39
Riverside University Health System	0:00:00	0
San Geronio Mem Hospital	1:30:37	3
Temecula Valley Hospital	0:00:00	0
Grand Total	94:40:15	126

EMERGENCY TREATMENT SERVICES

Transports to Emergency Treatment Services (ETS) comprise over 3% of overall transports. This is significant enough to impact the EMS system and, therefore, warrants reporting. However, transports to ETS do not meet the EMSA definitions for APOT (see page 10); therefore, they are not included with the previous APOT aggregates.

ETS Snapshot- Week 28				
	Total Offload			APOD
	Transports to ETS	Time	APOD Hours	APODs
Emergency Treatment Services	55	35:33:20	10:53:17	38
				30.9%

The chart below represents Riverside County’s total number of *ETS ambulance transports, patient offload delay (APOD), and percent compliance* for the current week and a rolling 15 weeks prior.

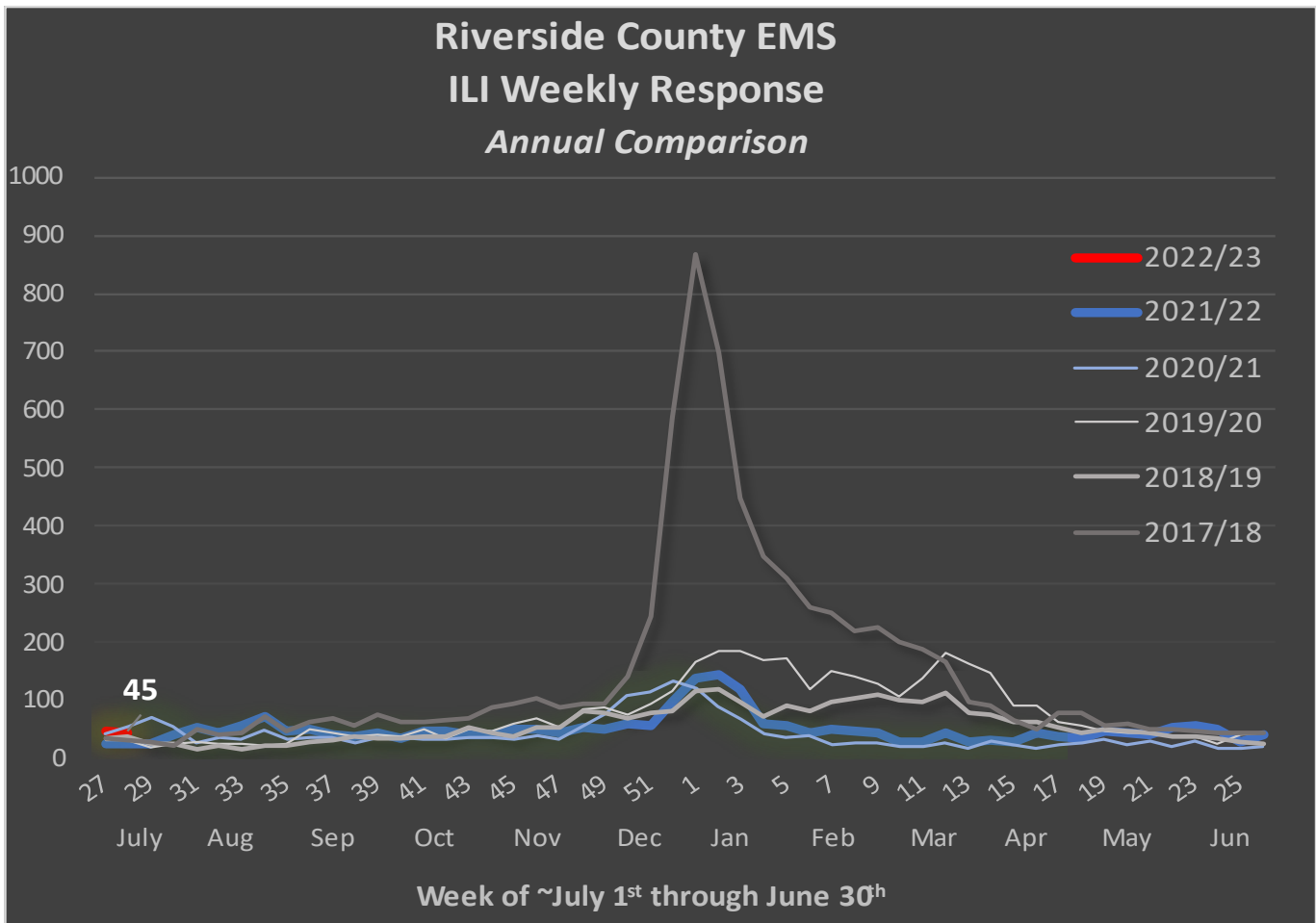


- During Week 28, there were a total of **38 ETS APODs** greater than 30 minutes— a 11.6% DECREASE from the previous week’s total of 43 ETS APODs.

ILI - INFLUENZA-LIKE ILLNESS RESPONSE

While influenza is detected year-round, it is most common during fall and winter. Increases in influenza-like-illness (ILI) generally begin in October and peak sometime between December and February (<https://www.cdc.gov/flu/about/season/flu-season.htm>).

Hospital Emergency Departments (EDs) generally experience an increase in volume during flu season which, in turn, can impact Ambulance Patient Offload Time. The purpose of the Riverside County EMS system ILI (Influenza-like Illness) reporting is to improve tracking of influenza-related activity and facilitate EMS preparedness in the event of a significant surge event, similar or greater than that observed during the 2017-18 flu season.



Week 40 (~October 1st) is defined by the Center for Disease Control (CDC) as the expected start of increasing influenza activity, or “flu season”. Riverside County EMS Agency monitors influenza-like illness (ILI) year-round for better detection of seasonal or abnormal surges which can impact EMS utilization.

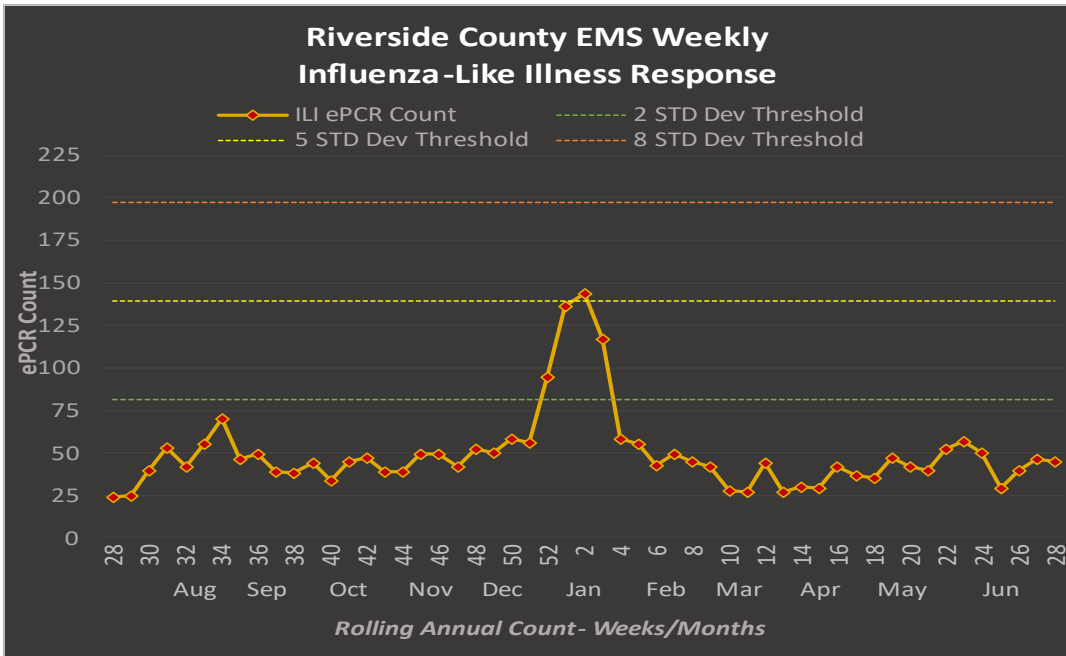
The ILI trigger evaluates electronic patient report (ePCR) data using the following methodology:

1. Filters primary or secondary impression of code J11 (Influenza due to unidentified influenza virus)
OR
2. A primary / secondary impression code J80, J98.09 (Acute respiratory distress syndrome, Respiratory disorder unspecified) with a match in the narrative for ILI, influenza like illness, Flu, Flu-, Flu\., or influenza
OR
3. Any incident with a match in the narrative for ILI, influenza like illness, Flu, Flu-, Flu\., or influenza.

ILI - INFLUENZA-LIKE ILLNESS RESPONSE *(CONT.)*

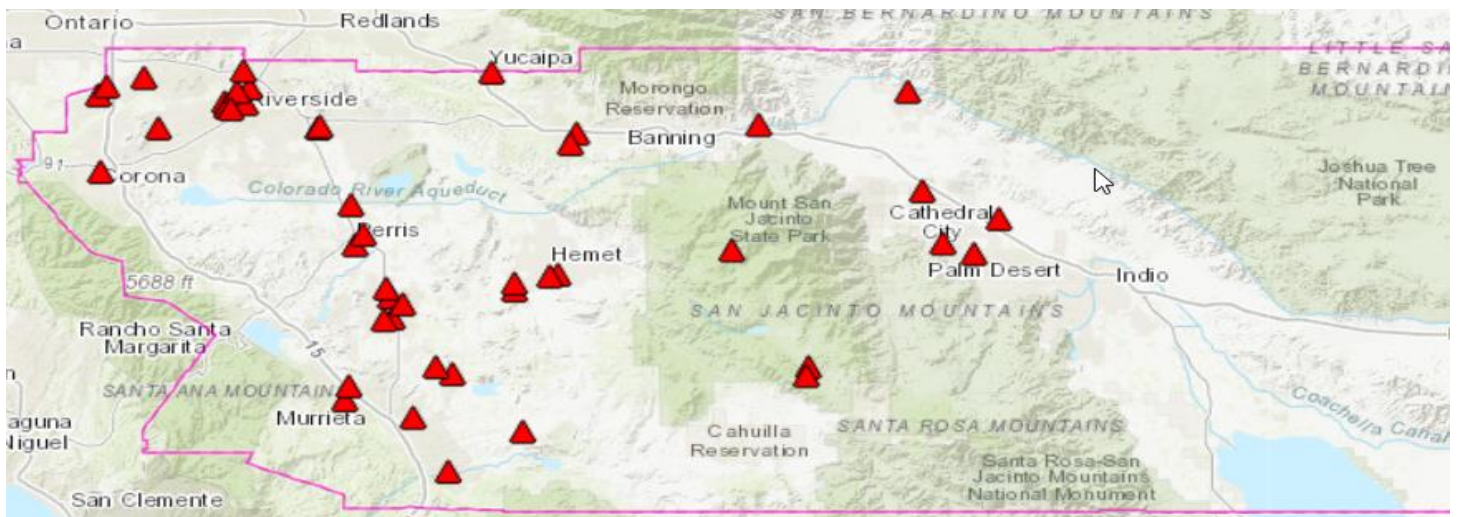
EMS ILI response two standard deviations above the calculated baseline average during non-peak flu seasons is considered a surge in flu activity. For the current Flu season 2020-'21, the standard deviation threshold value is not calculated as there was abnormal non-peak flu season behavior due to COVID-19. The threshold value listed in the graph is based on previous years non-peak flu season. Surges are identified as color levels adapted from the *CDPH Standards and Guidelines for Healthcare Surge During Emergencies* (actual response status for the EMS system may differ):

<https://www.cdph.ca.gov/Programs/EPO/CDPH%20Document%20Library/FinalEOM712011.pdf>



PUBLIC HEALTH AND MEDICAL SYSTEM STATUS	
Green	The Public Health and Medical System is in usual day-to-day status. Situation resolved; no assistance is required.
Yellow	The Public Health and Medical System is managing the incident using local resources or existing agreements. No assistance is required.
Orange	The Public Health and Medical System requires assistance from within the local jurisdiction/Operational Area.
Red	The Public Health and Medical System requires assistance from outside the local jurisdiction/Operational Area.
Black	The Public Health and Medical System requires significant assistance from outside the local jurisdiction/Operational Area.
Grey	Unknown.

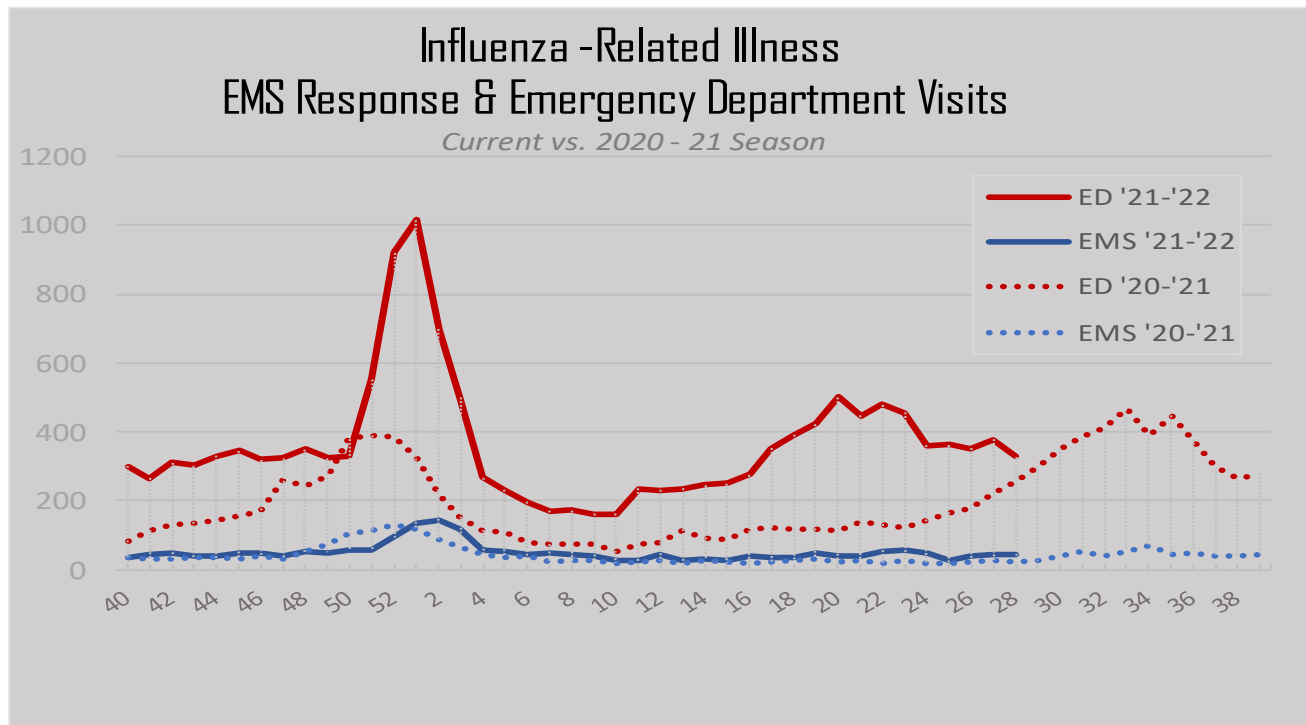
During Week 28, EMS ILI response is **BELOW** the two (2) standard deviation threshold compared to ILI activity during non-peak flu season levels (weeks 13-39).



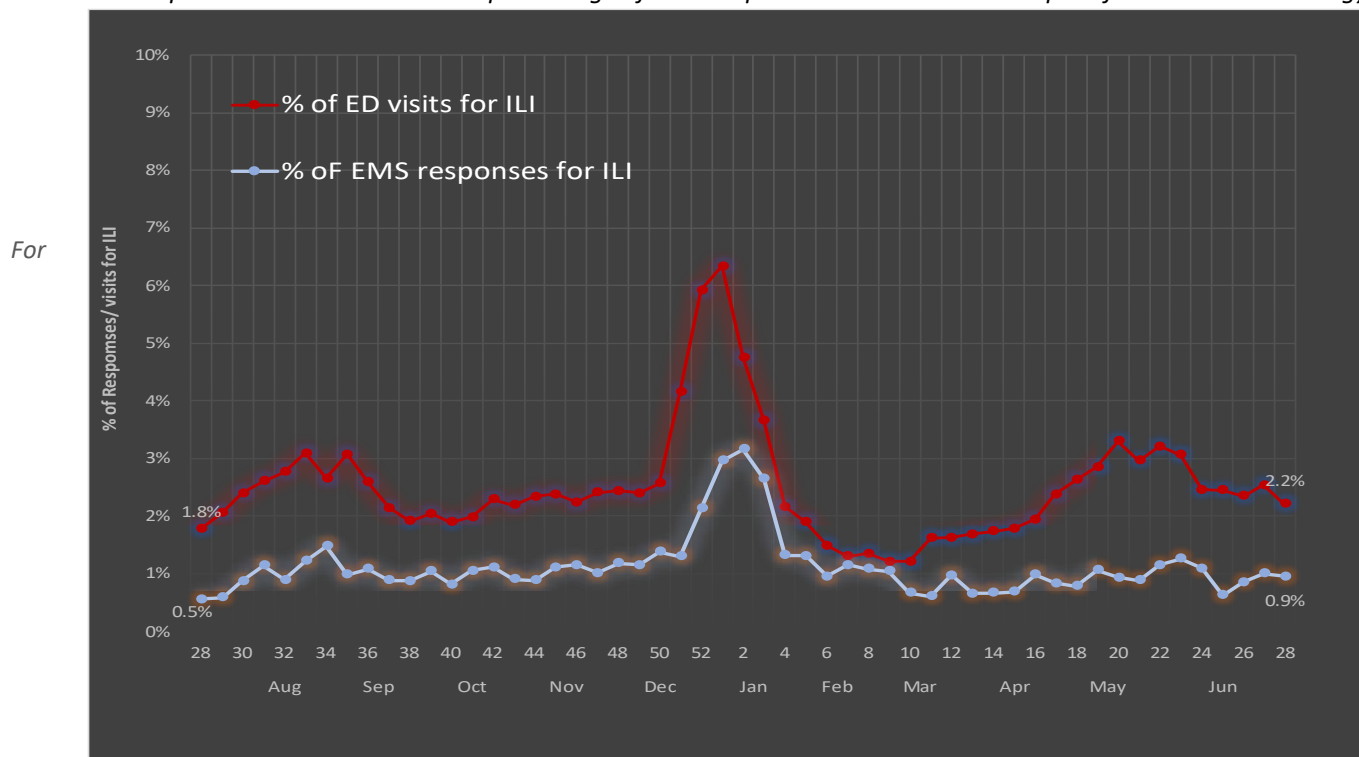
ILI-related EMS response in Riverside County, ePCR distribution map: Week 28

RIVERSIDE COUNTY PUBLIC HEALTH INFLUENZA-LIKE ILLNESS DATA

Riverside County Public Health Department – DOPH collects Emergency Department (ED) ILI activity data from the Center for Disease Control’s (CDC) *Early Notification of Community-based Epidemics (ESSENCE)* system as part of the National Syndromic Surveillance Program (NSSP). Fifteen of 17 Riverside County hospitals participate in ESSENCE. The graph below provides a comparison between Riverside County’s EMS ILI responses and Emergency Department (ED) ILI visits for the current year compared to the previous year.



EMS ILI responses and ED ILI visits as a percentage of their respective total volume – adapted from CDC methodology

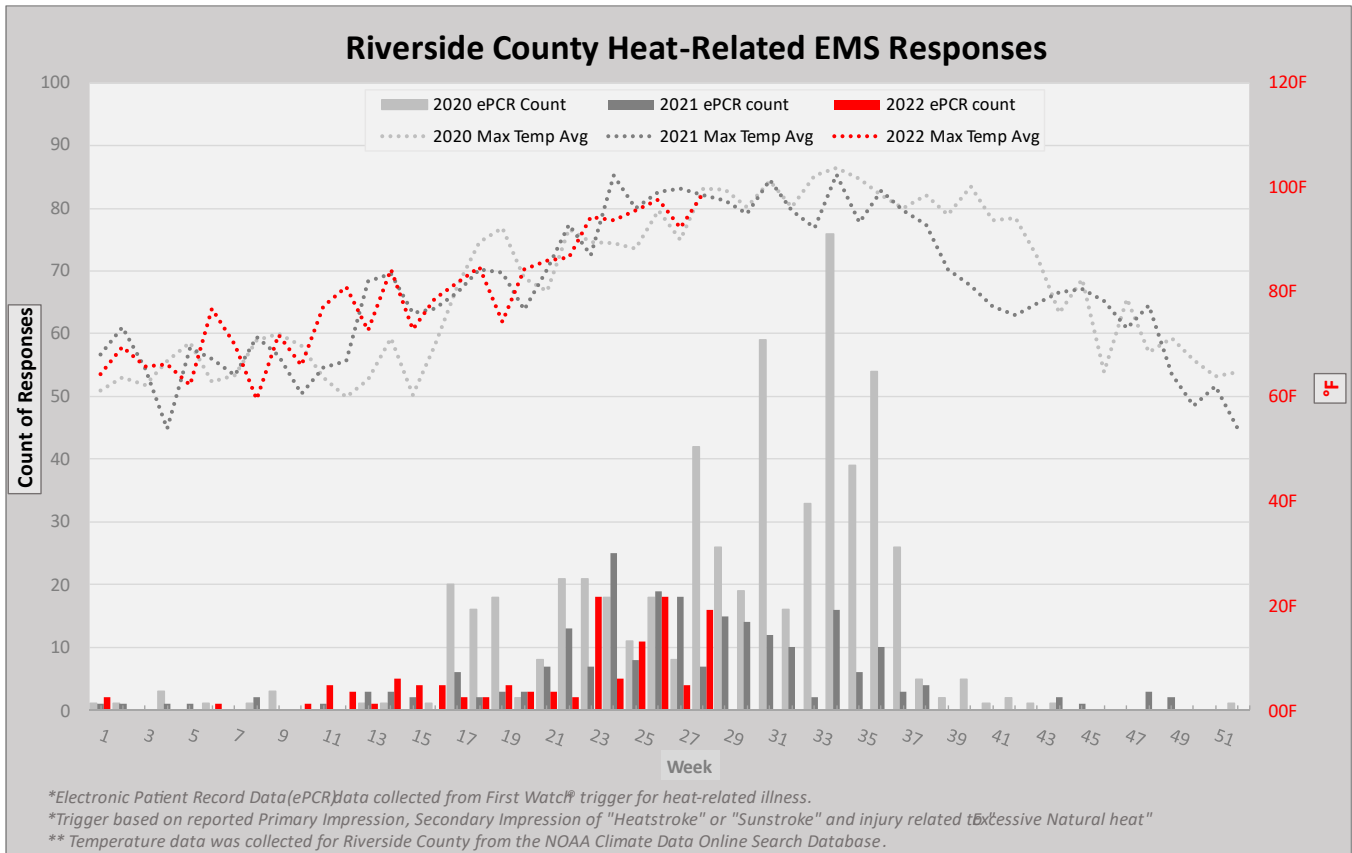


Riverside County Public Health Department Influenza Reporting, see <https://www.rivco-diseasecontrol.org/>

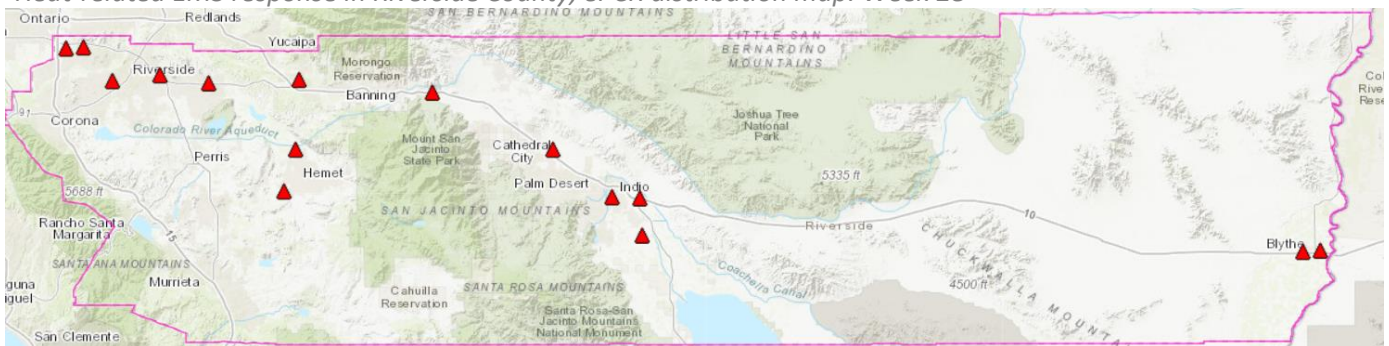
HEAT-RELATED RESPONSE

Excessive heat exposure kills more people than any other weather-related phenomenon, aggravates chronic diseases, and causes direct heat illness^{7,8,9,10}. Relationships between extreme heat and health can be identified through increased hospitalizations, emergency department visits and demand for emergency medical services (EMS).

The graph below illustrates total EMS heat-related responses by week from 2020 through the current Week 28 and compares them against maximum temperature averages across Riverside County for the same week. Climate data is obtained from the National Climate Data Center, National Oceanic and Atmospheric Administration - NOAA.



Heat-related EMS response in Riverside County, ePCR distribution map: Week 28



APOT AND APOD DEFINITIONS

9-1-1 Ambulance Response

For the purpose of reporting valid, unduplicated response counts, only ground transport units responding to 9-1-1 incidents are included in this report. This excludes records from First Responder Fire Agencies arriving on scene with transport agencies as part of Riverside County's 9-1-1 dual medical response system. It also excludes non-emergency interfacility or other transport types (i.e., air ambulance) where a 30-minute time standard would not apply.

Ambulance Patient Offload Time (APOT)

The time interval between the arrival of an 9-1-1 patient at an Emergency Department (ED) and the time that patient is transferred from the ambulance gurney to a bed, chair, or other acceptable location, and the ED assumes responsibility of care.¹ The Clock Start (eTimes.11) is the time of patient arrival at the destination (hospital), and the Clock Stop (eTimes.12) is the time patient care is transferred.² REMSA obtains both times from the ePCR.

Ambulance Patient Offload Delay (APOD)

Any delay in ambulance patient offload time (APOT) that exceeds the local ambulance patient offload time standard of 25/30 minutes (Riverside County EMS Agency applies a 30-minute standard). This shall also be synonymous with "non-standard patient offload time" as referenced in the Health and Safety Code.³ If the transfer of care and patient offload from the ambulance gurney exceeds the 30-minute standard, it will be documented and tracked as APOD.⁴ *The Riverside County ePCR system requires medics to enter an "APOD Reason" when APOT exceeds the 30-minute standard. While the number of APODs documented as non-ED-related is nominal, beginning in Week-1 of 2022, only delays identified as having an ED origin are counted against APOD compliance for a more precise metric.*

APOD Compliance

Frequency comparison expressed in percentage between the total number of transports and those resulting in APODs having a documented ED-related origin.

Emergency Treatment Services (ETS) Ambulance Patient Offload Delay (APOD)

Transport to ETS maintains the 30-minute offload standard, however, ETS APOD includes 9-1-1 and interfacility transports (IFTs) as approximately three-quarters of ETS transports are IFTs from other medical facilities.

Additional Data Definitions

Data in this report has been collected from ePCRs (electronic patient care reports) from FirstWatch® and are available after they have been completed by the provider. There is, therefore, an inherent latency to the availability of these records. Due to this latency, subsequent reports may feature slightly different aggregate numbers than earlier reports for the same reporting period. The difference is insignificant (averaging less than .1%) and does not impact overall compliance.

Data in this report includes all transports to the 17 hospitals monitored by REMSA in the respective week relative to the date and time the incident originates (eTimes.03--Dispatch Notified Date/Time). For example, if an incident originates on day-7 of the current reporting week, and the patient is subsequently transferred to the care of an emergency department after midnight which falls on day-1 of the subsequent week, that incident will be included in the current reporting week.

-For inquiries, please contact EMS Administrator, TDouville@rivco.org

-Current report prepared by Sudha Mahesh & Catherine Borna Farrokhi, Riverside County EMS Agency

-ESSENCE Emergency Department data compiled by Rick Lopez, Riverside County Department of Public Health

¹ Health and Safety Code Division 2.5, Chapter 3, Article 1, Section 1797.120(b)

² Ambulance Patient Offload Time (APOT) Standardized Methods for Data Collection and Reporting, approved by EMS Commission 12/14/2016. https://emsa.ca.gov/wp-content/uploads/sites/71/2017/09/APOT-Methodology_Guidance-2016.pdf

³ Ibid., APOT-1 Specifications

⁴ REMSA Policy 4109, Transfer of Patient Care. <https://www.remsa.us/policy/4109.pdf>

⁷ Calkins MM, Isaksen TB, Stubbs BA, Yost MG, Fenske RA (2016). Impacts of extreme heat on emergency medical service calls in King County, Washington, 2007-2012: relative risk and time series analyses of basic and advanced life support. *Environ Health*. doi: 10.1186/s12940-016-0109-0

⁸ Sheridan SC, Kalkstein AM, Kalkstein LS (2009). Trends in heat-related mortality in the United States, 1975–2004. *Natural Hazards* 50:1, 145-160

⁹ Guo Y, Gasparrini A, Armstrong BG (2017). Heat Wave and Mortality: A Multicountry, Multicommunity Study. *Environ Health Perspect*. 2017;125(8):087006. doi:10.1289/EHP1026

¹⁰ CDC, Climate and Health Program. 2010. <https://www.cdc.gov/climateandhealth/effects/default.htm>