

2018/2019 ANNUAL REPORT

YOLO COUNTY EMERGENCY MEDICAL SERVICES AGENCY & EMERGENCY PREPAREDNESS

LEADERSHIP

I N T E G R I T COLLABORATION

R E S I L I E N C

NNOVATION





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Common Abbreviations

YEMS	SA -	Yolo	County	Emergency	N.	l edical	S	Services	Agenc	y
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EMS - Emergency Medical Services	BLS - Basic Life Support
EP - Emergency Preparedness	ALS - Advanced life Suppor
EMR - Emergency Medical Responder	CCT - Critical Care Transpo

EMT - Emergency Medical Technician EMD - Emergency Medical Dispatch

PSAP - Public Safety Answering Point

INTRODUCTION

The Yolo County EMS Agency (YEMSA) was created in July of 2013. The focus was to create a collaborative approach among the partners and the community to enhance the EMS delivery model and improve patient outcomes. We continue to open new doors with county agencies and community partners to align patients with essential services and seek innovative solutions to increase resilience throughout Yolo County and the region. YEMSA and EP have worked closely to coordinate disaster response through training, **EMS** exercises. preparedness and development. There are several new initiatives that further enhanced our focus on evidence based best practices, regional growth, and partnerships. We are excited to be at the forefront of integrating EMS into the larger health system. This report will highlight the relationships and partnerships that have greatly augmented the EMS system in Yolo County.



Emergency Medical Services & Emergency Preparedness

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MISSION - VISION - VALUES

Emergency Medical Services

Emergency Preparedness

Mission

The mission of YEMSA is to evolve a cost effective, collaborative and outcome based EMS Delivery System that produces clinically superior and culturally competent care. We strive to work effectively with our Public Safety and Public Health partners to solve problems, make decisions, and achieve common goals.

Mission

The mission of EP is to prepare the residents of Yolo County for natural and intentional public health disasters and emergencies through improved operational readiness, planning, and mitigation activities and to ensure a timely response and successful recovery as a collaborative and resilient community.

Vision

A comprehensive, accessible, and sustainable EMS delivery system, realized through collaboration, which provides clinically superior, efficient and innovative care.

Vision

Strengthen partnerships and resiliency in our county through preparedness activities and training.

Values



Leadership



Integrity



Trust





Resilience

Relationships



Collaboration



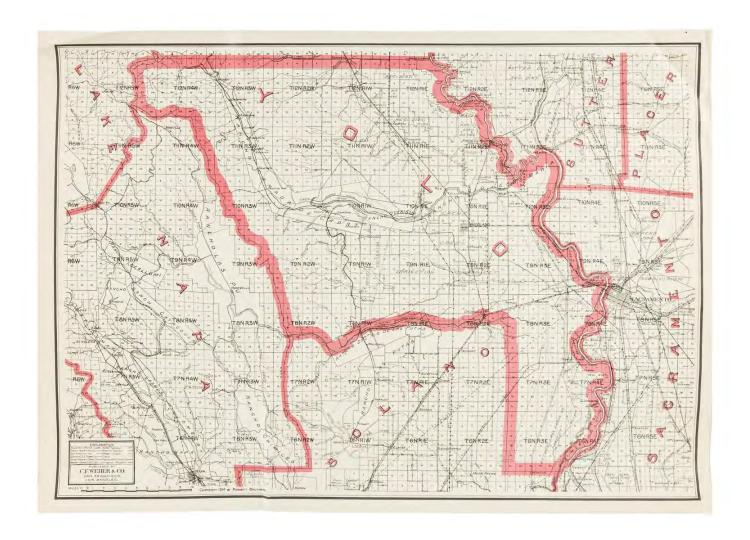
Patient

Patient Centered





YOLO COUNTY



21,076 EMS calls Average EMS responses per day 58 96 EMS responses per 1,000 people

Yolo County Population 220,408

Population per Square Mile **214 1,024** Square Miles served by EMS

SYSTEM PARTNERS



Fire Protection Districts

Capay Valley Fire
Clarksburg Fire
Dunnigan Fire
Elkhorn Fire
Esparto Fire
Knights Landing Fire
Madison Fire
West Plainfield Fire
Willow Oak Fire
Yolo Fire
Zamora Fire

Municipal BLS Fire Departments

Davis Fire
UC Davis Fire
West Sacramento Fire
Winters Fire
Woodland Fire

Tribal ALS Fire Departments

Yocha Dehe Fire



911 - ALS - CCT Ambulance

American Medical Response (AMR)

Air Medical

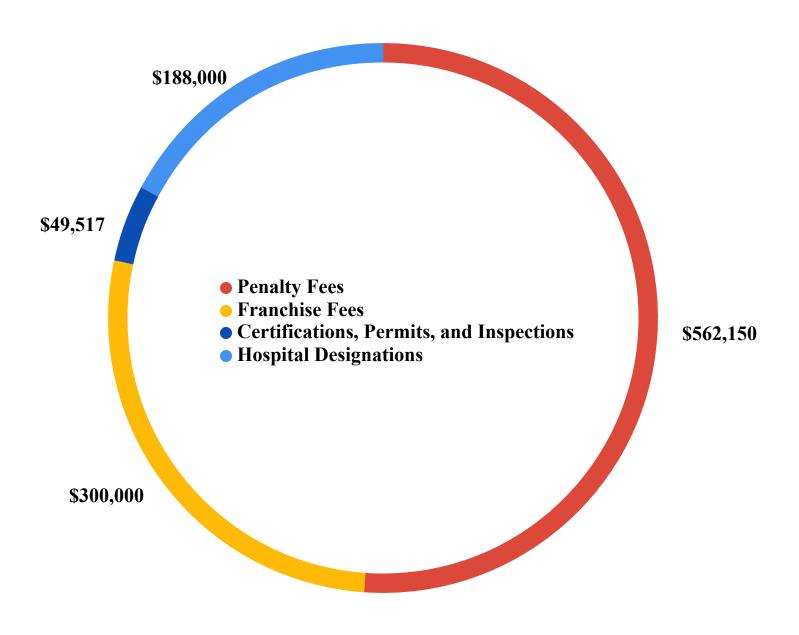
REACH/CALSTAR

BLS Ambulances

AMR - Sutter Health
NORCAL Ambulance
ProTransport-1
Sacramento Valley
Ambulance
Falck Northern California
Bay Medic Ambulance

SYSTEM FUNDING

YEMSA is funded through an Exclusive Operating Area (EOA) Franchise Fee, penalty fees (late responses), and fees collected for certifications, ambulance permits, ambulance inspections, and hospital designations.



EMERGENCY DISPATCH SYSTEM

Yolo Emergency Communications Agency (YECA) is the 9-1-1 public safety answering point for the majority of Yolo County and provides dispatch services for the County Sheriff, 3 Municipal Police Departments, and 18 Fire Agencies. It is the only approved and operational Emergency Medical Dispatch Center (EMD) that utilizes Medical Priority Dispatch System (MPDS).



Emergency Medical Dispatchers are trained and certified to International Academies of Emergency Dispatch (IAED) standards and continually provides potentially life-saving pre-arrival instructions to 9-1-1.





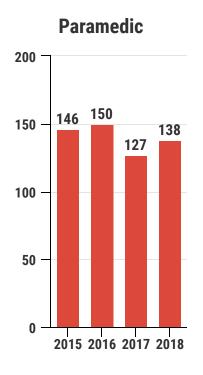
CERTIFICATION & ACCREDITATION

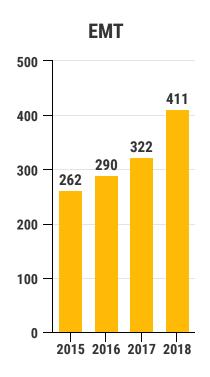
Paramedics are required to obtain a California Paramedic license from the State of California EMS Authority. Once a Paramedic has obtained a license, they must accredit themselves in the jurisdiction in which they are employed. Accreditation ensures Paramedics can work safely and competently within the YEMSA Protocols and Policies. Paramedics are required to verify compliance and update their accreditation with YEMSA every two years.

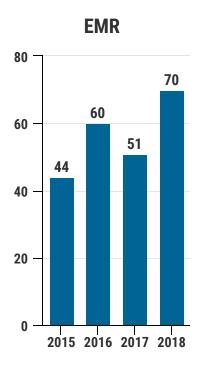
Emergency Medical Technicians (EMT) are required by state law to possess a State of California EMT certificate before they are permitted to practice. An EMT obtains a State of California EMT certificate by applying to one of California's local EMS agencies. An EMT certificate obtained through YEMSA is valid statewide for two years.

Emergency Medical Repsonders (EMR) are required to possess a YEMSA EMR certificate before they are permitted to practice within the county. An EMR certificate is obtained upon provision of proof of employment within the county and proof of completion of training through a certifying entity.

Certifications & Accreditation Per Year



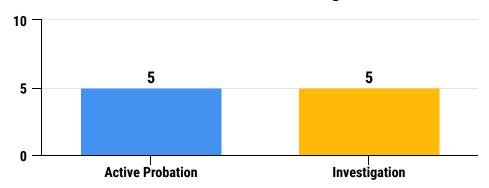




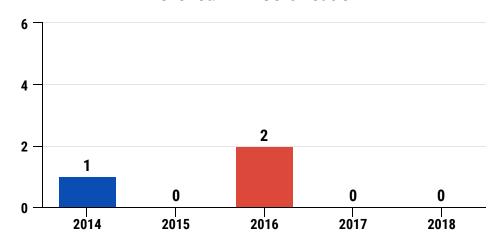
PROVIDER OVERSIGHT

The Yolo County EMS Agency investigates allegations of misconduct against EMTs and Paramedics certified or accredited in Yolo County. This provider oversight program establishes high-quality standards of care and ensures the provision of safe, professional, and competent clinical care to the Yolo County residents and visitors.

EMT Certification Oversight



Revoked EMT Certification

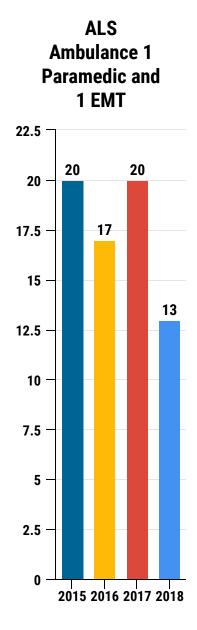


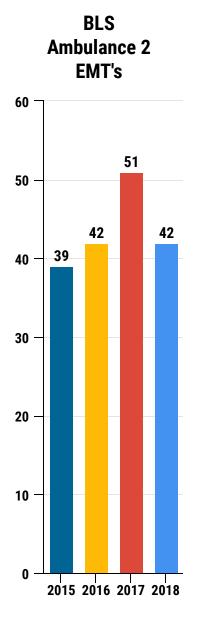
AMBULANCE PERMITS

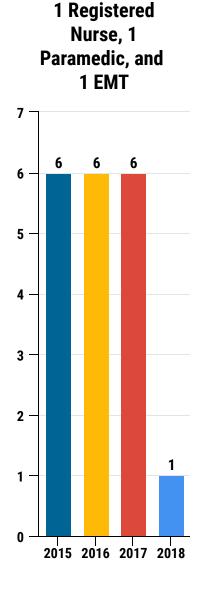
The YEMSA ambulance ordinance requires each ambulance provider to obtain a permit prior to initiating patient transport in Yolo County. Additionally, YEMSA reviews all applications and inspects each ambulance to ensure public health and safety. YEMSA is responsible for investigating alleged violations of the ambulance ordinance against permit holders, and when necessary, suspends or revokes ambulance permits.











CCT Ambulance

EMT TRAINING PROGRAMS

Under the State's EMS regulations, YEMSA is the delegated regulatory responsible for approving EMT and Paramedic training programs in Yolo County. The EMS Agency has three (3) approved EMT training programs.

University of California, Davis Fire Department

4 EMT Courses

138 Students



Woodland Community College

2 EMT Courses

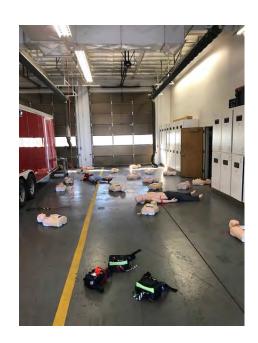
22 Students



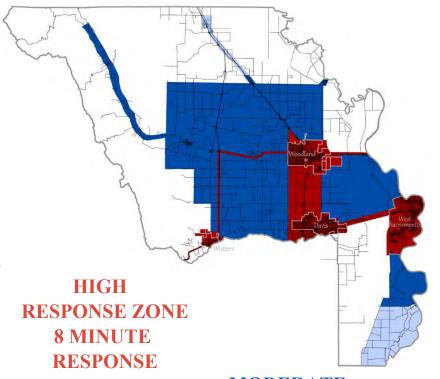
Onsite Medical Services, Inc.

2 EMT Courses

35 Students



AMBULANCE RESPONSE TIME REQUIREMENTS





Each response zone is geographically and demographically diverse. The reported average response times include urban, suburban, and rural responses.

Davis
UC Davis
West Sacramento
Winters
Woodland
Elkhorn
Willow Oak
Madison

MODERATE RESPONSE ZONE 15 MINUTE RESPONSE

Brooks
Capay
Clarksburg
Elkhorn
Esparto
Guinda
Knights Landing
Madison
Rumsey
West Plainfield
Willow Oak
Yocha Dehe
Yolo
Zamora

MODERATE-LOW
20 MINUTE
RESPONSE

Clarksburg
Dunnigan
Zamora

LOW
RESPONSE ZONE
30 MINUTE
RESPONSE

Rural Areas of:
Brooks
Capay
Dunnigan
Elkhorn
Guinda
Knights Landing
Rumsey
Zamora

AMBULANCE RESPONSE TIME PERFORMANCE

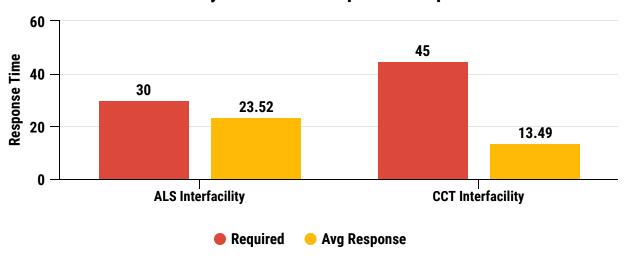
County Wide 2018 Ambulance Volume

21,076

9-1-1 Ambulance Response Compliance



Interfacility Ambulance Response Compliance



QUALITY IMPROVEMENT

Quality Improvement Programs

Quality Improvement continues to be central to the mission of EMS services in Yolo County. EMS activity and patient care outcomes are routinely measured and evaluated by the stakeholders and regulators to ensure the system is meeting performance standard and continually improving. Our measures focus on quality of care in the delivery of EMS services.

EMS System Quality Improvement Program (EQIP)

This program is part of a coordinated system of medical and patient safety oversight facilitated by the Yolo EMS Agency. Data is continuously used to implement and support improvements in patient care, ambulance service delivery in collaboration with our hospitals, emergency department physicians and nurses, Specialists in cardiology, neurology, trauma and pediatrics.

EMS Quality Improvement Initiative

High Performance Cardiac Arrest & CPR

This program focuses on the application of data collected at the scene, the use of technology to measure the quality of CPR and the treatment of medical interventions performed in the field. The Cardiac Arrest Initiative will analyze all aspects of the EMS System cardiac arrest response, including bystanders, the use of public automated defibrillators, field treatment, transport, and interventions at hospital facilities. One of the technologies utilized is CODE-STAT, a data review software that provides an immediate understanding of team performance following a CPR response.



FirstPass



This system improves data quality, collection, and analysis through the provision of real-time monitoring of clinical care. This system will afford the EMS agency the ability to continuously monitor ePCR and other data to rapidly identify and provide instantaneous feedback on individual and system performance.

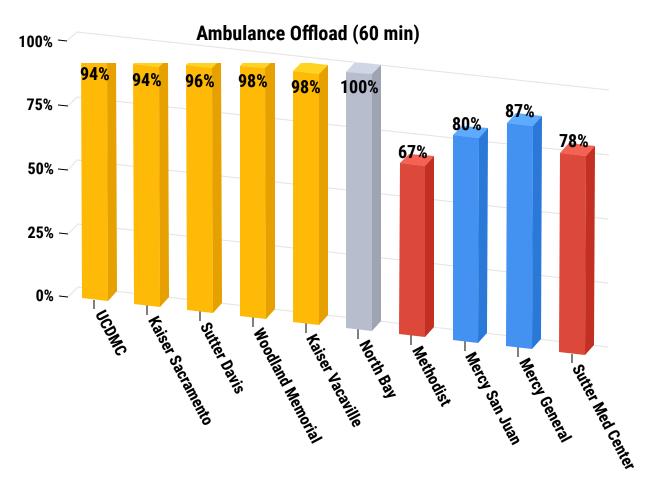
SYSTEM PERFOMANCE

In accordance with Health and Safety Code 1797.120 ambulance offload time was established to calculate and report ambulance patient offload times (APOT).

Ambulance patient offload delays are a persistent concern in the health care community due to the potential impact on patient safety and quality of care.

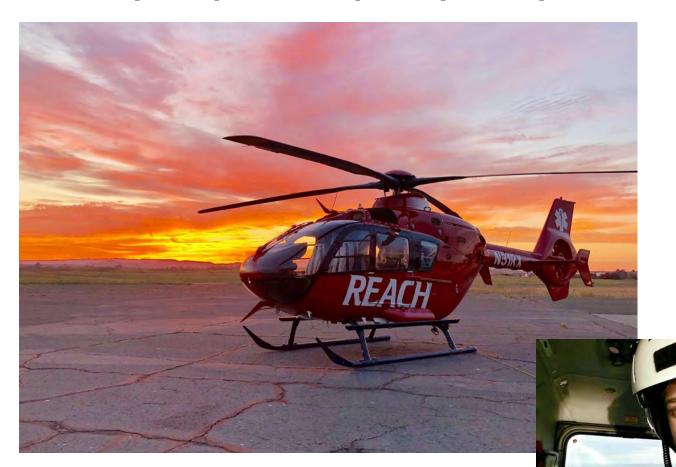


Yolo County EMS Agency provides quarterly reports on APOT times to the State EMS Agency on Health and Safety Code. In addition, we monitor, in real-time, ambulance emergency room arrival to departure. Our benchmark for arrival-departure is sixty (60) minutes. The graph below presents the data collected by Yolo County.

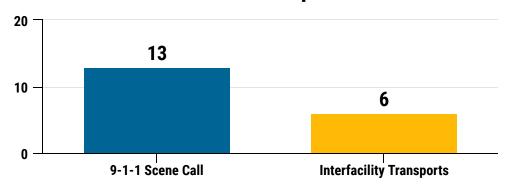


AIR MEDICAL TRANSPORT

Air Medical Transport provides specialized transportation services within the 9-1-1 system and intra-facility transports that are essential to getting critically ill or injured patient to a specialty care. Air Medical Transport Providers are dispatched for emergency calls in rural areas of the county, severe traffic accidents, Stroke, and STEMI patients, or when hospitals require the transport of a critically ill patient to another facility. REACH and CALSTAR are authorized providers in Yolo County. Air Medical Transports comprises less than 1 percent of patient transports in Yolo County.



Total Air Transports



SPECIALTY MEDICAL CENTERS

Specialty Medical Centers are hospitals with enhanced capabilities to treat specific pressing problems, such as trauma, burns, heart attacks (STEMI), stroke, and pediatric patients. A Base Hospital is a local hospital that provides online physician consult to EMS personnel. These hospitals work with Yolo County to provide specialty care when it matters most.

Stroke Receiving Centers

Woodland Memorial Hospital

Sutter Davis Hospital

Mercy General Hospital

UC Davis Medical Center

Sutter Medical Center Sacramento

Mercy San Juan Medical Center

Methodist Hospital

Base Hospital

Woodland Memorial Hospital

STEMI Receiving Centers

Mercy General Hospital

UC Davis Medical Center

Sutter Medical Center Sacramento

North Bay Hospital

Level I/II Trauma Centers

UC Davis Medical Center

Kaiser Vacaville

Pediatric Trauma Center

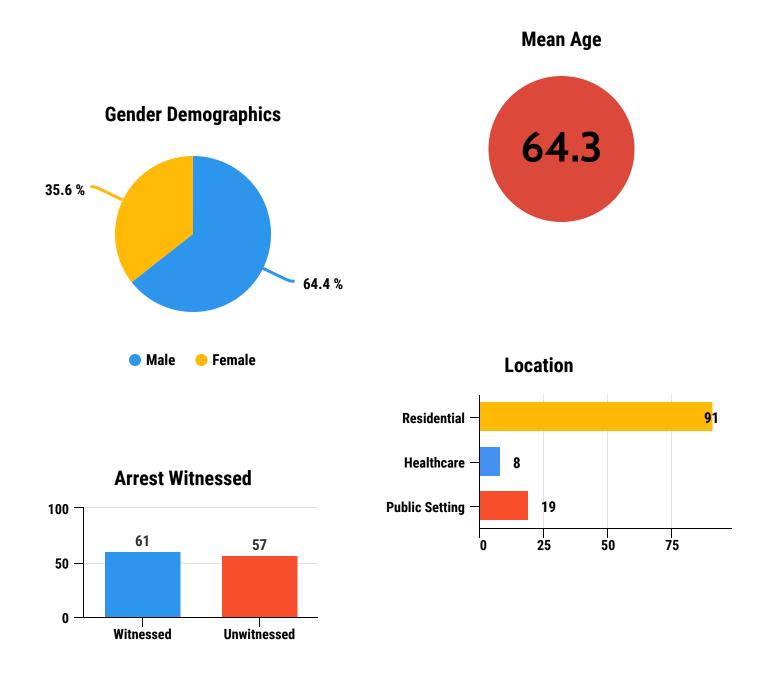
UC Davis Medical Center

Burn Receiving Center

UC Davis Medical Center

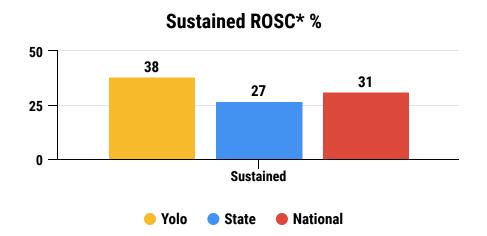
CARDIAC ARREST SYSTEM OF CARE

Cardiac Arrest Registry to Enhance Survival (CARES) data is used to provide a benchmark and to guide improvement out of hospital cardiac arrest care performance. CARES allows Yolo County to regularly and confidentially review our statistics online and compare our performance to anonymous aggregated data at the local, regional, or national level. We are provided with an annual published report from CARES that summarizes our results in comparison to regional and national benchmark.



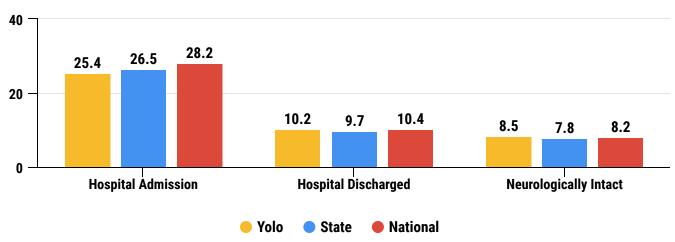
CARDIAC ARREST SYSTEM OF CARE

Cardiac arrest is a leading cause of death in adults. It is an electrical malfunction in the heart that causes an irregular rhythm (arrhythmia) and disrupts the flow of blood to the brain, lungs, and other organs. When a person has a cardiac arrest his or her survival is dependent upon immediate receipt of CPR from a nearby individual. Death occurs in nearly 90 percent of the people who suffer out-of-hospital cardiac arrests. CPR, especially when performed in the first few minutes of cardiac arrest, can double or triple a person's chance of survival.



*Return of spontaneous circulation (ROSC) is a return of breathing, coughing, or movement and a palpable pulse or a measurable blood pressure





STEMI SYSTEM OF CARE

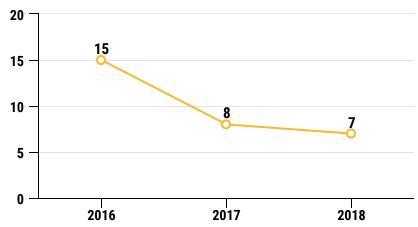
ST-Elevation Myocardial Infarction (STEMI), also known as a heart attack, occurs when blood flow to part of the heart decreases or stops, resulting in damage to the oxygen deprived heart muscle.

12-Lead Electrocardiogram
(ECG) is the process used to record the electrical activity of the heart. Paramedics in the field use this as a diagnostic tool to identify a heart attack and to provide early notification to the hospital via electronic transmission.

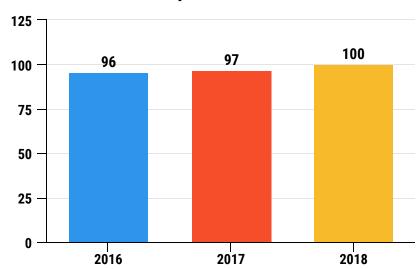
This early notification allows the hospital to prepare the Cardiac Catheterization Lab (Cath Lab) and diagnostic equipment and personnel necessary to perform interventional treatment.



Patient Contact to 12-Lead ECG

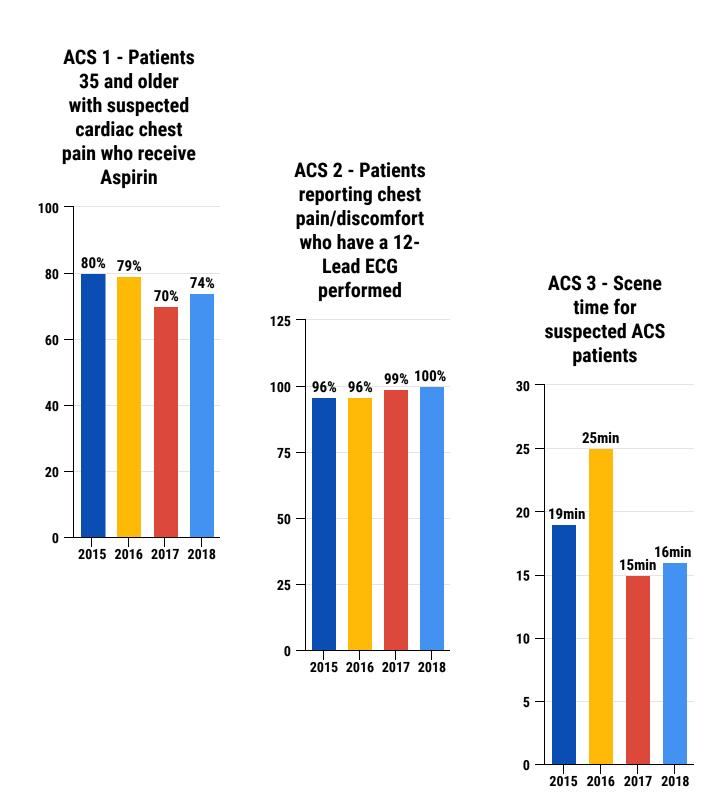


Direct Transport to STEMI Center



STEMI SYSTEM OF CARE

California Core Measures are a set of quality indicators established from evidence based data on processes and treatments proven to provide the best possible outcomes for patients.



STEMI SYSTEM OF CARE



American Heart Association's Mission:
Lifeline®EMS awarded Yolo County Gold Plus
Award for implementing quality improvement
measures for the treatment of patients who
experience severe heart attacks. This is the fouth
consecutive year Yolo has been recognized by
Mission: Lifeline.

Every year, more than 250,000 people experience an ST elevation myocardial infarction, or STEMI - the deadliest type of heart attack caused by a blockage of blood flow to the heart and that requires timely treatment. To prevent death, it is critical to restore blood flow as quickly as possible.

As stated by the American Heart Association, EMS is typically the first provider of care in cardiac emergencies, making their role especially critical as it often sets the course for a patient's outcome.

The Mission: Lifeline program recognizes EMS agencies and their efforts to improve systems of care in the rapid identification of suspected heart attack patients, prompt notification of the medical centers and the corresponding early responses activated by the awaiting hospital personnel.









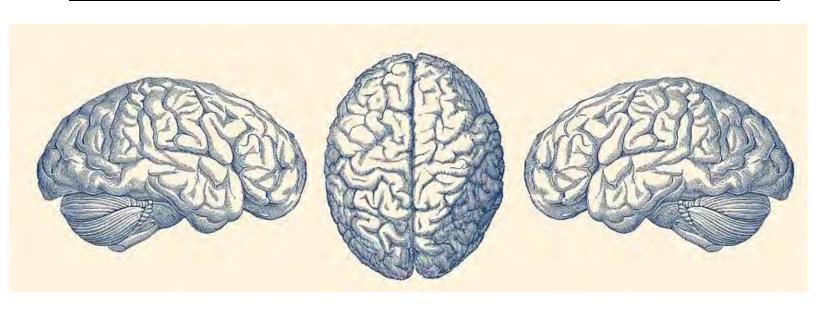
STROKE SYSTEM OF CARE

Stroke is a leading cause of death and disability in the nation. The YEMSA Stroke System of Care facilitates rapid assessment and transport of patients to designated primary stroke centers. Early Stroke recognition by EMS allows for early activation of the primary stroke center, shortens the time to a Computerized Tomography (CT) scan, and improves the timelines of treatment.

308 Stroke Alerts

2 Minutes

Ambulance time on scene

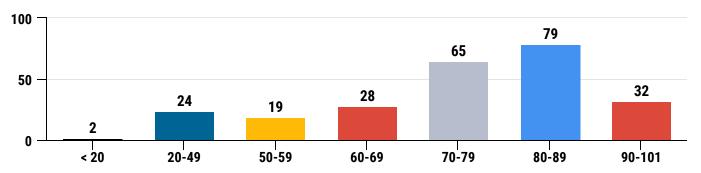


9 Minutes
Average **

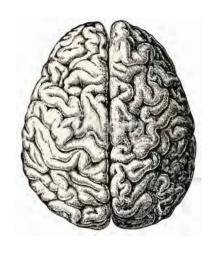
Average Ambulance arrival to CT time

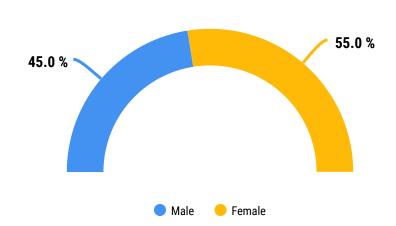
STROKE SYSTEM OF CARE

Stroke Alert Patient Age Distribution

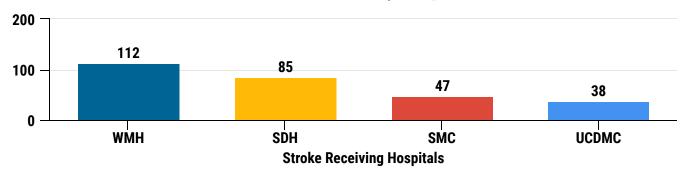


Gender of Stroke Alert Patients





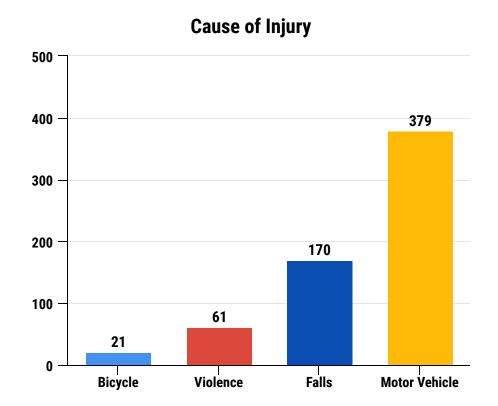
Total Stroke Alerts by Hospital

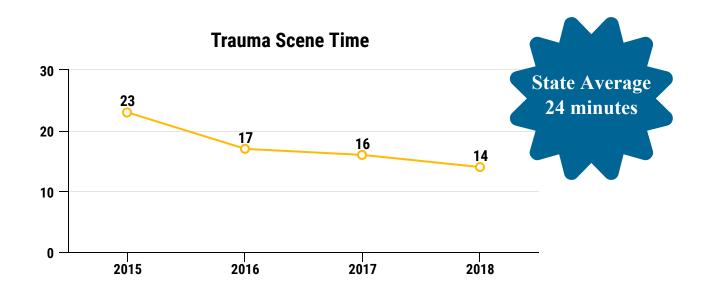


TRAUMA SYSTEM OF CARE

A trauma system is designed to facilitate rapid identification, management, and transport of critical trauma patients to a designated trauma center. Time is an important component that directly correlates to increased morbidity and mortality.

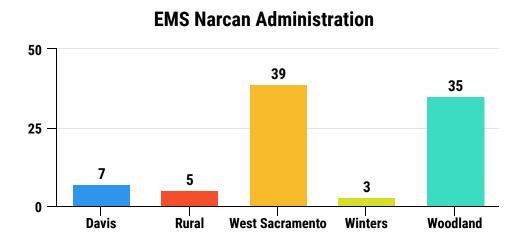






SYSTEM PROTOCOLS

Suspected overdoses where Narcan was administered by EMS



EMS Protocol - Pain Management

As part of the overall strategy for the management of the national drug shortages and opioid crisis we were the first EMS agency in California to go live with the a pain management protocol that is opioid free. Now this protocol is widely accepted as best practice.

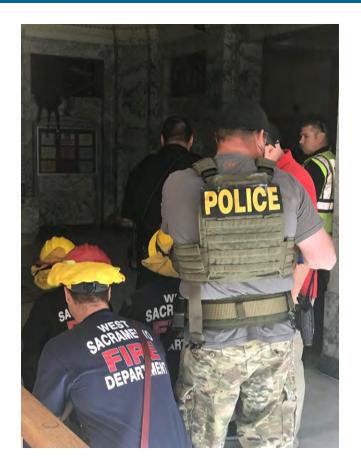
Three (3) different analysesics available to address pain management in the pre-hospital environment are:

- Acetaminophen and Ketorolac, they are nonsteroidal anti-inflammatory drugs (NSAIDS)
- Ketamine, dissociative anesthetics

Law Enforcement Agencies equipped with Narcan

Yolo County Sheriff City of Davis
Winters Woodland
West Sacramento

TRAINING & EXERCISES







In partnership with local Fire Departments and Law Enforcement Agencies we conducted a series of emergency training and exercises from October 15 – 18 at the Old Court House in Woodland, California.

The four day training exercise focused on Yolo County's response to an active shooter incident. A unified approach consisting of various scenarios was used to give law enforcement and first responders an opportunity for real-time training on realistic situations.



EDUCATION

Hands-Only CPR & AED Training

Sudden cardiac arrest is a medical emergency that claims approximately 350,000 American lives each year. In most cases, this situation is due to a lethal condition of a rapidly quivering heart that is no longer able to effectively pump blood to the rest of the body.

Many studies have shown that if CPR is started immediately to a person exhibiting no signs of life, and when an Automated External Defibrillator (AED) is used within 3-5 minutes, it can correct this lethal heart condition. This can result in high long-term survival rates in the community.

Yolo County EMS recognizes the importance of this medical situation and offers free, informal Hands-Only CPR training throughout the year to Yolo County Employees and Yolo County Foster Care Families.









EMS SYMPOSIUM

Yolo County EMS hosted its second annual EMS symposium on Vascular Emergencies. The symposium is designed for First Responders, EMTs, Paramedics and Registered Nurses working in emergency medicine. Attendance of the symposium was approximately 200 healthcare professionals from Northern California.





The goal of our symposiums is to bring together emergency medical professionals to share ideas and to learn innovative medicine techniques and procedures that will enhance clinical care in the communities they serve.







We are excited to make this an annual event and will be hosting our third annual Symposium in March 2020 at Sutter Park Field in West Sacramento on Pediatric Emergencies.

EMS AWARDS

Each year, many individuals contribute to and perform notable acts within the Yolo County Emergency Medical Service (EMS) system. These acts include service through leadership, participation in system development, system improvement, and exceptional performance of prehospital care. Unfortunately, these notable acts and service frequently go unrecognized. The EMS Awards Program provides a mechanism through which extraordinary acts and meritorious service can be recognized. The community, EMS providers, supervisors, and managers are encouraged to take the opportunity to nominate individuals for outstanding acts of service or performance. The categories of awards are listed below.

Award Categories:

Law Enforcement Officer of the Year

EMT/FF of the Year

Dispatcher of the Year

Paramedic of the Year

Volunteer First Responder of the Year

EMT of the Year

Hospital Provider of the Year



EMS AWARDS

Awards recipients were nominated by their peers. We at Yolo County EMS de-identified each nominee and sent the nomination to be scored by a multi-disciplinary group of stakeholders. The highest scoring nominee in each category was recognized. The awardees for 2018-2019 were:

Award Recipients:

Law Enforcement Officer-Gina Bell

EMT/FF – Tara Daniels

Dispatcher - Scott Fletcher

Paramedic – Travis Hunter

Volunteer First Responder – Mike Marsh

EMT - Nobert Moreno

Hospital Provider – Elizabeth Seely



*Listed in order as noted above

COMMUNITY

ENABLING CITIZEN SUPERHEROS



Yolo County adopted, PulsePoint, an app that empowers everyday citizens to provide life-saving assistance to victims of sudden cardiac arrest.

App users who self-reported certification or training in cardiopulmonary resuscitation (CPR) and willingness to assist in case of an emergency can be notified if someone if a cardiac emergency occurs near by that may.

If the cardiac emergency is in a public place, the location-aware application will alert users in the vicinity of the need for CPR simultaneous with the dispatch of advanced medical care. The application also directs these potential rescuers to the location of the closest Automated External Defibrillator (AED)







Plans



Over the course of the year we updated and created plans including:

- Mass Fatality Plan
- Healthcare Preparedness
 Coalition (HPC) Preparedness
 Plan
- HPC Response Plan
- Pandemic Influenza Plan
- Power Outage Emergency Response Plan

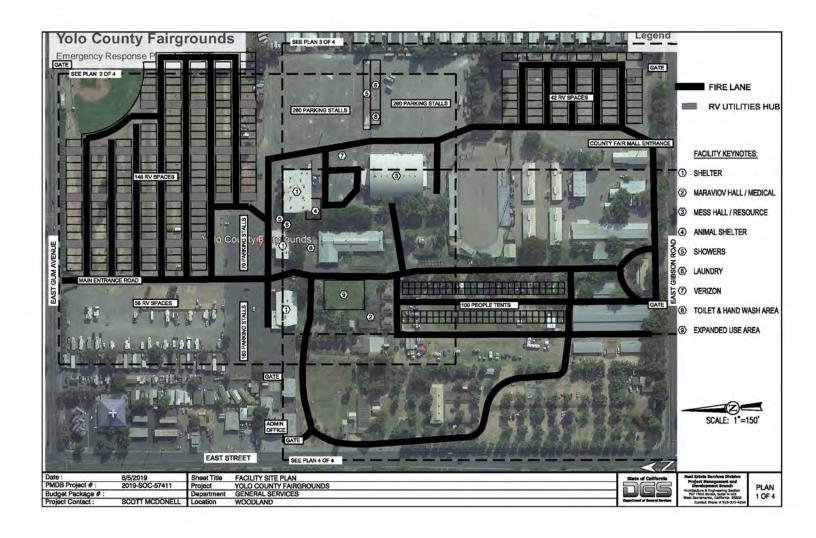
The CDC's new recommendation for Non-High Risk Cities Readiness Initiative (CRI) Jurisdictions is to plan around Pandemic Influenza situations in addition to the previously recommended Anthrax scenarios. Thus, the updated Pandemic Influenza Plan will supplement information contained in the Medical Countermeasures (MCM) Plan. The Power Outage Emergency Response plan addresses our County response to power outages of varying nature and duration including PG&E Power Shutoffs and other potential causes of disruption to power sources. Our HPC Response Plan will be updated annually, with several additional annexes addressing healthcare preparedness in our County.

Incident Response



Mass Care & Shelter Pilot Project

We participated in a Pilot Project this year to map out essential resources at the Yolo County Fairgrounds with The State of California Department of Social Services and Department of General Services. This is a collaborative effort to complete as much pre-planning as possible in our ESF 6 Mass Care sheltering plan. Future initiatives include mapping out essential resources at all of our designated shelter locations in Yolo County.



Healthcare Preparedness Coalition (HPC)

The HPC has been busy with site visits, updating inventory/resources, and ReddiNet Training. This year, with the addition of a ReddiNet trainer, there has been many refresher and on-site ReddiNet trainings and drills to familiarize HPC members with the ReddiNet Redundant Communication Platform, situational status, and HAvBED capabilities.



Disaster and Medical Surge Exercises





This year we conducted a Region IV Statewide Medical and Health Exercise that focused on an Anthrax Scenario. We tested various elements including a First Responder Drivethru Medical Points Of Dispensing (MPOD), several Closed PODs, and a POD with our HHSA Employees. We also started preparing for this year's upcoming Statewide Exercise, a Flood Scenario, by conducting an Evacuation Tabletop exercise with HPC and developing an Evacuation Policy that will be utilized by Healthcare facilities and First Responders throughout Yolo County.

Training/Exercise/Response	Frequency
Radio/Satellite Phone/Situation-Status Drills	Monthly
Healthcare Preparedness Coalition Meetings	Monthly
ReddiNet Triage and Tracking Exercises	Bi-Monthly
Disaster Healthcare Volunteers Communication Drills	Quarterly
Statewide Medical and Health Exercises	Annually
County Emergency Operations Center Functional Exercises	Annually

YOLO COUNTY EMS & EP







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