

You Call 9-1-1: Then What?

Riverside County hospital emergency department delays
may impact your care



**Riverside County Civil Grand Jury
2022-2023**

SUMMARY

The purpose of this Riverside County Civil Grand Jury report is to educate the public about the ambulance delay issues at hospital emergency departments. Timely treatment at hospital emergency departments are of the utmost importance for every resident or anyone needing such emergency medical care. Nearly 80% of all 9-1-1 calls are for medical issues and as the population in the Riverside County has increased significantly, the demand is even more acute.¹ The need for 9-1-1 fire calls diminished due to improvements in building code regulations, as well as fire prevention and education.

Riverside County Emergency Medical System Agency (REMSA) is a county department within the Emergency Management Department (EMD). REMSA collects specific data on delays. The definition of Ambulance Patient Offload Delays (APOD) is delays of more than 30 minutes of transfer of care from the ambulance to the hospital emergency department. Daily, weekly and monthly reports are developed which are available to the public, hospitals and government officials detailing the status of APOD issues.

When a call is placed to 9-1-1 for emergency medical services, protocol dictates that dispatchers must send both a Fire Rescue team, as well as an ambulance. American Medical Response (AMR) is the contracted ambulance provider for Riverside County. AMR transports the patient to the nearest or designated hospital as appropriate for the type of medical issue being addressed. High acuity patients (i.e., trauma, stroke or heart) are transported to the closest specialty accredited hospital.

Patients with non-life threatening medical issues are transported to hospitals based on dispatch information. Once patients arrive at the hospital emergency entrance, patients have experienced undue delays of being seen and cared for by hospital medical personnel. There is a direct impact on the patient's care and timeliness of being seen by hospital staff. Delays vary by hospital.

County departments, state government and professional organizations have investigated and reported on APOD. Time delays at the hospital emergency departments have not improved in any significant way. Several recommendations in this report may mitigate these issues.

¹ Riverside County Fire/Medical Emergency Command Center & Dispatch, topic: APOD, January 10, 2023, Interview.

BACKGROUND

Riverside County government is responsible for the public safety of its residents. Services provided include police, fire, ambulance, and medical care. The public relies on emergency medical services to deal with medical crises. One way the public communicates their emergency needs is through the 9-1-1 system. As the Riverside County population grew, likewise the demand for emergency services increased. According to the 2020 census the population of Riverside County is 2.4 million, making it the fourth most populated county in California and the tenth most populated county in the country. Riverside County covers 7,303 square miles.²

Emergency services have changed over the past 50 years. The 9-1-1 dispatch process was well-established by the 1970s. The Federal Emergency Medical Services Systems Act of 1973 established the Emergency Medical System (EMS). The act established funding for future planning and growth for emergency medical services.

As stated, the number of structure fires, nationwide, began to decline due to improved building codes and fire prevention programs. Fire departments are first responders to other types of emergency calls, including medical calls. Fire departments have medical equipment on their vehicles. The fire teams now include a paramedic for each vehicle.

Riverside County Fire Department and municipal fire departments were the first responders to over 190,000 9-1-1 calls for medical and fire incidents in 2022.³ In addition to fire departments' responses to fire emergency calls, ambulances are deployed for emergency medical calls.

There are 17 hospitals in Riverside County:

- Corona Regional Medical Center
- Desert Regional Medical Center
- Eisenhower Health
- Hemet Valley Hospital
- Inland Valley Medical Center
- JFK Hospital

² US Census Bureau, 2020 census, accessed March 16, 2023, <https://www.census.gov/quickfacts/riversidecountycalifornia>

³ Riverside County Fire/Medical Emergency Command Center & Dispatch, topic: APOD, January 10, 2023, Interview.

- Kaiser Hospital Moreno Valley
- Kaiser Hospital Riverside
- Loma Linda University Medical Center Murrieta
- Menifee Medical Center
- Palo Verde Hospital
- Parkview Community Hospital
- Rancho Springs Medical Center
- Riverside Community Hospital
- Riverside University Health System
- San Geronio Memorial Hospital
- Temecula Valley Hospital

Upon arrival at the hospital emergency departments, trauma, stroke, and heart patients are transferred from ambulance to the emergency treatment areas. Patients with non-life threatening medical issues are transferred into the care of the hospital emergency department at varying times depending on the hospital emergency departments' available space and personnel. The standard time for the transfer of care (TOC) of these patients from the ambulances into the hospital emergency department is 30 minutes, as assigned by State of California Emergency Medical Services Agency (EMSA). Anytime longer than 30 minutes is reported as a delay.⁴

In the early 2000s hospital emergency department delay times lengthened due to the growing population and demand for emergency services. Delays in hospital emergency departments continue to negatively impact response time of emergency transportation services and fire first responders since they are often kept in a waiting delay pattern and unavailable to be dispatched to new 9-1-1 calls.

APOD has existed for decades. Starting in 2020, the stress of the COVID-19 pandemic placed incredible pressure on all levels of the medical system bringing it to the breaking point. It has been noted the pandemic did not cause this delay issue but showed the problems more clearly. APOD compromises patient safety.⁵

⁴ Riverside County EMS Administrative Policies, approved definitions, #101, accessed March 16, 2023, <https://www.remsa.us/policy/>

⁵ CHA report 8th annual Behavioral Health Care Symposium Dec. 9, 2013, accessed March 16, 2023, <https://calhospital.org/issue/ambulance-patient-offload-time/>

METHODOLOGY

To understand the structure, staffing and response models for fire departments within Riverside County, as well as the relationships with EMS, REMSA, ambulance services, and Riverside County hospital emergency departments, the Riverside County Civil Grand Jury 2022-2023 engaged in the following:

Interviews:

- EMD/EMS leadership
- Riverside County Fire Department leadership including fire chiefs, fire captains, paramedics and Emergency Medical Technicians (EMTs)
- Private ambulance company leadership: AMR
- Riverside County medical facility: Administration leadership and other staff of Riverside University Health System (RUHS)
- Member of the Riverside County Board of Supervisors
- Riverside County Behavioral Health leadership and contractors
- City leadership in 5 cities in Riverside County

Tours:

- Emergency Management Department (EMD), county government office & warehouse
- Multiple fire stations
- AMR ambulance service local offices
- Riverside County Behavioral Health facilities
- Multiple 9-1-1 emergency dispatch service centers
- A hospital emergency department

Reviewed documents:

- Riverside County EMS Administrative Policies
- REMSA & EMS data bases
- Reviewed county and state correspondence, contracts, meetings, minutes, agendas, reports, telephone calls, and videos related to fire and medical services

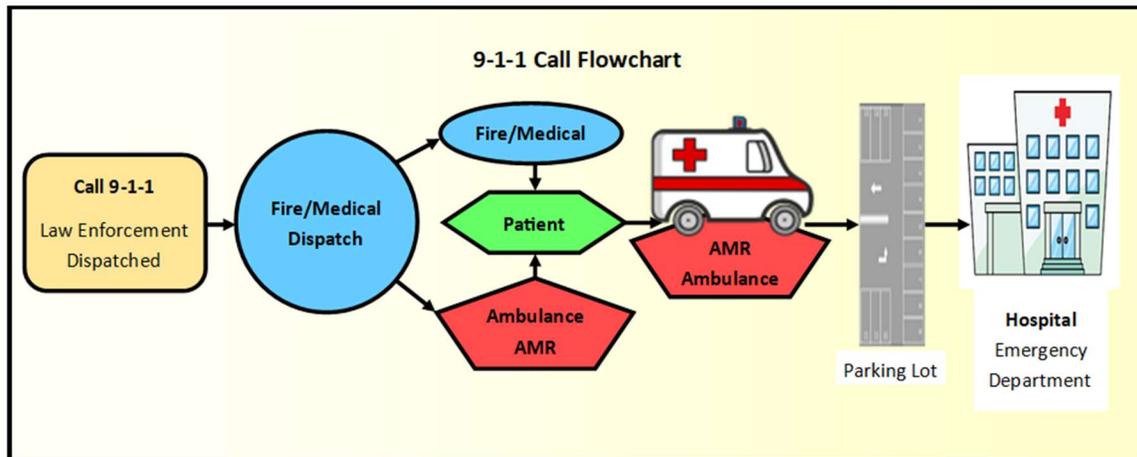
DISCUSSION

In 1968, AT&T introduced 9-1-1 as an emergency phone number in the United States (U.S). The most successful and effective public safety education program started in the U.S. is dialing 9-1-1 with emergencies. By 1979, 26% of the U.S. population were able to

dial the emergency number. This increased to 50% by 1987, and as of March 2022, 98.9% of the U.S. population has access to this service.⁶

First Responders

When someone in Riverside County dials 9-1-1, the call is received at the law enforcement 9-1-1 dispatch. If the call is medical or fire, the call is transferred to fire dispatch. Fire Departments are the first-responders for fire and medical 9-1-1 calls. When medical 9-1-1 calls are received, a fire vehicle and ambulance are dispatched. Dispatch determines the severity of the situation by the information received on the 9-1-1 call. This determination takes usually 1-2 minutes. Riverside County Fire Department contracts with individual municipalities, as well as providing protection for unincorporated areas within Riverside County. Some communities have their own fire departments and dispatch centers with similar 9-1-1 steps.



The above flowchart is an example of a typical 9-1-1 call to dispatch within Riverside County.

Fire vehicles are staffed with a minimum of three firefighters which includes at least one paramedic firefighter. Upon arrival at the scene of the 9-1-1 call, the fire team assesses the situation, provides necessary medical aid, and then transfers the patient's care to the ambulance team. Sometimes fire vehicles experience waiting for an available ambulance to arrive at the scene of the 9-1-1 call. Although fire vehicles are usually the first to arrive at the scene of the 9-1-1 call, ambulances are the only ground emergency vehicles which transport patients to the hospital emergency departments.

⁶ "9-1-1 Statistics", National Emergency Number Association, Archived, March 11, 2022. accessed March 14, 2023, <https://www.nena.org/page/911Statistics>

Ambulances are staffed in two ways:

- Basic Life Support (BLS) ambulances are staffed with two Emergency Medical Technicians (EMT)
- Advance Life Support (ALS) ambulances are staffed with at least one paramedic.

Based on the fire team's assessment of the patient at the scene, the fire team may need to have their fire paramedic travel with the ambulance to the hospital emergency department. The consequence of the fire paramedic going to the hospital emergency department with the ambulance means the fire vehicle is taken out of service, since they no longer have a paramedic available on the fire vehicle for an incoming call.

American Medical Response (AMR) is the contracted ambulance company for emergency services for all of Riverside County.⁷ They are held to response times by EMS and can be fined according to their contract. The accumulated fines of approximately \$1.2 million are collected every six months and distributed to emergency fire services in the most affected APOD areas of the county.⁸

Extended Delays

When patients having non-life threatening medical issues are transported to the hospital emergency departments, they may experience extended delays prior to being admitted to the hospital emergency departments. In Riverside County there were over 38,000 APOD incidents in 2022, compared to 31,500 APOD incidents in 2019. This shows a steady increase in hospital emergency department delays.

Ambulance personnel are required to stay with their patient's until transfer of care (TOC) to the hospital emergency department staff. High acuity patients are moved into the hospital emergency department quickly. However, non-life threatening (lower acuity) patients and the ambulances may be kept in waiting situations for longer than 30 minutes, and sometimes hours. When ambulances are held up with patients at hospital emergency departments due to APOD, the ambulances are not available to respond to other emergency calls, which results in an ambulance that is farther away being dispatched to a call.

REMSA collects data in real time and uses it for policy development, reporting and recommending improvements for emergency medical services throughout the county.

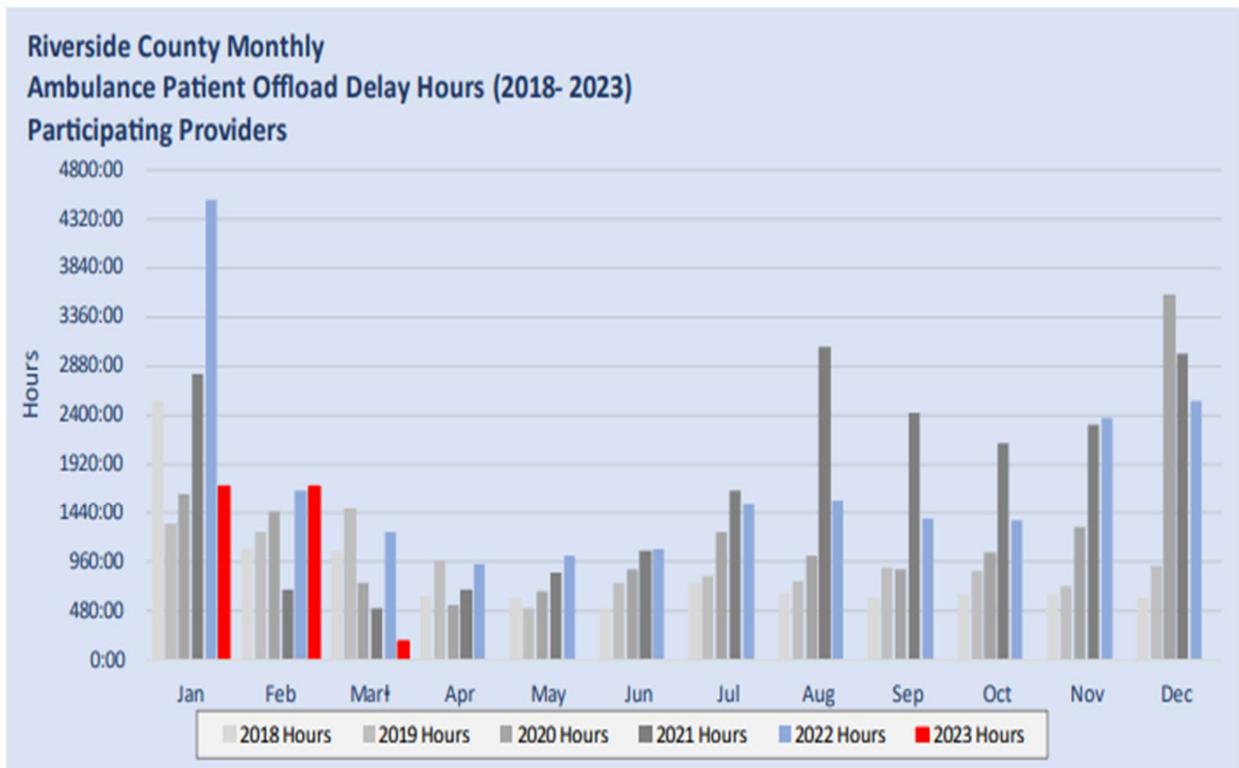
⁷ Agreement between the County of Riverside and American Medical Response Ambulance Service, Inc., for Ground Advanced Life Support Emergency Services (effective July 1, 2015), accessed March 16, 2023, <https://www.rivcoems.org/Portals/13/Documents/DOCUMENTS/CONTRACTS/AMR/Current%20AMR%20Contract%20%202015.pdf>

⁸ EMS leadership, January 11, 2023, Interview with author, topic: APOD and compliance.

Not all hospital emergency departments perform equally related to patient offload standards and transfer of care. Hospitals, emergency transporting services, fire departments, government officials, and the public have access to this data on the REMSA website.⁹ REMSA provides timely contact with hospital emergency departments which have long delays, including phone calls, emails, texts, letters, and hospital visits.

The graph below illustrates data, provided by REMSA and is included in their public published weekly reports. This graph represents five years of data collection as noted. The total hours shown on the left hand side are the delays in that month. The graph shows annual increases in delay times from month to month.¹⁰

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.



⁹ Ambulance Patient Offload Time Special Seasonal Report (weekly data reports), accessed March 16, 2023, <http://remsa.us/documents/reports/APOT/2023APOTSPECIALweek09.pdf>

¹⁰ Ambulance Patient Offload Time Special Seasonal Report (weekly data reports), accessed March 16, 2023, <http://remsa.us/documents/reports/APOT/2023APOTSPECIALweek09.pdf>

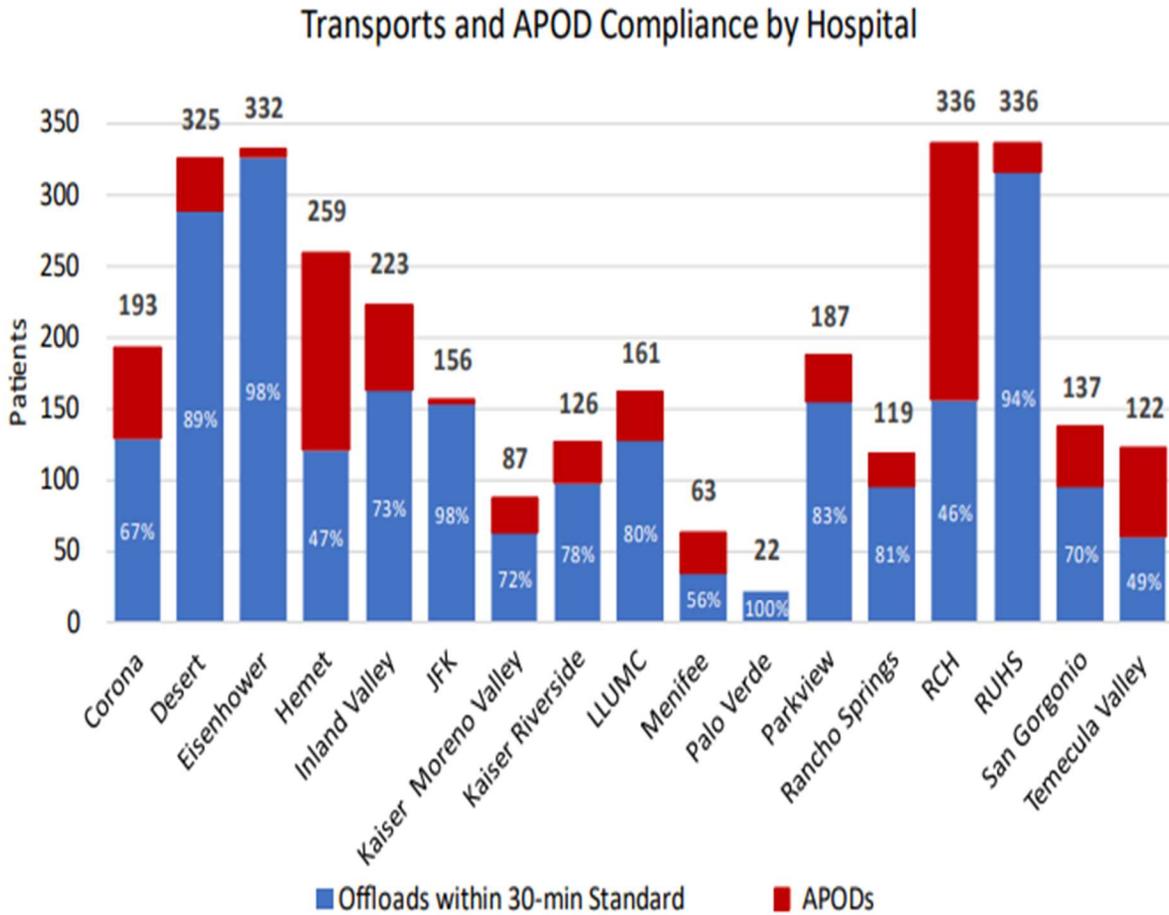
The graph below is an example of weekly data collected by REMSA and illustrates how often the patient is delayed. This data is from the week of February 26 - March 4, 2023. The compliance measures the number of patients vs. the number of delays. Green indicates the hospital is in compliance at least 90% of the time, red indicates the hospital is compliant under 70% of the time, and white indicates the hospital delay compliance is between 70% and 90%. ¹¹

AMBULANCE PATIENT OFFLOAD TIME BY HOSPITAL

	APOT Snapshot				APOD Compliance
	ALS Transports	APOT	APOD Hours	APODs	
Corona Regional Med Ctr	193	97:56:09	32:18:22	64	66.8%
Desert Regional Med Ctr	325	94:56:29	14:09:09	36	88.9%
Eisenhower Health	332	62:41:39	1:09:40	6	98.2%
Hemet Valley Hospital	259	175:42:32	65:18:44	138	46.7%
Inland Valley Med Ctr	223	97:23:22	26:26:00	60	73.1%
JFK Hospital	156	22:26:56	1:28:58	3	98.1%
Kaiser Hospital Moreno Valley	87	37:01:02	9:32:55	24	72.4%
Kaiser Hospital Riverside	126	52:53:33	12:05:22	28	77.8%
Loma Linda Univ Med Ctr Mur	161	65:23:57	11:18:06	33	79.5%
Menifee Med Ctr	63	38:16:34	14:40:55	28	55.6%
Palo Verde Hospital	22	2:22:59	0:00:00	0	100.0%
Parkview Community Hospital	187	70:18:46	11:10:54	32	82.9%
Rancho Springs Med Ctr	119	47:21:59	8:29:09	23	80.7%
Riverside Community Hospital	336	227:11:02	93:22:24	180	46.4%
Riverside University Health System	336	96:28:44	2:24:07	20	94.0%
San Geronio Mem Hospital	137	67:22:46	17:34:13	41	70.1%
Temecula Valley Hospital	122	74:37:26	26:06:53	62	49.2%
Totals	3,184	1330:25:55	347:35:51	778	75.6%

¹¹ Ambulance Patient Offload Time Special Seasonal Report (weekly data reports), accessed March 16, 2023, <http://remsa.us/documents/reports/APOT/2023APOTSPECIALweek09.pdf>
<https://www.rivcoems.org/Documents/Reports-Current>

The graph below is an example of weekly data collected by REMSA. This data is from the week of February 26 - March 4, 2023. Blue illustrates the number of patients transferred into the hospital emergency department within 30 minutes. Red illustrates the number of patients that were delayed over 30 minutes.¹²



¹² Ambulance Patient Offload Time Special Seasonal Report (weekly data reports), accessed March 16, 2023, <http://remsa.us/documents/reports/APOT/2023APOTSPECIALweek09.pdf>
<https://www.rivcoems.org/Documents/Reports-Current>

The graph below indicates information that is provided by REMSA in the weekly public published reports.¹³

COMPLIANCE. Compliance is a frequency comparison between the total number of transports and those resulting in APOD. The table below shows compliance by hospital for the last 12 months compared to the current month.

APOT % Compliance by Hospital for the last 12 months														
	2021					2022							Monthly	
	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Corona Regional Med Ctr	62%	42%	60%	65%	65%	71%	68%	63%	68%	64%	67%	58%	58%	62%
Desert Regional Med Ctr	79%	78%	84%	93%	94%	94%	98%	95%	98%	97%	96%	92%	90%	91%
Eisenhower Health	93%	91%	93%	97%	97%	99%	99%	98%	97%	96%	98%	96%	95%	96%
Hemet Valley Hospital	39%	40%	46%	54%	69%	68%	57%	52%	62%	55%	58%	50%	42%	53%
Inland Valley Med Ctr	63%	51%	65%	75%	75%	70%	73%	74%	71%	81%	76%	78%	72%	71%
JFK Hospital	99%	98%	98%	99%	99%	100%	99%	98%	99%	100%	100%	98%	99%	99%
Kaiser Hospital Moreno Valley	60%	57%	72%	68%	62%	72%	79%	71%	73%	81%	75%	65%	78%	70%
Kaiser Hospital Riverside	56%	51%	63%	59%	60%	66%	64%	58%	58%	62%	57%	52%	62%	59%
Loma Linda Univ Med Ctr Mur	66%	64%	77%	83%	83%	80%	84%	79%	75%	82%	75%	71%	63%	76%
Menifee Med Ctr	46%	39%	58%	71%	72%	78%	76%	73%	62%	69%	73%	40%	40%	61%
Palo Verde Hospital	97%	100%	95%	96%	97%	98%	100%	100%	96%	99%	98%	97%	96%	98%
Parkview Community Hospital	62%	53%	73%	83%	85%	85%	89%	92%	94%	88%	90%	77%	75%	80%
Rancho Springs Med Ctr	68%	51%	70%	81%	79%	76%	76%	70%	69%	77%	79%	73%	80%	73%
Riverside Community Hospital	41%	41%	55%	59%	61%	60%	62%	52%	50%	51%	54%	46%	48%	52%
Riverside University Health System	81%	76%	90%	93%	93%	92%	93%	92%	91%	88%	91%	89%	88%	89%
San Geronio Mem Hospital	67%	55%	77%	88%	84%	91%	79%	81%	77%	81%	82%	65%	61%	76%
Temecula Valley Hospital	59%	52%	62%	80%	87%	79%	82%	69%	79%	76%	72%	66%	56%	71%
Riverside County Compliance	67%	63%	74%	79%	81%	81%	81%	77%	78%	79%	79%	73%	72%	76%

Hospitals Issues

Of the 17 hospitals in Riverside County, six hospitals use Public Safety Enterprise Communications radio (PSEC). The hospitals use these radios in a system to communicate with first responders, fire/medical dispatch and other hospital emergency departments. This helps them communicate the possible need to re-direct incoming ambulances to other hospital emergency departments due to limited resources.

The California Hospital Association (CHA) reports there are many factors to explain the delays which occur at hospital emergency departments and has produced documents to

¹³ Ambulance Patient Offload Time Special Seasonal Report (weekly data reports), accessed March 16, 2023, http://remsa.us/documents/reports/APOT/2022_APOTDec.pdf

describe ambulance patient offload times (APOT).¹⁴ CHA's goal is to provide efficient and timely TOC of the patient to the receiving hospital emergency department. Patients are triaged (evaluated for their medical situation), the most medically needy patients receive care first. CHA estimates 77% of transported patients are of lower acuity and do not need emergency care.¹⁵

CHA explains some of the barriers at hospital emergency departments including limited physical space, limited staffing and other issues in recent years, such as the pandemic, patients with substance abuse, and patients with behavioral health needs using the hospital emergency departments for care or medications.¹⁶ County residents sometimes have no primary care doctor and use the hospital emergency departments for their routine medical needs.

Research shows that additional barriers originate in the California State government. The California Department of Health - Licensing and Certification provides oversight for all California hospitals.

Pandemic Influence

COVID-19 stressed the system in 2020-2021. COVID-19 had many impacts on the Emergency Medical Systems (EMS) affecting fire departments, ambulances, hospital emergency departments, and hospitals' inpatient capacity. In 2022-2023, these COVID-19 stresses are beginning to decrease. EMS states that COVID-19 did not cause APOD but exacerbated an already stressed medical system.

COVID-19 stressed staffing for first responders (fire departments, ambulance services, paramedics, EMTs), since training programs for these medical personnel were halted in 2020-2021. This created a shortage of new paramedics as well as nurses and other medical personnel. Even as training programs resumed in mid-2022, fewer applicants have been recruited or shown interest in these medical fields. This has impacted the available personnel creating shortages, and may take a few years to resolve.

¹⁴ A Path Forward on APOT, December, 2022, accessed March 16, 2023, <https://calhospital.org/a-path-forward-on-ambulance-patient-offload-times/>

¹⁵ Concern for Patient Safety Drives Opposition to Ambulance Offload Bill, (Assembly Bill 40), December 15, 2022, accessed March 16, 2023, <https://calhospital.org/concern-for-patient-safety-drives-opposition-to-ambulance-offload-bill/>

¹⁶ Source document: Letter from California Hospital Association, California Professional Firefighters, dated February 7, 2022 to Secretary of Health and Human Services Agency and Emergency Medical Authority.

Small Increments of Change Can Lead to Better Services

Despite committees and organizations efforts, plus reports at the state and county levels, delays at the hospital emergency departments continue. The Riverside County Board of Supervisors created an Ad Hoc committee in January 2022, to address the issues of APOD.¹⁷ The California State Assembly has held hearings over the past several years investigating the cause and effect of these delays. On January 19, 2022, the California State Assembly created an Ad Hoc committee to study APOD issues. In response to the Ad Hoc committee, a report was produced by EMSA and California Department of Public Health on June 29, 2022, listing a number of recommendations to reduce APOD and hospital emergency department delay times.¹⁸

While REMSA has implemented those suggestions, delays continue to exist at lower compliance hospital emergency departments in Riverside County. In an attempt to reduce APOD while working with hospital administrators, REMSA has steadily increased communication and coordination through a campaign of system engagement which includes all the following:¹⁹

- Real-time data alerts and notifications
- Daily email reports
- Weekly reports
- Monthly reports
- Presentations
- Policy development for mitigation and management
- Monthly notification letters to hospital administrators
- Real-time phone calls and text messages to hospital administrators
- APOT compliance reporting to the California EMS Authority (EMSA)
- Mandating additional ambulances be staffed
- EMS duty officers, EMS duty chiefs and the Riverside County EMS administrator physically responding to hospitals to observe the APOD
- Participation on the state level APOT Committee commissioned by EMSA
- Contribution to the development of State Health and Safety Code statutes

¹⁷ Riverside County Board of Supervisors meeting, “Authorization for Fire Ad Hoc Committee to Evaluate Ambulance Patient Offload Delay (APOD)/Wall Time Solutions”, January 11, 2022 live-stream recorded, <http://riversidecountyca.iqm2.com/Citizens/SplitView.aspx?Mode=Video&MeetingID=2638>

¹⁸ California State Assembly Committee on Emergency Management, “The Impact of Ambulance Patient Offload Delays on Emergency Response”, live-stream recorded meeting, January 19, 2022, <https://www.assembly.ca.gov/media/assembly-emergency-management-committee-20220119>

¹⁹ EMS leadership, October 24, 2022, email message to author, topic: reduce APOD.

- Coauthoring published research which was significant in setting methodology for APOT measuring
- EMS advisories
- Engineering and reengineering data collection and reporting software

A few of the Riverside County hospitals have implemented improvement procedures by developing specific plans to reduce the APOD times and hospital emergency department TOC (transfer of care). Riverside University Health System (RUHS) has implemented specific procedures to address expediting TOC from the ambulance to the receiving duty nurse to the emergency exam rooms and specialty teams, thus reducing APOD. These procedures include:

- The parking area for ambulances and fire trucks was evaluated and changed to better accommodate the first-responders and eliminate the “log-jam” of vehicles.
- RUHS seeks to make every minute efficient throughout the organization.
- RUHS employees have taken personal responsibility for assuring all patient care and functions help for the best outcomes from admission to discharge.
- RUHS values flexibility and can pivot to open spaces and staffing. (i.e. Some areas are now multipurpose, such as from “lobby” to “hospital emergency department space”)
- There is a dedicated hospital emergency department nurse who triages all ambulance arrivals. This person evaluates the incoming patients’ needs, and hospital emergency department space and treatment room availability. Upon receiving the patient, the TOC happens from the ambulance to the hospital emergency department.
- Point-of-care services (labs and some x-rays) are located within RUHS emergency department for quick results.
- The walk-in patients are triaged in another area within the hospital emergency department.²⁰

City of Corona Fire Department: Other ideas to improve APOD wait times come from individual cities within Riverside County. The City of Corona is the first with a pilot program called “Safety-Net Ambulance Program” to have available one additional ambulance staffed by City of Corona Fire Department paramedics. The agreement between AMR and Corona Fire Department will provide ambulance service in emergency situations where there are no available ambulances in the area.²¹

²⁰ Leadership of RUHS, interview with author, November 1, 2022, topic APOD.

²¹ City of Corona Fire Department and AMR Emergency Vehicle Use Agreement, email message to author, February 1, 2023.

City of Riverside Fire Department: The City of Riverside Fire Department has purchased a multi-purpose squad vehicle which can transport people in an emergency, primarily injured first responders, but also critical patients when no other ambulance is available.

Fire and Medical Dispatch

Emergency Medical Dispatch: The Fire and Medical Dispatch Center for Riverside County uses several methods during 9-1-1 dispatch call questioning to maximize efficiencies of fire and ambulance response. During the call, dispatchers use Emergency Medical Dispatch protocols to rate the severity of the call, provide verbal instructions while the patient is waiting for the arrival of the first responders, relay the information to the emergency responders, and stay on the line with the caller until emergency responders have arrived. The question protocols have been approved through the International Academy of Emergency Dispatch (IAED) for research-based accuracy.²²

Differential Dispatch: The dispatcher makes decisions regarding the severity of the 9-1-1 call and rates the situation to direct resources to the most medically severe patients. This allows ambulances going to non-life threatening situations to be redirected to a trauma, and another ambulance will be dispatched to the original call.

Telehealth

Riverside County EMS has suggested partnering with a telehealth company which provides a board-certified emergency medicine doctor's evaluation remotely. In this telehealth process, a paramedic arriving at a medical call, with the patient's consent, can arrange for a face-to-face conversation through a computer connection between the patient and the doctor. The doctor is able to provide medical assessment, electronically-ordered prescriptions, and recommend emergency medical transport if necessary. The paramedic on site assists the doctor with vital signs information, as well as other instructions from the doctor. The telehealth company would also provide telephone follow-up to the patient.

²² The Global Standard of Excellence for Emergency Dispatching, accessed March 16, 2023, [Home - IAED \(emergencydispatch.org\)](https://www.iaed.org/)

FINDINGS

The Riverside County Civil Grand Jury 2022-2023 has arrived at principle findings as follows:

F1: Patients remaining on ambulance gurneys experience extended delays prior to transfer of care. This is common at most hospital emergency departments in Riverside County.

F2: When ambulances and fire personnel experiencing ambulance patient offload delays (APOD), the dispatch system has fewer available ambulances and fire vehicles for response to 9-1-1 calls. This is a public safety issue.

F3: Riverside University Health System (RUHS), as well as other Riverside County high performing hospitals, have assessed and implemented improvements necessary for their hospital emergency department, specifically to reduce their time of APOD.

F4: Many professional organizations, county departments, and state government have investigated and reported on the issues of APOD (delays over 30 minutes at a hospital emergency department prior to the transfer of care). These efforts, while commendable, have not resolved the delays at all Riverside County hospitals.

RECOMMENDATIONS

The Riverside County Civil Grand Jury 2022-2023 recommends the following:

R1: Riverside County Board of Supervisors to review, approve, and support programs, including telehealth and Safety-Net Ambulance Programs, throughout Riverside County to alleviate ambulance patient off load delays as recommended by EMS and Riverside County Fire Department.

- Finding 1, Finding 2, Finding 4
- Financial impact: minimal to moderate, ~\$200,000 per “fully stocked” Safety-Net Ambulance Program
- Time frame: by June 30, 2024

R2: EMS to encourage and facilitate other hospitals in Riverside County to systematically work with REMSA to implement improvements similar to Riverside University Health Systems (RUHS) and other high-performing hospitals using “best practices”, to decrease APOD at the hospital emergency departments.

- Finding 1, Finding 3

- Financial impact: minimal to moderate
- Time frame: by June 30, 2024

R3: As an interim solution, Riverside County Fire Department and AMR to utilize available personnel to relieve delayed fire and/or ambulance teams at the hospital emergency departments. The goal is for efficient transfer of care of the patient to the hospital emergency departments while releasing the emergency vehicles for the next 9-1-1 call.

- Finding 1, Finding 2, Finding 3
- Financial impact: minimal to moderate
- Time frame: by June 30, 2024

REQUIRED RESPONSES

Pursuant to Penal Code sections 933 and 933.05, the Riverside County Civil Grand Jury 2022-2023 requests responses as follows:

From the following elected Riverside County officials:

- Riverside County Board of Supervisors, Finding 1, Finding 2, Finding 4 and Recommendation 1

From the following Riverside County Agencies:

- Riverside County Fire Department, Finding 1, Finding 2, Finding 3, Finding 4 and Recommendation 1, Recommendation 3
- The Riverside County EMD/EMS, Finding 1, Finding 2, Finding 3 Finding 4 and Recommendation 1, Recommendation 2

INVITED RESPONSES

- American Medical Response (AMR)
- City of Corona Fire Department
- City of Riverside Fire Department
- Riverside University Health System
- Kelly Seyarto, District 32 California State Senator

REFERENCES

- Riverside County EMS Administrative Policies, accessed March 16, 2023, <https://www.remsa.us/policy/>
 - #101 REMSA Approved Definitions
 - #2203 Patient Care Continuum Standards
 - #3308 ALS to BLS Downgrade
 - #4109 Ambulance Patient Offload Delay
 - #6101 Pre-Hospital Receiving Centers
 - #6103 Ambulance Diversion
 - #6104 APOD Ambulance Redirection
 - #8101 Resource List
 - #8201 Emergency Medical Care Committee
 - #8202 Pre-Hospital Medical Advisory Committee
- REMSA, EMS, & data bases:
 - Ambulance Patient Offload Time (weekly reports), accessed March 16, 2023, <http://remsa.us/documents/reports/APOT/2023APOTSPECIALweek10.pdf>
 - 2022-2025 Riverside County EMD Strategic Plan, accessed March 16, 2023, <https://rivcoready.org/sites/g/files/alnop181/files/EMD%202022-2025%20Strategic%20Plan.pdf>
 - EMS System Advisory #2022-01/01, Subject: 2021/22 EMS Surge Escalation, accessed March 16, 2023, <http://remsa.us/documents/memos/20220101SystemAdvisorySeasonalSurgeEscalationWeek51.pdf>
 - EMSA report to Commission: Ambulance Patient Offload Delays, accessed March 16, 2023, <https://emsa.ca.gov/wp-content/uploads/sites/71/2021/09/Report-to-Commission-Ambulance-Patient-Offload-Delays.pdf>
 - The Center for the Health Professionals (history of EMT's, paramedics) January, 2004, accessed March 16, 2023, [https://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/9.1%20\(Issue%20Brief\)%202004-01_EMTs_and_Paramedics_in_California.pdf](https://healthforce.ucsf.edu/sites/healthforce.ucsf.edu/files/publication-pdf/9.1%20(Issue%20Brief)%202004-01_EMTs_and_Paramedics_in_California.pdf)
 - Plumas News2014-2015: “Why Do Fire Departments provide Emergency Medical Services?” (history), accessed March 16, 2023, <https://www.plumasfirechiefs.org/why-do-fire-departments-provide-emergency-medical-services.html>

- SCOPE – Riverside County EMS System, accessed March 16, 2023, https://lookerstudio.google.com/reporting/0BykHNCGE-ixib29ZUGl3TGc3V2s/page/p_4ri3czri2c?s=ntprG7Rd2kM
- US Census Bureau, 2020 census, accessed March 16, 2023, <https://www.census.gov/quickfacts/riversidecountycalifornia>
- CHA report 8th annual Behavioral Health Care Symposium Dec. 9, 2013, accessed March 16, 2023, [Microsoft PowerPoint - Walltime Collaborative 120913\(2\) \(kff.org\)](#)
- “9-1-1 Statistics”, National Emergency Number Association, Archived, March 11, 2022. accessed March 14, 2023, <https://www.nena.org./page/911Statistics>
- Reviewed county and state correspondence, contracts, meetings, minutes, agendas, reports, telephone calls, and videos related to fire and medical services.
 - California State Assembly Committee on Emergency Management, “The Impact of Ambulance Patient Offload Delays on Emergency Response”, live-stream recorded meeting, January 19, 2022, <https://www.assembly.ca.gov/media/assembly-emergency-management-committee-20220119>
 - Riverside County Board of Supervisors meeting, “Authorization for Fire Ad Hoc Committee to Evaluate Ambulance Patient Offload Delay (APOD)/Wall Time Solutions”, January 11, 2022 live-stream recorded, <http://riversidecountyca.iqm2.com/Citizens/SplitView.aspx?Mode=Video&MeetingID=2638>
 - Agreement between the County of Riverside and American Medical Response Ambulance Service, Inc., for Ground Advanced Life Support Emergency Services (effective July 1, 2015), accessed March 16, 2023, <https://www.rivcoems.org/Portals/13/Documents/DOCUMENTS/CONTRACTS/AMR/Current%20AMR%20Contract%20%202015.pdf>
 - Correspondence from California Professional Firefighters and California Hospital Association... Re: Ambulance Patient Offload Delay, 2/7/2022.
 - AB 1544 “Community Paramedicine /Triage Alternate Destinations Act”, accessed March 16, 2023, <https://openstates.org/ca/bills/20192020/AB1544/>
 - California Hospital Association: <https://calhospital.org/issue/ambulance-patient-offload-time/>
 - Toolkit dated August, 2014 regarding “to Reduce Ambulance Patient Offload Delays in the Hospital emergency department”

- 8th Annual Behavioral Health Care Symposium, December 9, 2013, topic = “Wall Time Collaborative, A Partnership to Reduce Ambulance Patient Off-load Delays”
 - “Myths/Facts re: APOD”, December, 2022, accessed March 16, 2023.
- A Path Forward on APOT, December, 2022, accessed March 16, 2023, <https://calhospital.org/a-path-forward-on-ambulance-patient-offload-times/>
- How an Hospital emergency department Works, December, 2022, accessed March 16, 2023, <https://calhospital.org/issue/ambulance-patient-offload-time/>
- Concern for Patient Safety Drives Opposition to Ambulance Offload Bill, (Assembly Bill 40), December 15, 2022, accessed March 16, 2023, <https://calhospital.org/concern-for-patient-safety-drives-opposition-to-ambulance-offload-bill/>
- Orange County APOT report, OCEMS, October, 2022, accessed March 16, 2023, <https://ochealthinfo.com/providers-partners/emergency-medical-services/ems-system-reports/ambulance-patient-offload-times#:~:text=NOTE%3A%20The%20APOT%20time%20is,established%20California%20State%20defined%20standards%20.>
- Ambulance Patient Offload Time (APOT) Committee Report (to state EMSA and CDPH, State of California), June 29, 2022, accessed March 16, 2023, https://cdn.ymaws.com/www.fdac.org/resource/resmgr/docs/Ambulance_Patient_Offload_Ti.pdf
- RUHS Strategic Plan 2020-2025, accessed March 16, 2023, <https://www.ruhealth.org/public-health/about-us>
- Eisenhower Medical Center, email message to author, correspondence regarding Hospital emergency department, November 29, 2022.
- City of Corona Fire Department, email message to author, Department Policy Manual, “Alternate Transport Vehicle Use” draft, February 8, 2023.
- City of Corona Fire Department and AMR Emergency Vehicle Use Agreement, email message to author, February 1, 2023.
- The Global Standard of Excellence for Emergency Dispatching, accessed March 16, 2023, [Home - IAED \(emergencydispatch.org\)](https://www.iaed.org/)

DEFINITIONS

Ambulance: a specialized vehicle used for medical transportation

- ALS: Advanced Life Support, specifically defines ambulance response needed for more critical situations and staffed with at least one paramedic
- BLS: Basic life support, specifically defines ambulance transport with EMTs

Ambulance arrival at the hospital emergency department: The time the ambulance stops (actual wheel stop) at the location outside the hospital emergency department where the patient is unloaded from the ambulance.

Ambulance at hospital emergency department time interval: The period of time between ambulance arrival at the hospital emergency department and ambulance return to service time.

APOD Ambulance Patient offload delays: Any time in ambulance offload time (APOT) exceeds to local ambulance patient offload time standard of 30 minutes.

APOT Ambulance Patient offload time: The time interval between the arrival of an 9-1-1 patient at an Hospital emergency department and the time patient is transferred from the ambulance gurney to a bed, chair or other acceptable location and the hospital emergency department assumes responsibility of care. RESMA obtains both times from ePCR. . The hospital emergency department then assumes responsibility for the care of the patient

Electronic medical record: ePCR is the electronic patient care record

EMD Emergency Management Department

Emergency Medical Dispatch: A system where medical dispatch ask questions of the 9-1-1 caller according to medical protocol and within computer software while offering medical assistance until the first responders arrive.

EMS: Emergency Medical System (California statewide)

EMT: Emergency Medical Technician who can provide basic first aid and transportation

First Responder: Someone designated or trained to respond to an emergency. Emergency Medical Technicians (EMTs), paramedics, firefighters, and police officers (law enforcement) are all considered first responders.

FirstWatch: Automated EMS-centric reporting and real-time, web-based data visualization tools.

IAED: International Association of Emergency Dispatch

Load leveling: Load leveling is the concept of balanced and appropriate distribution of EMS ambulance patients to the hospital which is most equipped and prepared to handle their need. When hospitals are inundated or saturated beyond capacity it may be best to redirect patients to the next closest hospital.

Paramedic: a person with advanced training and certification who provides emergency medical care to people who are injured or ill, typically in a setting outside of a hospital.

PSAP Public Safety Answer Points (dispatch, call center)

PSEC: Public Safety Enterprise Communications system

Reddinet: internet-based software which facilitates information of patient care in real time. Facilitates information exchange among hospitals, EMS, paramedics, law enforcement, & other healthcare professionals over a reliable and secure network.

REMSA: Riverside County Emergency Medical System Agency. This forum serves as the center for collaboration in the Riverside County EMS system.

SCOPE: System Clinic and Operational Performance Evaluation, Data from EMD/REMSA

TOC: Transfer of care is the moment when the patient comes off the ambulance gurney and is physically moved into the care of the hospital on a bed or chair.

Triage: The initial screening of the patient's presenting complaint, signs and symptoms, typically by a triage nurse, to determine the appropriate order for the patient to receive a medical screening exam.

Vital Signs: Clinical measurements, specifically pulse rate, temperature, respirations rate and blood pressure, which indicate the state of a patient's essential body functions.

Wait time or Walltime: Also known as ambulance patient offload delay or APOD, which is the occurrence of an ambulance patient remaining on the ambulance gurney beyond the ambulance patient offload time interval standard.