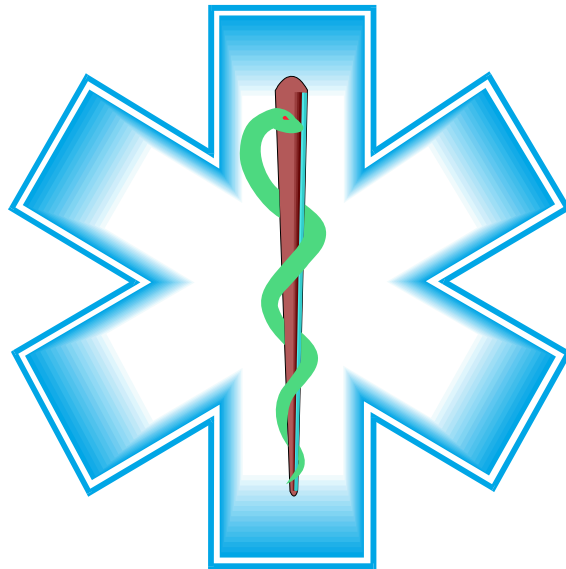

Tuolumne County
Emergency Medical Services Agency

2013 Annual Statistical Report



February 19, 2014

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INTRODUCTION

The 2013 Annual Statistical Report compiles and condenses an entire year's worth of data (call volume, response time and patient demographic information) about the Tuolumne County EMS system. The data included in this report is derived from pre-hospital patient care records (PCRs) completed by Tuolumne County Ambulance Service personnel and statistical information provided by PHI, unless otherwise noted.

Since July 1, 1993, Tuolumne County Ambulance has collected PCR data using the software program EMS DataPro® (formerly the EMS Database System) provided for their use by the Tuolumne County EMS Agency. Once entered in EMS DataPro®, the data is submitted in an electronic format to the Tuolumne County EMS agency where the data is imported into a central version of EMS DataPro®. The EMS agency then validates the data.

In September 2000, Tuolumne County Ambulance, with the assistance of the EMS agency, initiated a program for completing PCRs using EMS Outfielder® (a laptop based PCR data entry program developed by CompuCounsel, now called Inspironix, of Sacramento in conjunction with Manteca District Ambulance). EMS Outfielder® has replaced hand-written PCR forms and billing tickets. EMS Outfielder® provides immediate data availability for daily quality assurance/quality improvement reviews and imports patient billing information directly into the billing system used by Tuolumne County Ambulance.

The Tuolumne County Emergency Medical Services (EMS) System is comprised of four 9-1-1 answering points including Tuolumne County Sheriff's Dispatch, City of Sonora Police Department Dispatch, CHP Dispatch (located in Merced County) and Mariposa County Sheriff's Dispatch.

- Ambulance dispatching is provided by the Tuolumne County Sheriff's Dispatch Center.
- Basic life support (BLS) first response services are provided by Tuolumne County Fire Dept., Tuolumne City Fire Dist., Columbia College Fire Dept., Twain Harte Fire Dist., Columbia Fire Dist., Sonora City Fire Dept., Miwuk-Sugarpine Fire Dist., and the Groveland Fire Dist.
- U.S. Forest Service, Tuolumne County Sheriff's Search and Rescue, Don Pedro Recreation Agency, Dodge Ridge Ski Patrol provides specialized BLS response services.
- Tuolumne County Ambulance Service provides advanced life support (ALS) service. Mercy Medical Transport from Mariposa County provides the Lake Don Pedro area ALS Ambulance service.
- PHI provides air ambulance services with day-to-day mutual aid from the California Highway Patrol (CHP) Air Operations Division, Mercy Air, CALSTAR and R.E.A.C.H. Air Ambulances.

In June 2003, grant funds were made available to the Tuolumne County EMS Agency for the purpose of purchasing and installing EMSsystem™ communication software and related computer hardware for the emergency departments of Tuolumne General

Hospital and Sonora Regional Medical Center and the EMS agency office. In early 2004, EMSsystem™ linked Tuolumne County's EMS system with the other ten (10) counties of OES Region IV, enabling Tuolumne General Hospital, as the county's Disaster Control Facility, to view real-time emergency department availability when determining patient disbursement during a multi-casualty incident (MCI).

In 2004, The Tuolumne County Emergency Medical Services System developed and implemented a Trauma Plan, in conjunction with Memorial Medical Center, Doctors Medical Center of Modesto, Mountain Valley EMS Agency, El Dorado County EMS Agency, Central California EMS Agency, Northern California EMS Agency, Sacramento County EMS Agency, and Santa Barbara County EMS Agency. The Trauma Plan provides a framework that assures that the citizens and visitors of Tuolumne County receive comprehensive prehospital and hospital trauma care. Tuolumne County relies on Trauma Centers throughout Northern California for in-hospital trauma care. Air Ambulances are used as the primary means of transportation for patients meeting Tuolumne County's major trauma patient criteria.

In July 2007, Tuolumne General Hospital closed leaving only one acute care hospital in Tuolumne County. Sonora Regional Medical Center assumed the duties of the county's Disaster Control Facility and Mountain Counties South Control Facility.

In 2008, EMSsystem was expanded to include data elements for the Department of Health and Human Services HAvBED (Hospital Available Beds for Emergencies and Disasters). This capability allows for accurate and consistent polling of hospital resources nationwide.

In June of 2009, Tuolumne County EMS Agency was instrumental in the development of the Central Regional Trauma Coordinating Committee (CRTCC), a twelve county regional committee. The purpose of the committee is to standardize and improve the provision of trauma care within the region. The CRTCC, working in coordination with four other Regional Trauma Coordinating Committees and the State EMS Authority to build a strong, cohesive statewide trauma system.

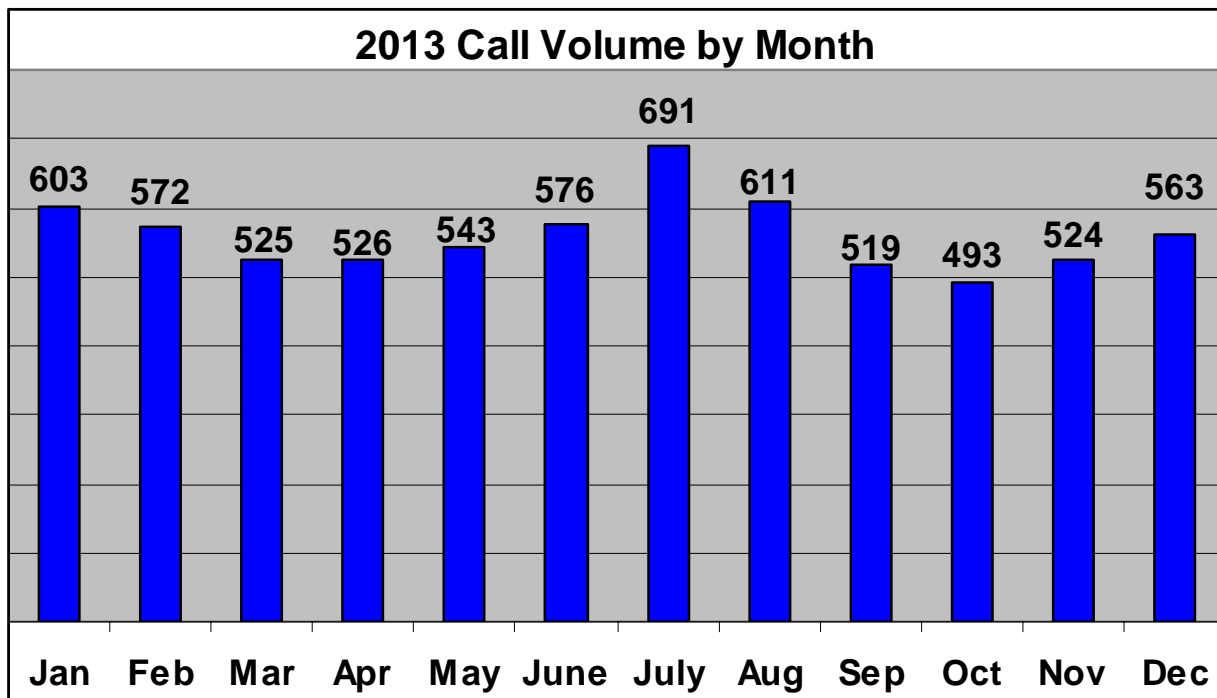
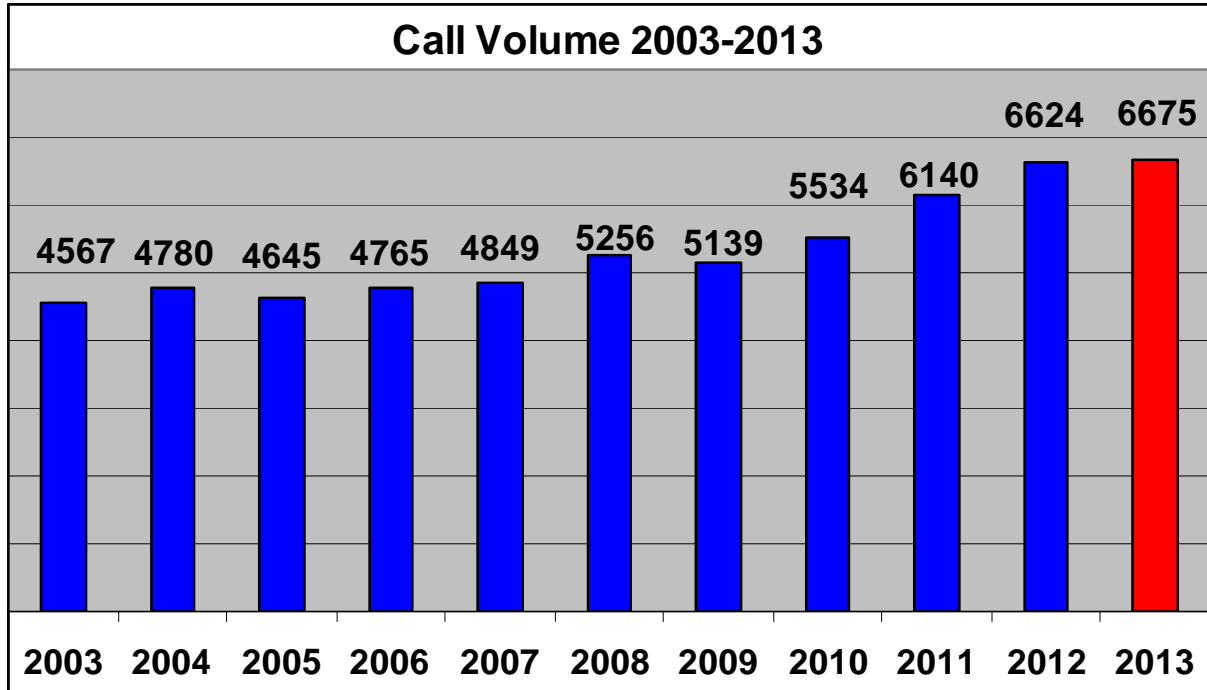
In 2010, Tuolumne County EMS implemented an S-T Elevation Myocardial Infarction (STEMI) triage policy. This allows Paramedics in the field to transport, usually by air ambulance, a patient experiencing a serious cardiac event to be transported directly to a hospital capable of Percutaneous Coronary Intervention (PCI). Decreasing the time from the recognition of a STEMI to PCI greatly decreases the injury to the cardiac muscle and increases the survival rate of these patients.

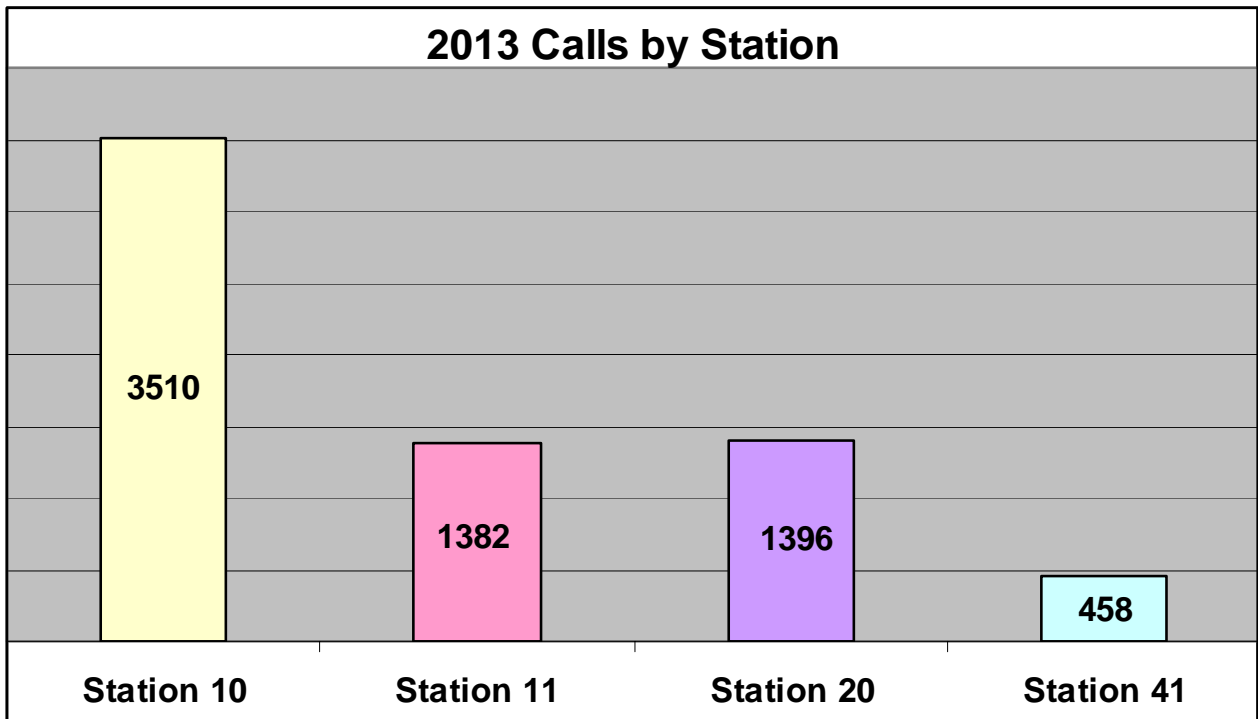
In September of 2011, Tuolumne County adopted the CRTCC Trauma Triage Criteria. This criteria is based on the Centers for Disease Control (CDC) trauma triage guidelines.

For the first time, the 2013 Annual Statistical Report contains statistical information provided by PHI Air Medical.

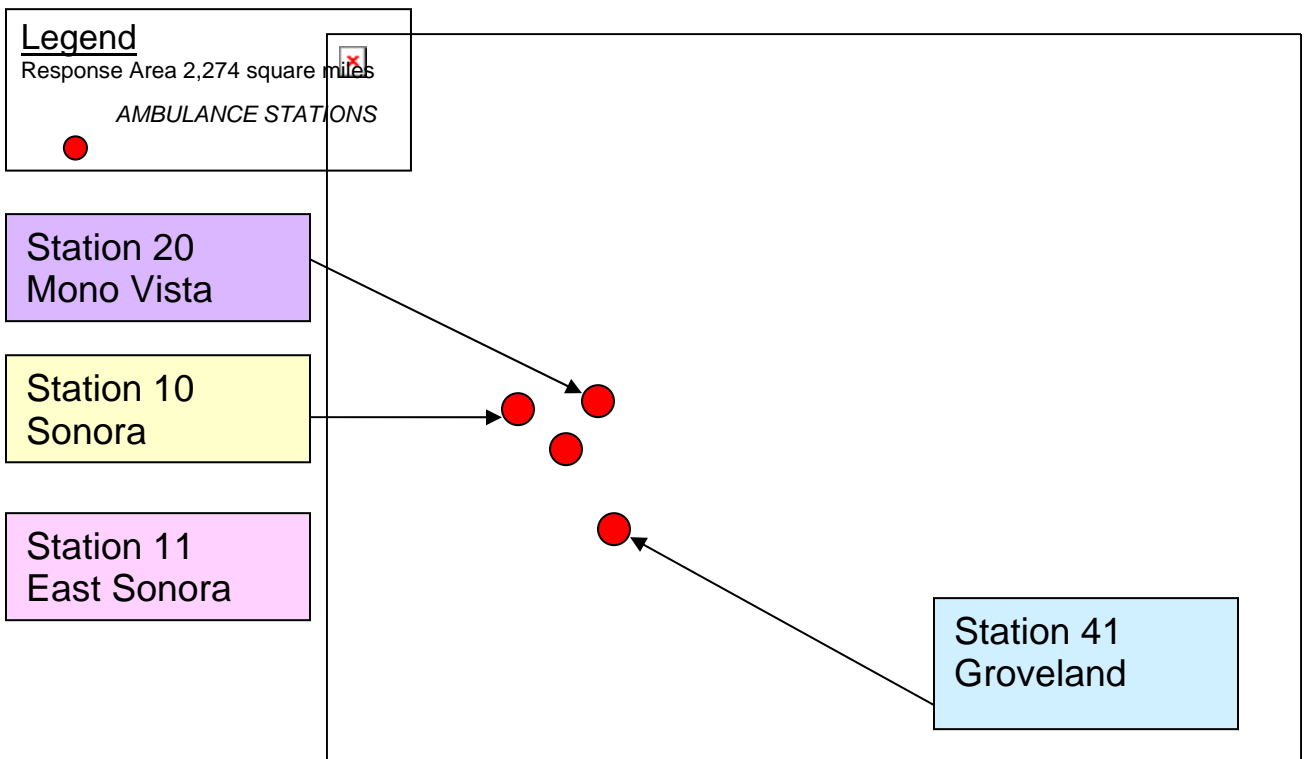
OVERVIEW OF CALL VOLUME

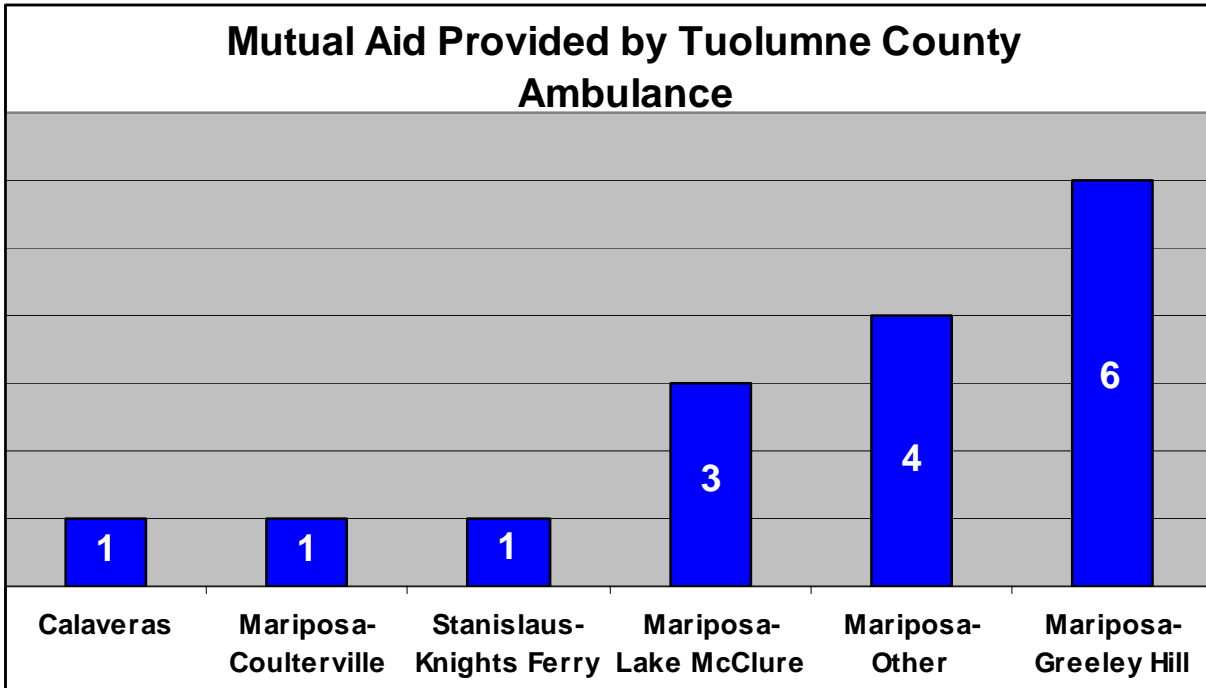
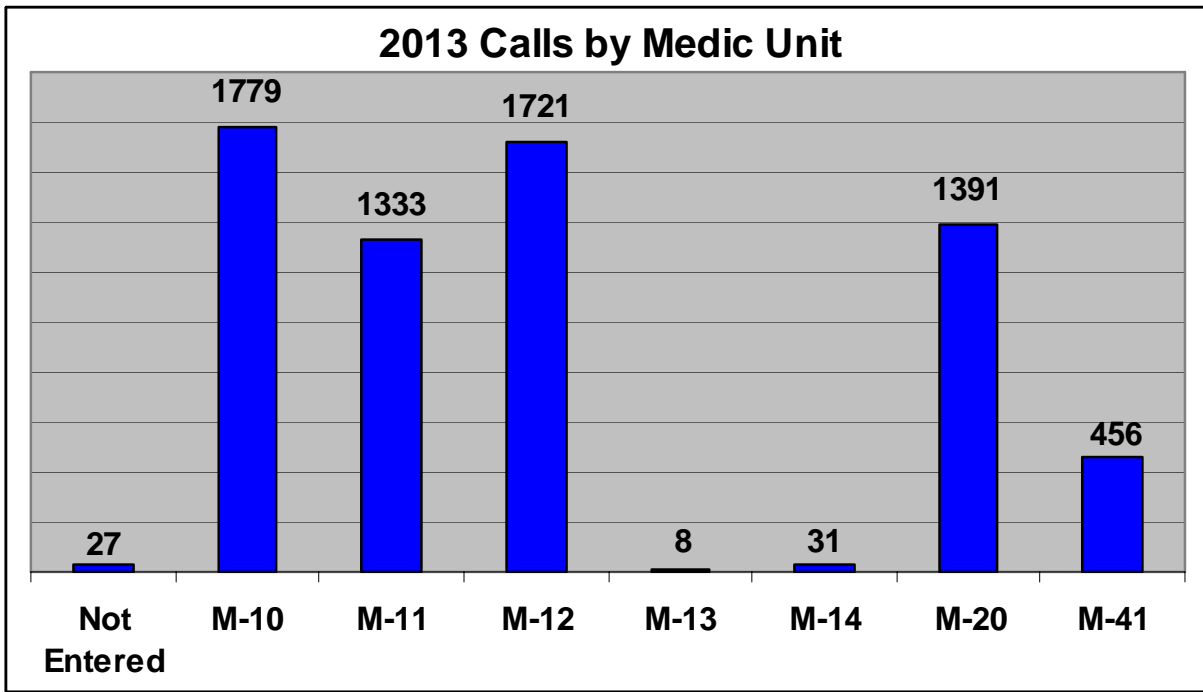
As illustrated in the graphs below, 2013 was the busiest year to date; in 2013 there was a 1% increase in calls for EMS services from 2012. Since 2003, there has been a 68% increase in the call volume. Unless otherwise specified EMS requests include both scene and transfer call types.

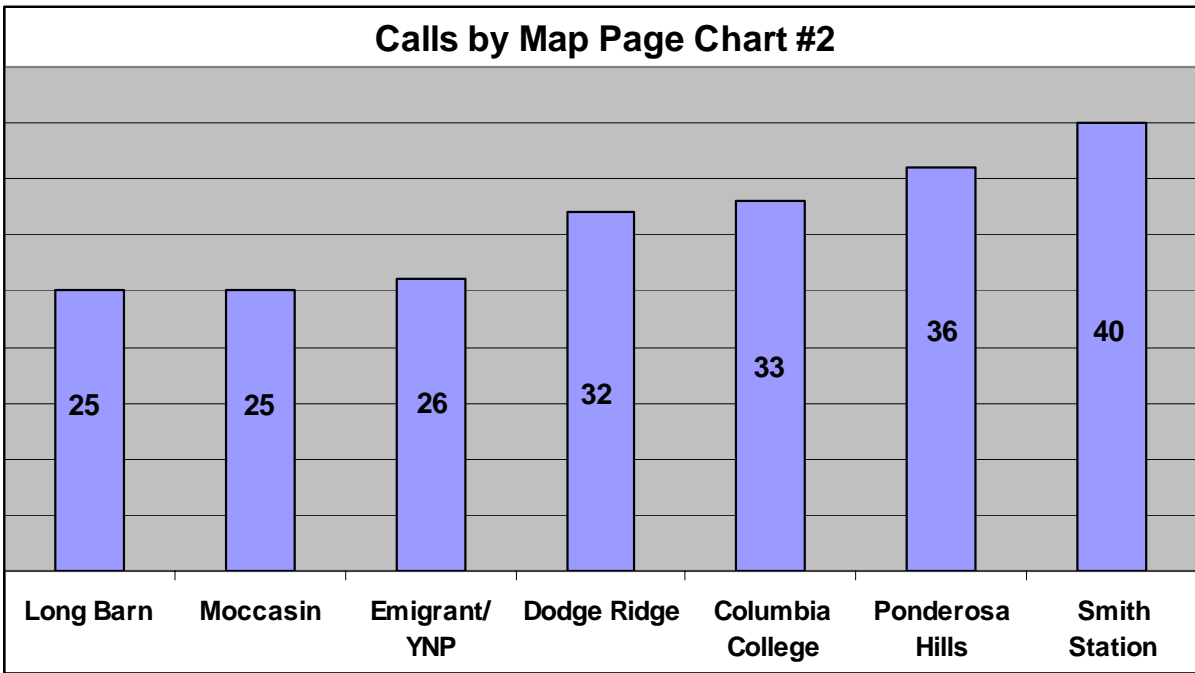
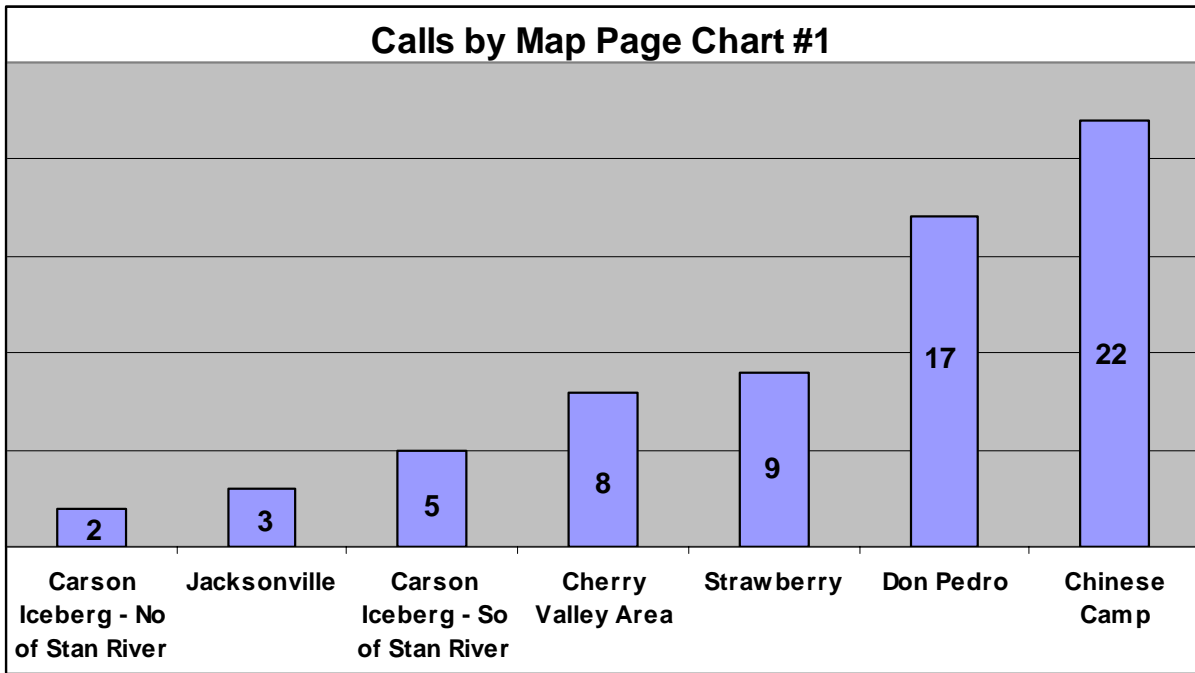


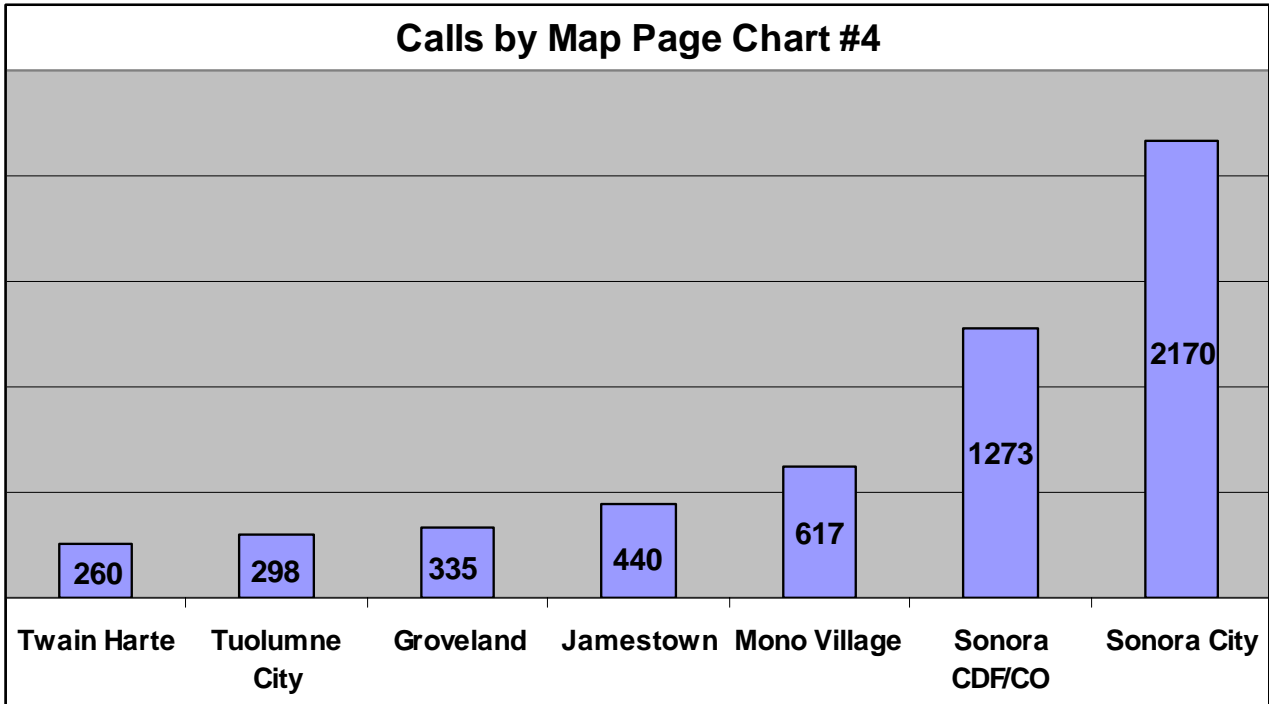
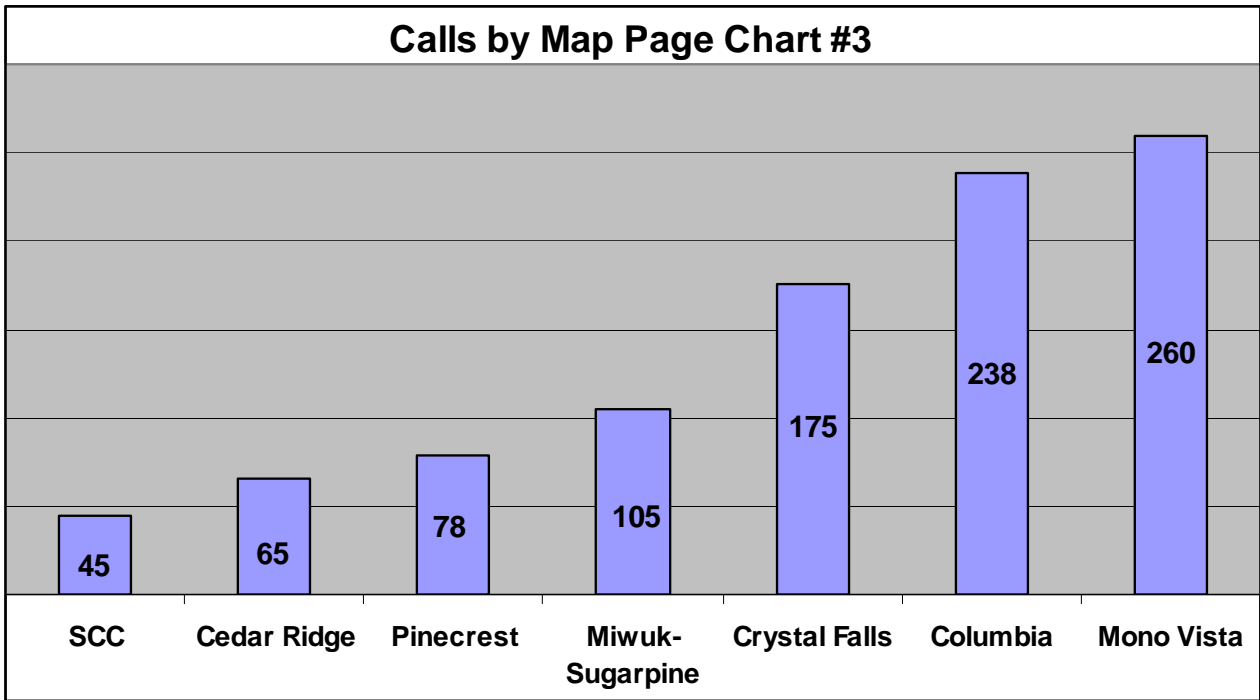


As illustrated above, Station 10 responded to the majority of all EMS requests.

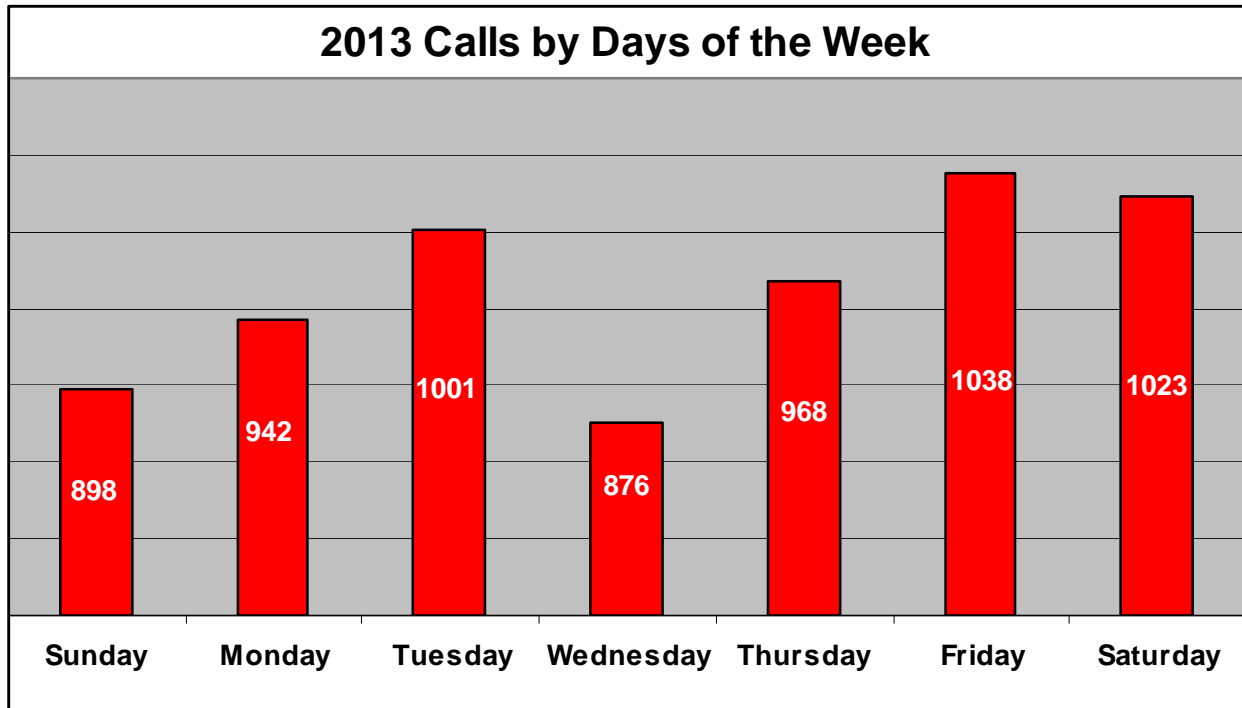






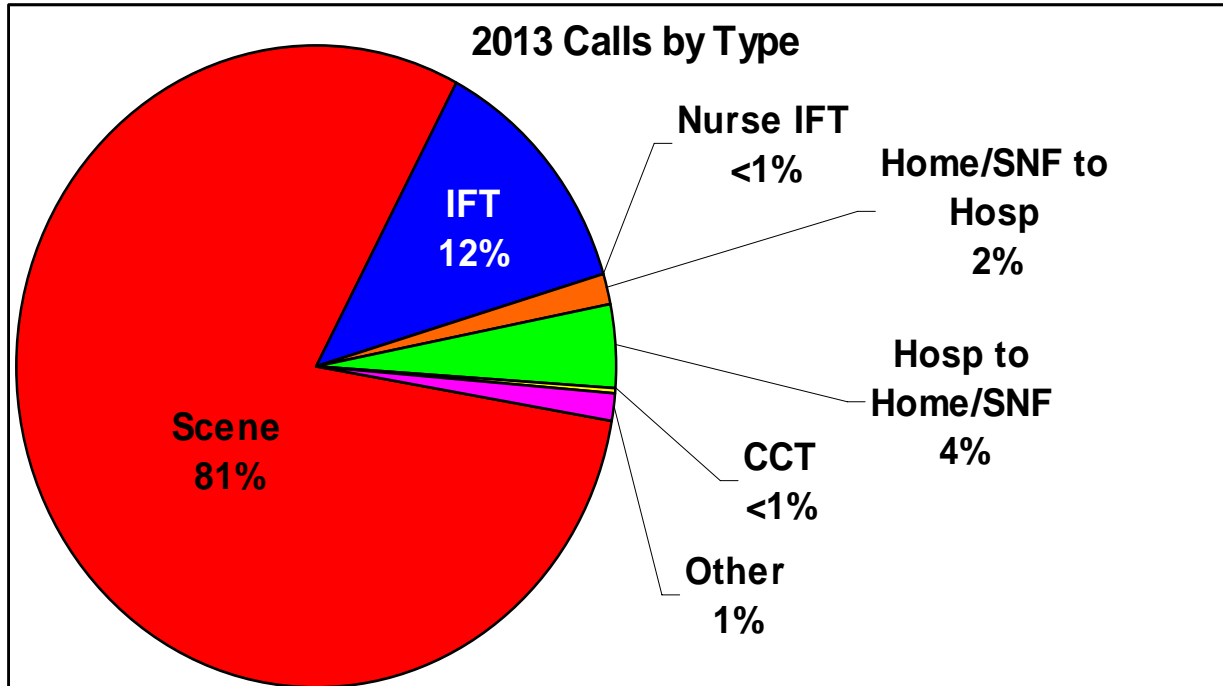


A breakdown of requests by day and time of day shows that call volumes may vary widely during the week, with the highest volumes on Tuesday, Fridays and Saturdays.



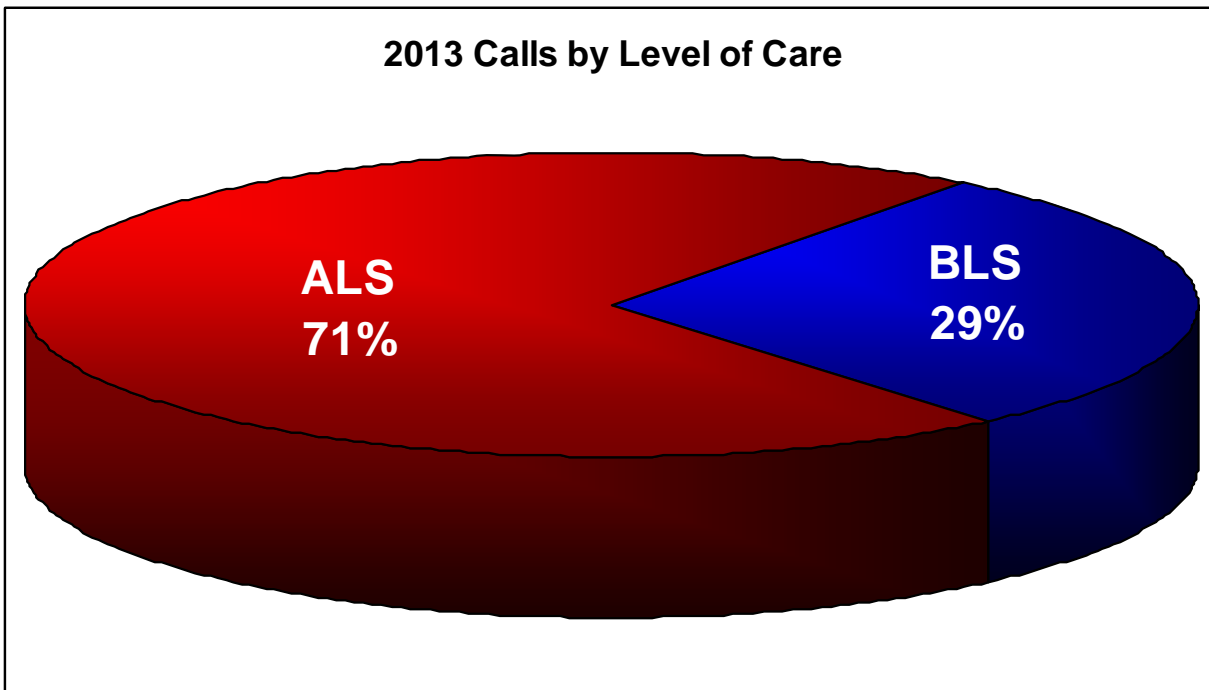
Calls by Type

In 2013, scene emergencies accounted for 81% of the total EMS requests for service. Transfers make up the remaining 19% of EMS requests for services.



71% of all requests for service resulted in the delivery of advanced life support (ALS) procedures and/or medications administered to the patient.

2013 Calls by Level of Care



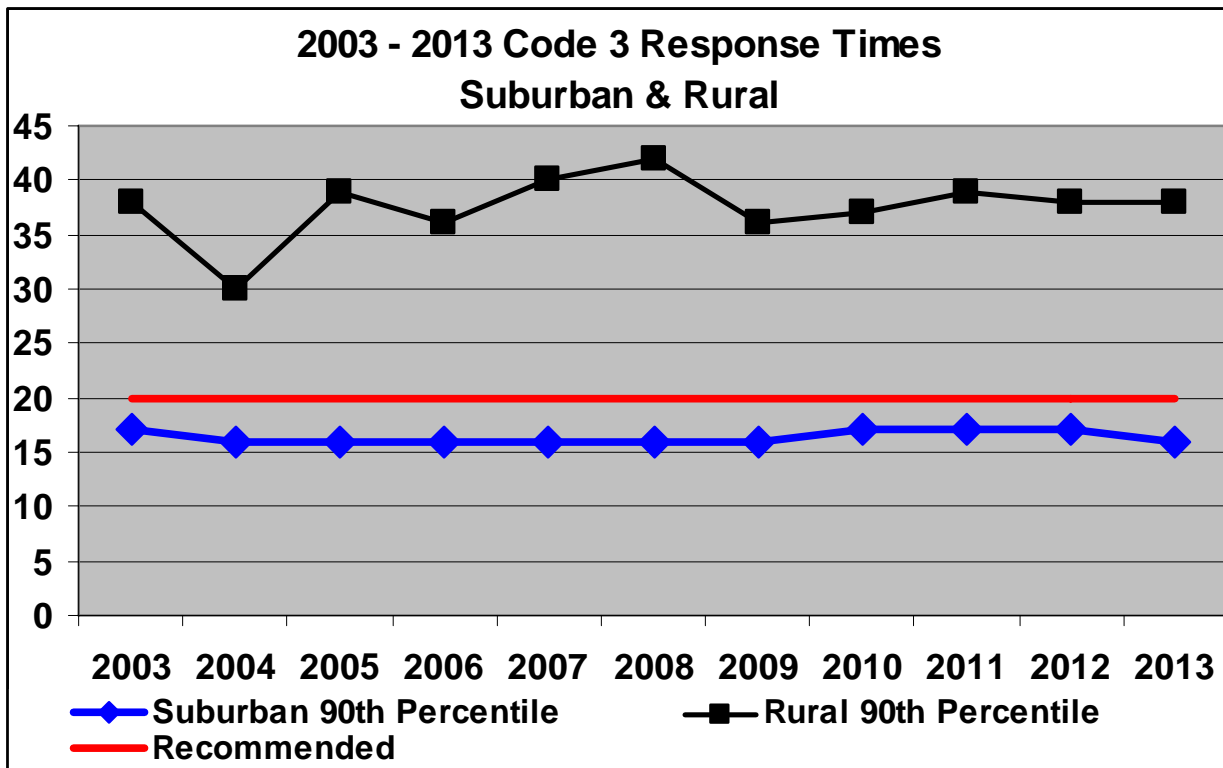
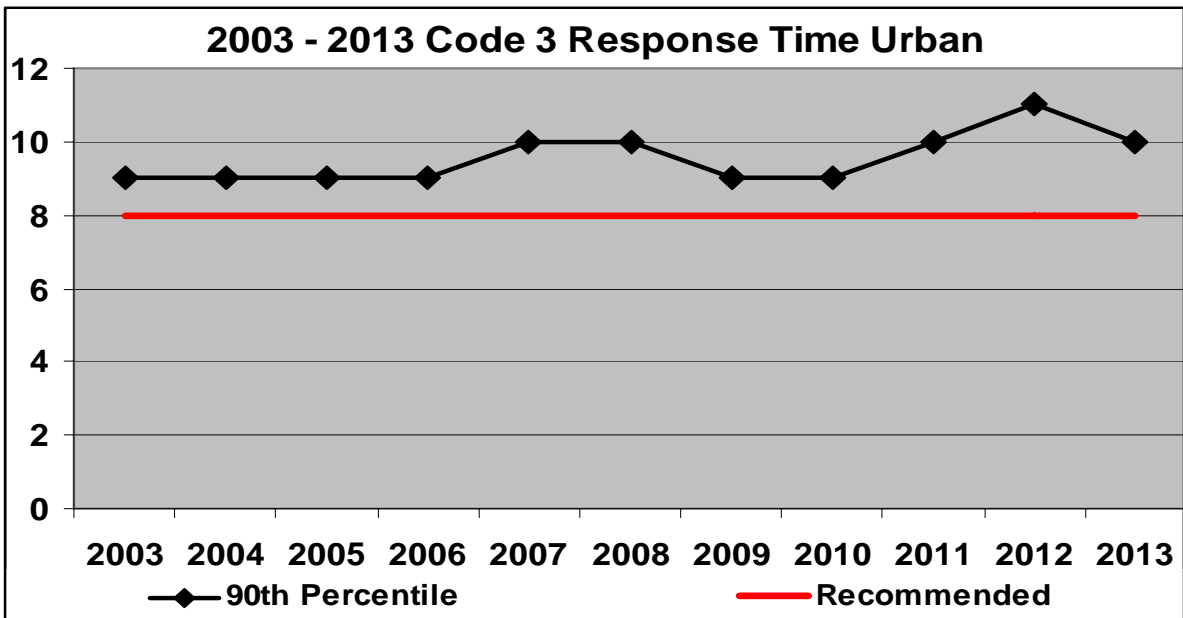
Response Times

The California Emergency Medical Services Authority (EMSA) has established recommended guidelines for Code 3 response time standards to EMS requests, based on population density. The EMSA recommends that EMS responses meet these response time guidelines at least 90% of the time.

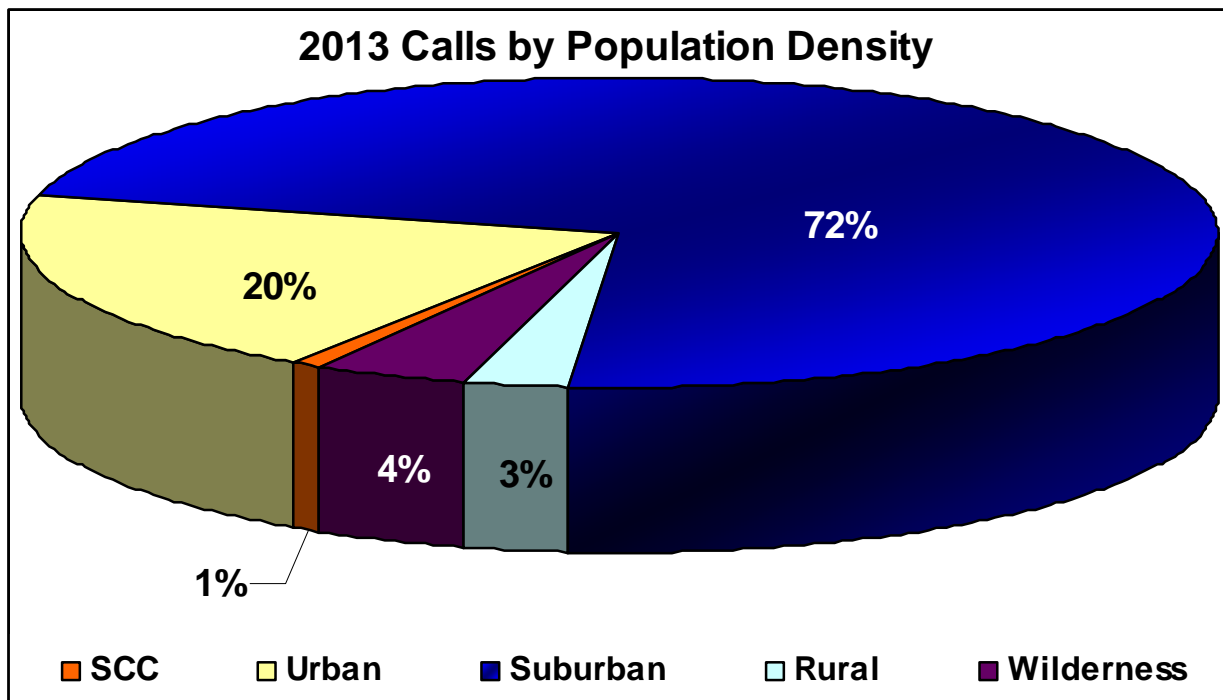
	BLS 1 st Response	ALS Ambulance
Urban	5 minutes	8 minutes
Suburban	15 minutes	20 minutes
Rural	15 minutes	20 minutes
Wilderness	ASAP	ASAP

Urban = 101 to 500 people per mile **Suburban** = 51 to 100 people per mile
Rural = 7 to 50 people per mile **Wilderness** = less than 7 people per mile
SCC = Sierra Conservation Center (secured facilities may be exempted from response time requirements)

	Urban	Suburban	Rural	SCC	Wilderness
Minimum:	0 min	0 min	7 min	9 min	0 min
Maximum:	22 min	85 min	57 min	32 min	62 min
Average:	6 min	10.67 min	20.24 min	17.42 min	27.58 min
90 %ile:	10 min	16 min	38 min	23 min	42 min



The breakdown of EMS requests by location reveals that the majority (72%) of requests occur in the suburban areas of Tuolumne County, where the majority of Tuolumne County residents live.



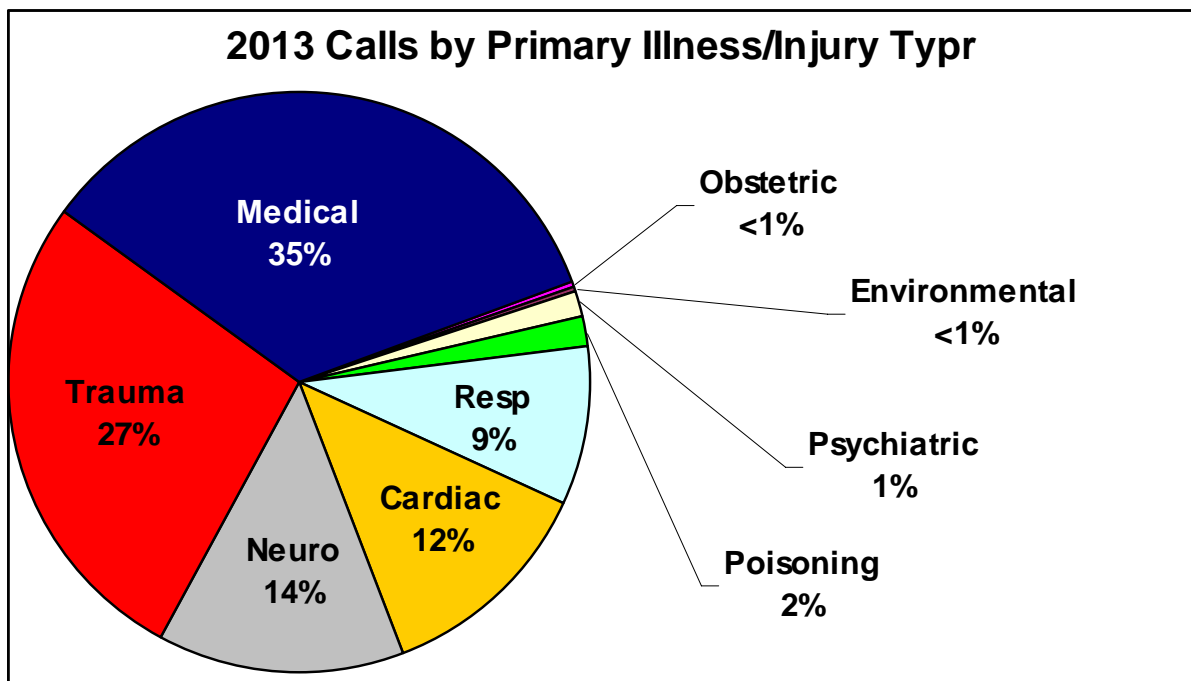
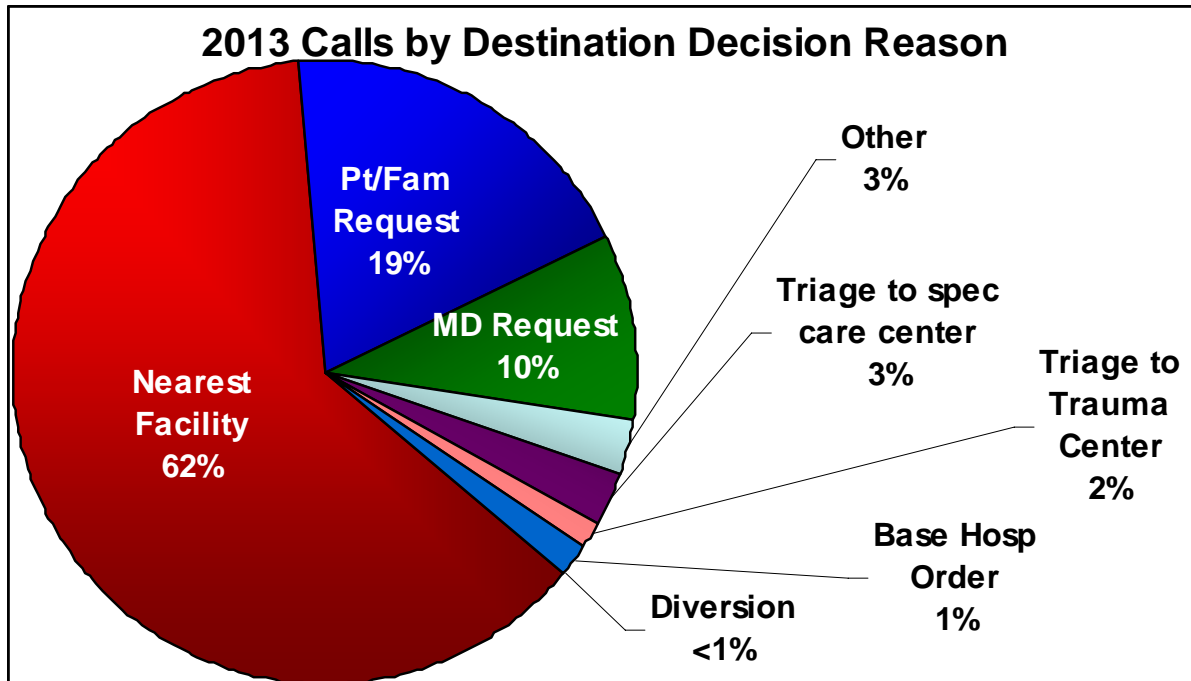
Call Disposition	
Transport to Other Location	10
Transport by another ambulance from scene	10
Transport to Non-Hospital Medical Facility	24
Transport to Home or Residence	84
Transport to Rendezvous Point	93
Dead On Scene	96
Other	107
Patient Released from Scene	117
No Patient Contact Made	169
Call Cancelled Enroute	209
Transport to Hospital (non-ED)	282
Transport to a Skilled Nursing Facility	306
Transportation Refused AMA	491
Transport to Emergency Department	4694

PATIENT AND HOSPITAL DATA

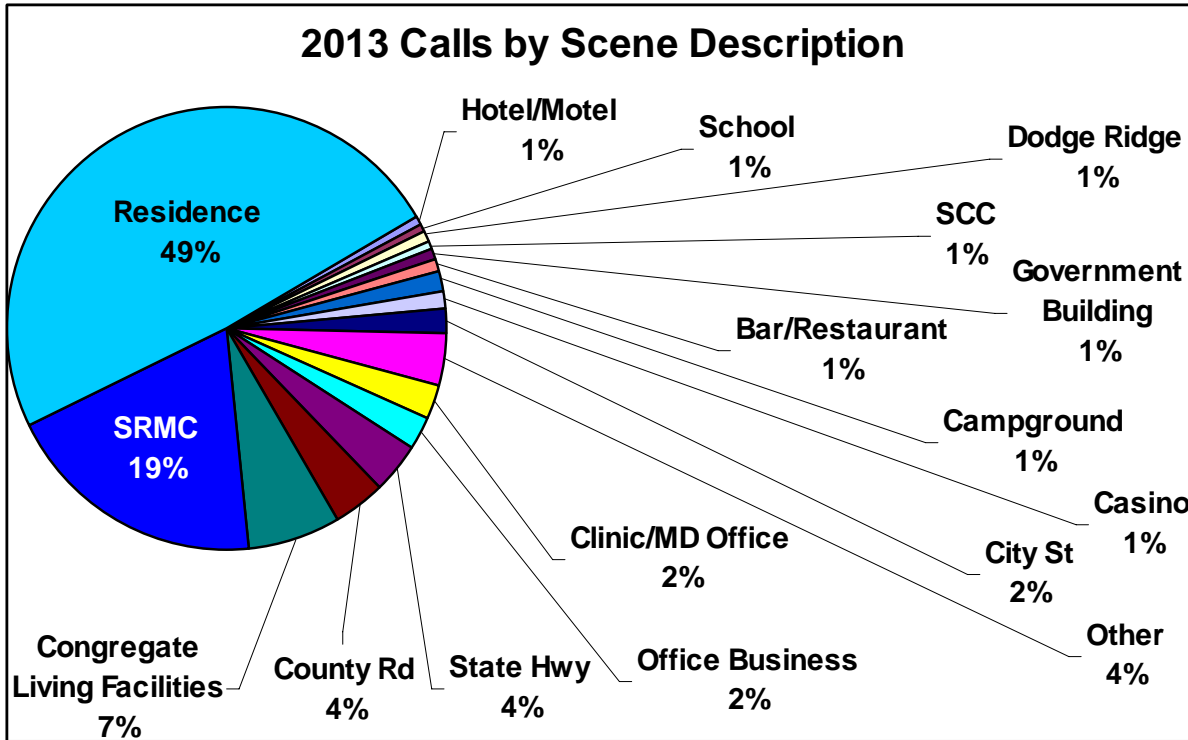
The chart below shows the patient distribution by receiving facilities, including transfers.

Kaiser Medical Center Hayward	1	Kaiser Hosp, Manteca	3
Valley Children's Hosp	1	San Jose Medical Center	3
Central California Children's Hosp	1	Other Santa Clara County Hosp	3
John C. Fremont Hosp	1	Oak Valley Hosp	3
Sutter Roseville Medical Center	1	Dameron Hosp	4
Kaiser Hosp, South Sacramento	1	Lucile Packard Children's Hosp	4
Sutter Psychiatric	1	Kaiser Hosp, Sacramento	7
Shriner's Hosp Sacramento	1	St Josephs Medical Center	7
VA Medical Center San Francisco	1	Sonora Community Hosp	10
Other San Francisco County Hosp	1	VA Medical Center Palo Alto	13
Emanuel Medical Center	1	California Pacific Medical Center	18
Other Alameda County Hosp	2	U.C.S.F. Medical Center	20
Other Contra Costa County Hosp	2	San Joaquin General Hosp	21
Mercy San Juan Hosp	2	Stanford University Hosp	28
Sutter General Hosp	2	U.C. Davis Medical Center	32
St Joseph's Behavioral Health Center	2	Oakland Children's Hosp	36
Sequoia Hosp	2	Modesto Rehabilitation Hosp	84
Stanislaus Behavioral Health Center	2	Other Hosp Not Listed	92
Mark Twain-St. Josephs	3	Memorial Medical Center	110
Mt Diablo Hosp	3	Doctors Medical Center	441
Mercy General Hosp	3	Sonora Regional Medical Center	4168

As shown in the chart below, for those patients transported to a hospital, approximately 62% of all transports are made to the nearest hospital and 19% of the patients were transported to the hospital of the patient's or family's choice.

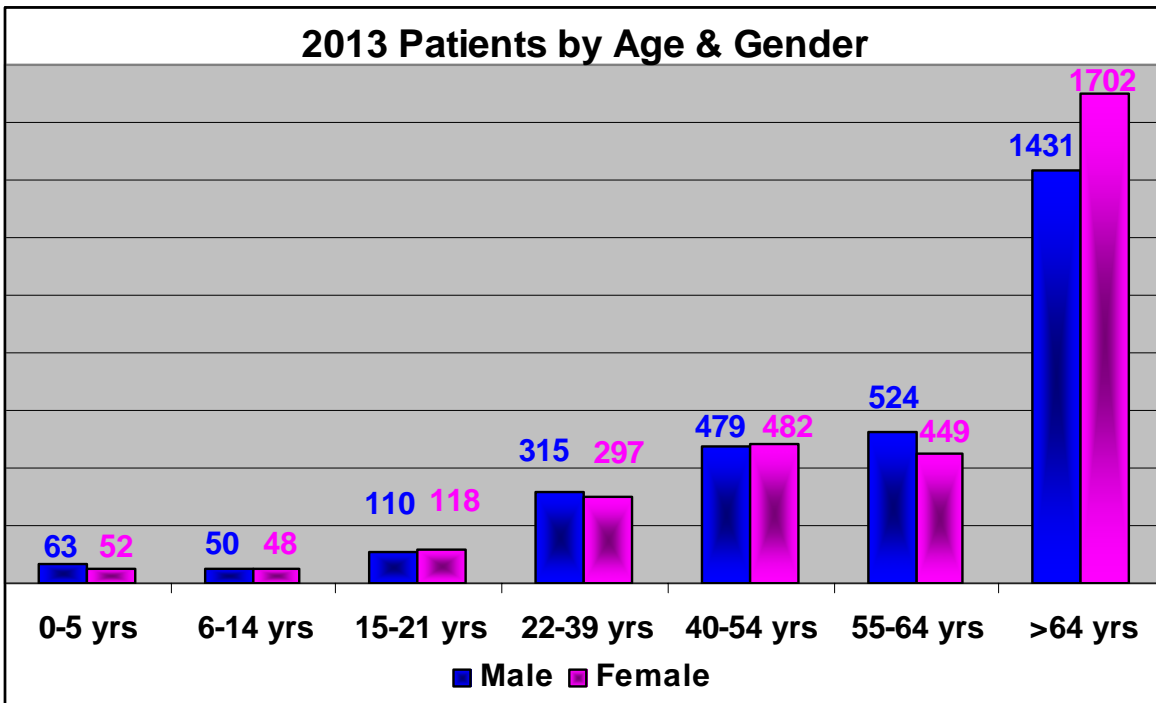


Poisoning/Overdose category does not differentiate between accidental and intentional ingestion or overdose. Nor does it differentiate between prescription and illicit drugs. Medication reactions and anaphylaxis are included in the Medical category.



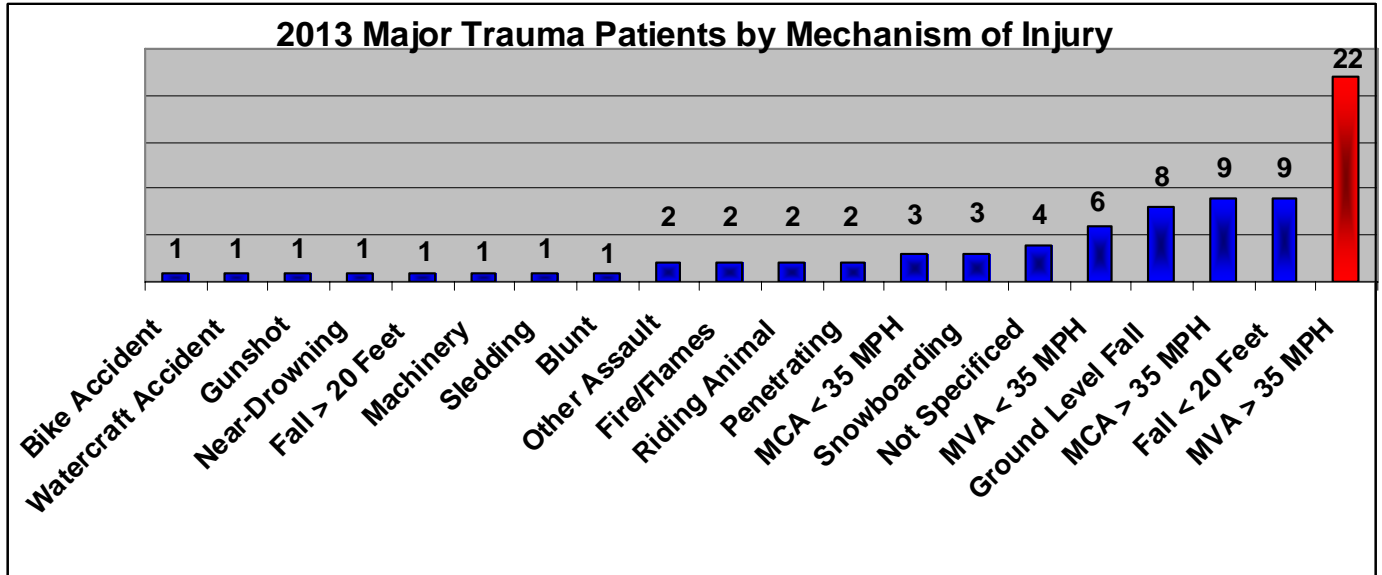
2013 EMS Demographics

Patients greater than 64 years of age account for approximately 51% of ambulance patients. Males comprise 49% of ambulance patients and 51% are females.

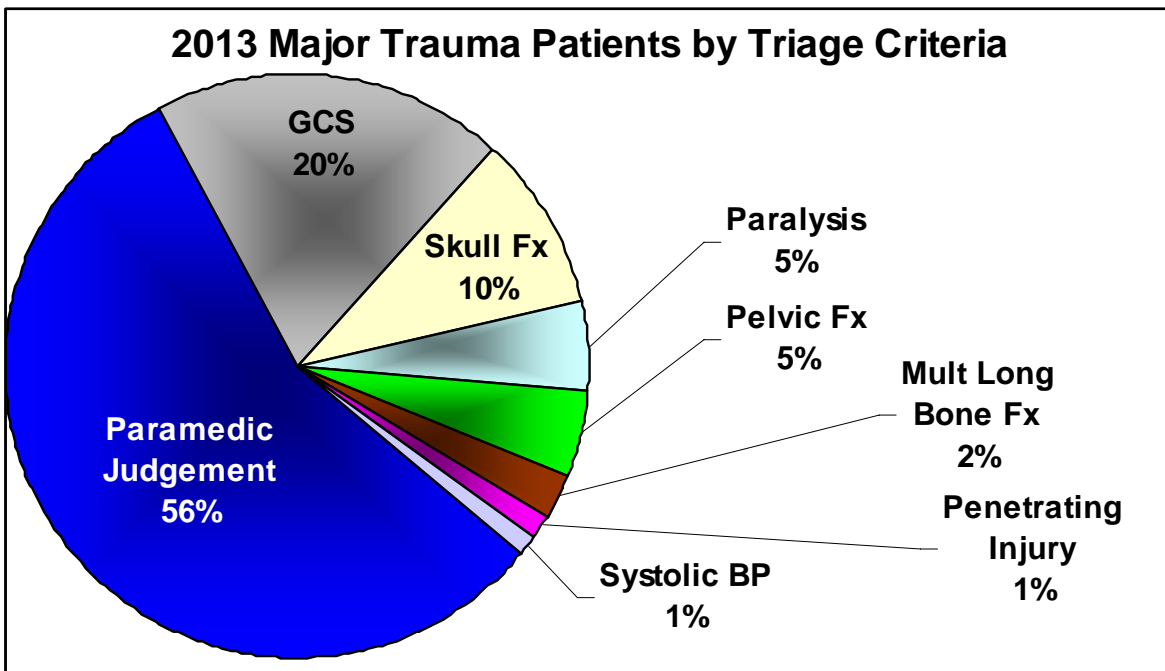


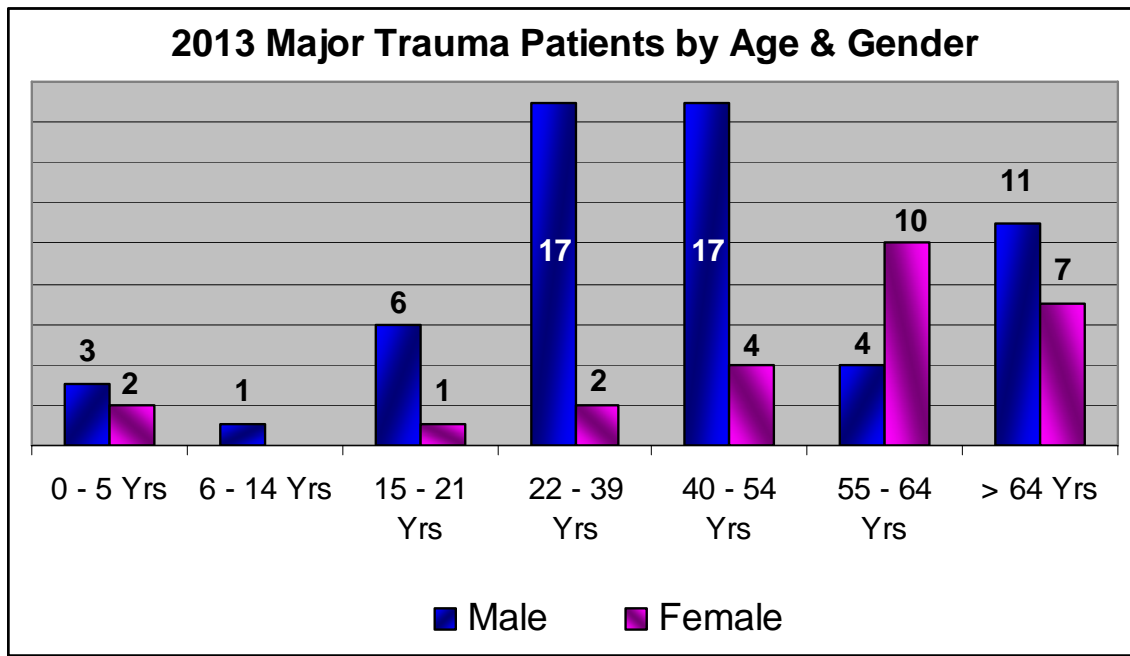
TRAUMA SYSTEM

The chart below shows the mechanism of injury for major trauma victims in Tuolumne County in 2013.

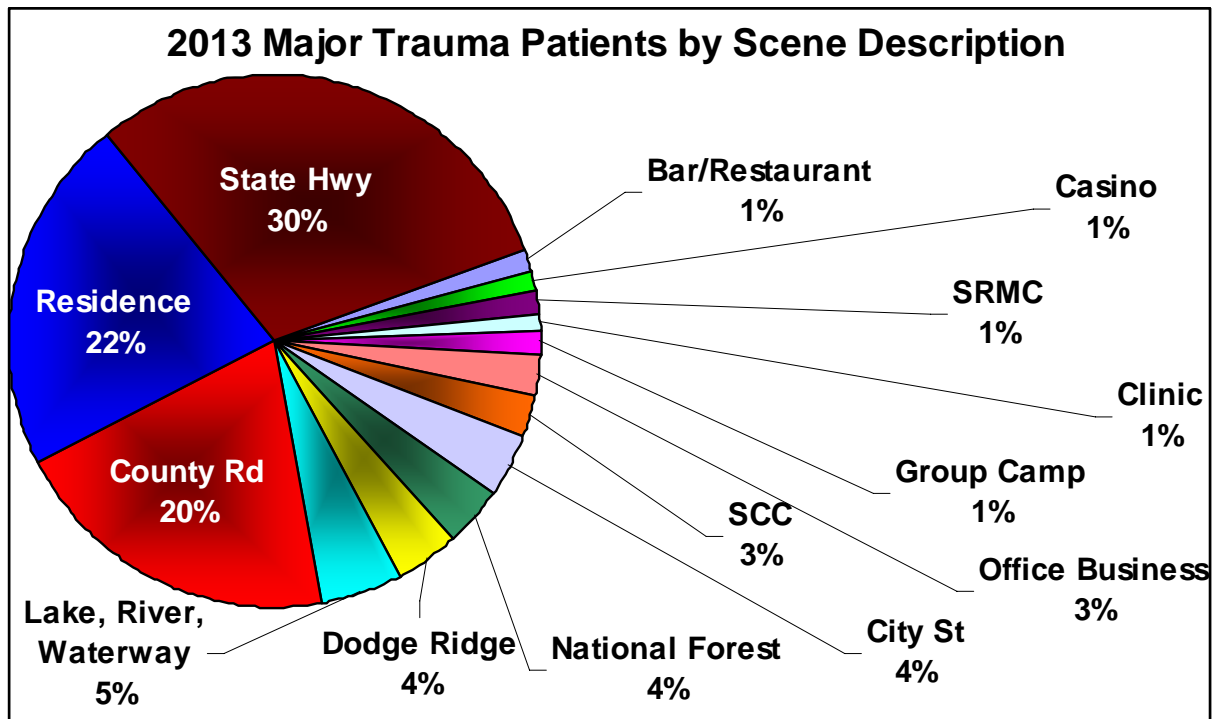


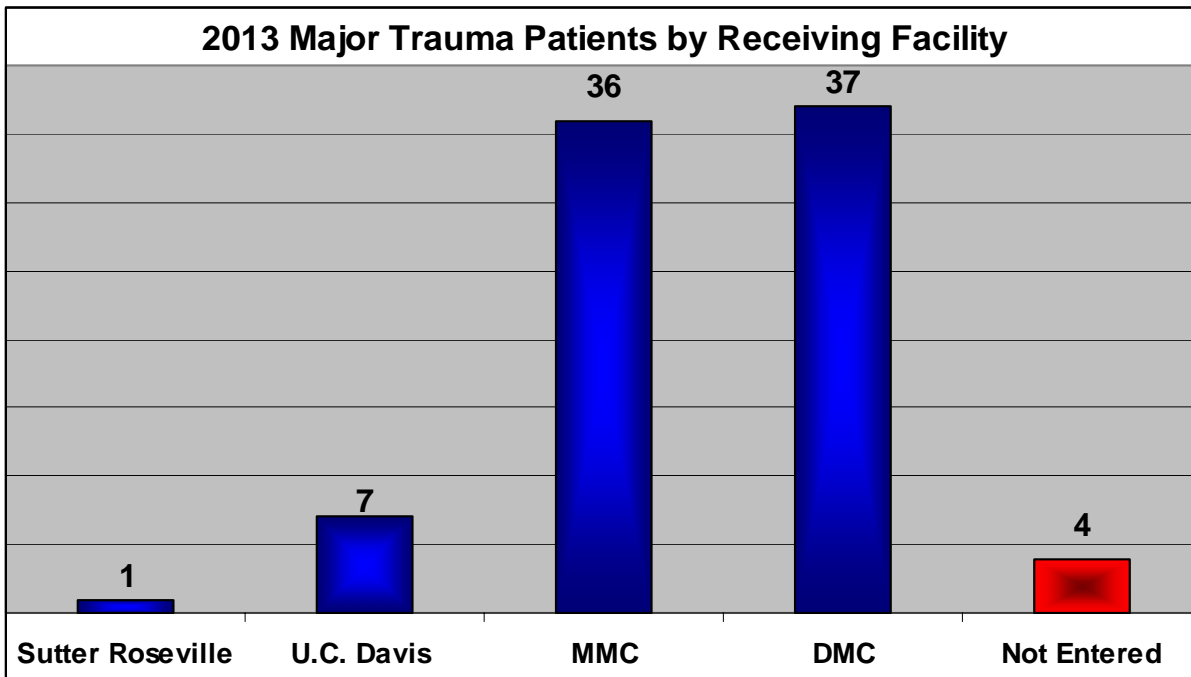
The Tuolumne County Trauma Plan has defined ten separate trauma triage criteria. The criteria are designed to categorize those trauma patients with an increased risk of mortality and morbidity due to their injuries. Paramedic judgment was the criteria used 56% of the time.





Males comprise 69% of all major trauma patients.

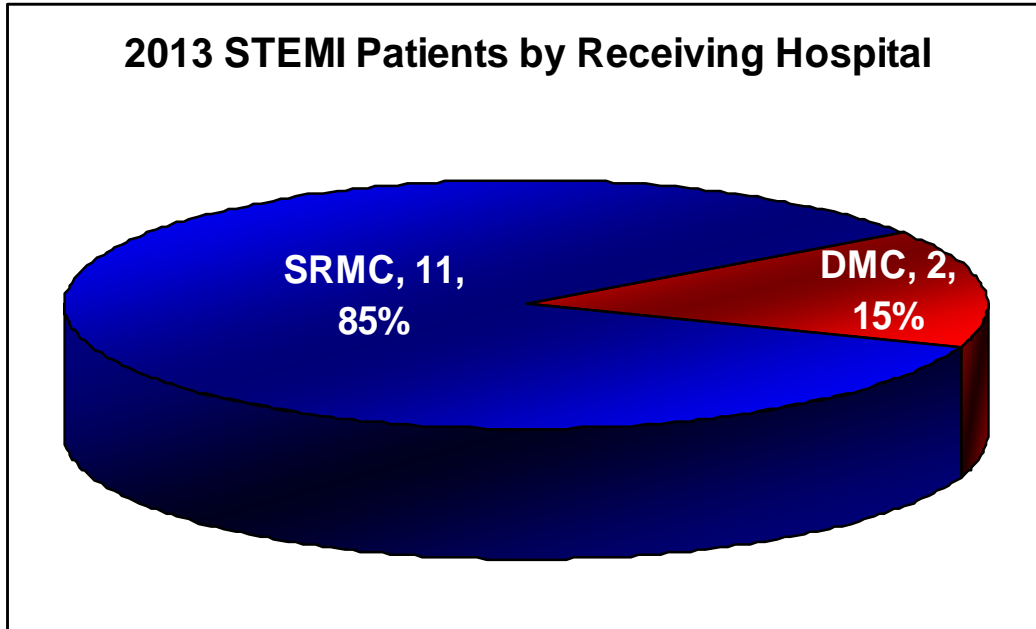




The Tuolumne County Trauma Plan has identified three major trauma patient destinations.

1. Doctors Medical Center (adult)
2. Memorial Medical Center (adult)
3. U.C. Davis Medical Center (adult & pediatric)

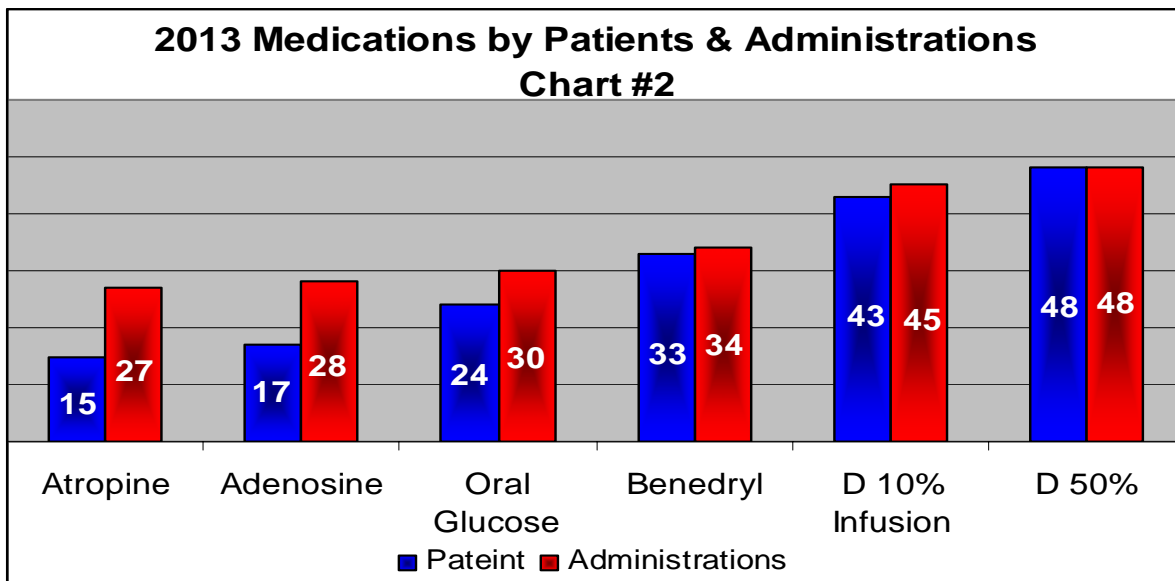
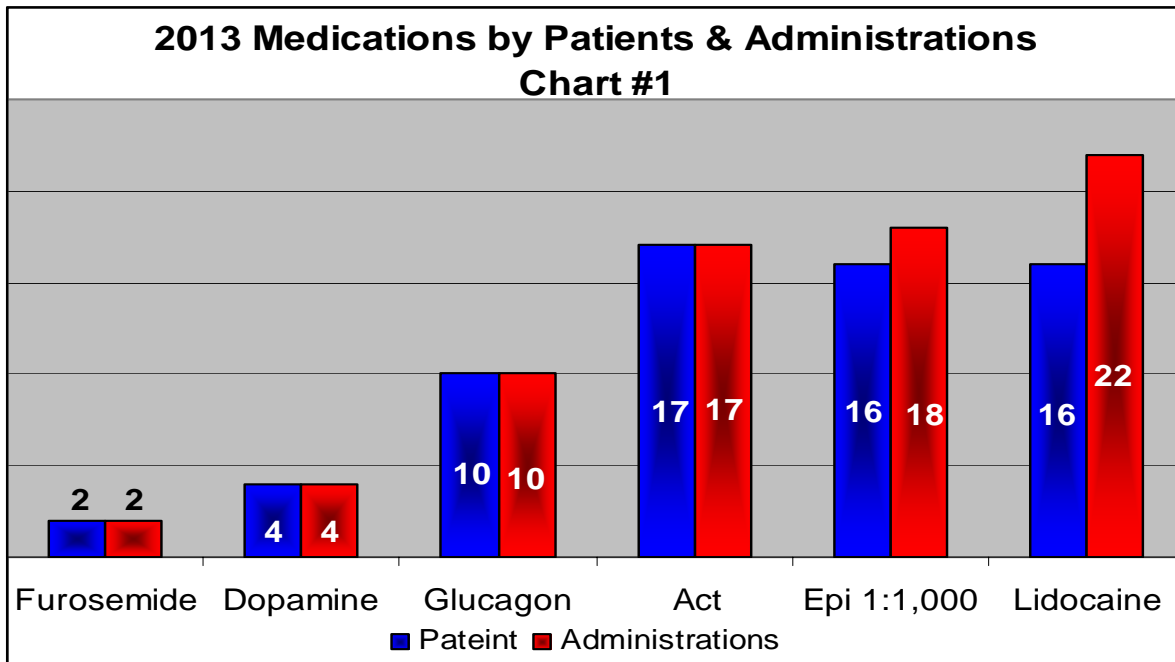
S-T Elevation Myocardial Infarction (STEMI)

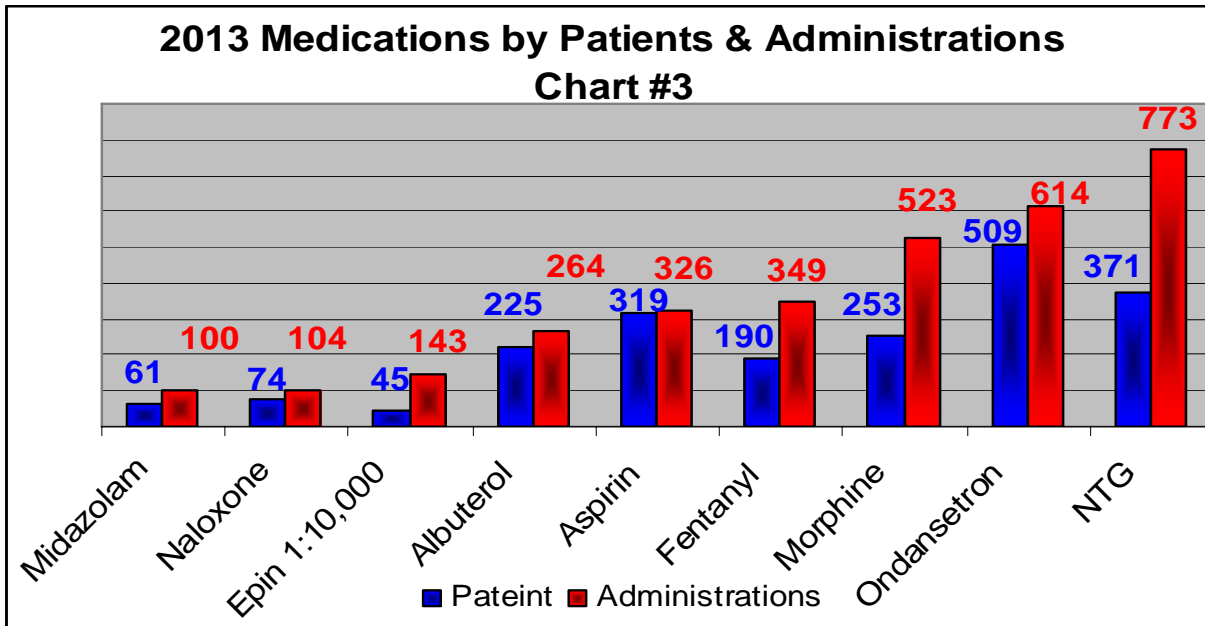


In 2013, 13 patients met the STEMI triage criteria; 11 of them were transported to SRMC by ground ambulance, the remainders were transported to Doctors Medical Center. Males comprised 77% of STEMI patients, 23% female.

ALS MEDICATIONS

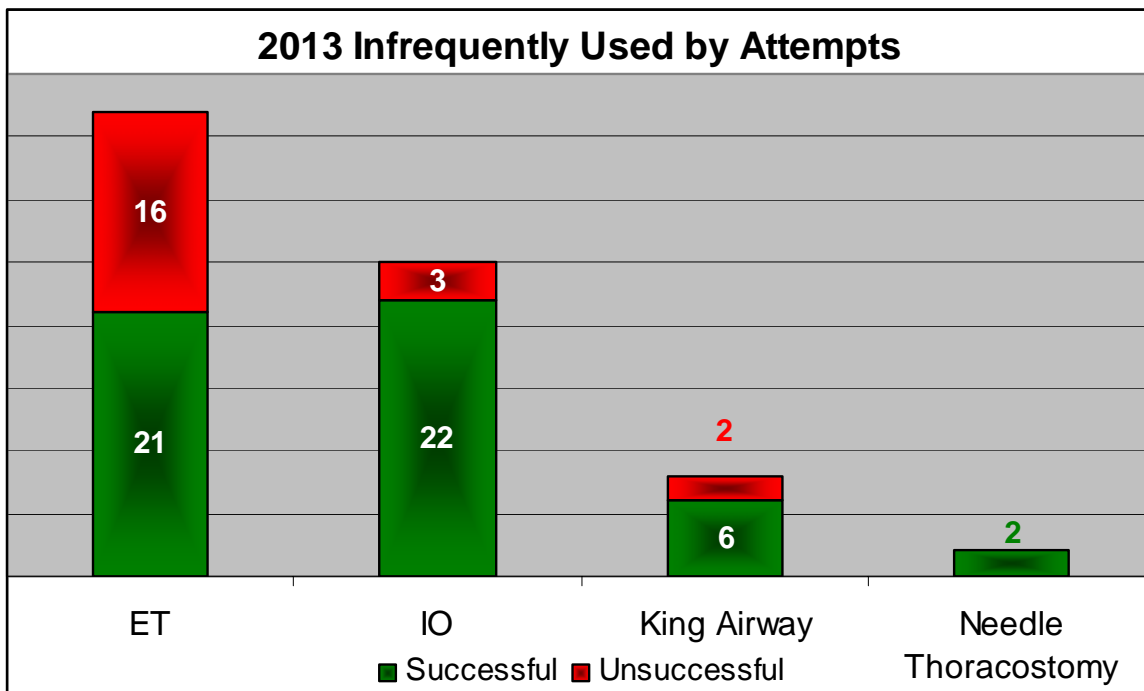
The charts below represent the number of times a medication was administered and how many patients received the medication.

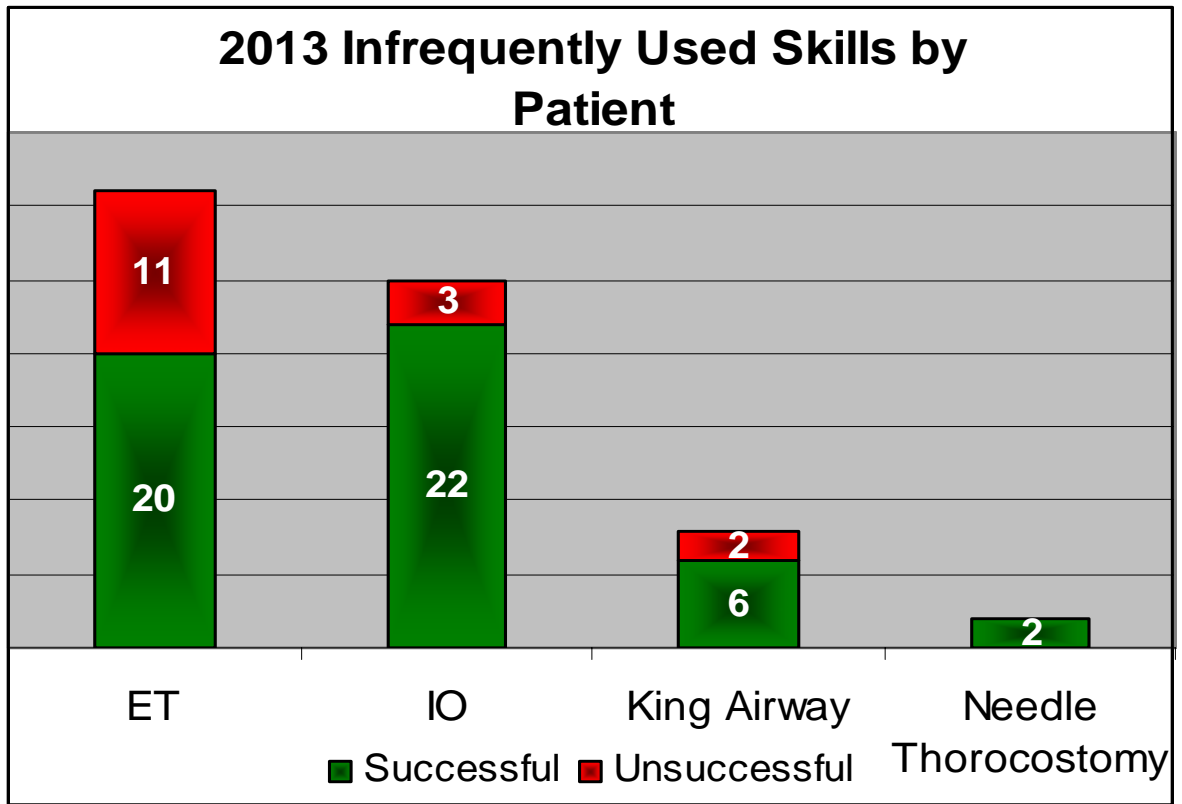




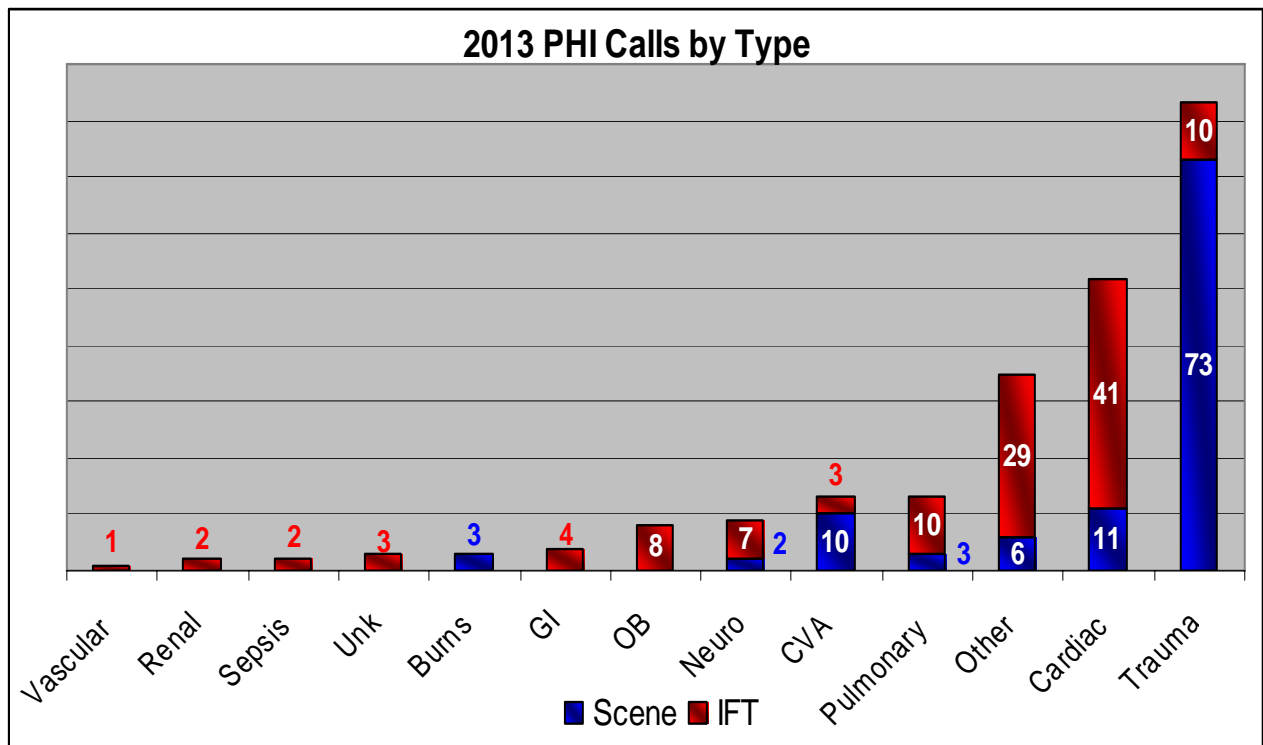
ALS INFREQUENTLY USED SKILLS

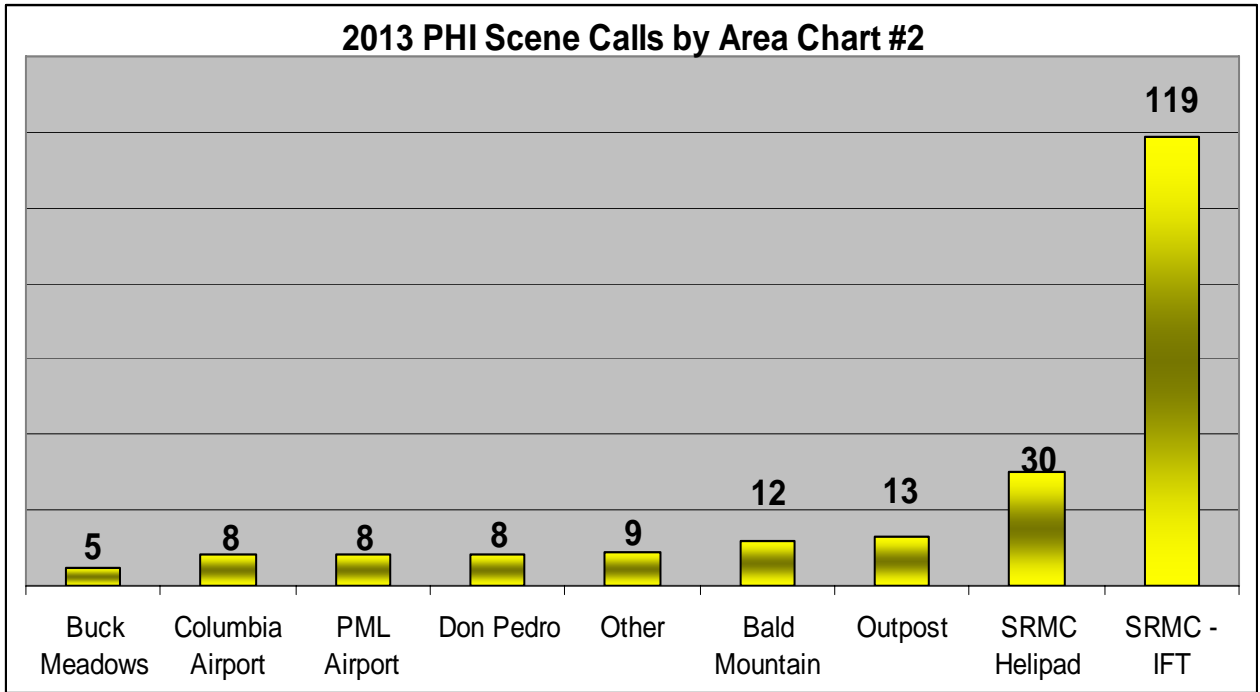
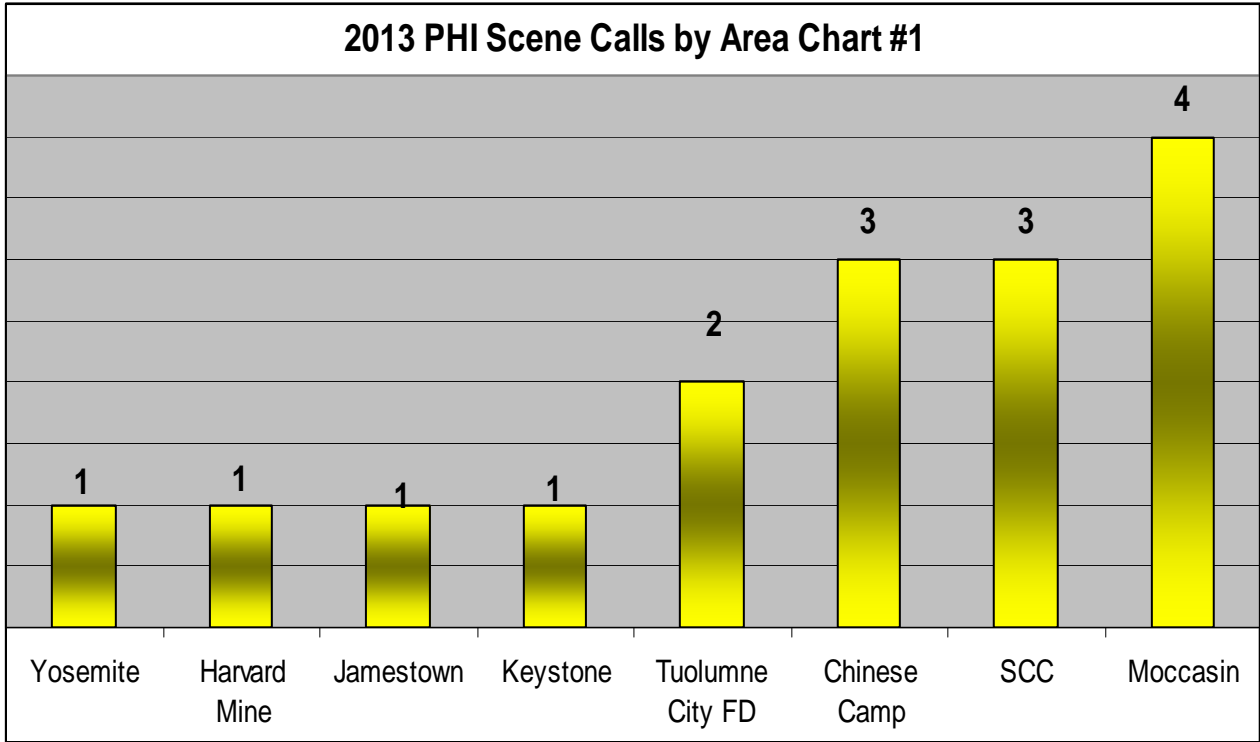
The data on Infrequently Used Skills shows that 76% of the patients that ET intubations were attempted were successfully intubated. Of these patients, half (3 of 6) had a backup advanced airway (EOA, Combitube or King Airway) successfully placed on the first attempt; the remainder were successfully managed with a BLS airway.





PHI Air Medical





SUMMARY

I would like to thank Tuolumne County Ambulance Service, and PHI Air Medical for providing the data that made this report possible. I would also like to thank all of the First Response Agencies for the excellent service they provide to the County of Tuolumne.

The Tuolumne County EMS System remains a strong asset to the County, its citizens and visitors. The eleven-year trend shows a general increase in calls for EMS service, particularly along the Highway 108 corridor.

With the passage of the Patient Protection and Affordable Care Act (ACA) many new questions and challenges face the Tuolumne County EMS System. According to Mike Williams of the Abaris Group, by 2019 there will be 39 million newly insured person in the U.S. (43% Medi-Cal/Medicaid, 57% insurance exchange); however there will be \$716 billion in Medicare cuts. Although Mr. Williams does not expect a drastic increase in EMS and Emergency Department (ED) utilization, the shift in the payor mix may adversely impact many EMS systems.

Innovative hospital and EMS systems have implemented programs to decrease unnecessary ambulance and hospital utilization and decrease costs. REMSA, Reno NV, has created community health intervention teams to decrease ambulance use and hospital admissions; this program is expected to save over \$750,000 in it first three years. Prosser Public Hospital District, Prosser WA, has implemented a Community Paramedic program; anticipated saving for the first three years is \$385,383. Universities EMS (Buffalo, NY), Upper San Juan Health Services District (CO) and MedStar (TX) have all implemented innovative solutions to increase efficiencies and decrease costs.

The extension of the Medicare “Super Rural add-on” through March of 2014 will provide some short term stability; making the “Super Rural add-on” permanent would allow long term stability to our system. The implementation of AB 678 which became California’s Ground Emergency Medical Transport (GEMT) program may also provide additional revenue for our system. The GEMT program would allow ambulance services operated by governmental agencies to submit invoices for reimbursement of costs not covered by Medi-Cal.

The changing environment of the upcoming years will afford us many opportunities and challenges to improve the EMS System. The decreasing reimbursement for services rendered and increasing costs will provide many challenges to the County of Tuolumne, maintenance and expansion of the EMS system should be one of the top priorities of the County.