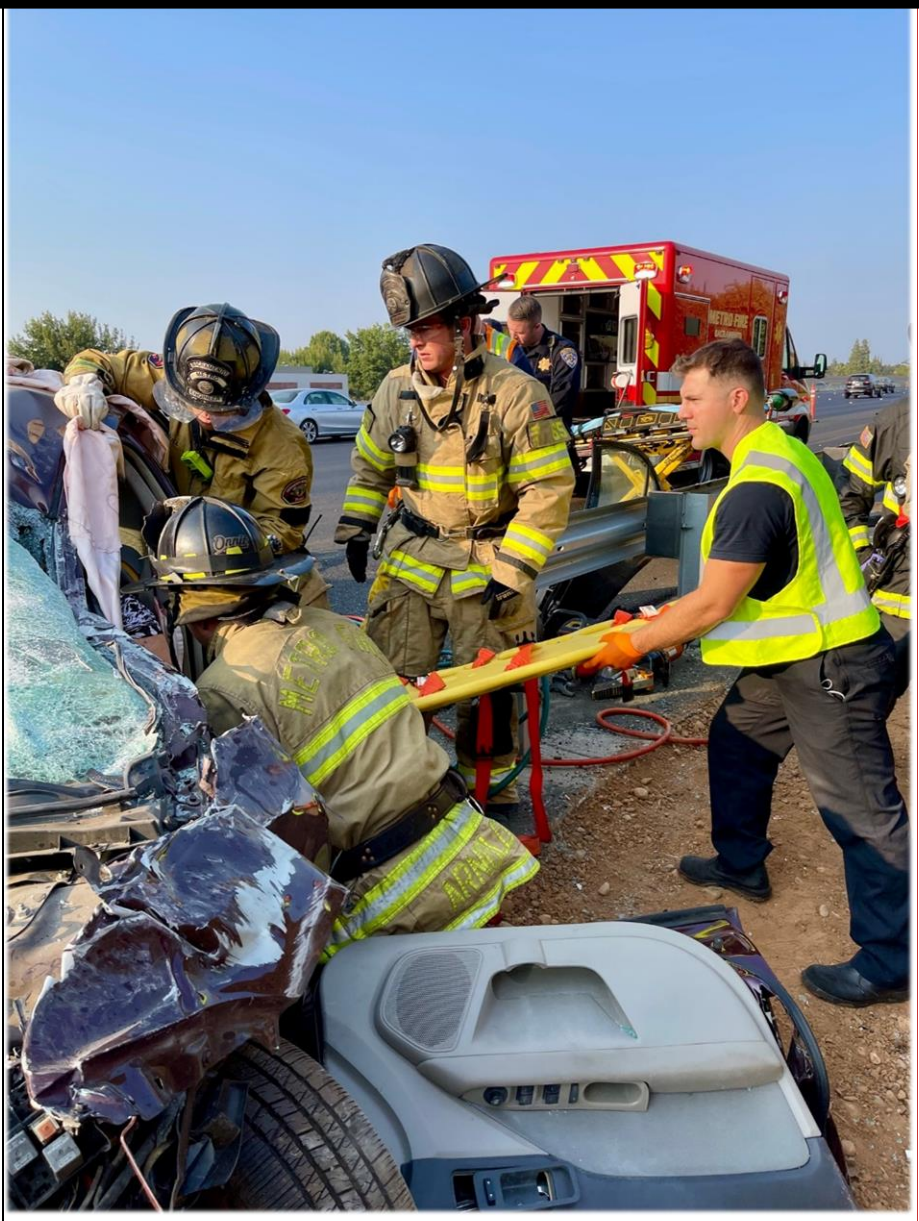
2021

Metro Fire Quality Improvement Plan (QIP) Annual Report



Acting Battalion Chief Greg Markel (2021)
EMS Battalion Chief Brian Gonsalves
Assistant Chief Barbie Law
Metro Fire EMS Division
www.metrofire.ca.gov
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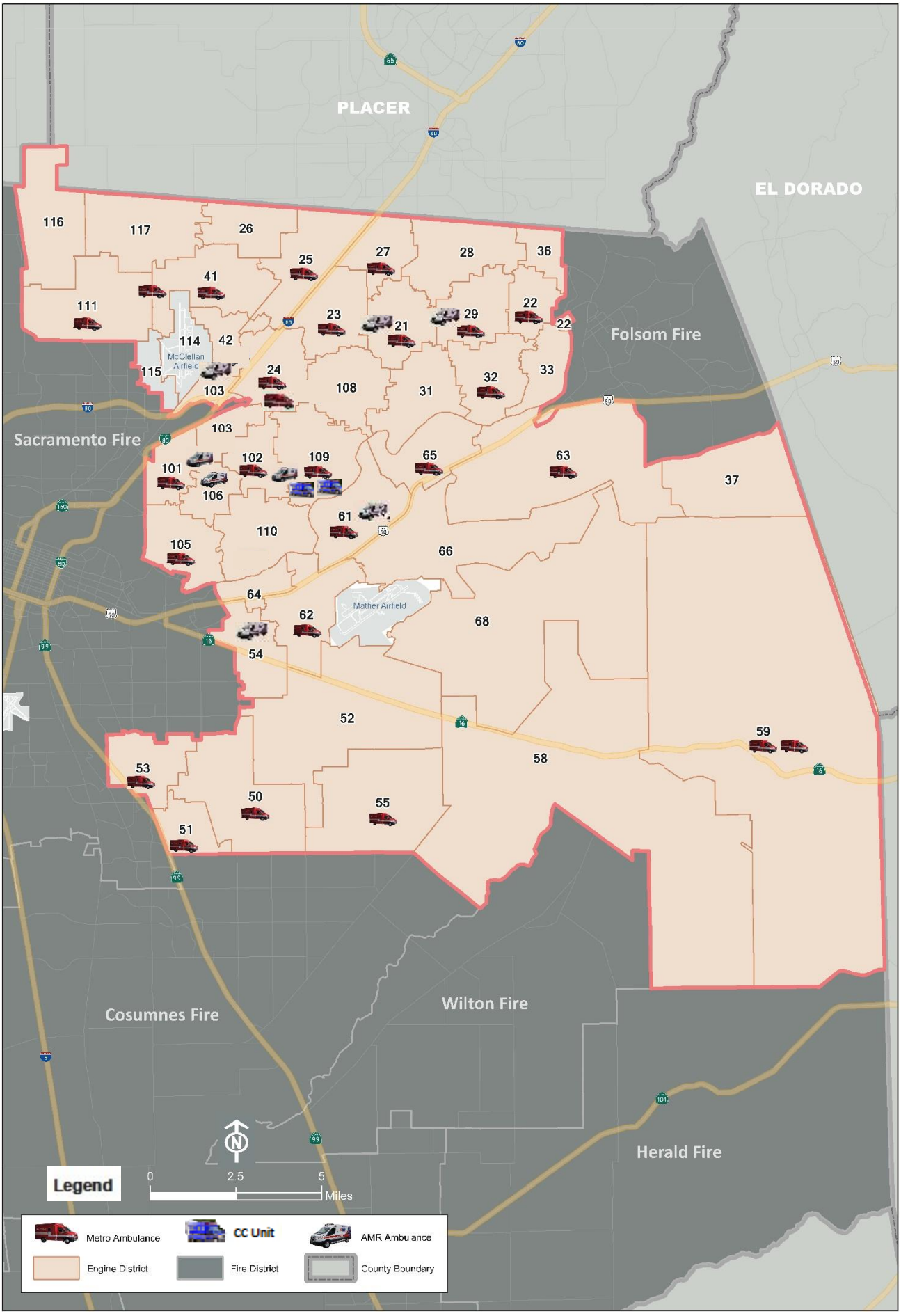
Core Values

Integrity Professionalism Teamwork Devotion to Duty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AGENCY OVERVIEW

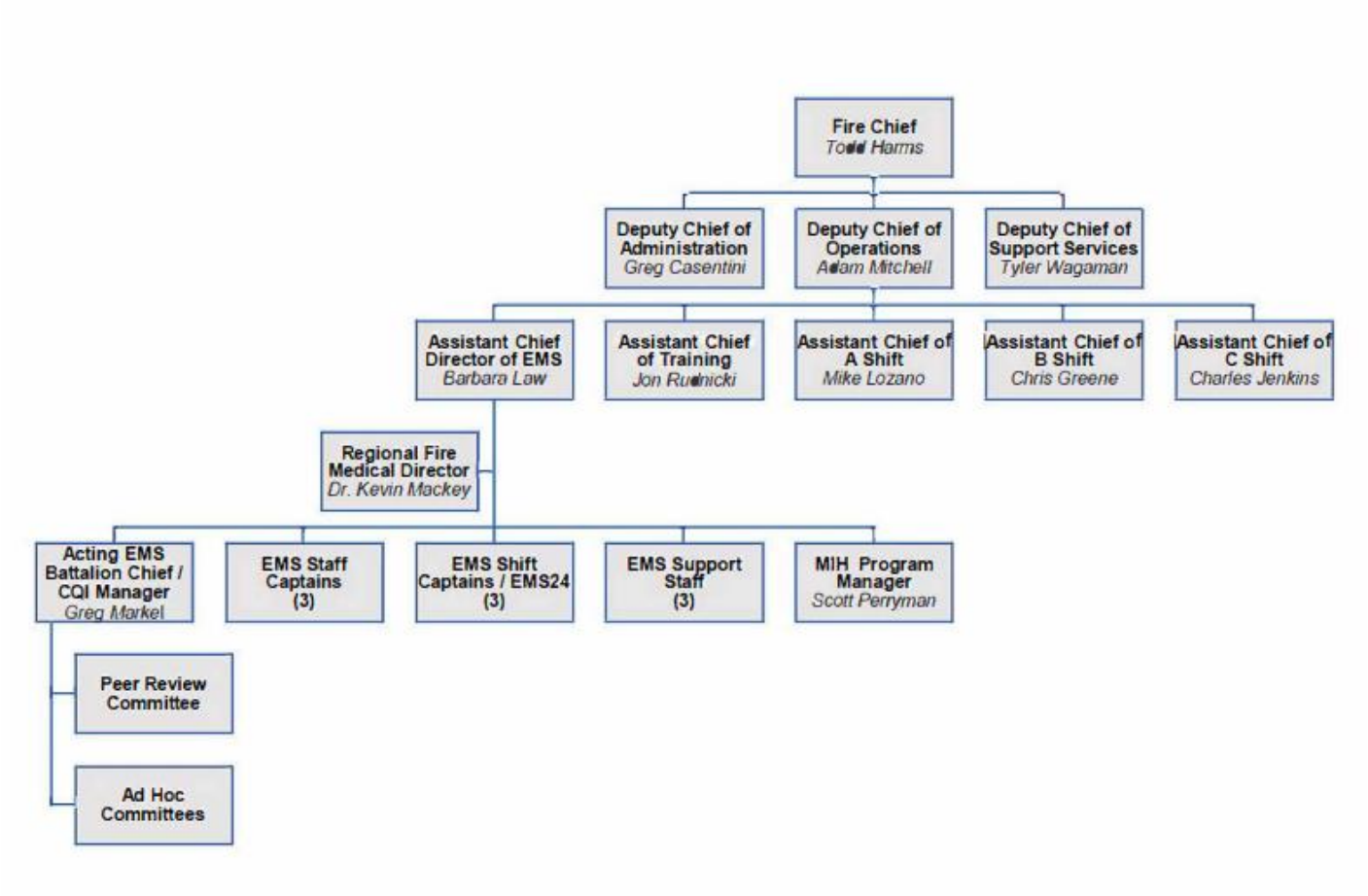
The Sacramento Metropolitan Fire District ("Metro Fire") is a special district that was created in December of 2000 as the result of reorganization of the American River and Sacramento County Fire Protection Districts. The District provides fire suppression, rescue, emergency medical services (EMS), and Mobile Integrated Health (MIH) along with multiple other public safety and specialty hazard mitigation services to a population of over 700,000 people in an area encompassing over 358 square miles.

Metro Fire is governed by a nine-member Board of Directors elected by the voters within specified geographical areas, or divisions, of Metro Fire's operational area. Pursuant to Section 22000(a) of the Election Code, the District's division boundaries were adjusted in 2021 as a result of the 2020 decennial Census so that each division is equal in population, as far as practicable. The Fire Chief oversees the general operations of Metro Fire, guided by the policy direction of the Board of Directors and supported by an executive Staff - consisting of the Board Clerk and the three Deputy Chiefs who manage the Operations, Administration, and Support Services Branches. The Administrative Branch and the Support Services Branch work in cooperation with the Operations Branch, which encompasses the areas of Fire & Rescue, Emergency Medical Services (including MIH), Training & Safety, Special Operations, Homeland Security, Fire Investigation, and Health & Wellness.

Daily emergency operations are managed by five (5) Battalion Chiefs and an EMS Officer (EMS24), with oversight by an on-duty Shift Commander. Fire suppression crews, including dual role ambulances, work a 48-hour shift, followed by a 96-hour off-duty cycle, while the Single Role Paramedic Program (SRP) works a 24-hour shift, followed by a 72-hour off-duty cycle.

The District is continually monitoring and evaluating crew staffing and unit deployment to ensure resource coverage is appropriate for the needs of the community. Standards of coverage is evaluated with the aid of an apparatus deployment analysis module (ADAM) in Deccan. ADAM is a predictive modeling tool that uses historical CAD data, GIS map data and a rigorous projection algorithm to project the impact of deployment changes on response times and availability. Given the diverse nature of public safety, Metro Fire is committed to being an "All-Hazard" agency, providing the best service possible to the citizens of Sacramento and Placer Counties.

ORGANIZATIONAL CHART



EMS DIVISION - Staff

The EMS Division is supported by the following administrative positions:

1 Assistant Chief / Director of EMS

1 Battalion Chief of EMS / CQI Manager

1 Regional Fire Service Medical Director

1 UC Davis EMS Fellow

3 EMS Staff Captains

3 EMS Shift Captains (EMS24)

1 Mobile Integrated Health Program Manager

2 Emergency Medical Services Technicians

1 Administrative Specialist

EMS DIVISION - Operations

The EMS Division is responsible for the oversight of Metro Fire's emergency medical services, ensuring that its emergency medical technician (EMT) and paramedic personnel are trained, qualified, and equipped to serve the public at the highest level. EMT's are certified to provide Basic Life Support (BLS) care, while paramedics are licensed and accredited to provide Advanced Life Support (ALS).

Metro Fire employs nearly 500 paramedics who are assigned on resources typed as engines, trucks, medic units, community care response units, helicopters, aircraft rescue and firefighting (ARFF) apparatus, boats, golf carts and bicycles which operate from forty-one (41) fire stations. The District also has a Tactical EMS Team which supports local law enforcement.

This deployment model supports around-the-clock operation of forty-four (44) fully staffed ALS-level first responder companies that answer calls for service in concert with the District's ALS ambulances and those from other 9-1-1 based ALS transporting fire agencies within the region.

The provision of ALS transportation services by Metro Fire is accomplished through the strategic deployment of Fire Department Medic (FDM) ambulances staffed by "dual-role" fire suppression personnel (firefighter/paramedics and firefighter/EMTs), and by additional transporting units staffed with members of the District's SRP Program.

Metro Fire deploys a fleet of nineteen (19) 24-hour ALS ambulances, with an additional five (5) in-service reserve medics (ISRMs) available to be immediately mobilized and cross-staffed by on-duty fire suppression personnel. The flexibility to provide immediate surge capacity was critical in 2021 as medic draw-down reached critical levels due to extended ambulance patient offload times (APOT), also known as hospital bed delays. In California, the APOT standard is twenty (20) minutes, and local hospitals struggled to meet this benchmark (see Appendix G).

The District is also contracted with American Medical Response (AMR) to provide six (6) ALS ambulances. These units operate in staggered 12-hour shifts, 365 days a year, during times of high call volume. The contract was amended in June 2021 to add two (2) ALS ambulances due to increasing call volume in the region. For Fiscal Year 21/22, AMR is contracted to provide a minimum of 35,040 unit hours to Metro Fire and also provides additional surge protection upon request as needed.

EMS DIVISION – Special Programs

Sacramento Mobile Integrated Health (SacMIH)

As the pandemic situation stabilized, efforts shifted back to implementing the broader SacMIH pilot project, which pairs an advanced level practitioner with a firefighter/paramedic to address the health needs of patients with a record of high utilization of health care services in the field. The objectives of the program are to:

- Improve continuity of care for high utilizers of EMS and emergency department services;
- Reduce unnecessary EMS transports and emergency department visits;
- Reduce hospital readmissions;
- Reduce healthcare expenditures;
- Expedite appropriate care for patients calling 9-1-1; and
- Provide appropriate care for behavioral health patients encountering 9-1-1 services.

The District selected Dr. Kevin Mackey as the program's medical director/supervising physician. Dr. Mackey brings his experience with program design and educational development of a Community Paramedic Program (CPP) in Stanislaus County. He chaired the safety committee for CPP and oversaw all quality assurance activities. He also submitted program reports to the State of California EMS Authority and the University of San Francisco Research Division, and promoted the CPP program through public appearances and presentations to stakeholders. Dr. Mackey's CPP experience coupled with his vast local EMS system knowledge are a tremendous asset to SacMIH as we endeavor to demonstrate the safety and efficacy of the program for Sacramento.

The District recruited for advanced practitioners and firefighter/paramedics in the fall. Training was provided to personnel in October, and at long last, SacMIH launched on November 15, 2021. The newly formed team completed thirty-seven (37) patient visits by the end of 2021 and looks forward to establishing the value of the program and identifying sustainable funding in 2022.

UC Davis EMS Fellowship

In 2021, the District continued its collaboration with UC Davis Medical Center (UCDMC) on the Department of Emergency Medicine/EMS Fellowship Program to expand educational opportunities for both partners. The EMS Fellowship is an accredited program that prepares Fellows for subspecialty board certification in pre-hospital care. Under this uniquely structured arrangement, Metro Fire hosts a UCDMC EMS Fellow once a week as a ride-along at three of the District's busiest and most operationally diverse fire stations on a rotational basis.

This immersive approach allows crew members to interact directly with an emergency physician, while allowing the Fellow to gain first-hand insight on the daily functions of an active 9-1-1 system and directly observe the real-world challenges faced by first responders.

Dr. Matthew Maynard graduated from the program in the summer of 2021, and Dr. Dylan Ely was selected as UCD's second EMS Fellow. Metro Fire is proud to continue this valuable partnership with the EMS Fellowship Program, and looks forwarding to hosting future Fellows and expanding the program.

COVID-19 Testing & Communicable Disease Exposure Tracking

In 2021, the EMS Division saw an unprecedented rise in communicable disease exposure notifications from area hospitals related to COVID-19. Prior to the pandemic, the Designated Infection Control officer processed 5-7 exposure notifications per year. EMS Division staff processed 1,204 exposure notifications for COVID-19 patients that were treated and/or transported by our members. Each notification required staff to research the personnel on scene and confirm proper PPE use. If a breach of PPE was identified, contact tracing was performed and personnel referred for COVID-19 testing.

The EMS Division also played a key role in providing COVID-19 testing for members who had an exposure or reported symptoms. Rapid antigen testing was provided for symptomatic personnel, and PCR tests were processed by the SCPH lab. Staff worked diligently to provide members their test results. Nearly a thousand tests were performed for our responders and dispatchers in 2021. The EMS Division worked closely with the Human Resources Division to track exposures and ensure the CDC and Sacramento County Public Health isolation and testing recommendations were strictly followed to protect our responders and the public we serve.

STANDARD INDICATORS – Personnel

Academy Training

Newly-hired dual-role and SRP personnel represent a significant area of focus for Metro Fire in the QI process. In 2021 the District ran four (4) recruit academies, two (2) for SRP and one each for firefighter and lateral firefighters bringing sixty-two (62) new EMTs and paramedics to the front lines of our EMS program.

Accordingly, EMS training comprises a substantial portion of the extended instruction regularly provided by the District within the recruit academies respective to each job classification – 18 weeks for firefighters and typically 4-6 weeks for SRPs, dependent upon class size.

These models incorporate lecture and hands-on teaching and review of EMS skills, pathophysiology, documentation, and the legal aspects of EMS. The academies make use of District personnel as instructors, but also include guest speakers drawn from the local medical community. Exposure to instructors with advanced training and experience has been shown to be effective and well-received by the students.

Beyond the classroom setting, the academies rely heavily on realistic simulations for training and scored testing in representative situations that require teamwork and time management. These scenarios make use of advanced training mannequins that students can use to perform intubation, pleural decompression, cricothyrotomy, and many other procedures in life-like settings. Students are required to meet or exceed designated performance standards throughout the academy.

Initiatives for Probationary Employees

Several methodologies are utilized by Metro Fire in gauging the aptitude of the District's newest ALS and BLS care providers during the year-long probationary phase of employment following successful graduation from the recruit academy.

Probationary Firefighters initially are assigned to a District ambulance as a third-person ride-along (RA) for a minimum of (10) 24-hour shifts under the direct tutelage of an EMS mentor – a tenured paramedic in good standing. During this time, new members undergo an introductory evaluation process that involves demonstrating baseline knowledge and competencies by following a Task Book and earning “sign-offs” relevant to fundamental operational and procedural aspects of the job.

Concurrently, daily and cumulative major appraisals that specify key performance indicators are used as a means to quantify the probationary employee's EMS skills proficiency observed during training and actual incidents. Input from the crew and Company Officer, along with oversight by the operational chain of command and review by the EMS Division are essential components of the process.

Based upon the progress noted, a recommendation to extend the evaluation period or clear the member to count towards staffing (thereby ending RA status) is submitted to the EMS Division at the conclusion of the ten-shift period, along with documentation to support the endorsement, or recommendation for an individual education plan. The EMS Captains gather feedback from the crew and work with the Assistant Chief of EMS and medical director to develop the Performance Improvement Plan (see Appendix D) when indicated. New SRPs follow a similar format for orientation, but adhere to a more compressed timeline due to a different work schedule and a more narrow scope of responsibility as non-firefighters.

Throughout the remainder of probation, additional measures are applied towards ensuring proficiency with EMS-related disciplines. This includes skills testing at 6-months and 12-months. These periodic performance assessments grade the quality of ALS and BLS-level patient care and often are incorporated into fire suppression-based scenarios (i.e. rescues) to add stress and realism to the event.

In addition to increasingly challenging standards applied in the testing environment, personnel new to Metro Fire receive a thorough assessment of patient care reports by Peer Review Committee members and ongoing mentorship and evaluation by more experienced members. This collective approach establishes a strong foundation for incoming members to build upon as they begin their careers as EMS professionals with Metro Fire.

STANDARD INDICATORS - Equipment & Supplies

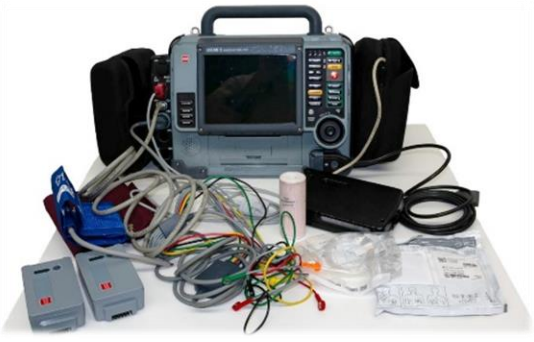
Metro Fire recognizes the importance of deploying the proper tools and equipment to facilitate the delivery of high quality Emergency Medical Services to the communities that we serve. The District currently uses portable cardiac monitor/defibrillators, LUCAS devices, stair chairs and gurneys manufactured by Stryker Medical Corporation, all of which undergo preventative maintenance performed by qualified technicians at intervals prescribed by the manufacturer. Any repair needs that arise are promptly addressed through the terms of a service agreement with Stryker, and faulty equipment is expeditiously replaced in the field by Logistics or EMS24. Maintenance and service records are available upon request.

In accordance with SCEMSA and District policies, medical device failures are immediately reported to the EMS Division and the appropriate documentation submitted. Staff updated the Medical Equipment Malfunction policy in 2021 and developed a new reporting tool that streamlines the process of tracking equipment issues for the EMS Division.

In 2021, personnel reported two (2) instances of ETCO2 malfunction after advanced airway placement, and the vendor replaced the ETC02 module on both monitors. Crews also reported one (1) instance of defibrillator malfunction which did not affect patient care. The vendor inspected the monitor, and the therapy cable was replaced. Finally, one of the LUCAS devices reached the end of its life cycle and was replaced.

In a collaborative effort between the District's EMS and Logistics Divisions, Metro Fire regularly partners with vendors and completes an annual business review of supply and equipment needs. This proactive approach allows for the evaluation of new products and supports the identification of new efficiencies and optimal gear configurations.

On September 23, 2021, the District's Board of Directors accepted a FY2020 Assistance to Firefighters Grant (AFG) award in the amount of $3,299,995 for the replacement of 90 cardiac monitor/defibrillators that were at the end of their useful and serviceable life. The District currently deploys the LIFEPAK 15 Version 2 unit and the EMS Division identified the LIFEPAK 15 Version 4 as its desired replacement unit.

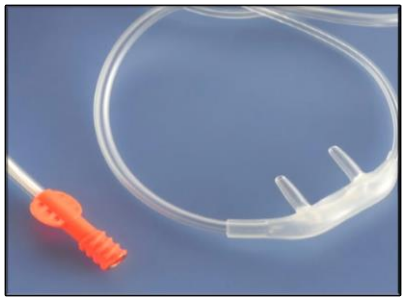


The decision to stay with the LIFEPAK 15 was based on cost savings and operational efficiencies. District personnel are already trained on the proper use and care of the LIFEPAK 15. Additionally, the District already has an existing inventory of peripheral supplies and accessories that are compatible with the desired unit, saving the District the cost of replacing the inventory of existing supplies.

To maximize cost savings, the District utilized a master cooperative purchasing agreement through a host public agency. The Savvik Buying Group is a non-profit organization that serves the public safety sector by contracting for public safety equipment, supplies, and services through a full and fair competitive bidding or quotation process, ensuring the best pricing on quality products and services. As a member of the Savvik Buying Group, the District is able to utilize contracts that have been competitively bid through this process and obtain the contracted pricing discounts. Utilizing these types of contracts saves the District time and money, while still meeting all competitive bidding requirements.

Once the order for new cardiac monitor/defibrillators was placed, it was determined there was additional monies available from the grant award. In December 2021, FEMA approved the District's request to amend the grant award to purchase twelve (12) new LUCAS devices in addition to the cardiac monitors. All equipment will be received and placed in service before the end of fiscal year 21/22. For the 2021 AFG grant cycle, funding was requested to replace power loads and cots for the ambulances, and to replace the remaining LUCAS devices.

Members of Metro Fire's Peer Review Committee advocated for the addition of noninvasive end tidal CO2 (NiETCO2) monitoring to the District's advanced life support inventory in 2021. The EMS Division supported our members and provided NiETCO2 nasal cannulas on all of the District's ambulances. Further, we successfully lobbied for the addition of NiETCO2 <25 mmHg as a sepsis criteria in the July 2021 protocol updates.



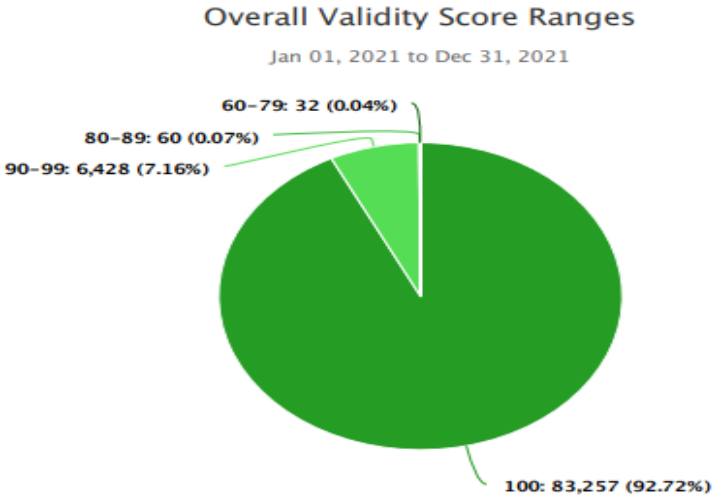
The annual SCEMSA ALS inspection that was deferred in 2020 due to COVID-19 concerns occurred in November 2021. No issues were identified by the inspector, and Metro Fire was found to be 100% compliant with SCEMSA's ALS Inventory Policy 2030 (see Appendix H).

Lastly, in 2021 Metro Fire restructured how services and supplies are budgeted for. Previously, the EMS Division managed the budget, and the Logistics Division handled ordering and purchasing of EMS supplies. All purchases had to be approved by the EMS Assistant Chief before Logistics could move forward. The medical service and supply budget lines were moved to the Logistics Division this fiscal cycle. This streamlined administrative processes for both divisions, and has proven more effective for managing and planning for expenditures.

STANDARD INDICATORS – Documentation

Quality documentation is an essential, yet often overlooked, element of patient care. Trends identified during retrospective CQI review of ePCRs revealed a need for formalized documentation training for all personnel. The EMS Division completed a comprehensive review of past practices and training methods and determined that a multi-faceted approach was needed. Staff developed curriculum on common user errors noted with the ePCR platform and began conducting company level training in the 4th quarter.

The EMS Technicians review daily auto-exports of ePCRs to the State, and work to correct export errors to ensure that time-frames for data export are adhered to. Review of quarterly dashboards from SCEMSA allowed for revision of validation rules in the system that provide real-time feedback and detailed guidance to providers completing patient care reports. While completing a PCR, personnel can see their current validation score. The higher the score, the more complete the report from a completion, NEMSIS/CEMSIS compliance, and protocol accuracy standpoint. All validation errors have an error message built into the system which instructs the provider on how to correct the error. This has proven to be an effective method of providing crews with documentation instruction on every call as well as decreasing export errors.



In addition, the EMS Division sought to provide all front-line personnel with Certified Ambulance Documentation Specialist (CADS) certification offered by the National Academy of Ambulance Compliance. Documentation is a skill that can be taught, learned, practiced, and improved. The CADS course will help our providers understand the relationship between the clinical narrative and NEMSIS data elements and their role in providing a complete and accurate record of every patient encounter.

Due to budgetary constraints, CADS training was deferred to the first quarter of 2022, but will be completed during the fiscal year 21/22 training cycle.

STANDARD INDICATORS – Clinical Care & Patient Outcome

The Director of EMS, the Regional Medical Director, and the EMS Battalion Chief/ CQI Manager work collaboratively to facilitate the review of patient care and monitor indicators. The QIP process maintains confidentiality under Section §1040 and §1157.7 of the Evidence Code of the State of California. The prohibition relating to the discovery of information provided to the District's QIP committees applies to all proceedings and records of these committees, which are established to monitor, evaluate and report on the quality of pre-hospital care delivered by Metro Fire's providers. Issues meeting the threshold of a Reportable Incident are referred to the SCEMSA Medical Director for review as required by California Health & Safety Code Division 2.5; California Code of Regulations, Title 22, Division 9; and SCEMSA Program Document 7602 Quality Assurance Program.

All QIP members sign a confidentiality agreement (see Appendix B) not to disclose information obtained through the district's QIP process. The EMS Battalion Chief/CQI Manager is responsible for explaining and obtaining a signed confidentiality agreement for guest(s) prior to participation in any committee meeting (see Appendix B). The Chairperson of the Peer Review Committee documents trends identified in meetings and information is distributed to all personnel after each meeting (see Appendix C).

Hospital base coordinators and staff routinely work with paramedics and QIP members during patient contact, run review, and case review in alliance with Metro Fire. The reviews identify outstanding patient care as well as educational opportunities. This collaboration helps develop quality, professional working relationships and the highest-quality patient care.

Utilizing patient outcome information in case reviews enhances the learning and understanding for our medics and develops slides in their slide deck for future calls. It's not easy being an EMT or paramedic. Responders are exposed to traumatic events on a routine basis and subject to physical and mental stress. Metro Fire's EMS Division strives to provide crews with patient outcome on critical calls to help highlight the positive changes we make in our patients' lives on a daily basis.

STANDARD INDICATORS – Skills Maintenance/Competency

Individualized Training

Metro Fire's team of skilled first responders is supported by recurrent professional training and continuous quality care improvement. The EMS Division utilizes a training cycle to ensure all personnel are evaluated on key skills twice a year. To meet the individual needs of Metro Fire's paramedics and EMTs, qualified EMS Staff Members and EMS24 personnel provided direct training for on-duty crew members. This process was used to meet the county requirements for infrequent skills check-offs, and to address remedial issues identified through the Peer Review Committee. This is a labor-intensive process designed to address the needs of the employees in a cost-effective and flexible way. The EMS Division tracked the upcoming expirations of crew members and provided one-on-one or company-level training to approximately 5 to 10 crew members per month. This direct personal training provided the most engaging instruction of all training methods used by the District.

On-line Training

The use of VectorSolutions allowed Metro Fire to furnish consistent training to the District's workforce despite the challenges and constraints caused by COVID-19. The software was utilized to present educational content to 516 students covering a range of EMS-related topics. Additionally, it enabled Metro Fire to track training completions in real time for assignments pertaining to EMS, Fire Suppression, and multiple other essential subject areas.

In 2021, Metro Fire EMTs and paramedics completed mandatory assignments on protocol updates, end tidal CO2 monitoring, CQI trends, best practices for medication administration, security of controlled substances, HIPAA refresher, and the new Assess and Refer for Low Acuity Patients during the COVID-19 Outbreak Program Document #5054. One clear benefit of using the program was realized in the ability to record, report, and monitor member currency with multiple credentials, such as paramedic licensure and accreditation, EMT certification, and other specialized courses such as PHTLS, ACLS, CPR, etc.

While online training is not ideal for the delivery of instruction in every topic, it provides an advantageous means of disseminating information that supports Metro Fire's efforts to ensure that members maintain proficiency and stay up-to-date with training and provider qualifications.

Cooperative Training

The most comprehensive out-of-hospital medical education and training is furnished twice a year through the EMS Division to all Metro Fire Paramedics, EMTs, and first responders. These sessions promote skills maintenance and deliver the competency verification required by SCEMSA. Additionally, this is the forum used to provide requisite certification training (CPR, ACLS, Handtevy, and PHTLS). In 2021, the District partnered with Cascade Training Center and NorCal Emergency Medical Training to deliver approved certification equivalency training to frontline personnel and recruit academies.

There are several skills that don't logically correspond to the certificate classes, such as Duo-Dote administration and childbirth. These are periodically incorporated into other modalities, or provided as needed by members of EMS Staff to on-duty crew members. This method of delivery has proven effective in meeting the requirements, but more importantly, provides a direct, small-group dynamic that elicits greater engagement by the crews and offers opportunities for more personalized instruction.

New for 2021, Dr. Mackey, the UC Davis EMS Fellowship, Zoll Medical, and Metro Fire collaborated on the EMS Journal Club: Exploring Current Science and New Discoveries in EMS. Two articles were presented that outlined and provided discussion of recent literature regarding under-triage of trauma patients and known literature about large vessel occlusions as they relate to prehospital stroke scales. UCD's EMS Fellow, Dr. Dylan Ely, presented these topics to an audience made up of regional EMS, fire and hospital staff.

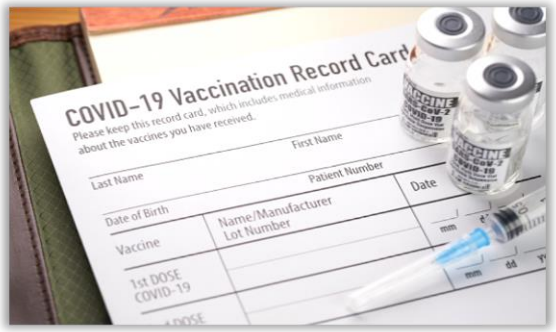
COVID-19 placed limitations on in-person training for much of 2021. However, new opportunities for virtual training arose. A number of engaging virtual symposiums were offered to the District's EMS providers including:

- Dispatch to Discharge & Beyond: People-Centered Emergency Cardiac Care
- Stryker 2021 Virtual Cardiac Resuscitation Symposium
- California State Stroke Summit
- California State STEMI Summit
- Sacramento Valley Domestic Violence & Strangulation Summit
- Paramedic Preceptor Courses

Finally, the EMS Division continued the use of video to share updates including Dr. Mackey's *Five Minutes or Less of EMS* and *Cold Case* video series and the *Fire Department Connection,* Metro Fire's internal newsletter. With the assistance of the Training Division, guest lectures at Peer Review meetings were recorded and made available for all members. This use of multi-media aids in reaching a broad audience in multiple formats.

Expanded Scope of Practice Training

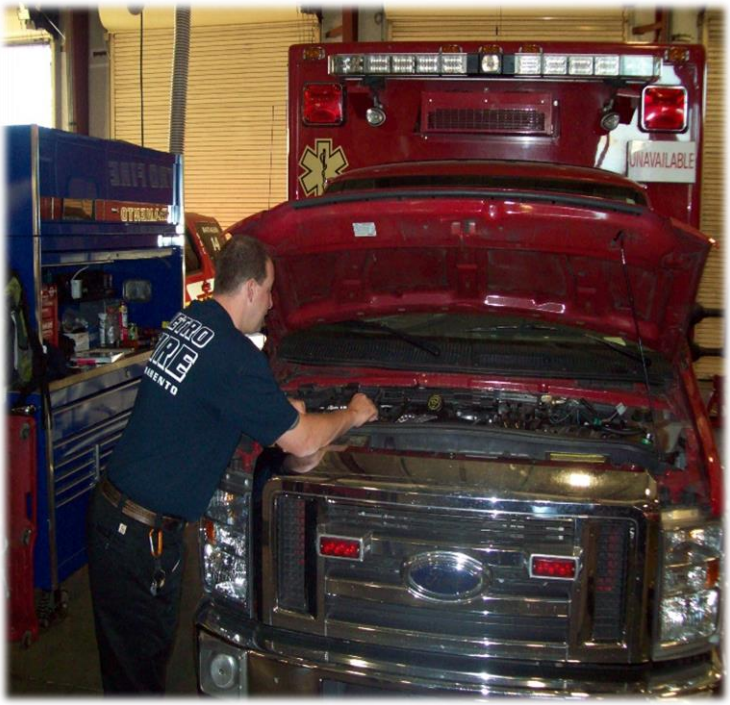
In 2021, Metro Fire continued to play a crucial role in Sacramento County Public Health's response to COVID-19. To support the response effort, Metro Fire worked with the Fire Service Medical Director to deliver expanded scope of practice training to paramedics to perform nasopharyngeal and oropharyngeal COVID-19 swab testing and administer COVID-19 vaccines. The District ran a COVID-19 vaccination pod in January & February of 2021 that supported our responders and essential staff in protecting themselves from the virus.



Qualified paramedics reinforced the District's ongoing efforts to meet the demands of COVID testing for our members and staff from allied agencies. The EMS Division's testing operation was instrumental in ensuring our continued capability to staff fire stations and the Sacramento Regional Fire & EMS Communication Center.

STANDARD INDICATORS - Transportation & Facilities

Type III ambulances built by Leader Industries have become the adopted standard for patient transportation units purchased by the District. The District's Fleet Division coordinates regular automotive service and routine repairs for our fleet of thirty-nine (39) ambulances to minimize the likelihood of mechanical failures, and to ensure that an adequate pool of reserve rigs is available at all times. Odometer readings are also tracked, and units with high-mileage are removed from service and replaced with new ones in accordance with the District's apparatus purchase plan. Assigned personnel perform daily apparatus checks and complete weekly preventative maintenance inspections that are documented in the District's pre-trip application. Maintenance records are maintained by the Fleet Division and any service centers that the District contracts with.



In 2021, three new ambulances were ordered for delivery in 2022. Two additional ambulances were requested to be "remounted", a process where the patient area and cab structure of the ambulance is mounted onto a new chassis and engine. This provides an extended life of the unit, while reducing the cost of a full replacement.

During 2021, an issue was discovered with the industrial steel wheels on Sprinter 3500 vehicles (ambulances as well as Logistics Division delivery units). These wheels were cracking, and in two cases, caused tire failure. With aggressive monitoring of tire pressure and condition, the District was able to identify the issue early and prevent any catastrophic damage. New aluminum wheels will be evaluated in 2022.

The SacMIH program took delivery of a 2021 Chevy Tahoe. While the vehicle was ordered in 2020, supply chain issues related to the COVID-19 pandemic delayed receipt of the vehicle and subsequent installation of communication equipment. The MIH team will transition to their new vehicle in the first quarter of 2022.

Since the inception of the Sacramento Metropolitan Fire District in the year 2000, much attention has been given to upgrading the infrastructure that supports the mission of the agency. In the months following the inception of Metro Fire, the Facilities Division was formed for the express purpose of addressing maintenance and repair needs at the District's fire stations, training facilities, and administrative buildings. In 2021, Metro Fire broke ground on a new fire station in the Anatolia area of Sacramento County. This will replace an existing temporary building in the area, with a permanent and modern station to support the rapidly increasing housing development in the surrounding neighborhoods.

Also during 2021, four stations went through restroom and shower upgrades to keep them up to standards due to crew size with the realignment of SRP medic placement. The academy drill grounds, training classroom, and instructor office received a much needed face-lift and flooring upgrades as well. Lastly, security and environmental improvements were performed on several stations, including fencing, new HVACs installed, as well as 14 stations going through a full LED light upgrade.

STANDARD INDICATORS – Public Education & Prevention

Metro Fire devotes considerable resources to initiatives aimed at public education and injury prevention. Members of the District's Community Services Division (CSD) are committed to reducing the incidence of injury and death among every age group in our community. In 2021, CSD delivered thirty-two (32) educational programs on topics such as trauma and burn prevention, drowning prevention, and fireworks safety. The team also attended twenty-six (26) community events and delivered nine (9) general safety presentations. Despite the challenges posed by the pandemic, the focus remains on providing such educational programs through virtual instruction and other means.

CSD also completed a Community Risk Assessment (CRA) in 2021. The CRA was a comprehensive evaluation to identify and prioritize risks within the communities we serve. The purpose of the CRA is to enhance the safety of the community by reducing fire and other emergency events. The CRA analyzed community demographics & compiled fire and EMS response history, and the data gathered will aid in developing a Community Risk Reduction plan to target prevention and enforcement efforts. All Divisions of Metro Fire participated in review of the CRA and developing a strategic plan for mitigating future risk.

Another valuable contributor in the effort to promote health and safety across all demographic groups within Metro Fire's jurisdictional area and the region at large is the District's Community Relations Division (CRD). Through the use of social media, partnerships with local news outlets, and public service announcements, Metro Fire is able to disseminate information promoting community risk reduction.

In 2021 Metro Fire's Public Information Officer was instrumental in raising awareness of extended APOT. Over the years, emergency department overcrowding and congestion have become increasingly common issues facing acute healthcare systems in Sacramento County. APOT delays have negatively impacted the EMS system's ability to respond timely to the needs of our community, placing valuable resources "on the wall" at hospital emergency rooms for hours at the expense of having ambulances available to respond to calls for service.

Metro Fire worked tirelessly this year to advocate for decisive action to hold hospitals accountable to immediately reduce APOT, and to stop placing undue burden on the fire service and private ambulance providers. Such actions are ongoing and include:

- Participating on Sacramento County Emergency Medical Advisory Group (EMAG) and EMAG Wall Time Subcommittee
- Fire Chiefs, Operations Chiefs, and EMS Chiefs and Hospital CEO meetings
- Acquiring cots from Sacramento County OES for patient offload at the hospital
- Consolidating patients between medic crews on hospital bed delay
- Implementing SacMIH pilot project
- Tracking, analyzing, and reporting APOT data
- Advocating for Assess & Refer protocol in Sacramento
- Advocating for Telehealth, Community Paramedicine & Alternate Destination
- Supporting efforts to inform the California Legislature

In addition to political advocacy efforts, the EMS Division provided community education and hosted the Sacramento Republic FC players and coaches presenting information on the importance of heart health. The group also learned how to use an AED and perform hands-only CPR.

Further, Metro Fire's EMS Division partnered with the regional fire service agencies on a Fentanyl Awareness Campaign which supported Sacramento County Public Health's efforts to raise awareness of the issue in our region.

New in 2021, Metro Fire supported the National EMS Memorial Bike Ride (NEMB), and one of Metro Fire's retired Captains rode in honor of Engineer Kyle Rutherford. NEMB honors EMS personnel by organizing and implementing long distance cycling events that memorialize and celebrate the lives of those who serve every day, those who have become sick or injured while performing their duties, and those who died in the line of duty.

Metro Fire is committed to partnering with community organizations to expand training and messaging on the value of preparedness, and will be working with the Sacramento County Child & Elder Death Review Teams on public education opportunities in 2022.

STANDARD INDICATORS – Risk Management

Metro Fire understands the importance of risk management. The District investigates all issues and complaints related to patient care and professional conduct or associated concerns. Reviews and fact-finding are conducted for the purposes of remediation and appropriate follow-up with the reporting party. When the issue has been resolved, a record is kept on file and is protected from disclosure by California Evidence Code §1157 and §1157.7.

In 2021 Metro Fire entered the Client Connect program offered by Paige, Wolfberg, & Worth LLC (PWW). PWW is a national EMS industry law firm with over two decades of experience providing legal and education resources for EMS agencies, billing companies, public safety agencies, and others related to the provision of EMS and prehospital care. The attorneys and consultants have years of hands-on experience as EMS field providers, billers, managers and administrators, and expertise in a full range of legal matters affecting the ambulance industry, EMS and Mobile Integrated Healthcare.

Client Connect offers the District a flat fee program that provides the EMS Division with unlimited access to the EMS attorneys and consultants at PWW by phone, email, or Zoom to answer everyday questions on issues such as HIPAA, reimbursement, billing, coding, compliance, liability, documentation and other issues. The arrangement also provided discounts on continuing education courses for professional staff. The partnership has been a tremendous asset to staff and was utilized frequently throughout the year.

In addition to entering the Client Connect program, the EMS Division secured PWW to perform an ambulance claims review. This review was performed from a strict compliance perspective to identify deficiencies and risk areas, as opposed to whether claims may be "defensible" in an appeal situation. The goal of this review was to identify compliance risks (no matter how minor) to allow the EMS Division to explore and correct the crew documentation or billing risks identified.

PWW performed a review of randomly-selected paid Medicare claims. Using the Office of the Inspector General's RAT-STATS 2019, Version 1.9.0.0, Random Number Generator Program, they selected a total of 30 Medicare claims, from a universe of transports provided by Metro Fire. The review included documentation and claims submission analysis consistent with applicable Medicare ground ambulance regulations, 42 CFR Parts 410 and 414, Medicare Manuals (e.g., Medicare Benefit Policy Manual (100-02), Chapter 10, and Medicare Claims Processing Manual (100-04), Chapter 15) and related guidelines (e.g., CMS Program Memoranda, Transmittals, and Medlearn Matters articles).

In addition to verifying correct payment from the primary payer, PWW also reviewed whether patient cost-sharing obligations (i.e., co-payment and deductible) was collected. The EMS Division looks forward to receiving the results of the audit in the first quarter of 2022 and working with our third party claims administrator, Wittman Enterprises LLC to address any identified risks or deficiencies from the claims review.

The District maintains a comprehensive program for security of controlled substances, which includes a written policy and training for all personnel who are entrusted with controlled substances. The system includes engineering controls that limit access to narcotics and track access to secure Knox Med-Vault safes. In 2021, the EMS Division began configuring an electronic narcotics tracking module within the Operative IQ system which will be implemented in 2022.

Section 1128 of the Social Security Act entitles the Office of Inspector General (OIG) to preclude entities and individuals from federally-funded health care programs. The List of Excluded Individuals/Entities (LEIE) is kept up to date and maintained by the OIG[1]. Metro Fire compares the district's roster to the OIG list on a monthly basis to ensure compliance with federal regulations. This process is accomplished through the use of "Fuzzy Logic" to compare similar names on both lists and to avoid missing personnel whose names are typically abbreviated, or where a nickname is used (i.e. Bill vs. William).

2021 EMS TRAINING CYCLE

ACLS Equivalency & CPR Refresher

The District partnered with Cascade Training Center to provide ACLS refresher training under the county's certificate equivalency guidelines. Training was locally relevant and provided all attendees with instruction and testing for CPR, ACLS, and related infrequent skills, which included transcutaneous cardiac pacing (TCP) and synchronized cardioversion. Curriculum and scenarios were tailored to training needs identified in the focused CQI audit of SVT and advanced airway, as well as Peer Review of TCP and synchronized cardioversion cases.

This class furnished not only classroom instruction, but also featured realistic simulations that required personnel to work together as a team and attempted to replicate the timing, stress, and energy found in actual cardiac care scenarios.

[1] "Background Information | Exclusions | Office of Inspector General | U.S. Department of Health and Human Services," n.d., https://oig.hhs.gov/exclusions/background.asp

Miscellaneous Skills

The EMS Division conducted miscellaneous skills training in the spring of 2021. Training was locally relevant and focused on covering competencies that were not otherwise addressed during the current two-year cycle. Attendees were provided with instruction and testing for needle cricothyrotomy, chest decompression, and external jugular cannulation. Additionally, training on administration of TXA, Ketamine, nasal Narcan, oral glucose and Duo-Dote was provided.

American River College Paramedic Upgrade Program

Our nation's EMS System is facing a crippling workforce shortage. This is a long-term problem that has been growing over the last decade, and COVID-19 worsened the issue. To improve and maintain the number of licensed paramedics available to Metro Fire, the District sponsored Firefighter/EMTs to attend paramedic school. The EMS Division completed a feasibility study and selected American River College's paramedic program. Three (3) members completed the prerequisites to attend the 2021 cohort. Sponsorship included salary, paid tuition and ancillary expenses. This was a full-time program, and the students participated in a high-flex hybrid instruction model requiring them to attend an eight (8) hour online lecture and sixteen (16) hours of on-campus clinical lab per week. Metro Fire's students were top in the class, and all received course completions by the end of 2021 and are eligible for licensure.

Supporting the region's efforts to improve the number of available paramedics in the workforce, Metro Fire's paramedic preceptors completed fifteen (15) paramedic internships with students in 2021. A field internship provides emergency medical care training and experience to paramedic students under continuous supervision, instruction, and evaluation by an authorized preceptor. The field internship consists of a minimum of four hundred eighty hours (480) of third-person ride time, and represents a significant time commitment from our preceptors.

Metro Fire requires preceptors to have two (2) years of field experience in prehospital care within the last five (5) years. Ambulance experience within the last twelve (12) months is preferred. In accordance with EMSA requirements, preceptors attend a training course that includes curriculum on adult learning theory and teaching styles which will result in the preceptor being competent to evaluate the paramedic student during the internship phase of the training program. Metro Fire's preceptors are dedicated to paying it forward to develop the next generation of EMS professionals in our community.

Professional Support Staff Training

In 2021, the EMS Division maintained a strong commitment to providing continuing education to its professional support staff. The Administrative Specialist and Emergency Medical Services Technicians received continuing education required to maintain credentials from the National Academy of Ambulance Compliance (NAAC) in Certified Ambulance Privacy Officer (CAPO) and Certified Ambulance Compliance Officer (CACO).

In addition to the aforementioned continuing education requirements, the Assistant Chief of EMS obtained Certified Ambulance Coder (CAC) certification from NAAC. The CAC curriculum covers all aspects of ambulance billing, coding, and compliance. The course is designed to follow the claims process, and addresses the fundamentals of ambulance coding, including procedure coding, ICD-10 coding, proper use of transportation indicators, and modifier selections. Finally, CAC presents the major compliance areas that ambulance services must be aware of, including billing risk areas, false claims, and HIPAA issues.

Further, support staff attended several Centers for Medicare & Medicaid Services webinars on cost data analysis. Due to COVID-19, all training was delivered through web-based applications with curricula sanctioned by the appropriate accrediting bodies.

Due to retirements and transition back to the line, three (3) new EMS Captains joined the EMS Division in 2021. These members completed Designated Infection Control Officer and Certified Ambulance Documentation Specialist (CADS) certifications as well as HIPAA refresher and harassment training for supervisors.

The knowledge gained through the completion of these courses and continuing education will aid the EMS Division in handling infection control matters, proactively monitoring HIPAA compliance, and adherence to ambulance billing requirements. Additionally, this education aids staff serving as a resource to our members on the front lines of patient care.

QUALITY IMPROVEMENT PLAN OVERVIEW

In 2021 Metro Fire responded to 105,521 incidents, of which 73,036 were requests for medical aid. Of these, there were 69,857 patient contacts resulting in 43,343 transports. Approximately 60% of these patients required an ALS level of care. The District utilizes ImageTrend Elite to document patient encounters, and QA/QI reviews are completed in the CQI module of the program. Metro Fire is an approved Continuing Education Provider (CE# 34-1010) in Sacramento County (see Appendix I), and we delivered thirty-nine CE courses in 2021.

Metro Fire's EMS system and its participants require objective feedback about performance that can be used internally to support quality improvement efforts and externally to demonstrate accountability to public governing boards and other stakeholders. The primary purpose and goal of the District's Quality Improvement Plan (QIP) is to ensure continued high quality patient care.

The EMS Division conducts 100% review of all cardiac arrests, transcutaneous cardiac pacing events, synchronized cardioversion, chest decompression, childbirth, cricothyrotomy, and administration of TXA. In addition, the EMS Division conducts focused audits based on system trends and protocol changes, and random audits in various CQI categories. In 2021, focused audits were completed on physical restraint, intraosseous placement, advanced airway, and supraventricular tachycardia.

The industry standard for CQI review for agencies with call volume between 43,334-500,000 incidents is 1% - 3% of incidents. In 2021, the District exceeded this benchmark by completing 3312 reviews out of 69,857 - or 4% of all patient contacts. The QIP is an integral part of ensuring we provide superior patient care in our communities.

QUALITY IMPROVEMENT POLICY

The goal of Metro Fire's Policy 04.014.01 "Quality Improvement Program" (see Appendix A) is to ensure the highest quality patient care by providing a comprehensive program to review, monitor, and evaluate patient care and identify system trends. The QI Structure is responsible for the quality management of the care delivered by Metro Fire and consists of the following positions and committees:

- Regional Fire Medical Director
    - Provides advice to administrative staff
    - Provides direct instruction to care providers
    - Acts as consultants on policy development
- Assistant Chief/Director of EMS
    - Quality Assurance Officer
    - Responsible for selection of operational indicators and the quality of service
    - Privacy Officer
    - Designated Infection Control Officer
- EMS Battalion Chief/CQI Manager
    - Coordinates Peer Review meetings
    - Responsible for accessing data for required indicators
    - Responsible for publishing of indicators
- EMS Division Captains
    - Responsible for identifying opportunities for improvement through communications and outreach
    - Assist in the development and monitoring of indicators and implementation of Performance Improvement Plans (PIPs, Appendix D)
    - Act as Designated Infection Control Officers
- Quality Assurance (EMS Division)
    - Responsible for identifying system trends
    - Responsible for identifying opportunities for improvement
    - Development and monitoring of indicators
    - Implement and monitor Performance Improvement Plans
- Peer Review Committee
    - Performs retrospective analysis of patient care records
    - Identifies opportunities for improvement by applying field experience and providing feedback to individual care providers
    - Identifies system trends and methods of addressing those trends
- Ad-hoc Committees
    - Committees formed for the purpose of addressing specific issue(s)

AREAS ADDRESSED BY PEER REVIEW

The District's Peer Review Committee is led by the EMS Battalion Chief/CQI Manager & Fire Service Medical Director with support from the EMS Fellow, and there are sixteen members of the committee from all ranks that assist with case reviews.

The Peer Review Committee members are assigned to focus on specific CQI categories created in the CQI module of the ePCR program. The team reviews electronic patient care reports that are drawn from the system based on several designated criteria. There is an overlap of subject matter, so that some patients will fall into more than one QI category.

The Peer Review Committee meets monthly on the third Wednesday to discuss cases of interest identified in the previous month. When completing reviews the committee can make one of four findings:

1) Recommendation for commendation for outstanding patient care.
2) Level 1 - Documentation error. Level 1 issues are handled immediately by the peer, and EMS Division staff is notified so we can update the receiving hospital as needed.
3) Level 2 – Protocol violation. Level 2 issues are forwarded to the EMS Battalion Chief for review and analysis of system trend or need for individual training.
4) Sentinel Event – These are incidents that meet the SCEMSA definition of a Reportable Incident. Sentinel Events are immediately reported to the Assistant Chief of EMS for review and notification of SCEMSA as needed.

The following categories were assigned to Peer Review Committee members and EMS Division staff for review in 2021. Categories with an asterisk received 100% review:

ACS
Advanced Airway
Cardiac Arrest *
Childbirth *
Controlled Substance Use
Cardioversion Audit *
External Pacing Audit *
SMR Audit
General CQI Review
I.O. Audit
Ketamine
MCI
Chest Decompression*
Restraint Audit
Q/A Review
Refusal of Service
Sepsis
Stroke CVA
Trauma
TXA *

2021 CQI STATISTICS & MODALITIES

2021 CQI Reviews ImageTrend CQI Module

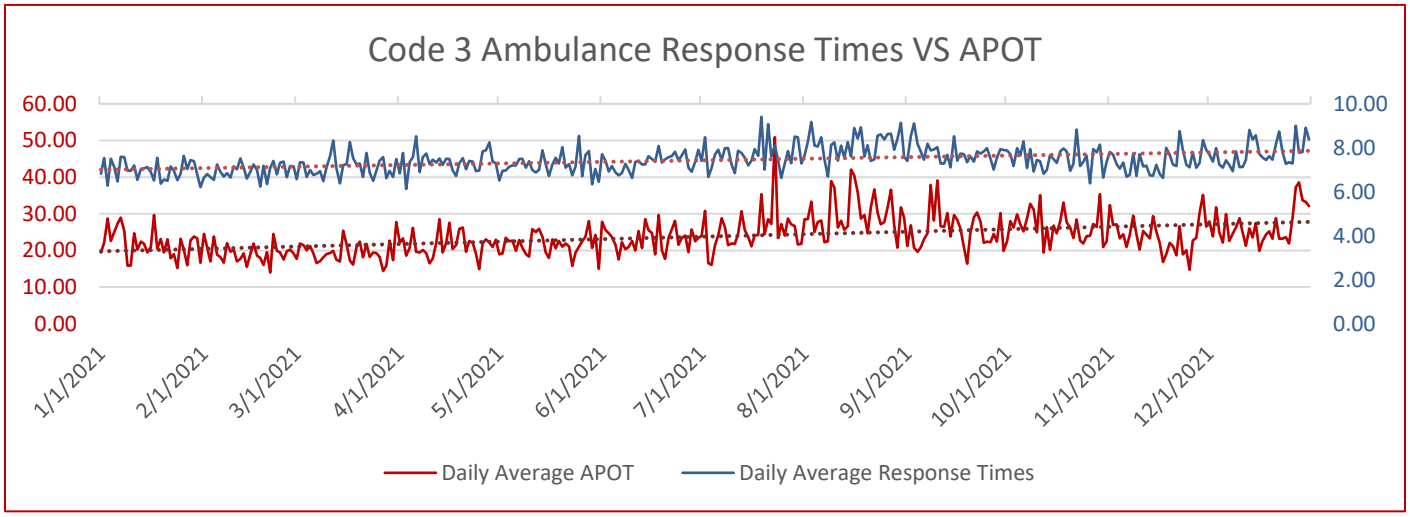
CQI Category	2021 Reviews	Total Incidents	% Reviewed
Acute Coronary Syndrome	60	2,457	2%
Advanced Airway	67	629	10%
APOT >120 Minutes	744	744	100%
Cardiac Arrest	811	811	100%
Chest Decompression	14	14	100%
Childbirth	10	10	100%
Controlled Substance	27	1,029	2%
General CQI Review	585	69,857*	<1%
Intraosseous Audit	130	478	27%
Ketamine Audit	30	110	27%
MCI Patients	20	77	25%
Paramedic Intern	205	2,009	10%
Physical Restraint Audit	100	234	48%
Quality Assurance	107	69,857*	<1%
Refusal Treatment/Transport	120	13,854	<1%
Sepsis	40	1,211	3%
Stroke/CVA	57	1,622	3%
SVT Audit	50	114	43%
Synchronized Cardioversion	14	14	100%
Transcutaneous Pacing	32	32	100%
Trauma	80	13,977	<1%
TXA Administration	9	9	100%
TOTAL	3,312	69,857*	4%

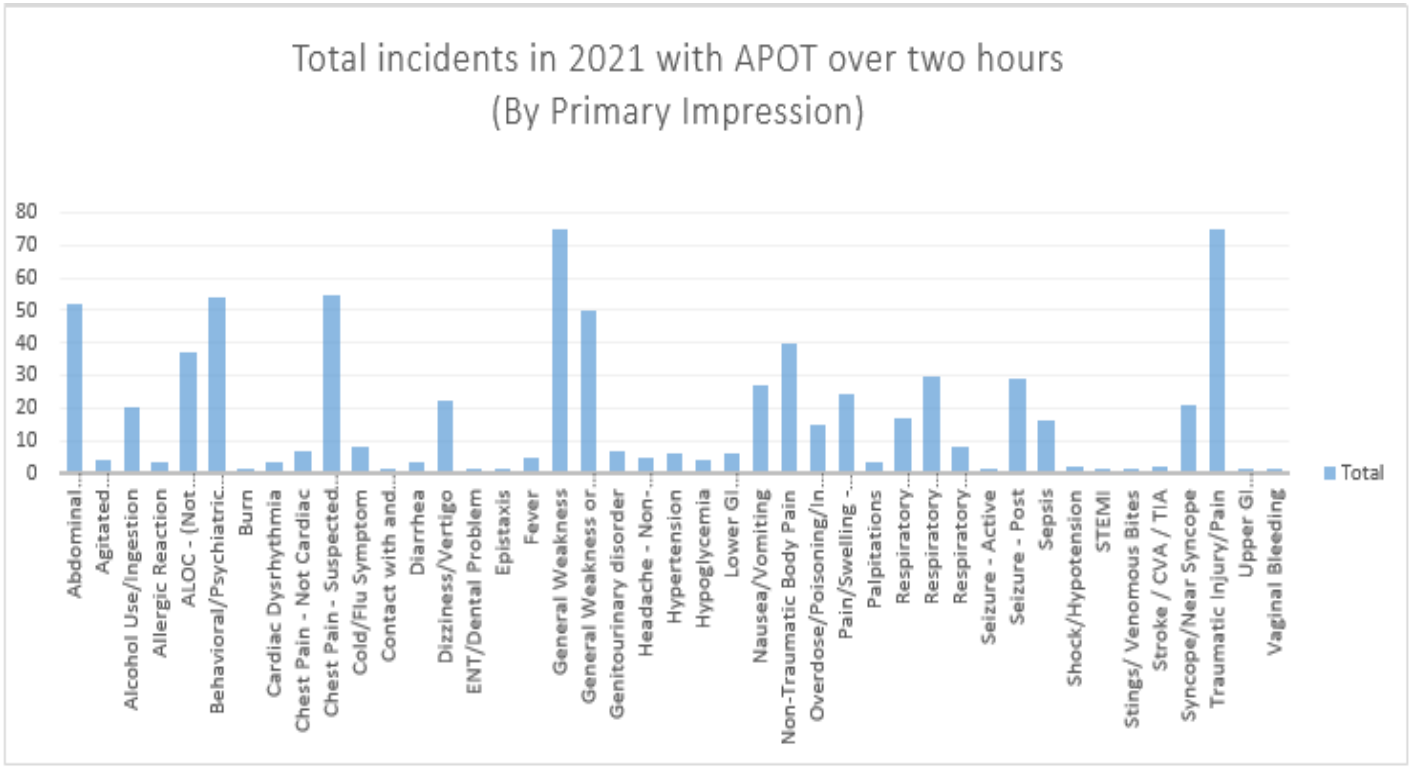
*Excludes eDisposition.12 values No Patient Found, Cancelled Enroute & Cancelled on Scene (No Patient Contact)

A notable improvement to QA/QI activities was introduced in 2021 when Metro Fire implemented the National Fire Incident Reporting System (NFIRS) module in ImageTrend. The EMS Division took the lead in configuring the NFIRS program and transitioning to the new records management system on January 01, 2021. ePCRs can be linked to the corresponding NFIRS record allowing staff to transition between the incident and patient care reports. Previously the EMS Division utilized two (2) different programs to perform accountability activities, so implementation of the NFIRS module maximized efficiencies for staff.

The NFIRS dataset is also accessible from the Continuum module which Metro Fire uses for active monitoring and automated delivery of information that provides immediate awareness of specified data points with real-time updates upon posting of ePCRs and NFIRS reports. The software is configurable and allows EMS Division staff to determine what is monitored, when the information is received, and how it will be viewed.

In 2021, a new Continuum alert was created to notify the Assistant Chief of EMS of any APOT >120 minutes. The alert contained a link to the patient care report facilitating immediate review. All incidents were analyzed to monitor both system impacts and identify negative patient outcomes. A direct correlation was identified between response times detriments and extended APOT. Numerous EMS Events were submitted to SCEMSA to heighten awareness of this growing issue in our EMS system. APOT reviews resulted in the submission of two (2) EMTALA complaints in 2021, case numbers CA00751712 & CA00751721.





PERFORMANCE INDICATORS

The Core Quality Measures Project was established in 2012 through a grant from the California Health Care Foundation. The primary purpose of the project is to increase the accessibility and accuracy of prehospital data for public, policy, academic, and research purposes to facilitate EMS system evaluation and improvement. EMS systems across California are measured on their performance in these areas and can compare their results to other Local EMS Agencies.

The project highlights opportunities to improve the quality of patient care delivered in an EMS system. For 2021, the Core Quality Measures Project includes six (6) of the eleven (11) National EMS Quality Measures as listed below[2]. Based on analysis of this year's findings and case reviews of trauma and cardiac arrest, pediatric patients will be an area of focus for quality improvement projects in 2022.

California Core Quality Measure Data – CY 2021

Measure ID	Measure Name	Numerator Value (Subpopulation)	Denominator Value (Population)	Reported Value %
TRA-2	Transport of Trauma Patients to a Trauma Center	430	433	99%
HYP-1	Treatment Administered for Hypoglycemia	710	775	93%
STR-1	Prehospital Screening for Suspected Stroke Patients	1,448	1,502	96%
PED-3	Respiratory Assessment for Pediatric Patients	159	177	89%
RST-4	911 Request for Service That Included a Lights and/or Siren Response	57,685	89,792	64%
RST-5	911 Request for Services that Included a Lights and/or Sirens Transport	4,487	43,343	10%

Source: Sacramento Metropolitan Fire District ePCR Program

TRA-2 …Percentage of trauma patients meeting CDC Field Trauma Triage Criteria Step 1 or 2 or 3 transported to a trauma center originating from 9-1-1 response

HYP-1 …Percentage of hypoglycemic patients that received treatment for hypoglycemia originating from 9-1-1 response

STR-1 …Percentage of suspected stroke patients that received a prehospital stroke screening originating from 9-1-1 response

PED-3 …Percentage of pediatric patients that had a primary or secondary impression of respiratory distress and received a documented respiratory assessment originating from 9-1-1 response

RST-4 …Percentage of EMS responses originating from a 9-1-1 request that included lights and siren during a response

RST-5 …Percentage of EMS transports originating from a 9-1-1 request that included the use of lights and/or siren during patient transport

IMPROVING PERFORMANCE

The correlation between the quality of Cardiopulmonary Resuscitation (CPR) and patient outcome requires that crew members receive pertinent and timely feedback on their performance. In close cooperation with Regional Fire Medical Director Kevin Mackey and local cardiologist Dr. Stephen Rossiter, the District uses Physio Control's "Code-Stat" data gathering program to assess and analyze the proficiency of CPR in an effort to improve the seamless and timely treatment that is critical to the success of field providers.

The EMS Division is committed to utilizing information gleaned from Code-Stat for purposes of analytics and education. The software provides a comprehensive visualization of events during CPR, including chest compressions, ventilation, shocks, and pauses. Code-Stat can be utilized to provide customized reports and trending data to help track trends, and provide focused areas for further training. The goal is to boost systemic and individual performance and thereby increase patient survival rates.

In 2021, the EMS Division continued use of this tool to enhance review of transcutaneous cardiac pacing events and the use of synchronized cardioversion, which identified the need for District-wide training on transcutaneous pacing – subsequently provided by Dr. Rossiter. Dr. Rossiter is also a consistent contributor at recruit academies and ongoing training events, providing Metro Fire's members the opportunity to learn from a cardiac care specialist.

REPORTING

Metro Fire is not a stand-alone entity, and the cooperation and collaboration necessary to provide the community with quality care requires that we operate collegially with the surrounding agencies, and with the County, the State, and the Federal agencies that encompass the whole of Emergency Medical Services.

The District has met the requirements of the federal NEMSIS reporting system through the use of ImageTrend ePCR system. This system allows secure transmission of patient and system data as required by Law, statute, and policy. The EMS Division monitors updates from CEMSIS and NEMSIS throughout the year, and updates the data elements in the ePCR program as indicated. In 2022 the EMS Division will be working with the SCEMSA Technical Advisory Group to prepare for the requisite upgrade to NEMSIS v3.5.

The Cardiac Arrest Registry to Enhance Survival (CARES) was created to provide communities with a means to identify cases of out-of-hospital cardiac arrest, measure how well emergency medical services (EMS) perform key elements of emergency cardiac care, and determine outcomes through hospital discharge. CARES collects data from 3 sources – 9-1-1 dispatch, EMS, and receiving hospitals – and links them to form a single record. Once data entry is completed, individual identifiers are stripped from the record. The anonymity of CARES records allows participating agencies and institutions to compile cases without informed consent. CARES generates standard reports (see Appendix E) that can be used to characterize the local epidemiology of cardiac arrest and help managers determine how well EMS is delivering out-of-hospital cardiac arrest care.

Metro Fire has worked diligently with CARES and ImageTrend to create a method of exporting the pertinent data to CARES. The EMS Technicians regularly monitor exports to CARES and correct data errors if they arise. Metro Fire began participation in the CARES system in 2019 and worked with ImageTrend to ensure proper configuration of our automatic exports after the 2020 CARES update; future years will show additional data and trends, as the participation with CARES continues.

SUMMARY

Throughout the year 2021, Metro Fire and its membership stood tall in the ongoing fight against the ravages of the COVID-19 pandemic and painfully endured the heartbreaking loss of one of our own.

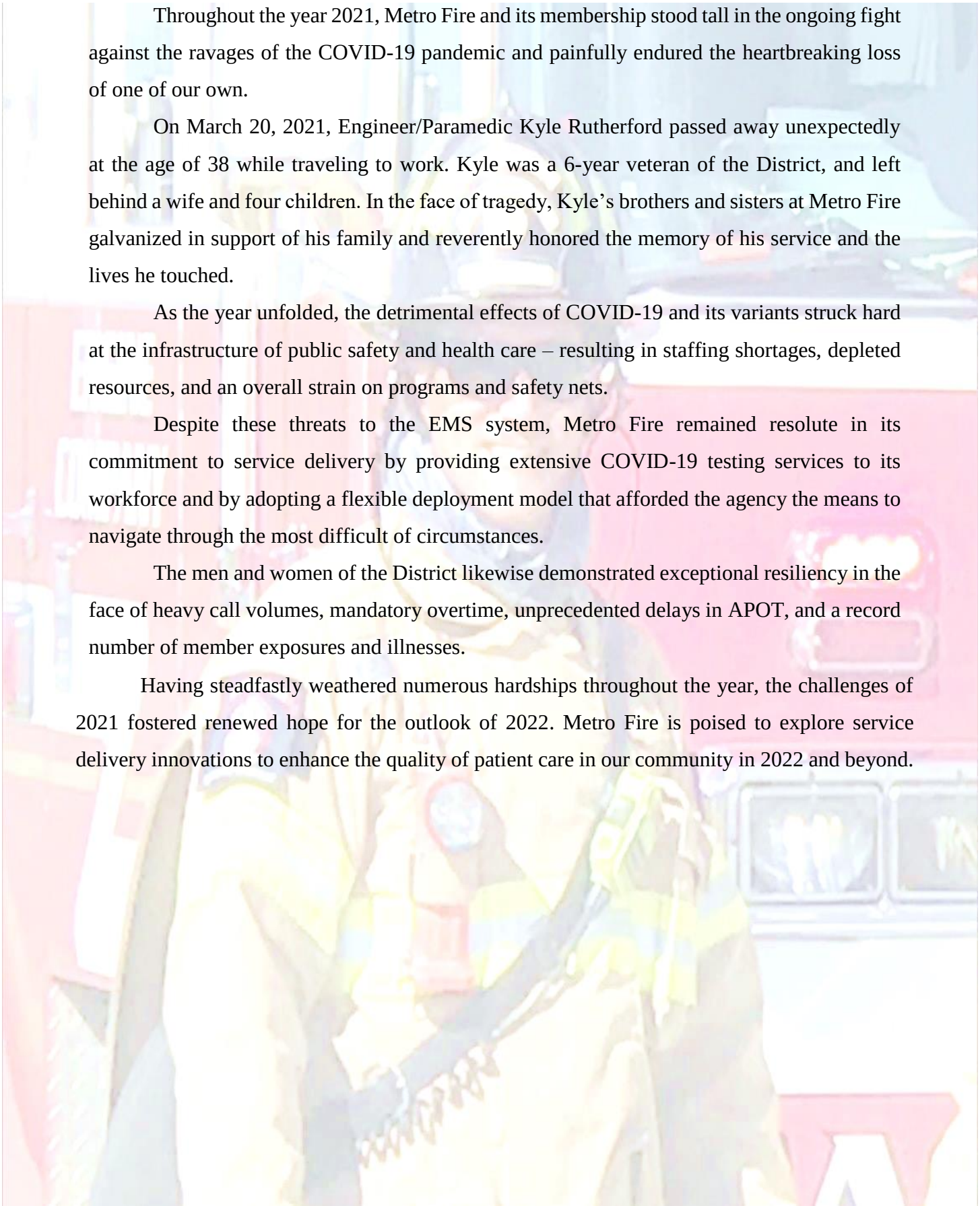
On March 20, 2021, Engineer/Paramedic Kyle Rutherford passed away unexpectedly at the age of 38 while traveling to work. Kyle was a 6-year veteran of the District, and left behind a wife and four children. In the face of tragedy, Kyle's brothers and sisters at Metro Fire galvanized in support of his family and reverently honored the memory of his service and the lives he touched.

As the year unfolded, the detrimental effects of COVID-19 and its variants struck hard at the infrastructure of public safety and health care – resulting in staffing shortages, depleted resources, and an overall strain on programs and safety nets.

Despite these threats to the EMS system, Metro Fire remained resolute in its commitment to service delivery by providing extensive COVID-19 testing services to its workforce and by adopting a flexible deployment model that afforded the agency the means to navigate through the most difficult of circumstances.

The men and women of the District likewise demonstrated exceptional resiliency in the face of heavy call volumes, mandatory overtime, unprecedented delays in APOT, and a record number of member exposures and illnesses.

Having steadfastly weathered numerous hardships throughout the year, the challenges of 2021 fostered renewed hope for the outlook of 2022. Metro Fire is poised to explore service delivery innovations to enhance the quality of patient care in our community in 2022 and beyond.



APPENDICES

APPENDIX A

QI PROGRAM POLICY

Sacramento Metropolitan Fire District

OPERATIONS POLICY

POLICY TITLE: Quality Improvement Program OVERSIGHT: EMS
POLICY NUMBER: 04.014.01 EFFECTIVE DATE: 02/20/19 REVIEW DATE: 02/20/19

Background

The Sacramento Metropolitan Fire District (District) Emergency Medical Services (EMS) system and its participants require objective feedback about performance that can be used internally to support quality improvement efforts and externally to demonstrate accountability to public governing boards and other stakeholders.

Purpose

The primary purpose and goal of the District's Quality Improvement Plan (QIP) is to ensure a continued high quality of patient care.

Scope

This policy is applicable to all District first responders, emergency medical technicians, and paramedics.

Definitions

1. **Prospective:** Prevent potential problems.
2. **Concurrent:** Identify problems or potential problems during patient care.
3. **Retrospective:** Identify trends and potential or known problems, and prevent their reoccurrence.
4. **Reporting/Feedback:** QIP activities that are reported to Sacramento County EMS Agency (SCEMSA) and may result in system design changes.
5. **Reportable Incident:** Issues that contributed to a negative patient outcome and/or issues involving grossly inappropriate behavior by any involved personnel. Additionally, issues that may potentially be a threat to public health and safety, but did not necessarily contribute to a negative patient outcome.

The District has established a system-wide QIP to continuously monitor, review, evaluate and improve the delivery of prehospital patient care services. QIP is comprised of participants from all ranks and includes the following activities:

a. Prospective
b. Concurrent
c. Retrospective
d. Reporting/Feedback

2. The District shall submit an Annual Update to SCEMSA by March 31. SCEMSA evaluates the District's QIP and requests revisions as needed.

3. All proceedings, documents, and discussions of the QIP are confidential and covered under Section 1040 and 1157.7 of the Evidence Code of the State of California. The prohibition relating to discovery of information provided to the District's QIP committees shall be applicable to all proceedings and records of these committees which are established to monitor, evaluate, and report on the quality of pre-hospital medical and trauma care. Issues requiring system input may be sent in totality to SCEMSA for review and input.

   All QIP members will sign a confidentiality agreement not to divulge or discuss information that would have been obtained solely through the District's QIP process. The EMS Battalion Chief is responsible for explaining, and obtaining, a signed confidentiality agreement for invited guest(s) prior to their participating in any committee meeting.

4. All Reportable Incidents will be referred to the District's designated Quality Assurance Officer.

Procedures

1. Prospective Review
   a. Participate on committee(s) as requested by SCEMSA.
   b. Provide and/or participate in education:
      I. Orientation to the EMS System
      II. Peer Review Audits
      III. Participate in continuing education courses and training of pre-hospital care providers
      IV. Offer educational opportunities based on problem identification and trend analysis
      V. Establish procedures for informing all field personnel of system changes
   c. Engage in evaluation of individual paramedics including:
      I. Review of electronic patient care reports (ePCR), audio tape or other documentation as available.
      II. Direct observations.
      III. Evaluation of new employees.
      IV. Routine evaluation of patient care.
      V. Develop Performance Improvement Plans as needed.

VI. Design educational plans for individual paramedic deficiencies.

d. Accreditation- establish policies and procedures based on SCEMSA policies.

2. Concurrent Review

a. Evaluate EMTs and Paramedics utilizing performance standards through direct observation.

b. Provide field supervisors and/or quality assessment personnel for consultation/assistance.

c. Review low frequency, high risk skills at least on an annual basis.

3. Retrospective Review

a. Conduct analysis of field care, utilizing ePCRs, audio tapes, or other applicable documentation to include:

I. High risk.

II. Trend analysis of high volume calls, unusual occurrences and problem oriented events.

III. Incidents requested for review by SCEMSA or another system provider (e.g. receiving hospital or response partner agency).

IV. Specific audit topics requested by SCEMSA or any quality improvement committee.

b. Develop District specific indicators for reporting to SCEMSA in the annual report.

c. Abide by SCEMSA specific indicators and develop benchmarks.

d. Participate in the incident review process, prehospital research, and studies as requested by SCEMSA or other quality recommendations as specified by SCEMSA.

4. Reporting/Feedback

a. Comply with reporting and other quality recommendations as specified by SCEMSA.

b. Develop a process for identifying trends in the quality of field care.

I. Submit reports as specified by SCEMSA.

II. Design and participate in educational offerings based on problem identification and trend analysis.

III. Make changes in internal policies and procedures based on trend analysis to reflect SCEMSA policies and procedures.

APPENDIX B

CQI CONFIDENTIALITY AGREEMENT

SACRAMENTO METROPOLITAN FIRE DISTRICT

CQI Meeting Attendance Roster

Confidentiality Statement

I understand and agree as follows:

That confidentiality is vital to the free and candid communication necessary to the effective Continuous Quality Improvement activities,

That I shall respect and maintain confidentiality of all discussions, deliberations, records, and any other information generated in connection with this meeting,

That I shall make no voluntary disclosures of such discussions, deliberations, records, or information,

That I shall only diseminate or act on information obtained from this meeting based on written direction of the CQI Manager or directed action items recorded in the minutes,

That all printed and written material associated with this meeting (including notes taken during the meeting) shall be submitted to the recorder prior to the end of the meeting, unless associated with action directed by the CQI manager.

The undersigned have agreed to the above for the the meeting held on: March 18, 2020

Start Time:_____ End Time:_____

Name	Employee Number	Paramedic Number	Signature	Initial for Overtime

APPENDIX C

SAMPLE CQI NOTES FROM PEER REVIEW MEETING

Airway Management

1) *Trend*: ETCO2 is not being used on all advanced airways.
    a. ETCO2 is required for all advanced airway placement (iGel or ET)

2) *Trend*: Unable to capture ETCO2 waveform on monitor, or waveform only present for brief time period.
    a. Esophageal tube can cause an initial waveform, so it is important to verify capnography waveform periodically throughout the code.
    b. Proper calibration was not allowed for prior to hooking capnography up to the ET
    c. If ETCO2 reading not registering, reconfirm & ***document*** good tube placement
        i. Check for breath sounds with ventilation
        ii. Verify absence of epigastric sounds with ventilations
        iii. Consider the need to suction the tube to clear secretions inhibiting waveform
        iv. Re-visualize the airway using video laryngoscope
    d. If you can't confirm the tube is in the correct place, and there is no ETCO2 waveform, pull the tube and insert the iGel.

3) *Trend***:** Documenting ETCO2 sensor failure on PCR, but not reporting to EMS Division.
    a. All perceived failure of the monitor's ETCO2 sensor must be reported to EMS24 immediately and documented in a Report of Occurrence.
        i. SCEMSA protocol Biomedical Maintenance 5550 requires us to report malfunctioning biomedical device that may have effected patient care to SCEMSA on the next working day.

4) *Trend*: Incomplete documentation of advanced airway confirmation.
    a. PCRs consistently have no documentation of lung sounds with ventilation before or after advanced airway placement.
    b. Consistently lacking documentation that epigastric sounds were checked and absent with ventilation after advanced airway placement.
    c. Consistently lacking documentation that tube placement was checked throughout transport and after each patient move.

Vascular Access

1) *Trend*: Not attempting (or documenting) peripheral IV or EJ before IO for vascular access
    a. Vascular Access protocol 8808 states "*peripheral IV is preferred choice for all patients requiring vascular access*" & new ACLS 2020 guidelines state "*Intravenous IV access is the preferred route of medication administration during ACLS resuscitation*".
        i. Comparing IV versus IO drug administration during cardiac arrest found that IV route was associated with better clinical outcomes in 5 retrospective studies.
    b. Vascular access protocol lists EJ as the 2nd option if peripheral access in not obtained for patient's in extremis with immediate need for fluids and medication.
    c. IO is indicated for adult and pediatric patients weighing ≥ 3kg who are *unable to be successfully IV cannulated* and who need fluids and/or medication.
        i. When indicated, the humeral head is the preferred site for an adult patient over the tibia

2) *Trend:* Unsuccessful IV attempts not documented and/or no rationale documented for bypassing IV and going to IO.
    a. Protocol update coming July 01, 2021 requires providers to document the rationale for forgoing IV and going straight to IO & will require documentation of why humeral head wasn't used for an adult patient.

3) Additional considerations
    i. IO carries risk of osteomyelitis, compartment syndrome, fractures, and incompatibility with MRI scanners
    ii. Significant cost difference between IV catheter ($1.83/catheter) vs. IO needle ($110/needle)
    iii. IO insertion automatically results in ALS2 billing which is the highest charge for the patient.
4) Bottom line, we are over using IO in the cardiac arrest setting unnecessarily without benefit for the patient.

Routine Use of D50% and Narcan in Cardiac Arrest Setting

1) *Trend*: Medics checking blood glucose level during cardiac arrest event & administering D50% if result is <60 mg/dl
    a. Point-of-care glucometers are calibrated for use with capillary blood (finger stick). Point-of-care glucose testing in patients suffering cardiac arrest results in inaccurate reading most of the time, which may prompt us to administer D50% when it is truly not indicated.
    b. Retrospective analysis of Cardiac Arrest Registry data found that patients who receive D50% during the prehospital phase of cardiac arrest have a decreased chance of survival to hospital discharge. For those who do survive, administration of D50% appears to decrease the chances of good neurological recovery.
    c. SCEMSA memo to all providers in September 2019 states the following:
        i. Only use D50 to treat hypoglycemia which was documented by the patient or caregiver BEFORE cardiac arrest occurred, if it has not been yet been treated.
        ii. Do not check capillary blood sugar during cardiac arrest (also don't use venous blood from IV start. Point-of-care glucometer isn't calibrated for this use).
        iii. If resuscitation efforts result in ROSC, check blood glucose and treat according to hypoglycemia protocol.
2) *Trend*: Administering Narcan during cardiac arrest AFTER advanced airway has been established
    a. SCEMSA memo to all providers in September 2019 states the following: use Narcan during cardiac arrest only with suspected opiate overdose (presence of drug paraphernalia on scene, suggestive history from bystander, unexplained arrest in young person, etc.).
    b. Narcan is not indicated if an advanced airway has already been secured. If Narcan is going to be given due to high suspicion for opiate OD, give it prior to advanced airway attempt.

Medical vs. Trauma Cardiac Arrest

1) ***Trend*:** Remaining on scene with traumatic cardiac arrest and running the code for 20 minutes before making a transport determination.
    a. Patients in traumatic cardiac arrest have issues that will not be fixed with standard ACLS & need a trauma center.
    b. Decision point on traumatic cardiac arrest:
        i. Does patient meet criteria to declare death (absence of pulses & asystole in 2 leads or PEA at a rate ≤ 40 beats per minute)?
        ii. If patient doesn't meet criteria to declare death transport is indicated, and the provision in the Trauma protocol applies: "time on scene for critical trauma should not exceed 12 minutes under normal circumstance. Conditions requiring extended scene times shall be documented".

APPENDIX D

PERFORMANCE IMPROVEMENT PLAN (PIP)

SACRAMENTO METRO FIRE DISTRICT
Performance Improvement Plan

Probationary Firefighter Information:		
Date:	**Start Date**:	**Name**:
Class:	**FTO:**	**Company Officer:**
# of ride along shifts to date:		

Evaluation Factors: (Highlight areas needing improvement)

Patient Assessment

Scene Size-up

Initial Assessment

Focused History

Physical Exam

Scene Activities/Management

Transfer of Care

Scene Safety

Use of Resources

Critical Thinking

Treatment

Protocol Knowledge

Treatment Skills

Decisiveness

Appropriateness of Treatment

Communications

On-Scene Communications

Communications with Patient, Family, Bystanders

Hospital Communications

Other:

SACRAMENTO METRO FIRE DISTRICT
Performance Improvement Plan

Areas in need of improvement

Patient Assessment
Probationary FF/P_____has not demonstrated competency in performing a prompt, complete, and appropriate patient assessment. He does not consistently identify the primary chief complaint or sift through multiple complaints to find the most critical and relevant. Probationary FF/P_____sometimes forgets to ask assessment questions that would assist with differential diagnosis, such as determining pertinent negatives and relevant past medical history.

Treatment
Probationary FF/P_____inconsistently applies the Sacramento County EMS Protocols which adversely affects his ability to develop and implement an appropriate treatment plan. Other ALS crew members occasionally have to step in to guide treatment of patients.

Scene Activities/Management
Probationary FF/P_____has needed prompting to direct crew members to perform diagnostics or interventions, especially on critical patients. Probationary FF/P_____looks to the crew for approval and direction. Probationary FF/P_____does not consistently assume a leadership role relevant to medical management of patients.

Communications
Probationary FF/P_____ inconsistently communicates clear and concise orders to the crew during incidents. Although verbal communications are respectful and professional, he does not instill confidence in his patients, bystanders, or crew.

Other
Probationary FF/P__has showed improvement in all aspects of EMS performance, however he requires additional time as a 3rd person ride along to become a safe, competent and consistent paramedic for the District.

SACRAMENTO METRO FIRE DISTRICT
Performance Improvement Plan

Recommended Training:

Probationary FF/P_____is being assigned to work with FTO FF/P XXX for 6 shifts during which he will ride on Medic XXX and will consistently demonstrate improvement in the following areas:

Patient Assessment
Utilize a thorough and systematic assessment to competently identify the treatment needs of patients in a timely manner in the drill setting and on incidents. If receiving a transfer of care report from first arriving paramedic, process the information received and continue down that treatment path if appropriate or recognize additional needs and formulate your own treatment plan.

Treatment
Memorize Sacramento County EMS Protocols. Practice developing treatment plans in a timely manner in a scenario setting as well as actual incidents with feedback from the crew. Utilize the full body CPR mannequin and cardiac rhythm generator available through Logistics to practice realistic, real-time patient assessments that incorporate the necessity to provide rapid intervention (i.e. CPR, active bleeding, cspine precautions).

Scene Activities/Management
Practice scene control and delegation in the drill setting in addition to actual emergency incidents. Practice giving clear and concise direction to crew members while assuming a leadership role in relation to patient management.

Communications
After completing drill scenarios and actually performing on emergency scenes, deliver a radio report which clearly and accurately reflects the patient's condition to the receiving hospital. Practice and perform transferring care to hospital staff in the same manner as mentioned above.

Other
All of Probationary FF/P_____ePCRs will be reviewed by a Peer Review member for the duration of this PIP.

SACRAMENTO METRO FIRE DISTRICT
Performance Improvement Plan

Required Outcomes

At the completion of this Performance Improvement Plan on the morning of XXXXX XXth, XXXX @ 0800, Probationary FF/P _____shall have consistently and competently demonstrate the following:

Patient Assessment

Probationary FF/P_____must have demonstrate the ability to perform complete physical examinations that were appropriate for the chief complaint promptly without direction from the crew, identify any imminent life threatening needs, and initiated appropriate interventions immediately.

Treatment

Probationary FF/P_____must have demonstrated consistent knowledge of the Sacramento County EMS protocols and utilized them without hesitation or direction from the crew on all incidents. Probationary FF/P_____must have consistently demonstrated knowledge of the indications, contraindications, adverse effects, and dosage of all medications used in the Sacramento County EMS Protocols. Probationary FF/P_____must have passed a written protocol knowledge and cardiac rhythm interpretation examination to be administered by the EMS Division on XXX XXth, 20XX with a minimum score of 80%.

Scene Activities/Management

Probationary FF/P_____must have immediately assumed a leadership role related to medical management and scene control as appropriate. He must have demonstrated competency in directing crew members to assume medical duties within their scope of practice to facilitate completing the patient assessment without direction from other crew members on all incidents.

Communications

Probationary FF/P_____must have consistently provided clear and concise direction to crew members on scene. Probationary FF/P _____ must have delivered radio and transfer of care reports which clearly and accurately reflects the patient's condition to the receiving hospital.

Other

All ePCRs should have been completed in compliance with SCEMS protocols and District documentation policies 04.001.01, 04.003.01, 903.00, & 923.01

.

Please Sign Below:

Company Officer:_____ Date:_____

FF/P FTO: _____ Date:_____

EMS Captain: _____ Date:_____

Probationary FF/P:_____ Date:_____

This Performance Improvement Plan (PIP) has a duration of 6 shifts and will be completed and reviewed by the following date:

XX/XX/XX

(Signed original PIP stays in probation binder; signed copy to EMS Captain)

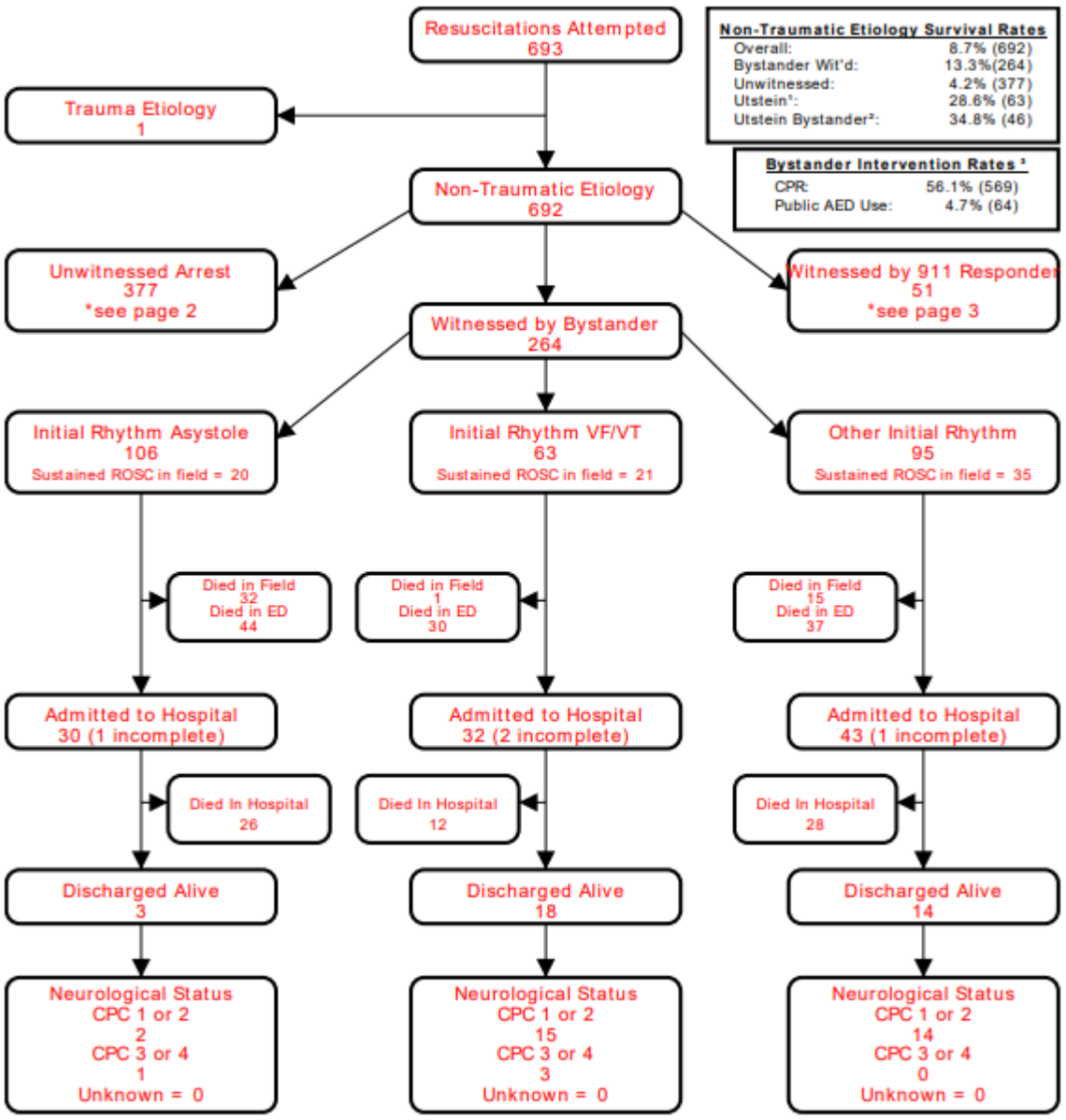
APPENDIX E

2021 UTSTEIN SURVIVAL REPORT

Utstein Survival Report

Sacramento Metropolitan Fire District

Date of Arrest: From 01/01/2021 Through 12/31/2021



Non-Traumatic Etiology Survival Rates

Overall:	8.7% (692)
Bystander Wit'd:	13.3%(264)
Unwitnessed:	4.2% (377)
Utstein[1]:	28.6% (63)
Utstein Bystander[2]:	34.8% (46)

Bystander Intervention Rates [3]

CPR:	56.1% (569)
Public AED Use:	4.7% (64)

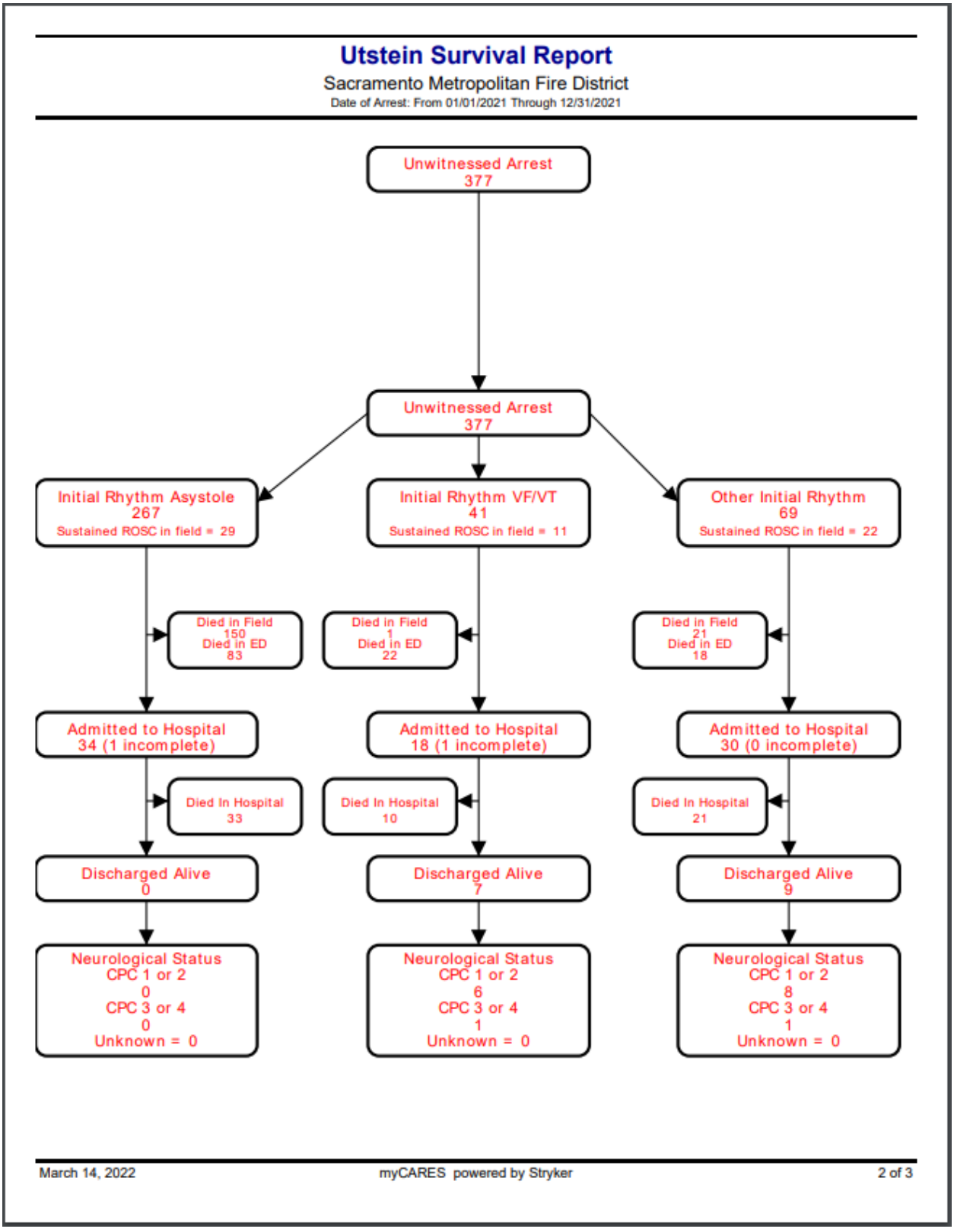
[1]Utstein: Witnessed by bystander and found in shockable rhythm.

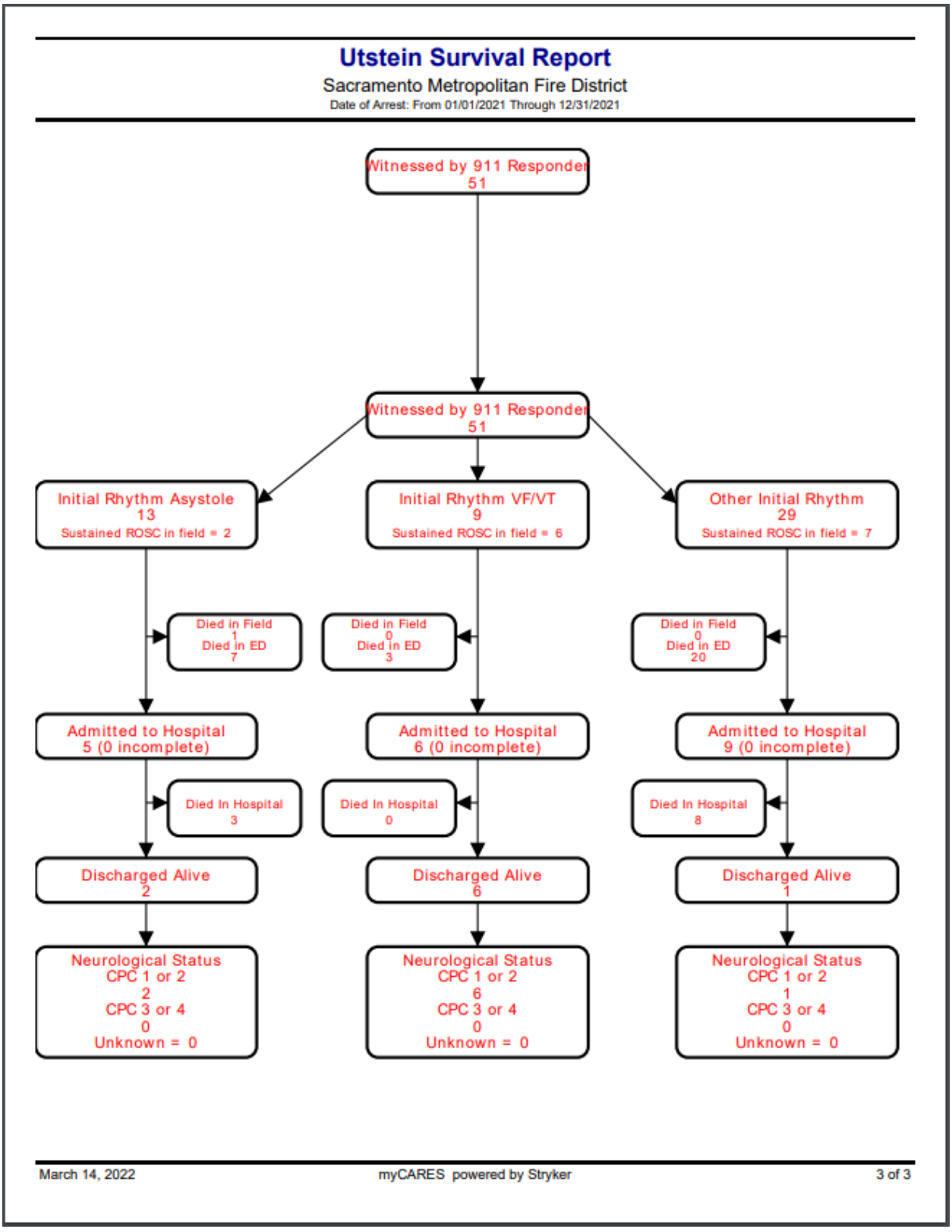
[2]Utstein Bystander: Witnessed by bystander, found in shockable rhythm, and received some bystander intervention (CPR and/or AED application).

[3]Bystander CPR rate excludes 911 Responder Witnessed, Nursing Home, and Healthcare Facility arrests. Public AED Use rate excludes 911 Responder Witnessed, Home/Residence, Nursing Home, and Healthcare Facility arrests.

**Only data from the previous calendar year is fully audited. Data from the current calendar year is dynamic.*

March 14, 2022 myCARES powered by Stryker 1 of 3


Utstein Survival Report
Sacramento Metropolitan Fire District
Date of Arrest: From 01/01/2021 Through 12/31/2021
Unwitnessed Arrest
377
Unwitnessed Arrest
377
Initial Rhythm Asystole
267
Sustained ROSC in field = 29
Initial Rhythm VF/VT
41
Sustained ROSC in field = 11
Other Initial Rhythm
69
Sustained ROSC in field = 22
Died in Field
150
Died in ED
83
Died in Field
1
Died in ED
22
Died in Field
21
Died in ED
18
Admitted to Hospital
34 (1 incomplete)
Admitted to Hospital
18 (1 incomplete)
Admitted to Hospital
30 (0 incomplete)
Died In Hospital
33
Died In Hospital
10
Died In Hospital
21
Discharged Alive
0
Discharged Alive
7
Discharged Alive
9
Neurological Status
CPC 1 or 2
0
CPC 3 or 4
0
Unknown = 0
Neurological Status
CPC 1 or 2
6
CPC 3 or 4
1
Unknown = 0
Neurological Status
CPC 1 or 2
8
CPC 3 or 4
1
Unknown = 0
March 14, 2022
myCARES powered by Stryker
2 of 3


Utstein Survival Report
Sacramento Metropolitan Fire District
Date of Arrest: From 01/01/2021 Through 12/31/2021
Witnessed by 911 Responder
51
Witnessed by 911 Responder
51
Initial Rhythm Asystole
13
Sustained ROSC in field = 2
Initial Rhythm VF/VT
9
Sustained ROSC in field = 6
Other Initial Rhythm
29
Sustained ROSC in field = 7
Died in Field
1
Died in ED
7
Died in Field
0
Died in ED
3
Died in Field
0
Died in ED
20
Admitted to Hospital
5 (0 incomplete)
Admitted to Hospital
6 (0 incomplete)
Admitted to Hospital
9 (0 incomplete)
Died In Hospital
3
Died In Hospital
0
Died In Hospital
8
Discharged Alive
2
Discharged Alive
6
Discharged Alive
1
Neurological Status
CPC 1 or 2
2
CPC 3 or 4
0
Unknown = 0
Neurological Status
CPC 1 or 2
6
CPC 3 or 4
0
Unknown = 0
Neurological Status
CPC 1 or 2
1
CPC 3 or 4
0
Unknown = 0
March 14, 2022
myCARES powered by Stryker
3 of 3

APPENDIX F

ADDITIONAL CORE MEASURES

ADDITIONAL CORE MEASURES

Etiology and Outcome - Cardiac Arrest

Cardiac Arrest Etiology

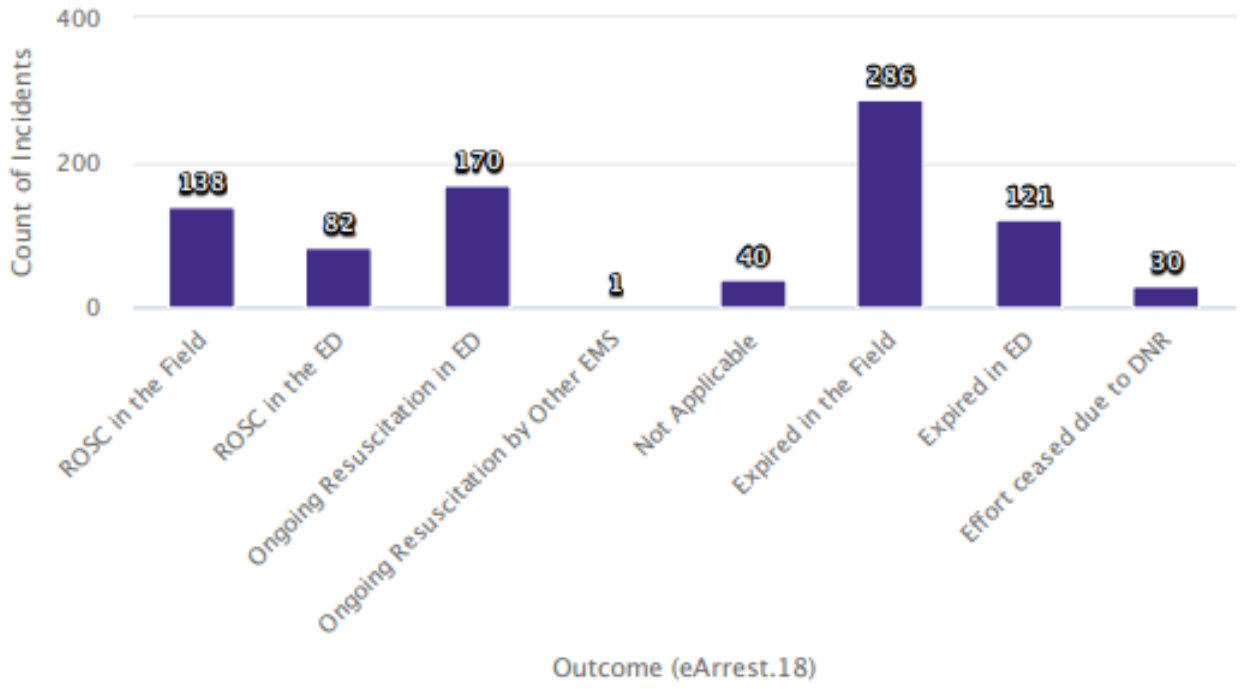
Jan 01, 2021 12:00 AM to Dec 31, 2021 11:59 PM

Cardiac Arrest Etiology (eArrest.02)	2021-January	2021-February	2021-March	2021-April	2021-May	2021-June	2021-July	2021-August	2021-September	2021-October	2021-November	2021-December
Cardiac (Presumed)	74	50	56	85	77	95	89	113	122	115	89	124
Drowning/Submersion	1	0	0	1	0	2	1	0	0	1	1	0
Drug Overdose	5	2	6	5	6	10	6	7	8	7	7	5
Exsanguination	0	0	0	0	0	0	0	1	0	1	0	1
Not Applicable	1	1	0	0	0	0	0	0	0	0	0	0
Other	4	1	0	1	1	3	6	4	5	1	2	5
Respiratory/Asphyxia	8	13	7	6	5	6	7	15	7	5	9	8
Trauma	16	4	6	7	9	12	8	11	4	9	12	10

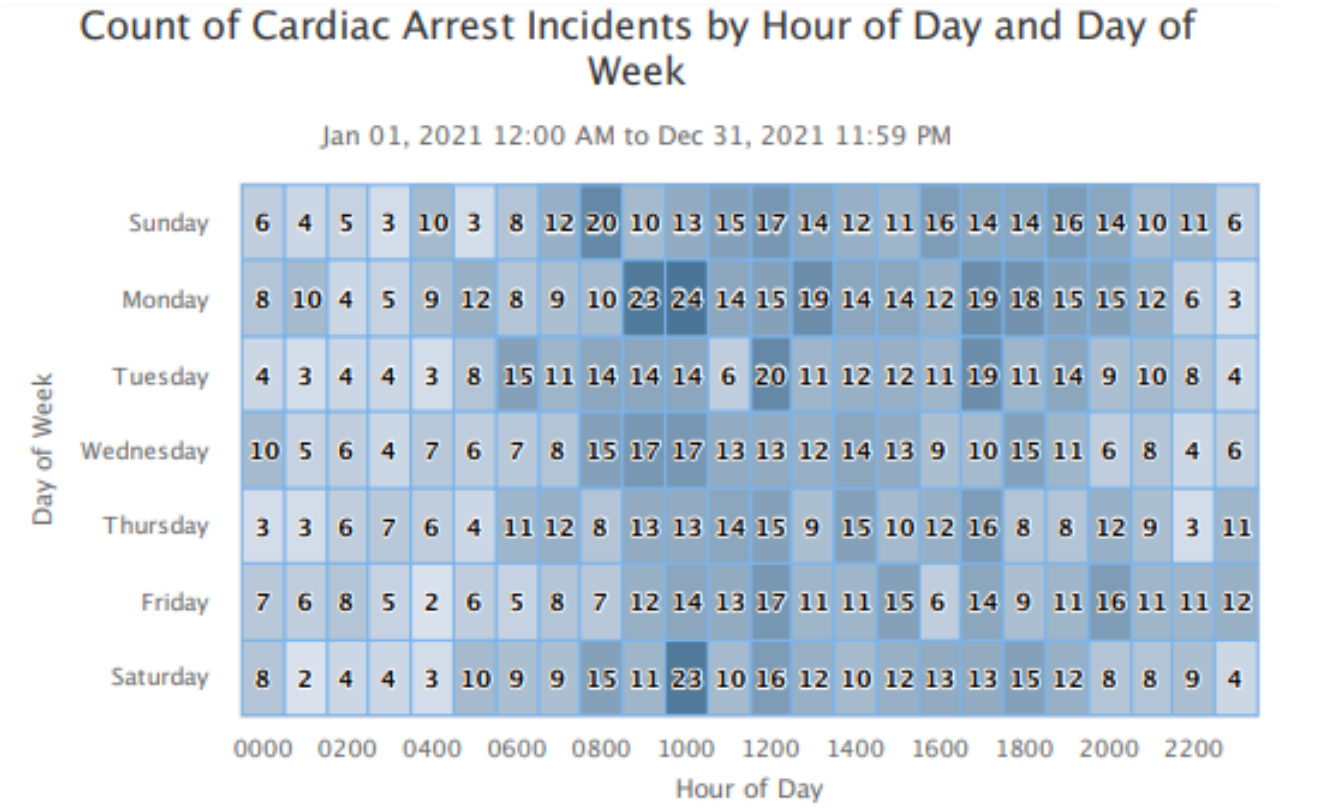
Year-Month

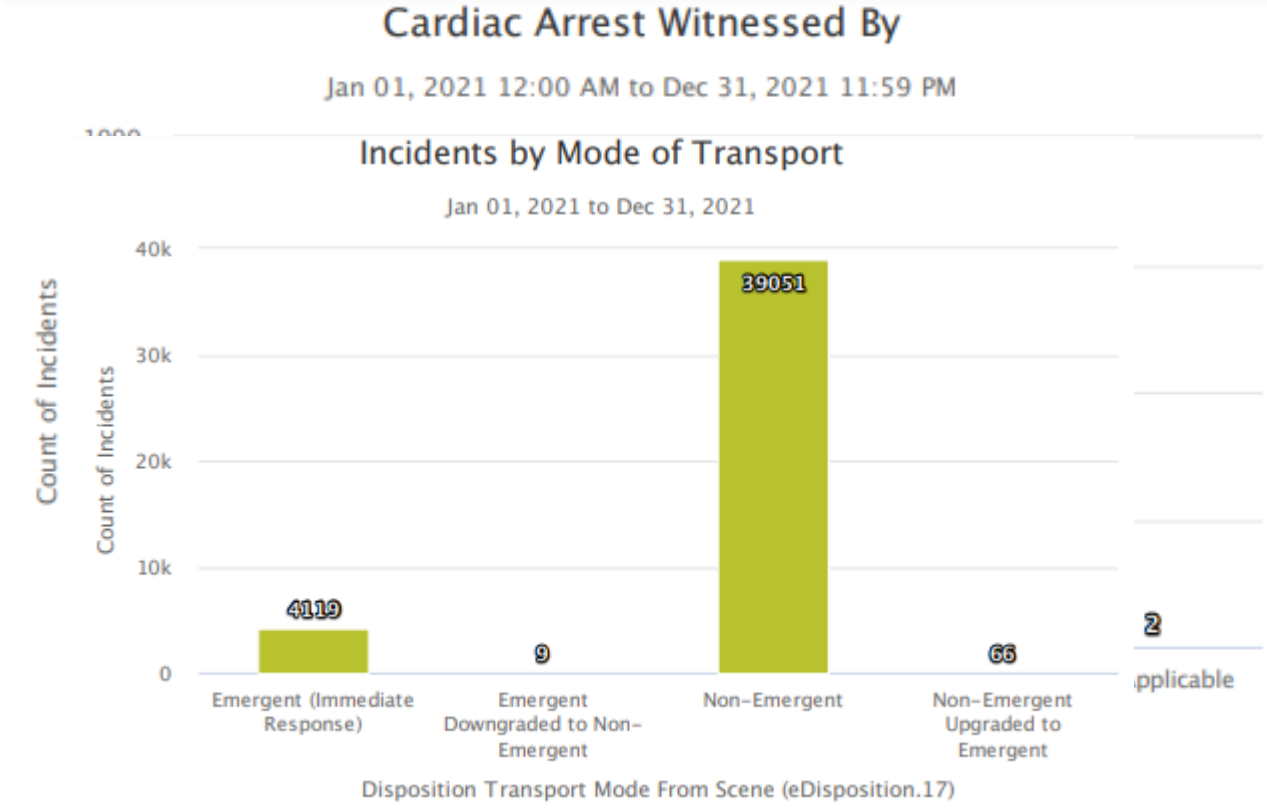
Cardiac Arrest Outcome

Jan 01, 2021 12:00 AM to Dec 31, 2021 11:59 PM



Incident by Hour/Day & Witness Type – Cardiac Arrest





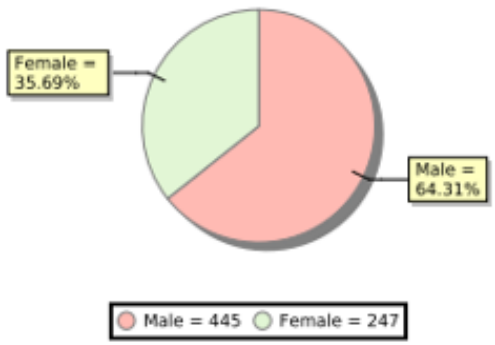
CARES Demographics & AED use – Cardiac Arrest

Demographics

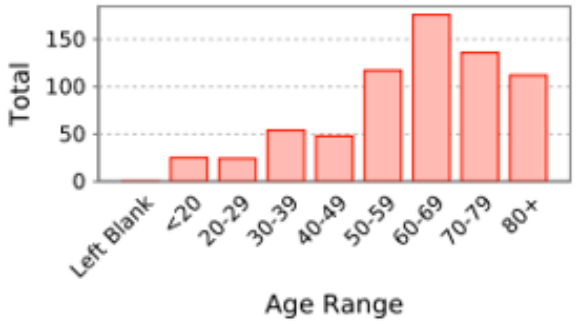
Sacramento Metropolitan Fire District

Presumed Cardiac Arrest Etiology: Presumed Cardiac Etiology, Respiratory/Asphyxia, Drowning/Submersion, Electrocution, Other, Drug Overdose, Exsanguination/Hemorrhage | Date of Arrest: From 01/01/2021 Through 12/31/2021 | Resuscitation Attempted by 911 Responder: Yes | End of the Event: Dead in Field, Pronounced Dead in ED, Ongoing Resuscitation in ED

Gender



Age

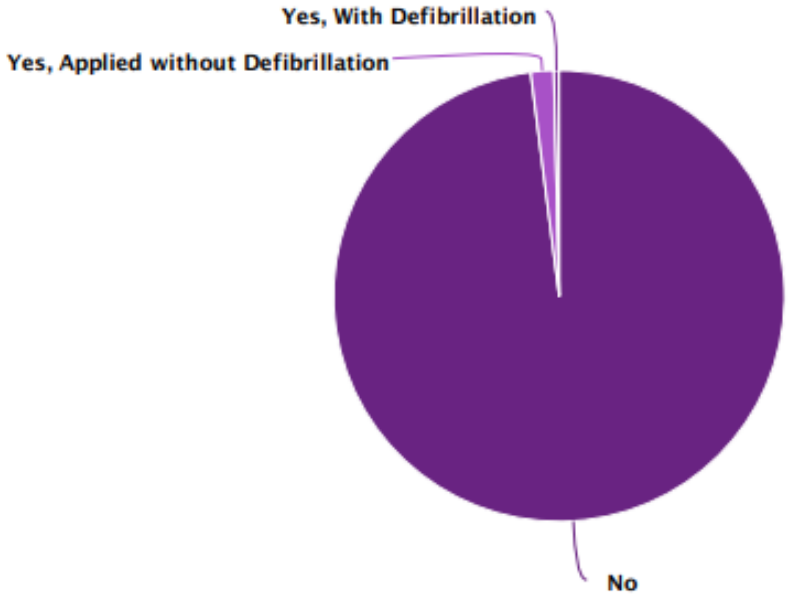


Mean Age: 60

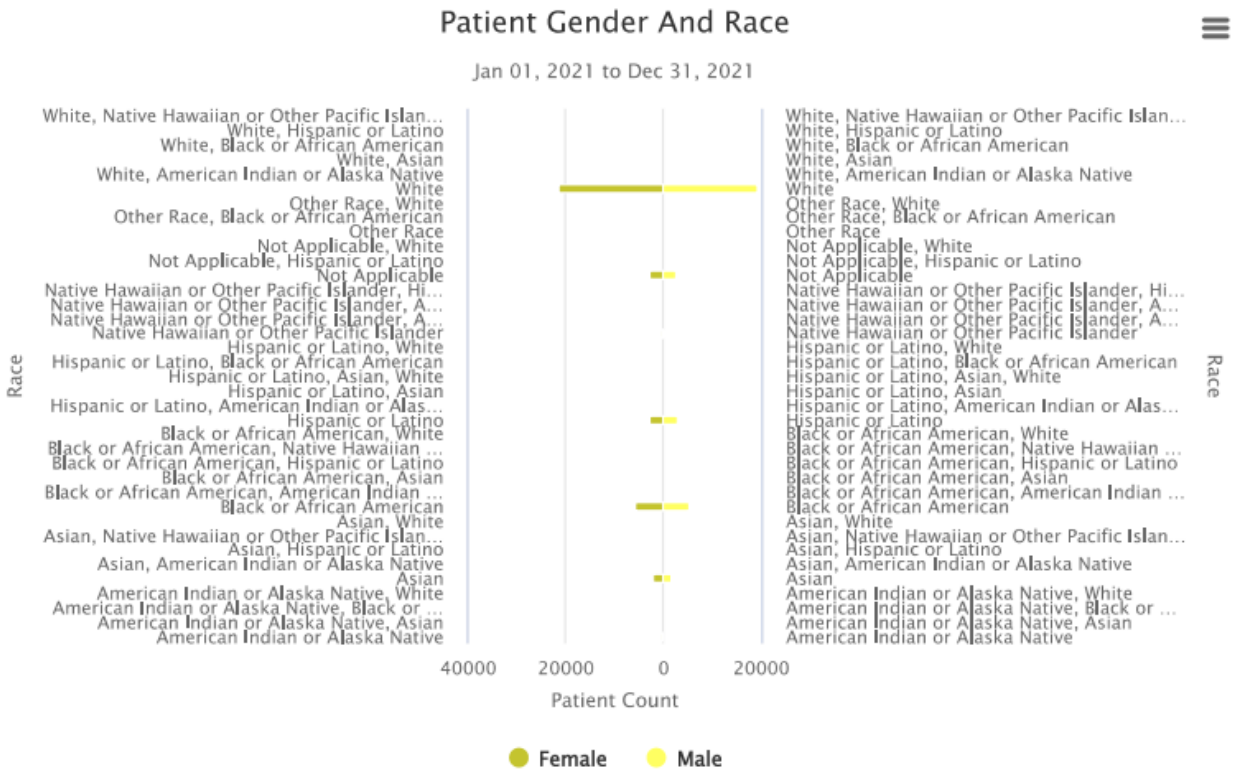
Location Type	Count
Home/Residence	457 - 79.5%
Nursing Home	53 - 9.2%
Street/Hwy	27 - 4.7%
Public/Commercial Building	20 - 3.5%
Healthcare Facility	14 - 2.4%
Place of Recreation	4 - .7%

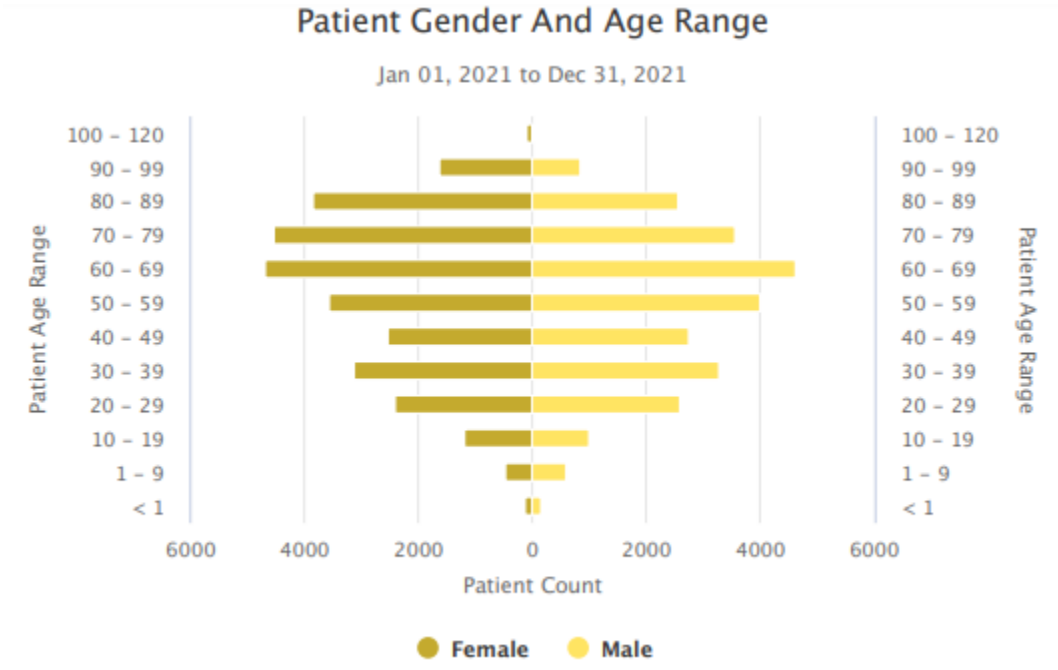
AED Use Prior to EMS Arrival

Jan 01, 2021 12:00 AM to Dec 31, 2021 11:59 PM

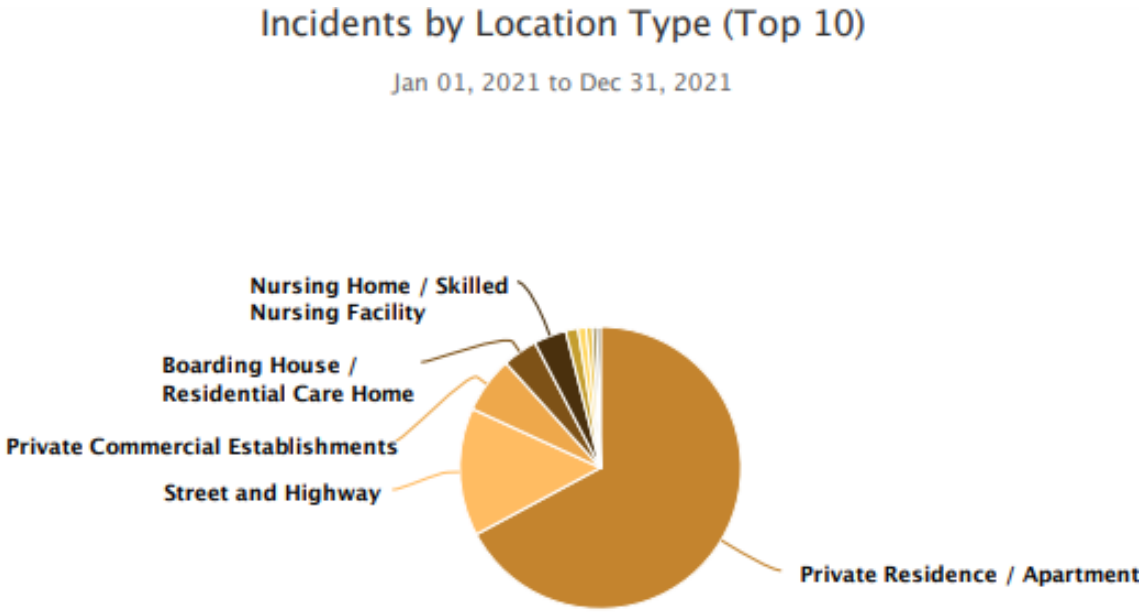


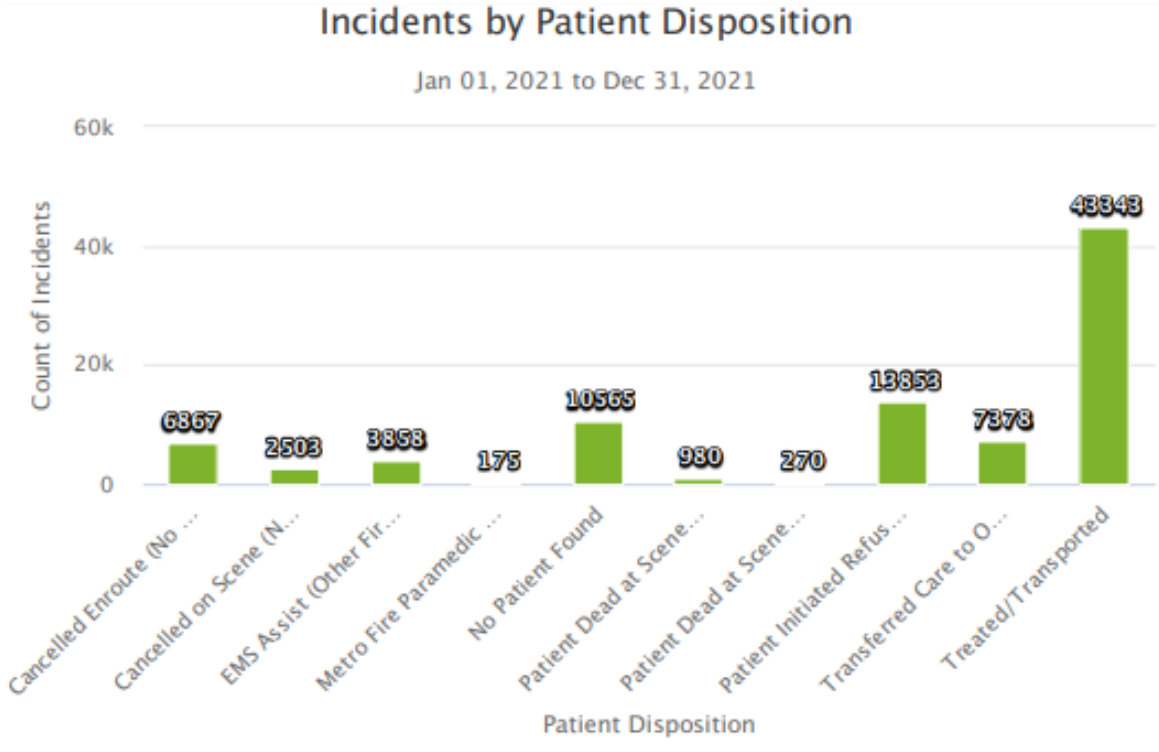
Patient Gender, Race, & Age – All Incidents



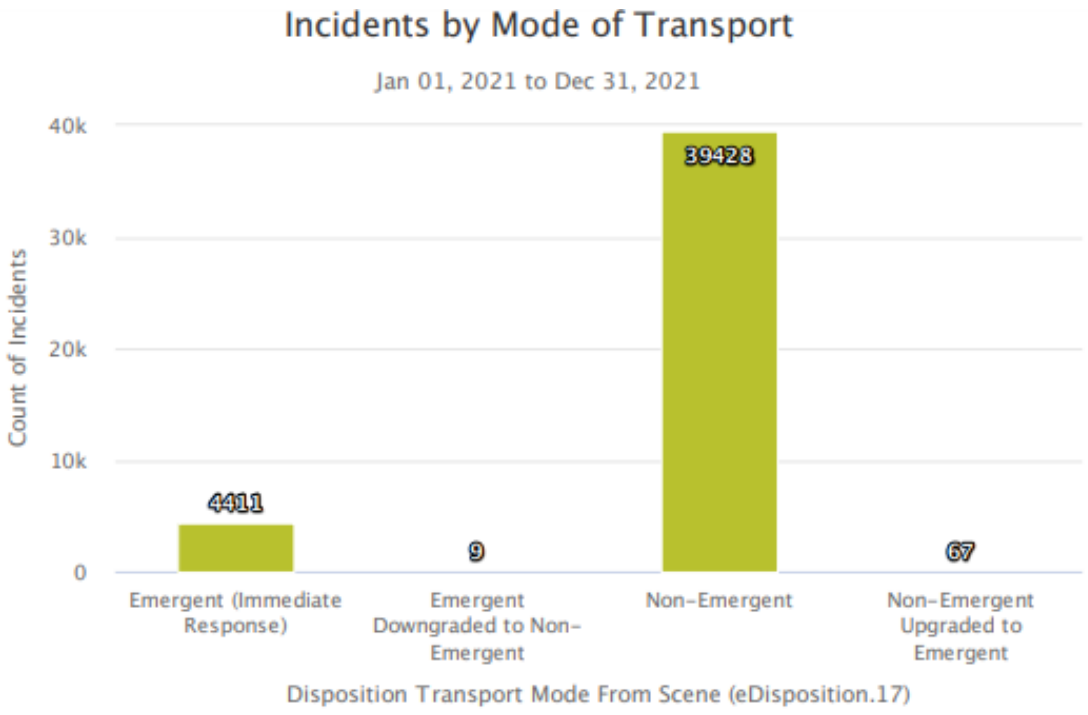


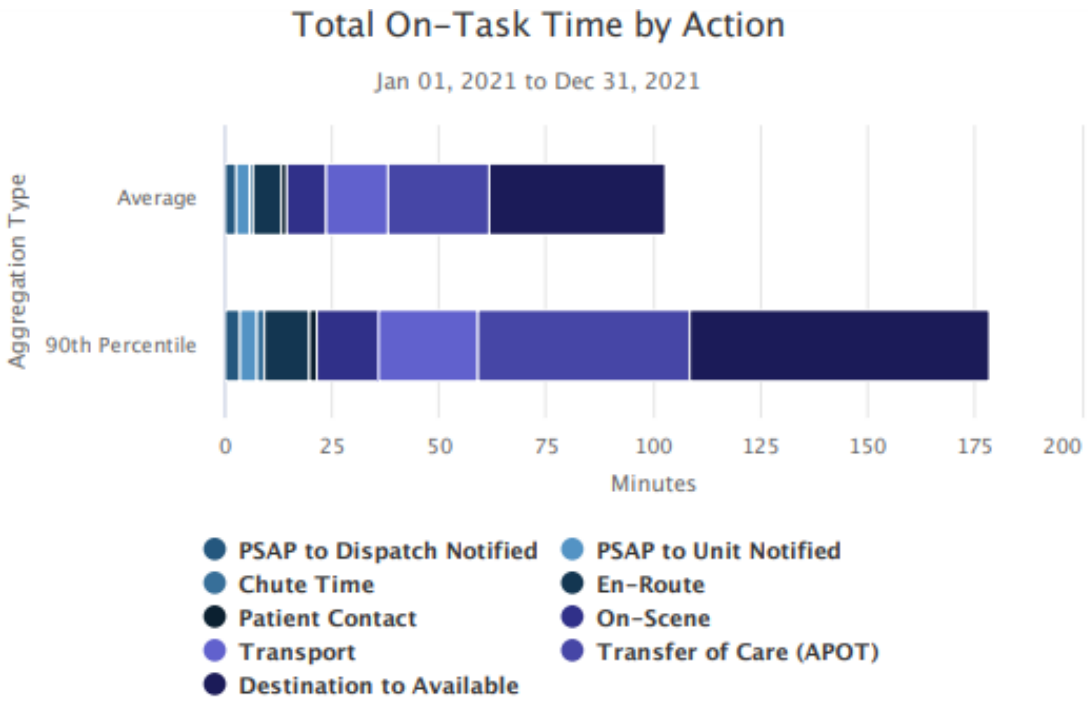
Location Type & Patient Disposition – All Incidents



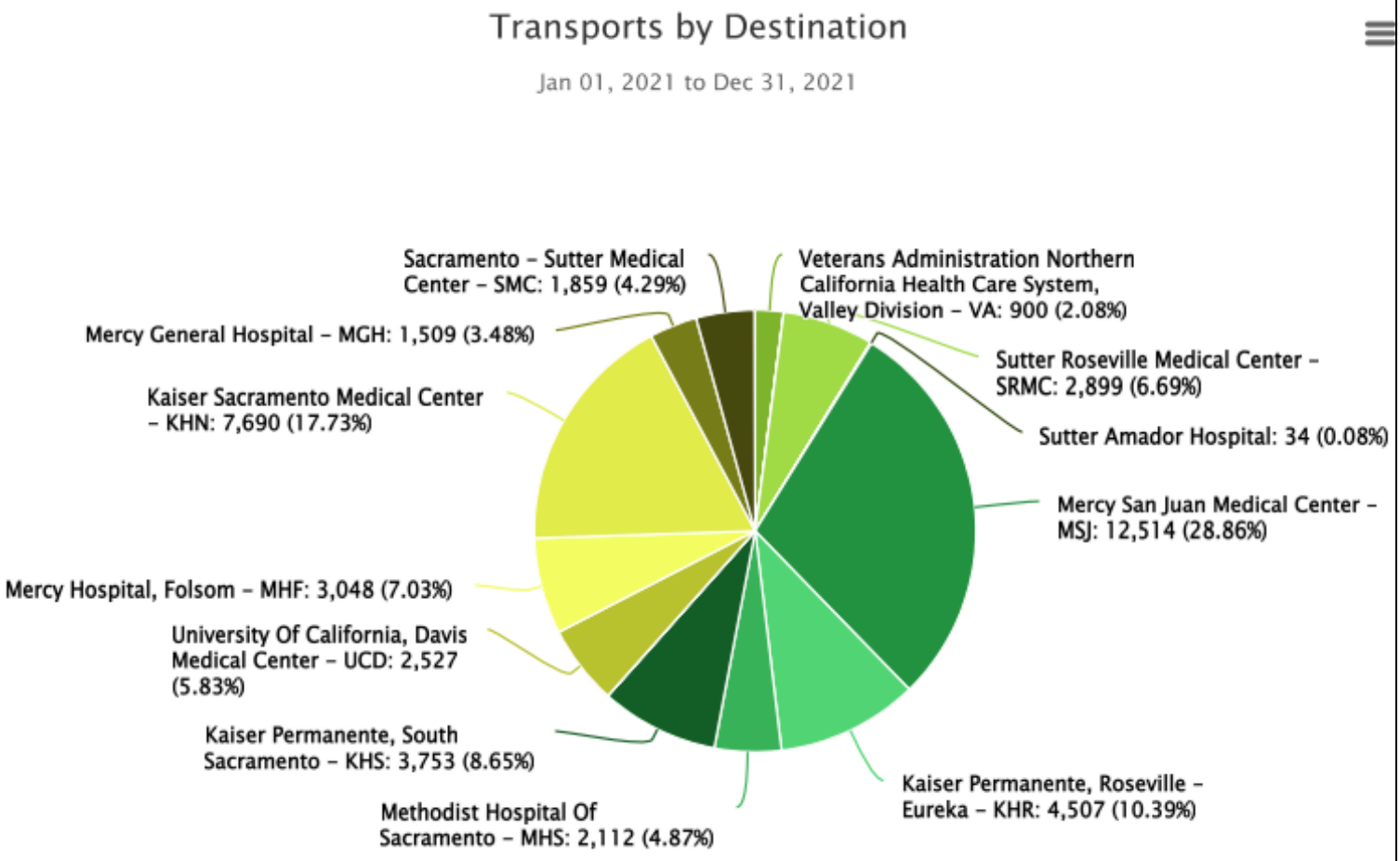


Mode of Transport & Total On-Task Time by Action – All Incidents

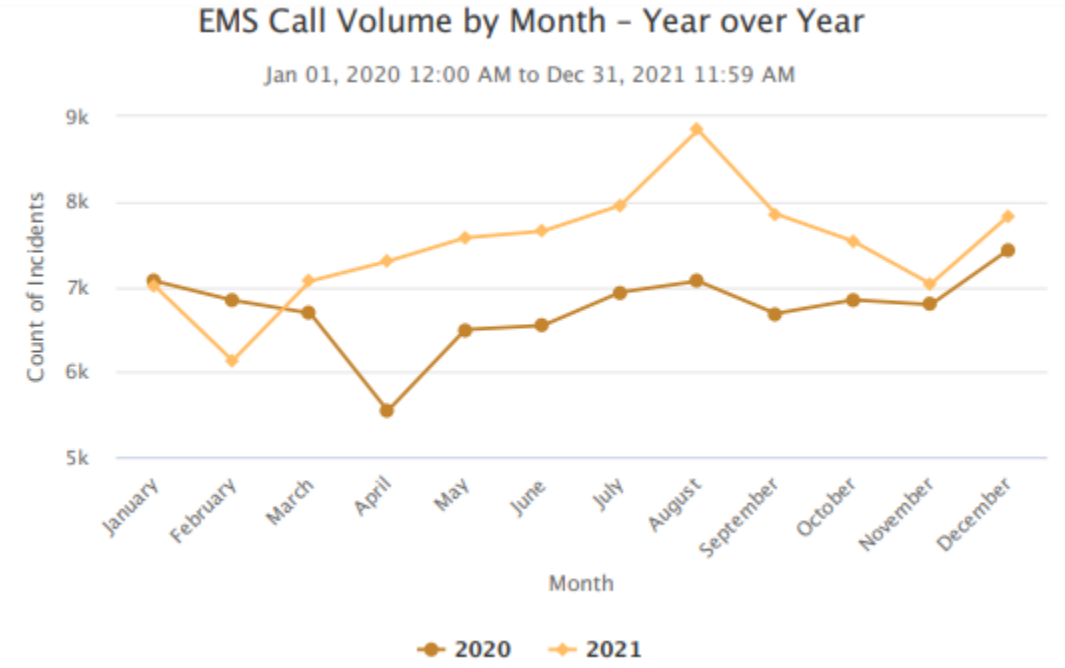


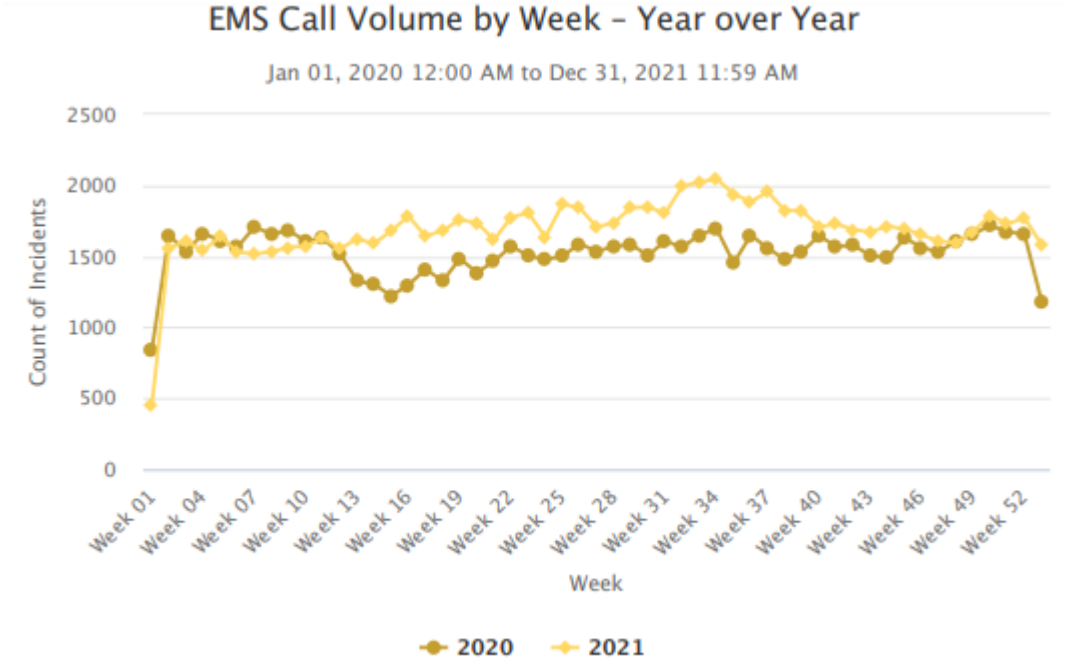


Destination – All Incidents

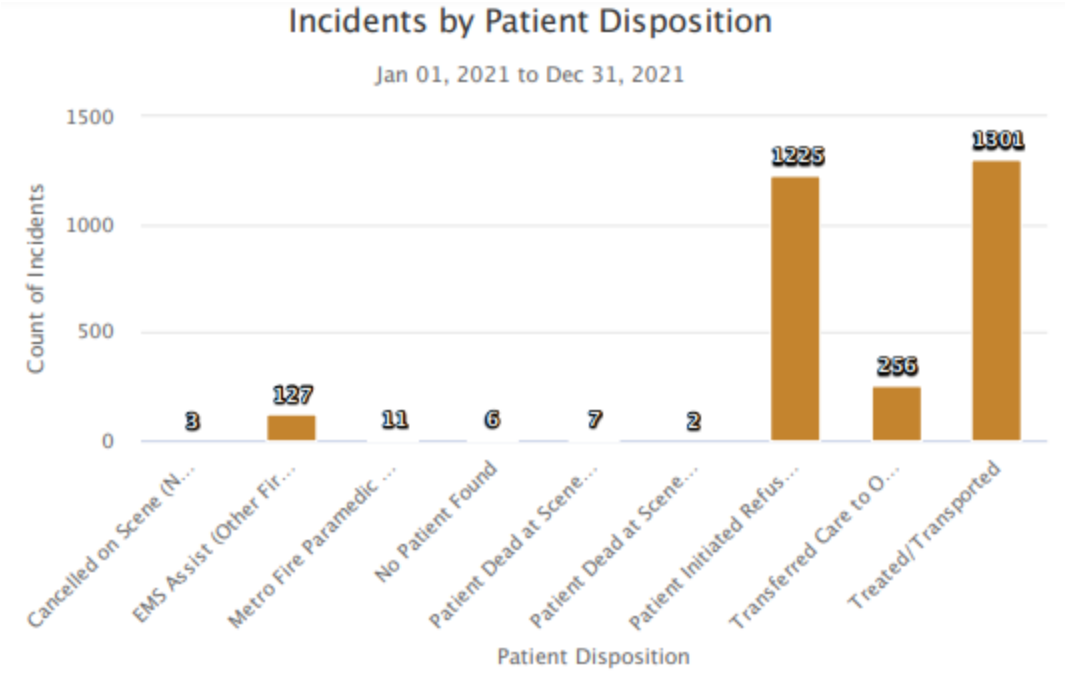


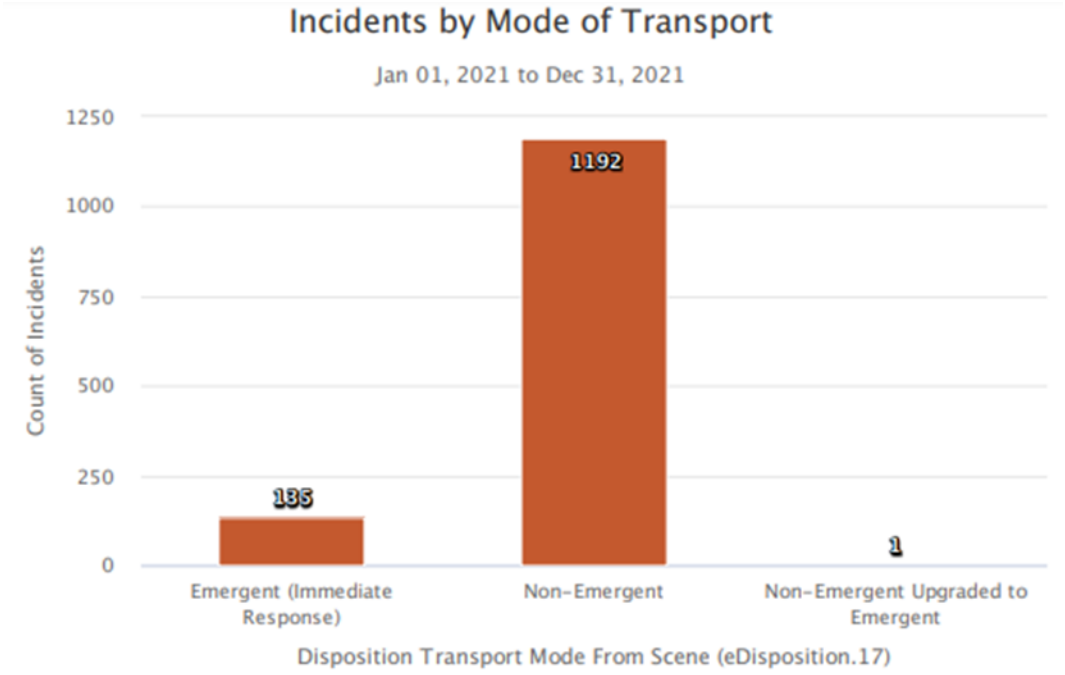
EMS Call Volume Data

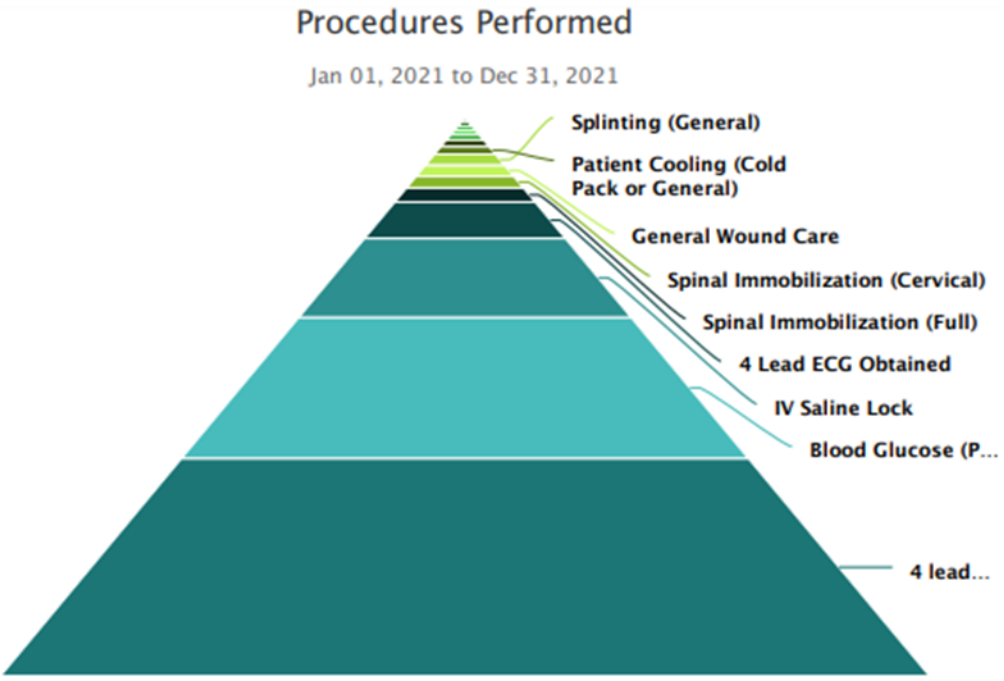


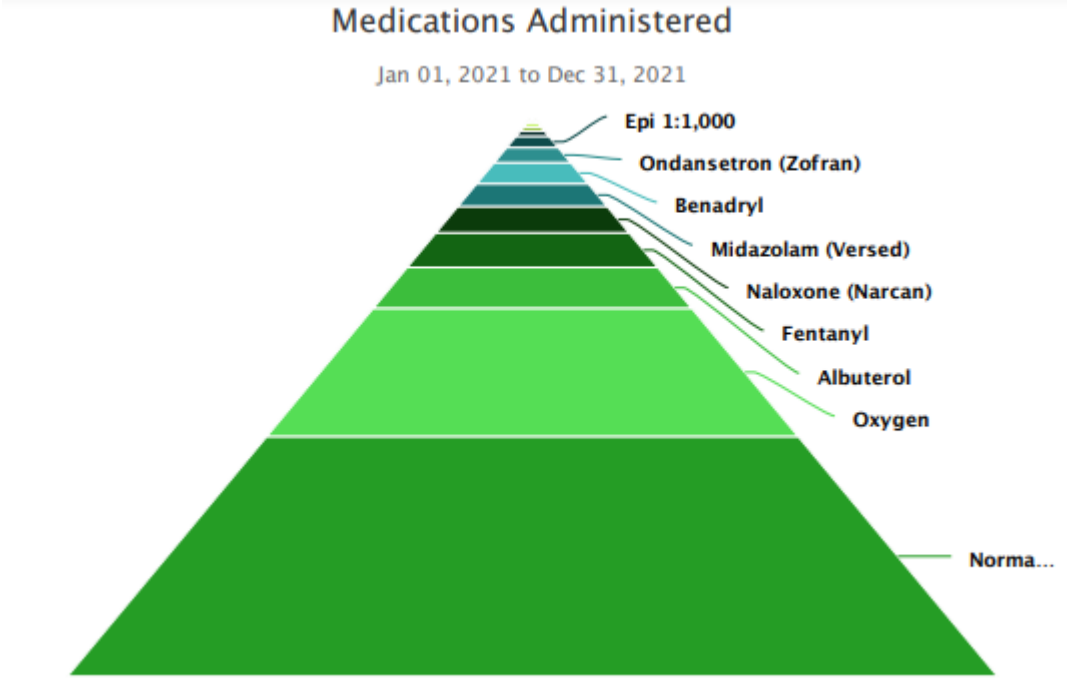


Patient Disposition & Mode of Transport – Pediatric Indicators

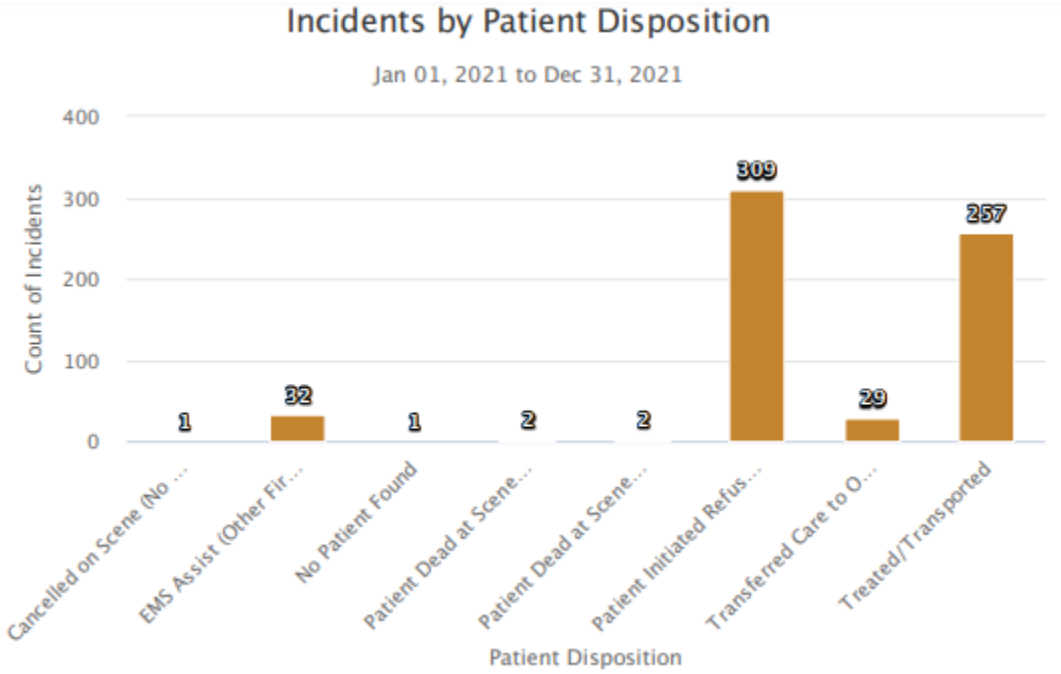


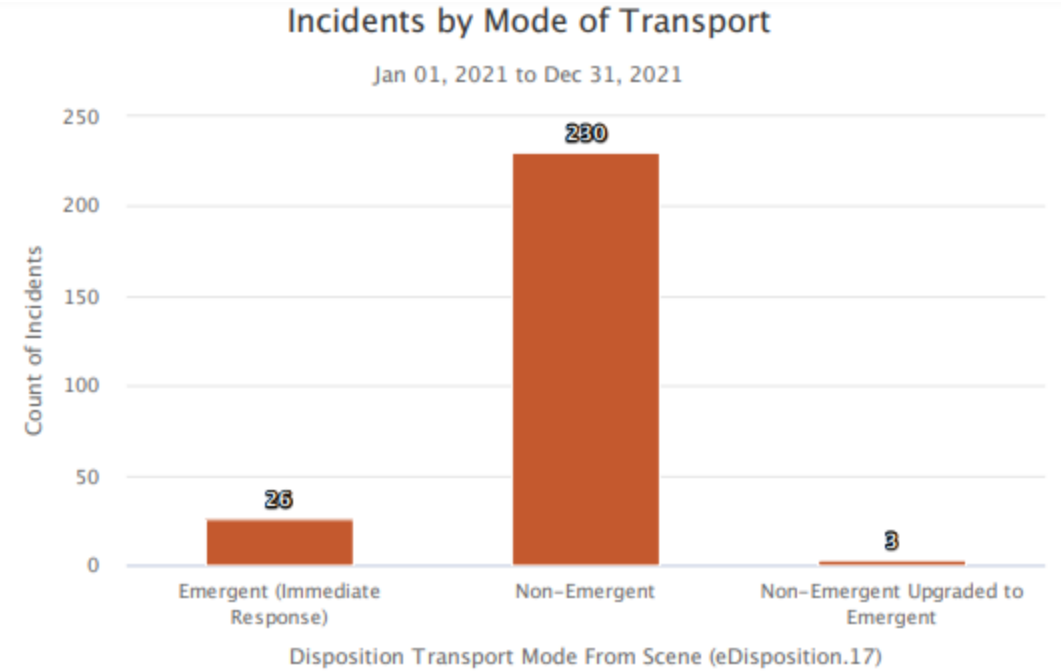



Procedures Performed
Jan 01, 2021 to Dec 31, 2021
Splinting (General)
Patient Cooling (Cold Pack or General)
General Wound Care
Spinal Immobilization (Cervical)
Spinal Immobilization (Full)
4 Lead ECG Obtained
IV Saline Lock
Blood Glucose (P...
4 lead...

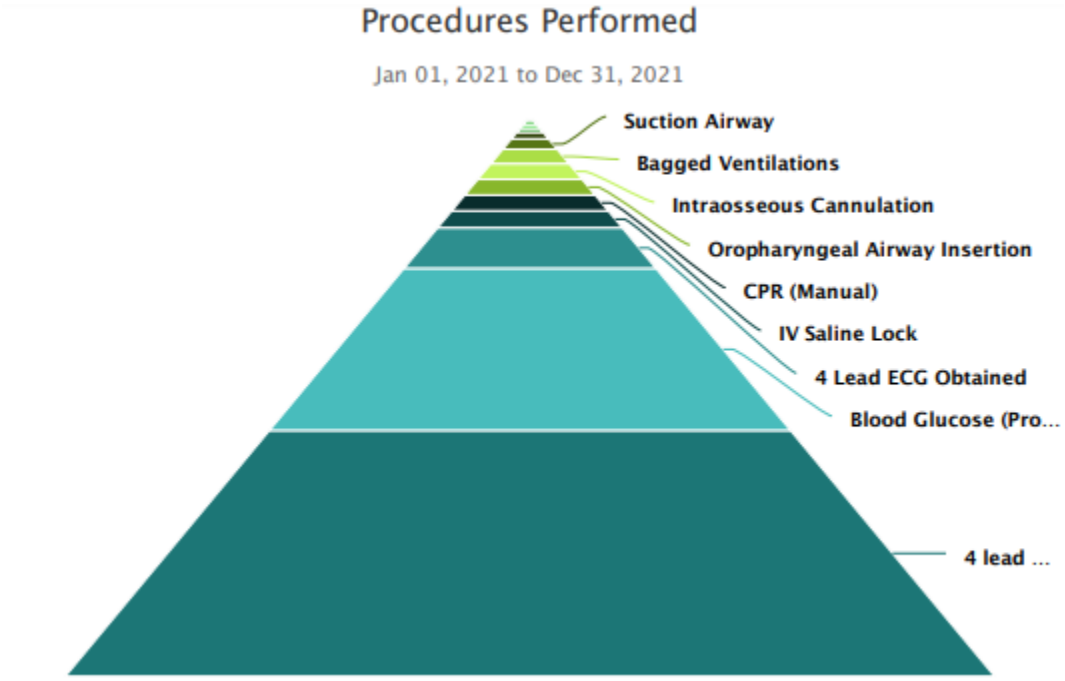

Medications Administered
Jan 01, 2021 to Dec 31, 2021
Epi 1:1,000
Ondansetron (Zofran)
Benadryl
Midazolam (Versed)
Naloxone (Narcan)
Fentanyl
Albuterol
Oxygen
Norma...

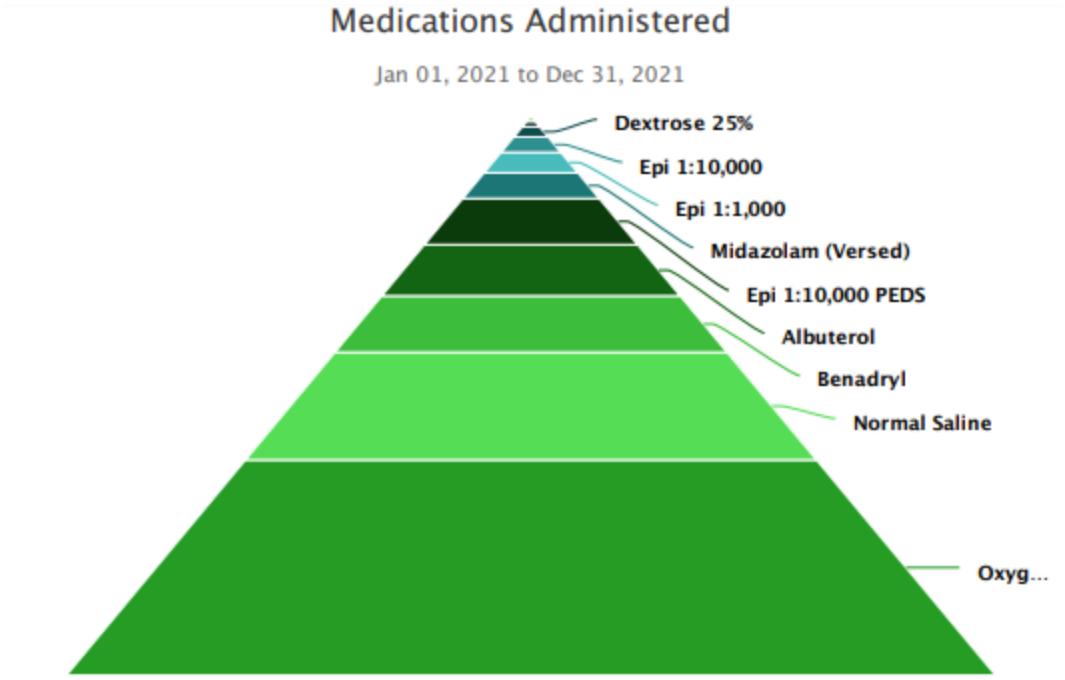
Patient Disposition & Mode of Transport – Infant Indicators





Procedures & Medications Administered – Infant Indicators

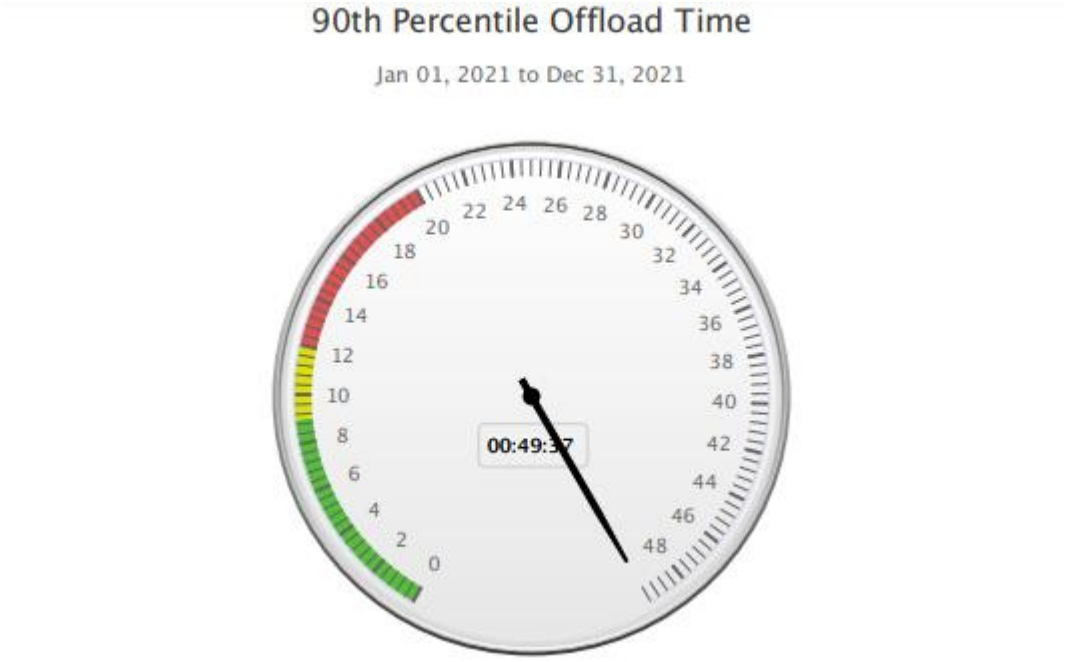


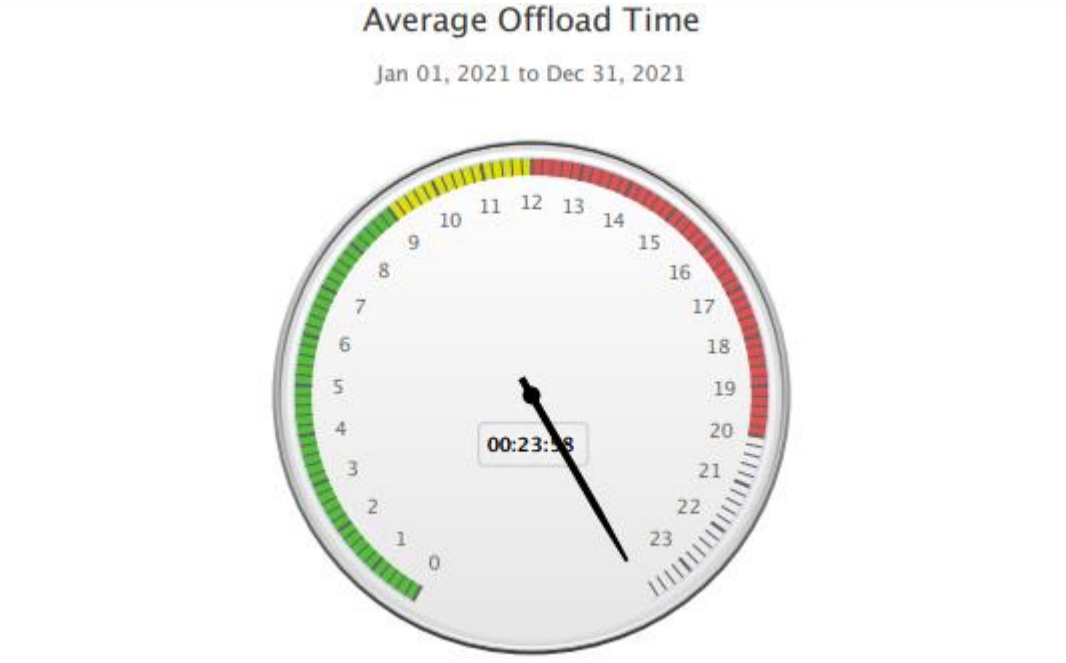


APPENDIX G

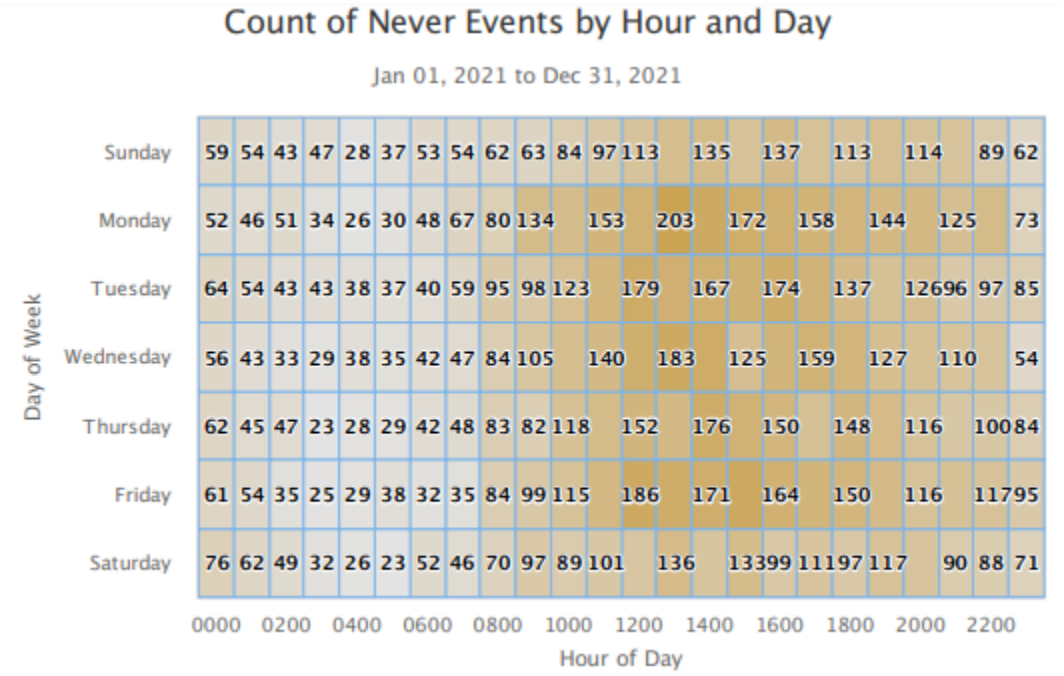
APOT Data

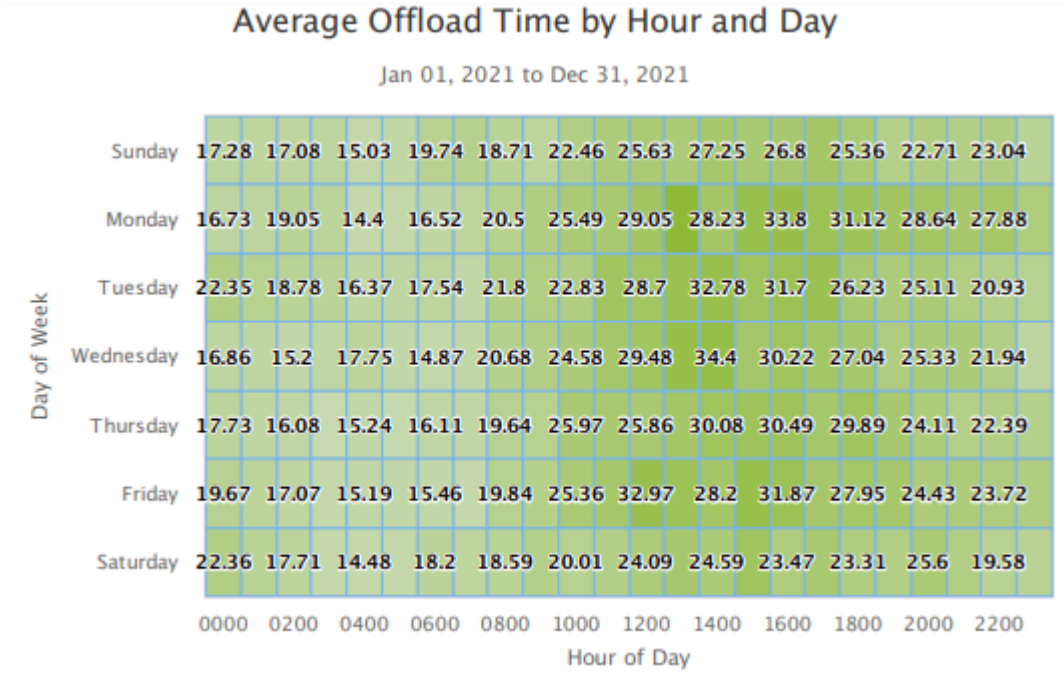
APOT Data


90th Percentile Offload Time
Jan 01, 2021 to Dec 31, 2021
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48

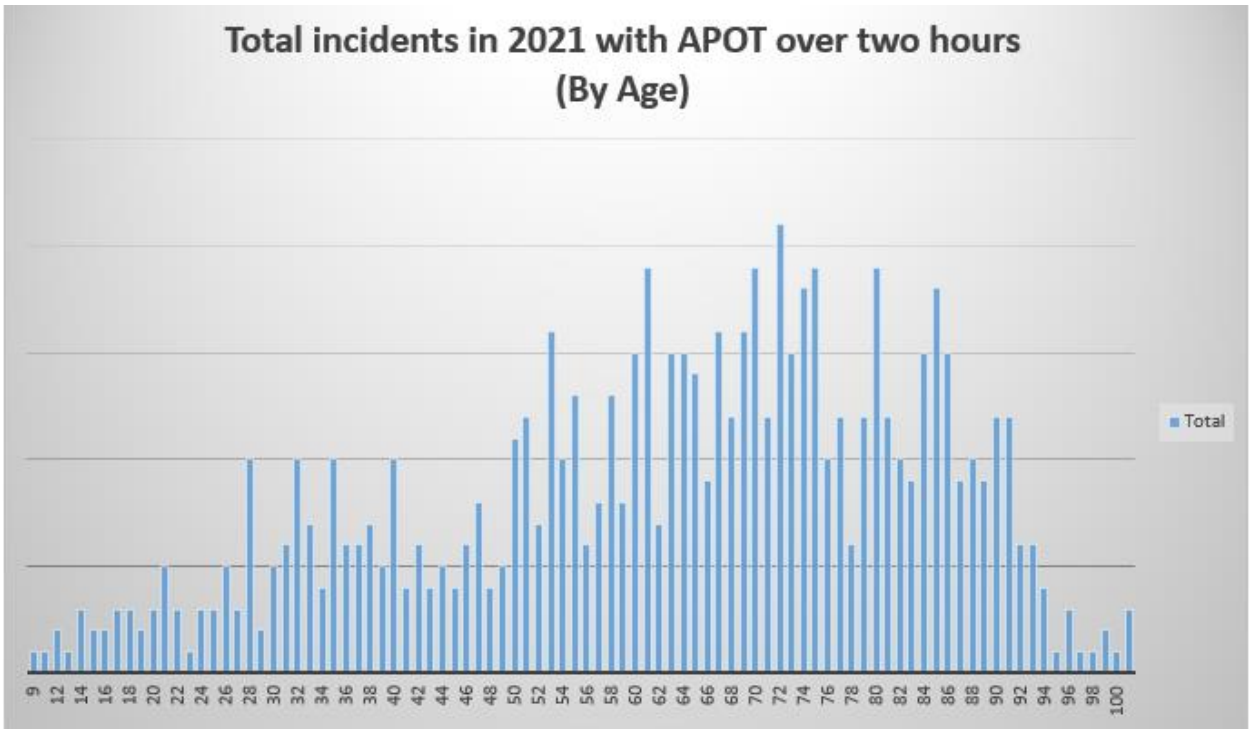

Average Offload Time
Jan 01, 2021 to Dec 31, 2021
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

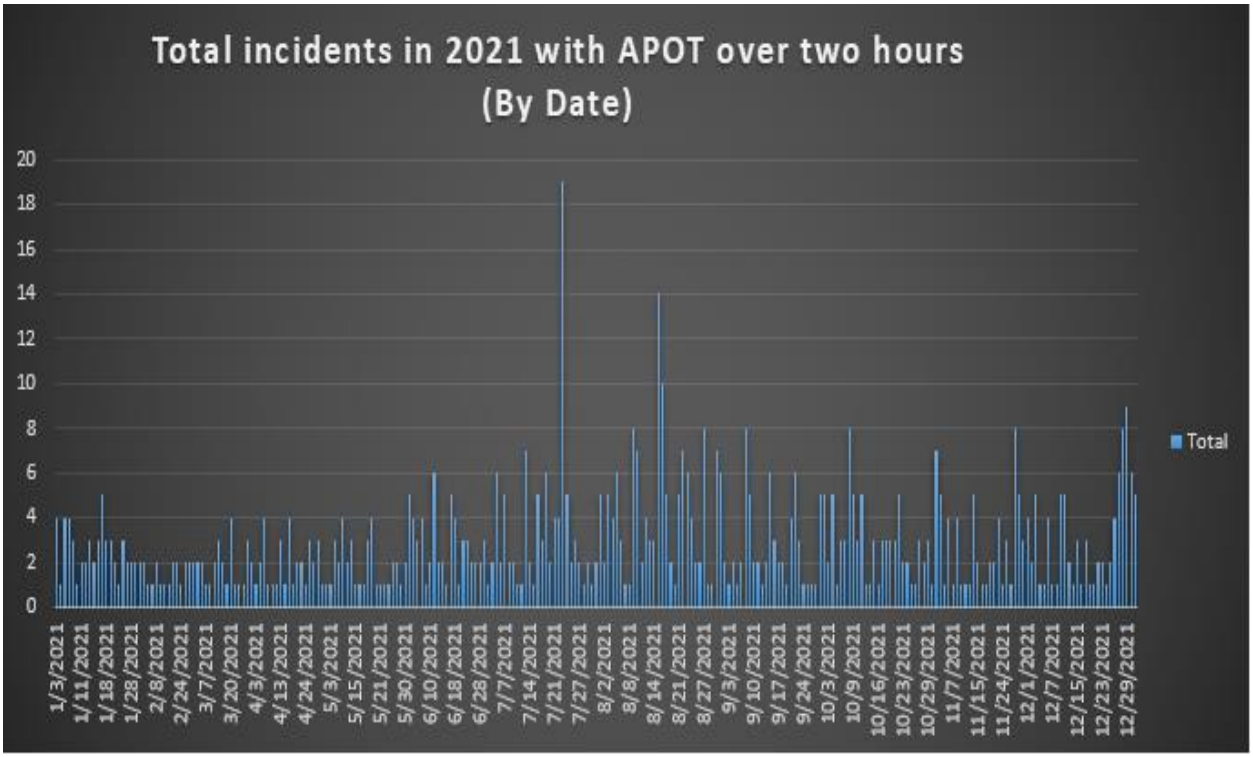
APOT Data


Count of Never Events by Hour and Day
Jan 01, 2021 to Dec 31, 2021
Day of Week
Sunday 59 54 43 47 28 37 53 54 62 63 84 97 113 135 137 113 114 89 62
Monday 52 46 51 34 26 30 48 67 80 134 153 203 172 158 144 125 73
Tuesday 64 54 43 43 38 37 40 59 95 98 123 179 167 174 137 126 96 97 85
Wednesday 56 43 33 29 38 35 42 47 84 105 140 183 125 159 127 110 54
Thursday 62 45 47 23 28 29 42 48 83 82 118 152 176 150 148 116 100 84
Friday 61 54 35 25 29 38 32 35 84 99 115 186 171 164 150 116 117 95
Saturday 76 62 49 32 26 23 52 46 70 97 89 101 136 133 99 111 97 117 90 88 71
0000 0200 0400 0600 0800 1000 1200 1400 1600 1800 2000 2200
Hour of Day

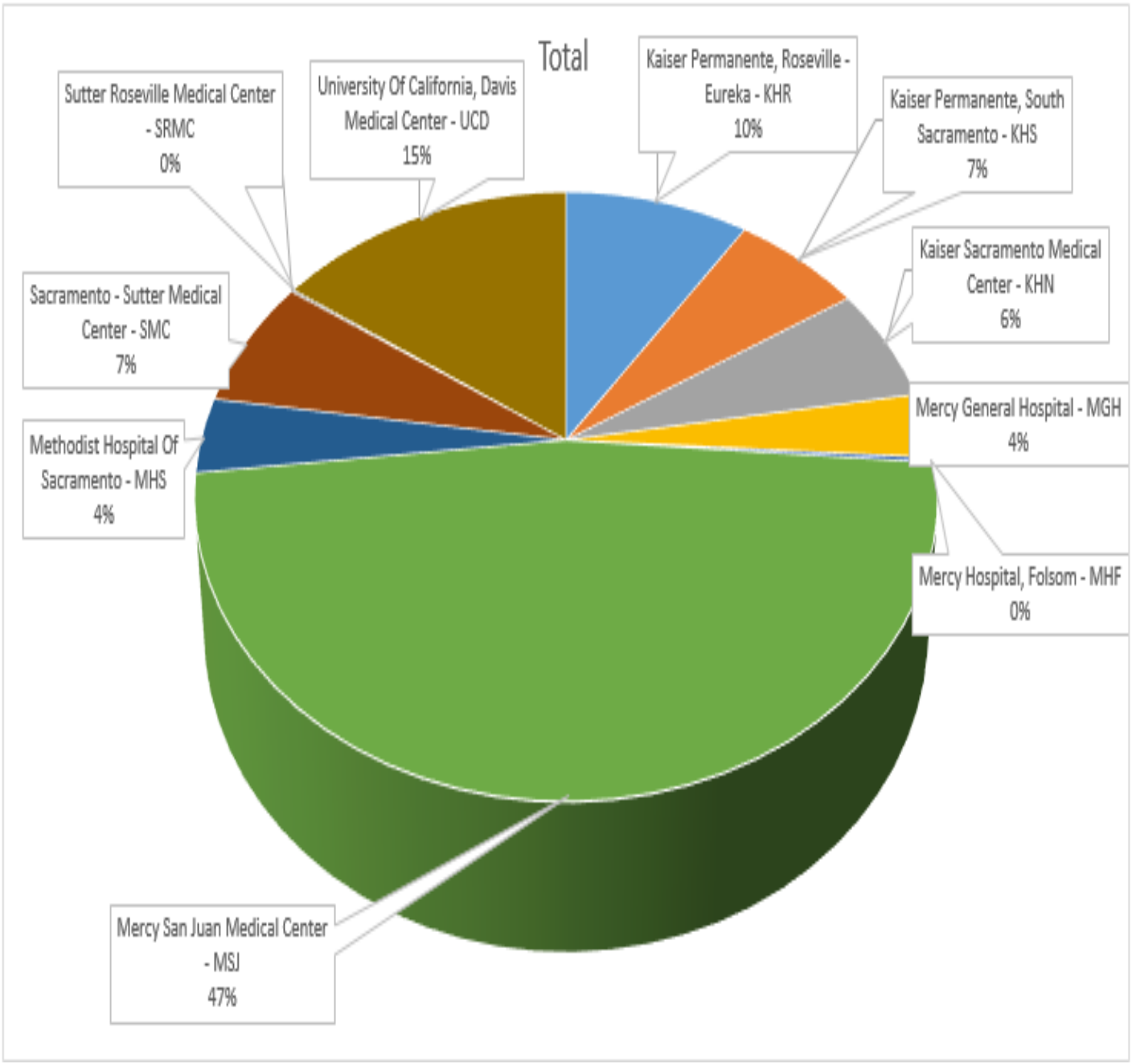

Average Offload Time by Hour and Day
Jan 01, 2021 to Dec 31, 2021
Day of Week
Sunday 17.28 17.08 15.03 19.74 18.71 22.46 25.63 27.25 26.8 25.36 22.71 23.04
Monday 16.73 19.05 14.4 16.52 20.5 25.49 29.05 28.23 33.8 31.12 28.64 27.88
Tuesday 22.35 18.78 16.37 17.54 21.8 22.83 28.7 32.78 31.7 26.23 25.11 20.93
Wednesday 16.86 15.2 17.75 14.87 20.68 24.58 29.48 34.4 30.22 27.04 25.33 21.94
Thursday 17.73 16.08 15.24 16.11 19.64 25.97 25.86 30.08 30.49 29.89 24.11 22.39
Friday 19.67 17.07 15.19 15.46 19.84 25.36 32.97 28.2 31.87 27.95 24.43 23.72
Saturday 22.36 17.71 14.48 18.2 18.59 20.01 24.09 24.59 23.47 23.31 25.6 19.58
0000 0200 0400 0600 0800 1000 1200 1400 1600 1800 2000 2200
Hour of Day

APOT Data Incidents >120 Minutes





2021 Destination for APOT > 120 Minutes



APOT by Primary Impression

IMAGETREND CONTINUUM®

Dashboard: Offload Times
Topic: 911
Timeframe: Jan 01, 2021 to Dec 31, 2021

Offload Times by Primary Impression

Jan 01, 2021 to Dec 31, 2021

Primary Impression (eSituation.11)	Count of Incidents	Average Offload Time	90th Percentile Offload Time
STEMI (I21.3)	217	00:09:39	00:20:36
Abdominal Pain/Problems (GI/GU) (R10.84)	3,294	00:24:39	00:49:16
Agitated Delirium/Disoriented (R41.0)	86	00:32:51	01:29:39
Airway Obstruction/Ashpyxiation (T71.9)	59	00:18:33	00:32:19
Alcohol Use/Ingestion (F10.92)	689	00:27:40	00:58:39
Allergic Reaction (T78.40)	189	00:22:49	00:43:18
ALOC - (Not Hypoglycemia or Seizure) (R41.82)	1,934	00:24:16	00:54:07
ALTE (BRUE) (R68.13)	18	00:15:00	00:39:09
Anaphylaxis (T78.2)	60	00:12:50	00:26:49
Behavioral/Psychiatric Crisis/Anxiety (F99)	2,959	00:26:44	00:53:34
Burn (T30.0)	40	00:21:15	00:35:25
Cardiac Arrest -Non-traumatic (I46.9)	386	00:05:38	00:14:57
Cardiac Dysrhythmia (I49.9)	308	00:18:52	00:38:46
Chest Pain - Not Cardiac (R07.89)	567	00:24:04	00:46:00
Chest Pain - Suspected Cardiac (I20.9)	1,959	00:28:06	00:59:37
Childbirth (Mother) (O80)	44	00:11:46	00:22:01
Cold/Flu Symptom (J00)	448	00:25:17	00:47:37
Contact with and (suspected) exposure to other viral communicable diseases, including COVID-19 (Z20.828)	88	00:24:10	00:46:21
Contact with and (suspected) exposure to unspecified communicable disease, use if unk if it was COVID-19 (Z20.9)	32	00:26:12	00:33:09
Diarrhea (K59.1)	139	00:25:30	00:50:10
Dizziness/Vertigo (R42)	940	00:28:45	00:58:28
Dystonic Reaction (G24.0)	3	00:11:39	00:12:48
Electrocution (T75.4)	1	00:23:03	00:23:03
ENT/Dental Problem (H93.90)	51	00:18:11	00:26:43
Epistaxis (R04.0)	94	00:19:16	00:33:31
Eye Problem (H57.9)	54	00:22:11	00:36:55
Fever (R50.9)	191	00:23:41	00:46:21
General Weakness (R53.1)	2,197	00:31:01	01:07:54
General Weakness or Other General Signs and Symptoms (R68.89)	1,940	00:28:28	00:59:49
Genitourinary disorder (N39.9)	283	00:27:30	00:56:21
Hazmat Exposure - Skin Exposure (Z77.9)	2	00:29:11	00:43:49
Headache - Non-traumatic (R51)	463	00:23:41	00:45:27
Hyperglycemia (E13.65)	206	00:21:56	00:44:00
Hypertension (I10)	221	00:29:00	01:08:24
Hyperthermia - Environmental (T67.0)	24	00:19:59	00:40:10

APOT by Primary Impression

IMAGETREND CONTINUUM®

Dashboard: Offload Times
Topic: 911
Timeframe: Jan 01, 2021 to Dec 31, 2021

Offload Times by Primary Impression

Jan 01, 2021 to Dec 31, 2021

Primary Impression (eSituation.11)	Count of Incidents	Average Offload Time	90th Percentile Offload Time
Hypoglycemia (E13.64)	326	00:23:49	00:50:07
Hypothermia/Cold Injury (T68)	19	00:20:52	00:56:42
Inhalational Injury (J68.9)	5	00:22:08	00:27:01
Lower GI Bleeding/Melena (K92.1)	152	00:24:10	00:50:55
Nausea/Vomiting (R11.2)	1,387	00:25:16	00:50:12
Newborn (Z38.2)	15	00:13:58	00:32:24
No Medical Complaint - Undefined Complaint - Other (Z00.00)	1	00:17:01	00:17:01
Non-Traumatic Body Pain (G89.1)	1,994	00:25:39	00:49:28
Not Recorded	60	00:24:51	00:45:39
Obvious Death (R99)	5	00:01:55	00:04:55
Overdose/Poisoning/Ingestion (F19)	1,011	00:22:48	00:48:09
Pain/Swelling - Extremity - non-traumatic (M79.60)	1,386	00:26:06	00:50:10
Palpitations (R00.2)	243	00:23:03	00:44:25
Pregnancy Complication (O99)	54	00:16:32	00:27:13
Pregnancy/Labor (O60.0)	56	00:11:42	00:19:19
Refused Assessment	17	00:20:19	00:46:19
Respiratory Arrest / Respiratory Failure (J96.9)	35	00:07:29	00:15:40
Respiratory Distress/Bronchospasm/Wheezing (J98.01)	1,412	00:19:50	00:40:27
Respiratory Distress/Other (J80)	1,906	00:23:42	00:49:42
Respiratory Distress/Pulm Edema/CHF (J81.0)	550	00:20:35	00:45:15
Seizure - Active (G40.901)	175	00:12:03	00:25:04
Seizure - Post (G40.909)	1,375	00:25:28	00:55:21
Sepsis (A41.9)	1,025	00:24:50	00:53:01
Shock/Hypotension (I95.9)	182	00:19:47	00:34:36
Smoke Inhalation (J70.5)	2	00:12:24	00:22:49
Stings/ Venomous Bites (T63)	15	00:32:52	01:06:16
Stroke / CVA / TIA (I63.9)	1,320	00:09:55	00:18:31
Submersion/Drowning (T75.1XXA)	5	00:03:29	00:08:37
Syncope/Near Syncope (R55)	1,282	00:27:35	00:57:09
Traumatic Cardiac Arrest (I46.8)	27	00:05:16	00:12:28
Traumatic Injury/Pain (T14.90)	6,708	00:20:50	00:41:40
Tremor, unspecified (R25.1)	103	00:29:55	01:00:43
Upper GI Bleeding/Hematemesis (K92.0)	79	00:22:04	00:51:57
Vaginal Bleeding (N93.9)	124	00:21:49	00:48:49

APPENDIX H

SCEMSA Inspection Letter

Department of Health Services
Peter Beilenson, MD, MPH,
Director

Divisions
Behavioral Health Services
Primary Health
Public Health
Departmental Administration

County of Sacramento

County Executive
Navdeep S. Gill

Sacramento Emergency Medical Services Agency

Inspection Findings For:

Sacramento Metropolitan Fire District

Critical items resulting in Out of Service status for unit:

ALS Ambulances, Engines, Trucks, and Helicopters were inspected November 29th – December 7th. During the course of the inspections, there were no critical items missing that would cause an Out of Service status. All ALS units inspected were in compliance with Policy 2030.

General Observations:

The inspections went very well.
Thank You!

Overall Compliance with Policy 2030:

100%

Inspections and report completed by:

Kristin Bianco

Date of Report:

December 10, 2021
Completed Check List to Follow

9616 Micron Ave Suite 960 · Sacramento, California 95827 · phone (916) 875-9753 · fax (916) 854-9211 ·
www.dhs.saccounty.net/pri/ems

APPENDIX I

SCEMSA CE Training Program Provider Certificate

Sacramento County
Emergency Medical Services Agency

In accordance with the provisions of California Code of Regulations, Title 22, Division 9, Chapter 11 and Sacramento County Emergency Medical Services Agency Policy 4302

Sacramento Metropolitan Fire
10545 Armstrong Ave #200
Mather, CA. 95655

Has been approved as a
Continuing Education (CE) Training Program
by Sacramento County Emergency Medical Services Agency

Effective Date: 07/31/2020
Expiration Date: 06/30/2022

CE # 34-1010

David Magnino, EMS Administrator
County of Sacramento