



RIVERSIDE COUNTY EMS AGENCY

WIC-5150 IMPACT

SUMMARY REPORT

2020

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PREPARED BY RIVERSIDE COUNTY EMS AGENCY, EMERGENCY MANAGEMENT DEPARTMENT

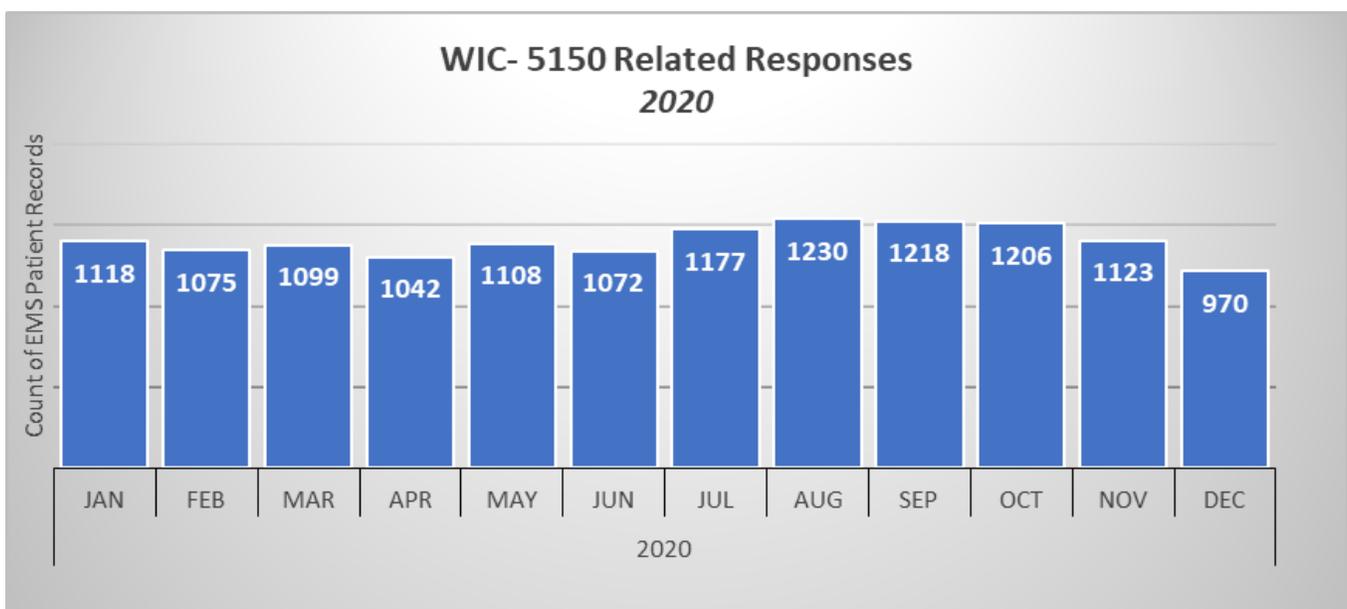
WIC-5150 EMS IMPACT SUMMARY

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 2020, Riverside County Emergency Medical Services (EMS) providers made approximately 13,500 emergency and non-emergency WIC-5150 responses.** In Riverside County alone, this amounts to over one-thousand 5150 responses by EMS providers each month at a conservatively estimated cost of \$1.5 million annually. While many WIC-5150 patients require immediate behavioral health intervention to ensure safety and transport, many are not experiencing an imminent medical risk consistent with the aid EMS is intended for. As a result, 5150 responses can over-utilize complex and costly emergency services. Alternative behavioral health response and transport strategies would 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 January 1, 2020 through December 31, 2020 were analyzed. Patient records were entered into ImageTrend® Elite and extracted from the Elite Reportwriter feature. While a 5150-hold code may be available for dispatch as a call reason, it is not available in the ePCR system as a distinctly recognized EMS value selectable as a symptom or diagnostic code; however, the term “5150” is often entered by responders into an ePCR narrative field to describe the patient or call type. Using the ImageTrend® Report Writer analysis tool, the following parameters were used to identify and extract WIC-5150 records from the ePCRs:

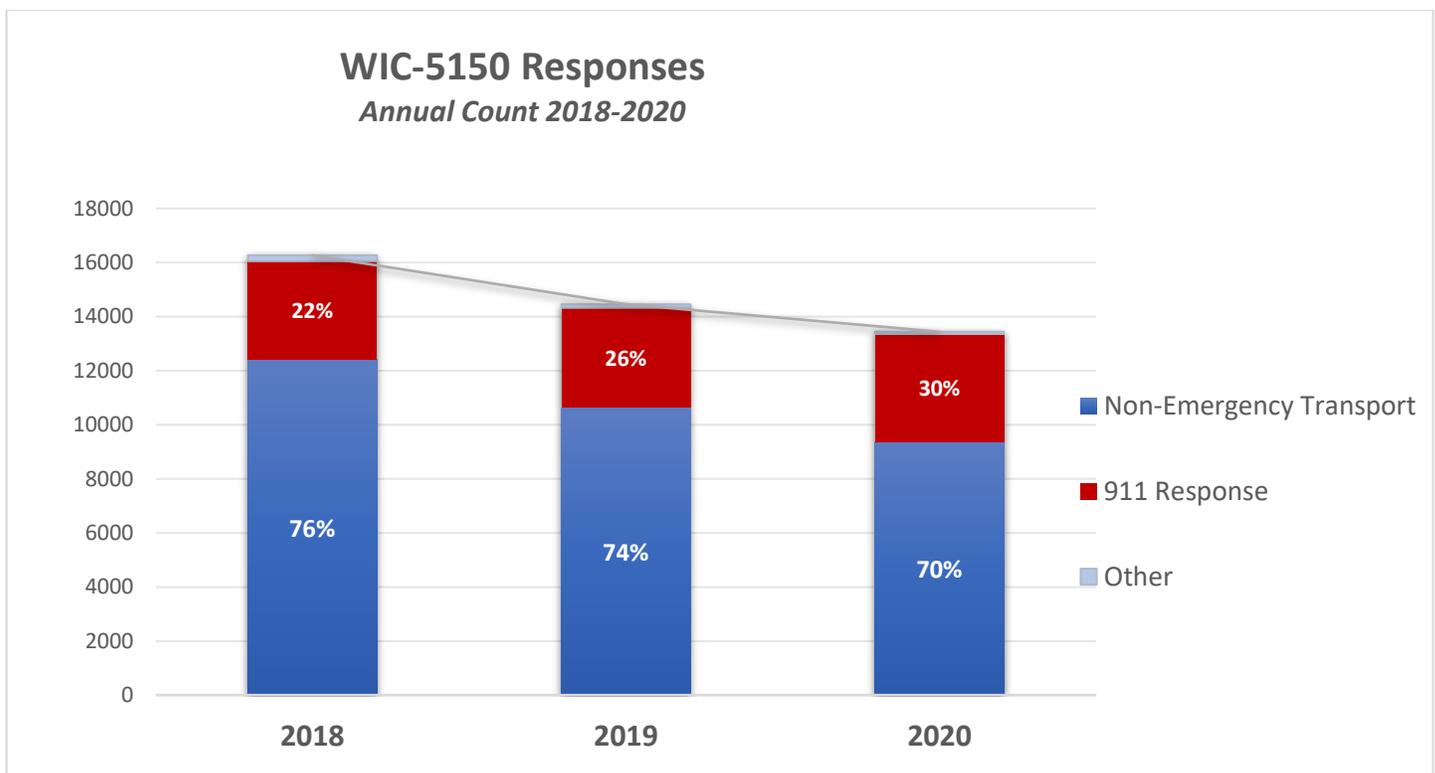
- Inclusion of ePCRs with the terms “5150”, “51/50”, “51-50”, “Psych Hold”, or “5585” (minor code for 5150) in the *Patient Care Report Narrative (eNarrative.01)* or *Situation Primary Complaint Statement (eSituation04)*
- Exclusion of records where on-scene time was equal to zero
- Selection of “Distinct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



Findings:

Analysis of electronic patient care reports (ePCRs) indicates **Riverside County EMS agencies generated approximately 13,438 WIC-5150 responses between January 1, 2020 and December 31, 2020**. This count is **21% below the total count observed in 2018** when this call type was first measured within the Riverside County EMS system. This reduction in 2020 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 9%**; from 3,634 records in 2018 to 3,986 in 2020.

Counts reflect all responding agencies including 9-1-1 emergency responders (fire), and ambulance transport agencies (emergency and non-emergency). Riverside County has a dual response EMS system where fire and an ambulance respond to 9-1-1 medical emergencies. This can result in a single incident generating more than one ePCR.



Response Types vs Acuity levels:

In 2020, 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 National Emergency Medical Services Information System (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 or overdose (*emergent/critical acuity*).

Findings were as follows:

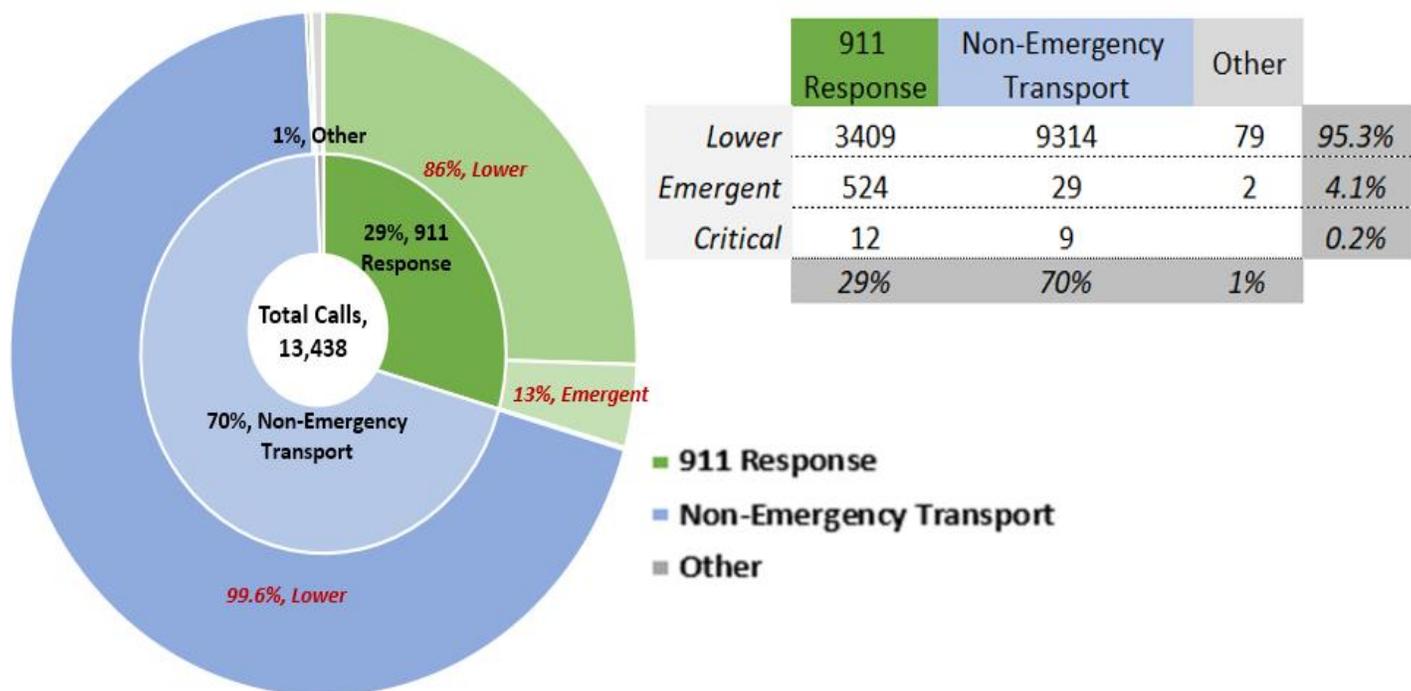
- Approximately **86% of 9-1-1 responses** and **over 99% of non-emergency transports** by EMS (interfacility or medical) were coded as **Lower acuity calls**.
- The 2nd most frequently used acuity was ‘Emergent’ making up less than 5% of the total responses.
- Of the nearly 13,500 records, less than 20 were designated as Critical acuity calls.

Final Patient Acuity (eDisposition.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.

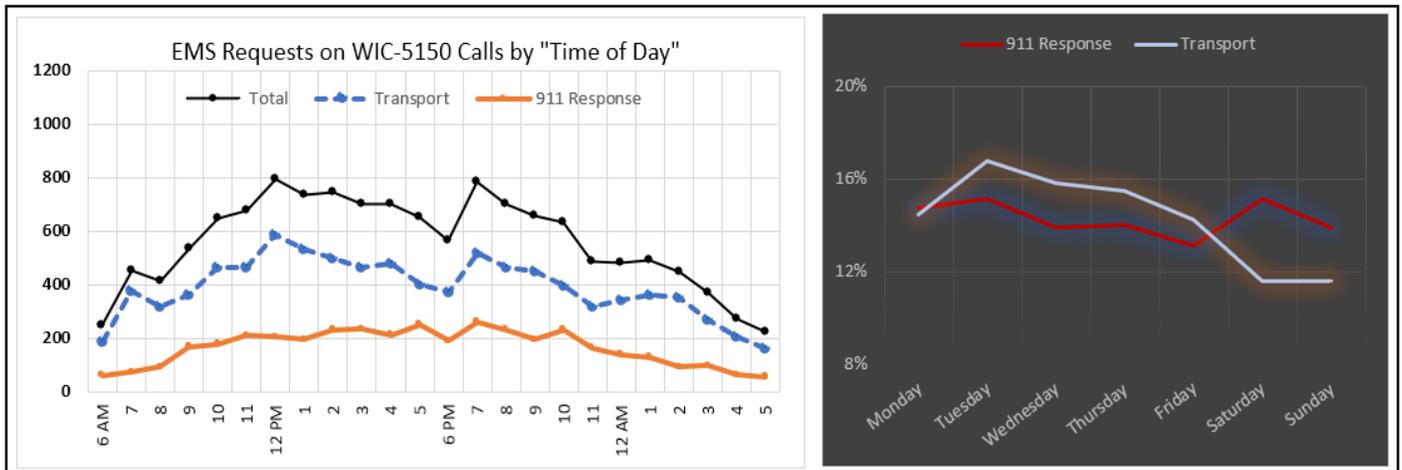
Key points noted are as follows:

- 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



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 on weekends with a marked reduction in the total number of transports.

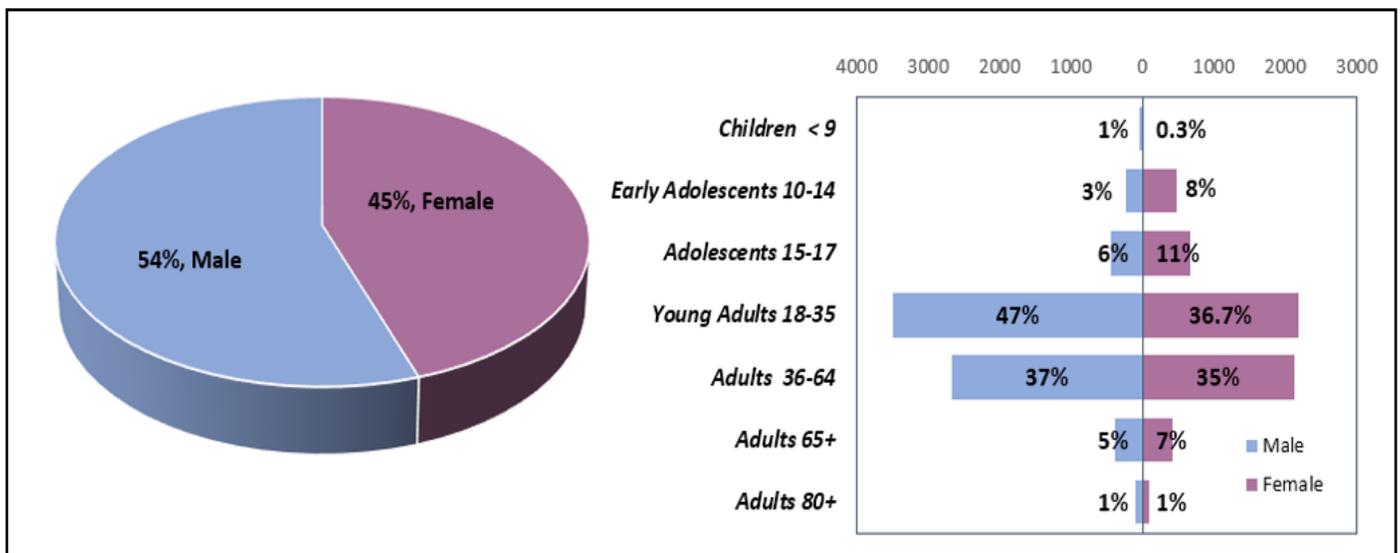


Patient Demographics

13,344 valid data points were used to analyze patient demographic information. Below is the graphical representation of gender distribution and categorical age distribution by gender.

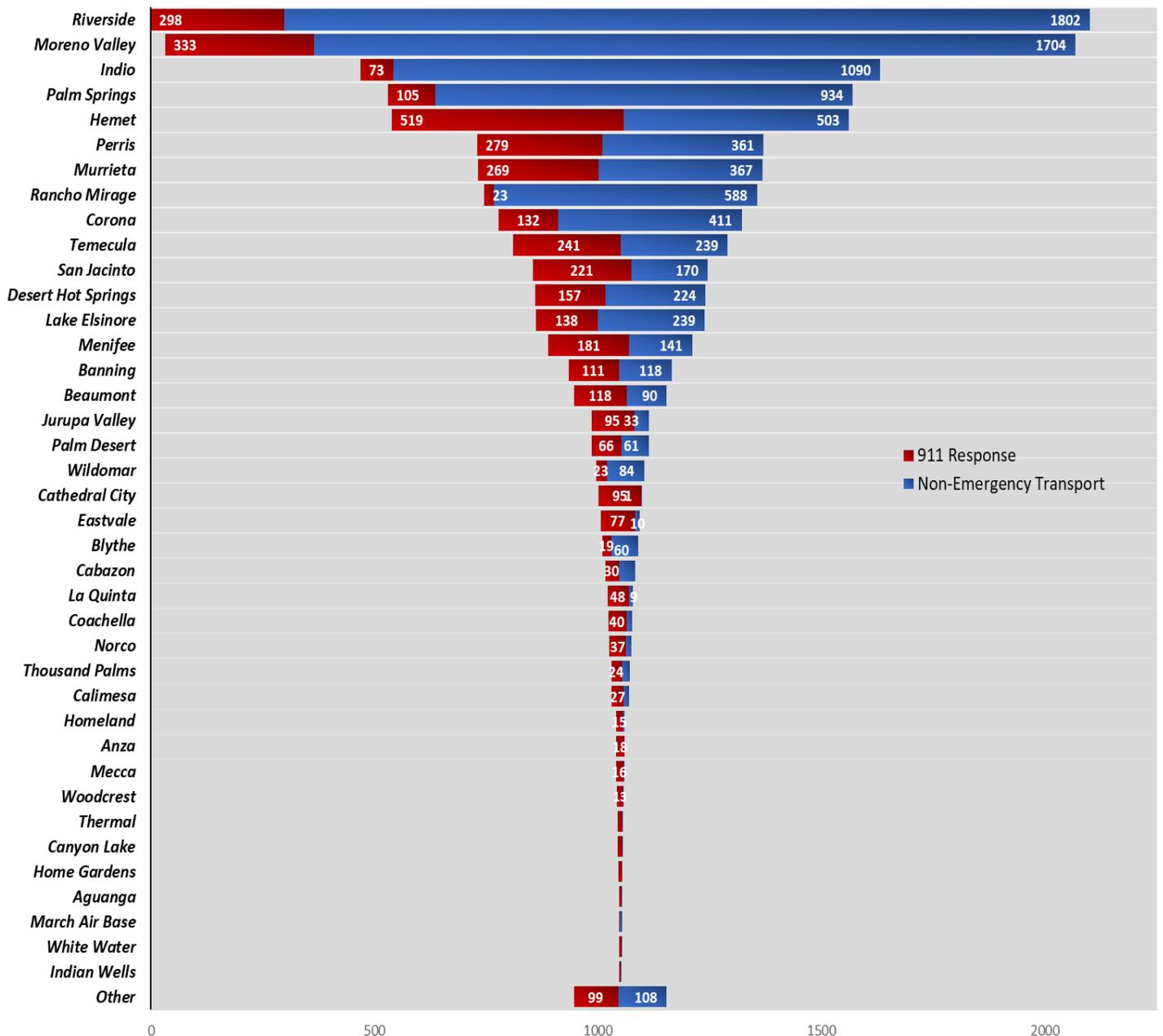
Notable finding on patient demographics are as follows:

- Males make up a greater proportion of WIC-5150s at 54% of the total number of responses
- The most common age group are young adults at 43% of the total responses (*Age:18-35*)
- Adolescents are the only age group where WIC-5150s occur more commonly in females than males

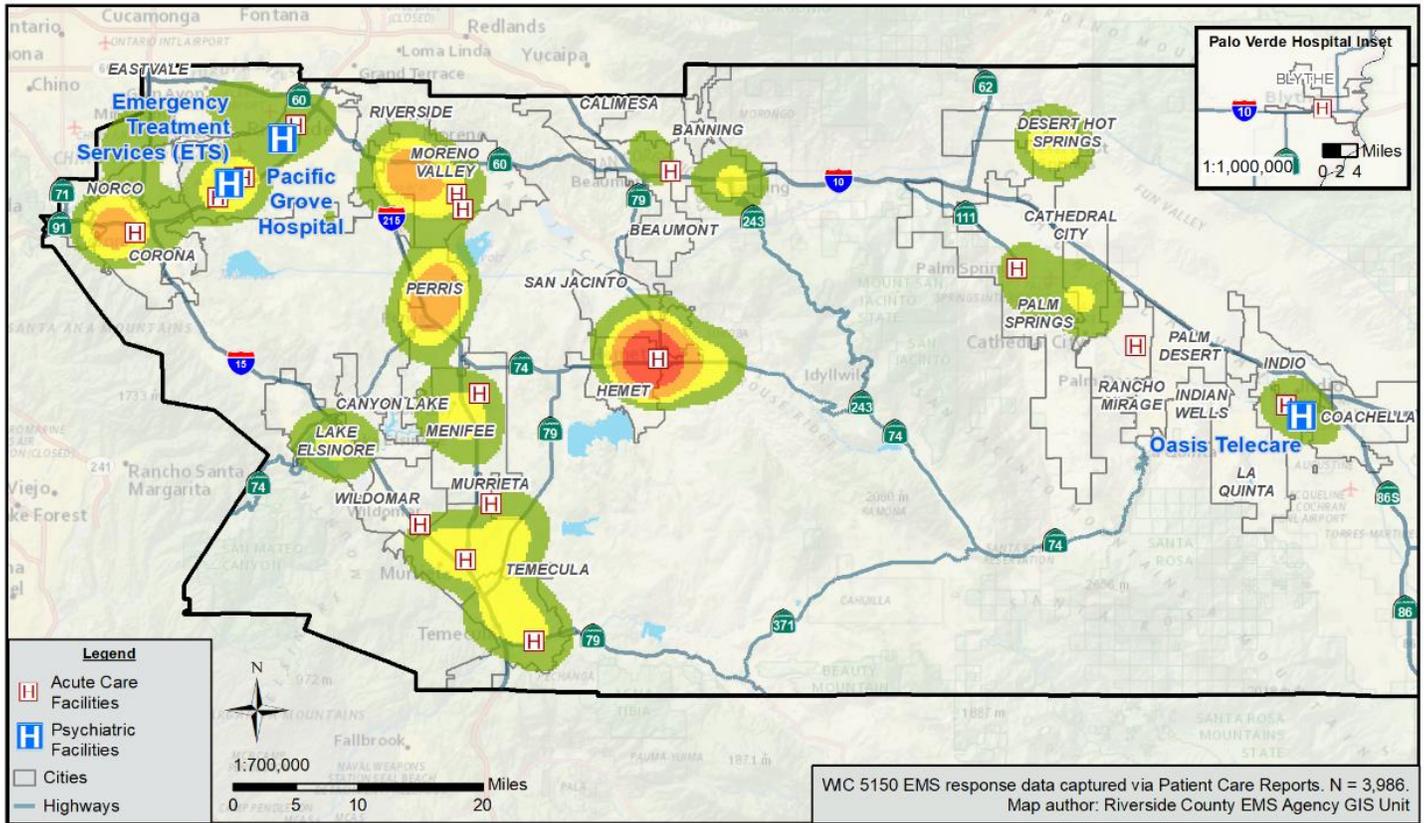


Response Type by City

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 predictor factors such as population. The following is a graph of 5150 call origin by city and response type between January 2020 and December 2020.

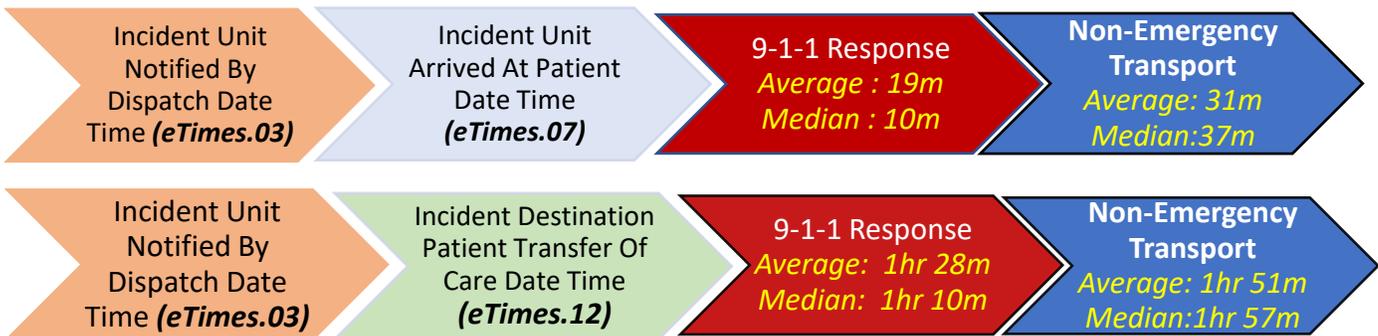


Heat Map Distribution of WIC 5150 9-1-1 Responses



Response Timeline

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 occurred (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. However, there was a marked reduction in total responses in 2020 compared to previous years depending 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 is typically used with approximately 90% allocated toward 9-1-1 medical emergencies versus only 10% for non-emergency transports.
- While the causes are not yet known, a shift in WIC-5150 volume and response patterns in 2020 may be attributed at least in part, 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.
- 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.

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

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