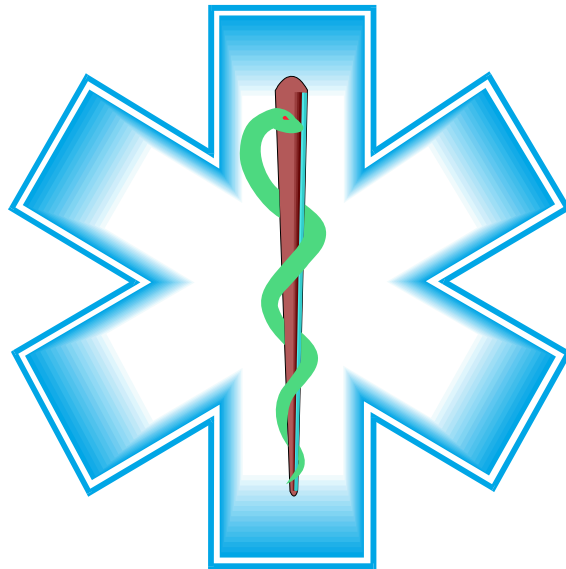

Tuolumne County
Emergency Medical Services Agency

2010 Annual Statistical Report



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INTRODUCTION

The 2010 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, 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, Air Methods (formerly Medi-Flight of Northern California), 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.

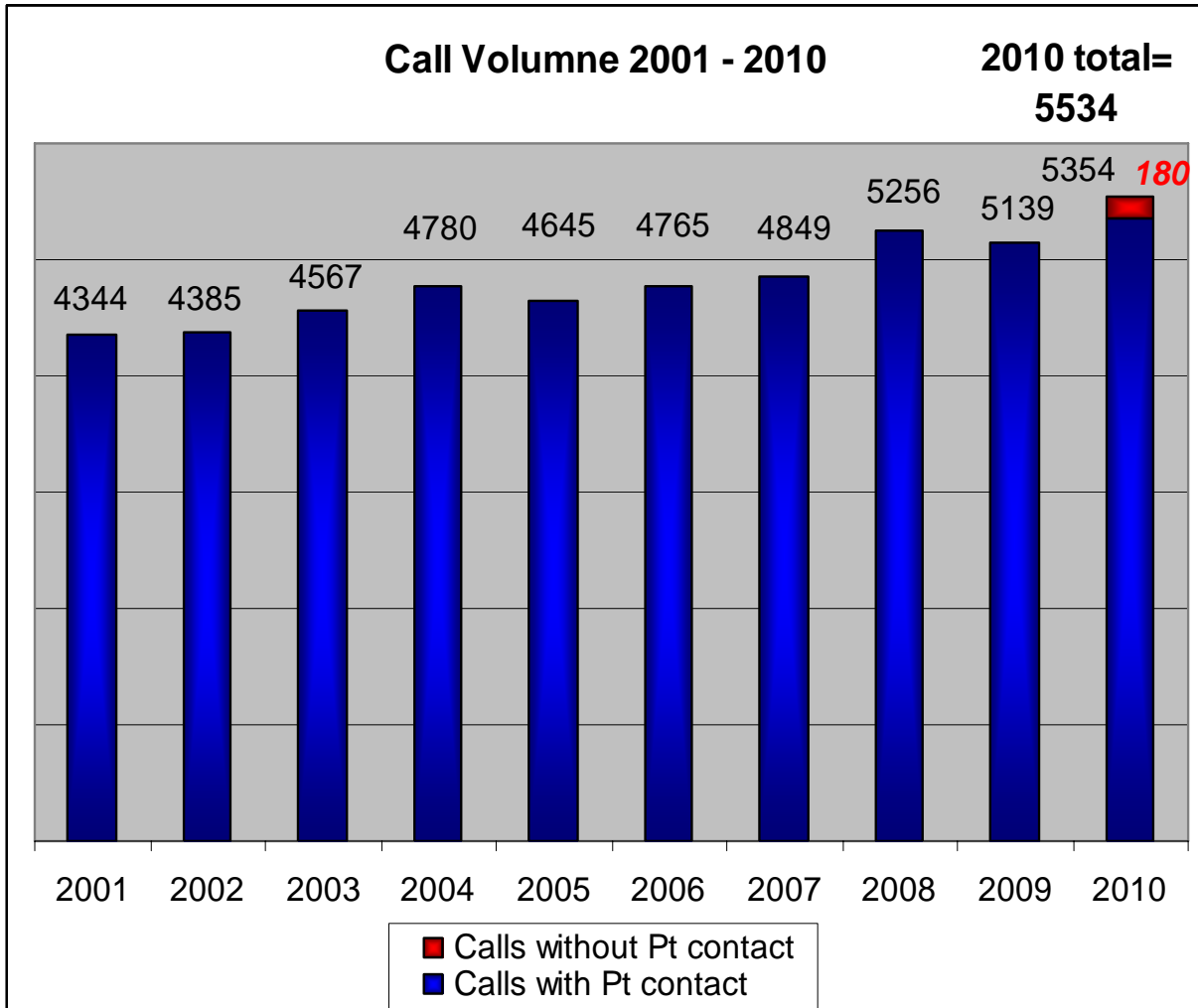
In 2008, EMSsystem was expanded to include data elements for the Department of Health and Human Services HAvBED (Hospital Available Beds for Emergencies and Disasters). This capability allows for accurate and consistent polling of hospital resources nationwide.

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.

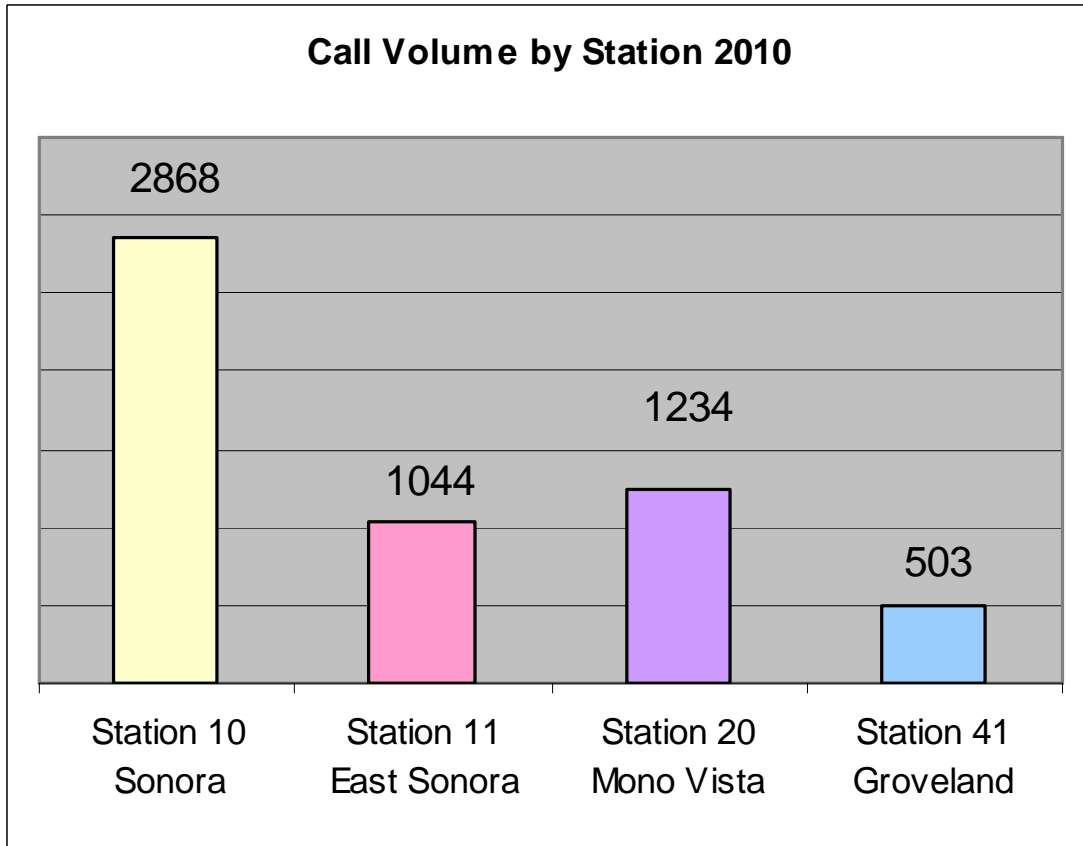
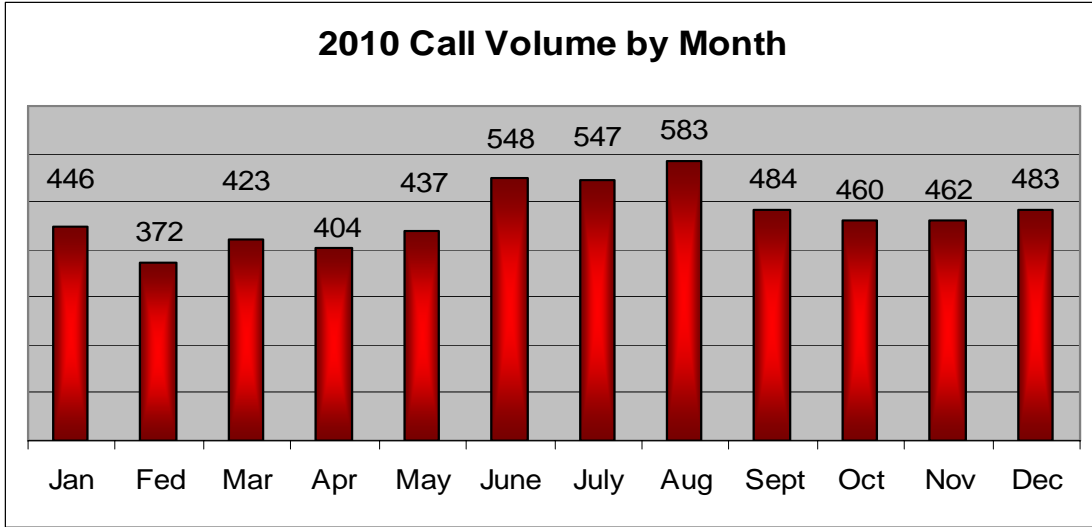
OVERVIEW OF CALL VOLUME

As illustrated in the graphs below, 2010 was the busiest year to date; in 2009 there was an 8% increase in calls for EMS services from 2008. Since 2001, there has been a 22% increase in the call volume. In previous years reports were generated only on calls where contact was made with a patient; as of July 2010, reports are being generated for all calls. By including calls without patient contact, such as calls that were cancelled prior to arrival of the ambulance or no patient was found on scene, a more accurate assessment of system utilization can be made. Unless otherwise specified EMS requests include both scene and transfer call types.

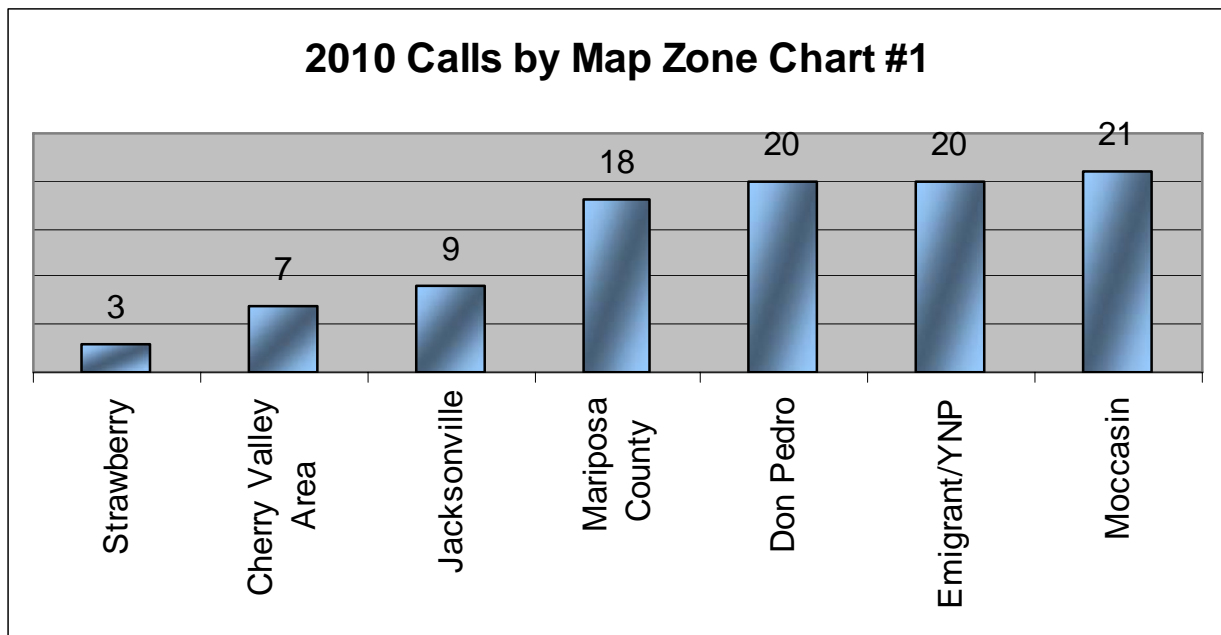
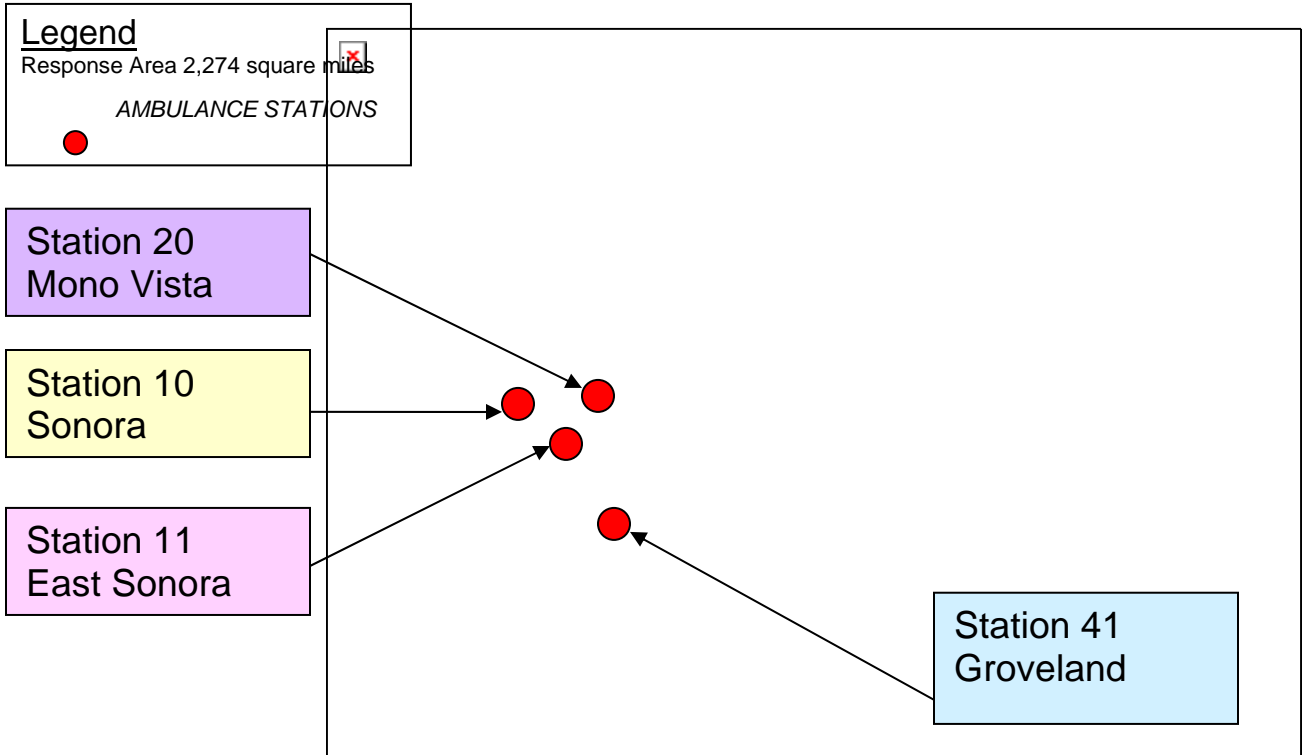


EMS Requests by Month

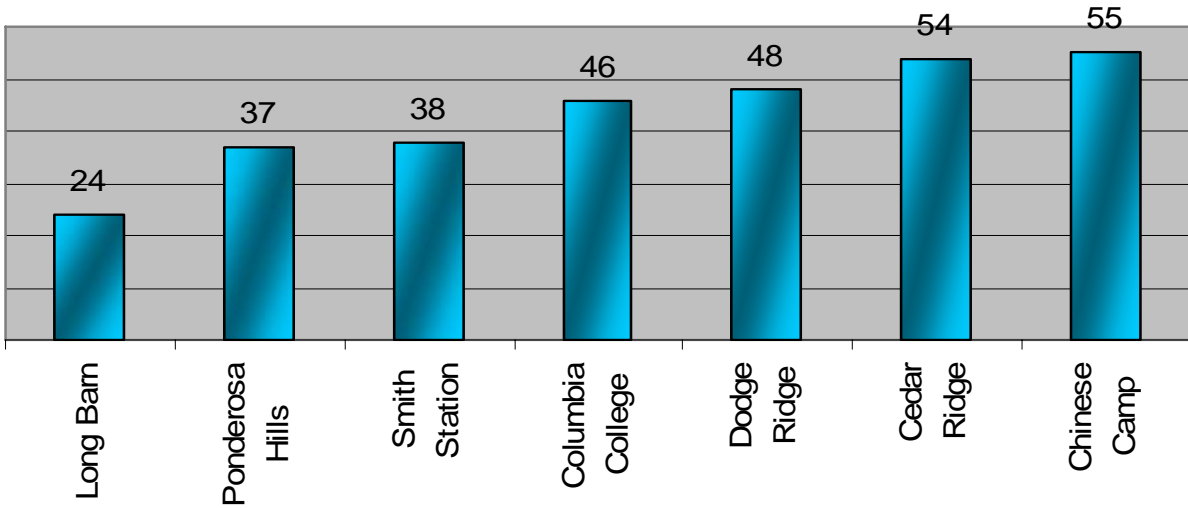
The summer months and December have traditionally been the busiest time for EMS in Tuolumne County. The summer months of 2010 returned to the more traditional, busier, (when compared to the summer of 2009) with an approximately 40% increase in calls during the summer compared to the spring.



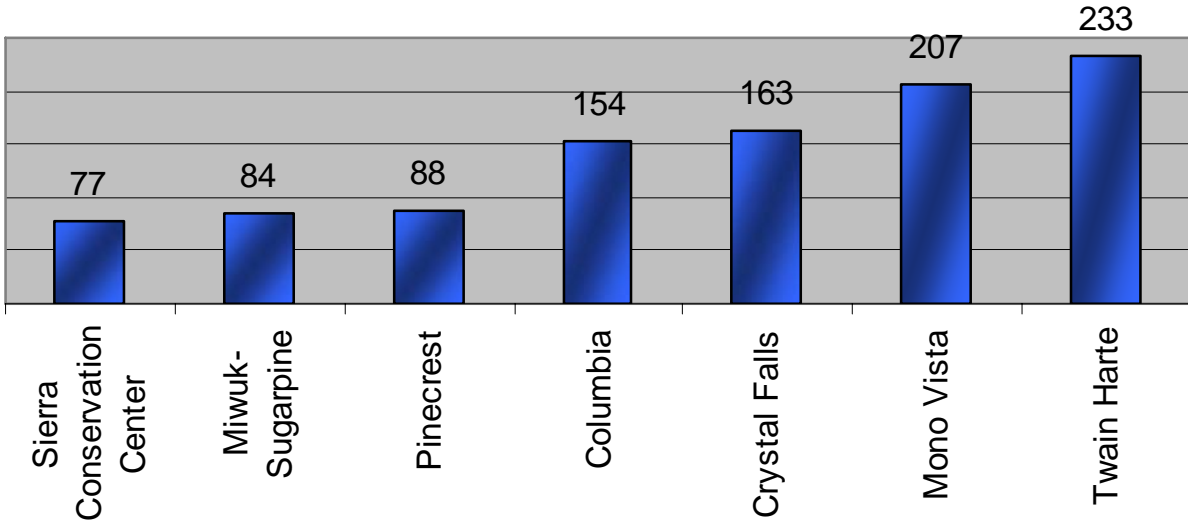
As illustrated above, Station 10 responded to the majority of all EMS requests.

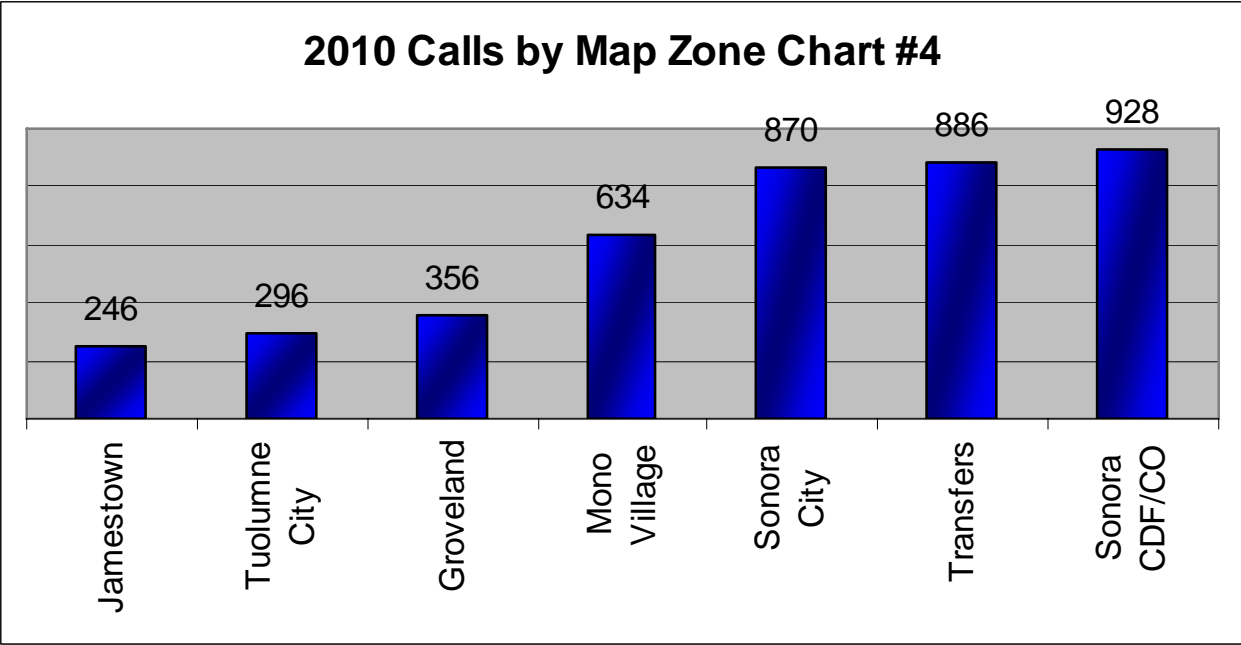


2010 Calls by Map Zone Chart #2

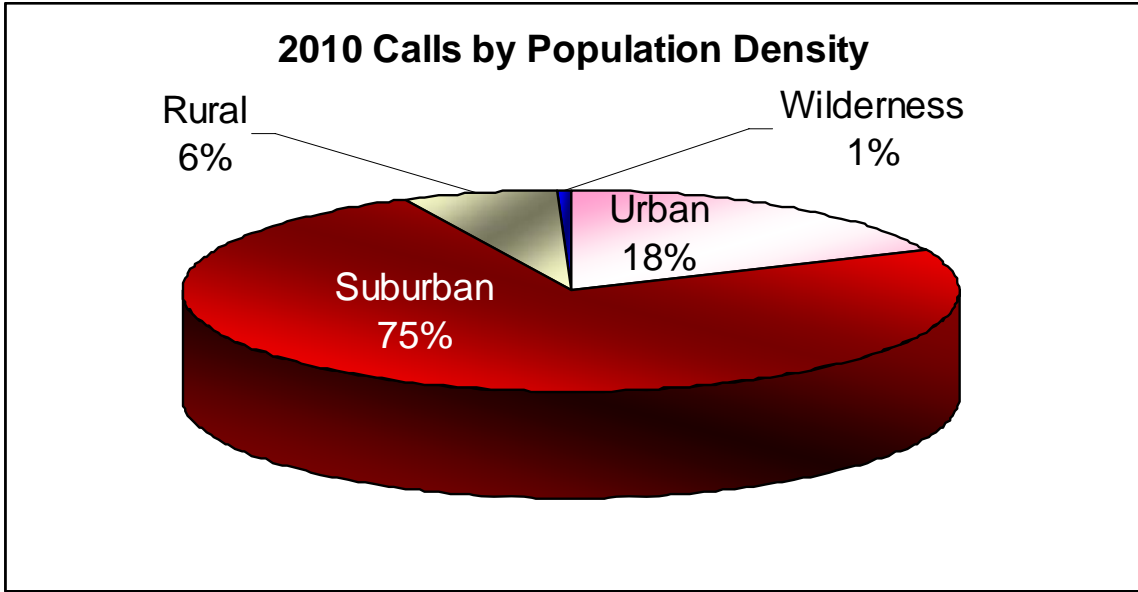


2010 Calls by Map Zone Chart #3



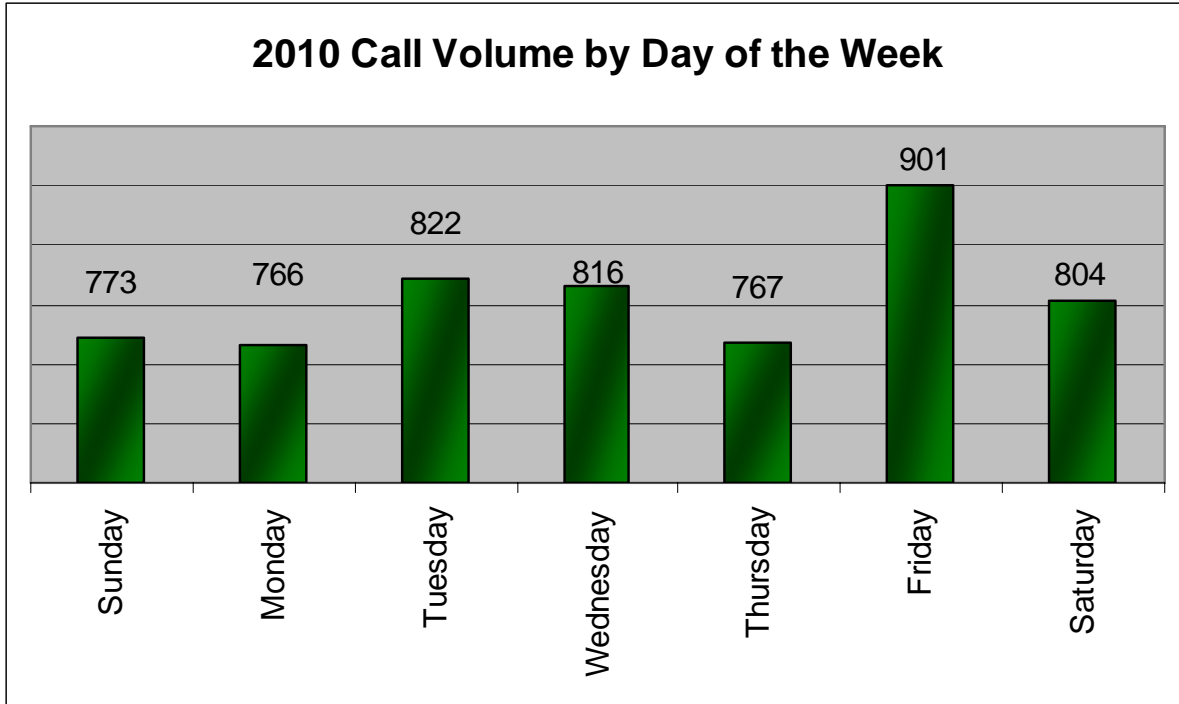


The breakdown of EMS requests by location reveals that the majority (75%) of requests occur in the suburban areas of Tuolumne County, where the majority of Tuolumne County residents live.



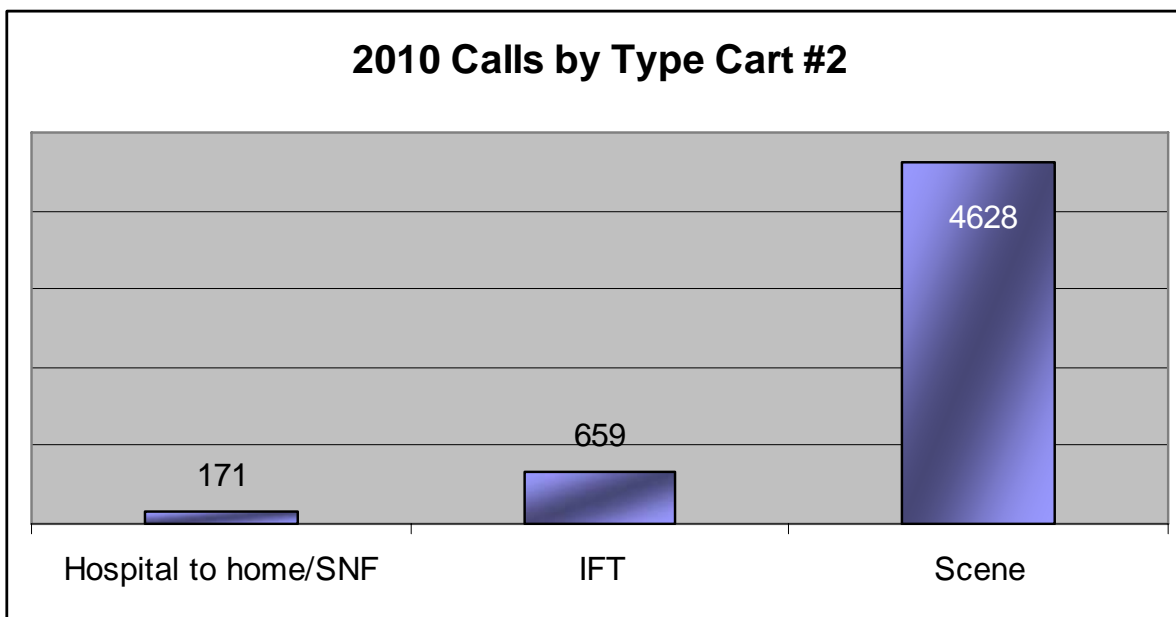
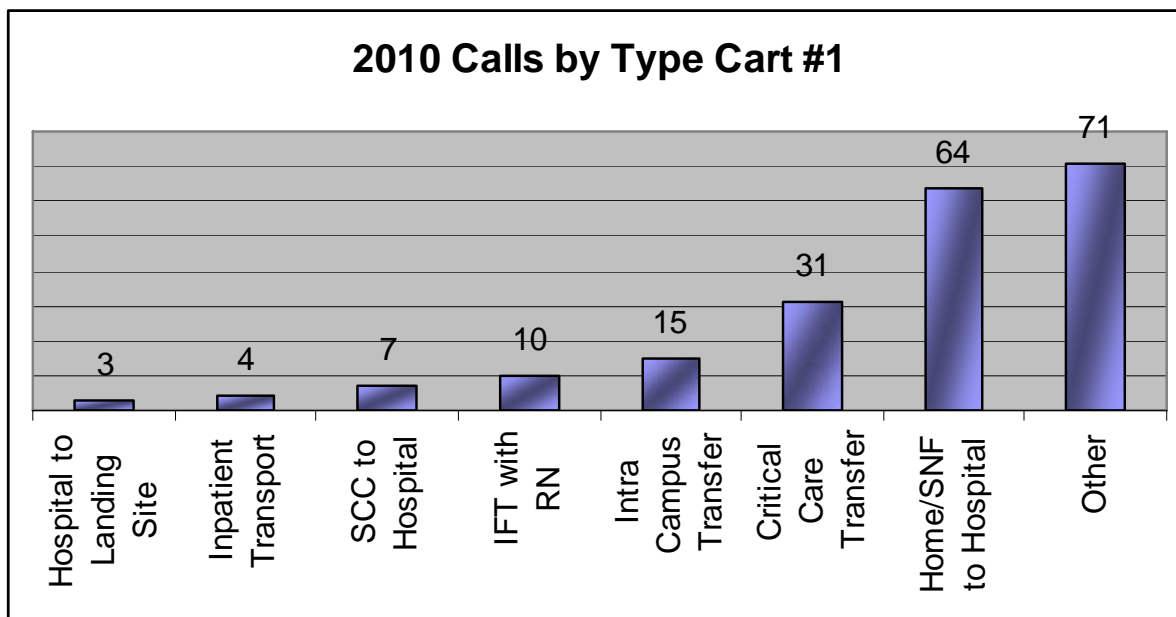
Call Volume 2010

A breakdown of requests by day and time of day shows that call volumes may vary widely during the week.

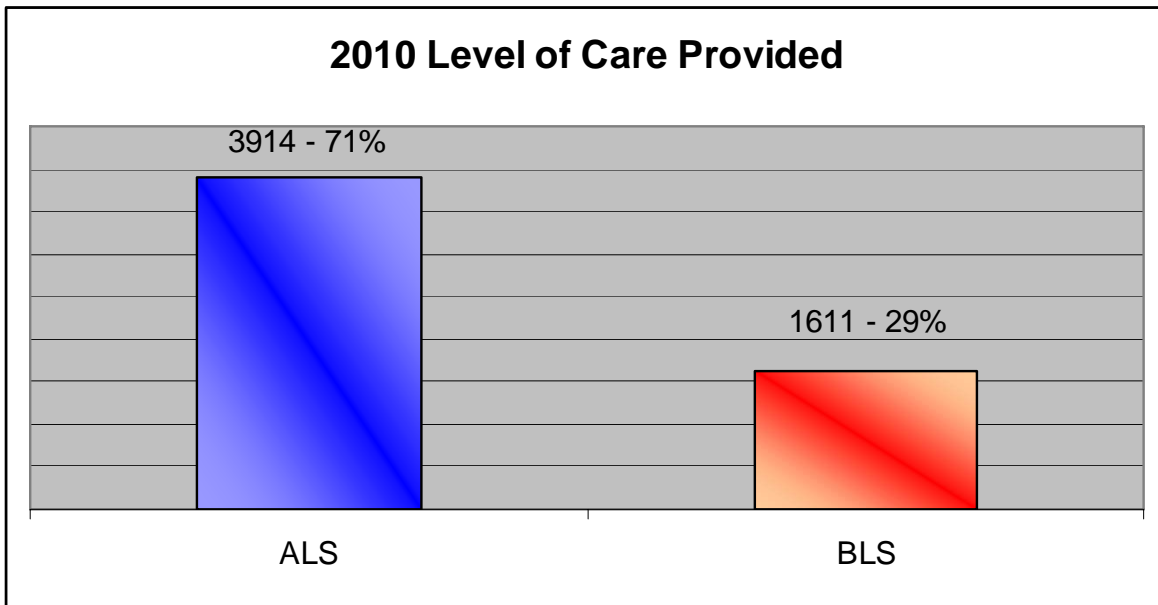


Calls by Type

In 2010, scene emergencies accounted for 82% of the total EMS requests for service. Transfers make up the remaining 18% of EMS requests for services. Transfers consist of ambulance interfacility transfers (IFT), air ambulance transfers from a hospital to a landing site, critical care transfers, transfers to and from a patient's home to a hospital, and transports for diagnostic service such as transporting a patient for an MRI.



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



Response Times

The 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	BLS AED 1 st Response	ALS Amb
Urban	5 minutes	5 minutes	8 minutes
Suburban	15 minutes	ASAP	20 minutes
Rural	15 minutes	ASAP	20 minutes
Wilderness	ASAP	ASAP	ASAP

Urban = 101 to 500 people per square mile

Suburban = 51 to 100 people per square mile

Rural = 7 to 50 people per square mile

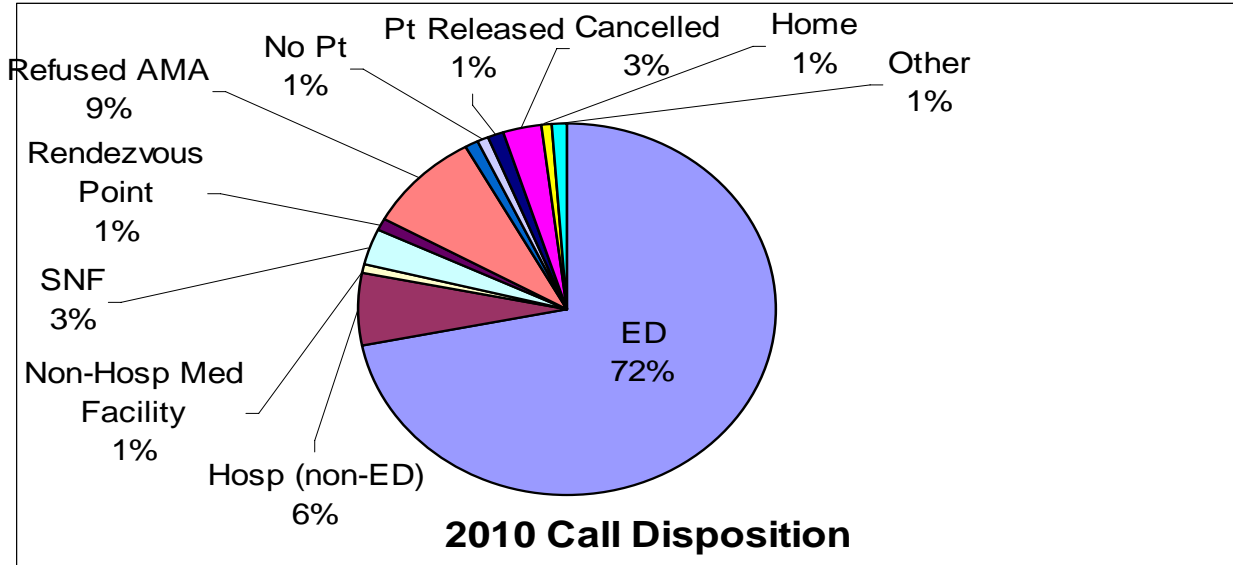
Wilderness = less than 7 people per square mile

	Urban	Suburban	Rural	Wilderness
Minimum:	0.00 minutes	0.00 minutes	6.00 minutes	21.00 minutes
Maximum:	27.00 minutes	95.00 minutes	76.00 minutes	211.00 minutes
Average:	5.91 minutes	10.44 minutes	26.62 minutes	46.59 minutes
90%ile:	9.00 minutes	17.00 minutes	42.00 minutes	73.00 minutes

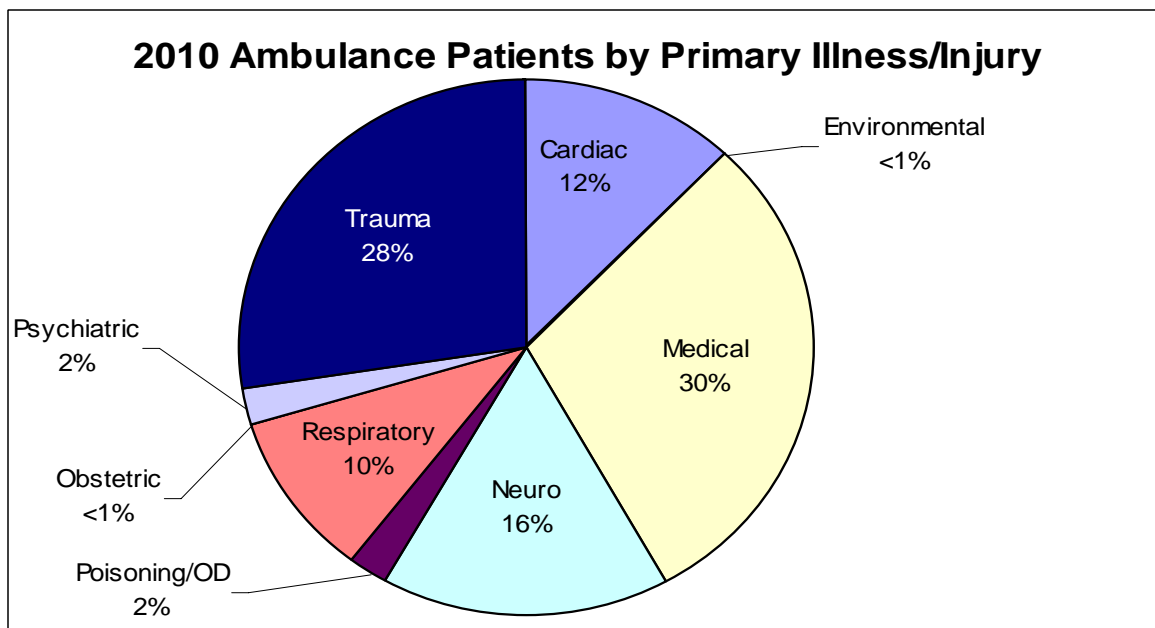
PATIENT AND HOSPITAL DATA

Call Disposition

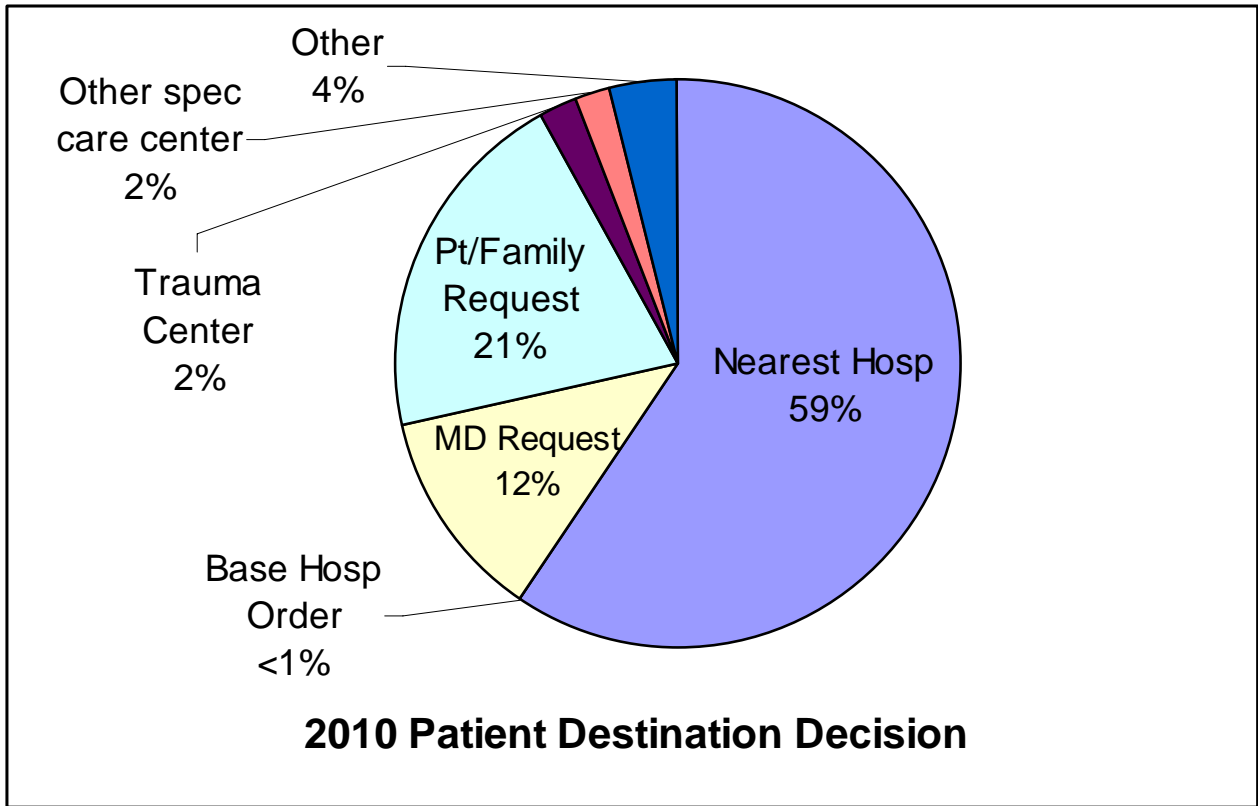
The table below illustrates that 72% of all requests resulted in the patient being transported to an emergency department.



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.



As shown in the chart below, for those patients transported to a hospital, approximately 59% of all transports are made to the nearest hospital and 25% of the patients were transported to the hospital of the patient's or family's choice.

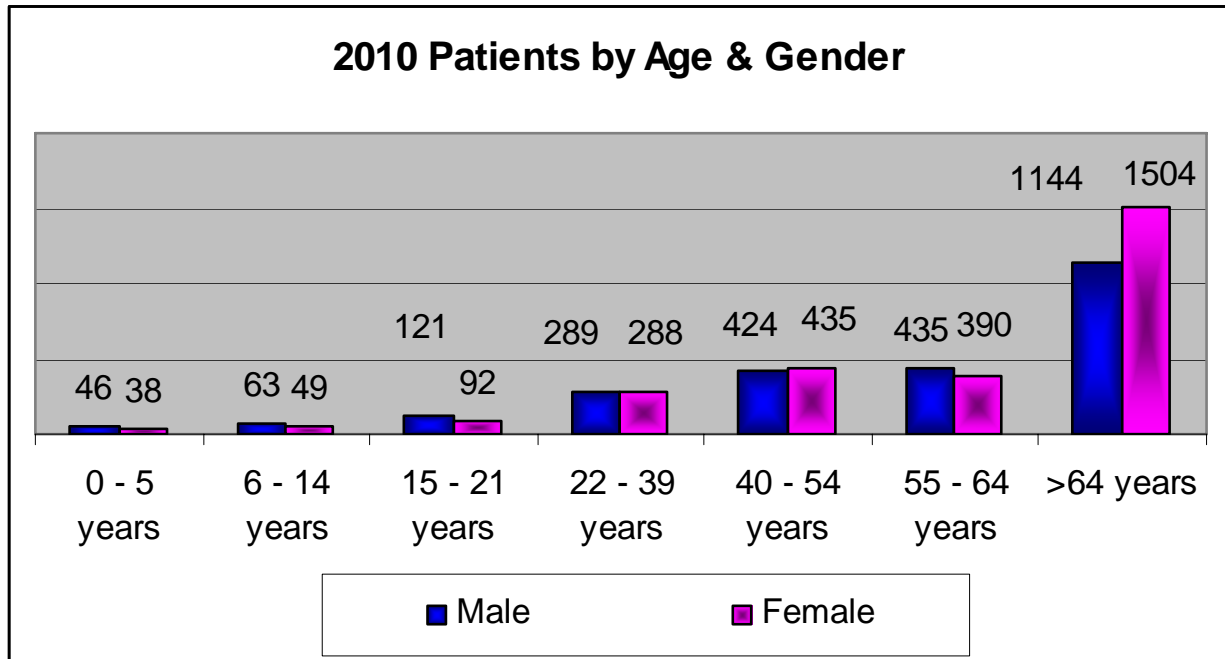


Sonora Regional	3724	Mark Twain-St. Joseph's	6
Doctors Medical Center	268	Cen Cal Children's Hosp	6
Memorial Med Center	107	Other Santa Clara Co Hosp	5
Other Stanislaus Co Hosp	63	Mt Diablo Hospital	4
San Joaquin Co Hosp	58	Other Alameda Co Hosp	3
San Francisco Co Hosp	51	Sutter Memorial Hosp	3
Other Hosp Not Listed	50	Sutter Roseville Med Center	2
Sonora Comm Hosp	35	Mercy General Hosp	2
Stanford	27	Tuolumne General Med Fac	2
UC Davis Med Center	18	Kaiser South Sacramento	1
Valley Children's Hosp	12	Sutter General Hosp	1
VA Med Center Palo Alto	12	Sierra Vista Hospital	1
Oakland Children's Hosp	10	Other Sacramento Co Hosp	1
Stanislaus Behavioral	7	Kaiser Sacramento	1

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

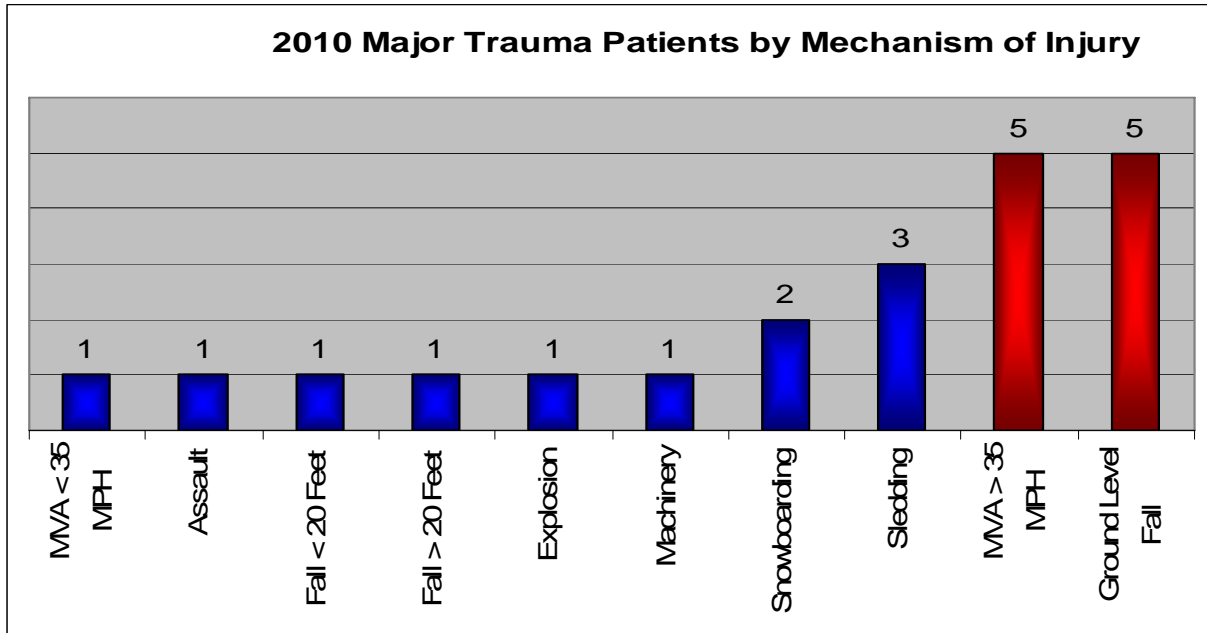
2010 EMS Demographics

Patients greater than 64 years of age account for approximately 50% of ambulance patients. Males comprise 47% of ambulance patients and 53% are females.

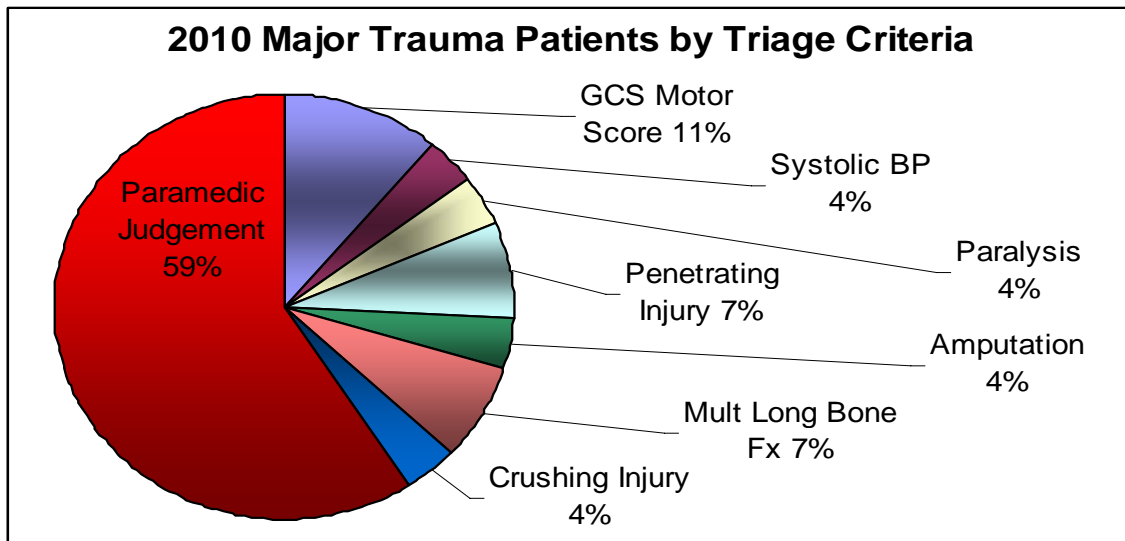


TRAUMA SYSTEM

The chart below shows the mechanism of injury for major trauma victims in Tuolumne County in 2010.



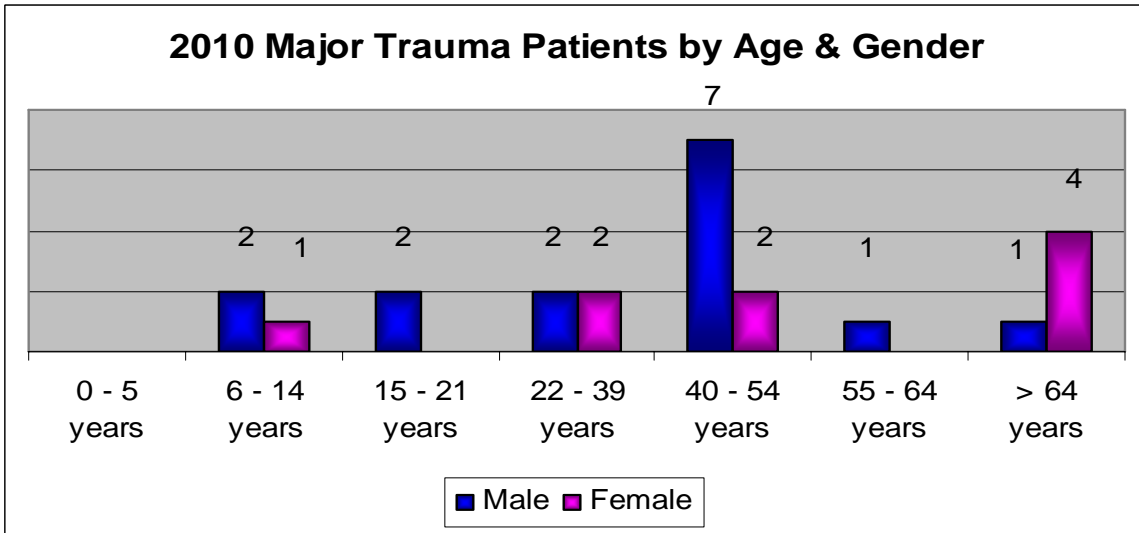
The Tuolumne County Trauma Plan has defined ten separate trauma triage criteria. The criteria are designed to categorize those trauma patients with an increased risk of mortality and morbidity due to their injuries. Paramedic judgment was the criteria used 59% of the time.



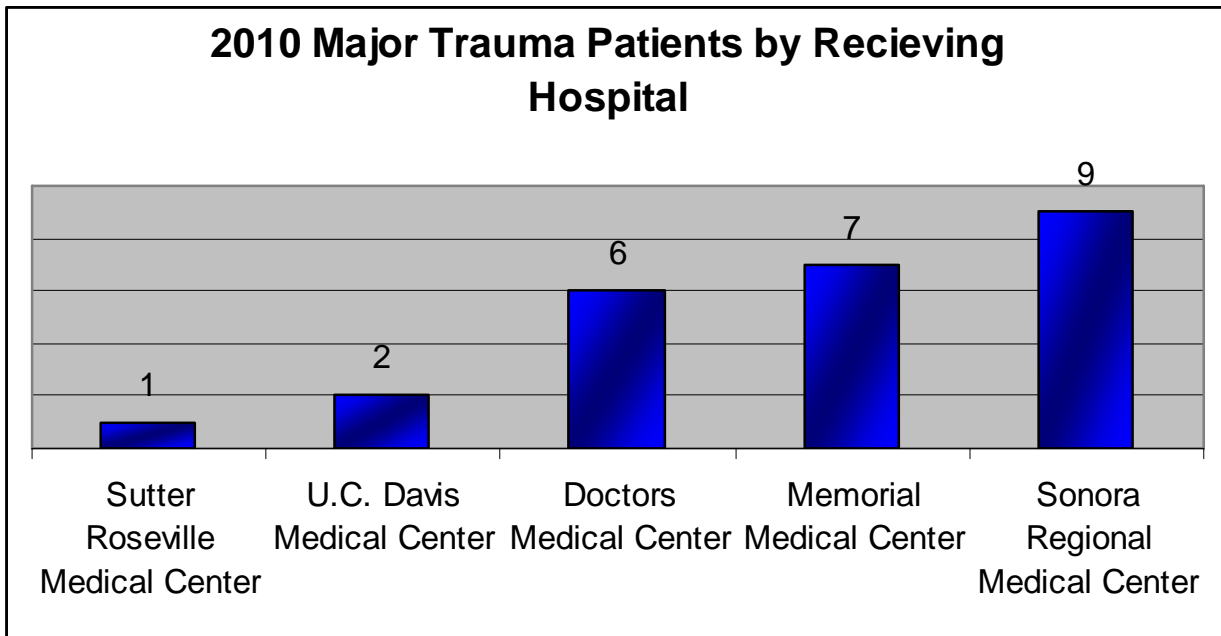
The Tuolumne County Trauma Plan has identified three major trauma patient destinations.

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

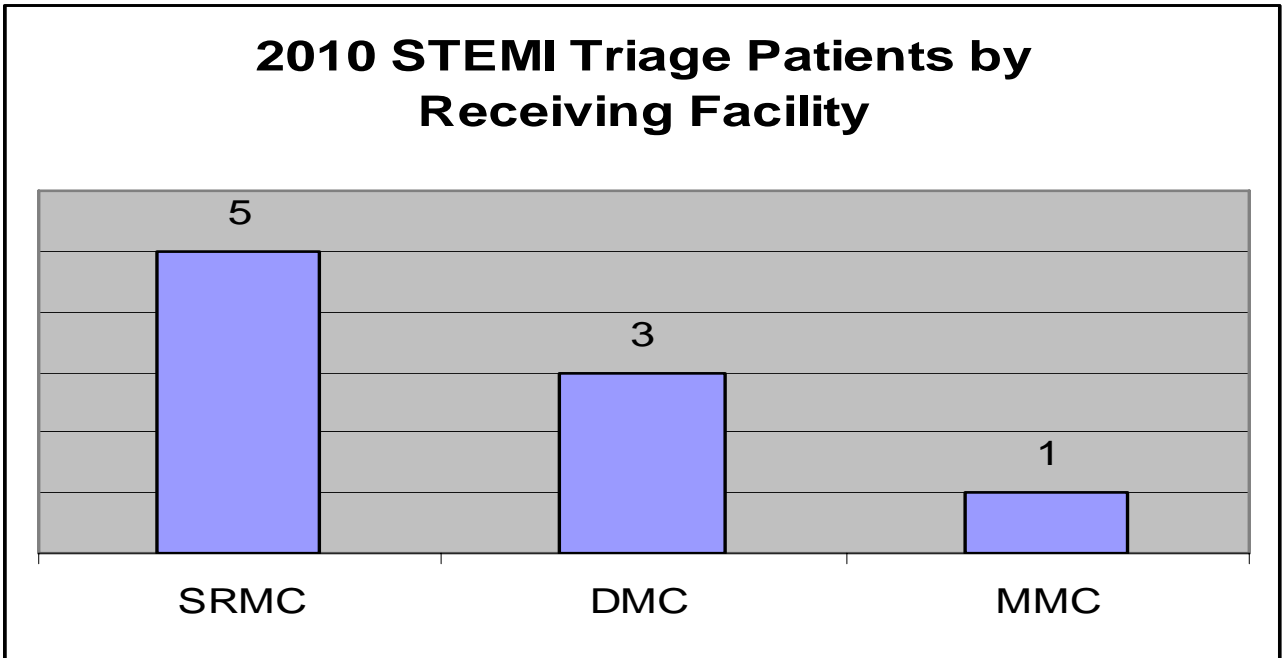
However, under some circumstances, major trauma patients may be taken to another Trauma Center, such as Sutter Roseville Medical Center, or other non-Trauma Center Hospital.



Males comprise 60% of all major trauma patients and lead or tied all age groups except greater than 64 years, where major injuries to women are four times higher than men of the same age.



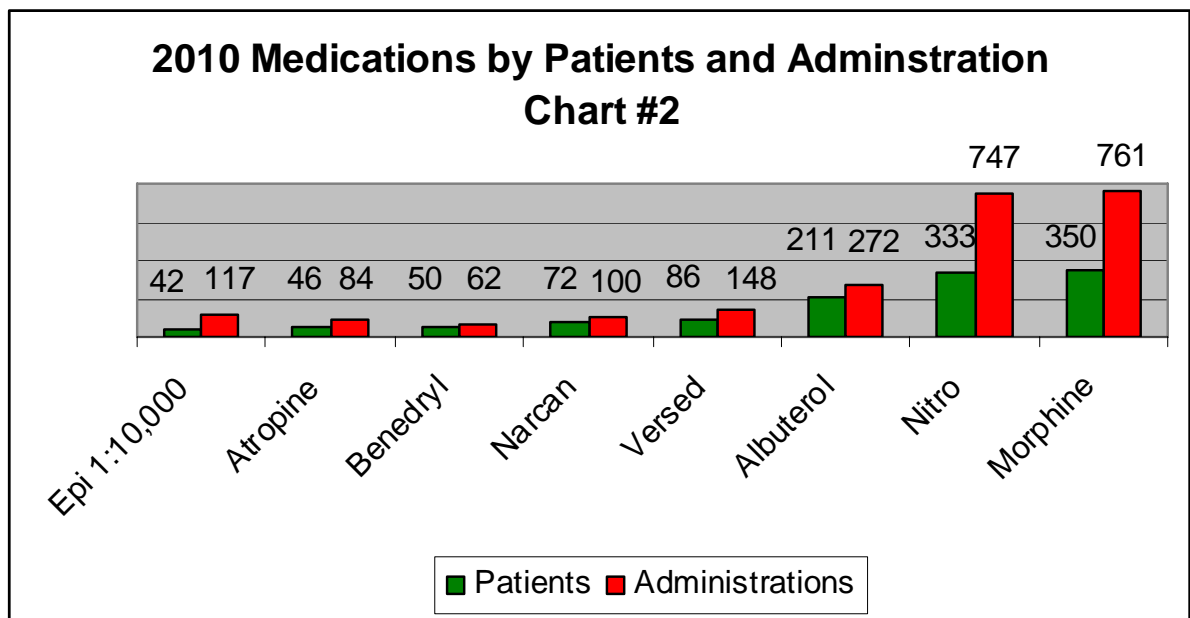
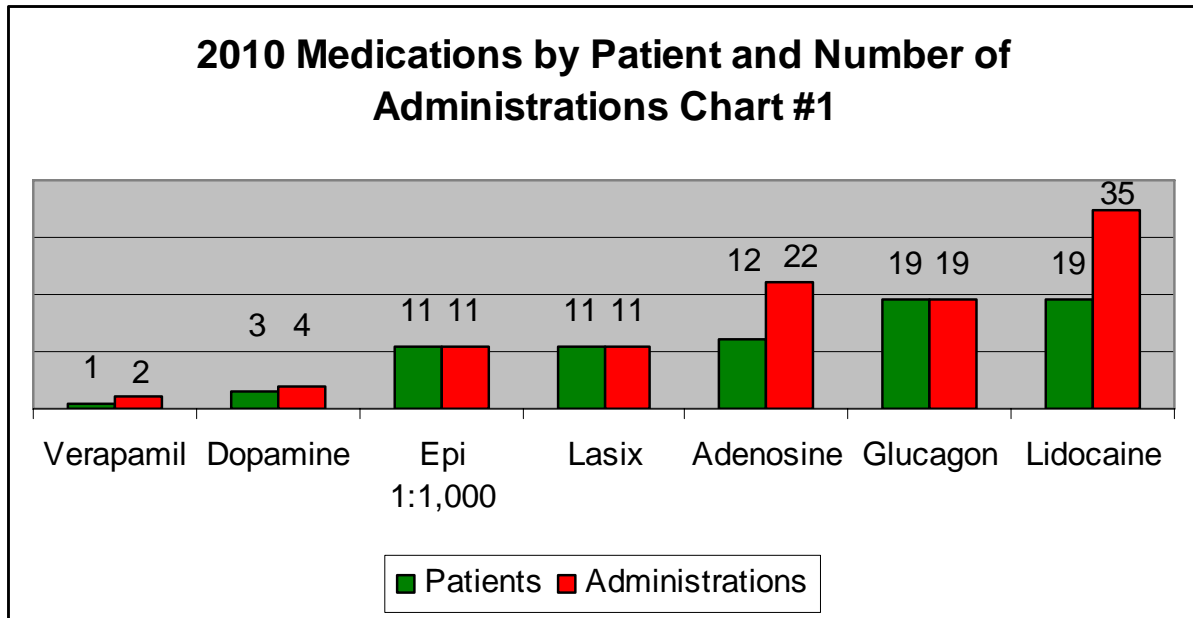
S-T Elevation Myocardial Infarction (STEMI)



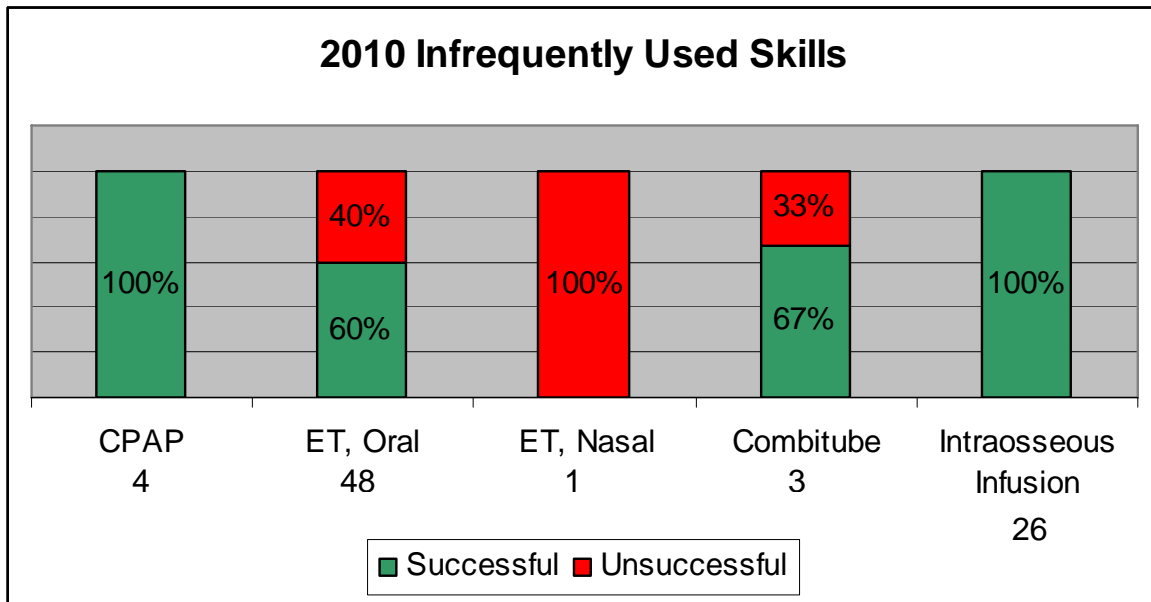
In 2010, nine patients met the STEMI triage criteria; five of them were transported to SRMC by ground ambulance, the remainders were transported by air ambulance to Doctors Medical Center or Memorial Medical Center. The age ranged from 16 years to 87 years old.

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



SUMMARY

I would like to thank Tuolumne County Ambulance Service, and Sonora Regional Medical Center 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 twelve-year trend shows a general increase in calls for EMS service, particularly along the Highway 108 corridor.

The changing environment of the upcoming years will afford us many opportunities and challenges to improve the EMS System. Aging durable medical equipment will need to be replaced in the coming years; other equipment and software need to be upgraded in order meet the expected standard of care and to better manage 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.