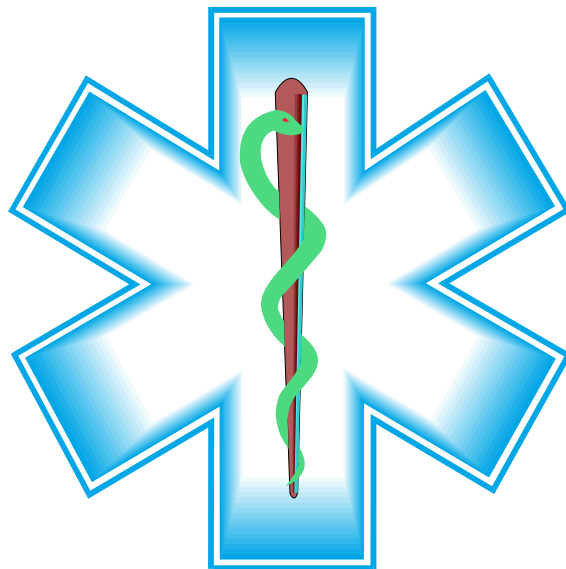

Tuolumne County
Emergency Medical Services Agency

2014 Annual Statistical Report



February 11, 2015

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INTRODUCTION

The 2014 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.

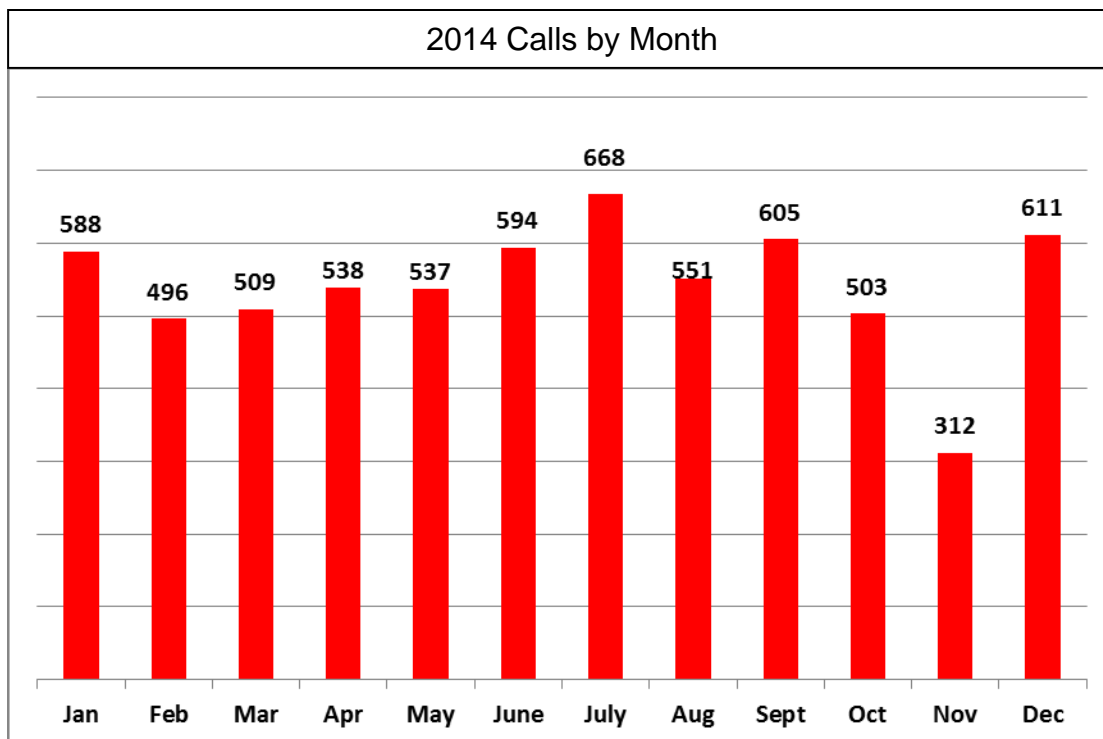
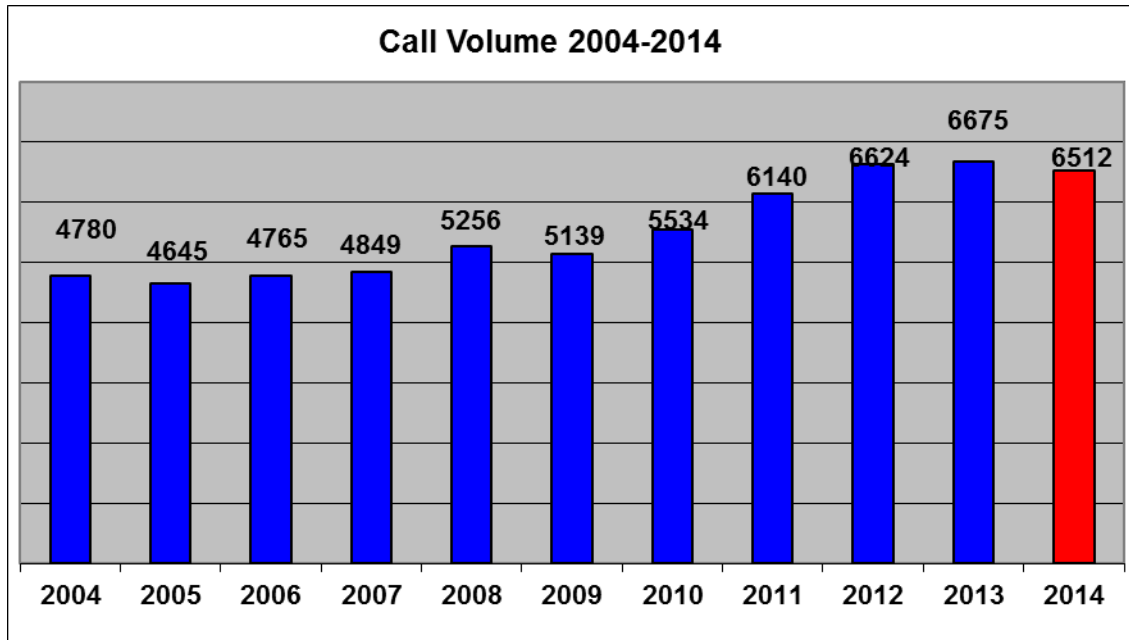
In June of 2009, Tuolumne County EMS Agency was instrumental in the development of the Central Regional Trauma Coordinating Committee (CRTCC), a twelve county regional committee. The purpose of the committee is to standardize and improve the provision of trauma care within the region. The CRTCC, working 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.

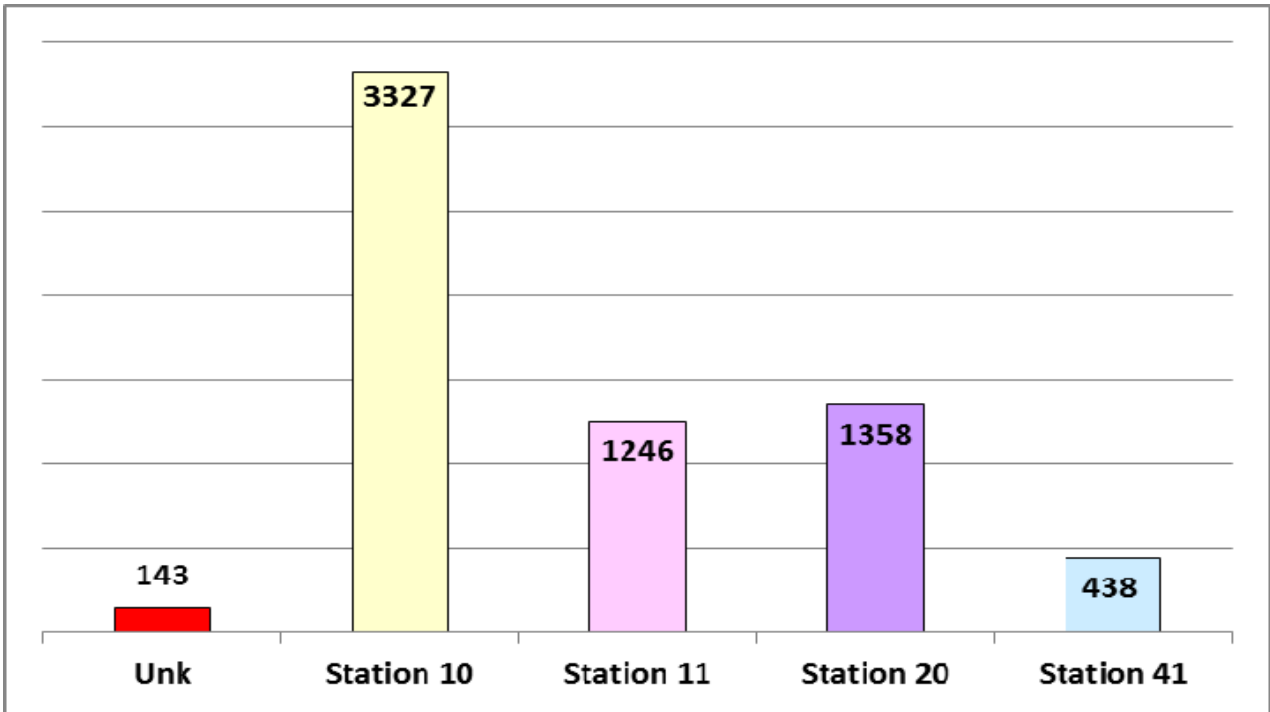
In September of 2011, Tuolumne County adopted the CRTCC Trauma Triage Criteria. This criteria is based on the Centers for Disease Control (CDC) trauma triage guidelines.

OVERVIEW OF CALL VOLUME

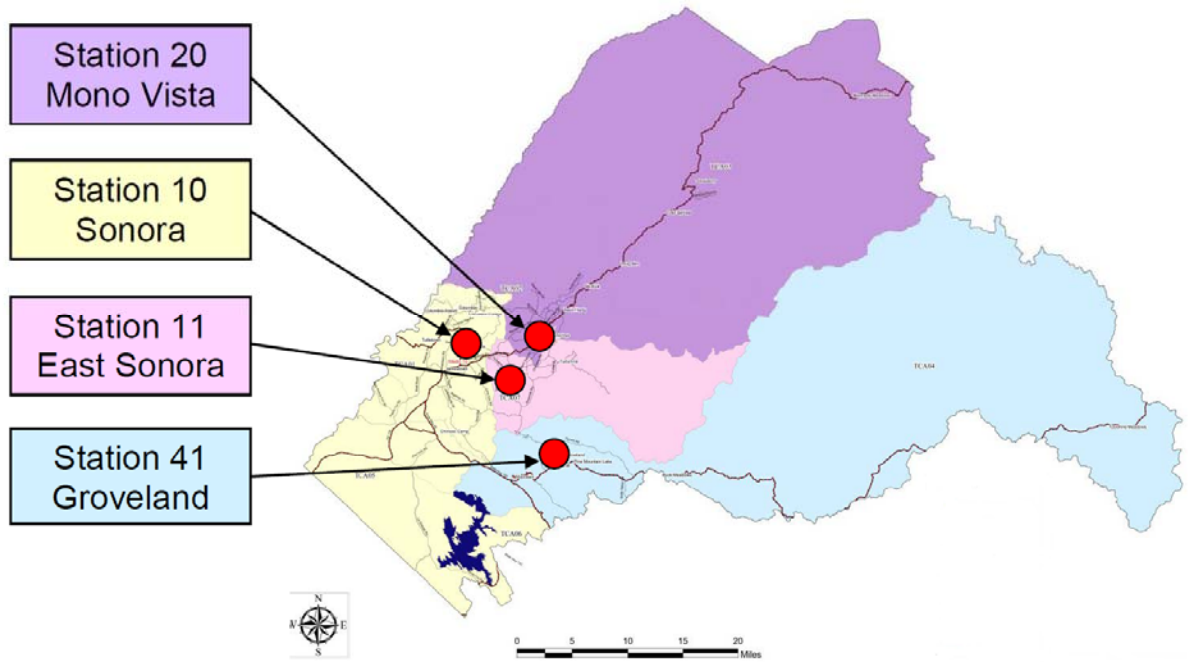
As illustrated in the graphs below, 2014 call volume declined by about 3% when compared to 2013 was the busiest year to date. Since 2004, there has been a 27% increase in the call volume. Unless otherwise specified EMS requests include both scene and transfer call types.

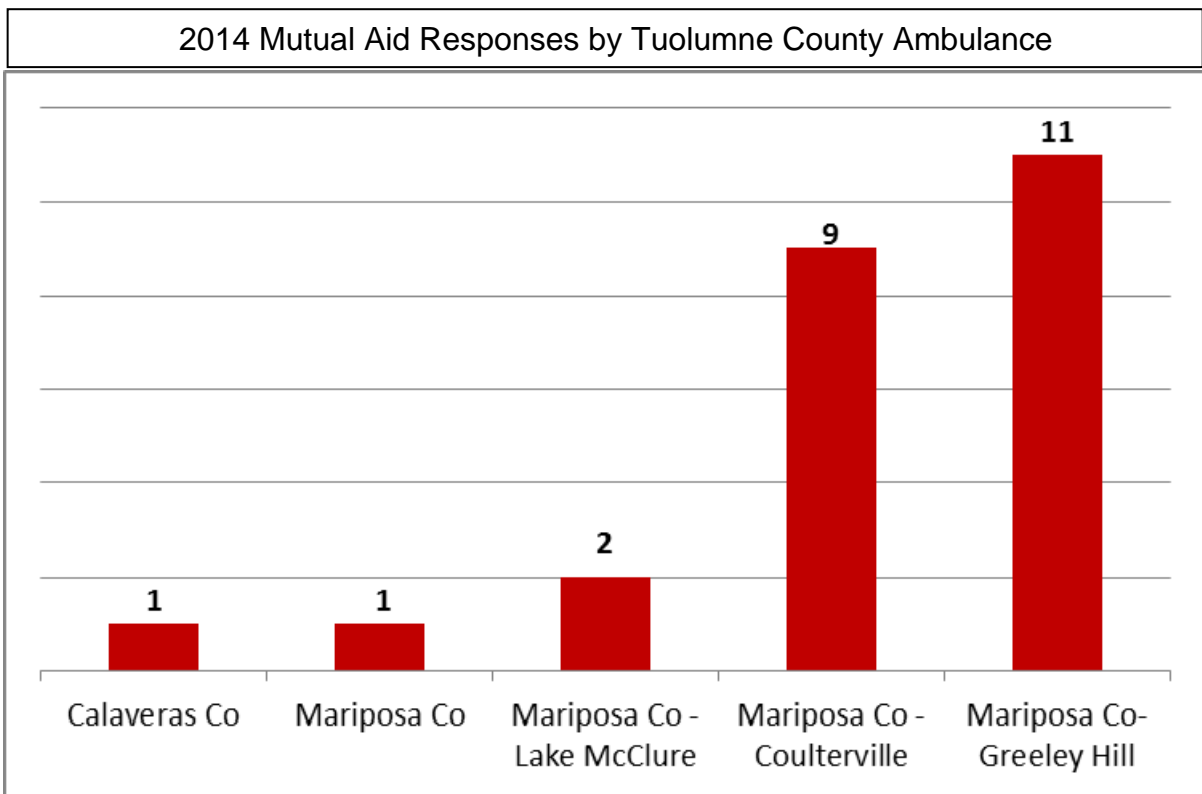
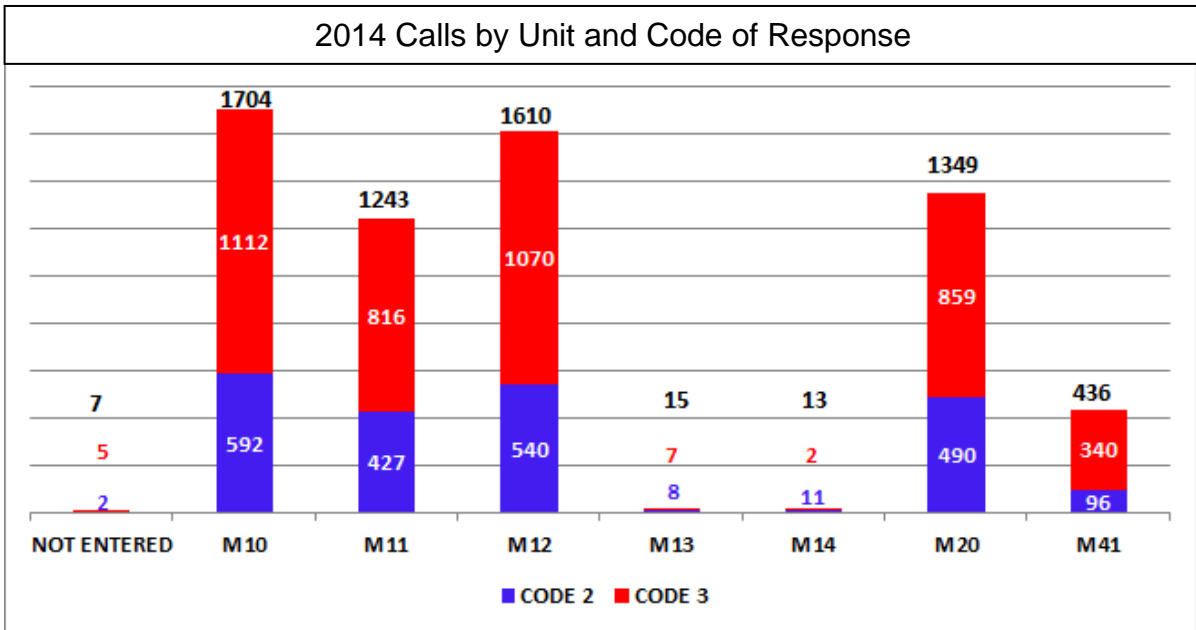


2014 Calls by Station

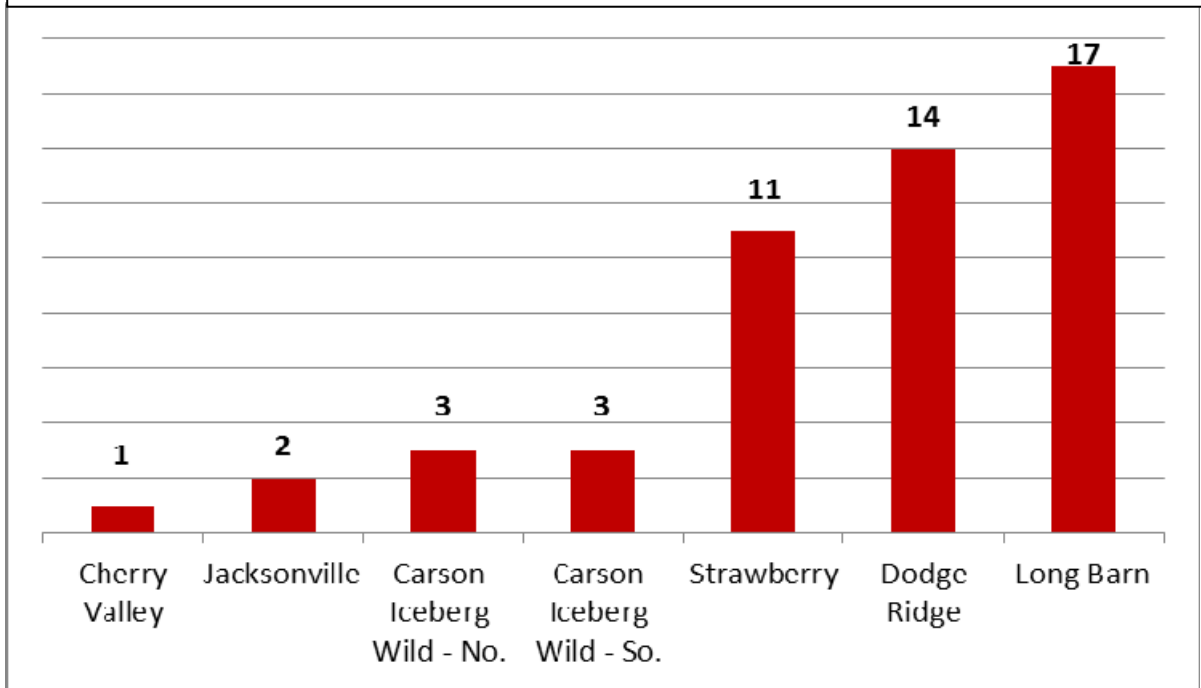


As illustrated above, Station 10 responded to the majority of all EMS requests.

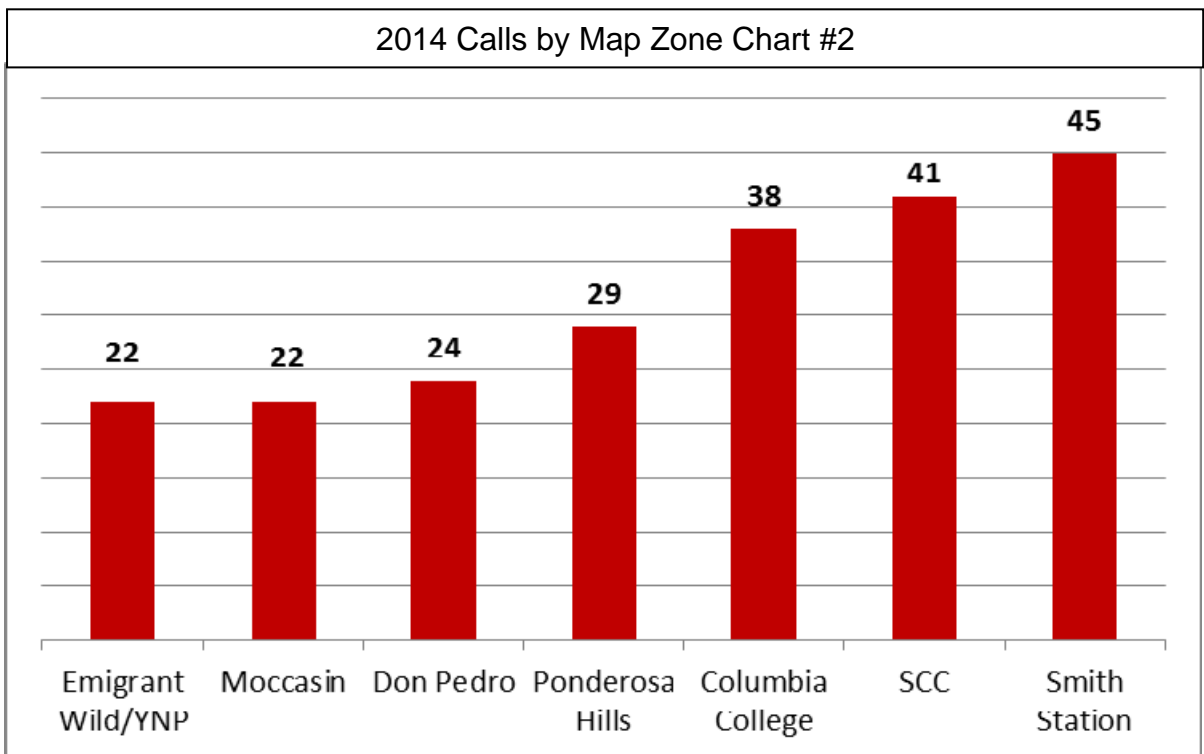


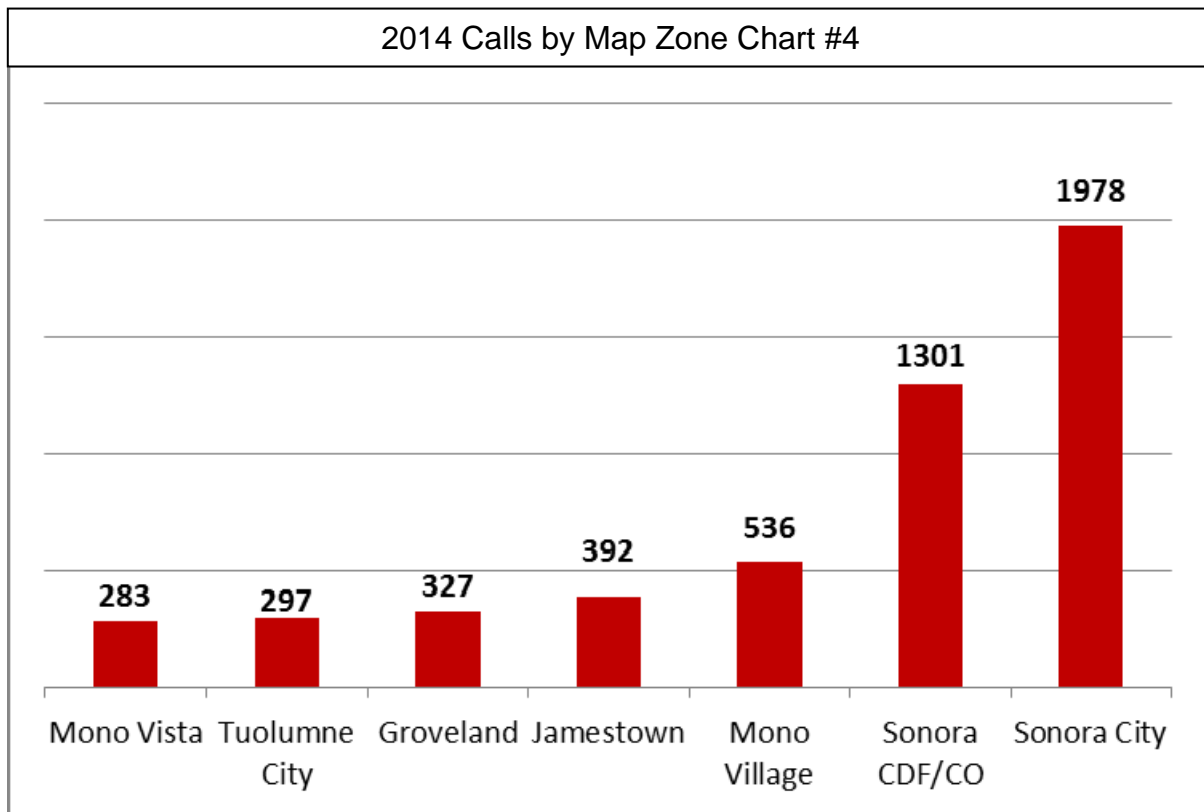
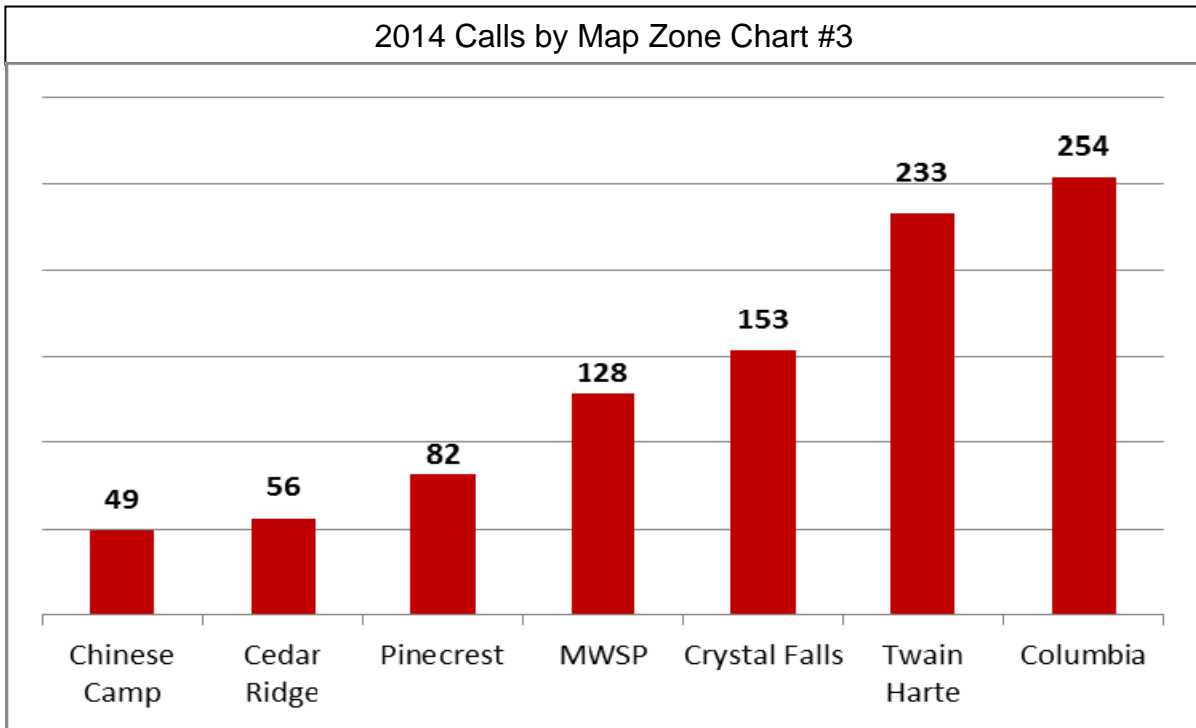


2014 Calls by Map Zone Chart #1

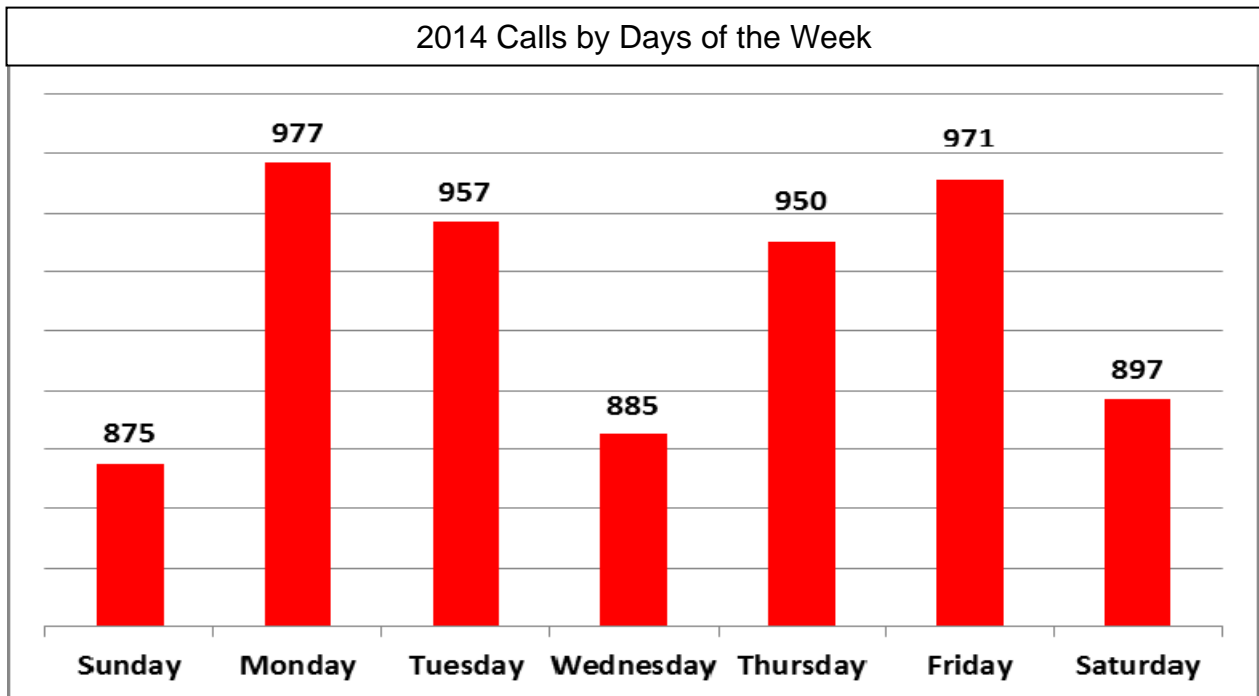


2014 Calls by Map Zone Chart #2



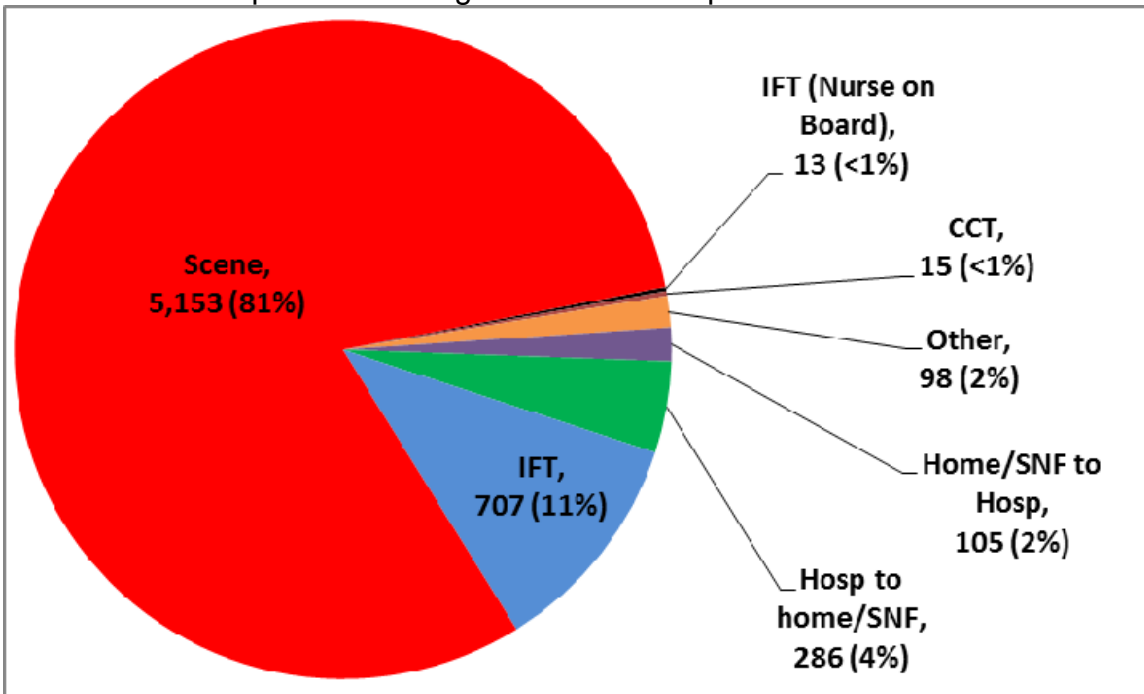


A breakdown of requests by day and time of day shows that call volumes may vary widely during the week, with the highest volumes on Mondays, Tuesdays, Thursdays and Fridays.

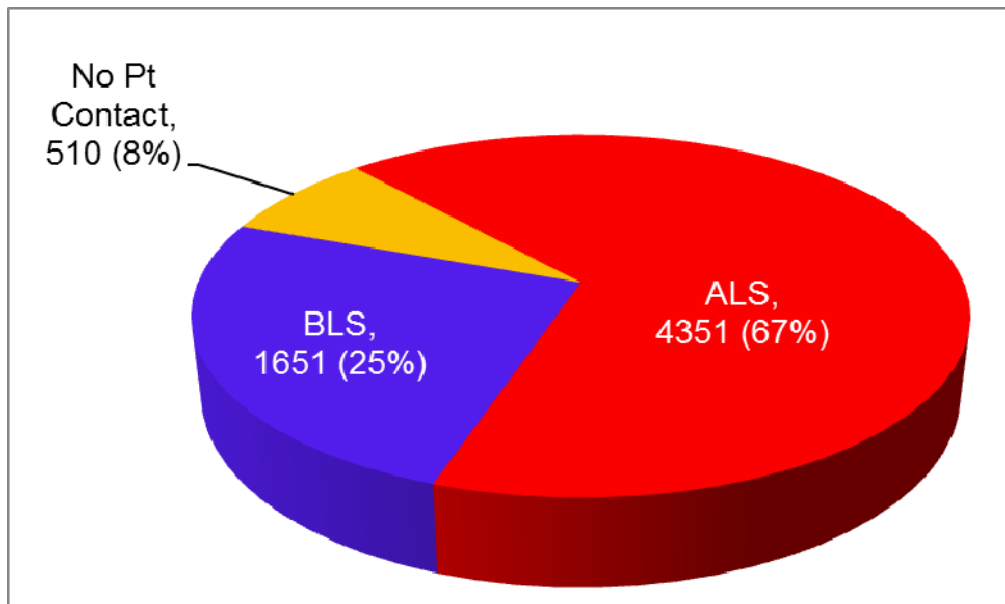


Calls by Type

In 2014, scene emergencies accounted for 81% of the total EMS requests for service. Transfers make up the remaining 19% of EMS requests for services.



67% of all requests for service resulted in the delivery of advanced life support (ALS) procedures and/or medications administered to the patient.



Response Times

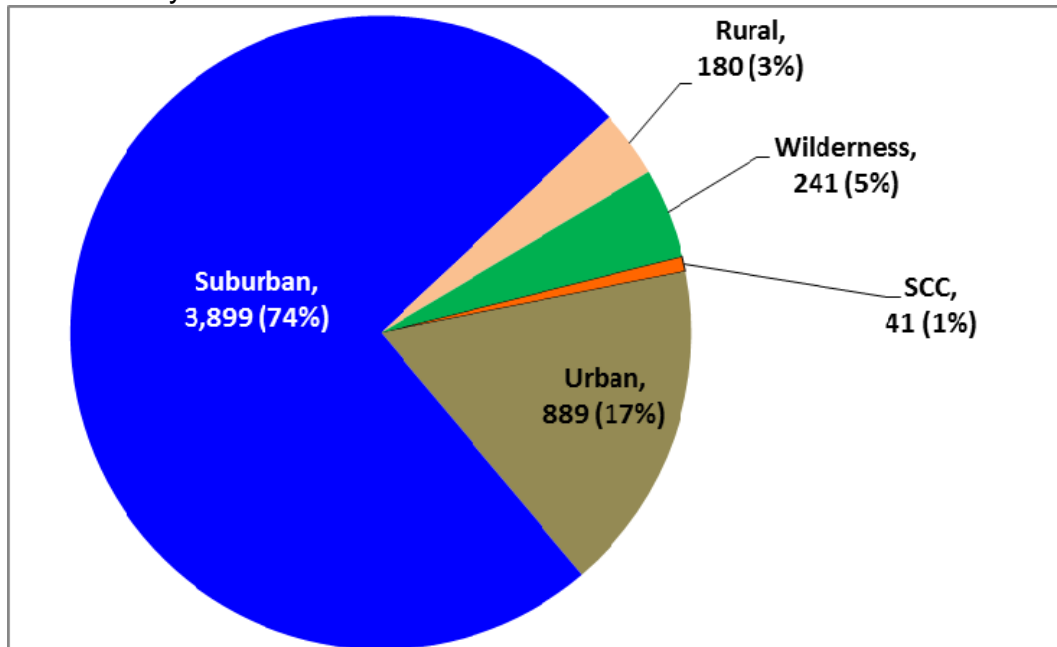
The California Emergency Medical Services Authority (EMSA) has established recommended guidelines for Code 3 response time standards to EMS requests, based on population density. The EMSA recommends that EMS responses meet these response time guidelines at least 90% of the time.

	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	3 min	14 min	4 min
Maximum:	30 min	79 min	47 min	28 min	72 min
Average:	6.65 min	11.16 min	19.06 min	17.42 min	27.48 min
90 %ile:	10 min	17 min	24 min	33 min	40 min

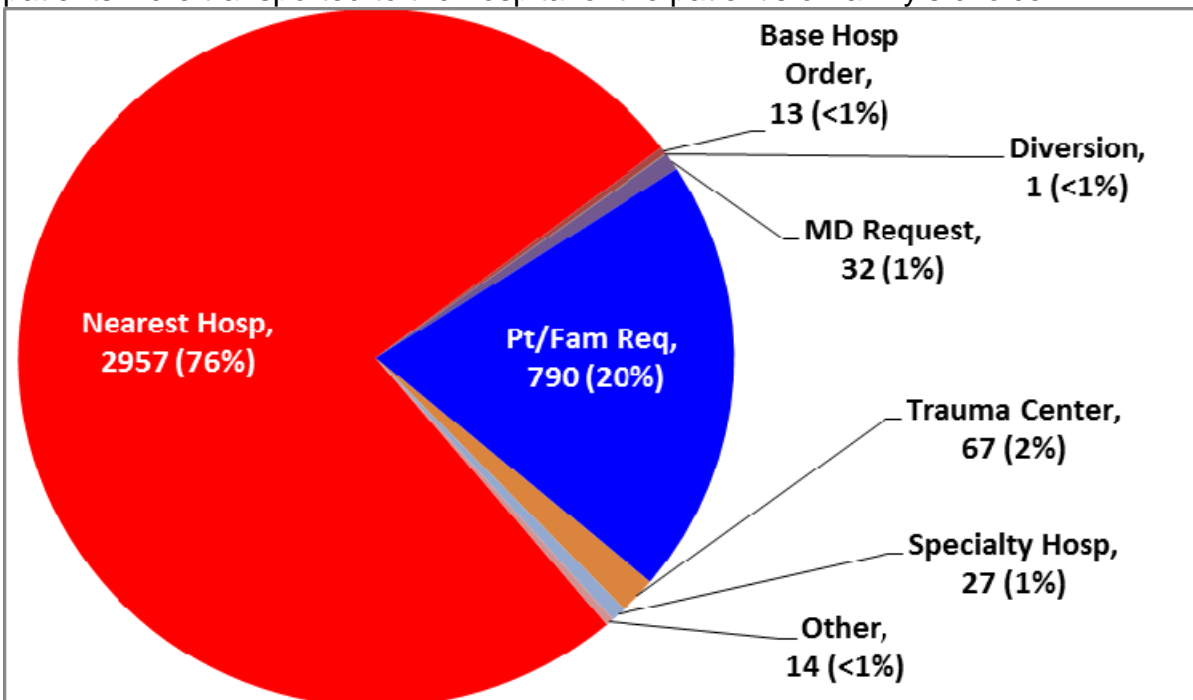
The breakdown of EMS requests by location reveals that the majority (74%) of requests occur in the suburban areas of Tuolumne County, where the majority of Tuolumne County residents live.



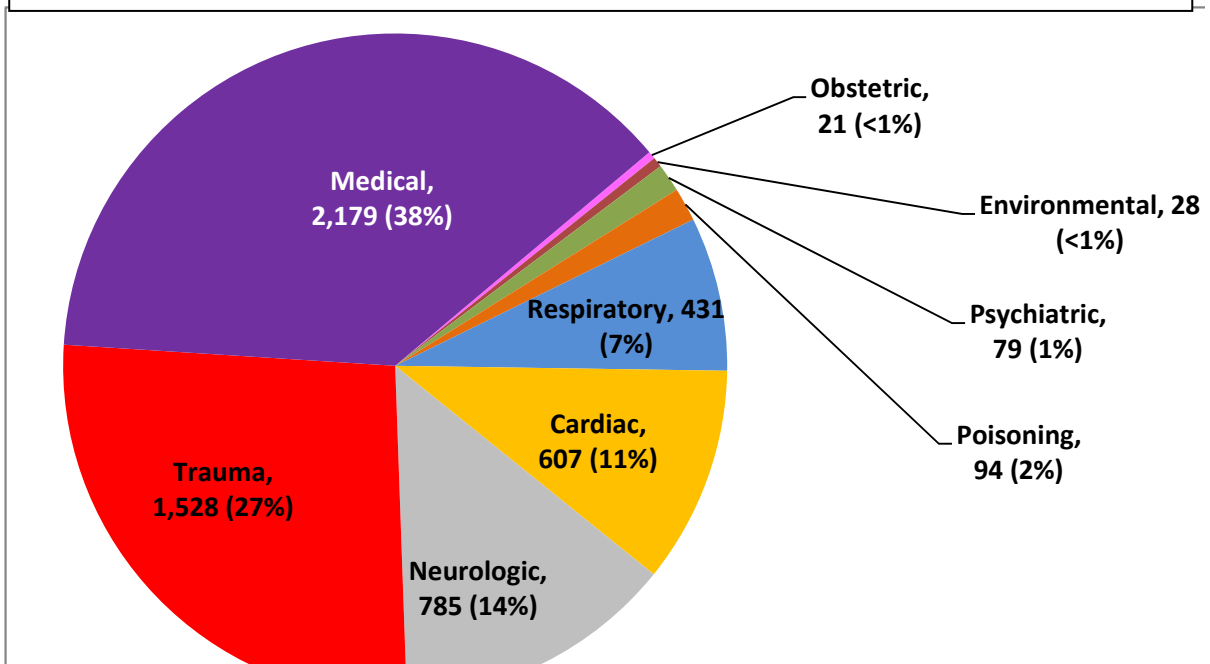
2014 Call Disposition			
Trans by another Amb	3 (<1%)	No Pt Contact Made	129 (2%)
Trans to Other Location	15 (<1%)	Pt Released	158 (2%)
Trans to Other Med Facility	21 (<1%)	Call Cancelled	191 (3%)
Dead On Scene	79 (1%)	Trans to Hosp (non-ED)	197 (3%)
Trans to Rendezvous Point	94 (1%)	Trans to a SNF	250 (4%)
Other	110 (2%)	Tran Refused AMA	490 (8%)
Trans to Residence	112 (2%)	Trans to ED	4,539 (71%)

PATIENT AND HOSPITAL DATA			
The chart below shows the patient distribution by receiving facilities, including transfers.			
Mark Twain-St. Josephs	1	Dameron Hosp	4
Mt Diablo Hosp	1	Other Santa Clara Co Hosp	4
Clovis Community Hosp	1	Kaiser Hosp, Sacramento	5
Mercy Hosp, Merced	1	Lucile Packard Children's Hosp	5
Other Napa Co Hosp	1	California Pacific Medical Center	8
Sutter Memorial Hosp	1	Kaiser Hosp of Manteca	9
Sequoia Hosp	1	VA Medical Center Palo Alto	9
Other San Mateo Co Hosp	1	San Joaquin General Hosp	11
San Jose Medical Center	1	U.C.S.F. Medical Center	12
Santa Clara Valley Medical Center	1	Stanford University Hosp	20
Stanislaus Behavioral Health Center	1	U.C. Davis Medical Center	32
Kaiser Walnut Creek	2	Oakland Children's Hosp	40
Central California Children's Hosp	2	Modesto Rehabilitation Hosp	72
Mercy San Juan Hosp	2	Other Hosp Not Listed	80
St Joseph's Medical Center	3	Memorial Medical Center	122
Other Alameda Co Hosp	4	Doctors Medical Center	440
Sutter General Hosp	4	Sonora Regional Medical Center	3971

As shown in the chart below, for those patients transported to a hospital, approximately 76% of all transports are made to the nearest hospital and 20% of the patients were transported to the hospital of the patient's or family's choice.



2014 Calls by Patients Primary Illness/Injury Type

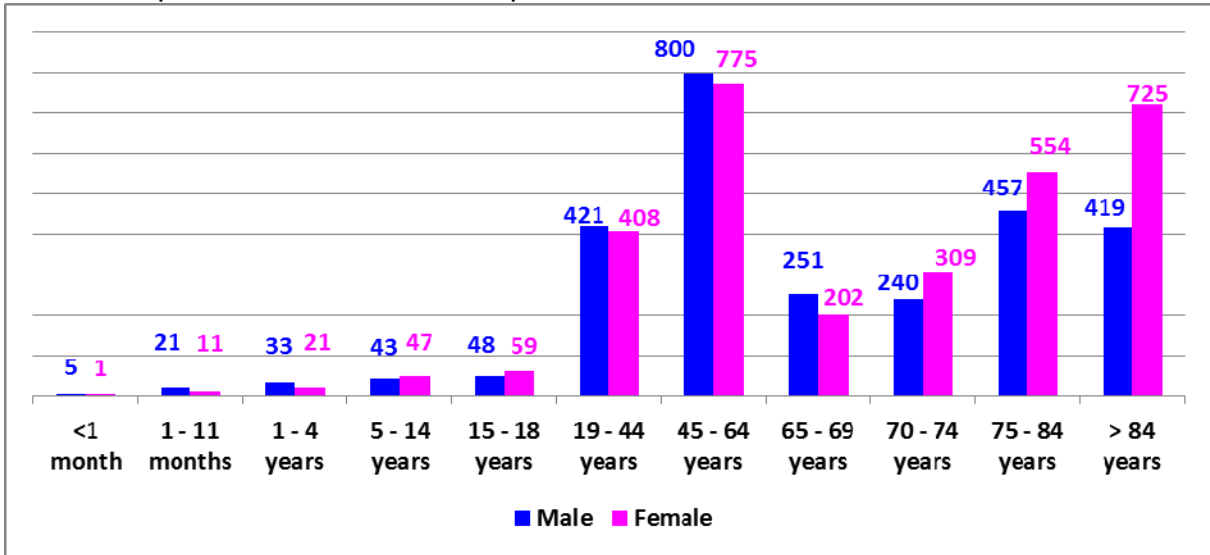


Poisoning/Overdose category does not differentiate between accidental and intentional ingestion or overdose. Nor does it differentiate between prescription and illicit drugs. Medication reactions and anaphylaxis are included in the Medical category.

2014 Calls by Scene Description			
Construction Site	1	School	49
Greenley Primary Care	2	SCC	49
Cresthaven	2	Campground	51
Snow-Play Area	2	Hotel/Motel	53
Lake Don Pedro	3	Clinic/Doctor's Office	54
Groveland Clinic	3	Government Building	58
Sonora Imaging	3	Other SNF	66
EMS Rendezvous/LZ	3	Black Oak Casino	69
Ranch/Agricultural	5	Bar/Restaurant	70
TGMF	5	Indian Rock Prompt Care	76
New Melones	6	Hillcrest Manor	78
Industrial/Manufacturing	9	Other	108
Tuolumne Clinic	11	City Street	114
Tuolumne County Jail	11	Avalon Health Care	163
Other Waterway	12	Office Business	172
Church	16	Residence	175
National Forest	16	County Road	209
Dodge Ridge	18	Skyline Place	212
Park/Ball Field	19	Highway (108, 132, 120, 49)	236
Chicken Ranch Casino	24	SRMC	1,154
Board and Care	27	Patient residence	2,865
Goldridge	36		

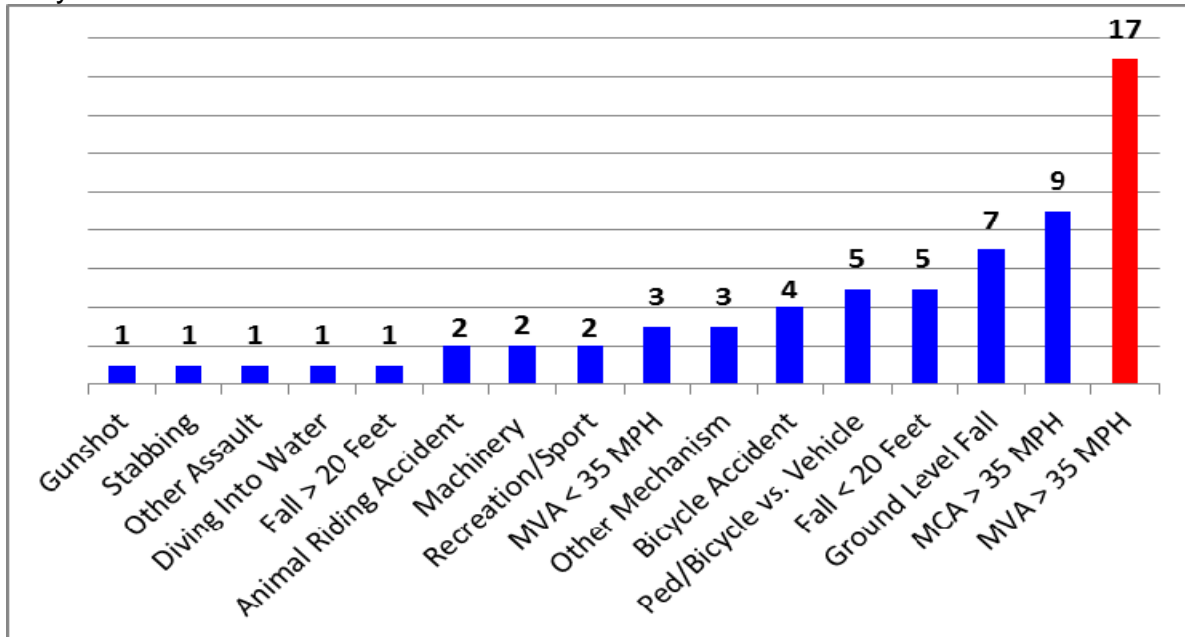
2014 EMS Demographics

The average age of EMS patients is 61 for males, 65 for females and 63 overall. Males comprise 47% of ambulance patients and 53% are females.

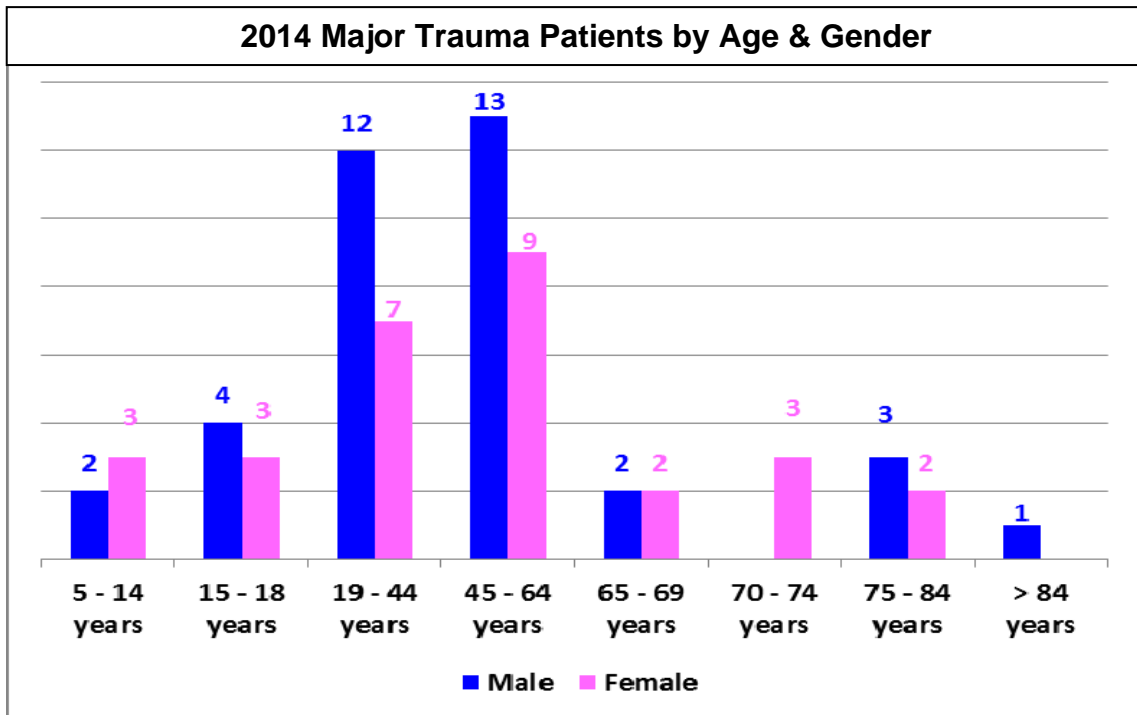
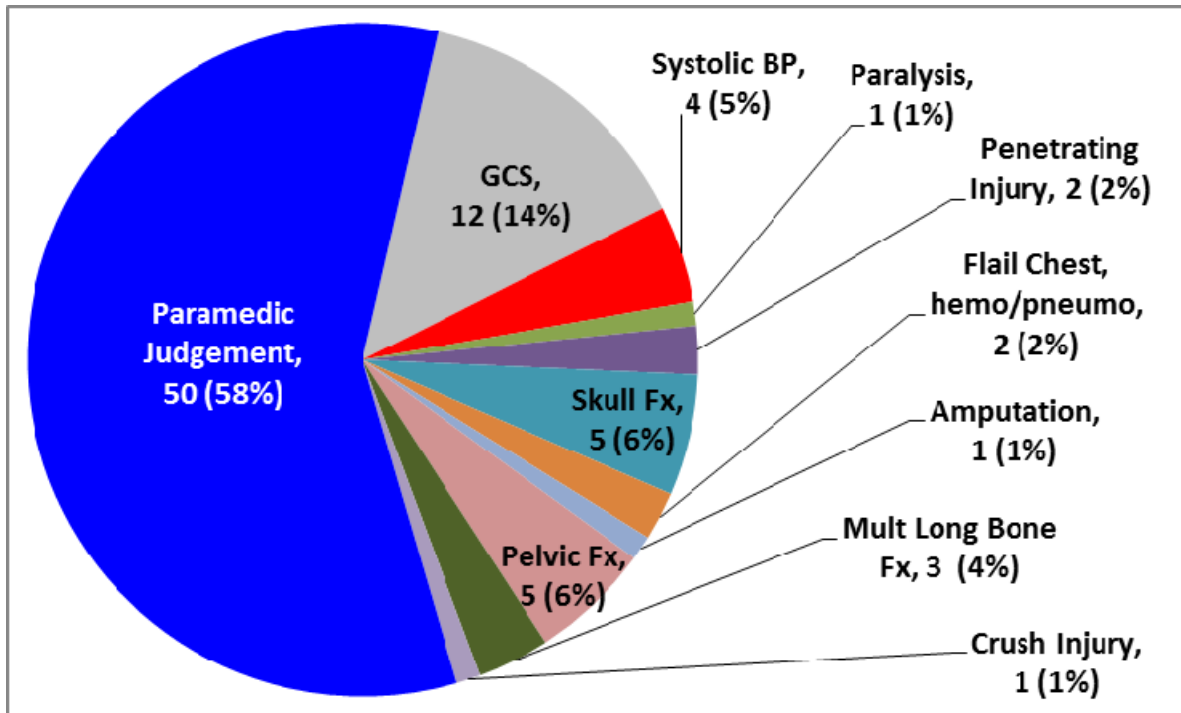


TRAUMA SYSTEM

The chart below shows the mechanism of injury for major trauma victims in Tuolumne County in 2014.

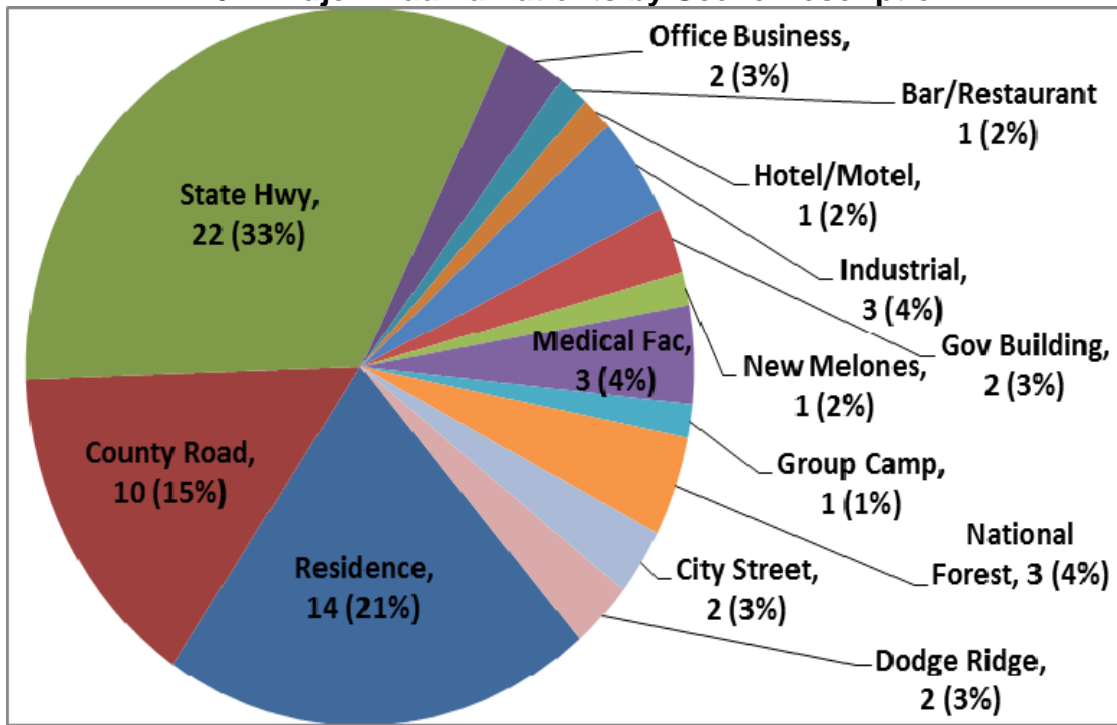


The Tuolumne County Trauma Plan has defined ten separate trauma triage criteria. The criteria are designed to categorize those trauma patients with an increased risk of mortality and morbidity due to their injuries. Paramedic judgment was the criteria used 58% of the time.

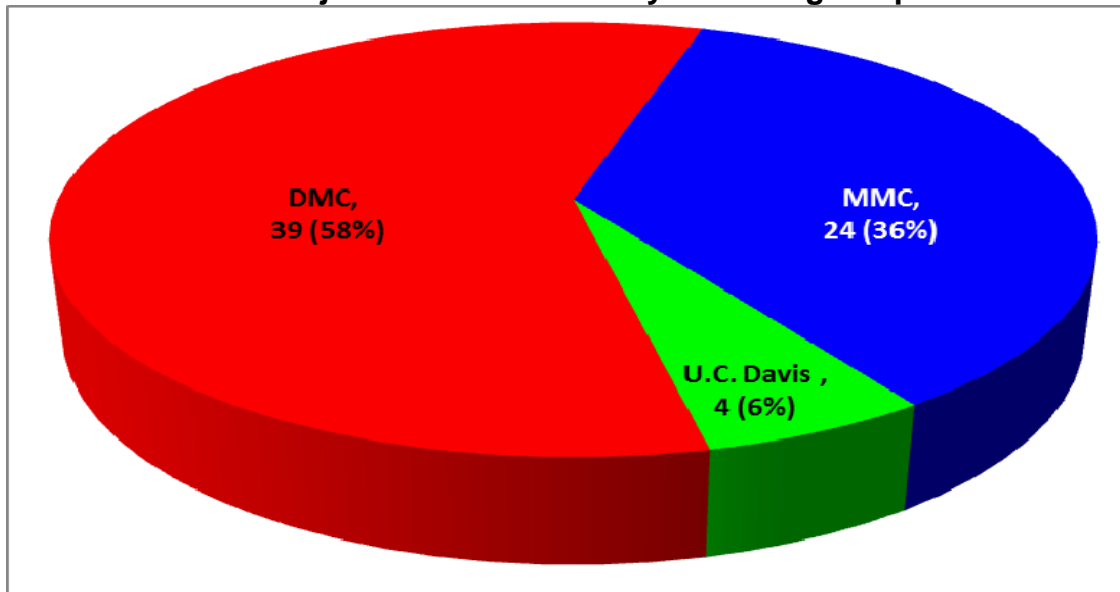


The average age of the Major Trauma patients is 43 for males, 45 for females and 44 overall. Males comprise 56% of ambulance patients and 43% are females.

2014 Major Trauma Patients by Scene Description



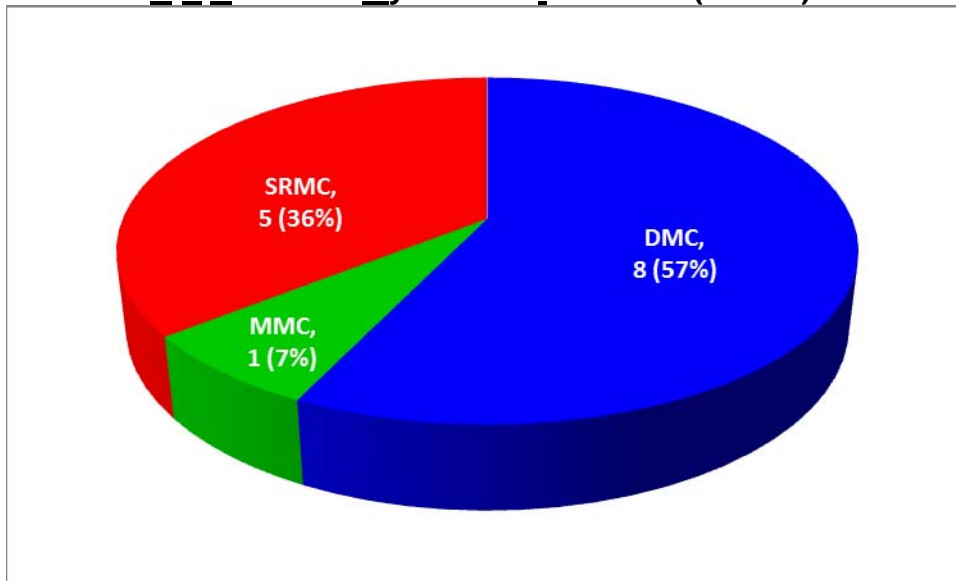
2014 Major Trauma Patients by Receiving Hospital



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)

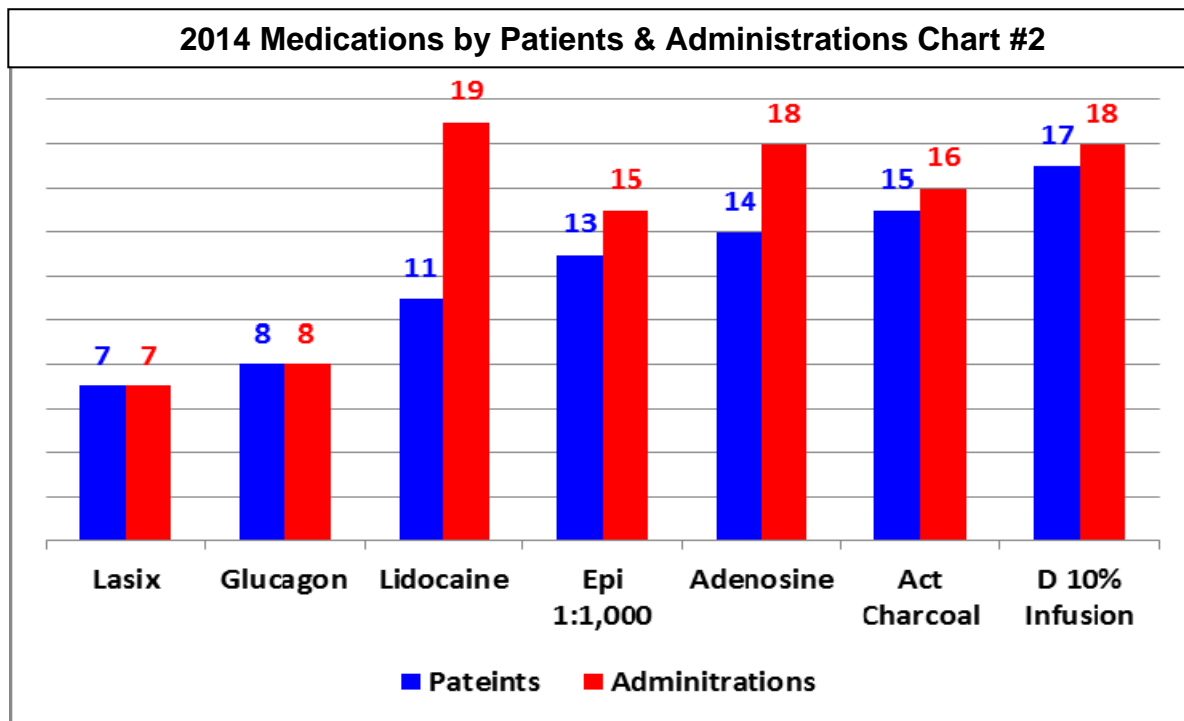
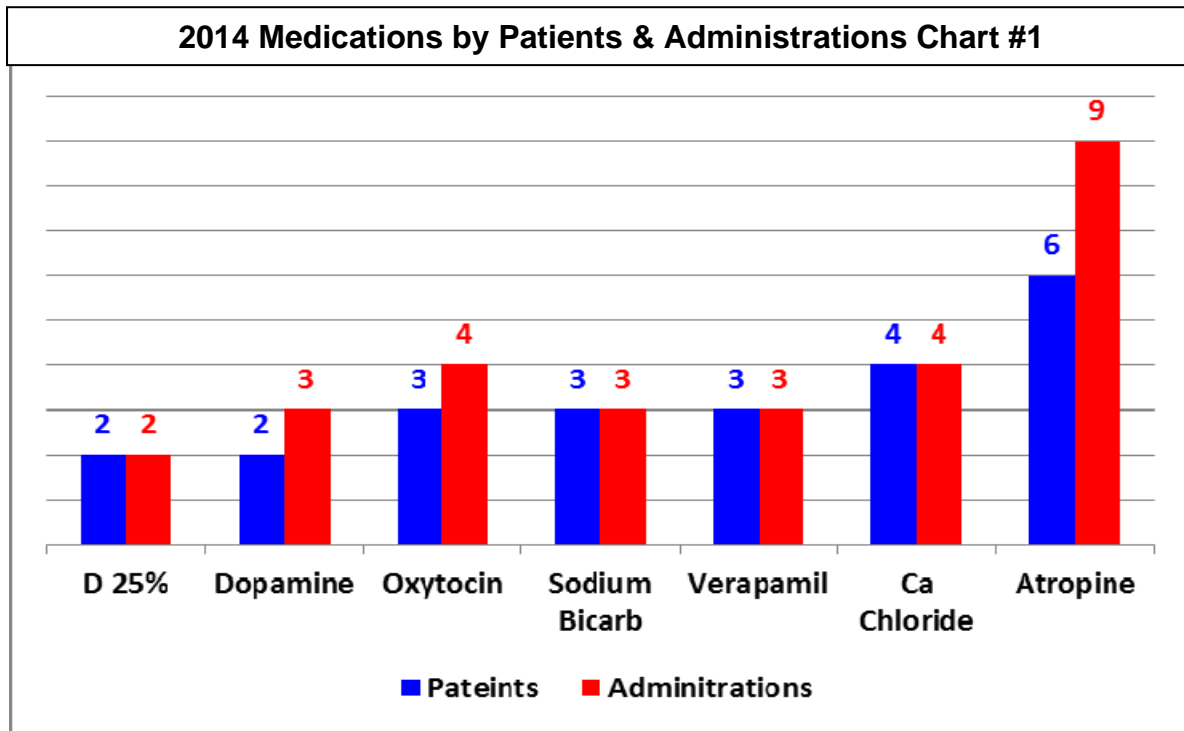
S-T Elevation Myocardial Infarction (STEMI)



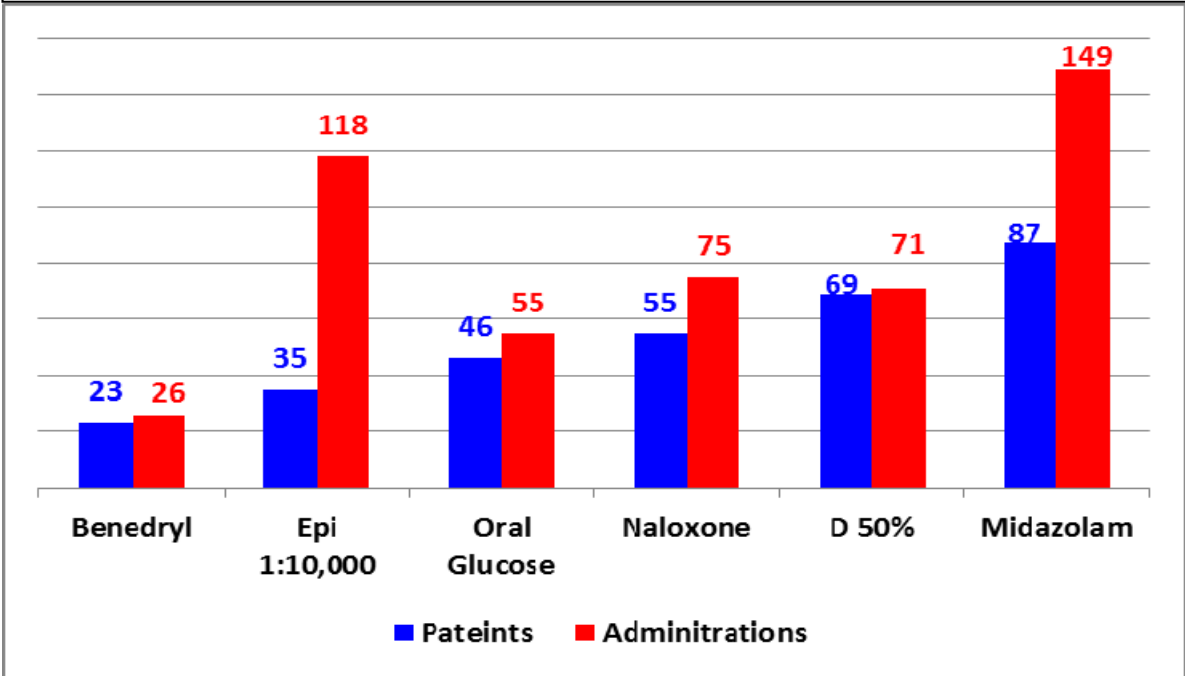
In 2014, 14 patients met the STEMI triage criteria; five of them were transported to SRMC by ground ambulance, eight were transported to Doctors Medical Center and one to Memorial Medical Center. Males comprised 64% of STEMI patients, 36% female. The average age of STEMI patients was 68 years old.

ALS MEDICATIONS

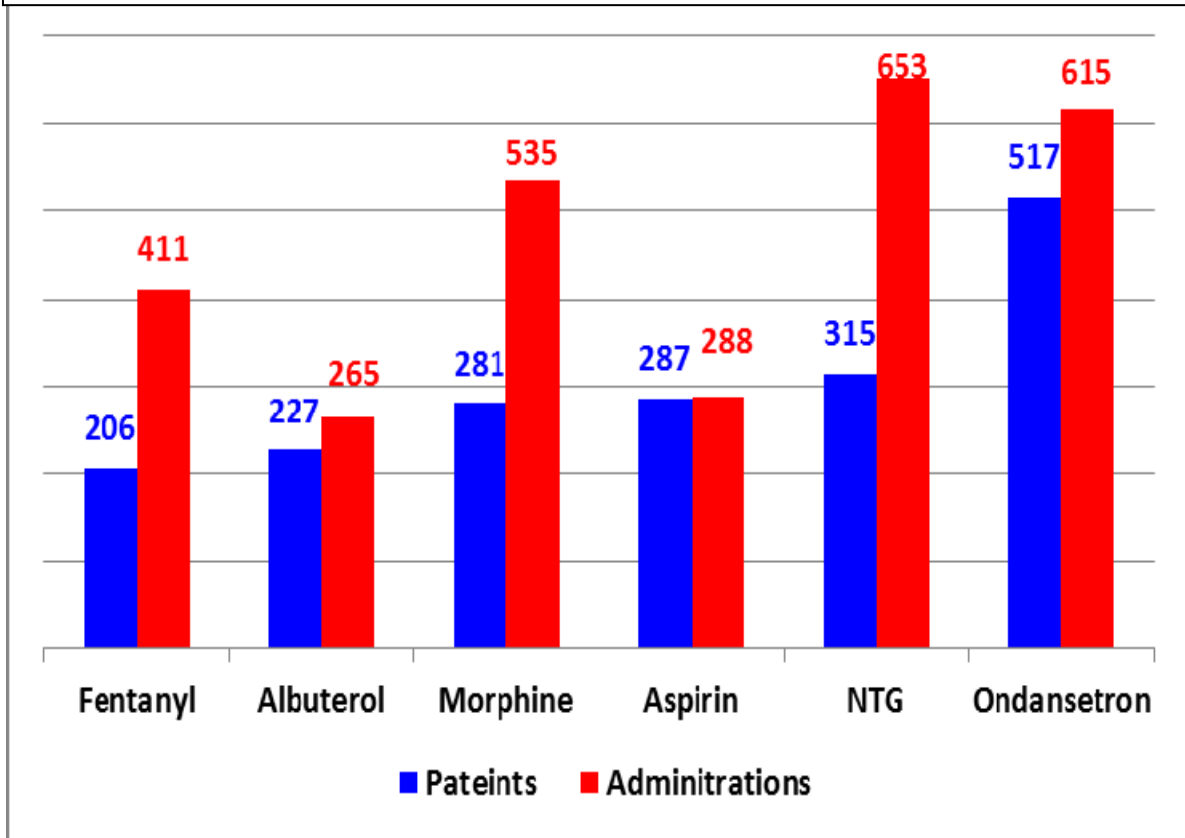
The charts below represent the number of times a medication was administered and how many patients received the medication.



2014 Medications by Patients & Administrations Chart #3



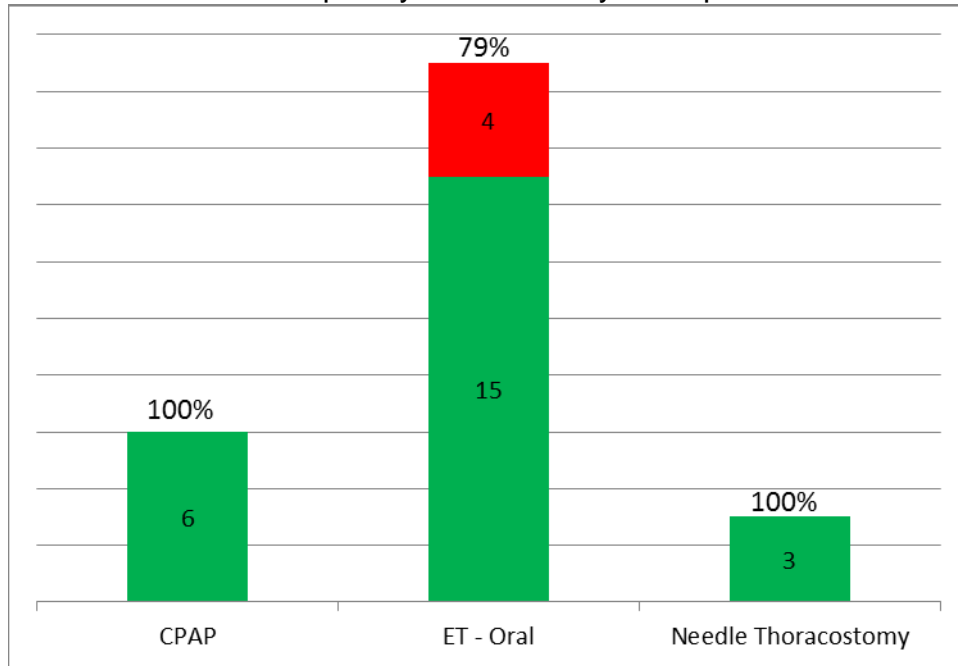
2014 Medications by Patients & Administrations Chart #4



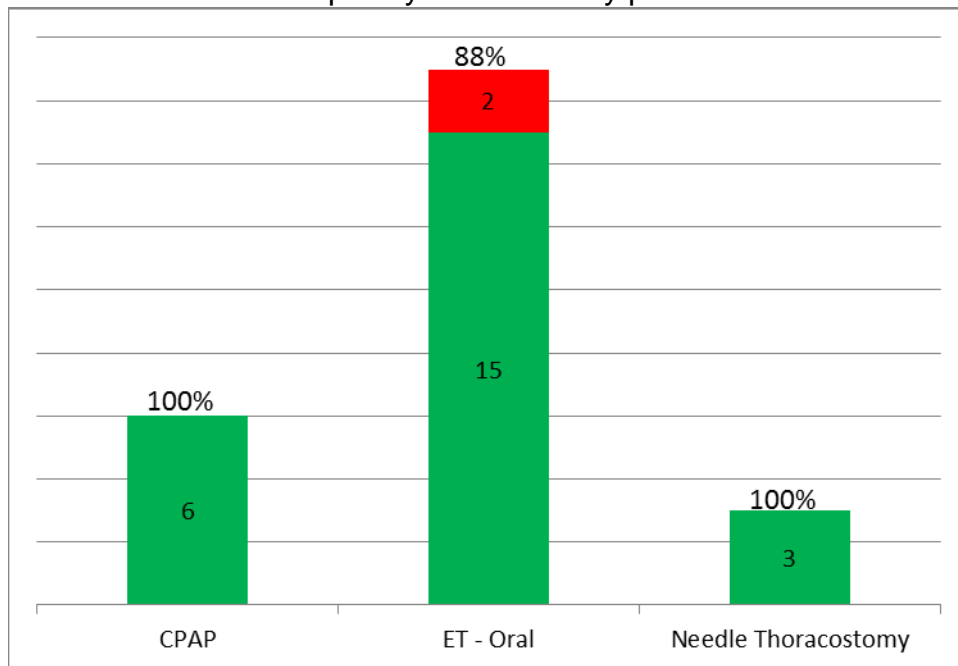
ALS INFREQUENTLY USED SKILLS

The data on Infrequently Used Skills shows that 88% of the patients that ET intubations were attempted were successfully intubated. Two of the patients were managed with a BLS airway after unsuccessful attempts to intubate.

Infrequently used skills by attempt



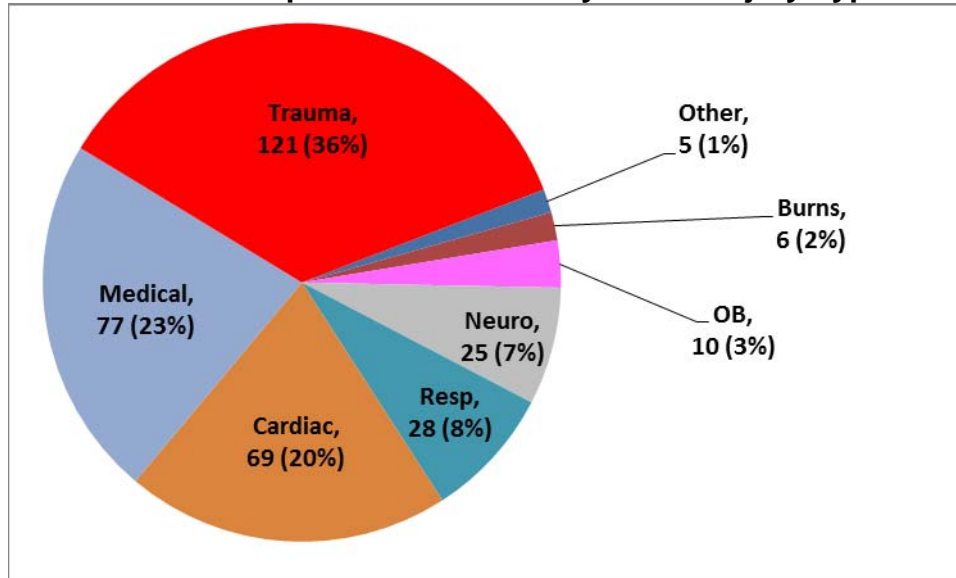
Infrequently used skills by patient



PHI Air Medical

Totals Requests	Unable to fly-Weather	Unable to fly-Mechanical/Maintenance	Cancelled	Unavailable-on other call	Scene Calls	Inter-Facility Transfer
341	29	36	32	49	275	66

PHI 2014 Requests for Service by Illness/Injury Type



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.

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 allows ambulance services operated by governmental agencies to submit invoices for reimbursement of costs not covered by Medi-Cal. Tuolumne County Ambulance has enrolled in the GEMT program and has been able to recover some of the revenue that was previously unavailable.

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.

