RIVERSIDE COUNTY EMS AGENCY

Ambulance Patient Offload Time

Week 03 (01/16/22 – 01/22/22)

2021-22 Seasonal Report

This report and all current and recent APOT reports can be found online at:
http://www.rivcoems.org/Documents/Reports-Current

Prepared by Riverside County EMS Agency – January 25, 2022

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 Ambulance Responses, Transports, and Ambulance Patient Offload Delays (APOD) for the past 16 weeks.

Weekly Transports and APODs
2021 Week 40 through 2022 Week 3

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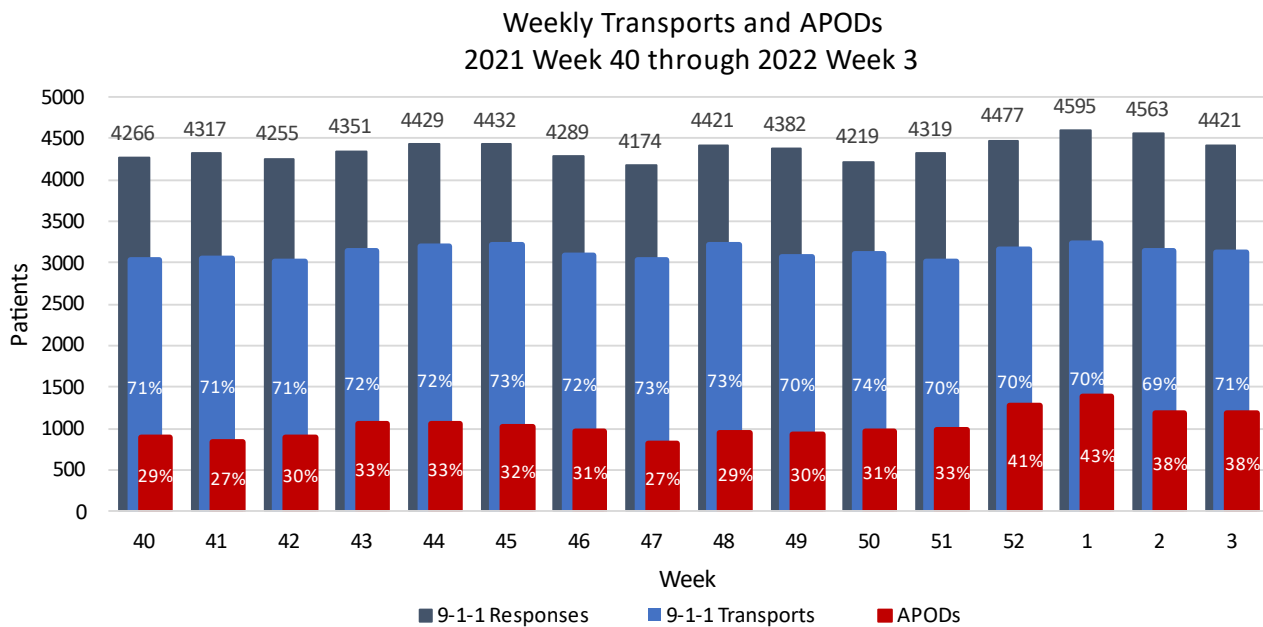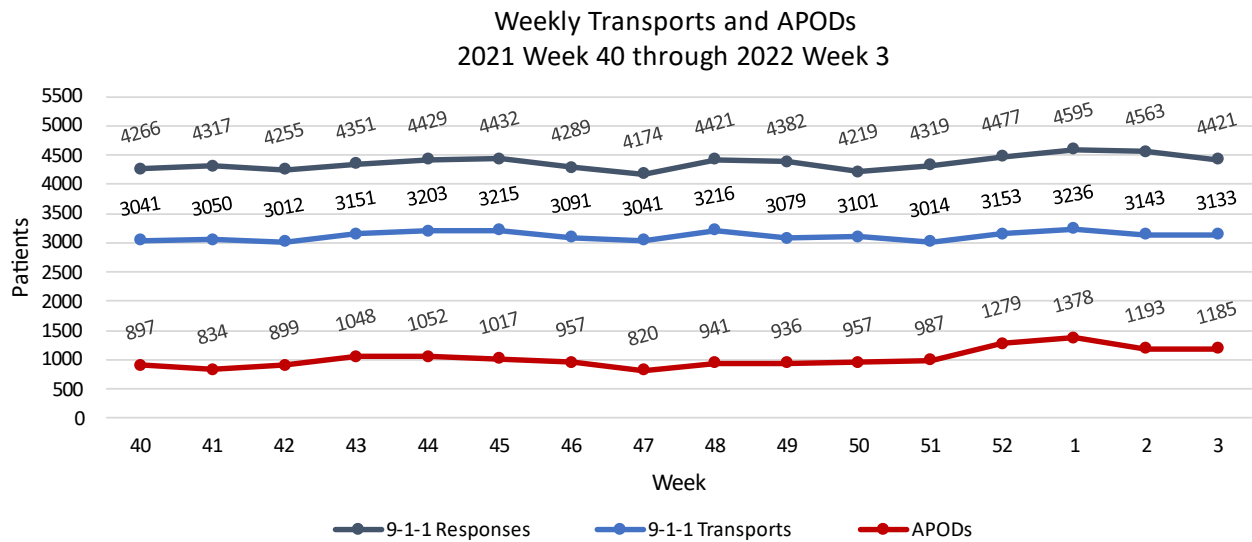
Transports include only 9-1-1 transports to Riverside county hospitals

- During Week 3, there were a total of **4,421 ALS responses** in Riverside County— 3.1% DECREASE from the previous week's total of 4,563 responses.
- During Week 3, there were a total of **3,133 transports** in Riverside County—0.3% DECREASE from the previous week's 3,143 transports.
- During Week 3, there were a total of **1,185 APODs** in Riverside County— 0.7 % DECREASE from the previous week's total of 1,193 APODs.
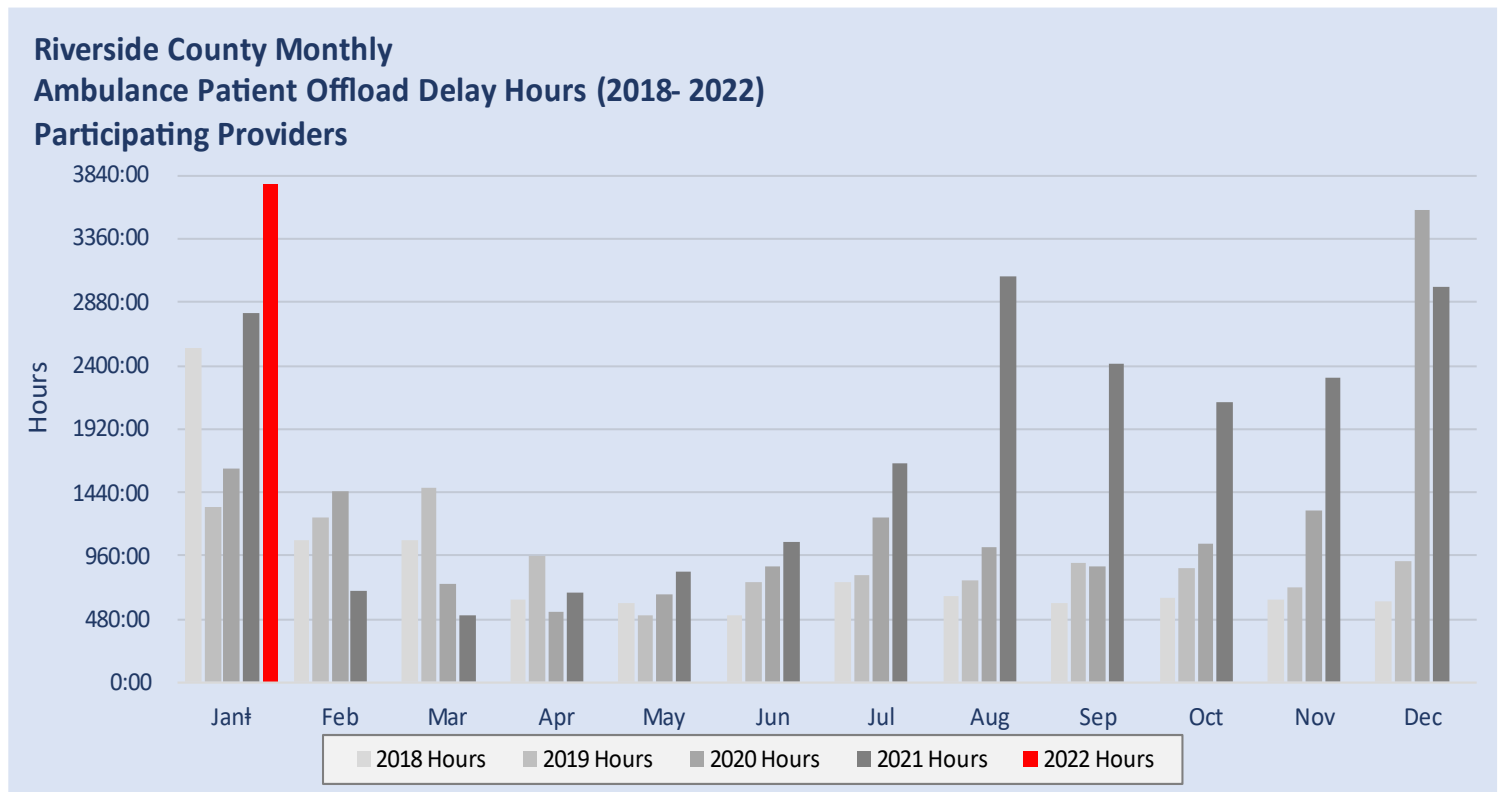
RIVERSIDE COUNTY AMBULANCE PATIENT OFFLOAD TIME

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.

Weekly APOT and APOD Hours
2021 Week 40 through 2022 Week 3
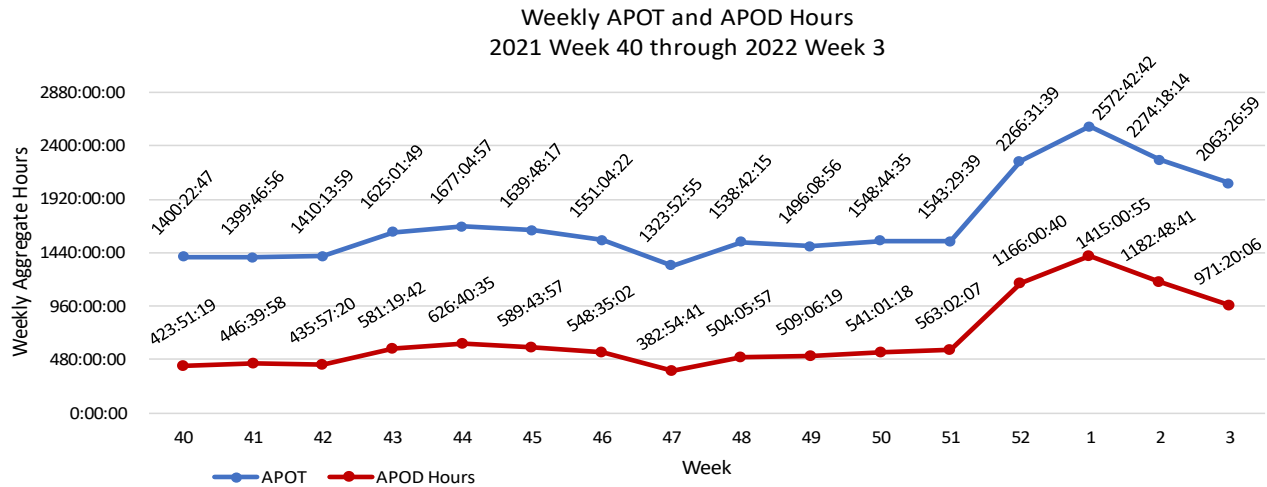
- During Week 3, **APOT county-wide totaled 2063.4 hours** — 9.3% DECREASE the previous week's total of 2274.3 hours.
- County-wide **APOD hours for Week 3 totaled 971.3 hours**, a 17.9% DECREASE from the previous week's total of 1182.8 hours.

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.

Riverside County Monthly
Ambulance Patient Offload Delay Hours (2018- 2022)
Participating Providers

ǂ Jan 2022 *is a partial month*

AMBULANCE PATIENT OFFLOAD TIME BY HOSPITAL

Key: **High** (red) **Low/Best** (blue)

	APOT Snapshot				
	ALS Transports	APOT	APOD Hours	APODs	APOD Compliance
Corona Regional Med Ctr	151	188:25:51	124:00:16	98	35.1%
Desert Regional Med Ctr	317	137:09:34	48:49:18	68	78.5%
Eisenhower Health	365	111:50:30	22:43:29	52	85.8%
Hemet Valley Hospital	197	218:00:07	132:12:06	129	34.5%
Inland Valley Med Ctr	178	124:00:41	55:18:41	86	51.7%
JFK Hospital	143	20:28:29	0:42:49	4	97.2%
Kaiser Hospital Moreno Valley	78	47:11:33	19:13:02	33	57.7%
Kaiser Hospital Riverside	138	129:53:34	73:28:30	71	48.6%
Loma Linda Univ Med Ctr Mur	189	118:40:58	46:40:49	76	59.8%
Menifee Med Ctr	74	95:10:13	62:03:55	49	**33.8%**
Palo Verde Hospital	**30**	**3:13:56**	**0:00:00**	**0**	**100.0%**
Parkview Community Hospital	190	114:37:17	41:48:58	80	57.9%
Rancho Springs Med Ctr	140	132:07:18	78:52:09	62	55.7%
Riverside Community Hospital	278	**271:25:13**	**149:53:29**	**177**	36.3%
Riverside University Health System	**395**	141:07:14	9:32:05	66	83.3%
San Gorgonio Mem Hospital	128	98:29:55	49:03:09	60	53.1%
Temecula Valley Hospital	142	111:34:36	56:57:21	74	47.9%
Totals	**3,133**	**2063:26:59**	**971:20:06**	**1185**	**62.2%**

Transports and APOD Compliance by Hospital

Legend: ■ Offloads within 30-min Standard ■ APODs
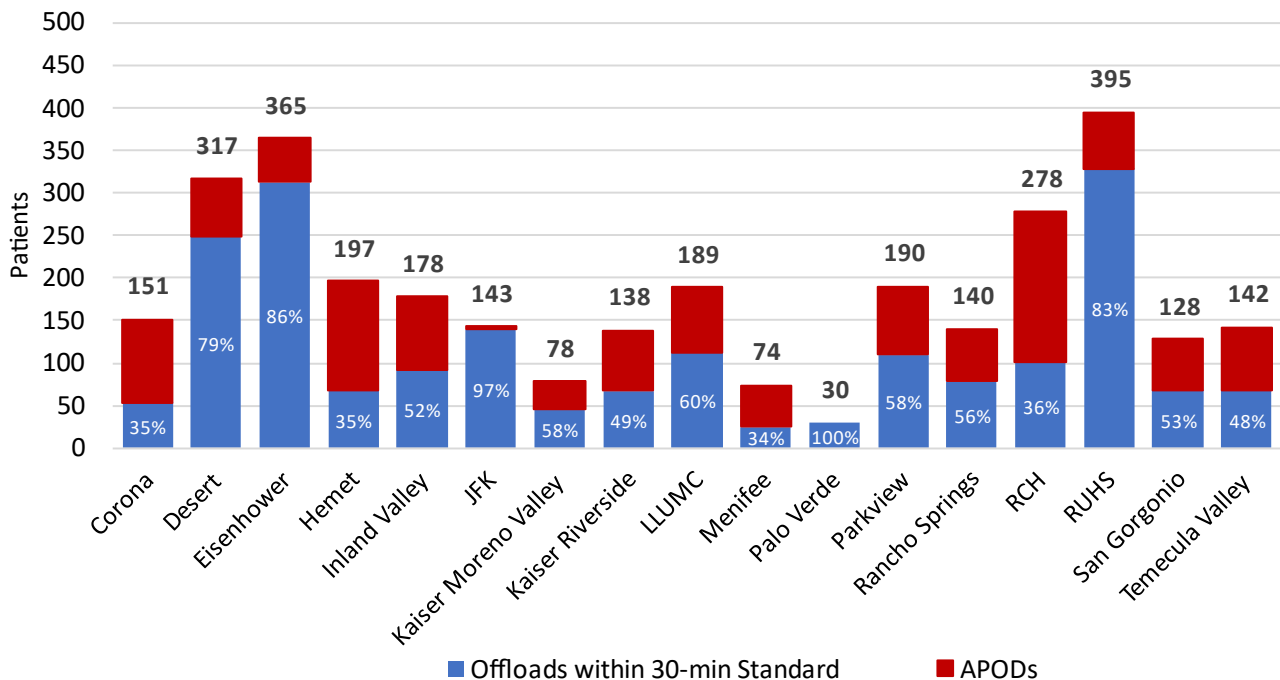
AMBULANCE REDIRECTION

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 3 countywide breakdown of APOD occurrences where ambulances were documented as held for greater than 90 minutes before transfer of care.

## Patient Offload Delays Greater than 90 Minutes
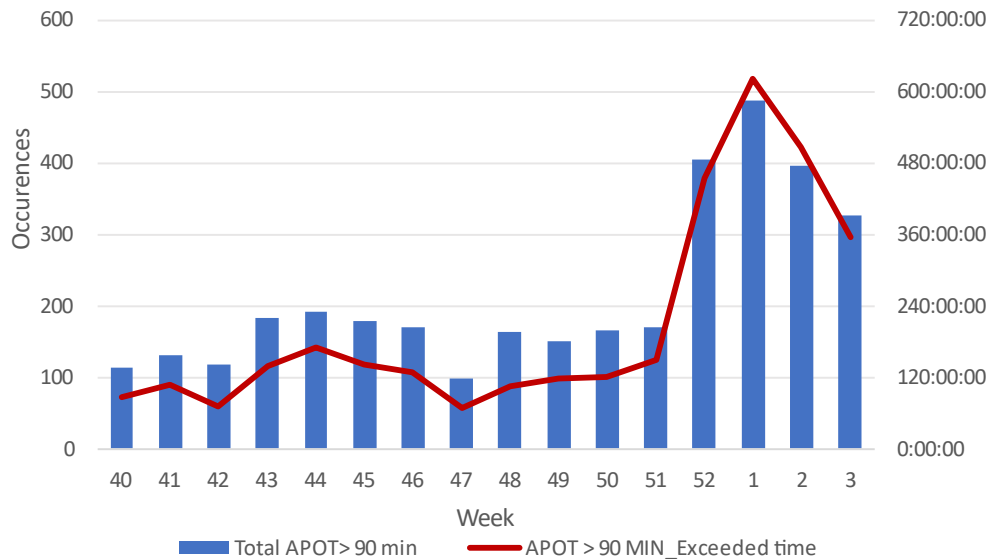
During Week 3, **328 ambulances were delayed greater than 90 minutes** — 17.2% DECREASE from the previous week's total of 396.

Facility	Total Time APOT>90 min (HR: MM: S)	Total Incidents APOT>90 min
Corona Regional Med Ctr	63:50:39	44
Desert Regional Med Ctr	13:00:32	19
Eisenhower Health	3:43:36	5
Hemet Valley Hospital	56:46:23	44
Inland Valley Med Ctr	13:53:31	19
JFK Hospital	0:00:00	0
Kaiser Hospital Moreno Valley	5:25:53	6
Kaiser Hospital Riverside	29:08:11	27
Loma Linda Univ Med Ctr Mur	12:12:08	17
Menifee Med Ctr	29:46:46	23
Palo Verde Hospital	0:00:00	0
Parkview Community Hospital	6:31:04	11
Rancho Springs Med Ctr	40:37:50	26
Riverside Community Hospital	49:38:12	51
Riverside University Health System	0:21:17	1
San Gorgonio Mem Hospital	14:06:05	19
Temecula Valley Hospital	16:13:04	16
Grand Total	**355:15:11**	**328**

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.
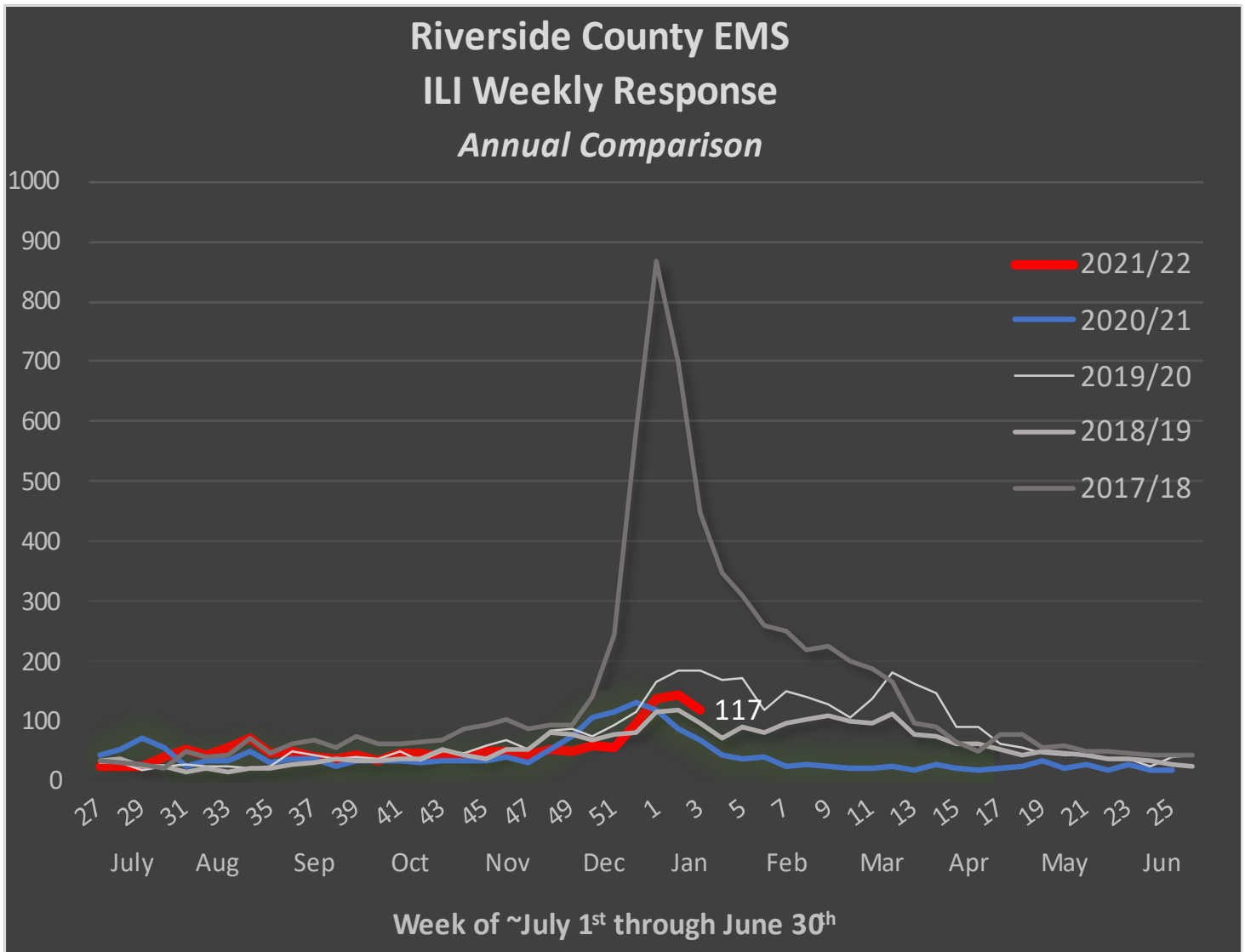
Week 40 (~October 1st) is defined by the Center for Disease Control (CDC) as the expected start of increasing influenza activity, or "flu season". Riverside County EMS Agency monitors influenza-like illness (ILI) year-round for better detection of seasonal or abnormal surges which can impact EMS utilization.
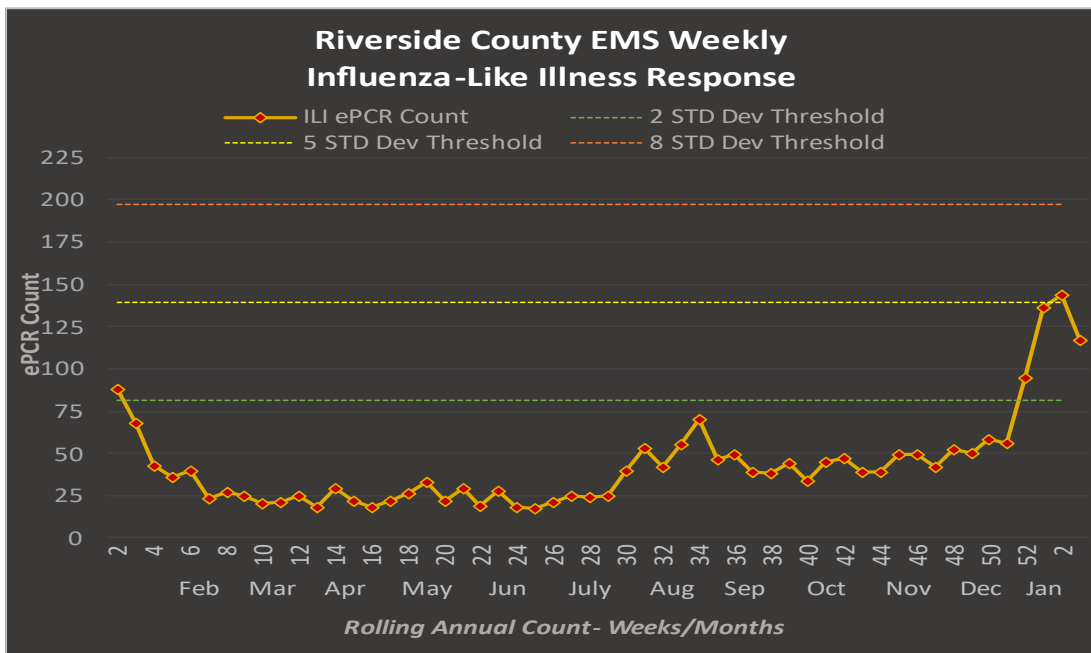
The ILI trigger evaluates electronic patient report (ePCR) data using the following methodology:

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.

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


During Week-1, EMS ILI response is ABOVE the two (2) standard deviation threshold compared to ILI activity during non-peak flu season levels (weeks 13-39).
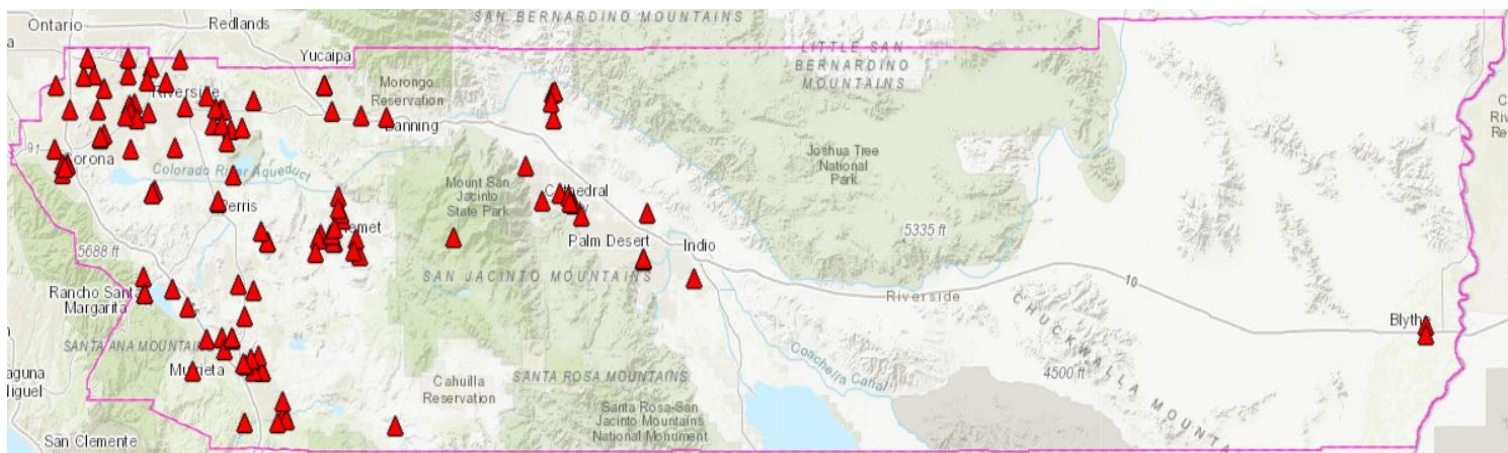

ILI-related EMS response in Riverside County, ePCR distribution map: Week 3

RIVERSIDE COUNTY PUBLIC HEALTH INFLUENZA-LIKE ILLNESS DATA

Riverside County Public Health Department – DOPH collects Emergency Department 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.
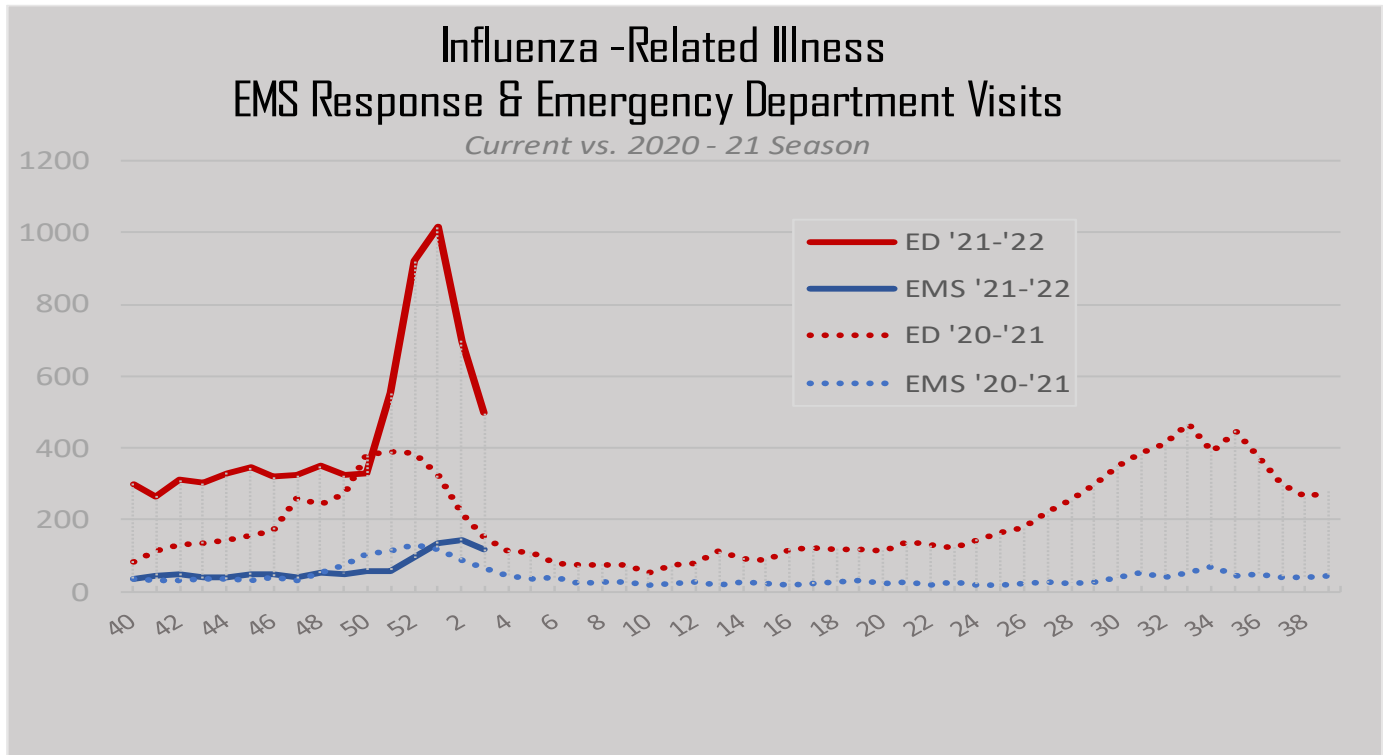
EMS ILI responses and ED ILI visits as a percentage of their respective total volume – adapted from CDC methodology
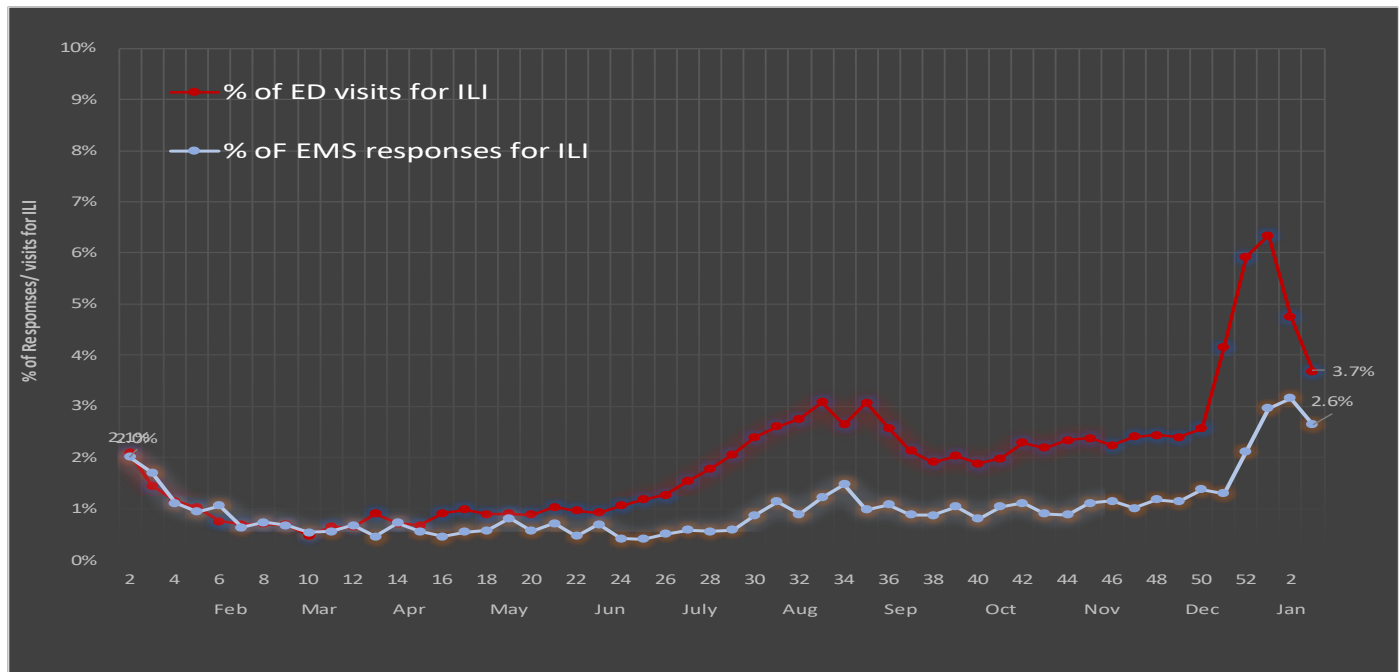
For Riverside County Public Health Department Influenza Reporting, see https://www.rivco-diseasecontrol.org/

APOT AND APOD DEFINITIONS

9-1-1 Ambulance Response
For the purpose of reporting patient offload time and delays, only ground transport units responding to 9-1-1 incidents are included in this report. To avoid duplicate response counts, this excludes all records from First Responder Fire agencies also arriving on scene as part of Riverside County's dual 9-1-1 medical response system. It also excludes interfacility transports and other call types such as air ambulances.

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 between the total number of transports and those resulting in APODs with an ED-related origin.

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.

Canceled calls, calls for which both arrival and transfer times are not present, and calls with erroneous/negative offload times are excluded. Certain incidents with offload times exceeding six hours and 12 hours are verified for accuracy, and incidents are excluded if the timeline cannot be validated.

-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

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[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