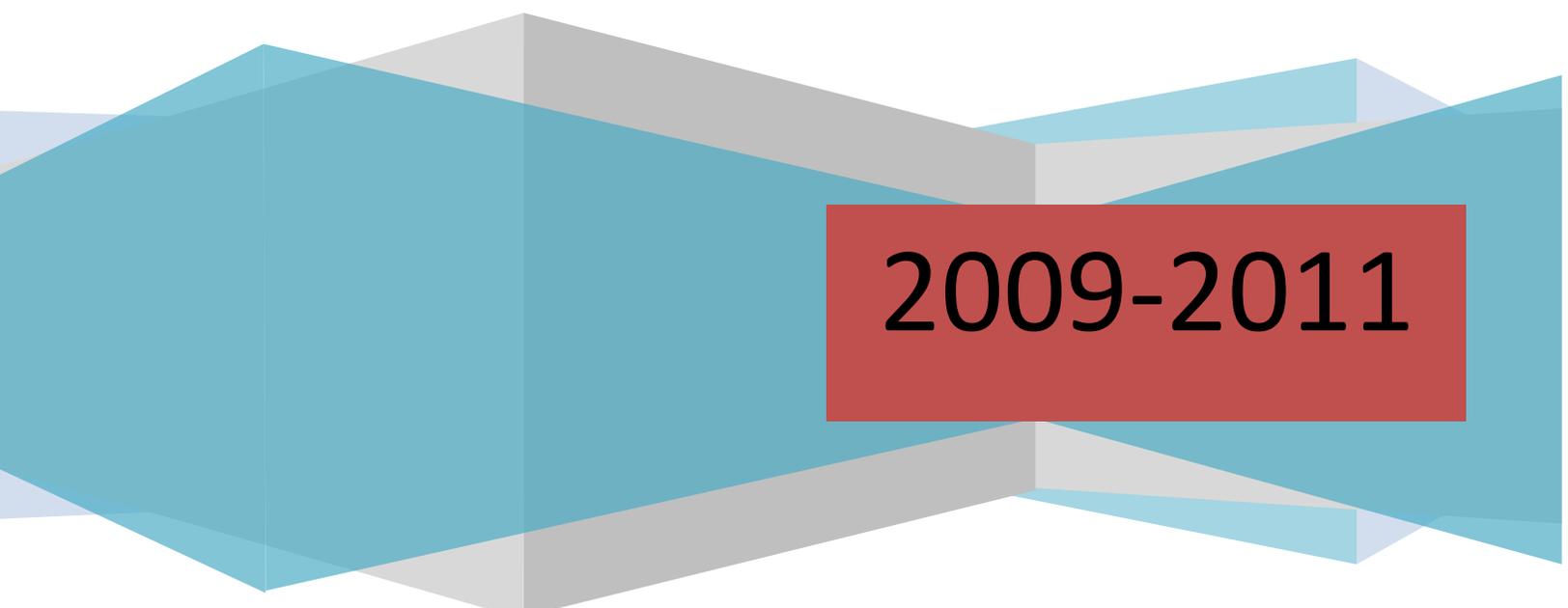


Oklahoma EMS Service Call Summary

*Martin Lansdale, MPH
Epidemiologist*



2009-2011

Foreword

This document is the result of hard work on the part of many persons involved in pre-hospital care in Oklahoma. It is a compilation of quality data reporting along with collection and analysis which provides us with valuable information about Oklahoma's system of pre-hospital care. Ambulance data was reported by EMS service providers to the Oklahoma EMS Information System (OKEMSIS) and an analysis was performed by EMS/Trauma Epidemiologists of the Oklahoma State Department of Health.

The purpose of collecting Ambulance data is to gain a more complete picture of pre-hospital patient care in Oklahoma in order to improve the EMS system as a whole. By analyzing this data, we can allocate resources more effectively and develop targeted strategies to improve pre-hospital care in Oklahoma. We can also identify further areas of research to help improve overall patient outcomes.

Quality data collection is the key to pre-hospital system development in Oklahoma as it enables us to continually improve our EMS system and helps us to measure improvements in pre-hospital care. Through the continued leadership of the Oklahoma State Department of Health and the work of EMS providers, emergency medical technicians (EMT's), and the OSDH Emergency Systems staff, we can ensure that the citizens of Oklahoma continue to receive the proper level of care throughout the continuum of patient care in Oklahoma.

Dale Adkerson
Director, EMS
Oklahoma State Department of Health

Executive Summary

Oklahoma saw a 10% increase in the overall number of service calls reported from 2009 to 2011 with 434,658 calls in 2009 and 483,861 calls in 2011 ([Figure 1](#)). There are several reasons for this increase which include better reporting by the service providers to the Oklahoma EMS Information System (OKEMSIS), a true increase in the number of runs, and an overall population increase in Oklahoma. Approximately 80% of the total call volume was 911 responses during the prescribed time period followed by inter-facility transfers (9.8%) and medical transports (3.8%). Seventy Five percent (75.7%) were treated and transported by EMS with patient refusals (10.4%) and cancelled calls (3.8%) coming in a distant second and third, respectively. 52% of all the EMS Service Calls between 2009 and 2011 occurred in urban areas followed by 32% from rural and 10.7% from super rural areas ([Figure 25](#)). 5.3% of the EMS service calls had unknown/bad zip codes therefore urban/rural/super rural status could not be determined. The overall state response time for 911 calls (cancelled calls excluded) stayed consistent during this time period at 7.1 minutes in 2009 to 7.6 minutes in 2011. Scene time for treated and transported patients (911 Calls only) increased from 17.4 minutes in 2009 to 18.9 minutes in 2011. Total time (Time of destination arrival - time unit dispatched) followed the same pattern as response time, staying consistent at 40.2 minutes in 2009 to 41.6 minutes in 2011.

Five agencies reported ≈49% of all the service calls between 2009 and 2011 with one agency reporting 37% of all statewide EMS calls ([Table 4](#)). Oklahoma (Region 8) and Tulsa Counties (Region 7) reported the most EMS runs followed by Muskogee, Cleveland, Comanche, and Pottawatomie Counties ([Table 31](#)). A majority of EMS service calls in Oklahoma were female (50.5%) for the specified time period with the 70 to 79 and 80+ age groups making up 35.4% of the total call volume. Most of the Oklahoma EMS service calls reported White (68.5%) as the patient's racial category for all three years followed by Black/African Americans (9.7%) and American Indian/Alaska Natives (4.9%). Hispanics made up 2.3% of all the EMS service Calls in Oklahoma for 2009 and 2011. Black/African Americans had the highest rate of EMS service calls at 153.2/1,000 population (a 17.6% rate increase from 2009) followed by the White racial category at 119.8/1,000 population (a 14.2% rate increase from 2009) in 2011.

NOTE: *The data represented in this document was extracted from the OKEMSIS (Oklahoma EMS Information System) database and is in a constant state of maintenance therefore all information in this document is subject to change. The data represents the best information extracted at the time of this report. All rates in this document for 2009-2011 were calculated using population statistics from the US census at www.census.gov . Rates for 2009 were calculated using 2009 population estimates for Oklahoma while 2010 rates were calculated using the 2010 US census statistics. Rates for 2011 were calculated using 2011 population estimates for Oklahoma. Any cell in a table represented by an asterisk (**) is not reported due to privacy concerns. Urban/Rural analysis was calculated using zip codes for 2013 with the urban/rural/super rural designation defined by the Centers for Medicare and Medicaid Services (CMS).

EMS Service Calls by Year, Oklahoma 2009-2011

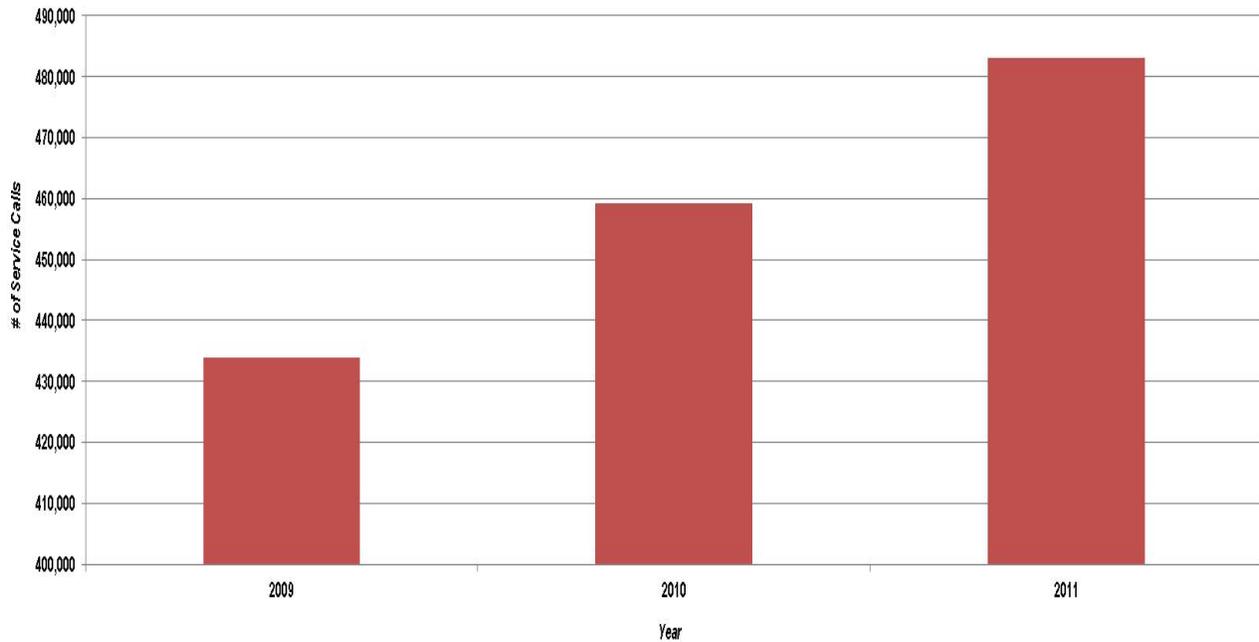
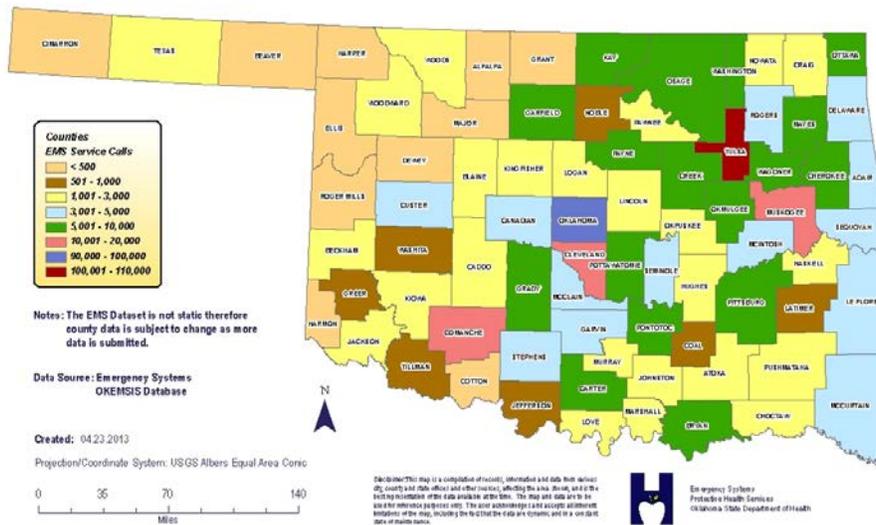


Figure 1: EMS service Calls by year, Oklahoma 2009-2011.

Geographic Distribution

Together, Oklahoma and Tulsa counties accounted for 42.0% of the total call volume for 2009 to 2011. The following map shows the distribution of EMS calls around the state of Oklahoma for 2011 ([Map 1](#)). All Regions in Oklahoma are based off Homeland Security Regions for Oklahoma ([Map 5](#)). *Incident Region is defined as the location of the EMS service call based on county while Agency Region is defined as the region where the actual service provider is located.*

EMS Service Calls by County, Oklahoma 2011



Map 1: EMS service Calls by County, Oklahoma 2011.

- Tulsa County reported the most service calls followed by Oklahoma, Muskogee, Cleveland, Comanche, and Pottawatomie County (Table 31).
- Oklahoma City had the most service calls followed by Tulsa, Muskogee, and Lawton (Table 1).
- EMS agencies located in Region 8 (Agency Region) reported the most service calls in 2011 followed by Region 7 (Table 2).
- Region 7 had the most EMS service calls (Incident Region) followed by Region 8 (Table 3).
- EMS Service calls occurred 53.7% of the time in urban areas followed by Rural (32.4%) and Super Rural (10.7%) areas (Figure 2, Map 7).
- EMSA (37.1%) had the highest call volume in Oklahoma followed by Muskogee County EMS (4.2%), EMSSTAT-Norman Regional Hospital EMS (3.1%), Pafford EMS (2.6%), Midwest Regional Hospital EMS (2.4%) and React EMS (2.1%) (Table 4).

2009-2011 EMS Service Calls by City, Top 12 Cities					
Incident City	Year			Total # of Calls	% of Calls
	2009	2010	2011		
OKLAHOMA CITY	79,448	75,604	86,691	241,743	17.5%
TULSA	2,745	72,281	85,426	160,452	11.6%
Null Values(Missing ,NA, NK)	90,655	19,839	10,496	120,990	8.8%
MUSKOGEE	10,631	11,102	14,011	35,744	2.6%
LAWTON	9,787	11,167	12,892	33,846	2.5%
NORMAN	7,664	9,021	9,984	26,669	1.9%
SHAWNEE	6,785	7,221	7,014	21,020	1.5%
TAHLEQUAH	5,358	6,124	6,295	17,777	1.3%
ENID	5,506	5,946	5,817	17,269	1.3%
OWASSO	5,146	5,748	5,421	16,315	1.2%
ARDMORE	5,079	5,304	5,746	16,129	1.2%
MIDWEST CITY	6,329	6,212	3,422	15,963	1.2%
CLAREMORE	5,432	5,102	5,129	15,663	1.1%

Table 1: EMS service Calls by incident city, Oklahoma 2009-2011 (all call types included, not all cities shown).

2009-2011 EMS Service Calls by Agency Region					
Agency Location	Year			Total # of Calls	% of Calls
	2009	2010	2011		
Region 8	107,060	117,902	119,507	344,469	25.0%
Region 7	106,774	113,130	115,190	335,094	24.3%
Region 3	48,180	50,495	55,574	154,249	11.2%
Region 4	45,841	48,112	50,326	144,279	10.5%
Region 2	45,185	46,132	50,509	141,826	10.3%
Region 5	37,292	38,638	42,771	118,701	8.6%
Region 1	24,387	24,972	28,048	77,407	5.6%
Region 6	19,939	20,532	21,596	62,067	4.5%
TOTALS	434,658	459,913	483,521	1,378,092	100.00%

Table 2: EMS service Calls by Agency location, Oklahoma 2009-2011 (all call types included).

2009-2011 EMS Service Calls by Incident Region					
Incident Region	Year			Total # of Calls	% of Calls
	2009	2010	2011		
Region 7	93,827	96,049	105,976	295,852	21.5%
Region 8	90,140	95,986	97,457	283,583	20.6%
Region 2	51,893	53,846	57,446	163,185	11.8%
Region 4	50,006	54,398	56,467	160,871	11.7%
Region 3	47,823	50,676	54,785	153,284	11.1%
Region 6	34,464	40,361	39,880	114,705	8.3%
Region 5	35,552	36,362	39,018	110,932	8.1%
Region 1	21,883	22,900	23,555	68,338	4.9%
Missing	8,503	8,811	8,215	25,529	1.9%
Out of State	567	524	665	1,756	0.1%
TOTALS	434,658	459,913	483,464	1,378,035	100.00%

Table 3: EMS service Calls by service call location, Oklahoma 2009-2011 (all call types included).

Highest Call Volume, EMS Providers, Oklahoma 2009-2011					
EMS Agency Name	2009	2010	2011	Total # of Calls	% of Calls
EMSA-East Division	81,759	87,234	90,031	259,024	18.8%
EMSA-West Division	76,820	83,555	92,058	252,433	18.3%
Muskogee County EMS	19,191	18,826	19,856	57,873	4.2%
EMSSTAT-Norman Reg Hosp EMS	12,357	14,093	15,521	41,971	3.1%
Pafford EMS of Oklahoma	12,235	11,583	11,802	35,620	2.6%
Midwest Reg Hosp EMS*	13,130	13,063	7,026	33,219	2.4%
React EMS	9,262	9,940	9,919	29,121	2.1%

Table 4: Call volume by EMS Provider, Oklahoma 2009-2011

*Data submission not complete for 2011

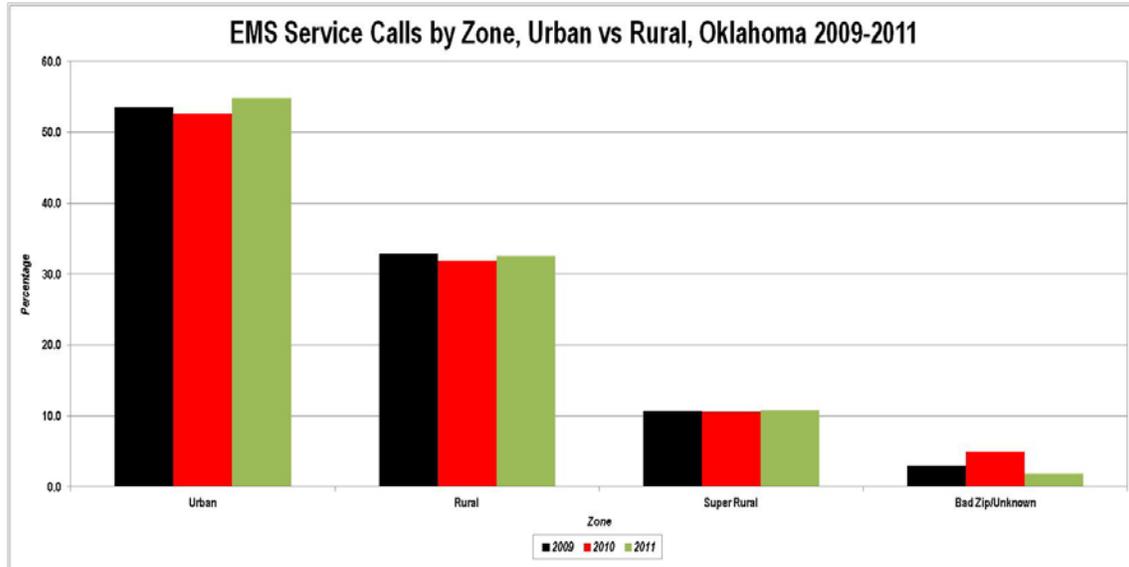


Figure 2: EMS service Calls by service Zone, Urban vs. Rural, Oklahoma 2009-2011 (all call types included).

EMS Service Calls by Type of Service Requested and Call Outcome

- The majority of EMS calls in Oklahoma for 2009 to 2011 were 911 Responses (79.8%) followed by Inter-Facility Transfers (9.8%, [Table 5](#)).
- Most patients were treated and transported by EMS (75.3%) followed by Patient Refusals (10.4%) and No Patient Found (3.9%, [Table 6](#)).

EMS Service Calls by Type of Service Requested, Oklahoma 2009-2011					
Type of Call	Year			Total # of Calls	% of Calls
	2009	2010	2011		
911 Response	345,520	369,863	384,628	1,100,011	79.8%
Inter-facility Transfer	40,344	42,887	51,592	134,823	9.8%
Missing	25,813	24,153	24,212	74,178	5.4%
Medical Transport	18,262	17,538	16,645	52,445	3.8%
Standby	3,309	4,168	5,280	12,757	0.9%
Intercept	864	736	581	2,181	0.2%
Mutual Aid	533	563	573	1,669	0.1%
Null Value (NA, NK, etc.)	**	**	**	**	**
Flag Down/Walk-in Emergent	**	**	**	**	**
Totals	434,658	459,913	483,521	1,378,092	100.00%

Table 5: EMS service Calls by call type, Oklahoma 2009-2011.

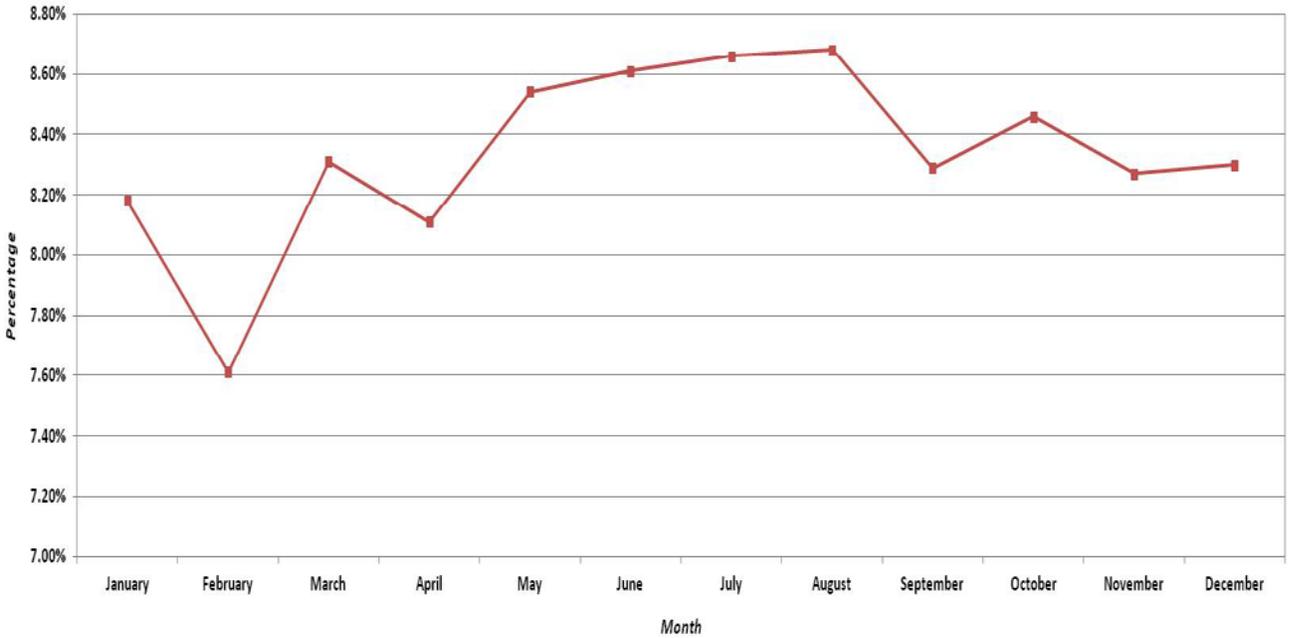
EMS Service Calls by Call Outcome, Oklahoma 2009-2011					
Call Outcome	Year			Total # of Calls	% of Calls
	2009	2010	2011		
<i>Treated, Transported by EMS</i>	332,043	348,268	363,369	1,043,680	75.7%
<i>Patient Refused Care</i>	43,942	47,751	51,165	142,858	10.4%
<i>No Patient Found</i>	12,321	17,303	23,383	53,007	3.9%
<i>Cancelled</i>	16,591	19,153	16,574	52,318	3.8%
<i>No Treatment Required</i>	8,845	10,885	12,955	32,685	2.4%
<i>Treated and Released</i>	6,416	6,277	6,825	19,518	1.4%
<i>Dead at Scene</i>	4,113	4,047	4,243	12,403	0.9%
<i>Treated, Transferred Care</i>	3,020	3,201	2,725	8,946	0.7%
<i>Missing</i>	5,162	731	671	6,564	0.5%
<i>Null Value (NA, NK, etc.)</i>	956	1,050	503	2,509	0.2%
<i>Treated, Transported by Private Vehicle</i>	699	590	547	1,836	0.1%
<i>Treated, Transported by Law Enforcement</i>	458	542	472	1,472	0.1%
<i>Standby only-No Patient Contacts</i>	89	114	89	292	0.02%
<i>Unable to Locate Patient/Scene</i>	**	**	**	**	**
Totals	434,658	459,913	483,521	1,378,092	100.00%

[Table 6: EMS service Calls by call outcome, Oklahoma 2009-2011.](#)

EMS Service Calls Weekday, Month, and Time of Day

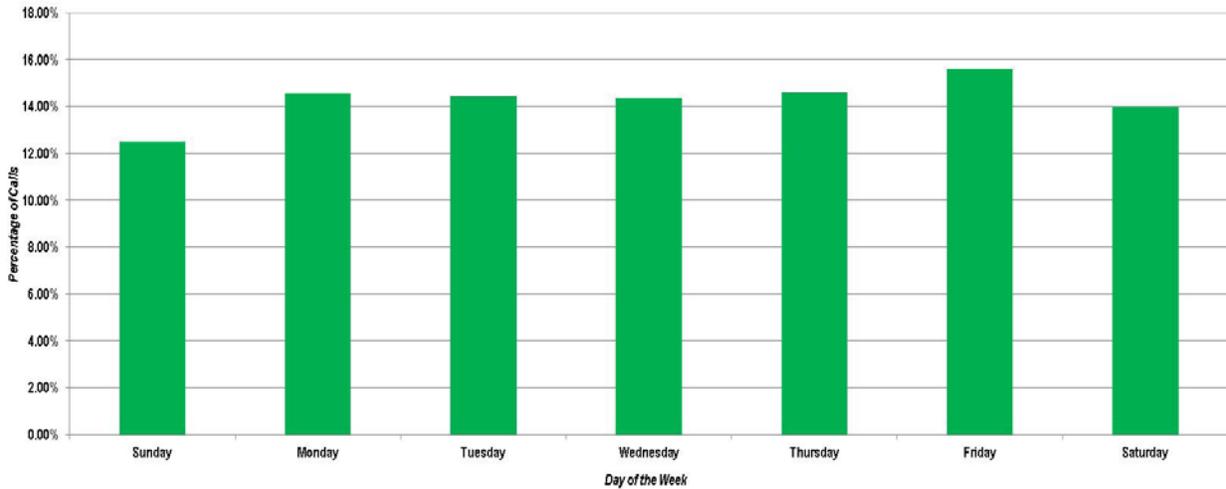
- The months of May through August had the highest percentage of calls (34.5%) with February having the lowest percentage (7.6%, [Figure 3](#)).
- 15.6% of all EMS Service calls occurred on Friday for 2009 through 2011 followed by Thursday (14.6%).
- Sunday (12.5%) had the lowest percentage of service calls for all three years.
- Forty-Four percent of the all EMS service calls occurred on Thursday, Friday, and Saturday ([Figure 4](#)) for the specified time period.
- Approximately 51% of all calls between 2009 and 2011 occurred between 9:00am and 6:00pm ([Figure 5](#)).
- Just over 77% of all calls between 2009 and 2011 occurred between 9:00am and midnight ([Figure 5](#)).

EMS Service Calls by Month, Oklahoma 2009-2011

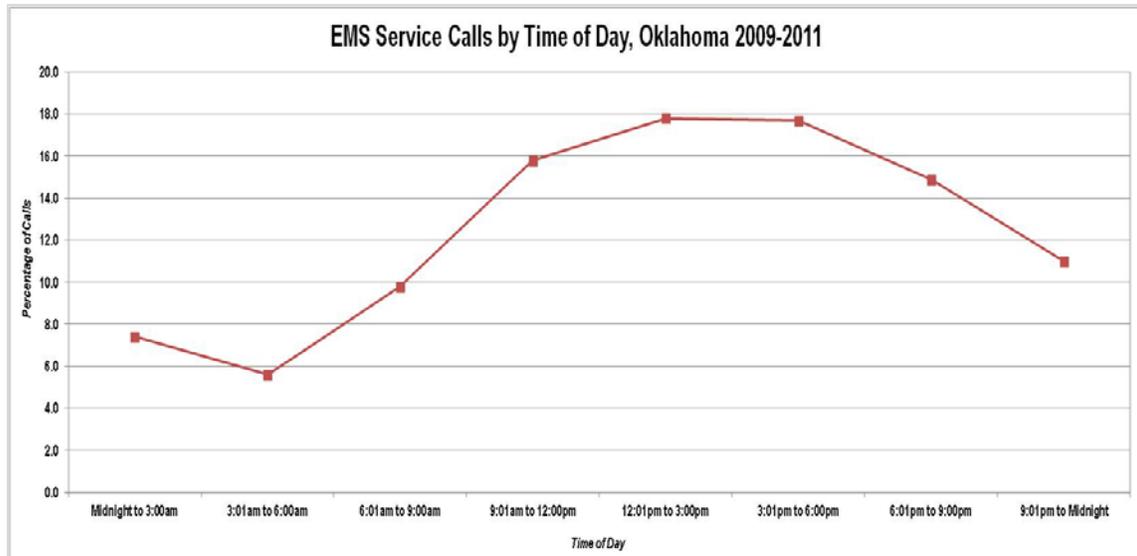


[Figure 3: EMS service Calls by Month, Oklahoma 2009-2011.](#)

EMS Service Calls by Day of the Week, Oklahoma 2009-2011



[Figure 4: EMS service Calls by Day of the Week, Oklahoma 2009-2011.](#)



[Figure 5: EMS service Calls by Time of Day, Oklahoma 2009-2011.](#)

EMS Service Calls by Gender, Age, and Racial Group

- Just over 50% of the EMS Service Calls for 2009 through 2011 were Female with 42.1% being Male. Gender was not recorded for 7.4% of the patients.
- Patients that were 50 and over made up 63.3% of all the EMS service calls with the 80+ age group making up 20.7%, the highest percentage of all the age groups.
- The 80+ age group also had the highest rate per 1,000 population ([Figure 7](#)) at 587.6 in 2011, 2.3 times higher than the second highest age group(70 to 79, 256/1,000 population).
- The 20 to 29 age group had the biggest rate increase from 2009 to 2011 at 62/1,000 population, a 12% increase compared to 2009(54/1,000 population).
- Call frequency was similar for Males and Females by age group except for the 60 to 69, 70 to 79, and 80+ age groups which had more females than males.
- Rates by age and gender were similar between males and females with females having higher rates than males in the 70 to 79 and 80+ age groups for all three years ([Figure 8](#), [Figure 9](#)).
- The majority of the services calls for both years reported the patient racial group as White (68.5%) followed by Black/African American (9.7%) and American Indian/Alaska Native (4.9%, [Figure 12](#)).
- Black/African Americans (153/1,000 population) had the highest rate per 1,000 population followed by the White (109/1,000 population) racial group in 2011 ([Figure 13](#)). Pacific Islanders have a very small population percentage therefore the rate for that group may not be stable.

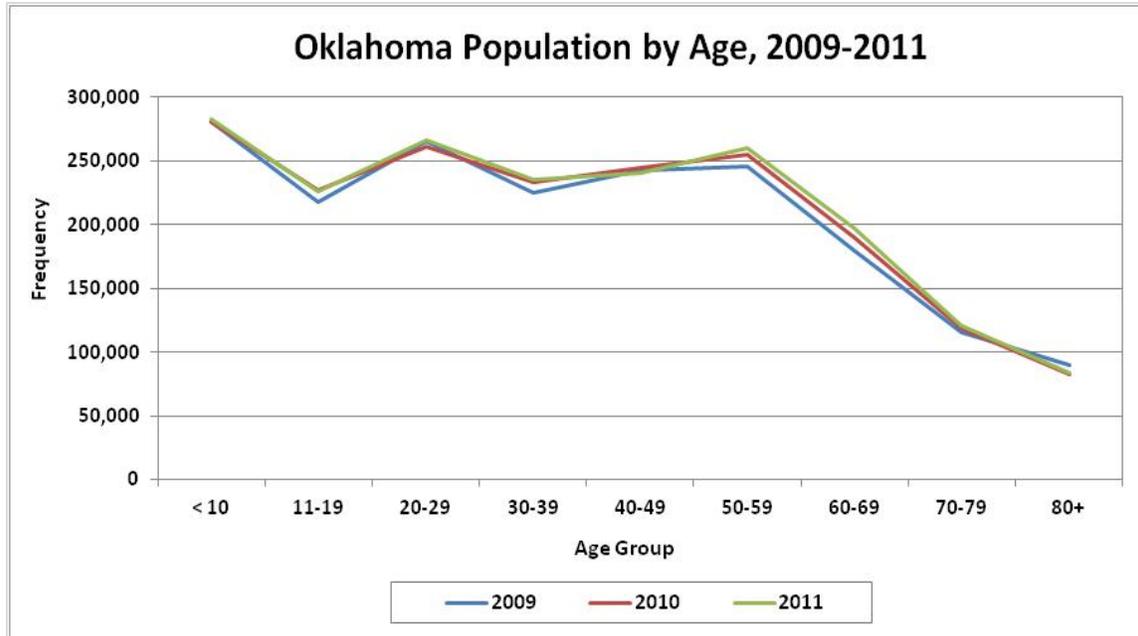


Figure 6: Oklahoma Population by Age, 2009-2011, US Census.

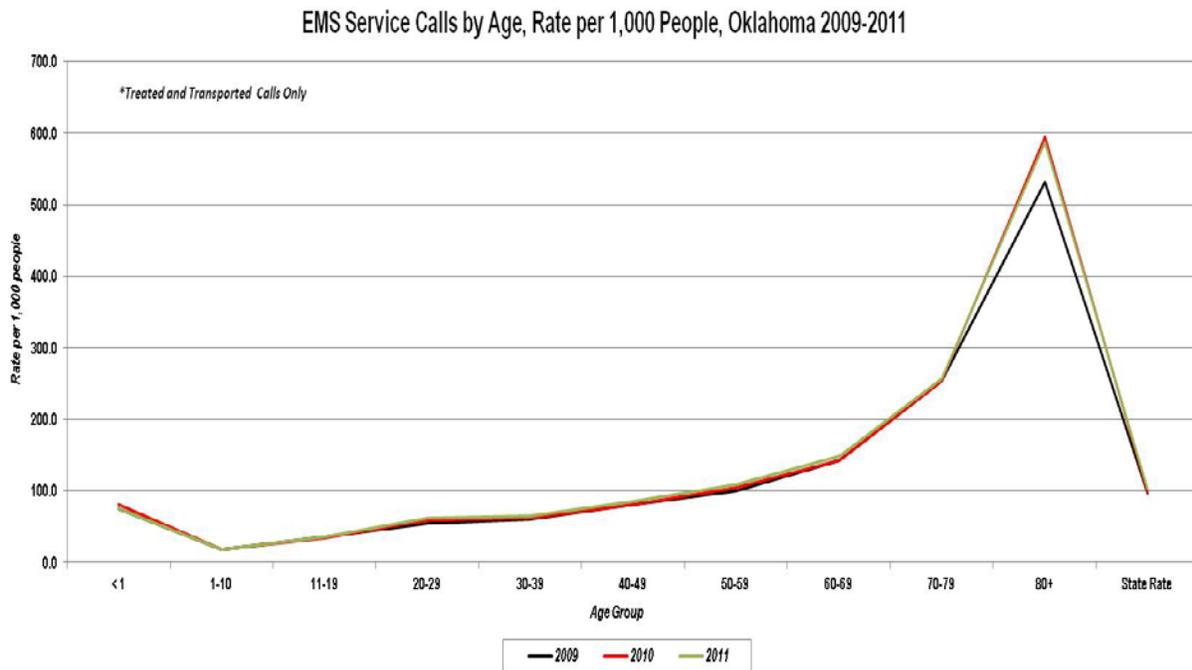


Figure 7: EMS Service Calls by Age, rate per 1,000 population.

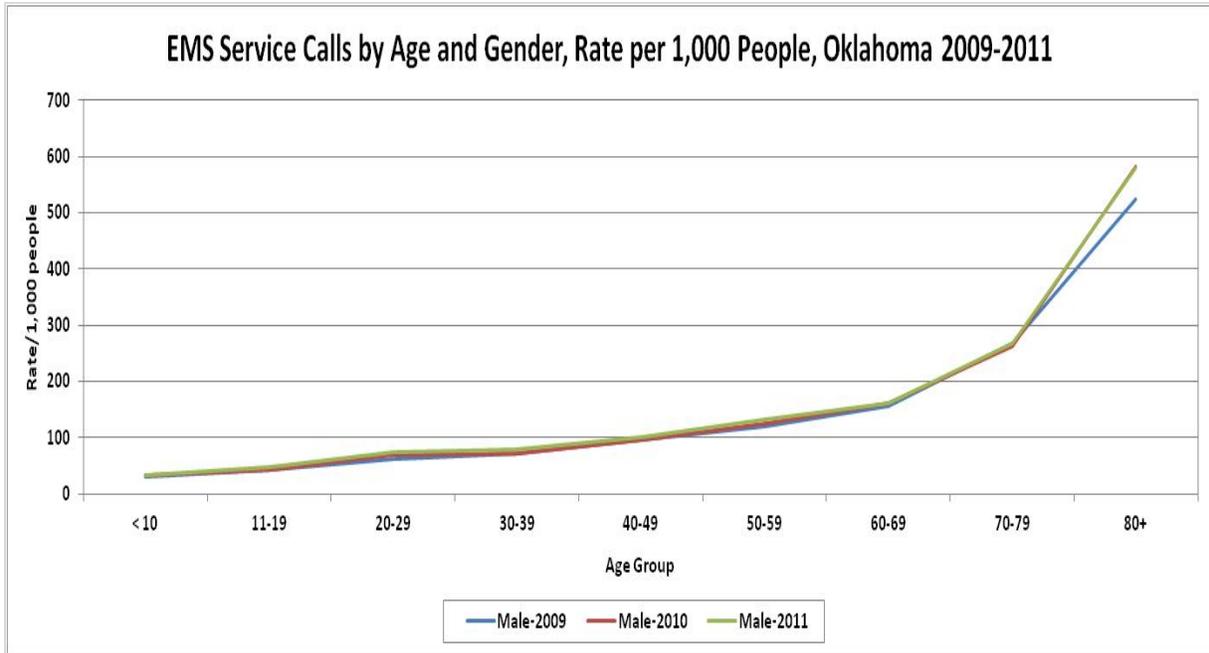


Figure 8: Rate of EMS service Calls by Age Group and Gender, Males, Oklahoma 2009-2011.

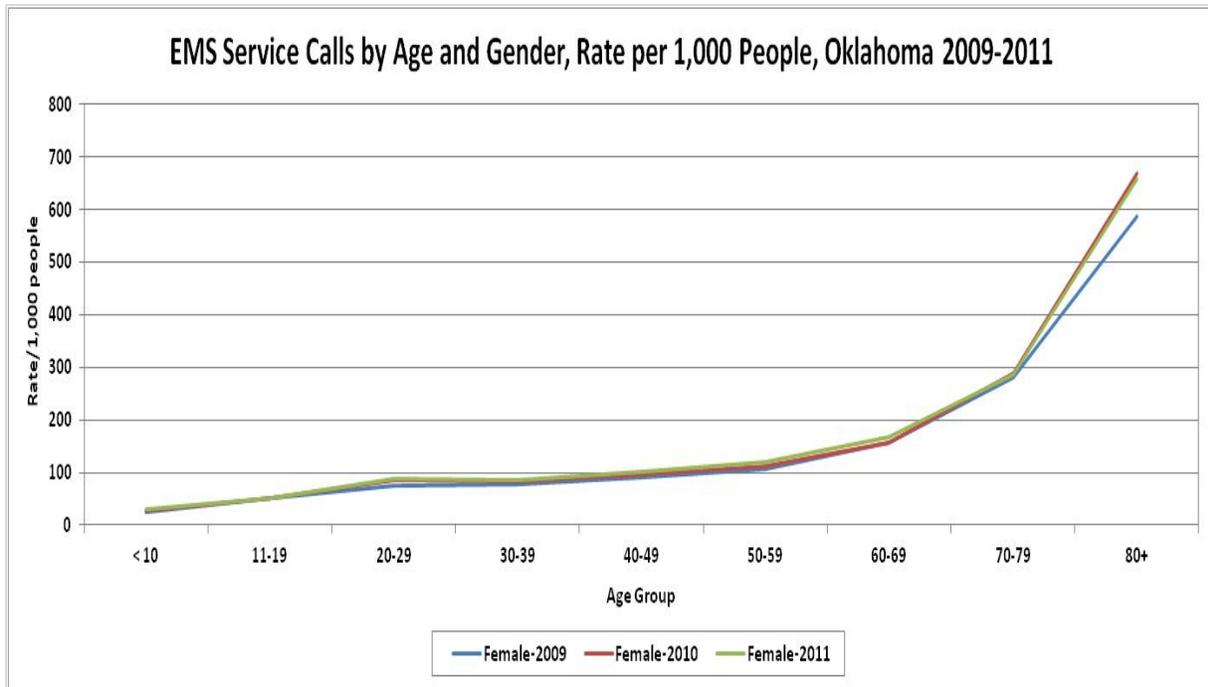


Figure 9: Rate of EMS service Calls by Age Group and Gender, Females, Oklahoma 2009-2011.

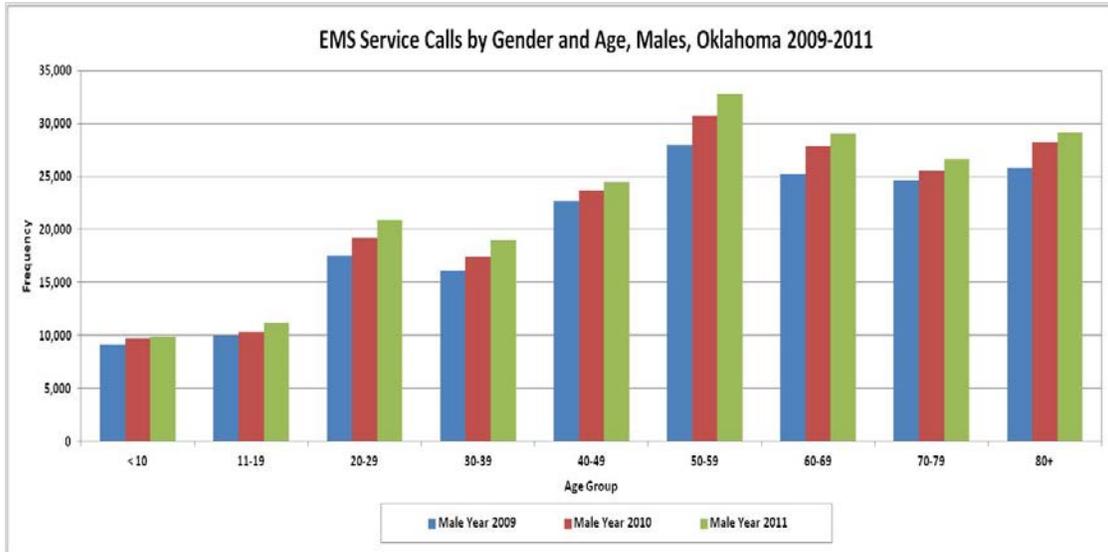


Figure 10: EMS service Calls by Age Group and Gender, Males, Oklahoma 2009-2011.

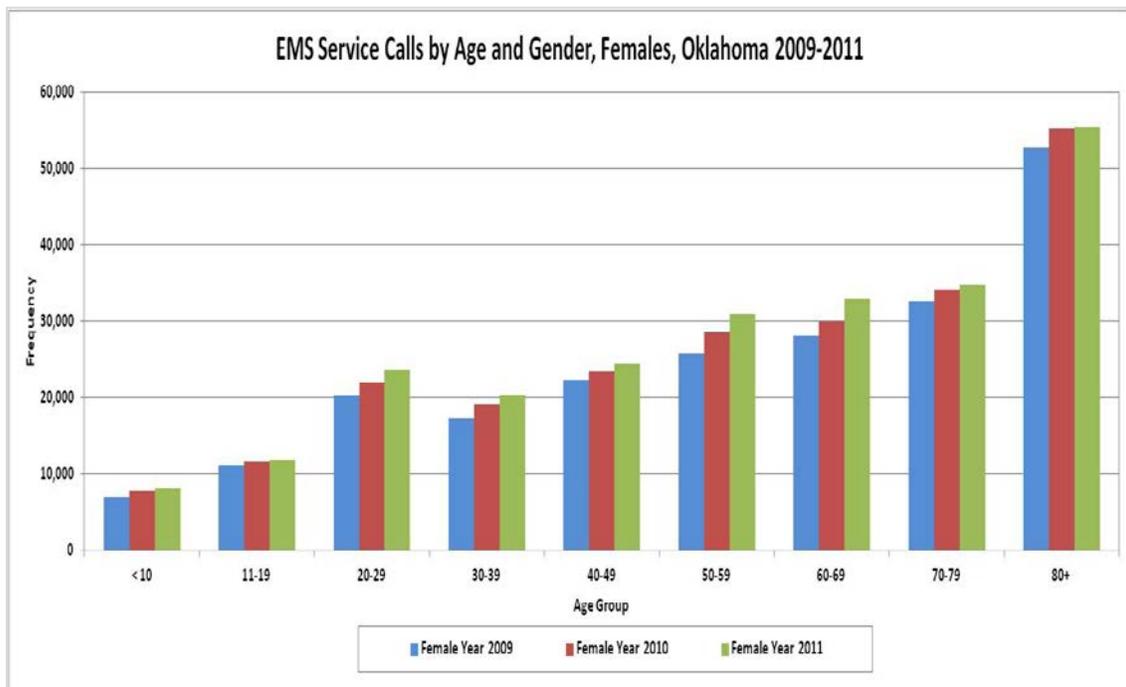


Figure 11: EMS service Calls by Age Group and Gender, Females, Oklahoma 2009-2011.

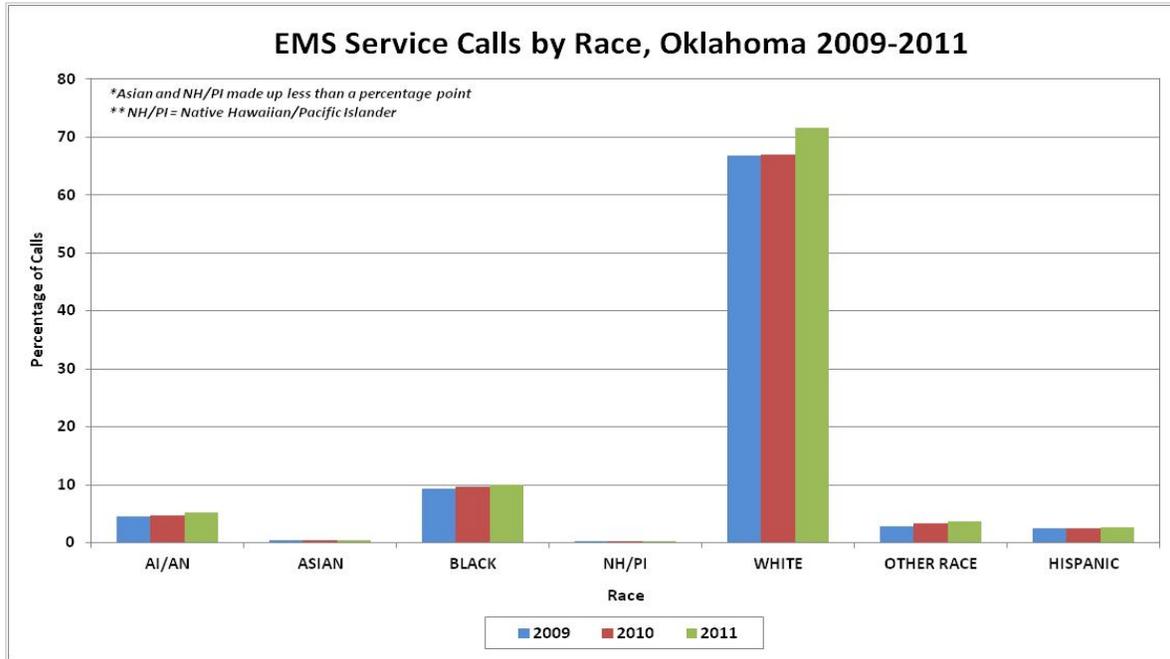


Figure 12: EMS service Calls by Race, Oklahoma 2009-2011.

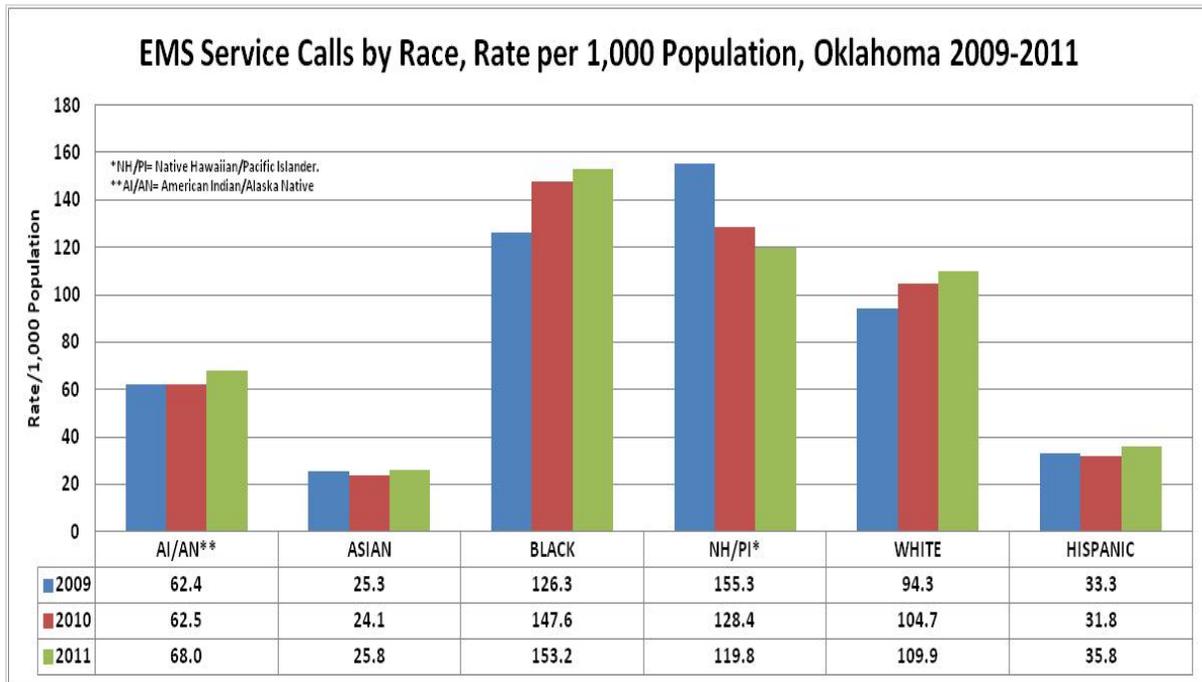


Figure 13: EMS service Calls by Race, rate per 1,000 people, Oklahoma 2009-2011.

Run Times for EMS Service Calls in Oklahoma

Run times in Oklahoma are effected by several factors including geography, level of service, and urban areas versus rural areas. Oklahoma has all the above factors listed and the following statistics should be interpreted with these factors in mind. *Response Time* is defined as the time interval between the time the ambulance was dispatched and the time the ambulance arrived on scene. *Scene Time* is defined as the time interval between the time the ambulance arrived on scene and the time the ambulance left the scene. *Total Time* is defined as the time interval between the time the ambulance was dispatched and the time it reached its destination (ex. hospital, nursing home).

2011 Response Times for EMS Service Calls in Oklahoma (Cancelled Calls Excluded)

- The overall average response time for Oklahoma in 2011 was 7.6 minutes ([Figure 14](#)).
- Cotton County had the longest response time at 23.6 minutes followed by Haskell County at 15.7 minutes ([Map 2](#)).
- Custer County (5.1 minutes) had the shortest response time followed by Kay County (5.2 minutes) in 2011.
- Region 5 had the longest response time followed by Region 4 ([Figure 14](#)).
- Region 8 had the shortest response time followed by Region 7 in 2010.

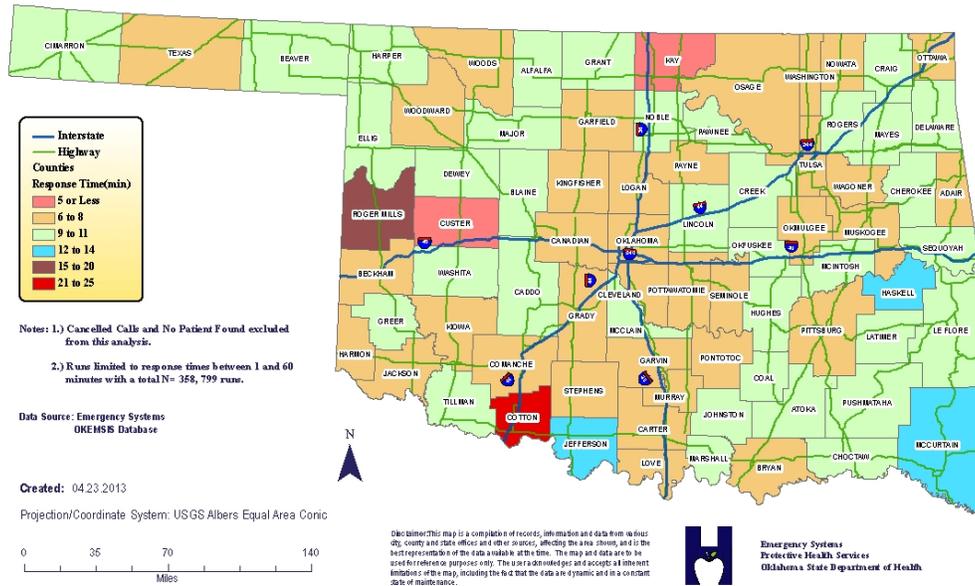
2011 Scene Times for EMS Service Calls in Oklahoma (Treated and Transported Calls Only)

- The overall average scene time for Oklahoma in 2011 was 18.9 minutes ([Figure 15](#)).
- Tulsa County had the longest scene time at 23.1 minutes followed by Oklahoma County at 20.8 minutes ([Map 3](#)).
- Harmon County (10.5 minutes) had the shortest scene time followed by Tillman County (10.8 minutes) in 2011.
- Region 7 (Tulsa County) had the longest scene time followed by Region 8 (Oklahoma County, [Figure 15](#)).
- Region 3 had the shortest scene time followed by Region 1 in 2011.

2011 Total Times for EMS Service Calls in Oklahoma (Treated and Transported Calls Only)

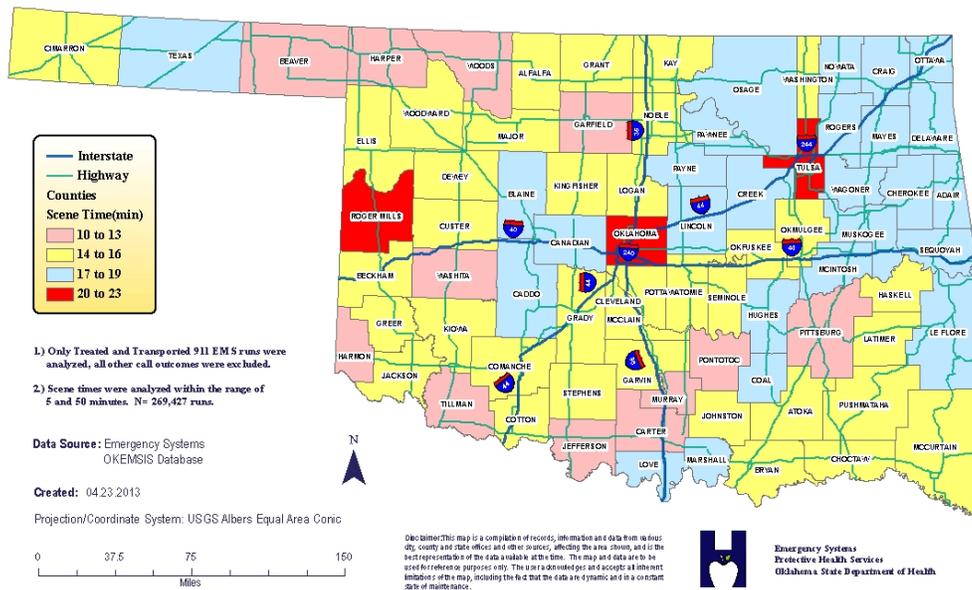
- The overall average total time for Oklahoma in 2011 was 41.8 minutes ([Figure 16](#)).
- Roger Mills County had the longest total time at 83.1 minutes followed by Alfalfa County at 70.5 minutes ([Map 4](#)).
- Harmon County had the shortest total time at 22.4 minutes followed by Kay County at 27.2 minutes.
- Region 7 had the longest total time followed by Region 4 in 2011 ([Figure 16](#)).
- Region 1 had the shortest total time in 2011 followed by Region 3.

Average Response Time for 911 Calls by County, Oklahoma 2011



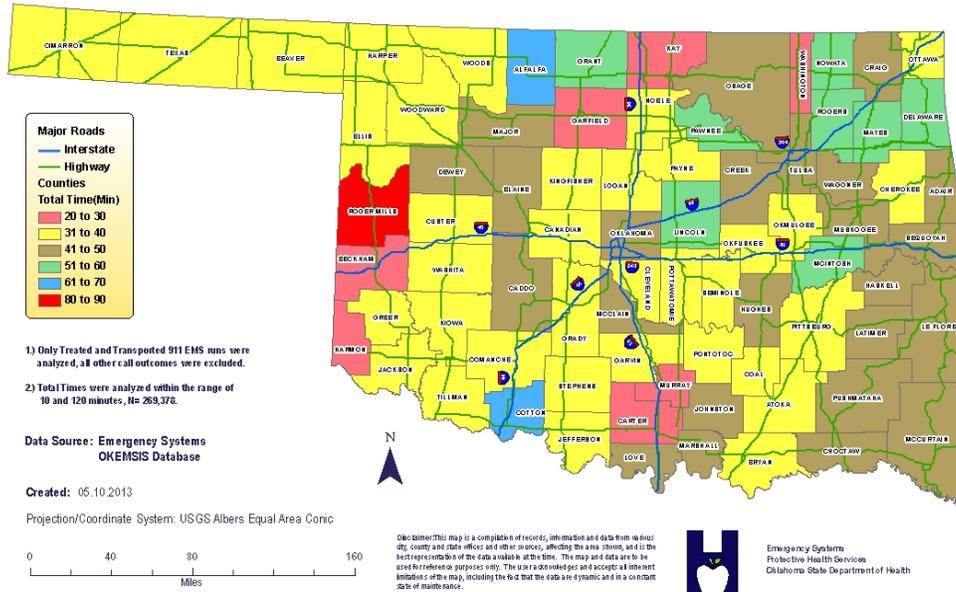
Map2: Average response time by County, Oklahoma 2011.

EMS Service Calls by County, Scene Time, Oklahoma 2011



Map3: Average scene time by County, Oklahoma 2011.

Average Total Time by County, 911 EMS Calls, Oklahoma 2011



Map 4: Average total time by County, Oklahoma 2011.

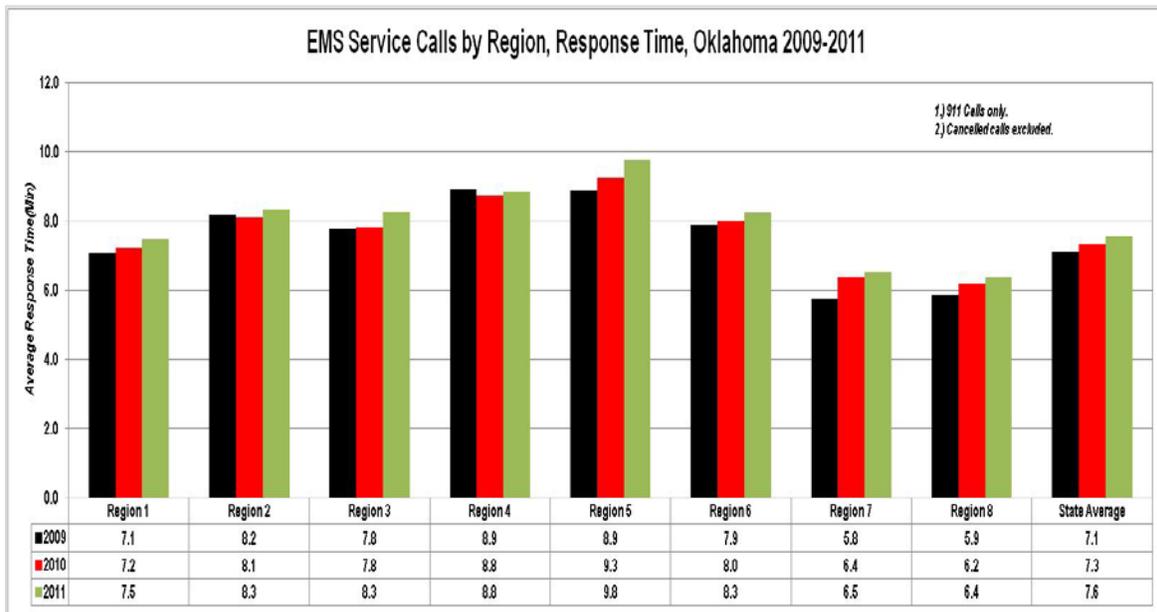


Figure 14: EMS response time for 911 calls by region, Oklahoma 2009-2011.

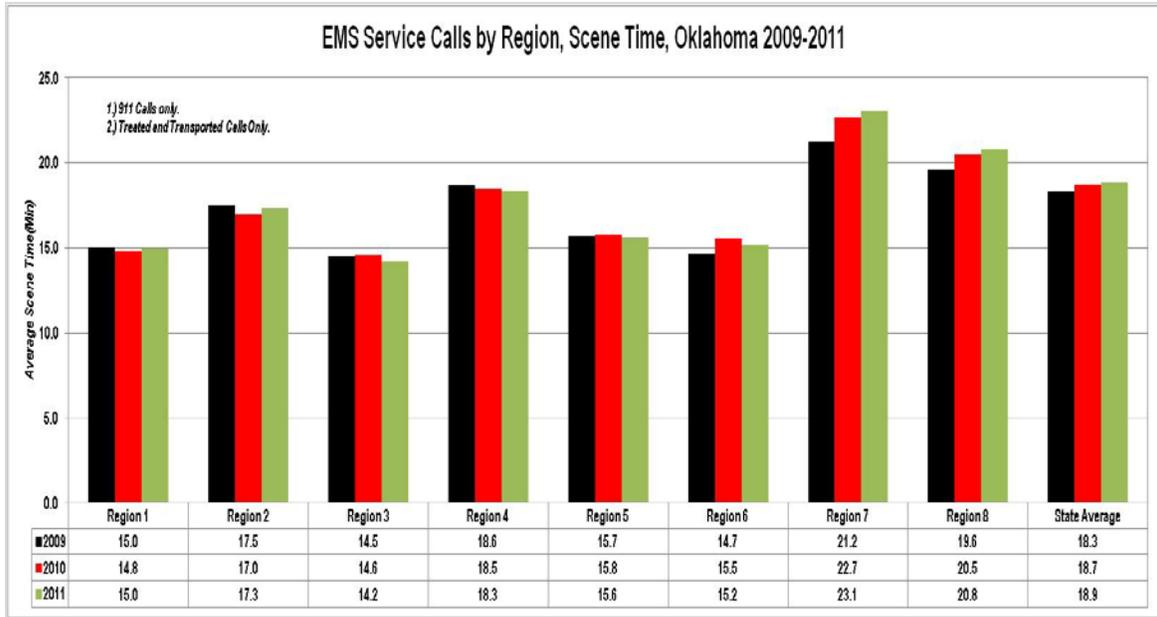


Figure 15: EMS scene time for 911 calls by region, Oklahoma 2009-2011.

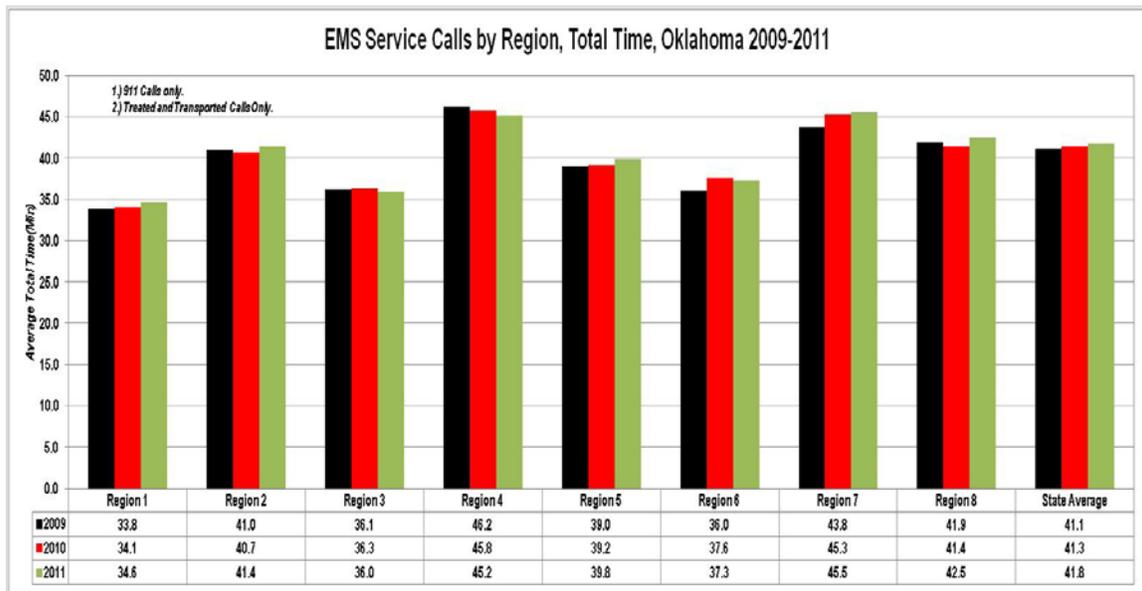


Figure 16: EMS total time for 911 calls by region, Oklahoma 2009-2011.

EMS Service Calls by Region**Region 1**

- Region 1 saw a 7.1% increase in the number of EMS calls from 2009 to 2011, the smallest increase of all the Oklahoma regions.
- 72.9% of all the service calls occurred in super rural areas with another 26.9% occurring in rural areas ([Figure 25](#)).
- Garfield County (27.0%) had the highest percentage of calls followed by Custer (16.7%), Beckham (9.9%), and Woodward (9.5%) counties.
- 25.3% of the service calls occurred in the City of Enid followed by Clinton (9.7%) and Woodward (8.4%).
- 95.4% of all service calls were transported by ground with 4.6% transported by an air service.
- Life EMS (26.5%) responded to the highest percentage of calls followed by Sinor EMS-Clinton (10.3%) in Region 1
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 17](#)).
- 15.6% of the service calls occurred on Friday with Sunday having the lowest percentage (12.9%).
- 69% were 911 calls followed by inter-facility transfers (14.2%).
- 74% were treated and transported followed by patient refusals (8.4%).
- 65.4% of all the service calls for Region 1 were in the 50+ age groups with the 80+ age group having the highest percentage (25.0%).
- 48.8% were female with 43.5% being male (7.7% unknown).
- 68.7% of the patients were reported as White followed by Hispanic (4.6%), American Indian/Alaska Native (3.4%) and Black/African American (2.10%, [Figure 27](#)).
- 37.7% of the treated and transported service calls had a location type of “Home/Residence” followed by “Healthcare Facility” (34.3%) and “Street or Highway” (10.9%).
- 82.5% of all Region 1 treated and transported service calls had a destination type of “hospital” followed by “nursing home” (7.7%).
- Saint Mary’s Regional Medical Center received the highest percentage of treated and transported calls followed by Integris Bass Baptist Health Center and Integris Clinton Regional Hospital ([Table 9](#)).
- “Closest facility” was the reason for choosing the destination 35.8% of the time followed by “patient choice” (26.3%) and “family choice” (6.3%) ([Figure 30](#)).
- Traumatic Injury made up 19% of the total calls in Region 1 from 2009-2011 ([Figure 26](#)).
- 29.7% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 19.5% ([Figure 28](#)).

- 56.7% of the traumatic injuries had a mechanism of injury of “blunt” followed by “penetrating” (2.1%) and “burn” (0.67%). 37.2% were missing/null values ([Figure 29](#)).

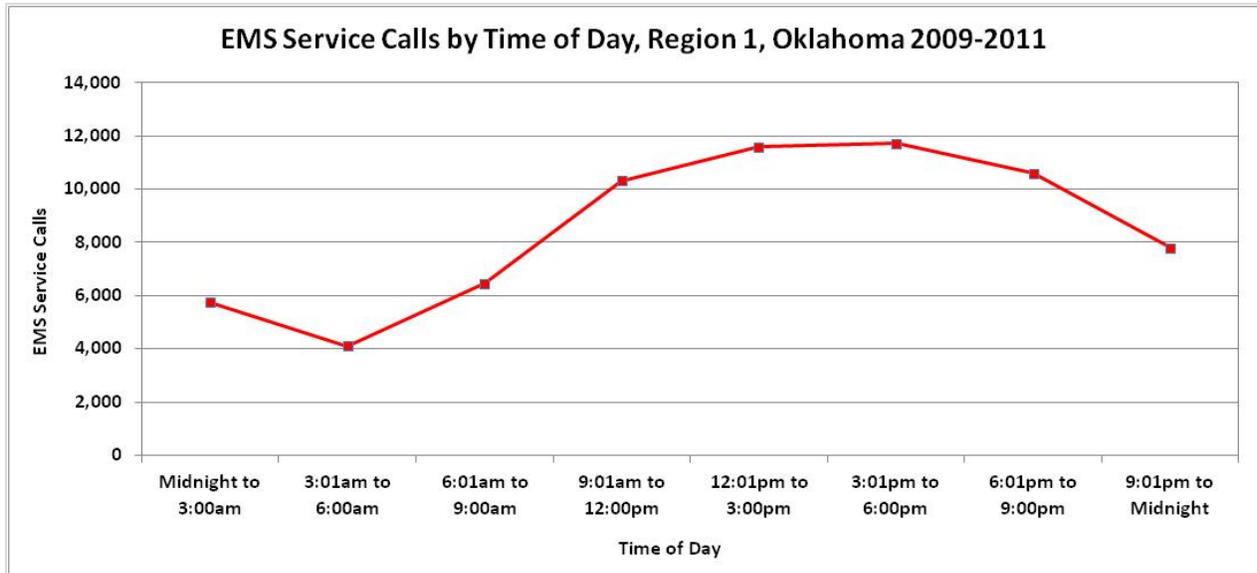


Figure 17: EMS service calls by time of day, Region 1, Oklahoma 2009-2011.

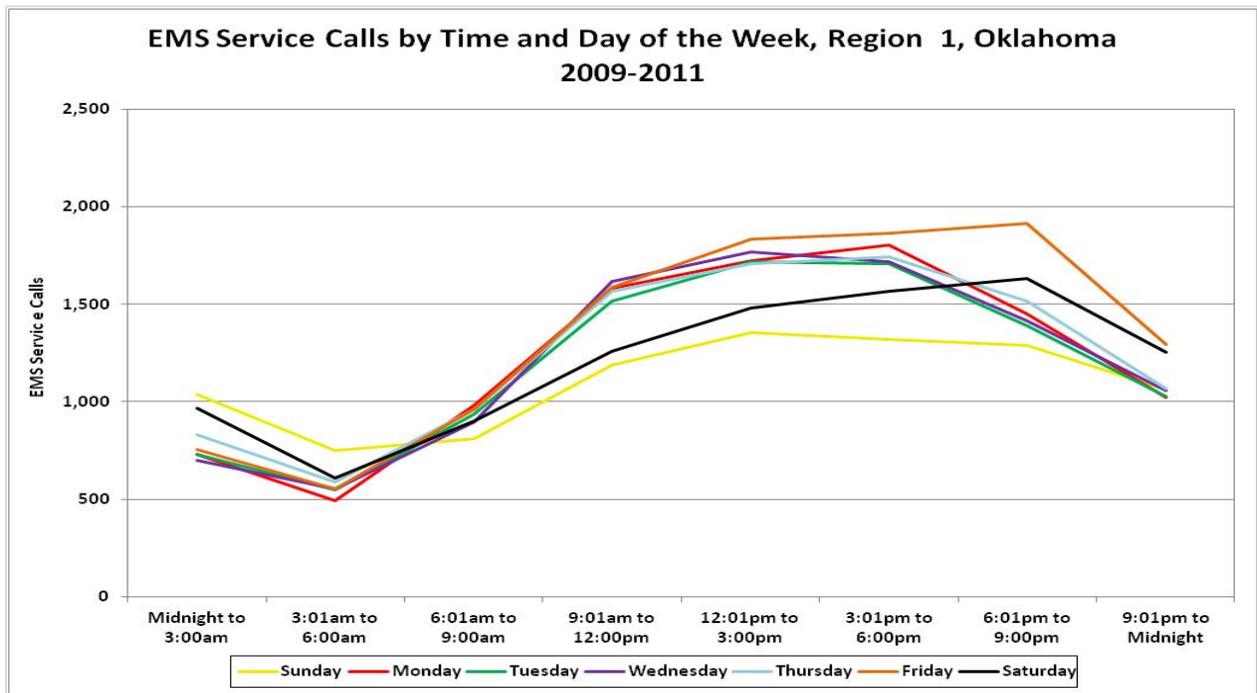


Figure 17b: EMS service calls by time of day and Day of the Week, Region 1, Oklahoma 2009-2011.

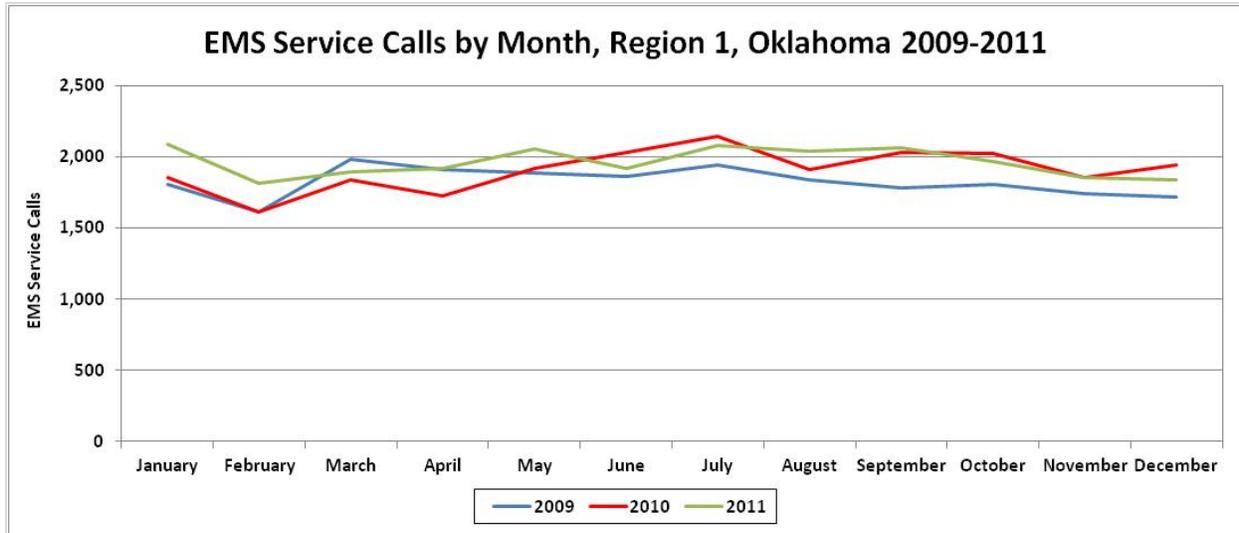


Figure 31: EMS service calls by month, Region 1, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 1, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
Missing	4,526	4,203	3,577	12,306	19.2%
Venous Access - Extremity	2,038	3,114	4,114	9,266	14.5%
Assessment – Adult	2,504	3,026	2,889	8,419	13.1%
Cardiac Monitor	2,541	2,453	1,578	6,572	10.3%
Null Values (Not Applicable, etc.)	3,997	3,741	4,375	12,113	18.9%
Blood Glucose Analysis	787	846	868	2,501	3.9%
Pulse Oximetry	678	448	755	1,881	2.9%
Stretcher	427	573	712	1,712	2.7%
Spinal Immobilization	86	433	689	1,208	1.9%
Venous Access-Existing Catheter/IV Monitoring	246	459	473	1,178	1.8%
Spinal Immobilization-Long Back Board	448	354	188	990	1.6%
Other	18	192	599	809	1.3%

Table 7: Procedures Performed, Region 1, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 1, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
Missing	4,531	5,059	4,610	14,200	22.2%
Null Values (Not Applicable, etc.)	8,905	8,041	9,586	26,532	41.4%
Oxygen by Nasal Cannula	3,276	3,062	1,950	8,288	12.9%
Oxygen	468	1,572	2,828	4,868	7.6%
Oxygen (non-rebreather mask)	1,500	1,381	881	3,762	5.9%
Normal Saline	334	758	1,170	2,262	3.5%
Oxygen by Positive Pressure Device	213	165	62	440	0.7%
Oxygen by Mask	161	107	90	358	0.6%
Albuterol Sulfate	95	104	140	339	0.5%
Dextrose 50% (D50)	142	97	62	301	0.5%
Ondansetron (Zofran)	109	81	86	276	0.4%
Morphine Sulfate	100	70	89	259	0.4%

Table 8: Medications Given, Region 1, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 1, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
Missing	277	2,611	5,116	8,004	15.83%
Saint Mary's Regional Medical Center Enid	2,477	1,768	761	5,006	9.90%
Integrus Bass Baptist Health Center	2,168	1,529	584	4,281	8.47%
Integrus Clinton Regional Hospital	1,263	1,262	1,354	3,879	7.67%
Great Plains Regional Medical Center	954	1,103	1,187	3,244	6.42%
Woodward Regional Hospital & Health Center	1,036	964	1,154	3,154	6.24%
Nursing Home/Rest Home/Long Term Care	990	775	489	2,254	4.46%
Weatherford Regional Hosp	563	661	772	1,996	3.95%
OU Medical Center University Hospital (all)	459	478	482	1,419	2.81%
Memorial Hospital of Texas County	433	481	487	1,401	2.77%
Share Memorial Hospital	507	435	439	1,381	2.73%

Table 9: Top ten service call destinations, Region 1, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 2

- Region 2 saw a 9.7% increase in the number of EMS calls from 2009 to 2011.
- 69.9% of all the service calls occurred in rural areas with 20.4% occurring in urban areas followed by 9.5% in super rural areas ([Figure 25](#)).
- Osage County (16.5%) had the highest percentage of calls followed by Rogers (14.8%), Payne (13.5%), and Mayes (10.1%) counties.
- 10% of the service calls occurred in the City of Owasso followed by Claremore (9.6%) and Stillwater (8.6%).
- 96.5% of all service calls were transported by ground with 3.5% transported by an air service.
- Pafford EMS (12.9%) responded to the highest percentage of calls followed by Mercy Regional EMS (9.2%), Mayes Emergency Service Trust Authority (8.7%), and Bartlesville Ambulance Service (7.8%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 18](#)).
- 15.5% of the service calls occurred on Friday with Sunday having the lowest percentage (13.1%).
- 73.9% were 911 calls followed by inter-facility transfers (14.9%).
- 72.5% were treated and transported followed by patient refusals (11.2%).
- 66.8% of all the service calls for Region 2 were in the 50+ age groups with the 80+ age group having the highest percentage (23.5%).
- 51.6% were female with 43.1% being male (5.3% unknown).
- 69.2% of the patients were reported as White followed by American Indian/Alaska Native (6.3%), Black/African American (2.1%), and Hispanic (1.2%, [Figure 27](#)).
- 35.2% of the treated and transported service calls had a location type of “Home/Residence” followed by “Healthcare Facility” (35%) and “Street or Highway” (13.7%).
- 83.3% of all Region 2 treated and transported service calls had a destination type of “hospital” followed by “nursing home” (7.8%).
- Saint John Medical Center received the highest percentage of treated and transported calls followed by Saint Francis Hospital and Ponca City Medical Center ([Table 12](#)).
- “Closest facility” was the reason for choosing the destination 40.8% of the time followed by “patient choice” (17.3%), “Protocol” (10.9%), and “family choice” (5.1%, [Figure 30](#)).
- Traumatic Injury made up 14.3% of the total calls in Region 2 from 2009-2011 ([Figure 26](#)).
- 25.5% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 19.1% ([Figure 28](#)).
- 38.9% of the traumatic injuries had a mechanism of injury of “blunt” followed by “penetrating” (2.2%) and “burn” (0.8%). 51.2% were missing/null values ([Figure 29](#)).

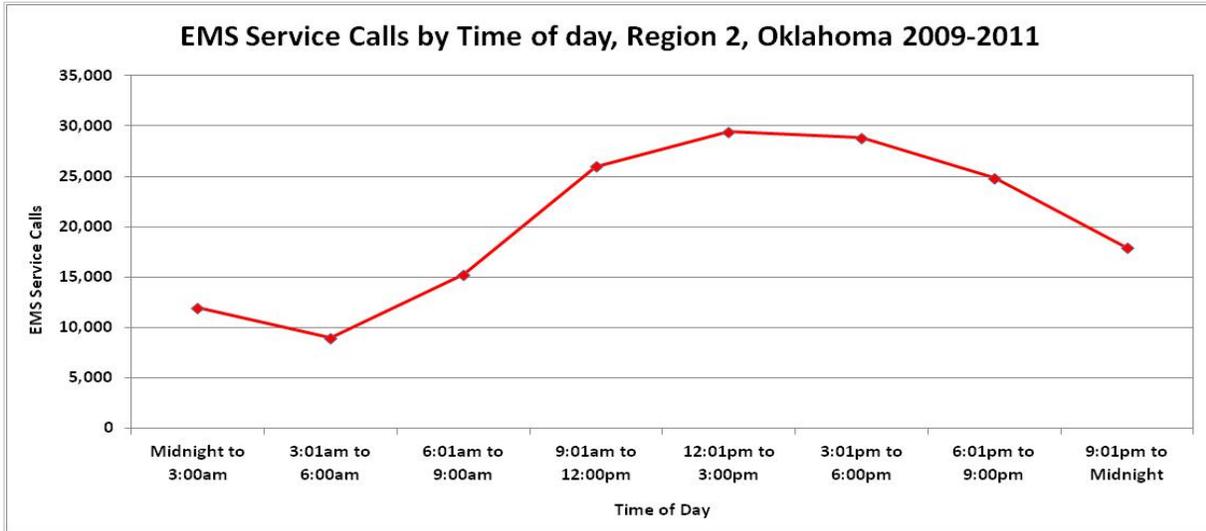


Figure 18: EMS service calls by time of day, Region 2, Oklahoma 2009-2011.

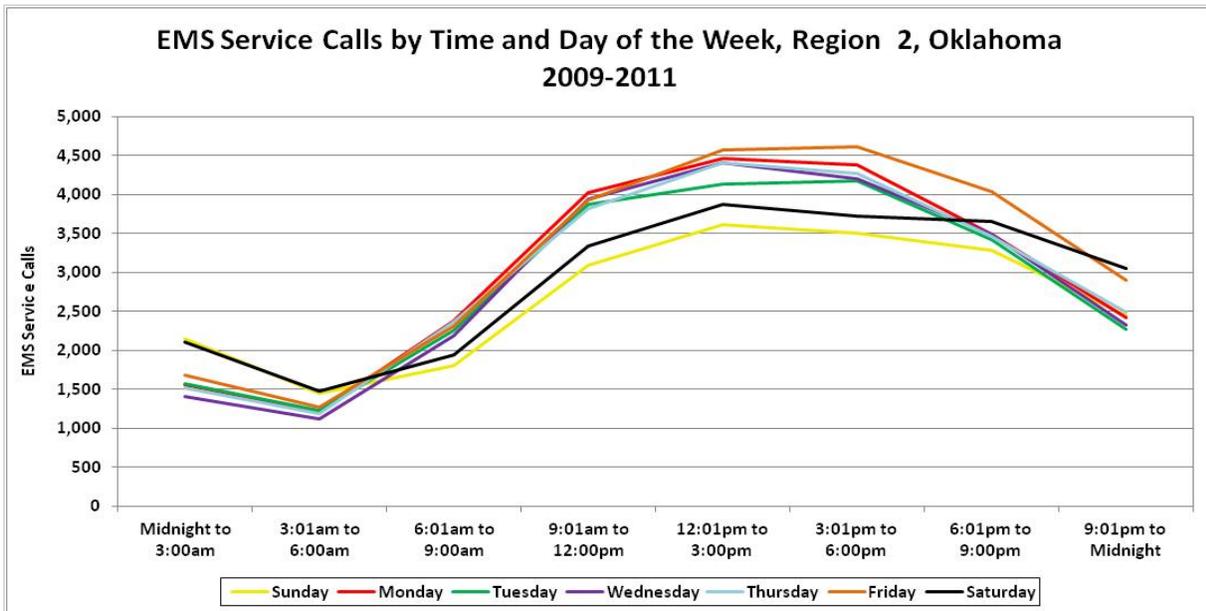


Figure 18b: EMS service calls by time and day of the week, Region 2, Oklahoma 2009-2011.

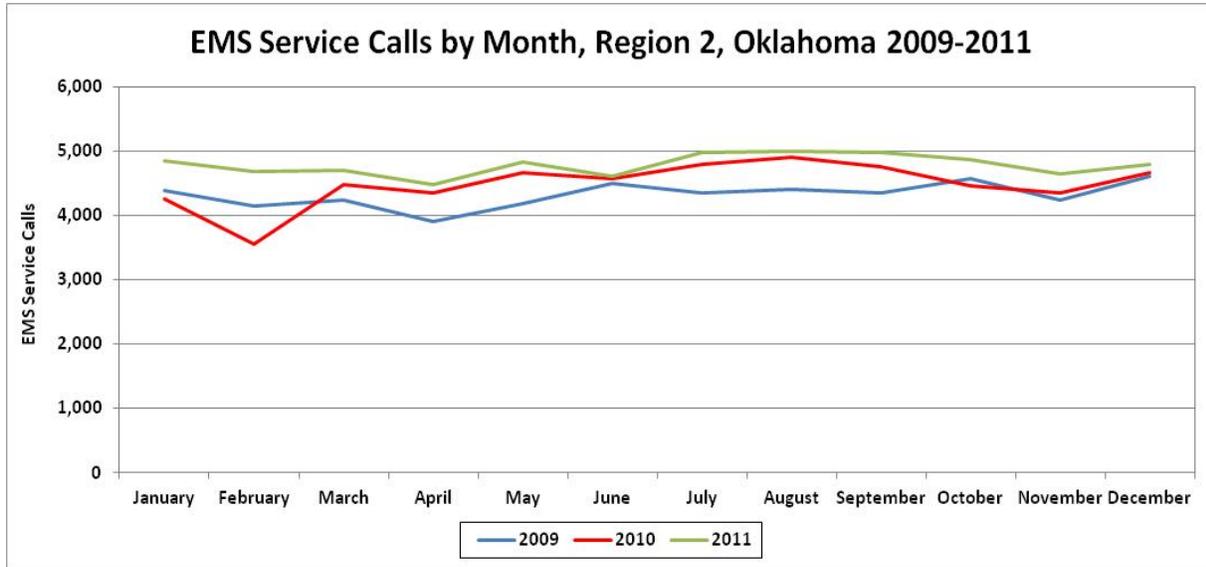


Figure 32: EMS service calls by month, Region 2, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 2, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	11,947	11,656	13,315	36,918	23.5%
<i>Assessment – Adult</i>	6,930	10,859	13,158	30,947	19.7%
<i>Missing</i>	14,166	8,277	5,823	28,266	18.0%
<i>Venous Access - Extremity</i>	3,695	3,783	5,262	12,740	8.1%
<i>Cardiac Monitor</i>	2,782	4,623	4,032	11,437	7.3%
<i>12 Lead ECG</i>	1,995	2,368	2,591	6,954	4.4%
<i>Blood Glucose Analysis</i>	1,548	2,043	1,934	5,525	3.5%
<i>Pulse Oximetry</i>	888	1,226	2,335	4,449	2.8%
<i>Venous Access - Femoral Line</i>	1,163	1,203	313	2,679	1.7%
<i>Spinal Immobilization</i>	244	926	1,135	2,305	1.5%
<i>Stretcher</i>	443	629	1,081	2,153	1.4%
<i>Venous Access-Existing Catheter/IV Monitoring</i>	394	686	609	1,689	1.1%

Table 10: Procedures Performed, Region 2, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 2, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	15,528	18,304	22,120	55,952	35.5%
<i>Missing</i>	16,409	11,467	8,854	36,730	23.3%
<i>Oxygen</i>	6,649	8,675	12,476	27,800	17.7%
<i>Oxygen by Nasal Cannula</i>	5,078	6,074	4,706	15,858	10.1%
<i>Oxygen (non-rebreather mask)</i>	1,474	1,702	1,079	4,255	2.7%
<i>Normal Saline</i>	870	1,187	1,397	3,454	2.2%
<i>Albuterol Sulfate</i>	467	405	337	1,209	0.8%
<i>Morphine Sulfate</i>	400	370	349	1,119	0.7%
<i>Aspirin (ASA)</i>	329	356	392	1,077	0.7%
<i>Dextrose 50% (D50)</i>	300	341	382	1,023	0.7%
<i>Nitroglycerin</i>	359	271	317	947	0.6%
<i>Fentanyl</i>	194	288	263	745	0.5%

Table 11: Medications Given, Region 2, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 2, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>Jane Phillips Medical Center</i>	4,409	2,863	4,456	11,728	9.9%
<i>Saint John Medical Center Inc</i>	3,218	3,148	3,129	9,495	8.0%
<i>Saint Francis Hospital Inc</i>	2,938	3,026	3,136	9,100	7.7%
<i>Ponca City Medical Center</i>	1,733	2,590	2,722	7,045	6.0%
<i>Hillcrest Medical Center Tulsa</i>	1,866	2,467	2,661	6,994	5.9%
<i>Stillwater Medical Center</i>	2,535	2,783	997	6,315	5.3%
<i>Integrus Baptist Regional Health Center Miami</i>	1,911	1,871	1,961	5,743	4.9%
<i>Nursing Home/Rest Home/Long Term Care</i>	2,119	1,844	1,528	5,491	4.6%
<i>Claremore Regional Hospital</i>	1,708	1,747	1,847	5,302	4.5%
<i>Missing</i>	85	789	4,061	4,935	4.2%
<i>Integrus Mayes County Medical Center</i>	1,501	1,640	1,694	4,835	4.1%

Table 12: Top ten service call destinations, Region 2, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 3

- Region 3 saw a 12.7% increase in the number of EMS calls from 2009 to 2011.
- 53.9% of all the service calls occurred in rural areas with 22.2% occurring in urban areas followed by 18.6% in super rural areas ([Figure 25](#)).
- Comanche County (25.4%) had the highest percentage of calls followed by Carter (13.2%), Pontotoc (10.3%), and Grady (9.3%) counties.
- 22.1% of the service calls occurred in the City of Lawton followed by Ardmore (10.5%) and Ada (9.5%).
- 97.2% of all service calls were transported by ground with 2.8% transported by an air service.
- Southern Oklahoma Ambulance Service (12.9%) responded to the highest percentage of calls followed by Kirk's Emergency Service (12.0%), Comanche County Memorial Hospital EMS (9.5%), and Valley View Regional EMS (8.1%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 19](#)).
- 15.5% of the service calls occurred on Friday with Sunday having the lowest percentage (12.6%).
- 75.4% were 911 calls followed by Missing (13.3%) and inter-facility transfers (5.1%).
- 71.6% were treated and transported followed by patient refusals (12.9%).
- 62.9% of all the service calls for Region 3 were in the 50+ age groups with the 80+ age group having the highest percentage (19.9%).
- 50.1% were female with 41.8% being male (8.2% unknown).
- 72.9% of the patients were reported as White followed by Black/African American (7.6%), American Indian/Alaska Native (7.5%), and Hispanic (3.4%, [Figure 27](#)).
- 44.6% of the treated and transported service calls had a location type of "Home/Residence" followed by "Healthcare Facility" (29.7%) and "Street or Highway" (10.8%).
- 81.3% of all Region 3 treated and transported service calls had a destination type of "hospital" followed by "nursing home" (2.0%).
- Comanche County Memorial Hospital received the highest percentage of treated and transported calls followed by Mercy-Ardmore and Valley View Regional ([Table 15](#)).
- "Closest facility" was the reason for choosing the destination 41.9% of the time followed by "patient choice" (22.5%), "Patient Physician Choice" (6.2%), and "Specialty Resource Center" (5.1%), [Figure 30](#).
- Traumatic Injury made up 15.2% of the total calls in Region 2 from 2009-2011 ([Figure 26](#)).
- 26.9% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 23.0%. 28.7% were "Unknown" ([Figure 28](#)).
- 36.7% of the traumatic injuries had a mechanism of injury of "blunt" followed by "penetrating" (2.5%) and "burn" (0.6%). 52.5% were missing/null values ([Figure 29](#)).

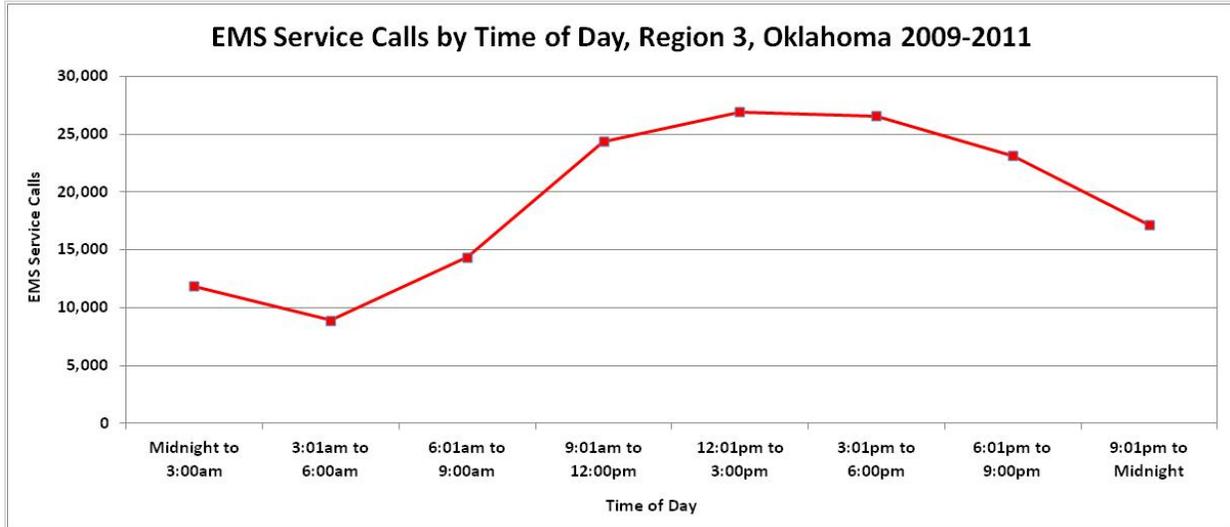


Figure 19: EMS service calls by time of day, Region 3, Oklahoma 2009-2011.

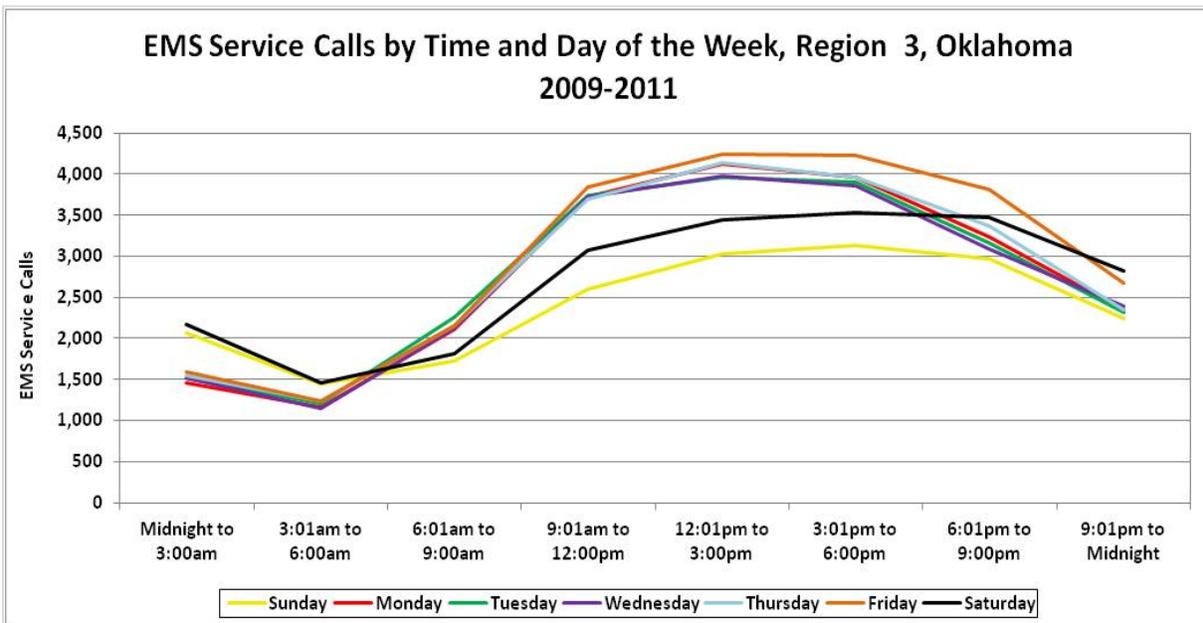


Figure 19b: EMS service calls by time and day of week, Region 3, Oklahoma 2009-2011.

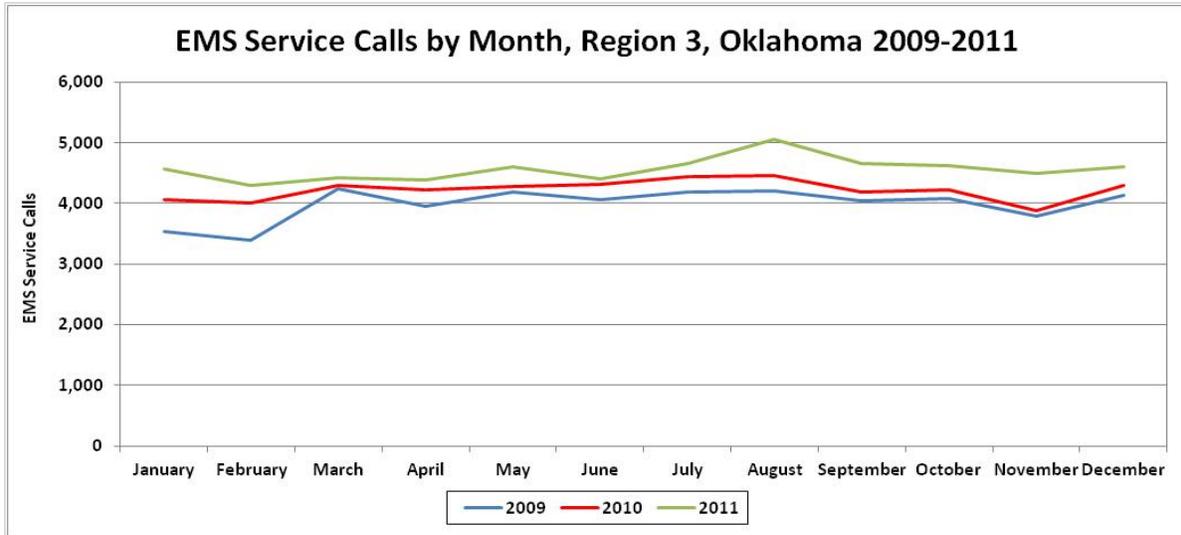


Figure 33: EMS service calls by month, Region 3, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 3, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
Missing	16,938	15,496	16,021	48,455	33.4%
Assessment – Adult	11,845	14,326	16,796	42,967	29.6%
Venous Access - Extremity	2,866	3,279	3,417	9,562	6.6%
Cardiac Monitor	2,356	2,459	2,402	7,217	5.0%
Pulse Oximetry	1,986	2,573	1,793	6,352	4.4%
Null Values (Not Applicable, etc.)	3,052	1,450	1,385	5,887	4.1%
Blood Glucose Analysis	1,542	1,741	1,691	4,974	3.4%
Airway - Cleared / Opened / or Heimlich	377	1,260	2,025	3,662	2.5%
Stretcher	749	818	1,406	2,973	2.1%
Assessment - Pediatric	411	477	592	1,480	1.0%
Saline Lock	569	479	222	1,270	0.9%
Cervical Spinal Immobilization – Rigid Collar	422	402	356	1,180	0.8%

Table 13: Procedures Performed, Region 3, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 3, 2009-2011					
Medications Given 1	2009	2010	2011	Total # of Calls	% of Calls
<i>Missing</i>	22,719	22,965	27,459	73,143	50.4%
<i>Null Values (Not Applicable, etc.)</i>	7,606	8,057	7,744	23,407	16.1%
<i>Oxygen by Nasal Cannula</i>	6,293	7,214	7,152	20,659	14.2%
<i>Normal Saline</i>	1,946	1,879	2,159	5,984	4.1%
<i>Oxygen (non-rebreather mask)</i>	1,806	1,957	1,725	5,488	3.8%
<i>Oxygen</i>	1,939	1,791	1,470	5,200	3.6%
<i>Albuterol Sulfate</i>	578	596	525	1,699	1.2%
<i>Aspirin (ASA)</i>	454	428	400	1,282	0.9%
<i>Dextrose 50% (D50)</i>	293	302	257	852	0.6%
<i>Morphine Sulfate</i>	248	254	251	753	0.5%
<i>Nitroglycerin</i>	237	200	209	646	0.5%
<i>Oxygen by Positive Pressure Device</i>	200	236	207	643	0.4%

Table 14: Medications Given, Region 3, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 3, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>Comanche County Memorial Hospital</i>	5,914	6,374	7,049	19,337	17.6%
<i>Mercy Memorial Health Center Inc Ardmore</i>	4,165	4,344	4,652	13,161	12.0%
<i>Valley View Regional Hospital Ada</i>	2,904	2,686	2,419	8,009	7.3%
<i>Duncan Regional Hospital Inc</i>	2,431	2,711	1,834	6,976	6.4%
<i>Integris Baptist Medical Center Inc OKC</i>	2,054	2,012	2,122	6,188	5.6%
<i>Grady Memorial Hospital</i>	1,362	1,986	1,726	5,074	4.6%
<i>Nursing Home/Rest Home/Long Term Care</i>	1,266	1,379	1,802	4,447	4.1%
<i>OU Medical Center University Hospital (all)</i>	1,262	1,457	1,485	4,204	3.8%
<i>Southwestern Medical Center Lawton</i>	1,273	1,456	1,438	4,167	3.8%
<i>Pauls Valley General Hospital</i>	1,209	1,224	1,287	3,720	3.4%

Table 15: Top ten service call destinations, Region 3, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 4

- Region 4 saw an 11.4% increase in the number of EMS calls from 2009 to 2011.
- 77.2% of all the service calls occurred in rural areas with 20.3% occurring in urban areas followed by 2.4% in super rural areas ([Figure 25](#)).
- Muskogee County (32.7%) had the highest percentage of calls followed by Creek (14.0%), Cherokee (12.8%), and Okmulgee (10.8%) counties.
- 22.2% of the service calls occurred in the City of Muskogee followed by Tahlequah (11.1%) and Sapulpa (8.0%).
- 97.4% of all service calls were transported by ground with 2.6% transported by an air service.
- Muskogee County EMS (33.7%) responded to the highest percentage of calls followed by Creek County Ambulance Service (11.2%), Okmulgee County EMS (9.9%), and Pafford EMS (7.2%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 20](#)).
- 15.8% of the service calls occurred on Friday with Sunday having the lowest percentage (12.1%).
- 74.6% were 911 calls followed by inter-facility transfers (12.5%).
- 77.0% were treated and transported followed by patient refusals (12.3%).
- 67.1% of all the service calls for Region 4 were in the 50+ age groups with the 80+ age group having the highest percentage (19.9%).
- 51.2% were female with 44.5% being male (4.3% unknown).
- 71.9% of the patients were reported as White followed by American Indian/Alaska Native (9.2%), Black/African American (7.8%), and Hispanic (1.0%, [Figure 27](#)).
- 38.6% of the treated and transported service calls had a location type of “Home/Residence” followed by “Healthcare Facility” (36.0%) and “Street or Highway” (8.2%).
- 76.3% of all Region 4 treated and transported service calls had a destination type of “hospital” followed by “nursing home” (7.9%).
- Muskogee Regional Medical Center received the highest percentage of treated and transported calls followed by St. Francis Hospital and Nursing Home/Long Term care facilities ([Table 18](#)).
- “Closest facility” was the reason for choosing the destination 26.7% of the time followed by “patient choice” (25.8%), “Other” (15.2%), and “Family Choice” (7.0%) ([Figure 30](#)).
- Traumatic Injury made up 10.4% of the total calls in Region 4 from 2009-2011 ([Figure 26](#)).
- 19.7% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 17.4%. 48.8% were “Unknown” ([Figure 28](#)).
- 32.1% of the traumatic injuries had a mechanism of injury of “blunt” followed by “penetrating” (1.7%) and “burn” (0.6%). 60.8% were missing/null values ([Figure 29](#)).

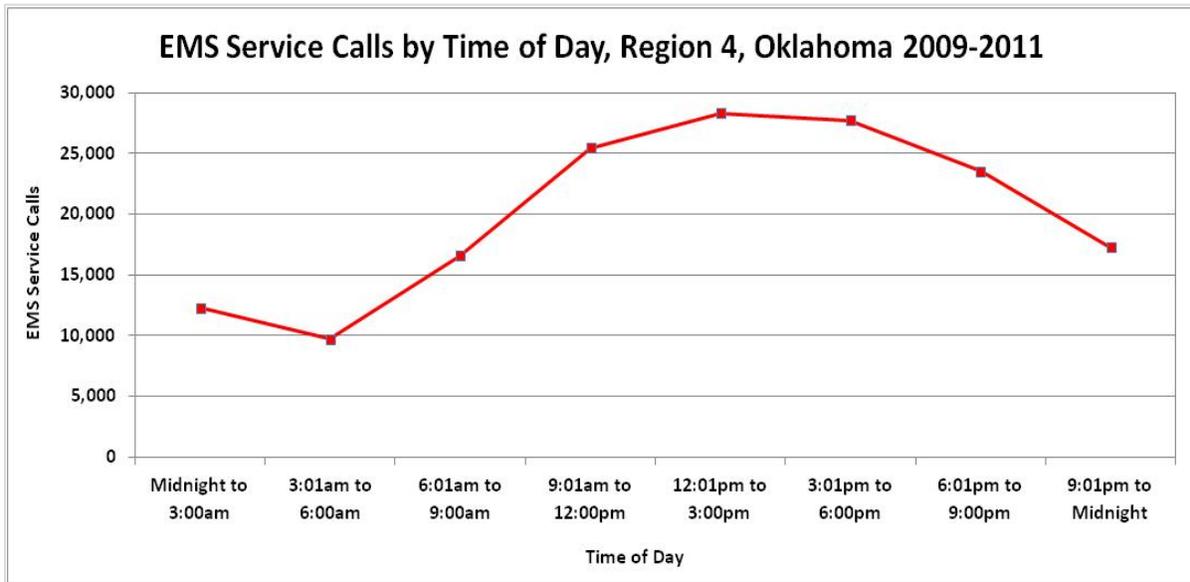


Figure 20: EMS service calls by time of day, Region 4, Oklahoma 2009-2011.

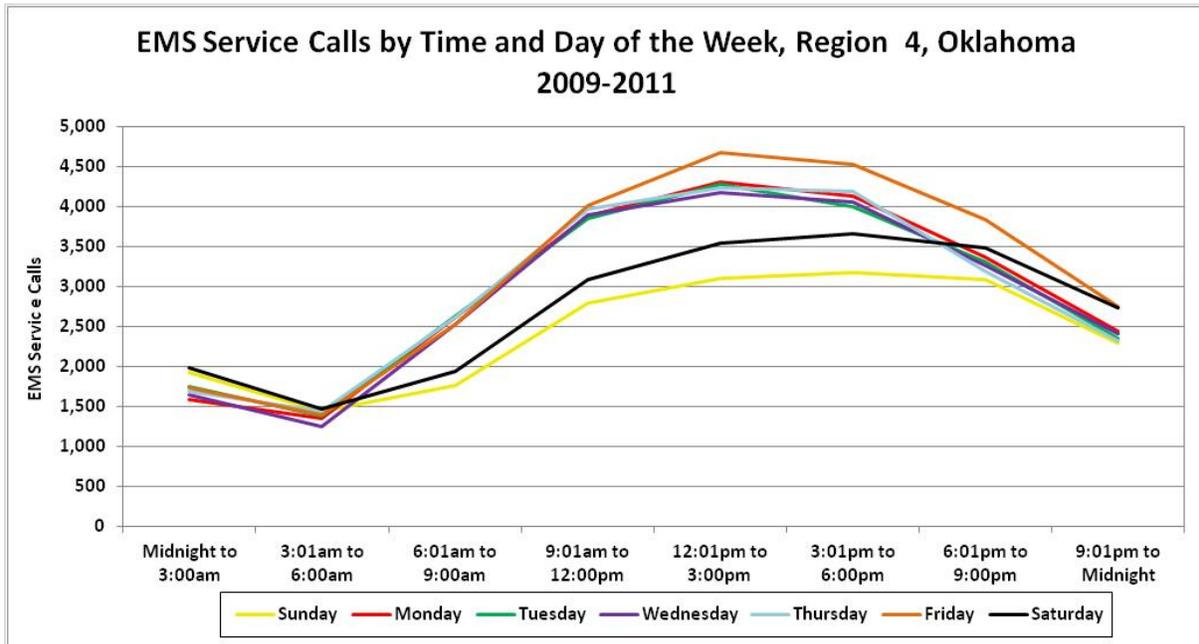


Figure 20b: EMS service calls by time and day of week, Region 4, Oklahoma 2009-2011.

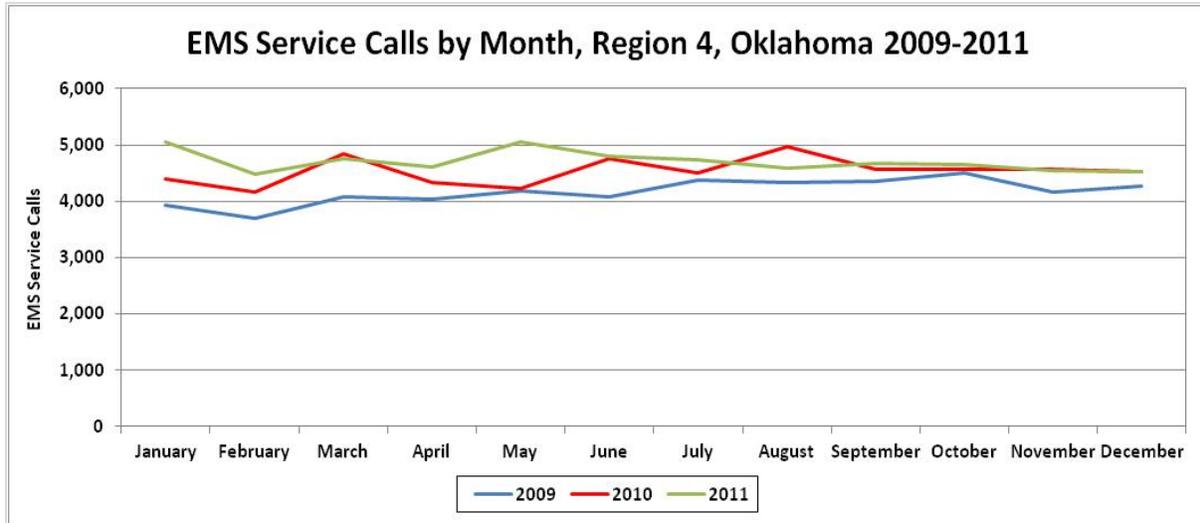


Figure 34: EMS service calls by month, Region 4, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 4, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
<i>Pulse Oximetry</i>	11,964	11,335	13,248	36,547	23.8%
<i>Null Values (Not Applicable, etc.)</i>	8,143	8,415	8,714	25,272	16.5%
<i>Assessment – Adult</i>	5,215	6,955	8,192	20,362	13.3%
<i>Missing</i>	7,323	5,473	4,473	17,269	11.2%
<i>Cardiac Monitor</i>	5,082	7,066	4,646	16,794	10.9%
<i>Venous Access - Extremity</i>	1,866	2,432	2,872	7,170	4.7%
<i>Venous Access-Existing Catheter/IV Monitoring</i>	1,333	1,365	1,384	4,082	2.7%
<i>Blood Glucose Analysis</i>	1,069	1,164	1,647	3,880	2.5%
<i>Other</i>	44	432	2,258	2,734	1.8%
<i>Spinal Immobilization-Long Back Board</i>	981	921	703	2,605	1.7%
<i>Spinal Immobilization</i>	223	787	1,413	2,423	1.6%
<i>Stretcher</i>	537	483	817	1,837	1.2%

Table 16: Procedures Performed, Region 4, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 4, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	18,185	19,481	22,792	60,458	39.4%
<i>Oxygen</i>	9,969	12,146	13,849	35,964	23.4%
<i>Missing</i>	10,158	8,437	8,067	26,662	17.4%
<i>Oxygen by Nasal Cannula</i>	5,829	6,162	4,168	16,159	10.5%
<i>Oxygen (non-rebreather mask)</i>	814	890	537	2,241	1.5%
<i>Normal Saline</i>	409	564	664	1,637	1.1%
<i>Aspirin (ASA)</i>	247	352	443	1,042	0.7%
<i>Dextrose 50% (D50)</i>	326	278	399	1,003	0.7%
<i>Ondansetron (Zofran)</i>	139	223	436	798	0.5%
<i>Morphine Sulfate</i>	219	287	245	751	0.5%
<i>Albuterol Sulfate</i>	237	256	244	737	0.5%
<i>Nitroglycerin</i>	207	246	252	705	0.5%

Table 17: Medications Given, Region 4, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

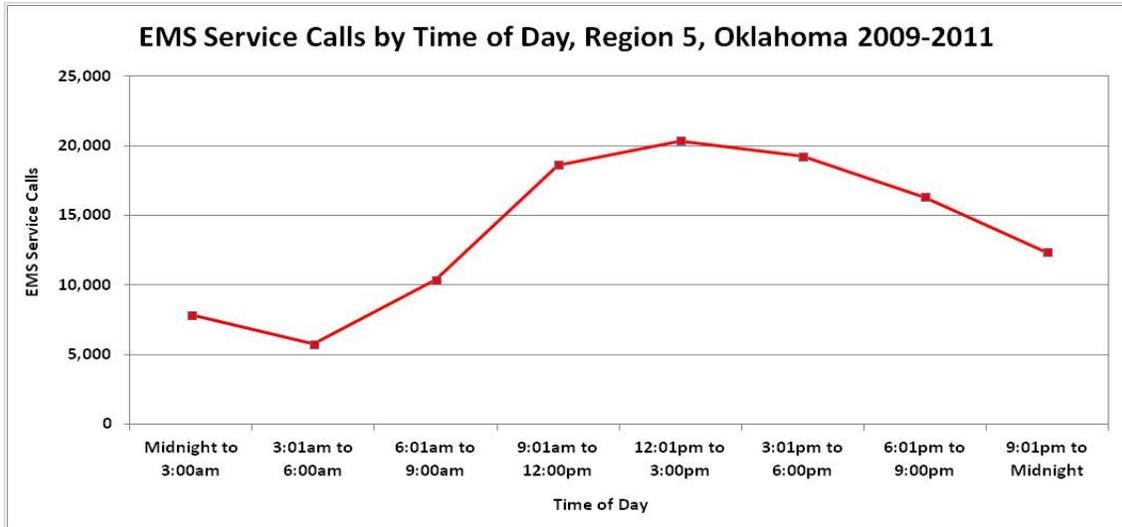
Top Ten Destinations, Region 4, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>Muskogee Regional Medical Center</i>	7,439	7,212	7,498	22,149	17.9%
<i>Saint Francis Hospital Inc</i>	3,607	4,148	3,310	11,065	8.9%
<i>Nursing Home/Rest Home/Long Term Care</i>	3,490	3,300	3,507	10,297	8.3%
<i>Saint John Medical Center Inc</i>	2,382	2,659	2,303	7,344	5.9%
<i>Tahlequah City Hospital</i>	2,664	2,590	1,794	7,048	5.7%
<i>Out of State Facility-AR</i>	2,158	2,384	2,472	7,014	5.7%
<i>Okmulgee Memorial Hospital</i>	1,797	1,795	1,747	5,339	4.3%
<i>Hillcrest Medical Center Tulsa</i>	1,412	1,619	1,305	4,336	3.5%
<i>Sequoyah Memorial Hospital</i>	1,276	1,105	1,138	3,519	2.8%
<i>Unknown</i>	649	1,217	1,553	3,419	2.8%
<i>Missing</i>	18	677	2,422	3,117	2.5%
<i>Private Residence</i>	946	902	936	2,784	2.3%

Table 18: Top ten service call destinations, Region 4, Oklahoma 2009-2011, (Treated and Transported calls only).

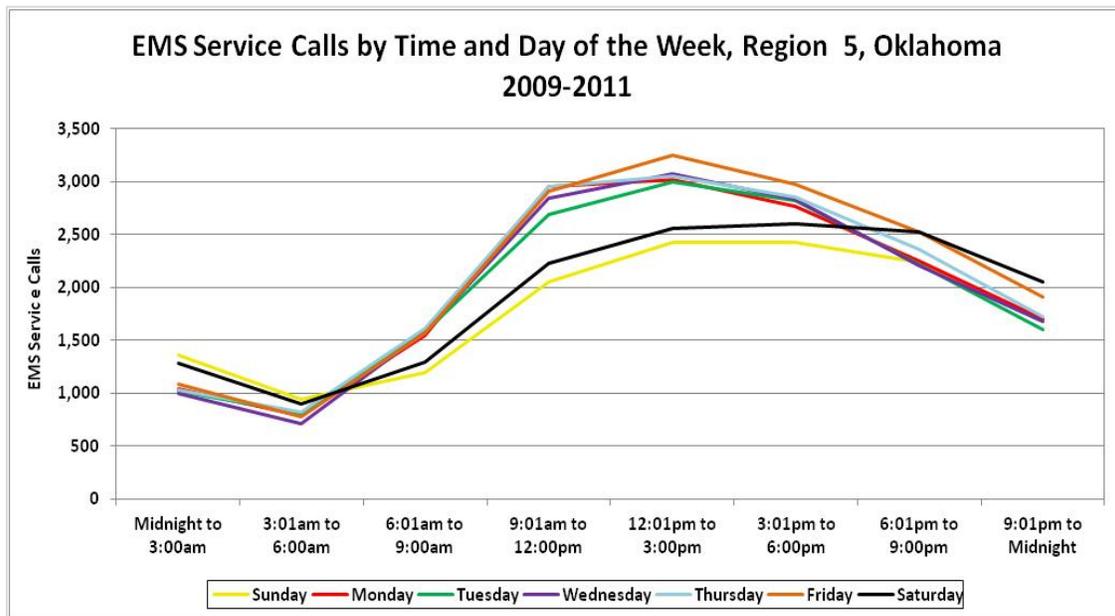
Region 5

- Region 5 saw an 8.8% increase in the number of EMS calls from 2009 to 2011.
- 51.5% of all the service calls occurred in rural areas with 43.7% occurring in super rural areas followed by 4.5% in urban areas ([Figure 25](#)).
- Bryan County (17.8%) had the highest percentage of calls followed by Pittsburg (16.4%), Le Flore (13.4%), and McCurtain (11.9%) counties.
- 12.4% of the service calls occurred in the City of Durant followed by McAlester (8.7%) and Idabel (6.4%).
- 95.2% of all service calls were transported by ground with 4.8% transported by an air service.
- Bryan County EMS (14.2%) responded to the highest percentage of calls followed by EMS of Le Flore County (11.5%), McCurtain County EMS (11.3%), and Para Med EMS (6.6%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 21](#)).
- 15.3% of the service calls occurred on Friday with Sunday having the lowest percentage (12.9%).
- 67.7% were 911 calls followed by Medical Transports (9.2%). 13.9% were missing for this element in Region 5.
- 77.5% were treated and transported followed by patient refusals (11.1%).
- 68.9% of all the service calls for Region 5 were in the 50+ age groups with the 80+ age group having the highest percentage (23.1%).
- 51.8% were female with 43.5% being male (4.7% unknown).
- 64.9% of the patients were reported as White followed by American Indian/Alaska Native (8.1%), Black/African American (4.5%), and Hispanic (1.2%, [Figure 27](#)).
- 38.4% of the treated and transported service calls had a location type of “Home/Residence” followed by “Healthcare Facility” (37.4%) and “Street or Highway” (12.4%).
- 78.6% of all Region 5 treated and transported service calls had a destination type of “hospital” followed by “nursing home” (3.4%). 15.5% were missing for this element.
- McAlester Regional Health Center (11.8%) and Medical Center of Southeastern Oklahoma (11.8%) both received the highest percentage of EMS service calls followed by McCurtain Memorial Hospital (7.4%, [Table 21](#)).
- “Closest facility” was the reason for choosing the destination 44.3% of the time followed by “patient choice” (11.8%), “Specialty Resource Center” (5.7%), and “Protocol” (5.1%). 20.6% were missing/null values in Region 5 for this element ([Figure 30](#)).
- Traumatic Injury made up 15.5% of the total calls in Region 4 from 2009-2011 ([Figure 26](#)).
- 26.4% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 19.2%. 38.7% were “Unknown” ([Figure 28](#)).

- 38.6% of the traumatic injuries had a mechanism of injury of “blunt” followed by “penetrating” (2.6%) and “burn” (0.7%). 52.0% were missing/null values ([Figure 29](#)).



[Figure 21: EMS service calls by time of day, Region 5, Oklahoma 2009-2011.](#)



[Figure 21b: EMS service calls by time and day of week, Region 5, Oklahoma 2009-2011.](#)

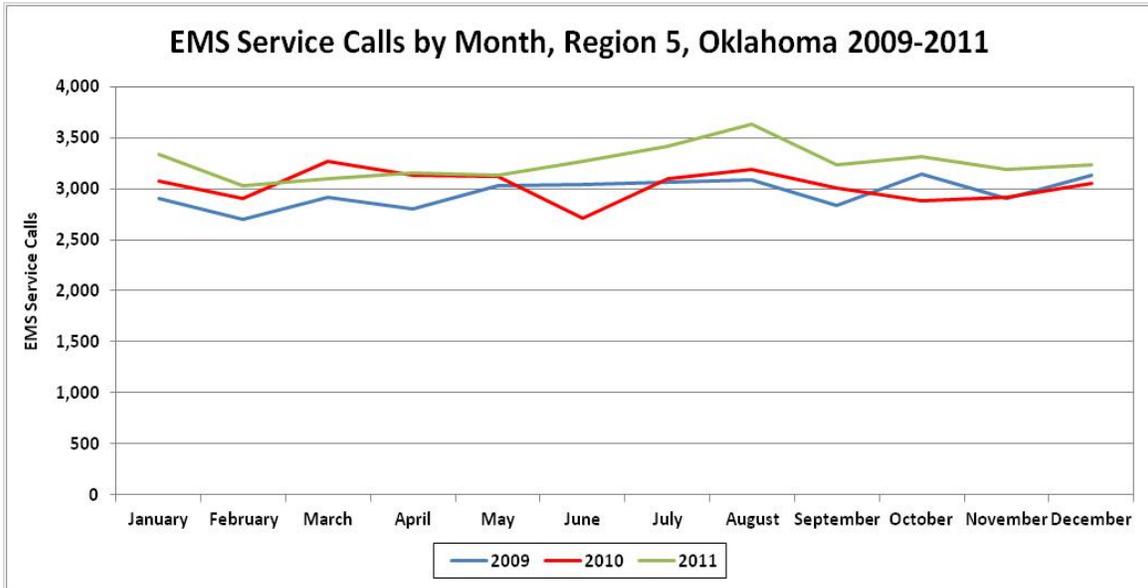


Figure 35: EMS service calls by month, Region 5, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 5, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
Missing	16,032	14,198	12,754	42,984	40.1%
Null Values (Not Applicable, etc.)	5,847	6,330	6,668	18,845	17.6%
Assessment – Adult	2,389	2,729	5,151	10,269	9.6%
Venous Access - Extremity	2,569	3,021	3,515	9,105	8.5%
Cardiac Monitor	2,135	2,711	2,328	7,174	6.7%
Blood Glucose Analysis	763	763	964	2,490	2.3%
Stretcher	444	455	1,184	2,083	1.9%
12 Lead ECG	262	661	705	1,628	1.5%
Saline Lock	673	333	191	1,197	1.1%
Airway – Nasopharyngeal	606	518	65	1,189	1.1%
Venous Access-Existing Catheter/IV Monitoring	345	299	389	1,033	1.0%
Other	59	221	738	1,018	1.0%

Table 19: Procedures Performed, Region 5, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 5, 2009-2011

Medications Given	2009	2010	2011	Total # of Calls	% of Calls
Missing	16,464	14,094	13,909	44,467	41.5%
Null Values (Not Applicable, etc.)	7,758	8,630	9,263	25,651	23.9%
Oxygen by Nasal Cannula	4,888	4,182	4,184	13,254	12.4%
Oxygen	1,096	3,244	5,323	9,663	9.0%
Normal Saline	998	1,504	1,513	4,015	3.7%
Oxygen (non-rebreather mask)	1,290	730	653	2,673	2.5%
Albuterol Sulfate	265	273	276	814	0.8%
Aspirin (ASA)	116	218	332	666	0.6%
Morphine Sulfate	176	189	179	544	0.5%
Ondansetron (Zofran)	104	177	251	532	0.5%
Nitroglycerin	203	137	181	521	0.5%
Oxygen by Positive Pressure Device	162	163	113	438	0.4%

Table 20: Medications Given, Region 5, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 5, 2009-2011

Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
McAlester Regional Health Center	3,132	3,427	3,588	10,147	11.8%
Medical Center of Southeastern Oklahoma	3,133	3,418	3,562	10,113	11.8%
McCurtain Memorial Hospital	1,908	2,138	2,350	6,396	7.4%
Nursing Home/Rest Home/Long Term Care	1,747	2,017	1,869	5,633	6.6%
Choctaw Memorial Hospital	1,182	1,284	1,297	3,763	4.4%
Out of State Facility-TX	1,375	1,097	1,281	3,753	4.4%
Out of State Facility-AR	2,113	945	165	3,223	3.8%
Missing	181	841	2,185	3,207	3.7%
Seminole Medical Center	887	1,023	898	2,808	3.3%
Atoka Memorial Hospital	827	819	874	2,520	2.9%
Null Values (Not Applicable, etc.)	632	571	1,271	2,474	2.9%
Pushmataha County Town of Antlers Hospital Auth	596	706	646	1,948	2.3%

Table 21: Top ten service call destinations, Region 5, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 6

- Region 6 saw a 13.6% increase in the number of EMS calls from 2009 to 2011, the largest increase of all 8 regions.
- 59.2% of all the service calls occurred in urban areas with 39.9% occurring in rural areas followed by 0.1% in super rural areas ([Figure 25](#)).
- Cleveland County (43.0%) had the highest percentage of calls followed by Pottawatomie (23.6%), Canadian (11.6%), and McClain (9.1%) counties.
- 23.2% of the service calls occurred in the City of Norman followed by Shawnee (18.3%) and Moore (7.8%).
- 99.0% of all service calls were transported by ground with 0.9% transported by an air service.
- EMSSTAT- Norman Regional Hospital EMS (33.5%) responded to the highest percentage of calls followed by React EMS (24.9%) and Wadley's EMS (5.5%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 22](#)).
- 15.7% of the service calls occurred on Friday with Sunday having the lowest percentage (12.6%).
- 77.2% were 911 calls followed by Inter-Facility Transfers (18.5%).
- 78.5% were treated and transported followed by patient refusals (10.4%).
- 62.9% of all the service calls for Region 6 were in the 50+ age groups with the 80+ age group having the highest percentage (19.7%).
- 50.0% were female with 40.9% being male (9.0% unknown).
- 77.9% of the patients were reported as White followed by Black/African American (4.2%), American Indian/Alaska Native (4.1%), and Hispanic (1.6%, [Figure 27](#)).
- 40.3% of the treated and transported service calls had a location type of "Home/Residence" followed by "Healthcare Facility" (31.5%) and "Street or Highway" (13.3%).
- 67.1% of all Region 6 treated and transported service calls had a destination type of "hospital" followed by "nursing home" (3.3%). 26.8% were missing/not recorded for this element.
- Norman Regional Hospital (27.8%) received the highest percentage of EMS service calls followed by St. Anthony Hospital- Shawnee (16.9%, [Table 24](#)).
- "Closest facility" was the reason for choosing the destination 45.8% of the time followed by "patient choice" (17.4%), "Specialty Resource Center" (9.6%), and "Protocol" (8.7%) ([Figure 30](#)).
- Traumatic Injury made up 16.9% of the total calls in Region 6 from 2009-2011 ([Figure 26](#)).
- 35.6% of the traumatic injuries were caused by falls followed by Motor Vehicle Traffic Accidents at 20.1%. 23.9% were "Unknown" ([Figure 28](#)).
- 58.0% of the traumatic injuries had a mechanism of injury of "blunt" followed by "penetrating" (3.0%) and "burn" (0.6%). 30.8% were missing/null values ([Figure 29](#)).

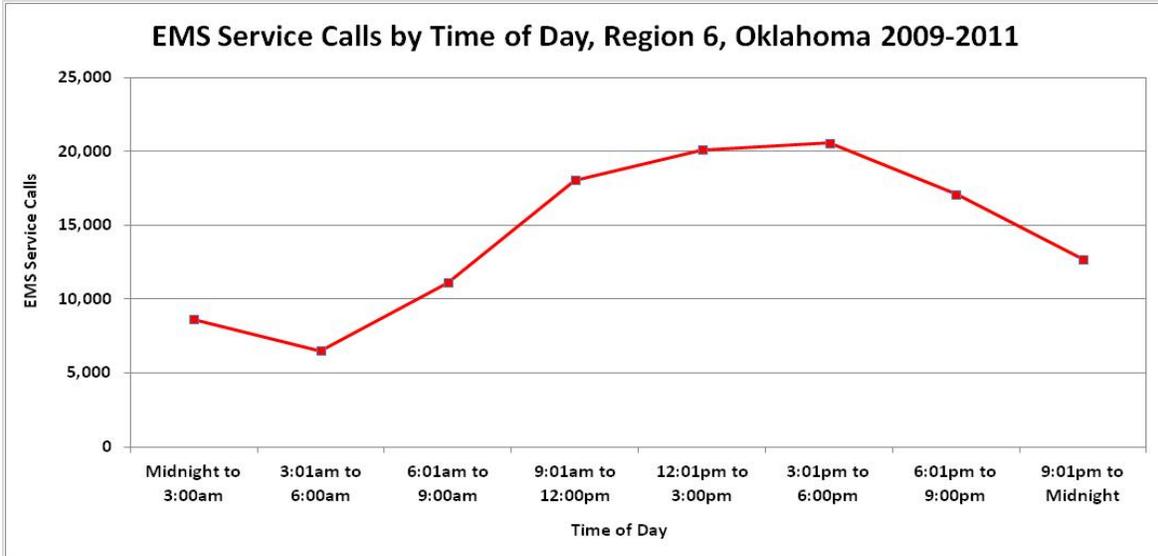


Figure 22: EMS service calls by time of day, Region 6, Oklahoma 2009-2011.

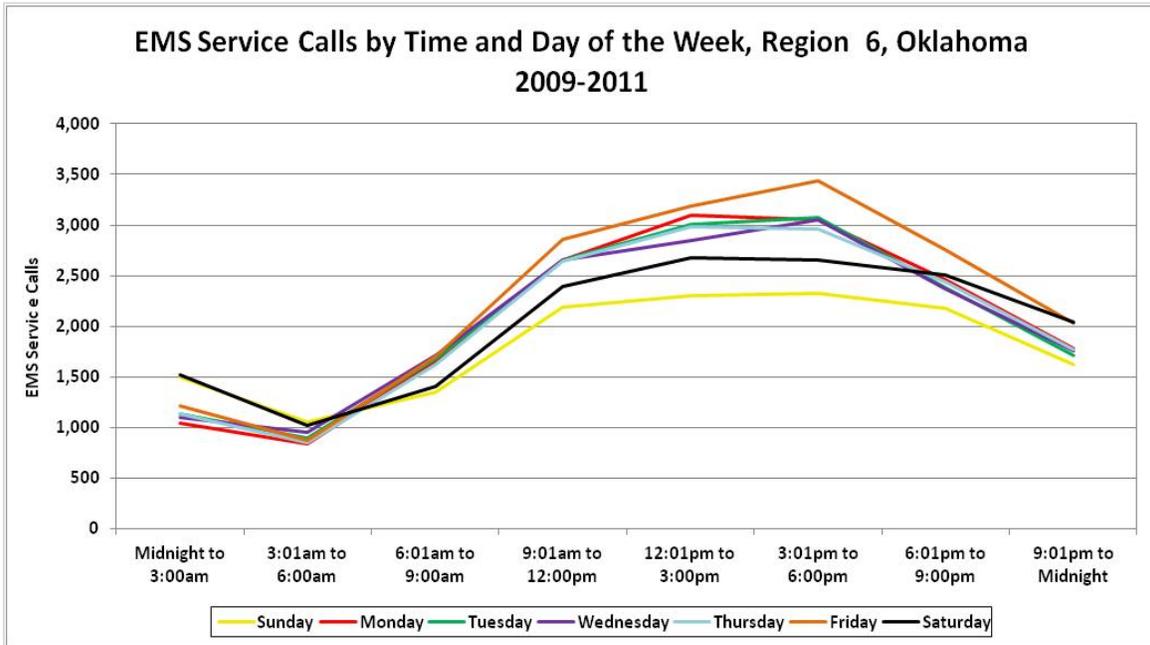


Figure 22b: EMS service calls by time and day of week, Region 6, Oklahoma 2009-2011.

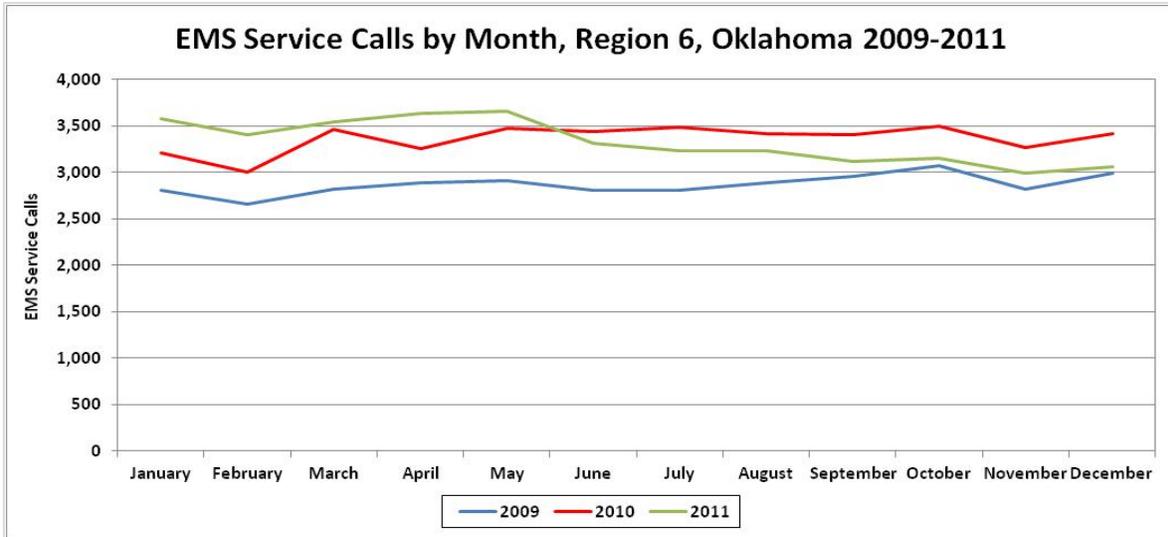


Figure 36: EMS service calls by month, Region 6, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 6, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	7,570	7,928	7,313	22,811	21.2%
<i>Cardiac Monitor</i>	5,716	7,708	7,373	20,797	19.3%
<i>Venous Access - Extremity</i>	3,902	4,506	4,110	12,518	11.6%
<i>Pulse Oximetry</i>	2,002	3,644	5,329	10,975	10.2%
<i>Missing</i>	3,351	2,578	2,127	8,056	7.5%
<i>Assessment – Adult</i>	2,224	2,289	1,900	6,413	6.0%
<i>Other</i>	1,692	2,054	2,306	6,052	5.6%
<i>Venous Access-Existing Catheter/IV Monitoring</i>	1,260	2,062	2,465	5,787	5.4%
<i>Spinal Immobilization</i>	443	768	727	1,938	1.8%
<i>Blood Glucose Analysis</i>	617	593	707	1,917	1.8%
<i>Splinting</i>	662	628	608	1,898	1.8%
<i>Venous Access - Femoral Line</i>	646	659	151	1,456	1.4%

Table 22: Procedures Performed, Region 6, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 6, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	15,889	19,326	18,818	54,033	50.2%
<i>Missing</i>	4,710	4,079	3,613	12,402	11.5%
<i>Normal Saline</i>	2,943	4,064	5,215	12,222	11.4%
<i>Oxygen by Positive Pressure Device</i>	3,072	3,399	2,814	9,285	8.6%
<i>Oxygen by Nasal Cannula</i>	1,787	1,657	2,219	5,663	5.3%
<i>Oxygen</i>	1,025	1,521	1,683	4,229	3.9%
<i>Oxygen (non-rebreather mask)</i>	1,192	1,023	791	3,006	2.8%
<i>Albuterol Sulfate</i>	219	373	335	927	0.9%
<i>Aspirin (ASA)</i>	159	334	265	758	0.7%
<i>Morphine Sulfate</i>	182	269	264	715	0.7%
<i>Dextrose 50% (D50)</i>	181	224	192	597	0.6%
<i>Nitroglycerin</i>	136	211	143	490	0.5%

Table 23: Medications Given, Region 6, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 6, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>Norman Regional Hospital</i>	8,090	8,049	8,890	25,029	27.8%
<i>St. Anthony - Shawnee</i>	4,911	5,281	5,035	15,227	16.9%
<i>Unknown</i>	426	2,377	2,496	5,299	5.9%
<i>Missing</i>	2,518	767	636	3,921	4.4%
<i>OU Medical Center University Hospital (all)</i>	871	1,272	1,171	3,314	3.7%
<i>Moore Medical Center</i>	1,148	1,214	851	3,213	3.6%
<i>Park View Hospital</i>	892	909	1,175	2,976	3.3%
<i>Integrus Baptist Medical Center Inc OKC</i>	629	1,304	998	2,931	3.3%
<i>Nursing Home/Rest Home/Long Term Care</i>	734	936	1,034	2,704	3.0%
<i>Purcell Municipal Hospital</i>	684	935	1,012	2,631	2.9%
<i>Saint Anthony Hospital</i>	789	982	860	2,631	2.9%
<i>Logan Hospital and Medical Center</i>	735	849	744	2,328	2.6%

Table 24: Top ten service call destinations, Region 6, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 7

- Region 7 saw an 11.5% increase in the number of EMS calls from 2009 to 2011.
- 92.3% of all the service calls occurred in urban areas with 7.7% of the zip codes that were unknown/didn't match CMS Zip Codes ([Figure 25](#)).
- Region 7 includes only Tulsa County with 21.5% of all the EMS service calls in Oklahoma.
- 54.2% of the service calls occurred in the City of Tulsa followed by Union (4.2%) and Broken Arrow (2.06%). 32.4% were missing/Null Values for incident city.
- 99.9% of all service calls were transported by ground.
- EMSA-East Division (86.1%) responded to the highest percentage of calls followed by Broken Arrow Fire Department EMS (5.5%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 23](#)).
- 15.9% of the service calls occurred on Friday with Sunday having the lowest percentage (11.8%).
- 85.1% were 911 calls followed by Inter-Facility Transfers (8.5%).
- 74.4% were treated and transported followed by patient refusals (9.5%).
- 60.7% of all the service calls for Region 7 were in the 50+ age groups with the 80+ age group having the highest percentage (19.9%).
- 51.4% were female with 41.2% being male (7.5% unknown).
- 69.3% of the patients were reported as White followed by Black/African American (16.5%), Hispanic (2.7%) and American Indian/Alaska Native (2.4%, [Figure 27](#)).
- 44.4% of the treated and transported service calls had a location type of "Home/Residence" followed by "Healthcare Facility" (25.9%) and "Street or Highway" (11.9%).
- 84.8% of all Region 7 treated and transported service calls had a destination type of "hospital" followed by "nursing home" (9.3%).
- St. Francis Hospital (26.8%) received the highest percentage of EMS service calls followed by St. John Medical Center (23.8%) ([Table 27](#)).
- "Patient Choice" was the reason for choosing the destination 74.9% of the time followed by "Other" (14.7%), "Closest Facility" (2.3%), and "Missing" (2.3%) ([Figure 30](#)).
- Traumatic Injury made up 16.8% of the total calls in Region 7 from 2009-2011 ([Figure 26](#)).
- 36.4% of the traumatic injuries were caused by falls followed by Assaults (17.1%) and Motor Vehicle Traffic Accidents at 2.6%. 39.1% were "Unknown" ([Figure 28](#)).
- 90.9% for mechanism of injury were missing/null values making this element useless ([Figure 29](#)).

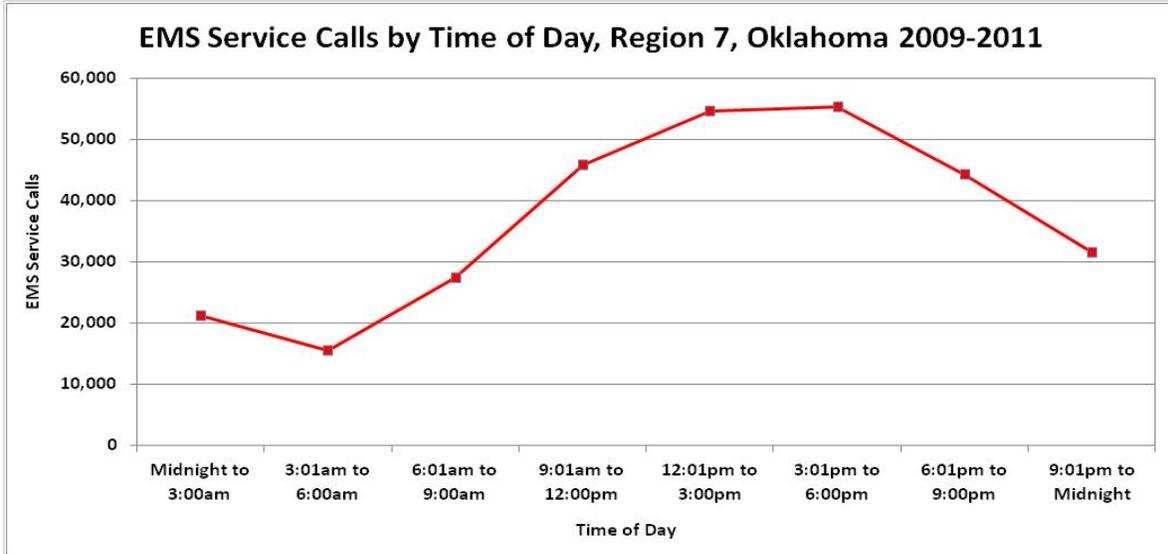


Figure 23: EMS service calls by time of day, Region 7, Oklahoma 2009-2011.

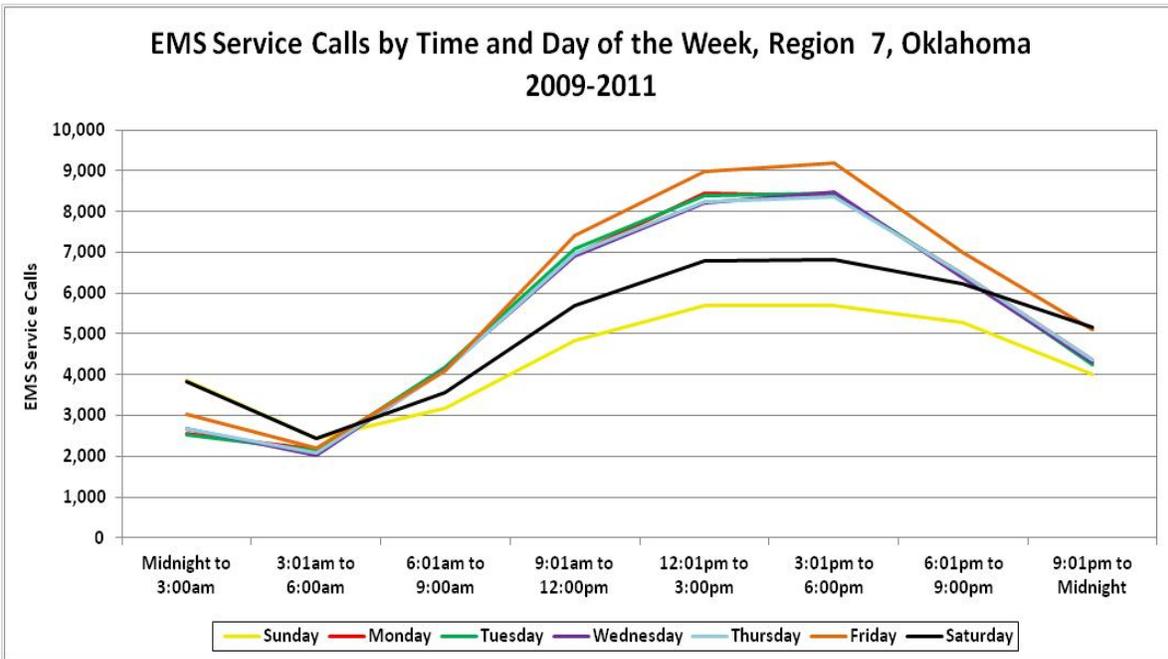


Figure 23b: EMS service calls by time and day of week, Region 7, Oklahoma 2009-2011.

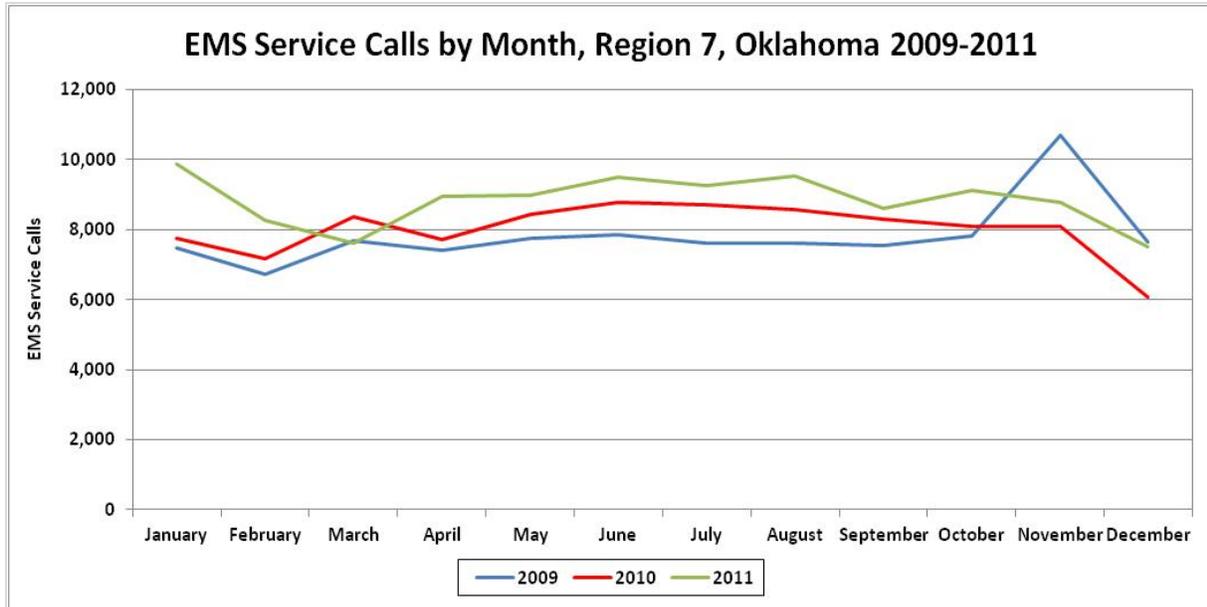


Figure 37: EMS service calls by month, Region 7, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 7, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
Cardiac Monitor	28,193	32,708	39,573	100,474	38.5%
Null Values (Not Applicable, etc.)	28,646	26,687	30,451	85,784	32.8%
Venous Access - Extremity	227	11,332	6,840	18,399	7.0%
Saline Lock	15,323	589	33	15,945	6.1%
Missing	2,584	2,451	2,285	7,320	2.8%
Spinal Immobilization	48	1,614	3,415	5,077	1.9%
12 Lead ECG	954	1,468	1,674	4,096	1.6%
Wound Care	1,312	994	1,758	4,064	1.6%
Venous Access - Femoral Line	1,493	1,352	302	3,147	1.2%
Assessment – Adult	359	759	1,850	2,968	1.1%
Airway - Nebulizer Treatment	1,230	567	888	2,685	1.0%
Blood Glucose Analysis	771	814	831	2,416	0.9%

Table 25: Procedures Performed, Region 7, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 7, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	65,676	65,140	75,184	206,000	78.9%
<i>Oxygen</i>	2,378	2,699	3,367	8,444	3.2%
<i>Aspirin (ASA)</i>	2,524	2,664	2,701	7,889	3.0%
<i>Missing</i>	2,450	2,627	2,588	7,665	2.9%
<i>Nitroglycerin</i>	1,831	1,701	1,641	5,173	2.0%
<i>Albuterol Sulfate</i>	1,522	1,622	1,793	4,937	1.9%
<i>Atrovent (Ipratropium Bromide)</i>	1,036	1,115	1,151	3,302	1.3%
<i>Dextrose 50% (D50)</i>	1,200	891	743	2,834	1.1%
<i>Naloxone (Narcan)</i>	887	776	699	2,362	0.9%
<i>Oxygen by Nasal Cannula</i>	842	780	547	2,169	0.8%
<i>Morphine Sulfate</i>	1,189	630	137	1,956	0.8%
<i>Diphenhydramine (Benadryl)</i>	762	510	258	1,530	0.6%

Table 26: Medications Given, Region 7, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 7, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>Saint Francis Hospital Inc</i>	19,417	19,330	20,307	59,054	26.8%
<i>Saint John Medical Center Inc</i>	16,985	17,015	18,363	52,363	23.8%
<i>Hillcrest Medical Center Tulsa</i>	10,391	10,571	12,064	33,026	15.0%
<i>Nursing Home/Rest Home/Long Term Care</i>	6,971	6,637	7,234	20,842	9.5%
<i>OSU Medical Center</i>	4,650	4,702	5,244	14,596	6.6%
<i>SouthCrest Hospital</i>	3,871	3,673	3,415	10,959	5.0%
<i>Null Values (Not Applicable, etc.)</i>	3,545	2,180	2,078	7,803	3.5%
<i>Saint Francis South - Tulsa</i>	1,460	1,777	1,733	4,970	2.3%
<i>Missing</i>	442	1,671	2,062	4,175	1.9%
<i>Private Residence</i>	343	404	635	1,382	0.6%
<i>Saint Johns-Owasso</i>	404	400	470	1,274	0.6%
<i>Out of State Facility Not Listed</i>	200	215	830	1,245	0.6%

Table 27: Top ten service call destinations, Region 7, Oklahoma 2009-2011, (Treated and Transported calls only).

Region 8

- Region 8 saw a 7.5% increase in the number of EMS calls from 2009 to 2011.
- 91.8% of all the service calls occurred in urban areas with 8.2% of the zip codes that were unknown/didn't match CMS Zip Codes ([Figure 25](#)).
- Region 8 includes only Oklahoma County with 20.6% of all the EMS service calls in Oklahoma.
- 85.2% of the service calls occurred in Oklahoma City followed by Midwest City (5.7%) and Edmond (2.7%).
- 99.8% of all service calls were transported by ground.
- EMSA-West Division (86.4%) responded to the highest percentage of calls followed by Midwest Regional Hospital EMS (9.5%).
- The majority of calls occurred between 9:00am and 9:00pm ([Figure 24](#)).
- 15.3% of the service calls occurred on Friday with Sunday having the lowest percentage (12.8%).
- 92.4% were 911 calls followed by Inter-Facility Transfers (4.0%).
- 79.7% were treated and transported followed by patient refusals (9.0%).
- 59.3% of all the service calls for Region 8 were in the 50+ age groups with the 80+ age group having the highest percentage (18.7%).
- 51.3% were female with 41.9% being male (6.8% unknown).
- 60.8% of the patients were reported as White followed by Black/African American (16.3%), Hispanic (4.1%) and American Indian/Alaska Native (1.6%, [Figure 27](#)).
- 49.9% of the treated and transported service calls had a location type of "Home/Residence" followed by "Healthcare Facility" (17.8%) and "Street or Highway" (9.2%).
- 95.4% of all Region 8 treated and transported service calls had a destination type of "hospital" followed by "Missing" (9.3%, null value).
- OU Medical Center (16.2%) received the highest percentage of EMS service calls followed by Integris Baptist Medical Center (15.4%) and Integris Southwest Medical Center (13.6%) ([Table 30](#)).
- "Patient Choice" was the reason for choosing the destination 85.8% of the time followed by "Other" (6.1%), "Missing" (2.8%), and "Patients Physicians Choice" (1.4%) ([Figure 30](#)).
- Traumatic Injury made up 18.5% of the total calls in Region 8 from 2009-2011 ([Figure 26](#)).
- 40.6% of the traumatic injuries were caused by falls followed by Assaults (16.0%) and Motor Vehicle Traffic Accidents at 1.8%. 38.1% were "Unknown" ([Figure 28](#)).
- 92.9% for mechanism of injury were missing/null values making this element useless ([Figure 29](#)).

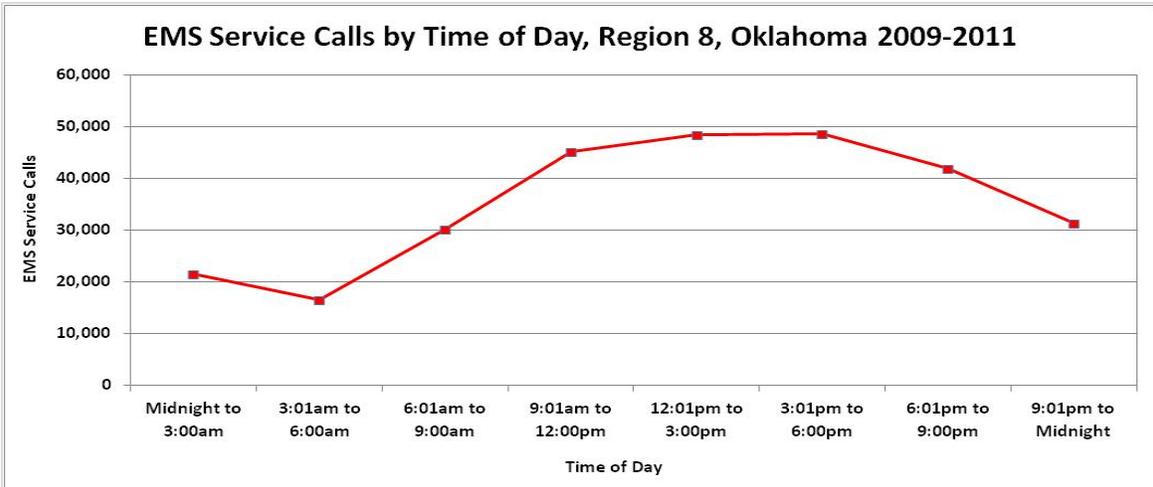


Figure 24: EMS service calls by time of day, Region 8, Oklahoma 2009-2011.

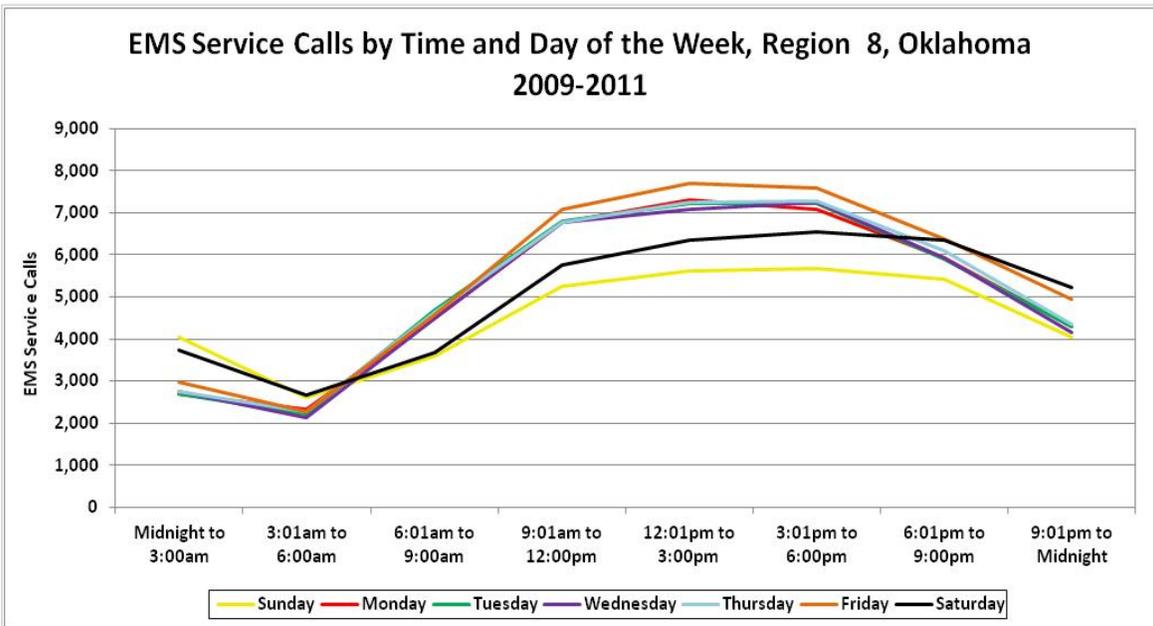


Figure 24b: EMS service calls by time and day of week, Region 8, Oklahoma 2009-2011.

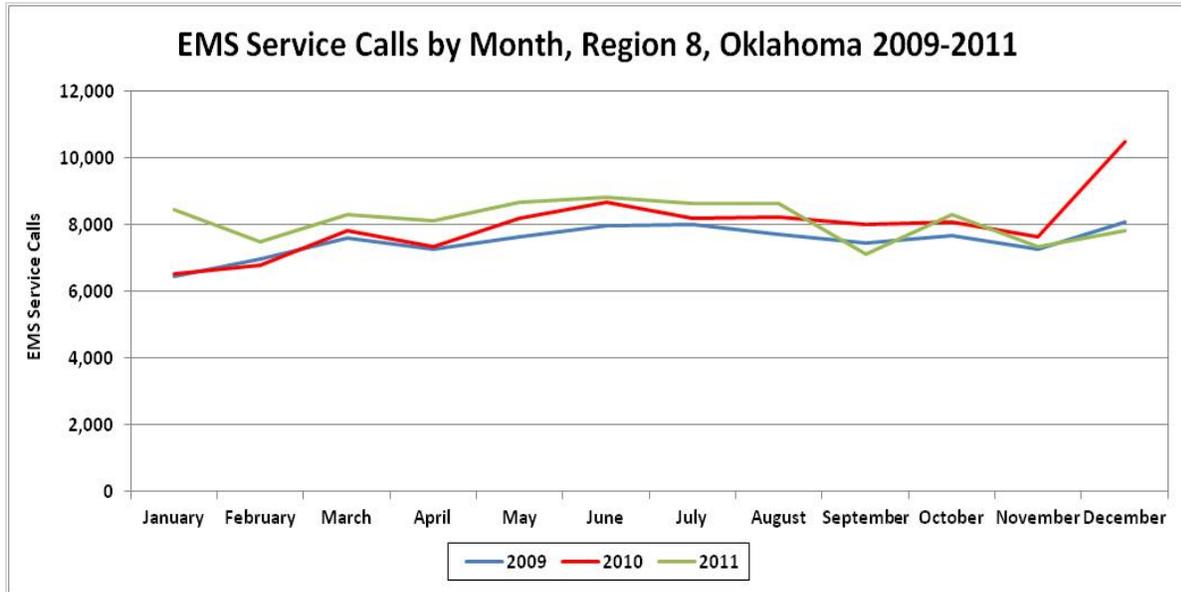


Figure 38: EMS service calls by month, Region 8, Oklahoma 2009-2011.

Top Ten Procedures Performed, Region 8, 2009-2011					
Procedures Performed	2009	2010	2011	Total # of Calls	% of Calls
Cardiac Monitor	29,546	36,578	44,144	110,268	42.0%
Null Values (Not Applicable, etc.)	17,559	19,082	18,910	55,551	21.2%
Venous Access - Extremity	3,886	19,849	10,454	34,189	13.0%
Missing	7,276	6,521	4,521	18,318	7.0%
Saline Lock	18,280	16	2	18,298	7.0%
Spinal Immobilization	125	3,023	4,199	7,347	2.8%
Wound Care	1,299	1,505	1,593	4,397	1.7%
Airway - Nebulizer Treatment	1,151	816	786	2,753	1.1%
Spinal Immobilization-Standing Take-Down	2,098	2	.	2,100	0.8%
Splinting	591	591	797	1,979	0.8%
12 Lead ECG	272	331	206	809	0.3%
Airway - Positive Pressure Ventilation / BVM	192	206	149	547	0.2%

Table 28: Procedures Performed, Region 8, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Medications Given, Region 8, 2009-2011					
Medications Given	2009	2010	2011	Total # of Calls	% of Calls
<i>Null Values (Not Applicable, etc.)</i>	57,523	63,669	66,719	187,911	71.6%
<i>Missing</i>	9,677	9,641	6,385	25,703	9.8%
<i>Aspirin (ASA)</i>	3,152	3,412	3,191	9,755	3.7%
<i>Albuterol Sulfate</i>	2,316	2,620	2,555	7,491	2.9%
<i>Nitroglycerin</i>	2,110	2,008	1,624	5,742	2.2%
<i>Dextrose 50% (D50)</i>	1,394	1,301	1,081	3,776	1.4%
<i>Atrovent (Ipratropium Bromide)</i>	851	1,277	1,391	3,519	1.3%
<i>Naloxone (Narcan)</i>	1,052	1,260	1,070	3,382	1.3%
<i>Normal Saline</i>	1,045	1,175	745	2,965	1.1%
<i>Morphine Sulfate</i>	1,615	935	253	2,803	1.1%
<i>Epinephrine 1:1000</i>	497	556	612	1,665	0.6%
<i>Diphenhydramine (Benadryl)</i>	410	302	207	919	0.4%

Table 29: Medications Given, Region 8, Oklahoma 2009-2011, (Cancelled and No Patient Found calls excluded).

Top Ten Destinations, Region 8, 2009-2011					
Destination Facility	2009	2010	2011	Total # of Calls	% of Calls
<i>OU Medical Center University Hospital</i>	12,099	13,078	11,494	36,671	16.2%
<i>Integris Baptist Medical Center Inc OKC</i>	11,157	11,539	12,194	34,890	15.4%
<i>Integris Southwest Medical Center</i>	9,307	10,686	10,755	30,748	13.6%
<i>Mercy Health Center Inc Oklahoma City</i>	6,980	7,660	7,737	22,377	9.9%
<i>Saint Anthony Hospital</i>	2,741	8,607	10,021	21,369	9.5%
<i>Midwest Regional Medical Center</i>	7,291	7,339	4,602	19,232	8.5%
<i>Deaconess Hospital</i>	5,545	5,679	5,560	16,784	7.4%
<i>Nursing Home/Rest Home/Long Term Care</i>	7,400	1,946	616	9,962	4.4%
<i>Oklahoma Heart Hospital - OKC North</i>	2,485	2,439	2,479	7,403	3.3%
<i>OU-Edmond</i>	1,844	1,901	2,112	5,857	2.6%

Table 30: Top ten service call destinations, Region 8, Oklahoma 2009-2011, (Treated and Transported calls only).

Data Quality Issues with EMS Data

Submitting data into OKEMSIS in a timely manner is important and required but another issue for EMS data is data quality. Complete and accurate data is required for meaningful analyses of Oklahoma's system of pre-hospital care. The following list includes some of the major data quality issues we have found during analysis of OKEMSIS data. Improvements in these areas of data collection will allow a more detailed analysis of Oklahoma's system of pre-hospital care.

- **The overuse of "Other"**- Several required variables in OKEMSIS had a high percentage of "Other" as the chosen response. Unfortunately, the non-specific nature of 'other' hinders further analyses of that variable. One example of variables with "other" chosen at a high percentage are provider first and second impression (20.7% "other", 18.9% "unknown" for first impression). Recently we have updated the list of choices for these fields to accommodate better responses.
- **The Inappropriate use of Null Values**- Several variables in OKEMSIS had a high percentage of Not Applicable, Not Known, Not Recorded and Not Available when a specific response was required. Some examples include the Mechanism of Injury variable ([Figure 29](#)) and Condition Codes (54% of the responses were "Not Applicable"). Unfortunately, the non-specific nature of null values hinders further analyses of that variable or makes that variable unusable.
- **"Missing" data**- Another data quality issue is missing data for some required data elements. Some variables were either blank (no response) or had a high percentage of missing values. All variables described in the OKEMSIS data dictionary are required. Analysis cannot be performed if there is no data. One example includes the transferring facility for Inter-Facility Transfers. A majority of that variable was blank, not available, or not applicable (71.6%).
- **Data Submission**- If data is not submitted by the required time interval it can skew the results for data analysis causing inaccurate conclusions or delayed analysis. EMS data is due by the last business day of the following month (for example, January data is due by the end of February) in Oklahoma according to EMS regulations (*EMS Rules and Regulations, pg. 64, OAC 310:641-3-160, part (b)*). Failure to submit data in this time frame will result in an agency being non-compliant unless the EMS service has written the State EMS Director stating reasons for the delay.

All the required variables and instructions for those variables can be found in the OKEMSIS Data Dictionary and OKEMSIS Patient Care Report Instruction Manual. Both documents can be found at the following link:

[http://www.ok.gov/health/Protective_Health/Emergency_Medical_Services/OKEMSIS -
OK EMS Data System/index.html](http://www.ok.gov/health/Protective_Health/Emergency_Medical_Services/OKEMSIS_-_OK_EMS_Data_System_/index.html)

Contacts

- **Martin Lansdale, MPH, Epidemiologist, Emergency Systems**
E-Mail: martinl@health.ok.gov
Phone: (405)271-4027
- **Kenneth Stewart, PhD, Emergency Systems**
E-Mail: kenneth@health.ok.gov
Phone: (405)271-4027
- **Dale Adkerson, EMS Director, Emergency Systems**
E-Mail: DaleA@health.ok.gov
Phone: (405)271-4027
- **OKEMIS Website**
<https://okemisis.health.ok.gov>

Miscellaneous Maps and Tables

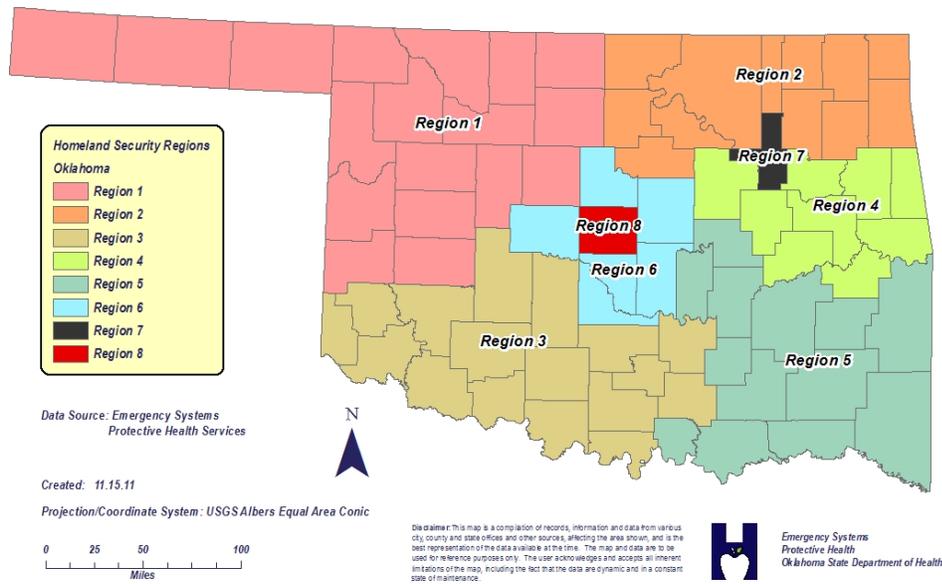
2009-2011 EMS Service Calls by County					
Incident County	Year			Total # of Calls	% of Calls
	2009	2010	2011		
TULSA	93,827	96,049	105,976	295,852	21.5%
OKLAHOMA	90,140	95,986	97,457	283,583	20.6%
MUSKOGEE	17,307	17,164	18,168	52,639	3.8%
CLEVELAND	15,267	16,925	17,123	49,315	3.6%
COMANCHE	11,189	12,667	15,063	38,919	2.8%
POTTAWATOMIE	8,662	9,221	9,162	27,045	1.9%
OSAGE	9,260	9,061	8,644	26,965	1.9%
ROGERS	7,422	8,303	8,357	24,082	1.8%
Null Values(Missing ,NA,NK)	8,328	8,542	5,963	22,833	1.7%
CREEK	7,113	7,830	7,625	22,568	1.6%
PAYNE	6,910	7,708	7,382	22,000	1.6%
CHEROKEE	6,151	7,062	7,424	20,637	1.5%
CARTER	6,323	6,604	7,302	20,229	1.5%
BRYAN	6,372	6,590	6,814	19,776	1.4%

GARFIELD	5,806	6,361	6,292	18,459	1.3%
PITTSBURG	5,782	5,932	6,460	18,174	1.3%
OKMULGEE	5,682	5,904	5,813	17,399	1.3%
MAYES	4,868	5,595	5,981	16,444	1.2%
OTTAWA	5,235	5,341	5,394	15,970	1.2%
PONTOTOC	5,255	5,221	5,296	15,772	1.1%
LE FLORE	5,548	4,311	4,958	14,817	1.1%
GRADY	4,339	4,917	5,008	14,264	1.0%
KAY	3,694	4,973	5,506	14,173	1.0%
WAGONER	3,465	4,972	5,351	13,788	1.0%
DELAWARE	4,261	4,359	5,017	13,637	0.9%
CANADIAN	2,470	5,917	4,892	13,279	0.9%
MCCURTAIN	4,128	4,479	4,662	13,269	0.9%
WASHINGTON	5,051	2,882	5,125	13,058	0.9%
SEQUOYAH	4,485	4,190	4,303	12,978	0.9%
STEPHENS	3,704	4,057	3,655	11,416	0.8%
CUSTER	3,622	3,909	3,845	11,376	0.8%
GARVIN	3,472	3,496	3,839	10,807	0.8%
MCCLAIN	3,445	3,407	3,596	10,448	0.8%
SEMINOLE	2,672	3,167	3,213	9,052	0.7%
MCINTOSH	2,709	3,073	3,210	8,992	0.7%
CADDO	2,951	3,132	2,775	8,858	0.6%
LINCOLN	2,474	2,858	2,935	8,267	0.6%
ADAIR	1,873	2,868	3,359	8,100	0.6%
CHOCTAW	2,436	2,643	2,627	7,706	0.6%
JACKSON	2,711	2,257	2,658	7,626	0.6%
BECKHAM	2,259	2,139	2,360	6,758	0.5%
WOODWARD	2,172	2,102	2,231	6,505	0.5%
LOGAN	2,146	2,033	2,172	6,351	0.5%
ATOKA	1,923	1,979	2,046	5,948	0.4%
MURRAY	1,818	1,787	2,114	5,719	0.4%
CRAIG	1,633	1,959	2,108	5,700	0.4%
PAWNEE	1,682	1,836	2,005	5,523	0.4%
OKFUSKEE	1,426	1,740	2,129	5,295	0.4%
HUGHES	1,236	1,617	1,760	4,613	0.3%
LOVE	1,359	1,548	1,609	4,516	0.3%
KIOWA	1,324	1,410	1,309	4,043	0.3%
MARSHALL	1,249	1,196	1,527	3,972	0.3%

TEXAS	1,136	1,311	1,473	3,920	0.3%
JOHNSTON	1,202	1,255	1,452	3,909	0.3%
HASKELL	1,221	1,335	1,214	3,770	0.3%
PUSHMATAHA	1,209	1,301	1,237	3,747	0.3%
BLAINE	1,111	1,257	1,177	3,545	0.3%
KINGFISHER	1,076	992	1,166	3,234	0.2%
WOODS	1,128	1,048	1,037	3,213	0.2%
NOWATA	1,047	1,079	1,062	3,188	0.2%
LATIMER	972	812	993	2,777	0.2%
Missing City, County, have State	175	269	2,252	2,696	0.2%
NOBLE	830	750	865	2,445	0.2%
WASHITA	793	746	692	2,231	0.2%
JEFFERSON	653	737	692	2,082	0.2%
TILLMAN	704	680	662	2,046	0.2%
COAL	599	595	592	1,786	0.1%
MAJOR	508	477	489	1,474	0.1%
ALFALFA	410	441	472	1,323	0.1%
DEWEY	414	368	443	1,225	0.1%
GREER	90	381	713	1,184	0.1%
GRANT	251	379	434	1,064	0.1%
COTTON	422	233	355	1,010	0.1%
ELLIS	273	324	379	976	0.1%
HARPER	247	325	316	888	0.1%
HARMON	307	294	283	884	0.1%
ROGER MILLS	257	290	298	845	0.1%
BEAVER	252	246	265	763	0.1%
Out of State-Arkansas	241	226	264	731	0.1%
CIMARRON	168	185	186	539	0.04%
Out of State-Texas	113	110	134	357	0.03%
Out of State-Kansas	81	84	86	251	0.02%
Out of State-Missouri	74	36	87	197	0.01%
Out of State(not touching Oklahoma)	55	67	63	185	0.01%
Out of State-Colorado	**	**	28	31	**
Out of State-New Mexico	**	**	**	**	**
TOTALS	434,658	459,913	483,464	1,378,035	100.00%

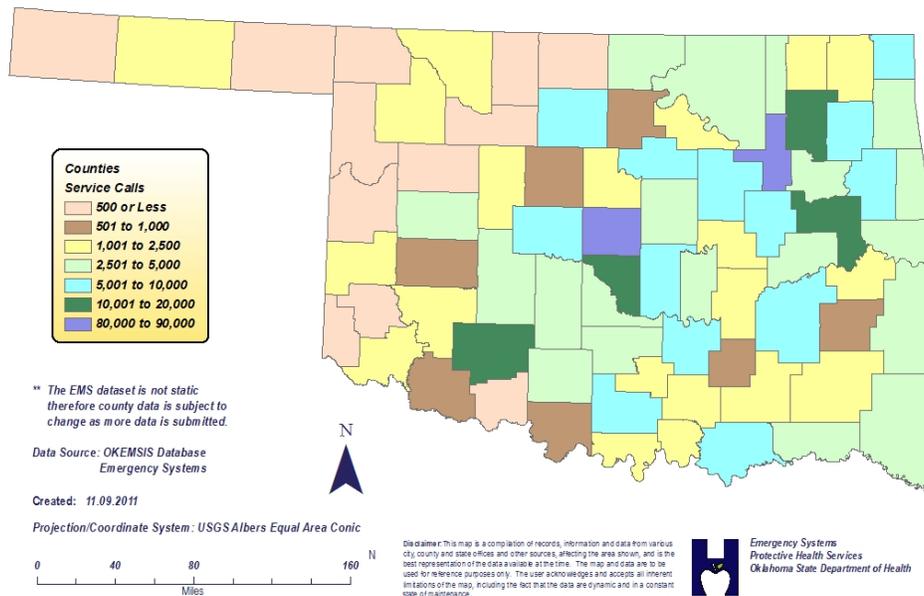
Table 31: EMS service calls by county, Oklahoma 2009-2011. Cells marked by an asterisk (**) not shown due to privacy concerns.

Oklahoma Homeland Security Regions



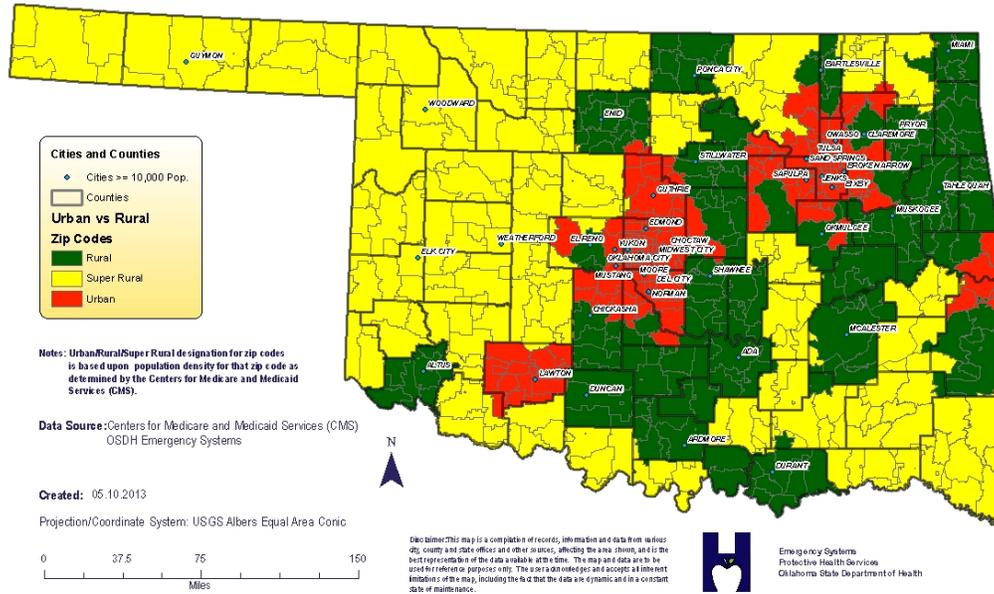
Map 5: Oklahoma Homeland Security Regions.

EMS Service Calls by County, Oklahoma 2010



Map 6: EMS Service Calls by County, Oklahoma 2010.

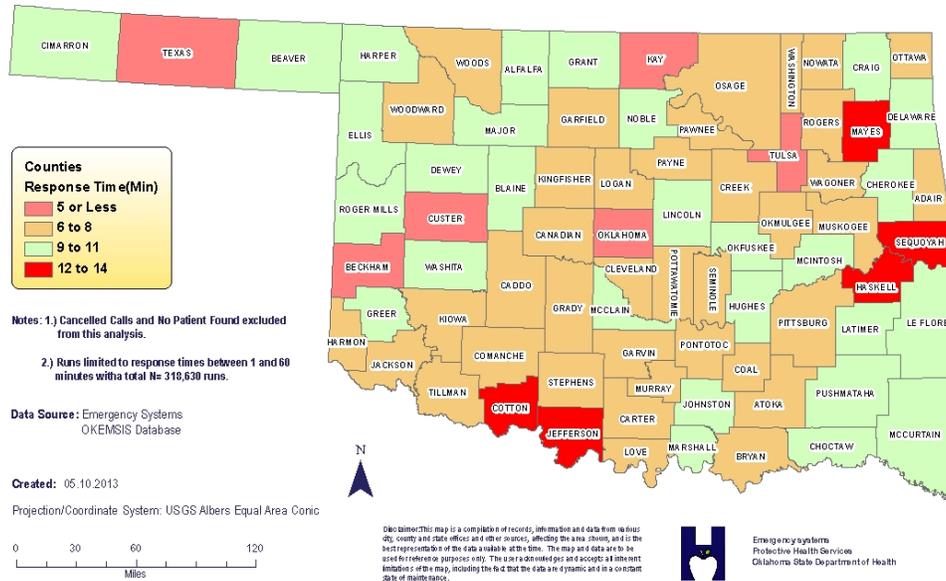
Urban vs Rural Zip Codes, Oklahoma 2013



Map 7: Urban and Rural Zip Codes, Oklahoma 2013.

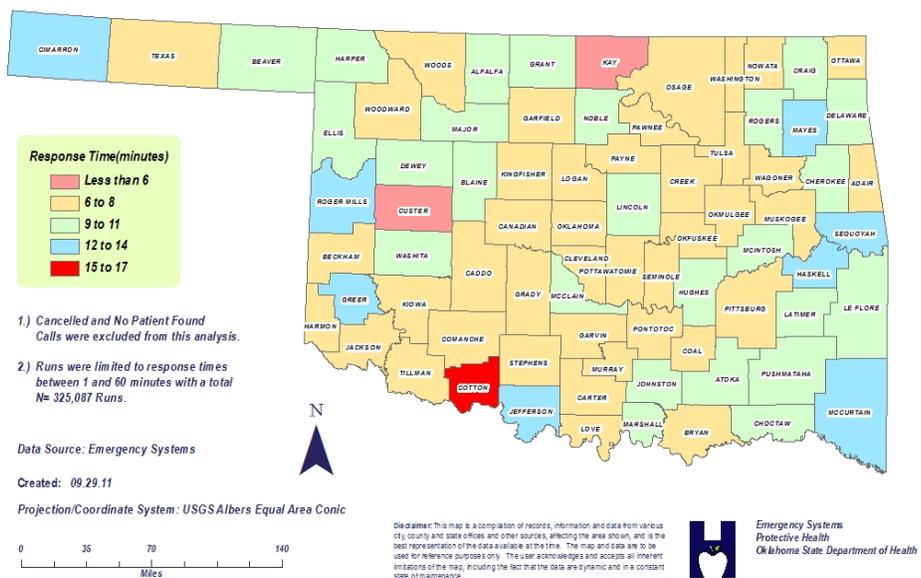
Miscellaneous: Response Time Maps

Average Response Time for 911 Calls by County, Oklahoma 2009



Map 8: EMS Service Calls by Response Time, Oklahoma 2009.

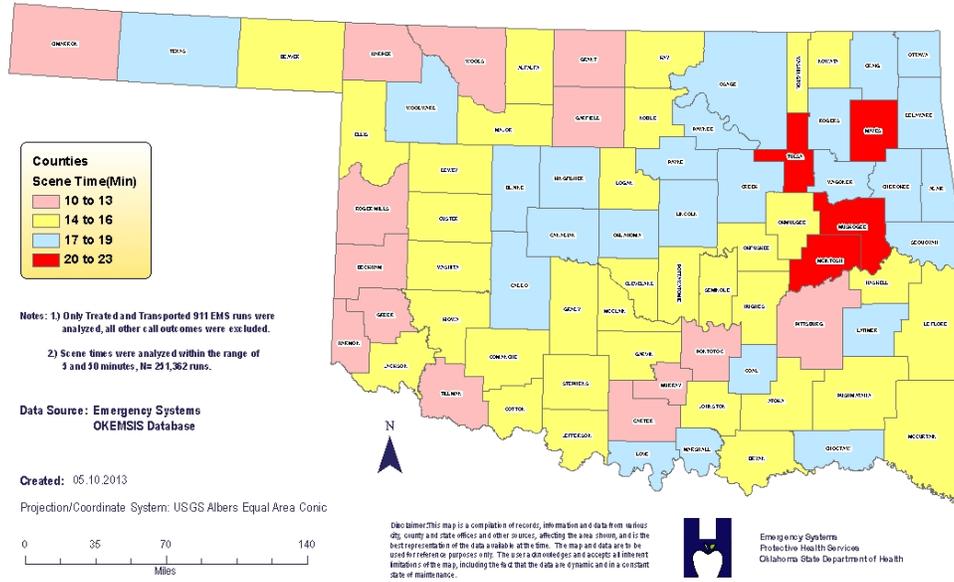
Average Response Time for 911 Calls by County, Oklahoma 2010



Map 9: EMS Service Calls by Response Time, Oklahoma 2010.

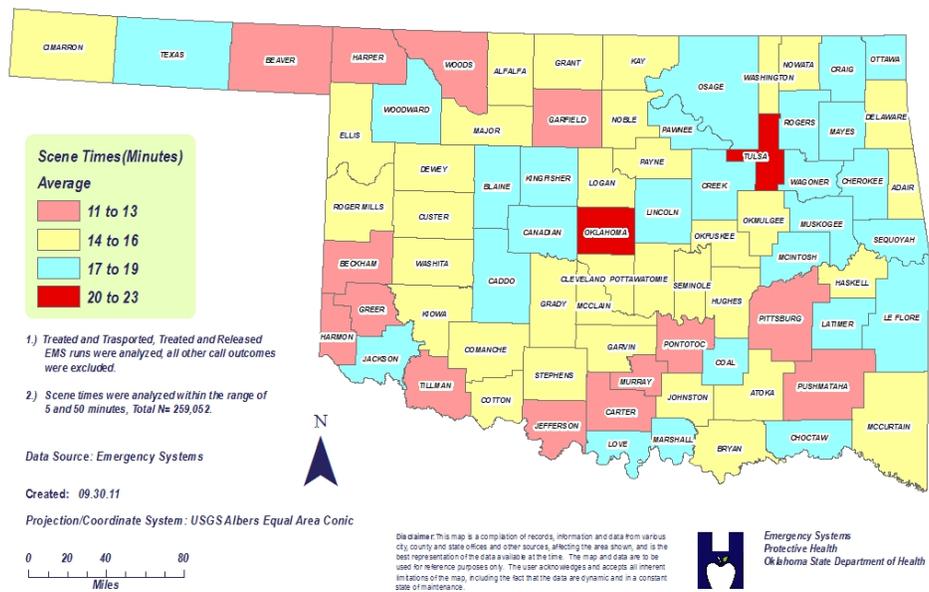
Miscellaneous: Scene Time Maps

EMS Service Calls by County, Scene Time, Oklahoma 2009



Map 10: EMS Service Calls by Scene Time, Oklahoma 2009.

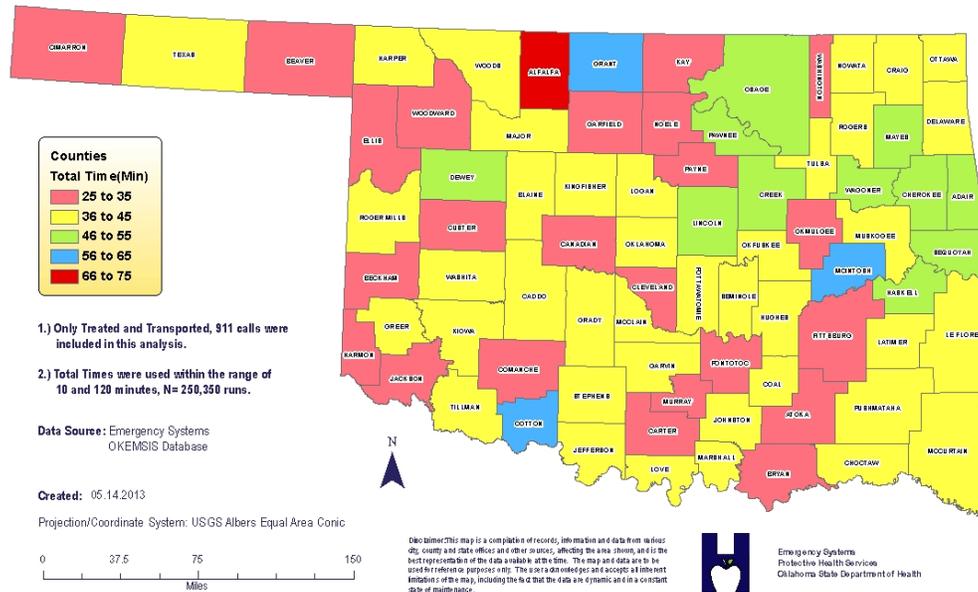
Average Scene Times by County, 911 EMS Calls, Oklahoma 2010



Map 11: EMS Service Calls by Scene Time, Oklahoma 2010.

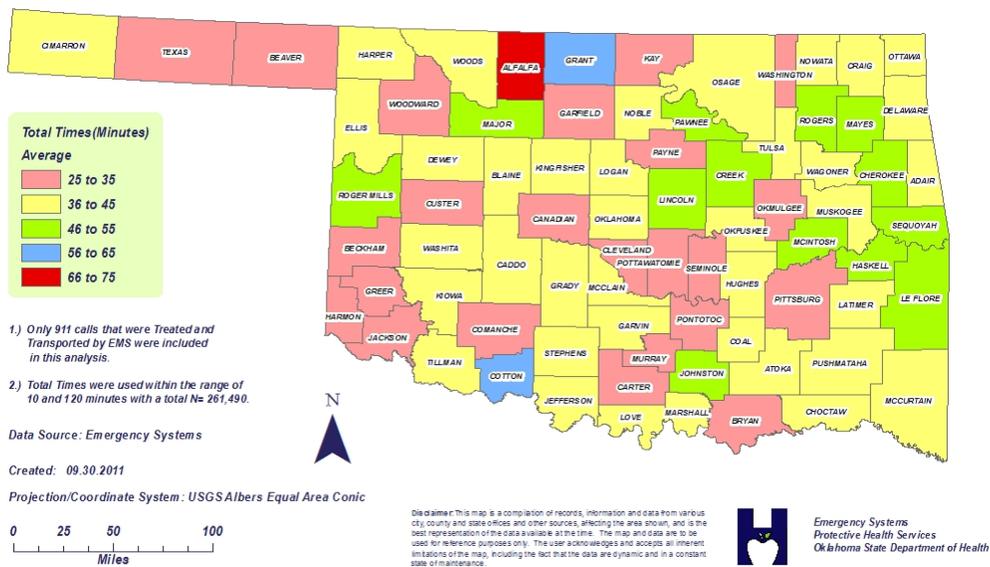
Miscellaneous: Total Time Maps

Average Total Time by County, 911 EMS Calls, Oklahoma 2009



Map 12: EMS Service Calls by Total Time, Oklahoma 2009.

Average Total Time by County, 911 EMS Calls, Oklahoma 2010



Map 13: EMS Service Calls by Total Time, Oklahoma 2010.

Miscellaneous Regional Figures/Graphs

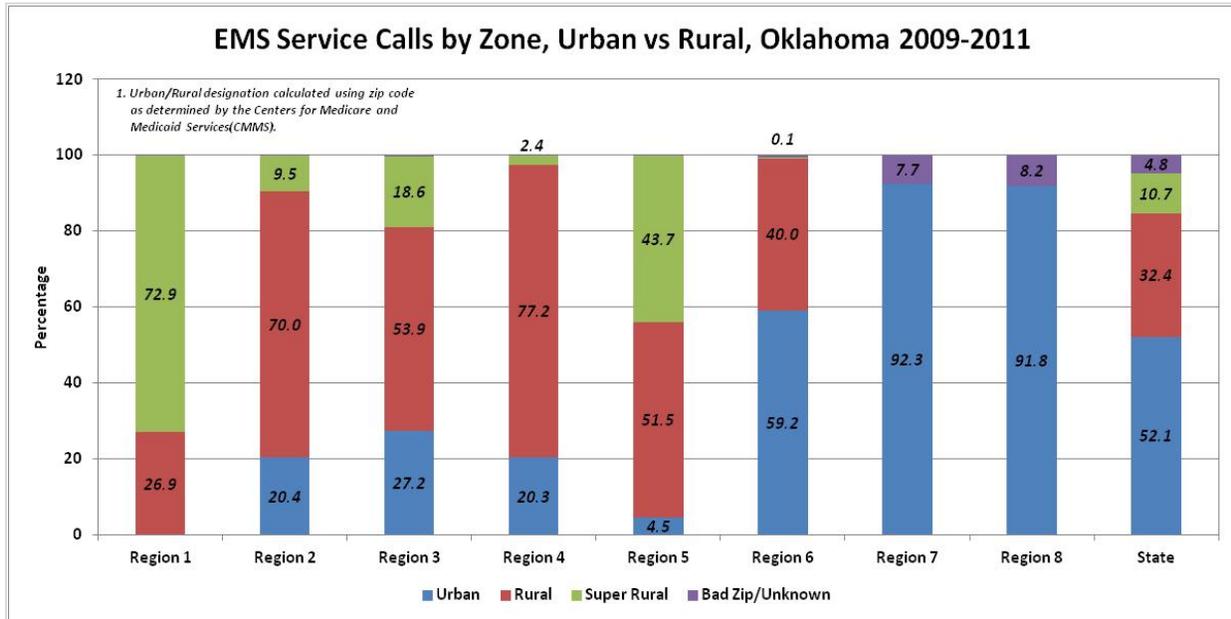


Figure 25: EMS service calls by Zone, Urban vs. Rural, Oklahoma 2009-2011.

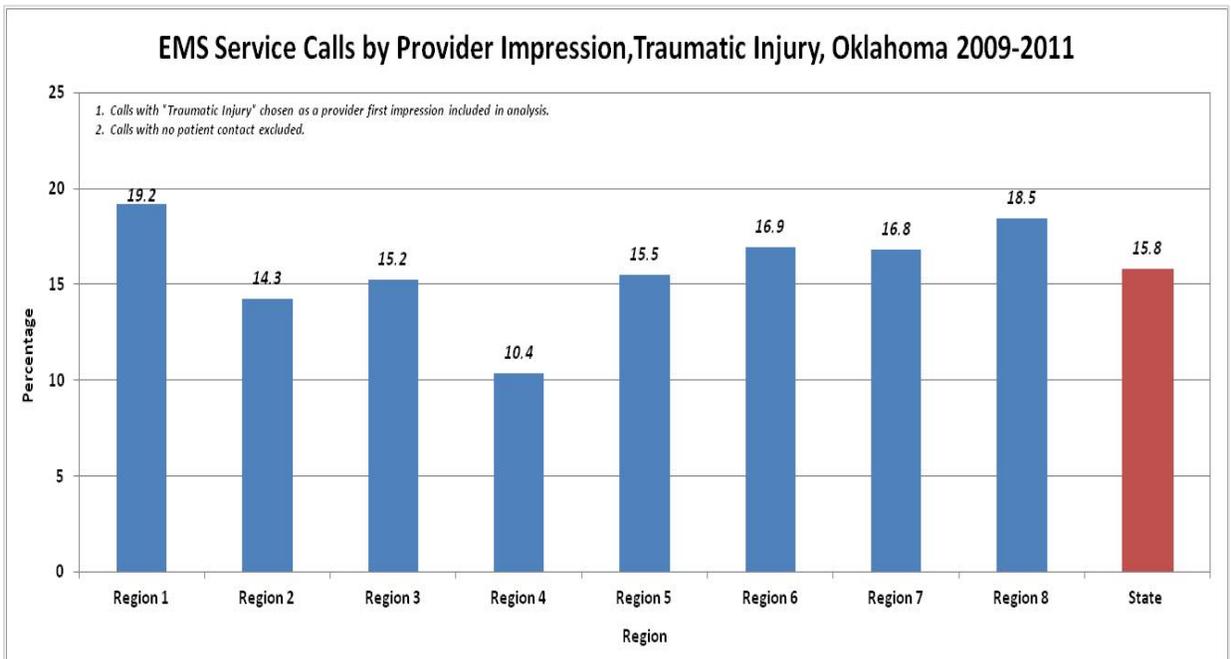


Figure 26: EMS service calls by Provider Impression, Traumatic Injury, Oklahoma 2009-2011.

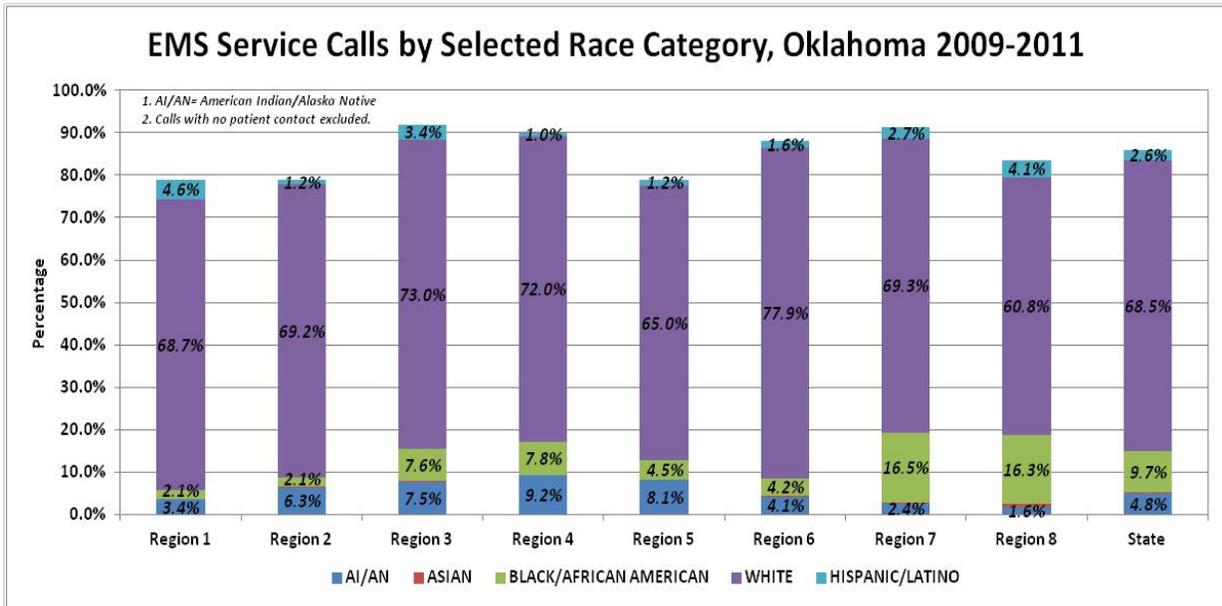


Figure 27: EMS service calls by Region, Race, Oklahoma 2009-2011.

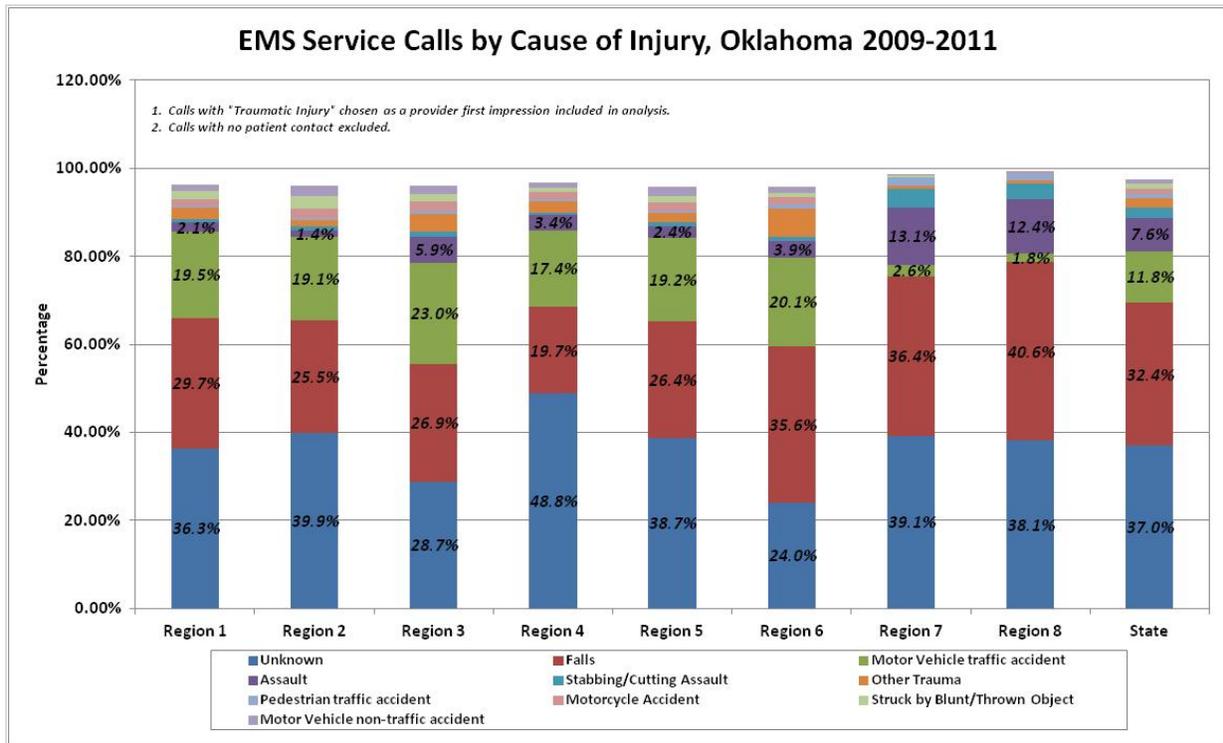
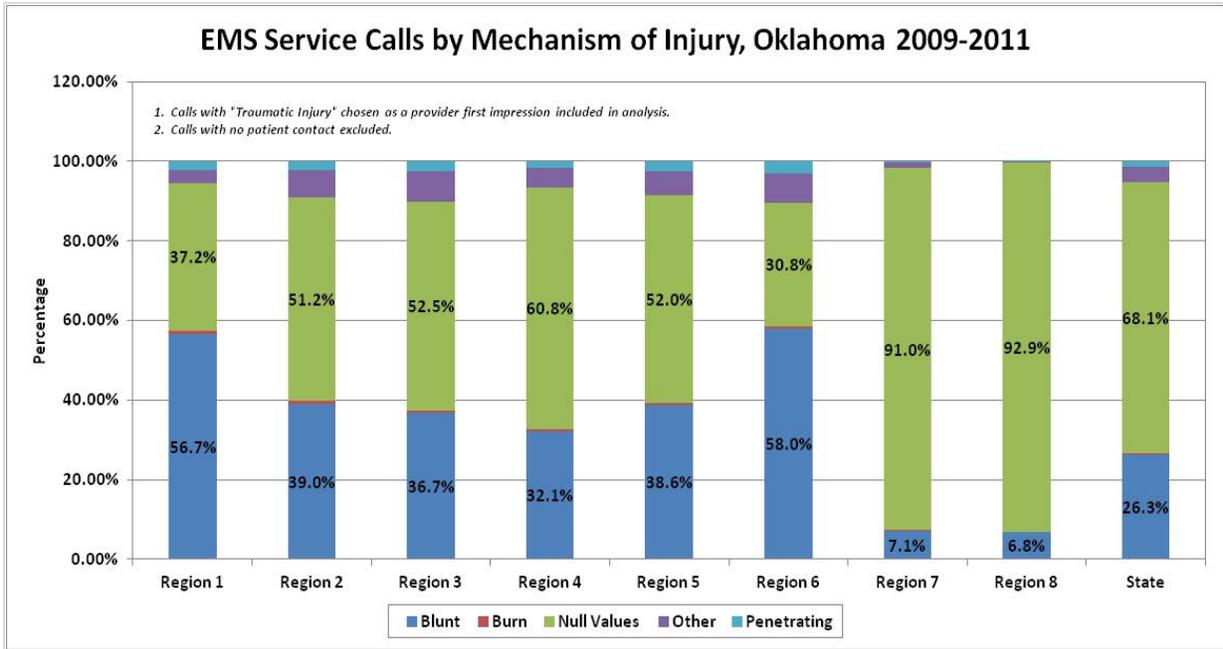
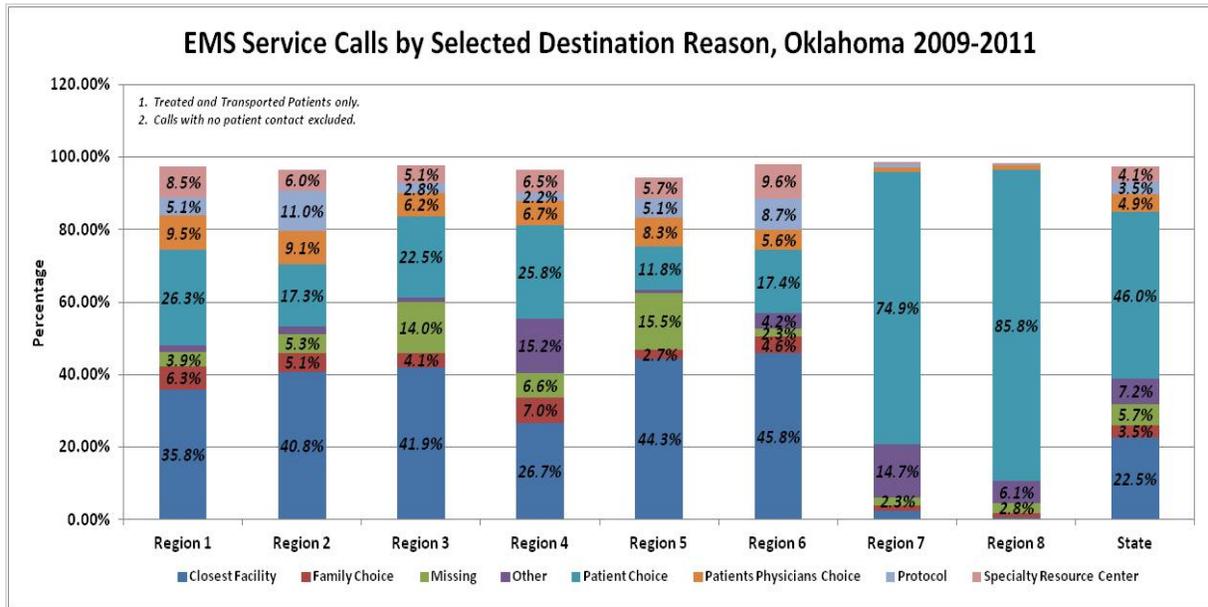


Figure 28: EMS service calls by Region, Cause of Injury, Oklahoma 2009-2011.



[Figure 29: EMS service calls by Region, Mechanism of Injury, Oklahoma 2009-2011.](#)



[Figure 30: EMS service calls by Region, Destination Reason, Oklahoma 2009-2011.](#)