

### EMS SYSTEM REPORT

NOVEMBER 1, 2015

ISSUE 4

### Message from the Director and Medical Director

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EMS SYSTEM

TRAUMA SYSTEM

TRAUMA
INCIDENCE &
MORTALITY

TOP 5 MECHANISMS OF INJURY

STEMI SYSTEM 12

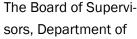
RETURN OF 14 SPONTANEOUS CIRCULATION

STROKE SYSTEM 16

EMS PROVIDERS 18

We are happy to present the 2015 Emergency Medical Services (EMS) Sys-

tem Data Report.
This report is intended to educate participants and the public on the performance of the EMS System.





Cathy Chidester Director

Health Services leadership, fire departments, ambulance companies and hospitals have been instrumental in making improvements to our methods of data collection. All EMS Agency data originates from 9-1-1 patient care reports and self reported hospital data.

We are now able to track patients from

the prehospital setting to their discharge from our established specialty care centers to analyze system performance and institute appropriate policy changes for the prehospital patient.

This is the first year that we are able to map our data by Service Planning Areas (SPA). This is important to align with other County

health programs.

As we move into 2016, we are looking forward to being able to run timely and more detailed reports for our providers and the public to answer

system questions and make policy decisions supported by data and

Dr. Marianne Gausche-Hill Medical Director

science.

# TOP 5 EMS CHIEF COMPLAINTS

### 2015 System Demographics

#### 74 9-1-1 Receiving Hospitals

 Driving Time Zones around Trauma, STEMI and Stroke Centers are in pages 10 & 11

SPECIAL POINTS

OF INTEREST:

- STEMI & ROSC information are in pages 12-15
- Stroke system information are in pages 16-17
- EMS Provider information are in pages 18-19

- **40** EDAP (Emergency Department Approved for Pediatrics)
- 8 Pediatric Medical Centers
- 6 Pediatric Trauma Centers
- 14 Trauma Centers
- 21 Paramedic Base Hospitals
- **35** STEMI Receiving Centers
- 39 Approved Stroke Centers
- 54 Perinatal Centers
- **40** Hospitals with Neonatal Intensive Care Unit
- **9** SART (Sexual Assault Response Team) Centers
- 13 Disaster Resource Centers

#### **EMS Provider Agencies**

- **32** Public Safety EMS Provider Agency
- **36** Licensed Basic Life Support Ambulance Operators
- **18** Licensed Advanced Life Support Ambulance Operators
- **18** Licensed Critical Care Transport Ambulance Operators
- 8 Licensed Ambulette Operators

#### **EMS Practitioners**

3,925 Accredited Paramedics7,721 Certified EMTs by LA Co EMS Agency820 Certified Mobile Intensive Care Nurses

### Service Planning Areas (SPA)

#### **COUNTYWIDE** (CY 2014)

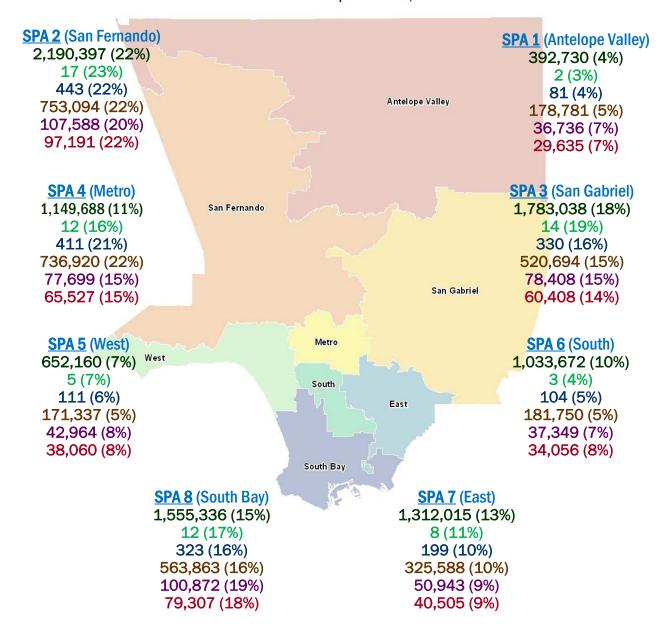
Population: 10,069,036 (July 2014 estimate)

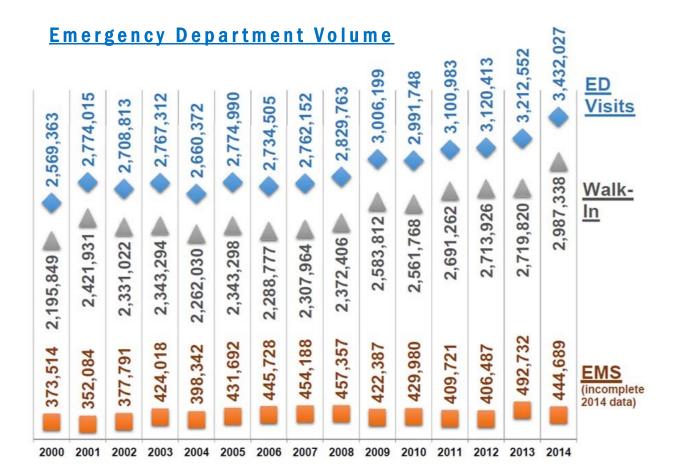
9-1-1 Receiving Hospitals: 73

**Emergency Department Treatment Bays: 2,007** 

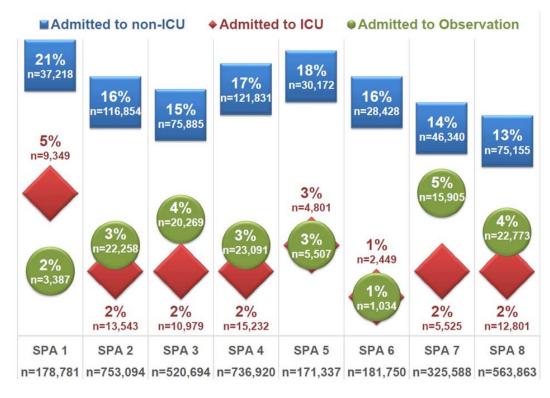
Emergency Department Visits: 3,432,027 9-1-1 EMS Responses: 532,559

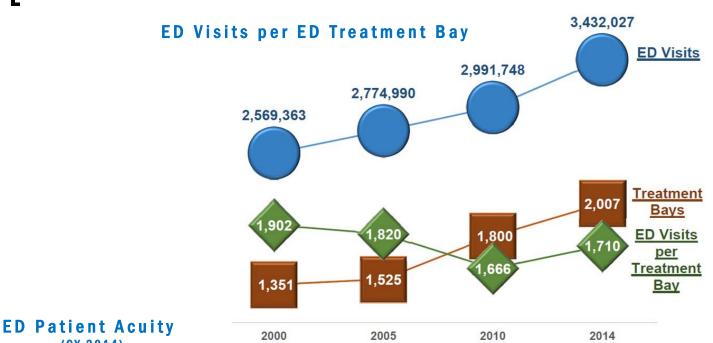
9-1-1 EMS Transports: 444,689

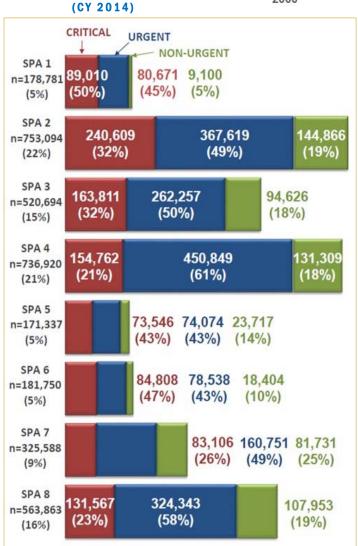




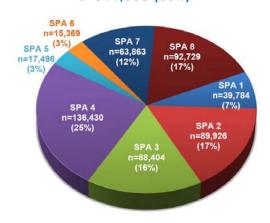
Patient
Disposition
From the
Emergency
Department



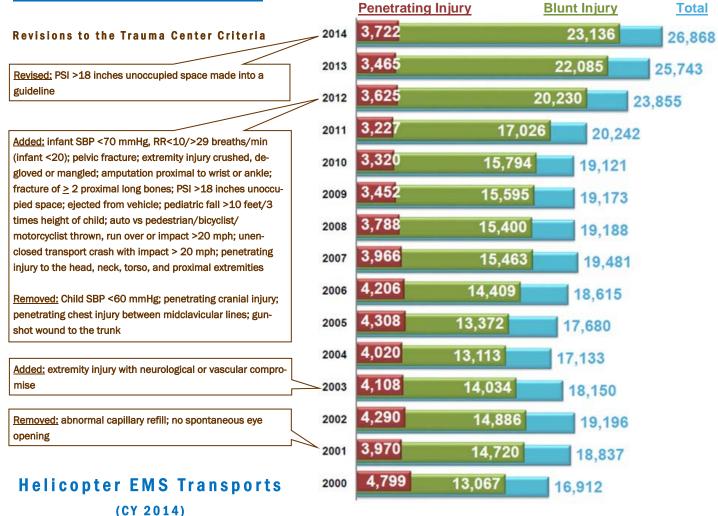




### Pediatric ED Visits n=544,001 (16%)



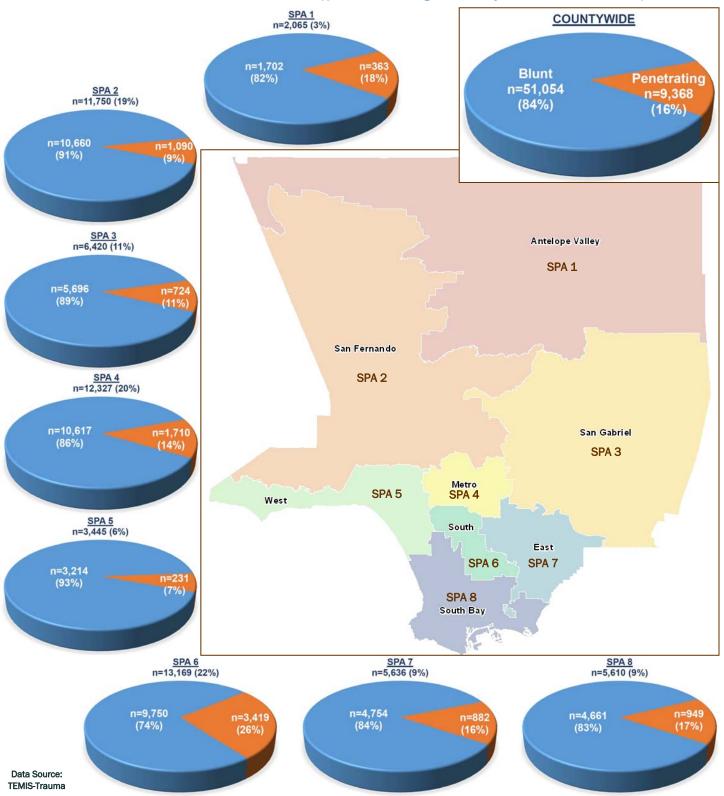
### Trauma Center Volume



Helicopter EMS Provider	Los Angeles County Sheriff's Department	Los Angeles County Fire Department	Los Angeles City Fire Department
Antelope Valley	11	116	0
Angeles National Forest	0	68	0
San Fernando Valley	10	33	16
West San Gabriel Valley	31	8	0
East San Gabriel Valley	42	378	4
West County	1	138	12
Catalina/Avalon	0	21	0
Unspecified	18	0	1
Total Trauma Call	113	762	33
Canceled Helicopter EMS Trau	ma Calls (data collection	and tracking started July	1, 2014)
Basic Life Support Only	3	3	1
Ground Transport < 30 Minutes	1	5	
Patient Refused Transport	3		
In Custody	1		
Transport Not Required	1	1	
Total	8	9	1

# <u>by Service Planning Area (SPA)</u>

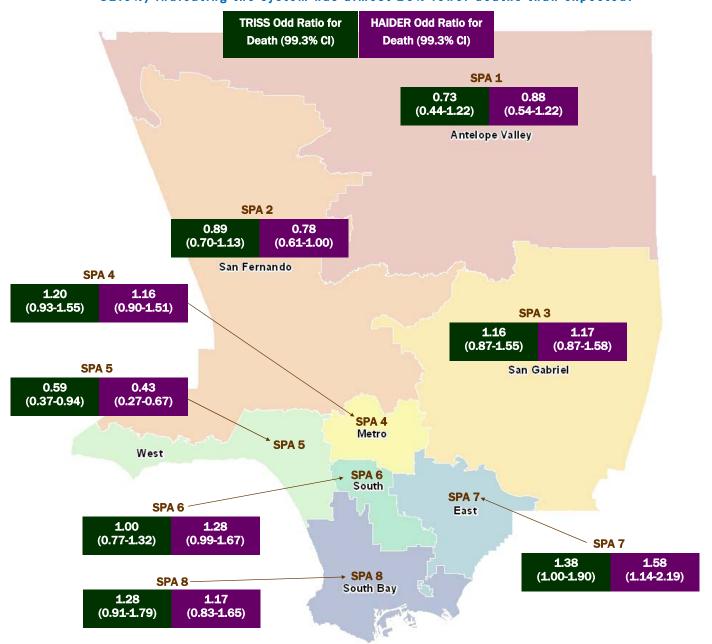
CY 2012-2014: n=60,422 (patients aged 15 years and older)



### **Trauma Mortality**

Adjusted for each Service Planning Area (SPA) with all other SPAs as reference

Overall mortality rate is 3.8% which is less than the current national average as reported by the American College of Surgeons. Using the TRISS model to calculate the percent of actual deaths compared to expected death, the Los Angeles County Trauma System scored 81.4% (95% CI 79.8-82.9%) indicating the system has almost 20% fewer deaths than expected.



**TRISS** (Trauma Score-Injury Severity Score) risk-adjusted model determines the probability of survival of a patient from the Injury Severity Score and the Revised Trauma Score.

<u>Haider</u> risk-adjusted model is based on analysis of 2009-10 National Trauma Data Bank (NTDB) which takes into consideration age, hypotension, pulse, Glasgow Coma Score, Injury Severity Score, and need for ventilator use.

### Top 5 Trauma Mechanisms of Injury (All Ages)

SPA 1 Antelope Valley

Age in Years	<1 yr	1-4 yrs	15-24 yrs	25-44 yrs	45-64 yrs	5-14 yrs	65/ >65 yrs	Unk	Total	%
Enclosed Vehicle	32	99	769	864	636	202	229	64	2,895	39%
Fall	15	87	110	212	471	99	939	19	1,952	26%
Assault	2	7	293	365	205	38	38	17	965	13%
Sports/Recreation		8	85	33	44	84	13	2	269	4%
Self Inflicted-Accident		9	41	63	43	22	26		204	3%
Grand Total	62	249	1,563	1,911	1,678	508	1,364	129	7,492	
% (age)	1%	3%	21%	26%	22%	7%	18%	2%		

SPA 2 San Fernando Valley

Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Fall	63	219	340	504	987	2,268	6,403	6	10,790	51%
Enclosed Vehicle	21	51	173	1,062	1,694	1,400	659	29	5,089	24%
Auto vs Ped/Bike	2	16	97	329	426	349	154		1,373	7%
Assault		2	25	295	573	403	60	2	1,360	6%
Self Inflicted-Accident			9	79	84	80	28		280	1%
Grand Total	96	354	739	2,625	4,468	5,049	7,672	41	21,044	
% (age)	0.5%	2%	4%	12%	21%	24%	36%	0.2%		

SPA 3 San Gabriel Valley

Age in Years	<1 yr	1-4 yrs	15-24 yrs	25-44 yrs	45-64 yrs	5-14 yrs	65/ >65 yrs	Unk	Total	%
Fall	67	205	302	611	1,129	2,000	4,774	152	9,240	47%
Enclosed Vehicle	53	109	266	1,152	1,585	1,227	516	168	5,076	26%
Assault	2	7	38	416	704	408	83	52	1,710	9%
Sports/Recreation		11	191	215	109	59	16	9	610	3%
Auto vs Ped/Bike	1	6	38	116	130	125	72	2	490	3%
Grand Total	132	406	977	3,054	4,451	4,326	5,754	436	19,536	
% (age)	1%	2%	5%	16%	23%	22%	29%	2%		

SPA 4 Metro Area

<u> </u>										
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Fall	62	222	221	414	969	1,506	1,941	1	5,336	28%
Enclosed Vehicle	23	49	91	569	1,071	661	215	2	2,681	14%
Auto vs Ped/Bike	6	39	173	526	752	432	152		2,080	11%
Assault	4	6	20	368	725	579	62		1,764	9%
Stabbing			1	92	175	76	14		358	2%
Grand Total	134	422	656	3,094	6,404	5,467	2,970	5	19,152	
% (age)	1%	2%	3%	16%	33%	29%	16%	0.03%		

## Top 5 Trauma Mechanisms of Injury

(continuation)

SPA 5	West Area

Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Fall	29	112	150	243	557	992	2,710	10	4,803	38%
Enclosed Vehicle	9	19	61	417	802	534	258	8	2,108	17%
Auto vs Ped/Bike		14	34	190	381	263	110		992	8%
Assault			10	154	297	205	35	2	703	6%
Sports/Recreation		8	72	125	145	90	23	3	466	4%
Grand Total	48	227	455	1,789	3,434	3,108	3,582	39	12,682	
% (age)	0.4%	2%	4%	14%	27%	25%	28%	0.3%		

SPA 6	South Area

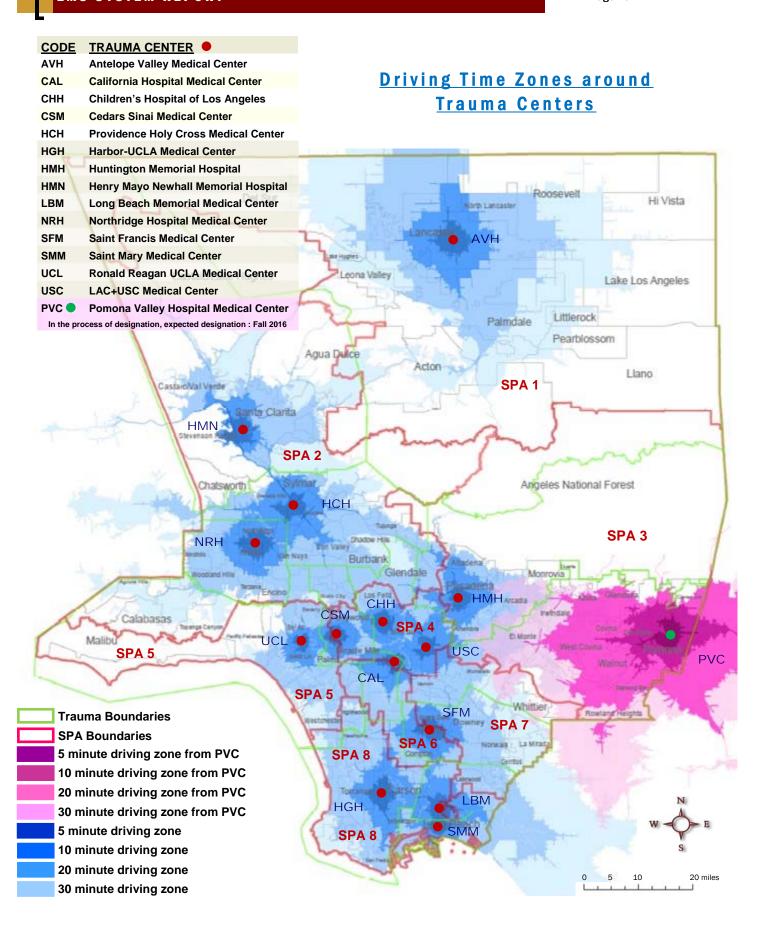
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Fall	30	94	94	172	400	758	551	6	2,105	24%
Enclosed Vehicle	10	42	81	442	557	391	120	8	1,651	19%
Assault	2	3	26	260	457	293	23	7	1,071	12%
Auto vs Ped/Bike	1	3	22	165	250	208	44	3	696	8%
Gun shot			2	163	184	48	9	1	407	5%
Grand Total	51	231	380	1,809	2,783	2,474	912	41	8,681	
% (age)	1%	3%	4%	21%	32%	28%	11%	0.5%		

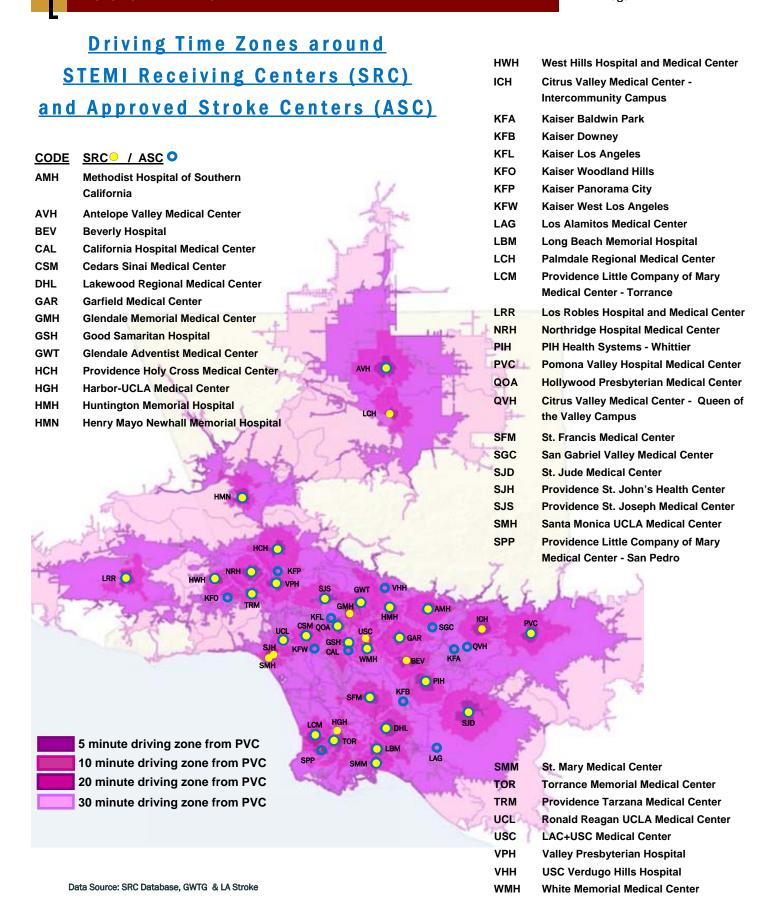
SPA 7	
VDA /	East Area
JI A /	East Alea

Age in Years	<1 yr	1-4 yrs	5-14 vs	15-24 yrs	25-44 vrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Enclosed Vehicle	36	116	238	1,026	1,324	923	366	150	4,179	30%
Fall	38	122	165	168	370	854	1,755	98	3,570	26%
Assault	3	4	32	296	455	230	44	41	1,105	8%
Auto vs Ped/Bike		8	62	142	150	117	42	3	524	4%
Sports/Recreation		5	115	113	49	21	4	5	312	2%
Grand Total	115	370	777	2,389	3,414	3,263	3,284	377	13,989	
% (age)	1%	3%	6%	17%	24%	23%	23%	3%		

### SPA 8 South Bay

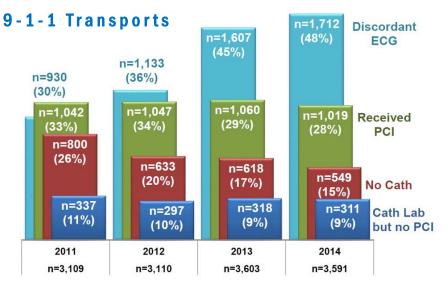
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Fall	84	303	401	464	953	2,198	4,281	45	8,729	34%
Enclosed Vehicle	46	128	309	1,174	1,882	1,468	636	79	5,722	22%
Assault	6	11	80	600	1,067	723	111	20	2,618	10%
Auto vs Ped/Bike	4	24	158	347	398	352	125	5	1,413	6%
Sports/Recreation		17	236	287	241	141	48	5	975	4%
Grand Total	174	648	1,528	4,002	6,454	6,485	5,955	202	25,448	
% (age)	1%	3%	6%	16%	25%	25%	23%	1%		5







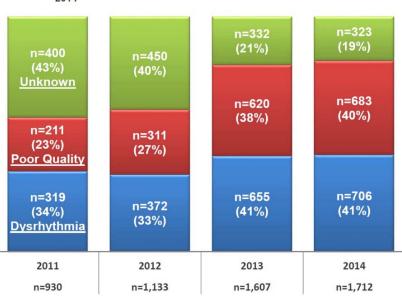
ST-Elevation
Myocardial
Infarction
(STEMI)



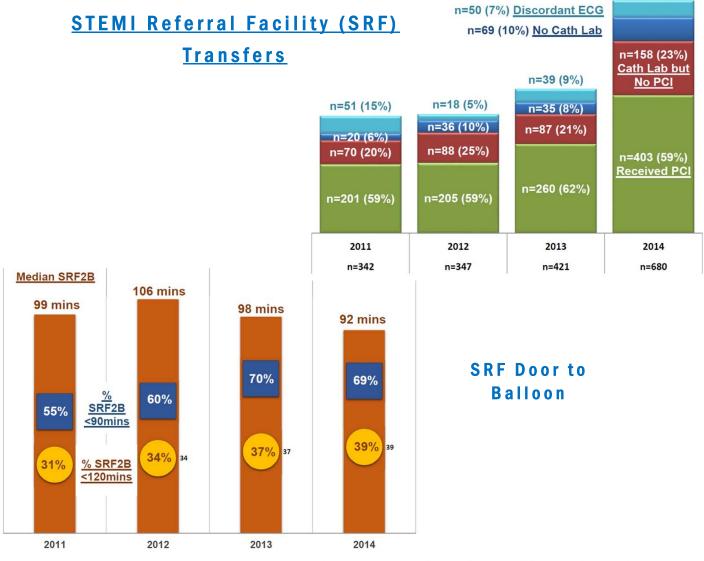


**Median Times** 

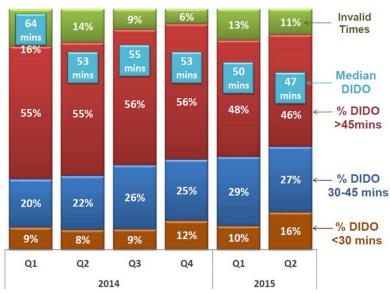
Rationale for Discordant ECG

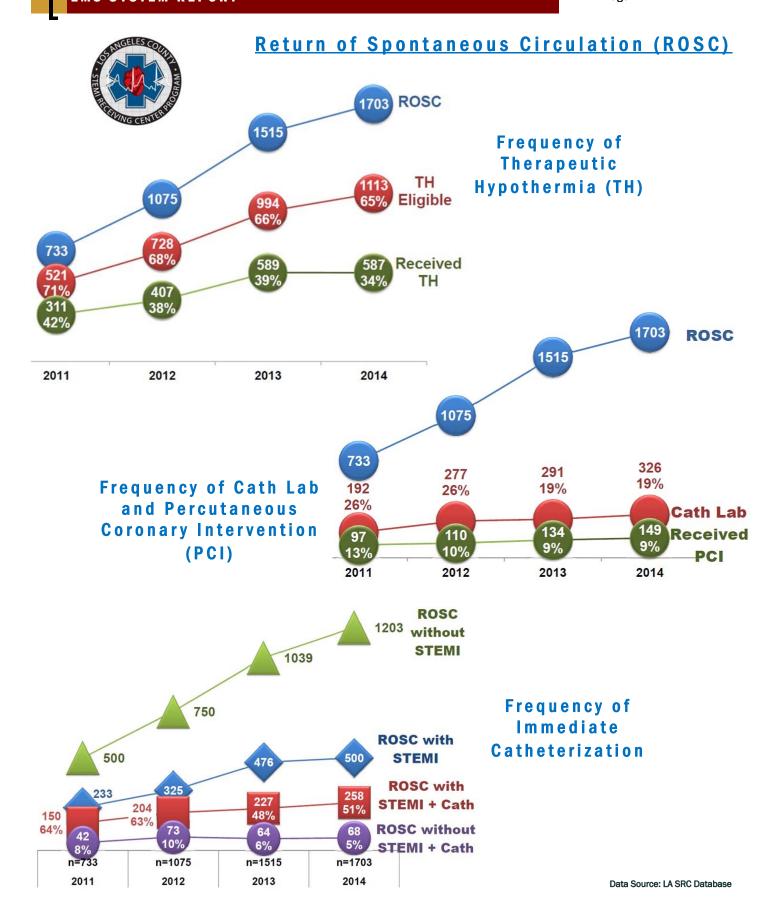


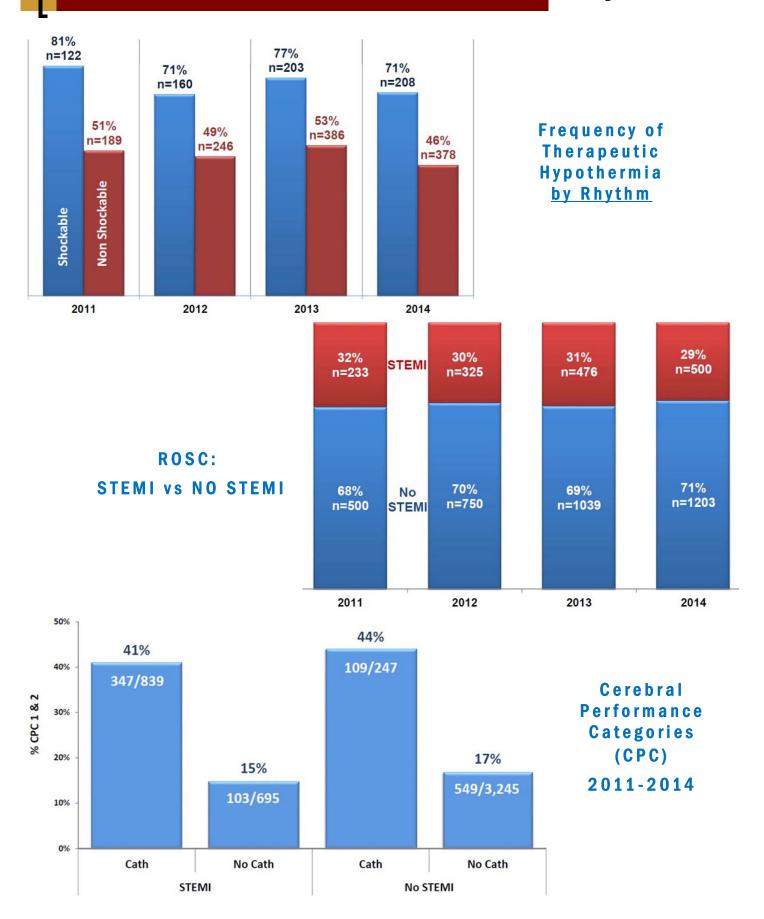
Data Source: LA SRC Database



Door In-Door Out (DIDO)



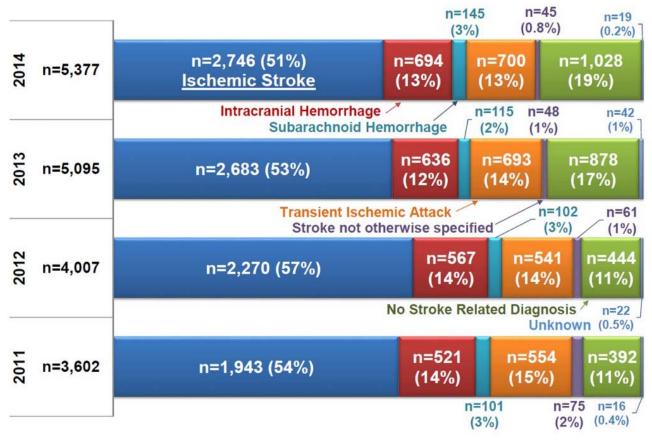


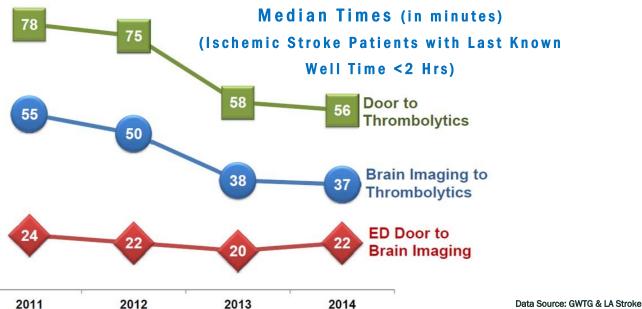


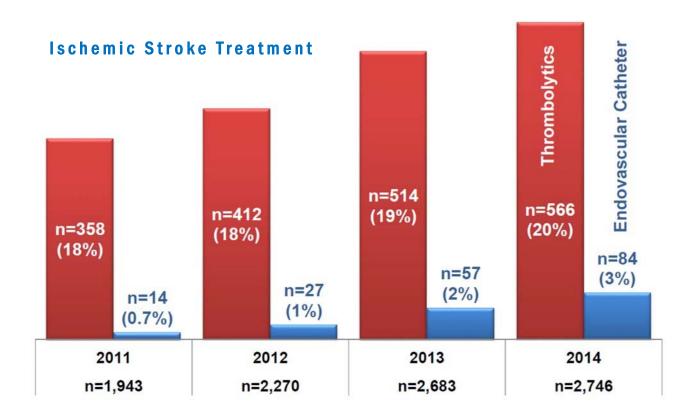


### **Approved Stroke Center Patients**

#### Final Diagnosis of 9-1-1 Transports





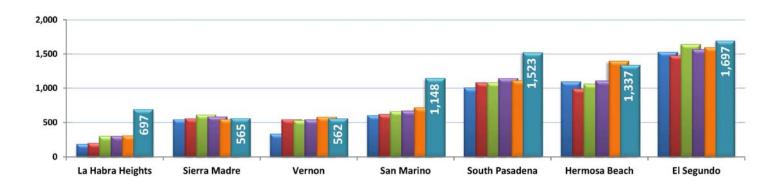


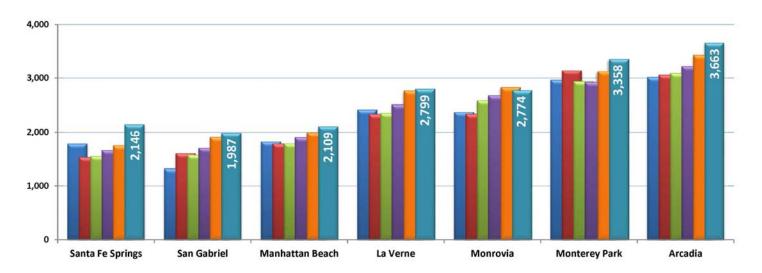
#### Ischemic Stroke Patients with Last Known Well Time < 2 Hours

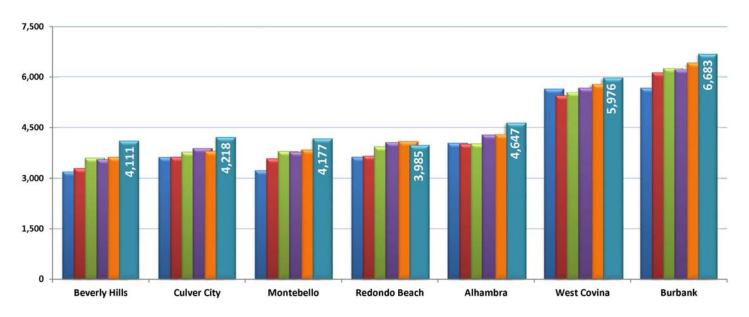
Thrombolytics  n=271 (45%)  Treated by 3 hours  n=93	n=315 (58%)	n=310 (39%) n=149 (48%)	n=354 (39%) n=218 (62%)
2011	2012	2013	2014
n=605	n=543	n=797	n=897

## EMS Responses by 9-1-1 Jurisdictional Provider Agency

■ 2009 ■ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014

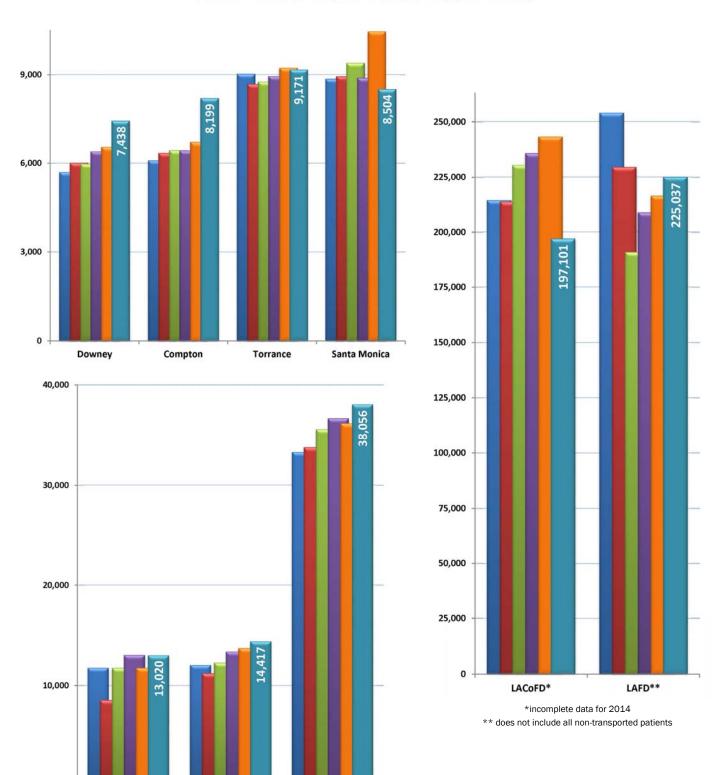






### EMS Responses by 9-1-1 Jurisdictional Provider Agency





Glendale

Pasadena

**Long Beach** 

### Top 5 EMS Chief Complaints (All Ages)

SPA 1 Antelope Valley

	The state of the s									
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injury	62	249	536	1,563	1,911	1,678	1,364	129	7,492	20%
No Complaints	30	100	102	363	643	772	845	112	2,967	8%
Behavioral	1	3	117	566	871	718	234	28	2,538	7%
Abdominal Pain		7	48	360	738	657	437	20	2,267	6%
Altered LOC	4	19	20	114	300	623	1,010	26	2,116	6%
Grand Total	410	930	1,476	4,763	8,358	10,430	9,898	471	36,736	
% (age)	1%	3%	4%	13%	23%	28%	27%	1%		9.

SPA 2 San Fernando Valley

Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injury	96	354	739	2,625	4,468	5,049	7,672	41	21,044	20%
Altered LOC	23	44	65	657	1,624	2,474	4,462	6	9,355	9%
Weak	12	18	41	229	705	1,836	4,544	2	7,387	7%
Chest Pain	3	3	27	159	941	2,763	3,137		7,033	7%
Abdominal Pain	3	14	92	695	1,839	2,356	2,018	2	7,019	7%
Grand Total	592	1,519	2,130	9,145	20,692	30,092	42,524	894	107,588	
% (age)	1%	1%	2%	9%	19%	28%	40%	1%		

SPA 3 San Gabriel Valley

		The state of the s								
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injury	132	406	977	3,054	4,451	4,326	5,754	436	19,536	25%
Altered LOC	11	41	54	294	805	1,384	2,915	71	5,575	7%
No Complaint	71	113	154	556	962	1,265	1,814	473	5,408	7%
Behavioral	5	5	144	903	1,832	1,336	527	125	4,877	6%
Weak	2	5	38	156	356	909	2,525	23	4,014	5%
Grand Total	573	1,406	2,391	7,952	15,074	19,867	28,434	2,710	78,407	
% (age)	1%	2%	3%	10%	19%	25%	36%	3%		

SPA 4 Metro Area

Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injuries	134	422	656	3,094	6,404	5,467	2,970	5	19,152	25%
Altered LOC	31	45	60	691	1,962	2,588	2,377		7,754	10%
Abdominal Pain	6	18	97	818	1,981	2,072	1,024		6,016	8%
Chest Pain	1	2	38	204	1,193	2,634	1,592		5,664	7%
Shortness of Breath	78	103	176	235	598	1,639	2,097		4,926	6%
<b>Grand Total</b>	885	1,603	1,679	8,147	20,784	25,440	19,129	32	77,699	
% (age)	1%	2%	2%	10%	27%	33%	25%	0%		

# Top 5 EMS Chief Complaints

(continuation)

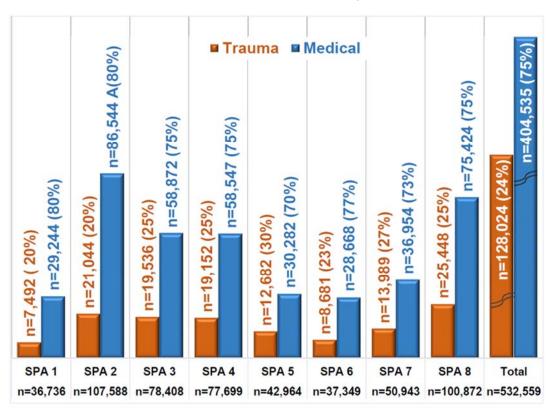
<u>SPA 5</u>	<b>West Area</b>									
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injury	48	227	455	1,789	3,434	3,108	3,582	39	12,682	30%
Altered LOC	9	30	22	359	643	786	1,334	22	3,205	7%
Weak	3	2	23	104	250	682	1,609	3	2,676	6%
Abdominal Pain		13	38	271	759	807	710	1	2,599	6%
Chest Pain			18	101	362	894	1,181	1	2,557	6%
<b>Grand Total</b>	257	676	991	4,169	9,232	11,377	15,858	404	42,964	
% (age)	1%	2%	2%	10%	21%	26%	37%	1%		

<u>SPA 6</u>	South Area									
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injuries	51	231	380	1,809	2,783	2,474	912	41	8,681	23%
Abdominal Pain	3	10	56	711	1,361	1,124	494	10	3,769	10%
Altered LOC	4	54	32	345	786	1,097	895	14	3,227	9%
Shortness of Breath	16	47	76	114	246	1,061	848	6	2,414	6%
Chest Pain			14	79	477	1,132	508		2,210	6%
<b>Grand Total</b>	323	827	988	5,087	10,088	12,428	7,422	186	37,349	
% (age)	1%	2%	3%	14%	27%	33%	20%	0%		

<u>SPA 7</u>	East Area									
Age in Years	<1 yr	1-4 yrs	5-14 ys	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injuries	115	370	777	2,389	3,414	3,263	3,284	377	13,989	27%
No Complaints	61	136	153	464	866	902	1,005	312	3,899	8%
Altered LOC	13	24	30	248	598	1,028	1,667	70	3,678	7%
Behavioral	3	5	123	760	1,406	896	316	88	3,597	7%
Abdominal Pain	1	12	67	339	913	794	671	80	2,877	6%
<b>Grand Total</b>	546	1,243	1,898	6,047	11,124	13,227	14,840	2,017	50,942	
% (age)	1%	2%	4%	12%	22%	26%	29%	4%		100

<u>SPA 8</u>	South Bay									
Age in Years	<1 yr	1-4 yrs	5-14 yrs	15-24 yrs	25-44 yrs	45-64 yrs	65/ >65 yrs	Unk	Total	%
Traumatic Injuries	174	648	1,528	4,002	6,454	6,485	5,955	202	25,448	25%
Altered LOC	23	87	73	540	1,575	2,350	3,012	68	7,728	8%
Abdominal Pain	5	20	131	784	1,910	1,842	1,382	44	6,118	6%
Behavioral	2	6	183	1,039	2,338	1,824	638	58	6,088	6%
Weak	7	15	42	209	670	1,591	2,903	11	5,448	5%
Grand Total	926	2,261	3,267	10,358	22,601	29,921	30,306	1,231	100,871	
% (age)	1%	2%	3%	10%	22%	30%	30%	1%		500

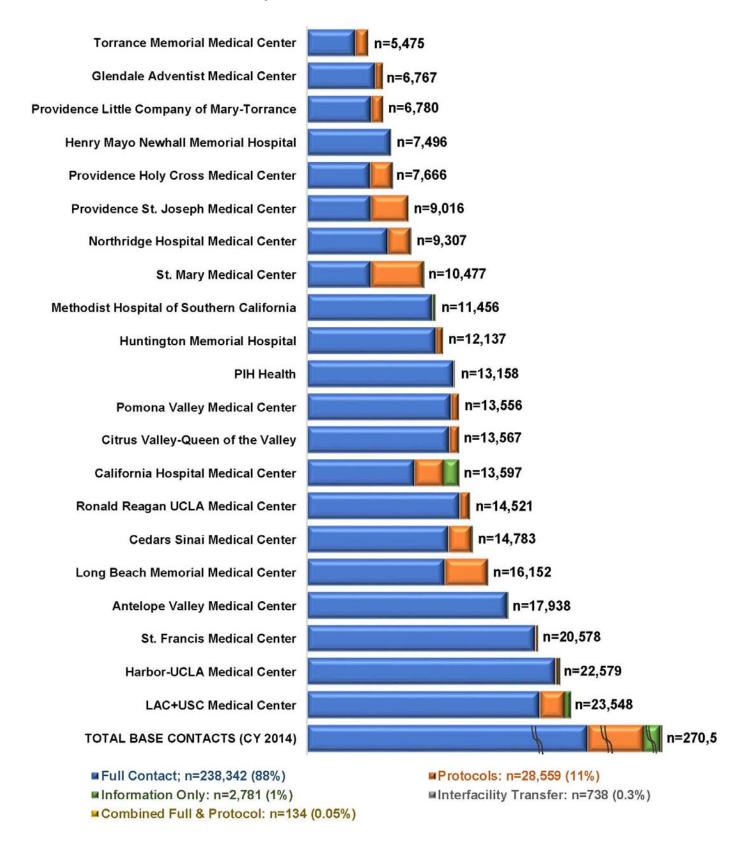
### 2014 EMS Responses by SPA



9-1-1 EMS Responses Resulting in Transport

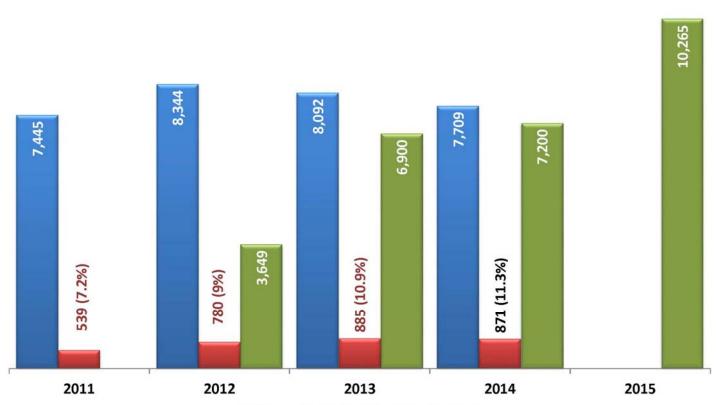


### Paramedic Base Hospital Contacts for Online Medical Control



### Citizen (Bystander) Cardiopulmonary Resuscitation (CPR)

■ Total Cardiac Arrests ■ Received Citizen CPR ■ Total Trained Citizens on "Hands-Only CPR Day"



2014: incomplete data from LA County Fire Department.





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Web: http//ems.dhs.lacounty.gov

For data request please complete and submit the Data Request Form at http://ems.dhs.lacounty.gov/dhs/cms1\_207416.pdf