



LOS ANGELES COUNTY EMS SYSTEM REPORT

DECEMBER 1, 2018

ISSUE 7

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Message from the Director and Medical Director

We are pleased to present the 2018 Emergency Medical Services (EMS) System Data Report. Each successive report reflects the commitment of our EMS Agency, EMS providers and hospitals to quality patient care. As our data reporting system has matured and all of our EMS Advanced Life Support (ALS) providers have adopted electronic data capturing, we are able to expand the use of our data in publications and research.

The EMS Agency has engaged in projects with the Department of Public Health and California EMS Authority, utilizing our data, not only to improve quality of care but to assist in preventing injury.

As our use of information technology capability progresses, we will be working on several critical goals; receiving the outcomes of all patients who have been transported to any designated 9-1-1 receiving facility and connecting with our health information exchange partners to demonstrate the ability of paramedics to receive patient information and in turn transmit the emergency medical care data directly to the receiving hospital's medical record.

For several years, we have been working with our EMS Provider Agencies and hospitals to improve

bystander cardiopulmonary resuscitation (CPR) rates in Los Angeles County through our Side-walk CPR Program. In June 2018, we trained over 5,000 Los Angeles citizens in CPR and spearheaded additional training in California for an overall total of over 11,000 California residents trained.

We implemented a two-tiered Comprehensive Stroke system in order to provide greater access to the public for these critical interventions for stroke. In 2018 alone through the designation of 19 Comprehensive Stroke Centers, we have increased access to these interventions within 30 minutes of

presentation from 40% of the public to 93%.

Our other specialty programs continue to serve the needs of our public through our standards which ensures polices and procedures, specialized equipment, availability of critical specialist and staff who can care for critical pediatric patients, adults and pediatric trauma patients, laboring mothers,



Cathy Chidester
Director

Dr. Marianne Gausche-Hill
Medical Director

and victims of sexual assault, patients suffering heart attack, and those in cardiac arrest.

Many thanks to our EMS Agency staff and the leadership of Dr. Nichole Bosson, Assistant Medical Director, and Richard Tadeo, Assistant Director, for not only their work on this report but for the daily efforts in managing and ensuring the data quality for the system.

2018 System Demographics

SPECIAL POINTS OF INTEREST:

- EMS Responses by Month is on page 5
- ED Disposition and Patient Type are on page 9
- Injury Severity Scores are on pages 12-13
- D2B and E2B Times are on page 15

72 9-1-1 Receiving Hospitals

- 38 EDAP (Emergency Department Approved for Pediatrics)
- 10 Pediatric Medical Centers
- 7 Pediatric Trauma Centers
- 15 Trauma Centers
- 21 Paramedic Base Hospitals
- 36 STEMI Receiving Centers
- 19 Comprehensive Stroke Centers
- 31 Primary Stroke Centers
- 62 Perinatal Centers
- 49 Hospitals with Neonatal Intensive Care Unit
- 8 SART (Sexual Assault Response Team) Centers
- 13 Disaster Resource Centers

EMS Provider Agencies

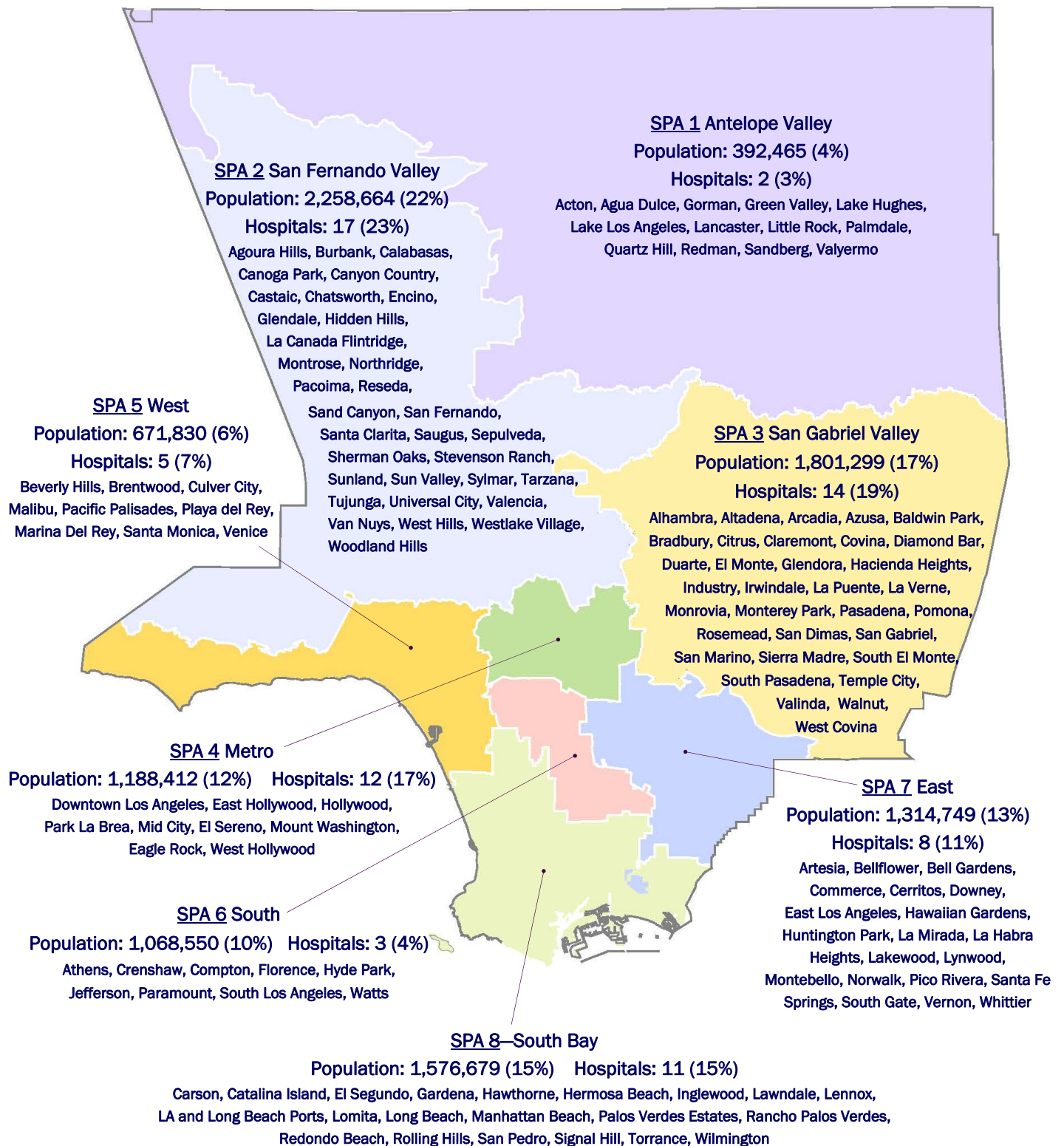
- 32 Public Safety EMS Provider Agencies
- 33 Licensed Basic Life Support Ambulance Operators
- 16 Licensed Advanced Life Support Ambulance Operators
- 15 Licensed Critical Care Transport Ambulance Operators
- 5 Licensed Ambulette Operators

EMS Practitioners

- 4,287 Accredited Paramedics
- 8,168 Certified EMTs by LA Co EMS Agency
- 853 Certified Mobile Intensive Care Nurses

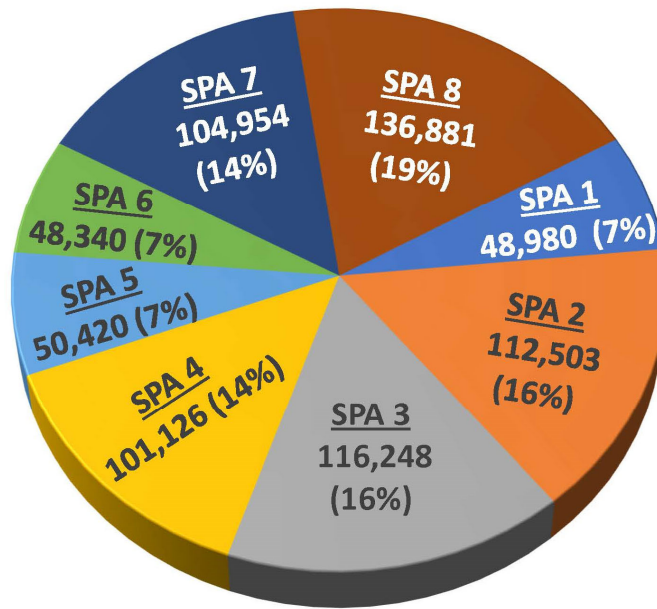
EMS Data by Service Planning Area (SPA)

Los Angeles County Estimated Population (2017) = 10,272,648



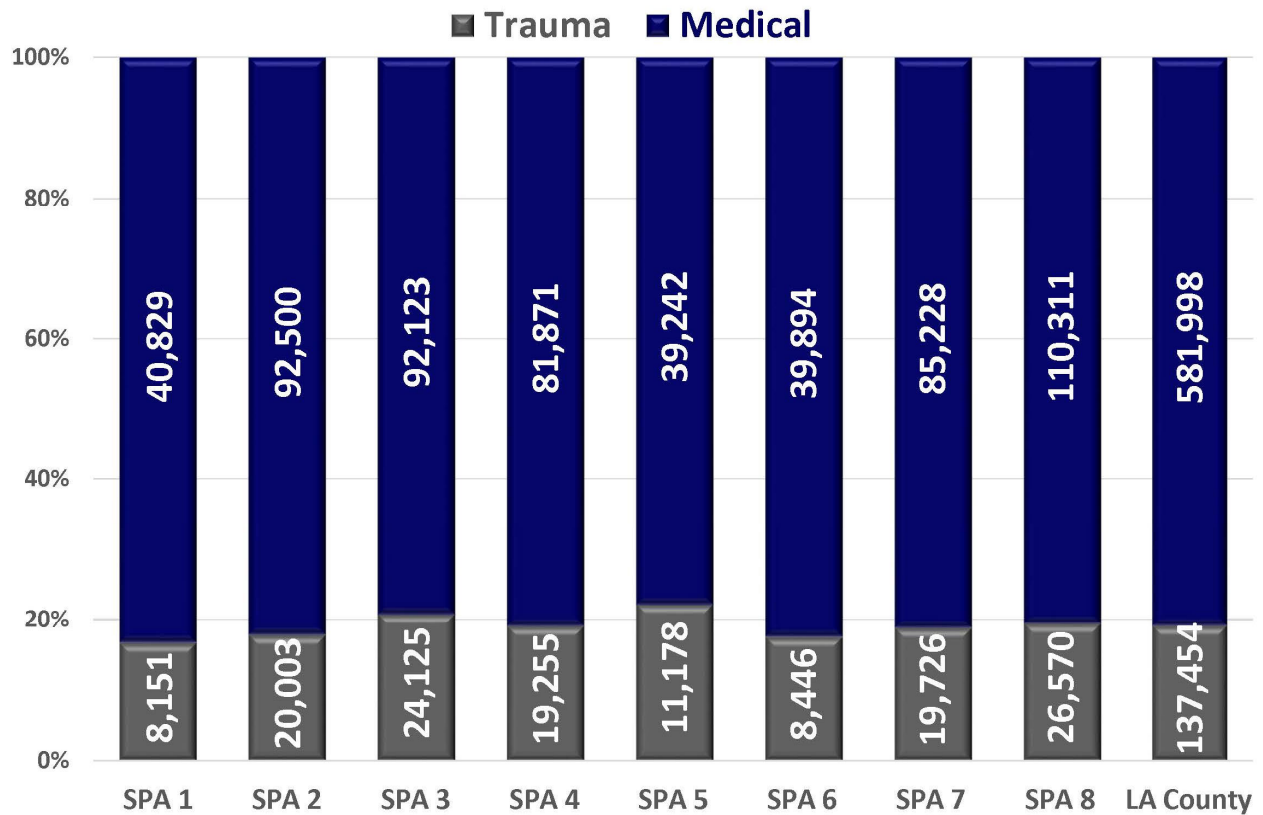
EMS Responses

FY 2016-2017 = 719,452



EMS Responses By Chief Complaint

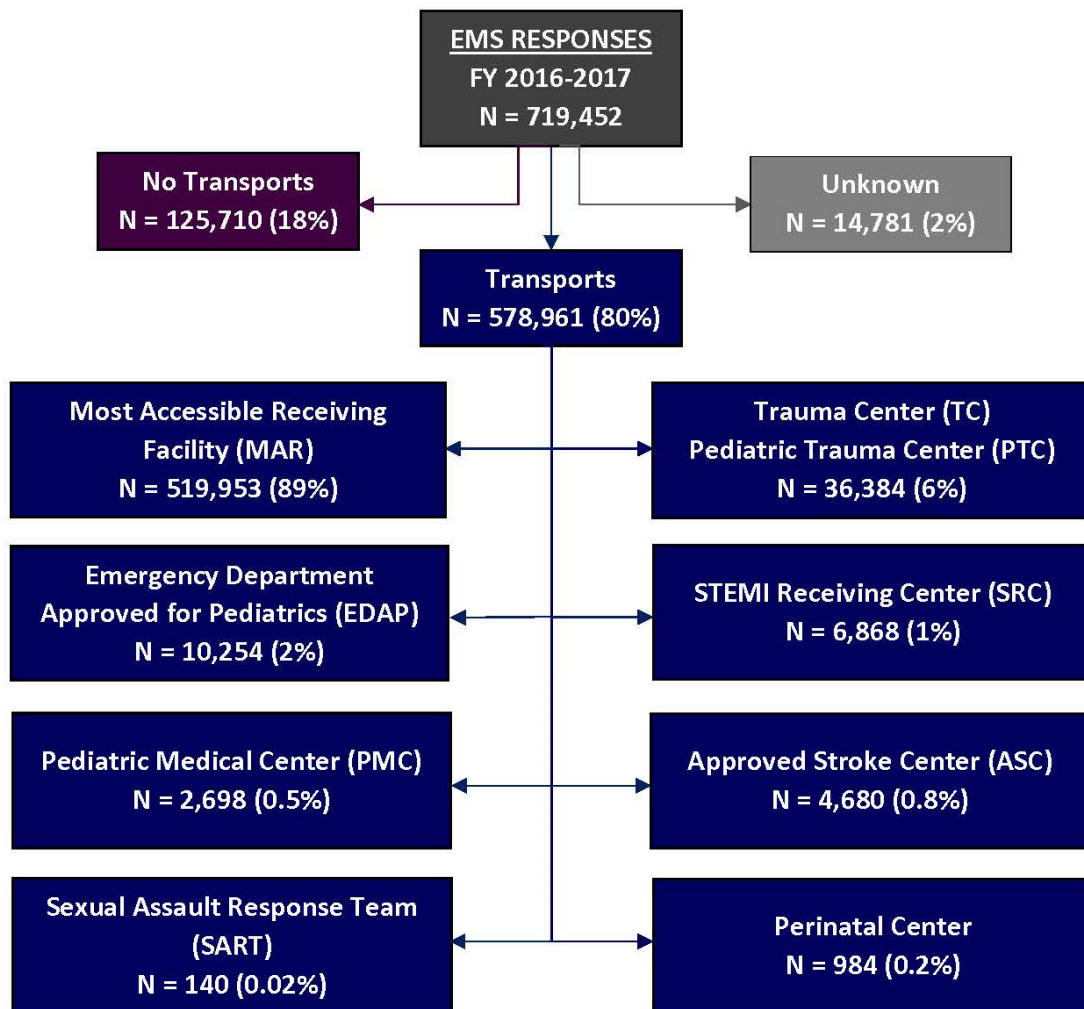
FY 2016-2017



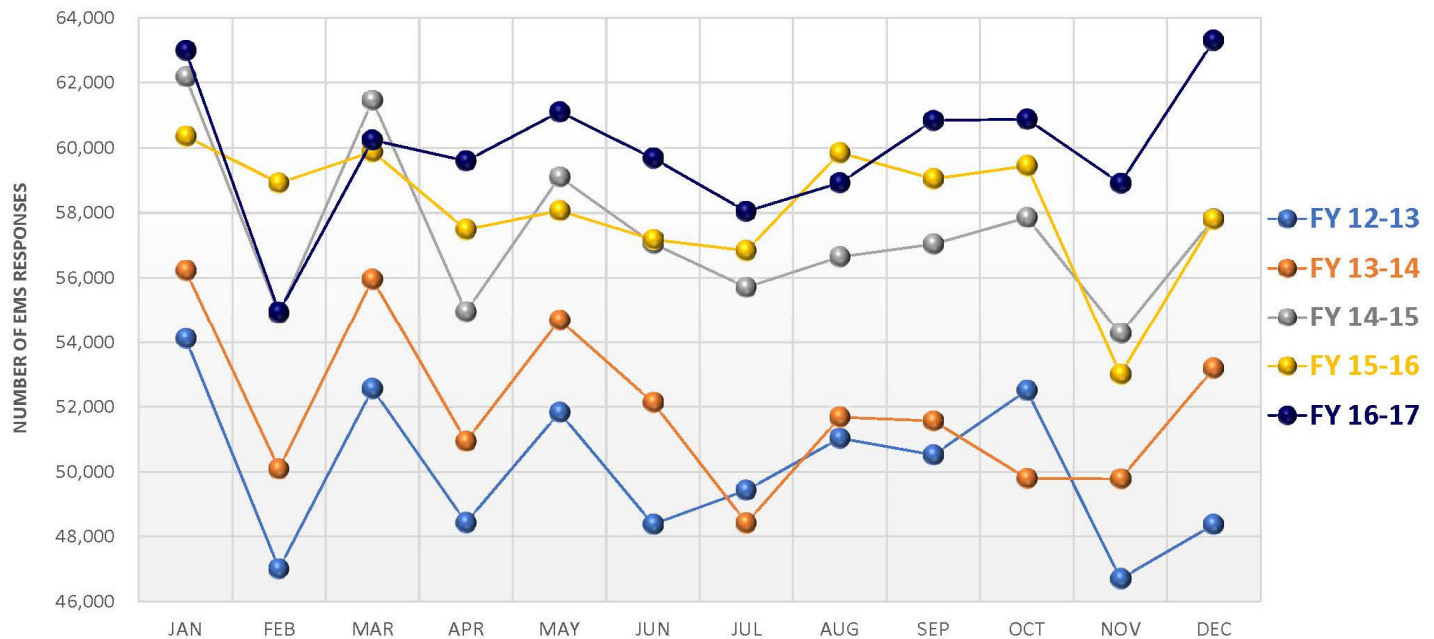
EMS Transports by Age

FY 2016-2017	Age in Years							Unk	Total	%
	< 1	1-8	9-14	15-35	36-55	56-75	>75			
EMS Responses	4,894	16,658	12,114	157,199	162,052	179,928	141,978	44,629	719,452	
Medical	4,428	12,486	7,606	111,401	129,746	153,207	120,331	42,793	581,998	81%
Trauma	466	4,172	4,508	45,798	32,306	26,721	21,647	1,836	137,454	19%
Medical										
Transported	3,631	10,016	5,838	91,835	113,351	134,855	104,471	5,392	469,389	81%
Not Transported	667	2,205	1,530	16,979	13,986	15,643	14,084	36,807	101,901	18%
Unknown	130	265	238	2,587	2,409	2,709	1,776	594	10,708	2%
Trauma										
Transported	404	3,107	3,201	34,191	25,653	22,575	19,184	1,215	109,530	80%
Not Transported	53	905	1,074	9,970	5,702	3,431	2,057	610	23,802	17%
Unknown	9	160	233	1,637	951	715	406	11	4,122	3%

EMS Transports Destinations



EMS Responses by Month



EMS Transports by Provider Agency FY 2016-2017

EMS Provider (n = Number of EMS Responses) | Number of Transports (% = Number of Transports/Number of Responses)

Avalon (n=135)	132 (82%)	Redondo Beach (n=4,121)	2,990 (71%)
La Habra Heights (n=332)	237 (74%)	Culver City (n=4,579)	3,253 (72%)
Sierra Madre (n=332)	252 (78%)	Montebello (n=4,585)	3,103 (64%)
Vernon (n=619)	426 (72%)	Beverly Hills (n=4,802)	2,758 (58%)
LA County Sheriff (n=740)	320 (74%)	Alhambra (n=4,888)	3,085 (64%)
San Marino (n=997)	752 (75%)	West Covina (n=6,501)	4,112 (63%)
Hermosa Beach (n=1,045)	710 (66%)	Downey (n=7,544)	6,009 (80%)
South Pasadena (n=1,283)	840 (68%)	Burbank (n=7,613)	4,590 (64%)
San Gabriel (n=1,764)	1,355 (73%)	Compton (n=7,947)	5,988 (73%)
El Segundo (n=1,909)	1,137 (55%)	Torrance (n=10,749)	8,858 (81%)
Manhattan Beach (n=2,015)	1,353 (67%)	Santa Monica (n=11,334)	6,947 (79%)
Santa Fe Springs (n=2,383)	1,861 (80%)	Pasadena (n=13,298)	10,528 (77%)
Monrovia (n=3,021)	2,253 (73%)	Glendale (n=14,754)	10,733 (69%)
La Verne (n=3,240)	1,559 (54%)	Long Beach (n=35,444)	27,006 (69%)
Monterey Park (n=3,423)	2,457 (68%)	LA City (n=218,947)*	215,583 (98%)
Arcadia (n=3,937)	2,848 (71%)	LA County (n=332,021)	243,848 (73%)

*Minimal data on patients who were not-transported.

Top 5 Reasons for EMS Response (All Ages)

SPA 1

Antelope 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	%
Behavioral	6	6	189	802	1,509	1,033	343	72	3,960	27%
Other Pain	6	20	69	330	876	1,293	824	42	3,460	23%
Abdominal Pain	5	7	40	345	951	985	565	29	2,927	20%
Shortness of Breath	46	84	85	84	186	828	972	12	2,297	16%
Chest Pain	-	-	19	64	382	1,001	610	10	2,086	14%
Grand Total	63	117	402	1,625	3,904	5,140	3,314	165	14,730	
% (age)	0.4%	1%	3%	11%	27%	35%	22%	1%		

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	%
Altered LOC	26	37	67	605	1,552	2,137	4,589	22	9,035	24%
Weak/Dizzy	6	30	52	251	880	2,119	5,042	20	8,400	22%
Shortness of Breath	46	98	103	113	397	1,491	5,023	12	7,283	19%
Abdominal pain	2	16	53	467	1,741	2,081	2,074	26	6,460	17%
Chest Pain	-	3	16	103	722	2,411	3,028	10	6,293	17%
Grand Total	80	184	291	1,539	5,292	10,239	19,756	90	37,471	
% (age)	0.2%	0.5%	1%	4%	14%	27%	53%	0.2%		

SPA 3

San Gabriel 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	%
Behavioral	5	6	212	1,309	2,822	2,137	908	155	7,554	22%
Extremity Injury	9	63	420	1,123	1,782	1,646	2,463	86	7,592	22%
Weak/Dizzy	9	13	71	221	664	1,480	4,384	60	6,902	20%
Altered LOC	8	30	40	317	748	1,401	3,682	182	6,408	19%
Other Pain	12	24	96	420	1,159	1,765	2,159	97	5,732	17%
Grand Total	43	136	839	3,390	7,175	8,429	13,596	580	34,188	
% (age)	0.1%	0.4%	2%	10%	21%	25%	40%	2%		

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	%
Altered LOC	32	50	67	859	2,303	2,386	2,907	63	8,667	26%
Abdominal Pain	3	15	81	810	2,459	2,467	1,644	9	7,488	22%
Chest Pain	-	5	14	142	977	2,716	2,239	9	6,102	18%
Weak/Dizzy	13	8	35	210	876	2,017	2,809	13	5,981	18%
Shortness of Breath	63	120	112	140	442	1,649	3,023	9	5,558	16%
Grand Total	111	198	309	2,161	7,057	11,235	12,622	103	33,796	
% (age)	0.3%	0.6%	1%	6%	21%	33%	37%	0.3%		

Top 5 Reasons for EMS Response (continuation)

SPA 5

West

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	%
Extremity Injury	2	20	163	582	1,132	911	1,209	50	4,069	25%
Altered LOC	2	14	23	381	727	681	1,427	19	3,274	20%
Weak/Dizzy	4	4	20	106	362	684	2,049	8	3,237	20%
No Apparent Injury	10	14	17	97	194	208	393	2,144	3,077	19%
Behavioral	5	4	50	420	1,015	708	370	25	2,597	16%
Grand Total	23	56	273	1,586	3,430	3,192	5,448	2,246	16,254	
% (age)	0.1%	0.3%	2%	10%	21%	20%	34%	14%		

SPA 6

South

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	%
Behavioral	7	7	154	726	1,544	1,039	298	96	3,871	26%
Abdominal Pain	1	11	59	458	1,067	1,114	637	52	3,399	23%
Other Pain	6	15	87	314	708	1,182	785	71	3,168	21%
Altered LOC	6	17	24	119	428	687	864	85	2,230	15%
Weak/Dizzy	8	3	25	88	326	756	967	27	2,200	15%
Grand Total	28	53	349	1,705	4,073	4,778	3,551	331	14,868	
% (age)	0.2%	0.4%	2%	11%	27%	32%	24%	2%		

SPA 7

East

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	%
Behavioral	13	8	302	1,655	3,351	2,261	746	306	8,642	28%
Other Pain	8	28	102	513	1,304	2,173	1,960	204	6,292	21%
Abdominal Pain	6	13	79	597	1,530	1,623	1,349	146	5,343	17%
Altered LOC	7	23	39	278	673	1,274	2,601	282	5,177	17%
Weak/Dizzy	7	6	50	215	586	1,484	2,729	99	5,176	17%
Grand Total	41	78	572	3,258	7,444	8,815	9,385	1,037	30,630	
% (age)	0.1%	0.3%	2%	11%	24%	29%	31%	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	%
Altered LOC	14	59	76	591	1,756	2,669	4,060	143	9,368	21%
Behavioral	9	4	212	1,565	3,576	2,792	1,030	137	9,325	21%
Abdominal Pain	7	16	111	966	2,643	2,973	2,047	52	8,815	20%
Extremity Injury	10	78	545	1,476	2,341	2,378	2,169	74	9,071	21%
Weak/Dizzy	7	13	48	302	811	2,177	4,103	37	7,498	17%
Grand Total	47	170	992	4,900	11,127	12,989	13,409	443	44,077	
% (age)	0.1%	0.4%	2%	11%	25%	29%	30%	1%		

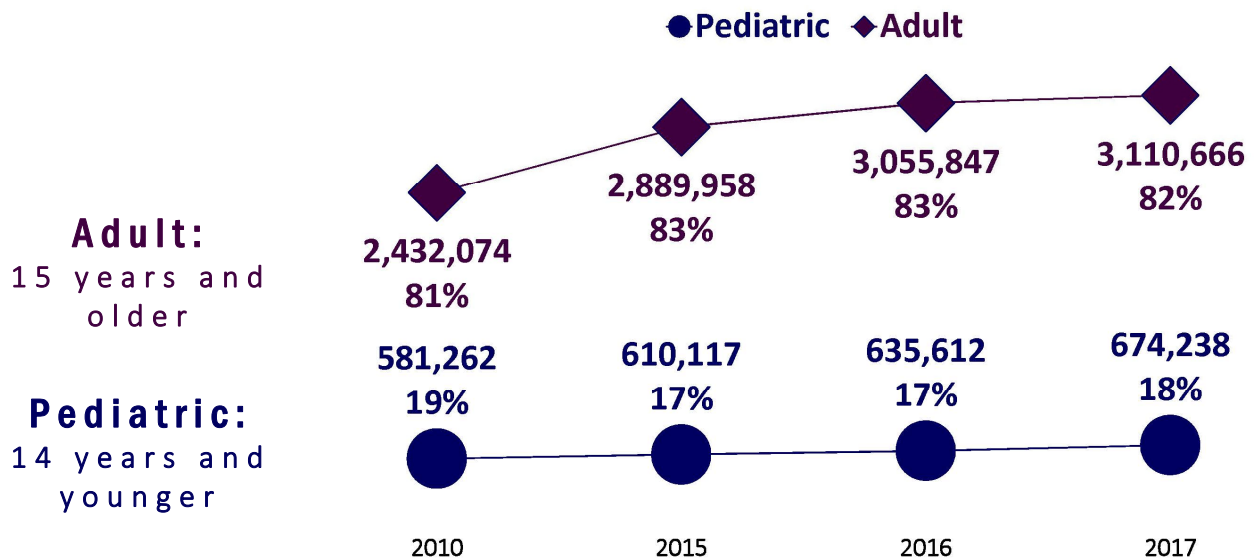
Emergency Department Volume

◆ Reported Annual ED Visits ■ Walk-In ▲ 9-1-1 Transports

▲	373,514	2,236,086	◆	2,609,600
▲	352,084	2,471,161	◆	2,823,245
▲	377,791	2,355,288	◆	2,733,079
▲	424,018	2,339,927	◆	2,763,945
▲	398,342	2,262,030	◆	2,660,372
▲	431,692	2,343,298	◆	2,774,990
▲	445,728	2,304,521	◆	2,750,249
▲	454,188	2,348,077	◆	2,802,265
▲	456,329	2,373,355	◆	2,829,684
▲	421,359	2,296,904	◆	2,718,263
▲	425,361	2,587,975	◆	3,013,336
▲	401,294	2,683,400	◆	3,084,694
▲	406,487	2,713,926	◆	3,120,413
▲	492,732	2,655,781	◆	3,148,513
▲	446,699	2,970,926	◆	3,417,625
▲	513,151	2,986,924	◆	3,500,075
▲	547,905	3,143,554	◆	3,691,459
▲	575,881*	3,185,139	◆	3,761,020

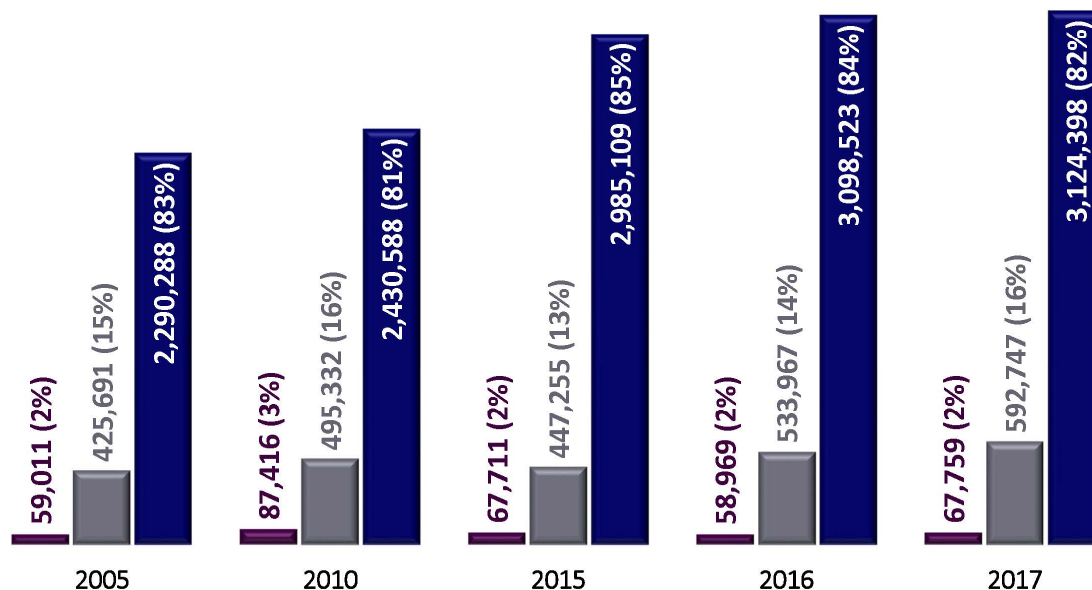
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

* Fiscal Year 2016-2017



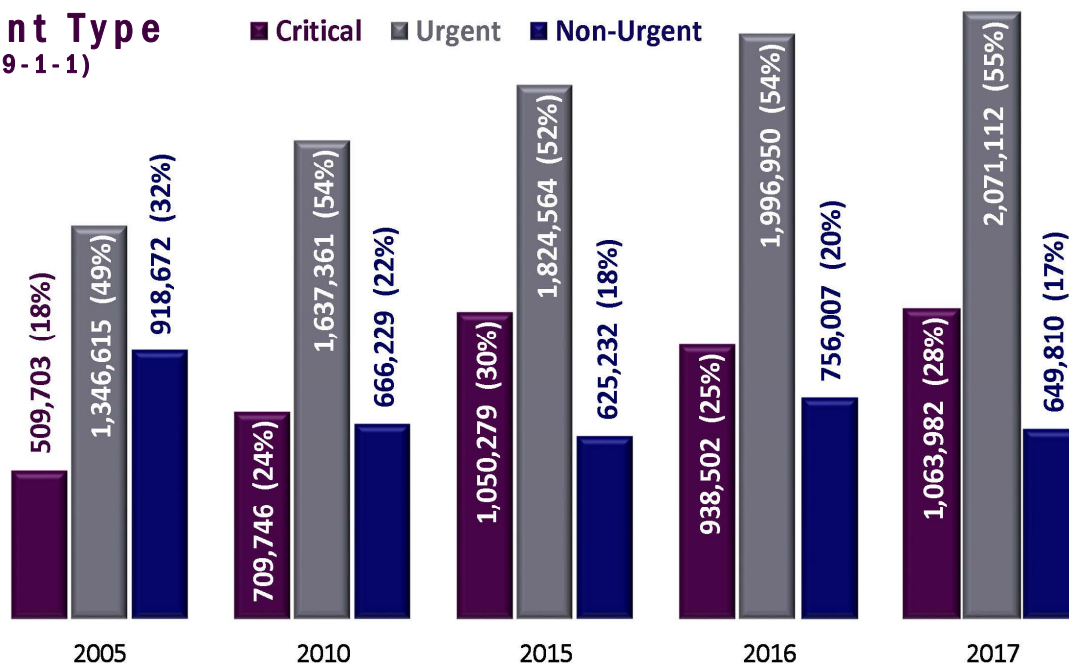
ED Patient Disposition (walk-in and 9-1-1)

- Admitted to Intensive Care Unit
- Admitted to Non-Intensive Care Unit Area
- Discharged from ED/24 hr Observation



ED Patient Type (walk-in and 9-1-1)

- Critical
- Urgent
- Non-Urgent



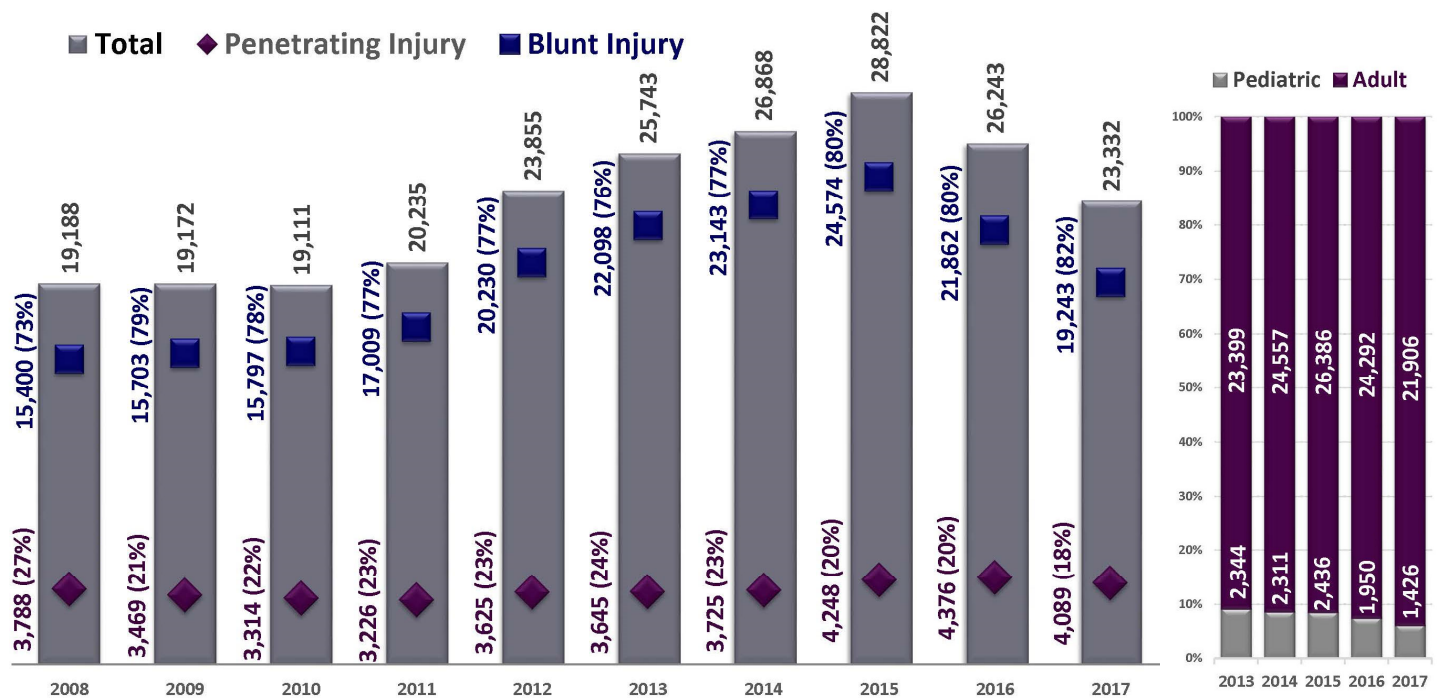
Critical—a patient presents an acute injury or illness that could result in permanent damage, injury or death (head injury, vehicular accident, shooting). Applicable Current Procedural Terminology (CPT) codes for this level of service would be 99284 (detailed history, detailed physical, and medical decision making of moderate complexity) or 99285 (medical decision making of high complexity) or 99291 (critical care, evaluation and management).

Urgent—a patient with an acute injury or illness, loss of life or limb is not an immediate threat to their well-being, or a patient who needs timely evaluation (fracture or laceration). Applicable CPT codes for this level of service would be 99282 (medical decision making of low complexity) or 99283 (medical decision making of moderate complexity).

Non-Urgent—a patient with a non-emergent injury, illness or condition; sometimes chronic; that can be treated in a non-emergency setting and not necessarily on the same day they are seen in the ED (pregnancy tests, toothache, minor cold, ingrown toenail). An applicable CPT code for this level of service would be 99281 (straight forward medical decision making).

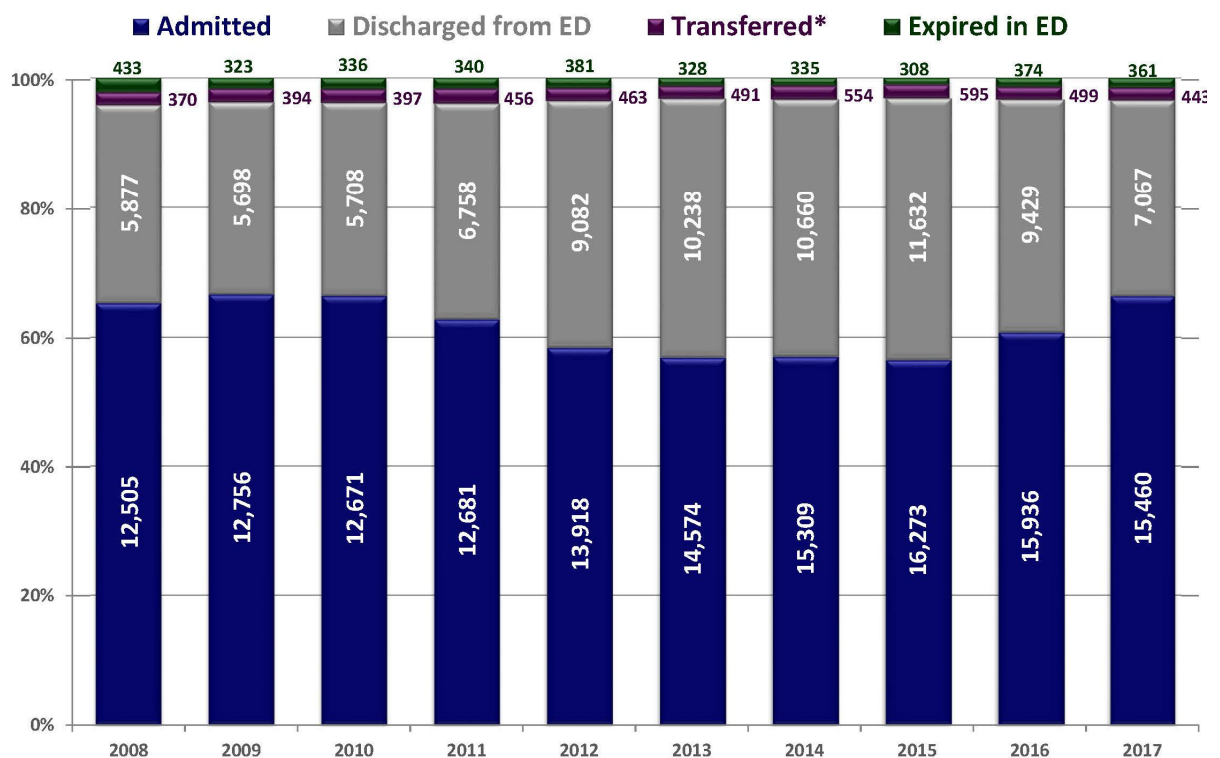


Trauma Center Volume



2012: LA County adopted the Centers for Disease Control and Prevention Guidelines for Field Triage of Injured Patients
 2015: Trauma Center Registry inclusion criteria was reduced.

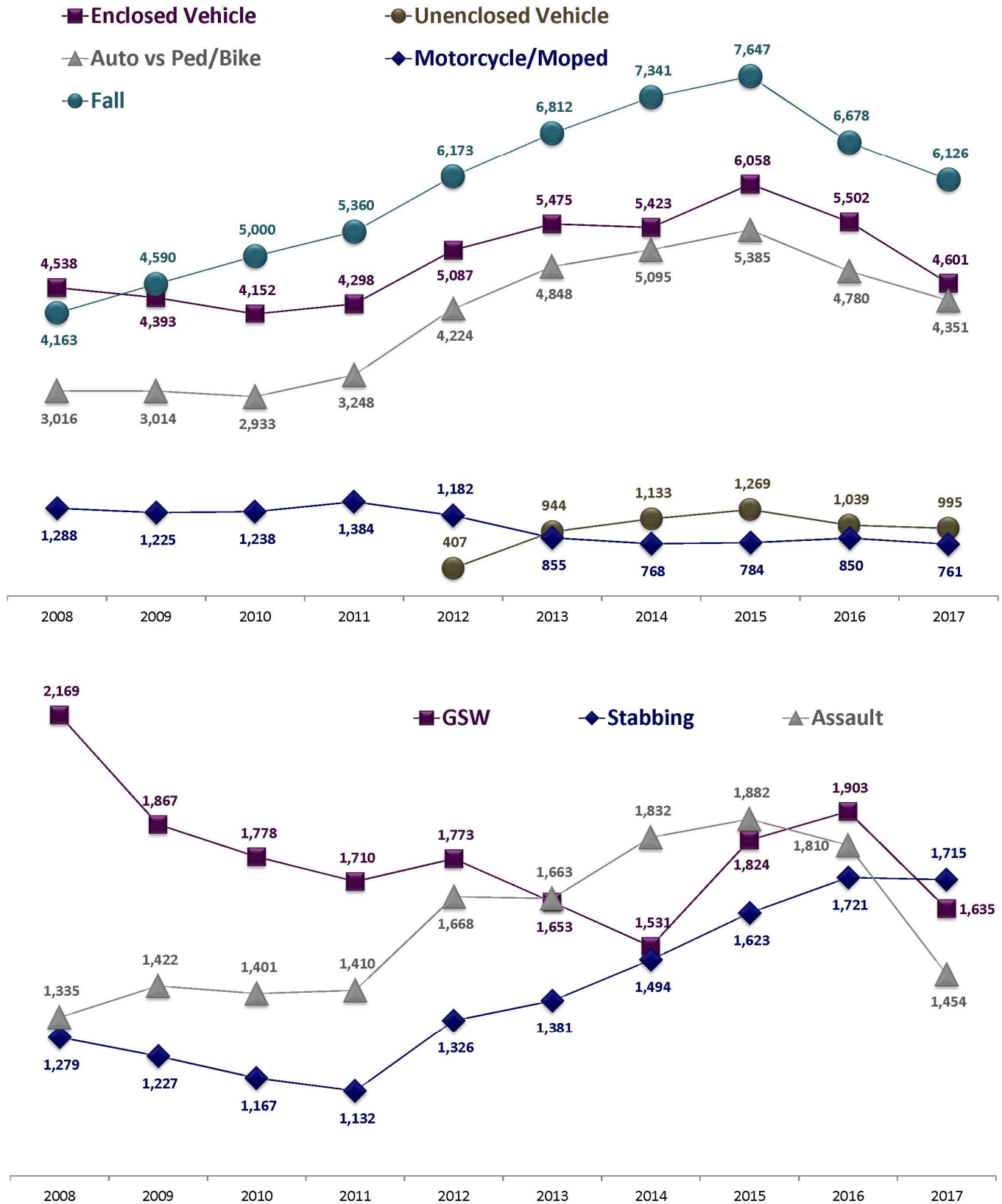
Patient Disposition: All Trauma



* Transferred to another health facility



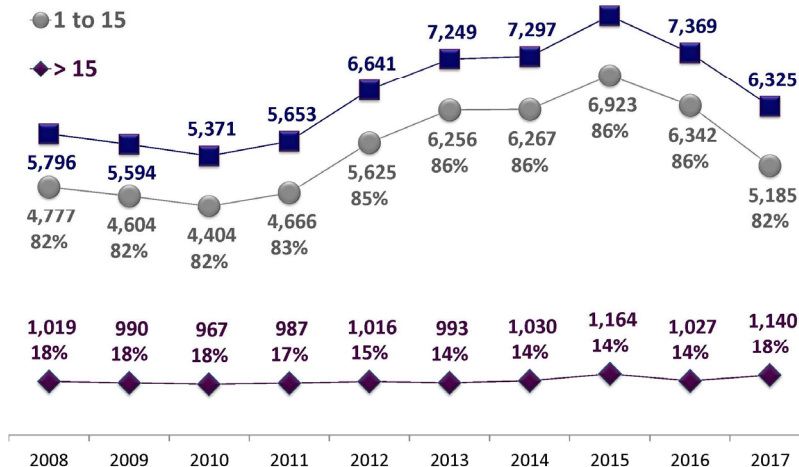
Trauma Mechanism of Injury





Injury Severity Score by Mechanism of Injury

Motor Vehicular Accident



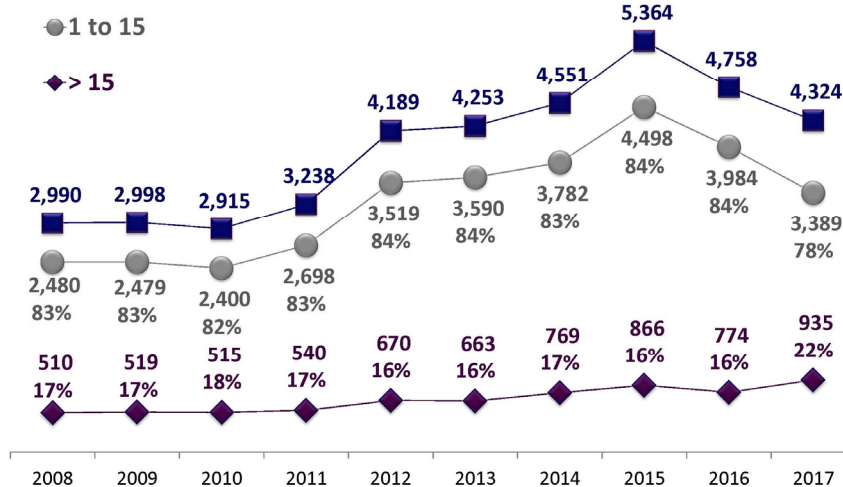
Definition:

Injury Severity Score (ISS):
Is an established medical score to assess trauma severity.

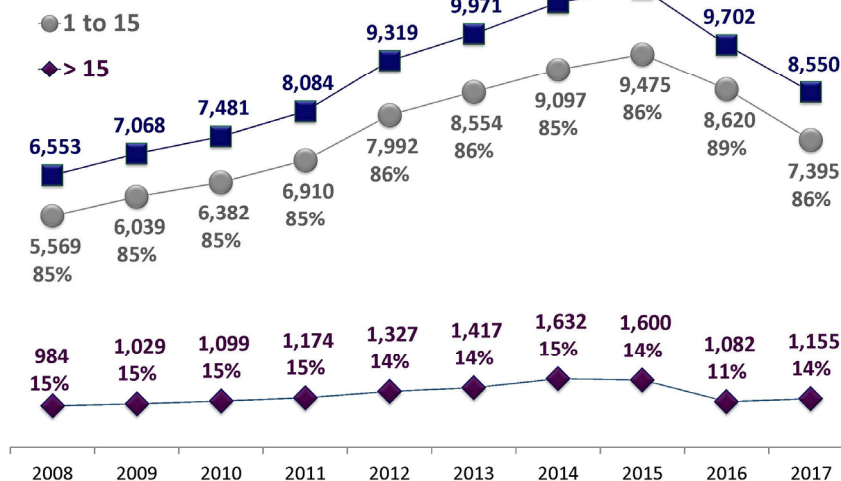
It correlates with mortality, morbidity and hospitalization time after trauma.

It is used to define the term major trauma. A major trauma (or polytrauma) is defined as the ISS being greater than 15.

Automobile vs Pedestrian/Bicycle

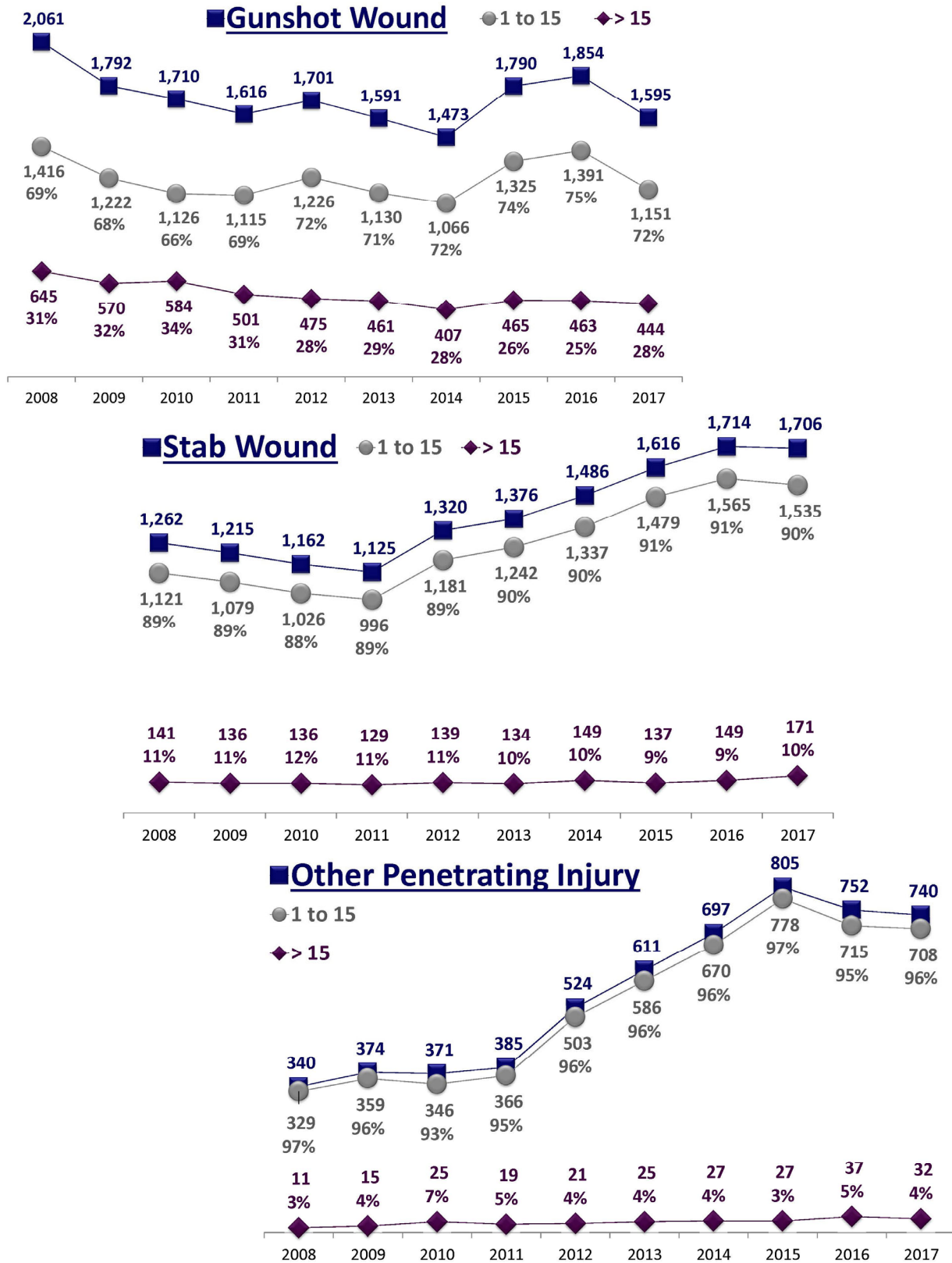


Other Blunt Injuries





Injury Severity Score by Mechanism of Injury





ST-Elevation Myocardial Infarction (STEMI) 9-1-1 Transports to STEMI Receiving Centers (SRC)

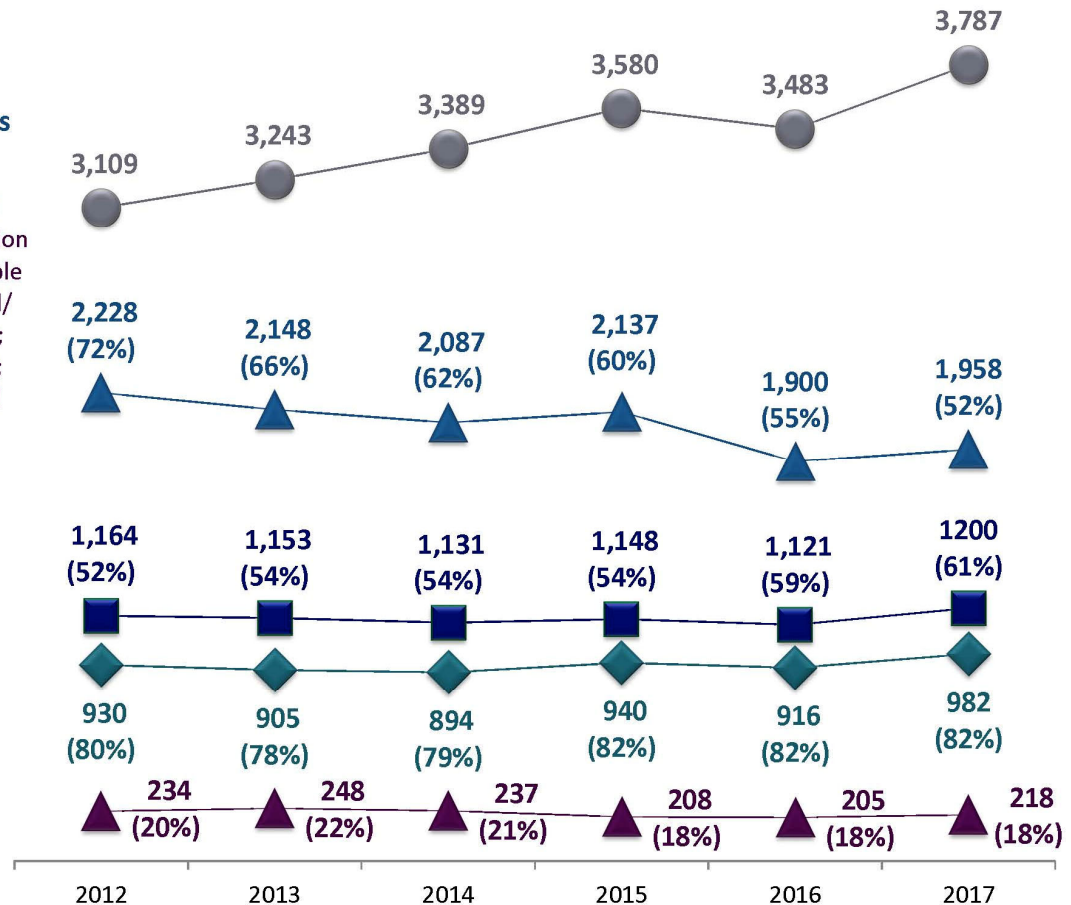
To Cath Lab

● PH ECG STEMI

▲ Cath Lab Activations

◆ Received PCI

▲ Cath Lab but no PCI
normal coronaries/no lesion found; difficult cath; unable to cannulate/dilate vessel/cross lesion/locate artery; candidate for CABG/IABP; expired in cath lab; vessel spasm; etc.



No Cath Lab

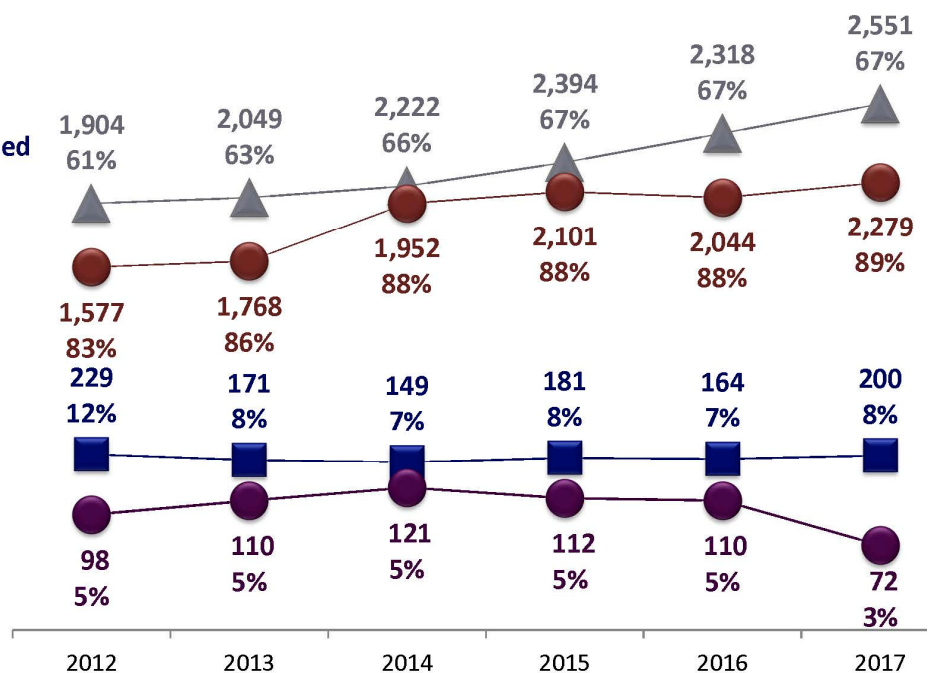
● Not Indicated

■ Not a Candidate or Refused

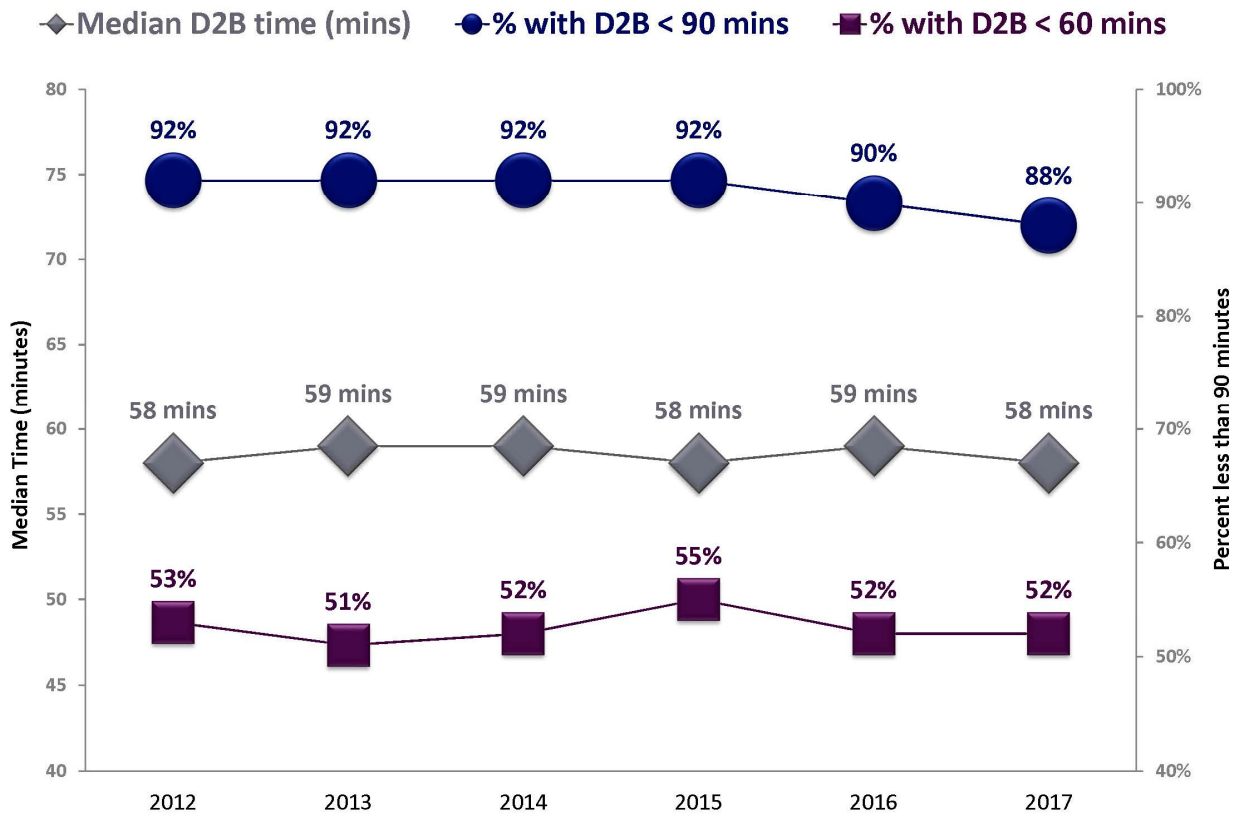
● Unknown/Other

Not Indicated: discordant ECG, early repolarization, physician decision, vasospasm resolved

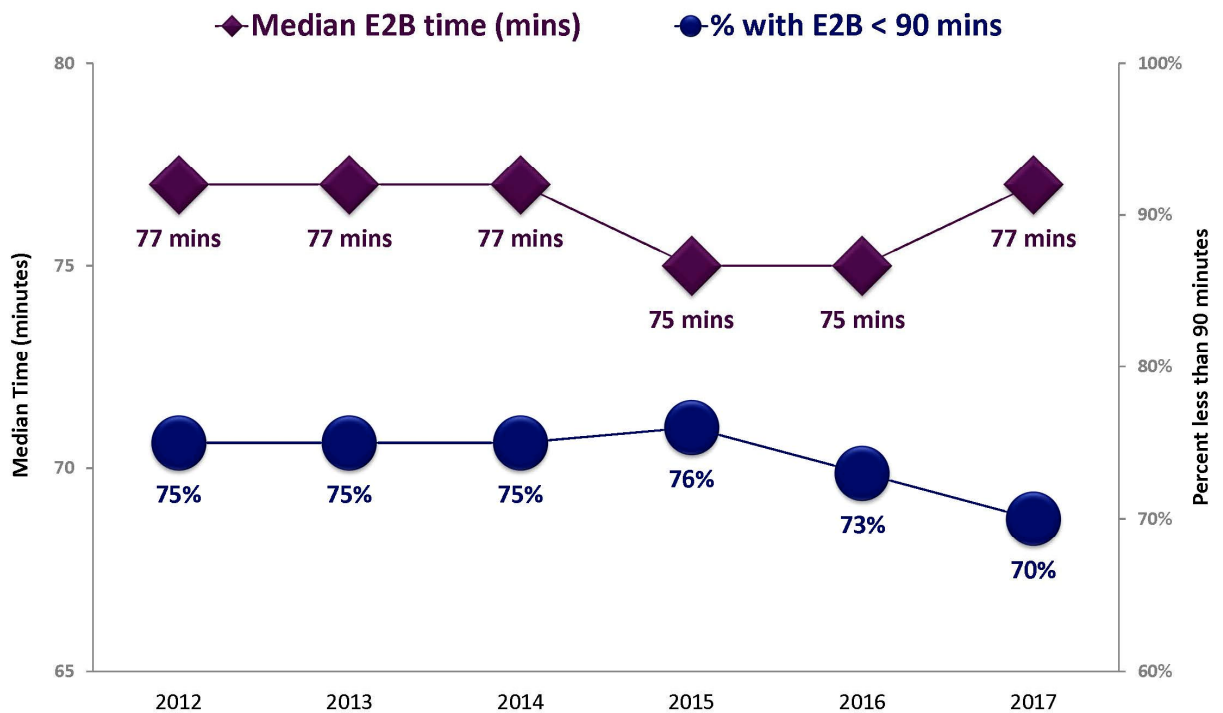
Not a Candidate or Refused: age, allergy, CABG, DNR, medical condition, multivesel disease, died prior, treatment refused



SRC: Door-to-Balloon (D2B) Time

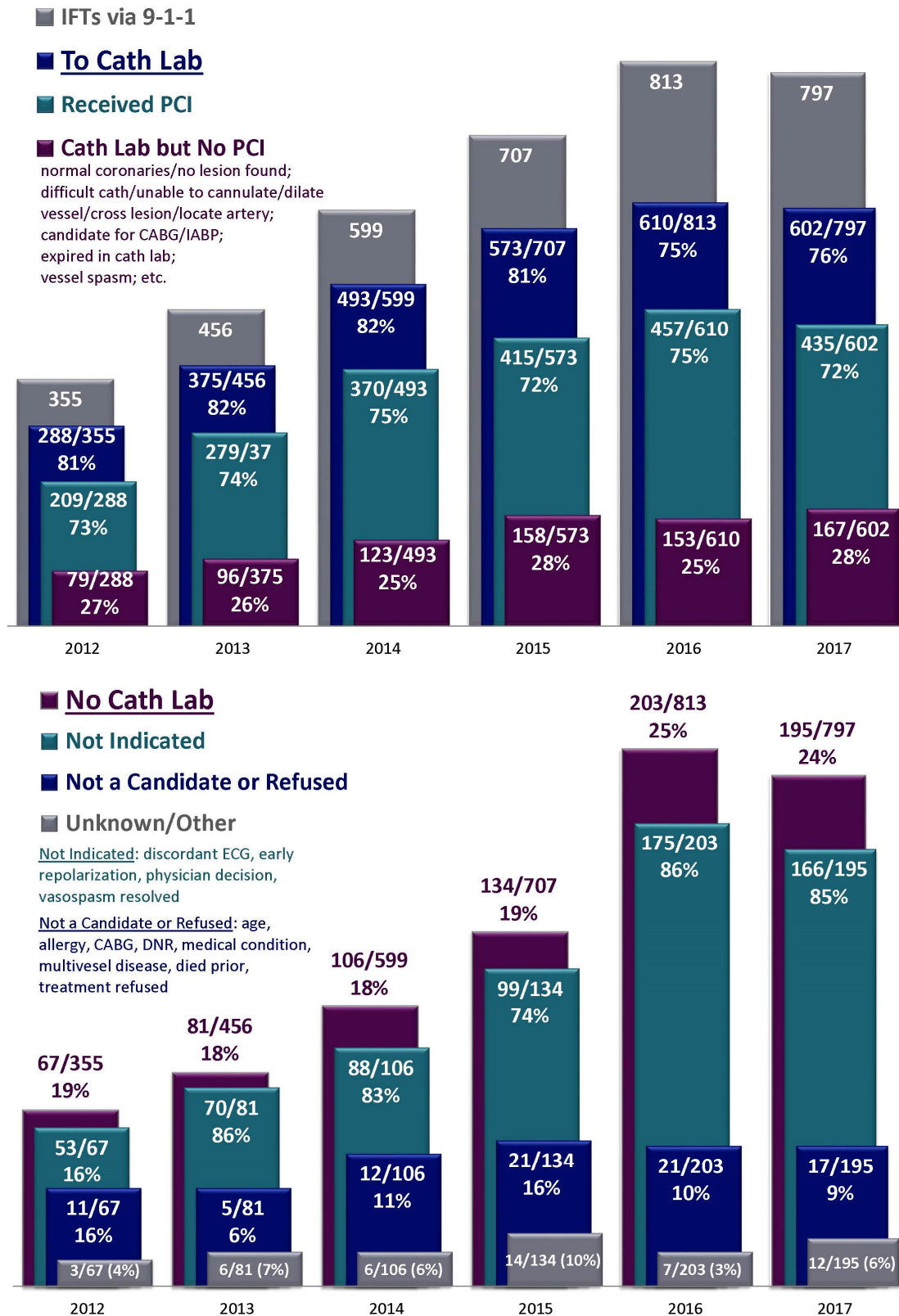


SRC: EMS Medical Contact-to-Balloon (E2B) Time

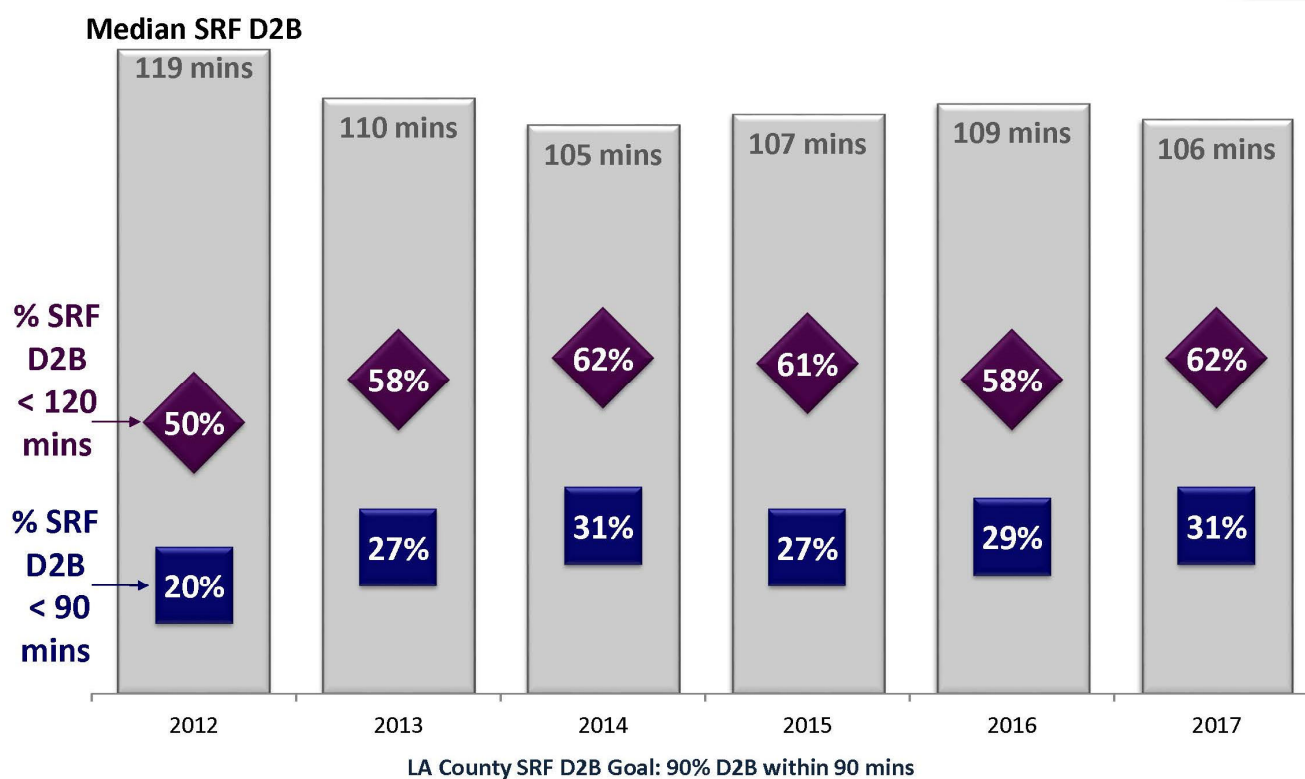




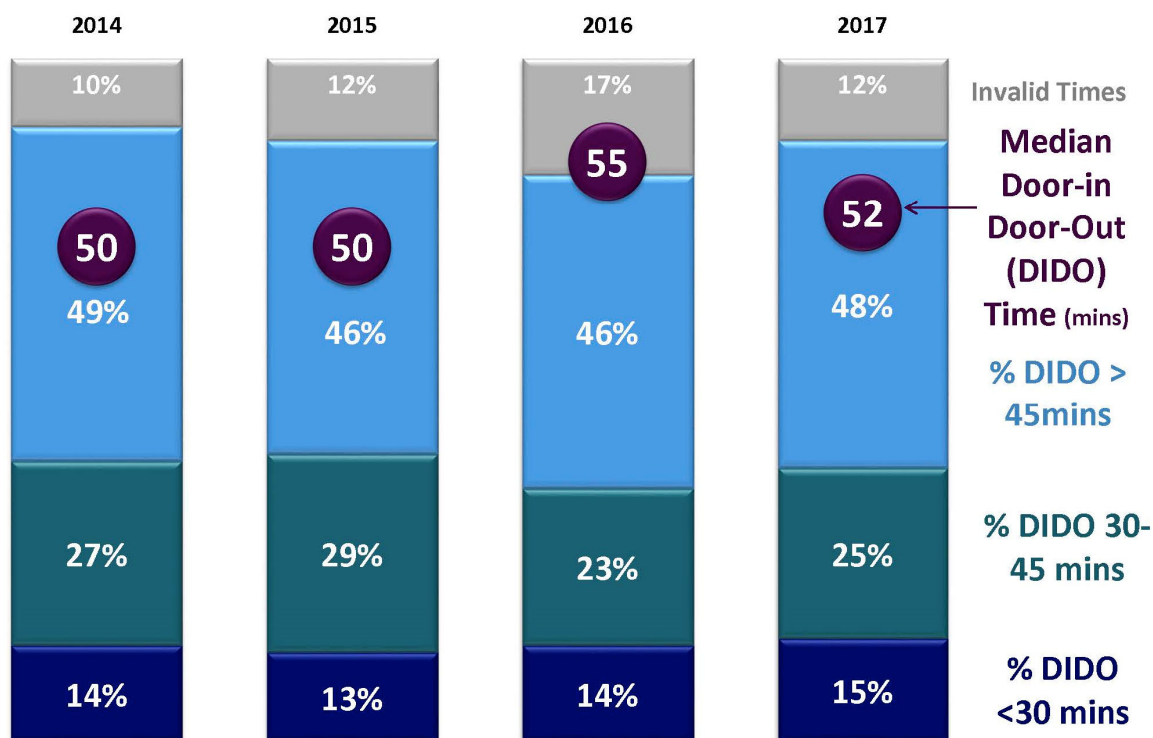
STEMI Referral Facility (SRF) Interfacility Transfers (IFT) via 9-1-1



SRF: Door-To-Balloon (D2B) Time



SRF: Door-In Door-Out (DIDO) Time

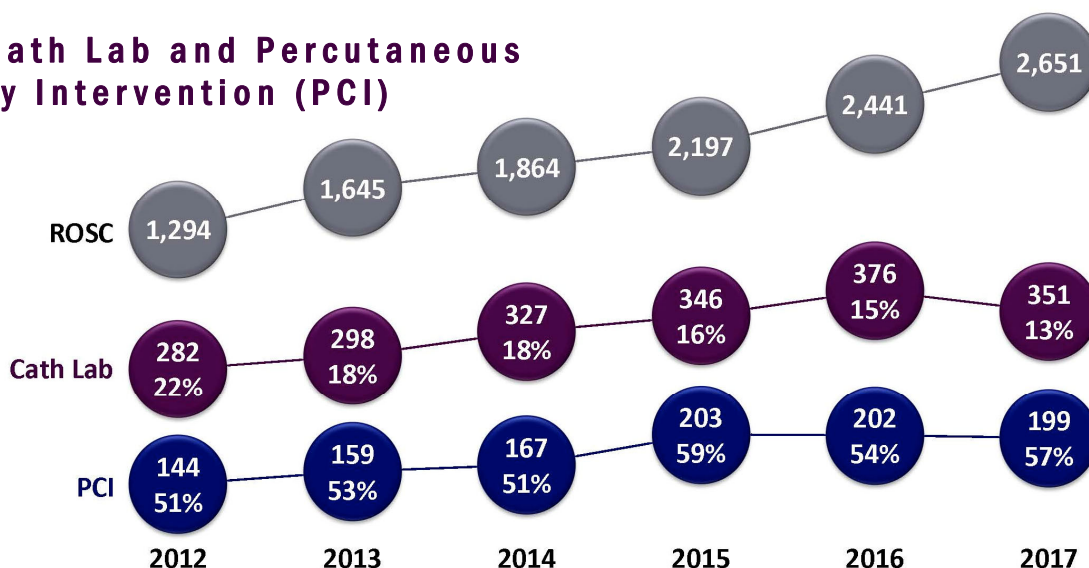


LA County SRF DIDO Goal: 30 mins

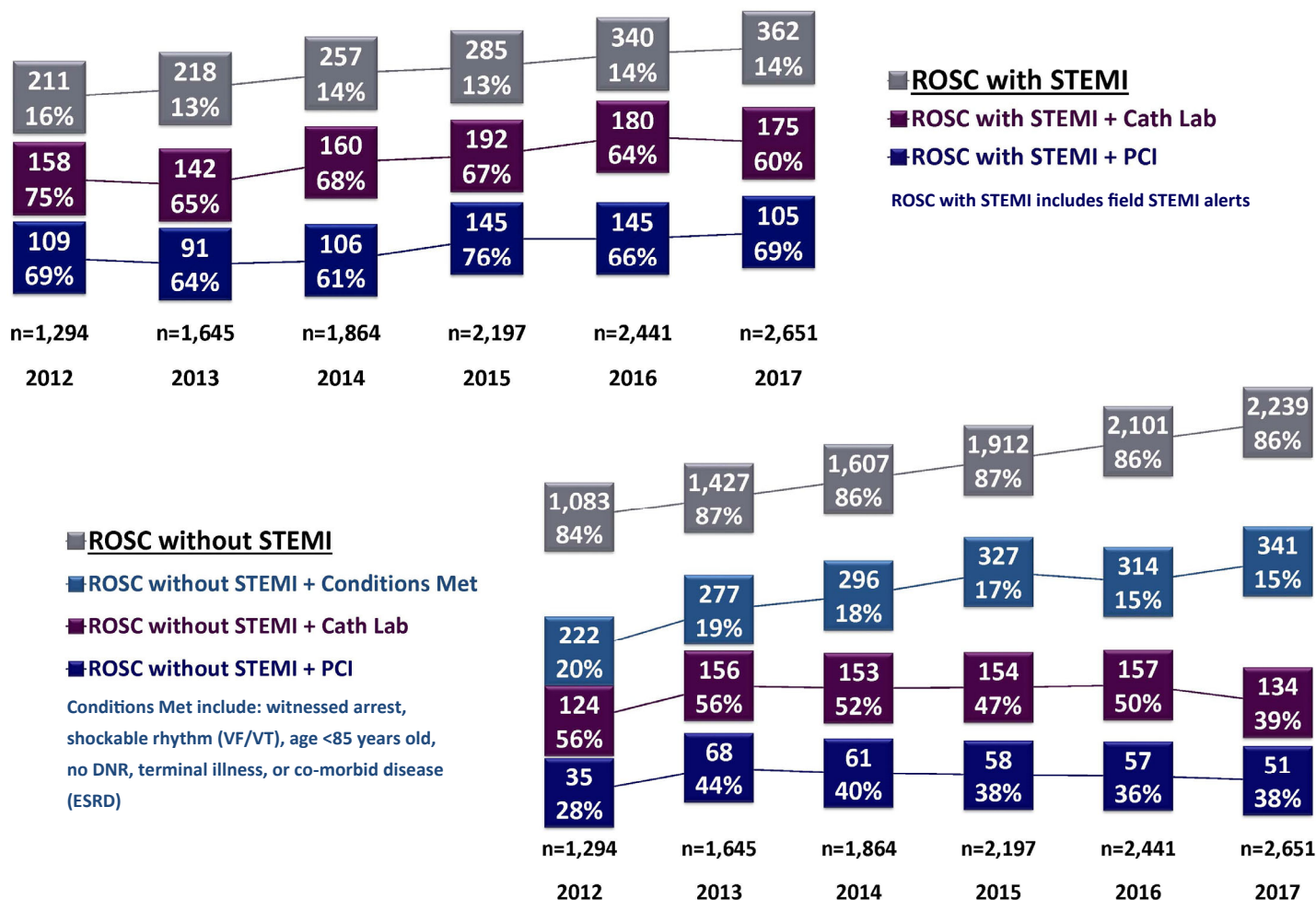


Out of Hospital Cardiac Arrest Return of Spontaneous Circulation (ROSC)

Frequency of Cath Lab and Percutaneous Coronary Intervention (PCI)

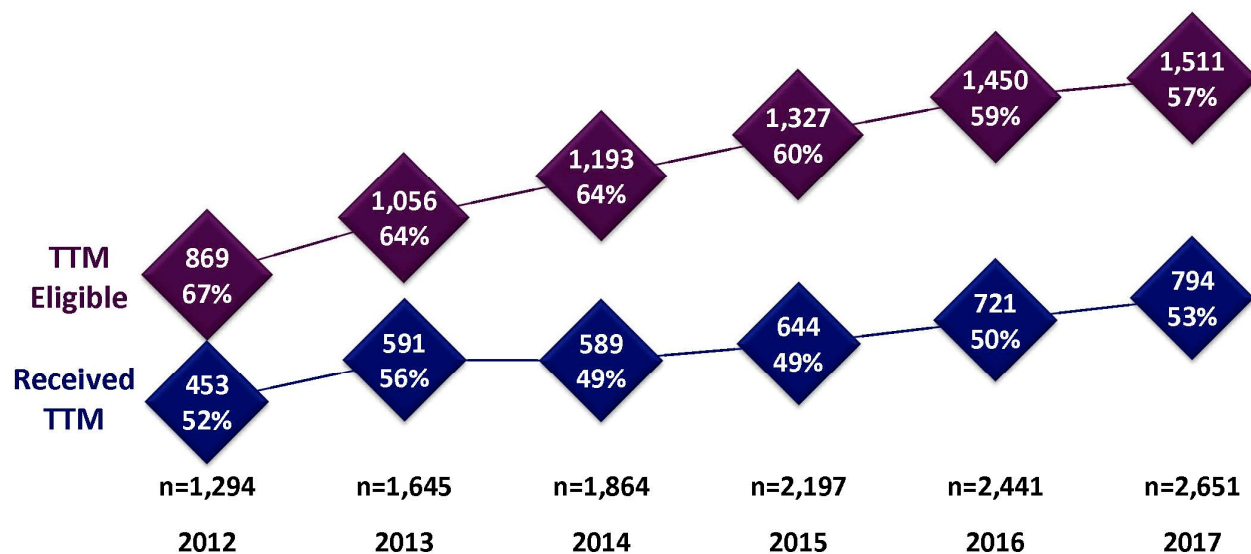


Frequency of Immediate Catheterization

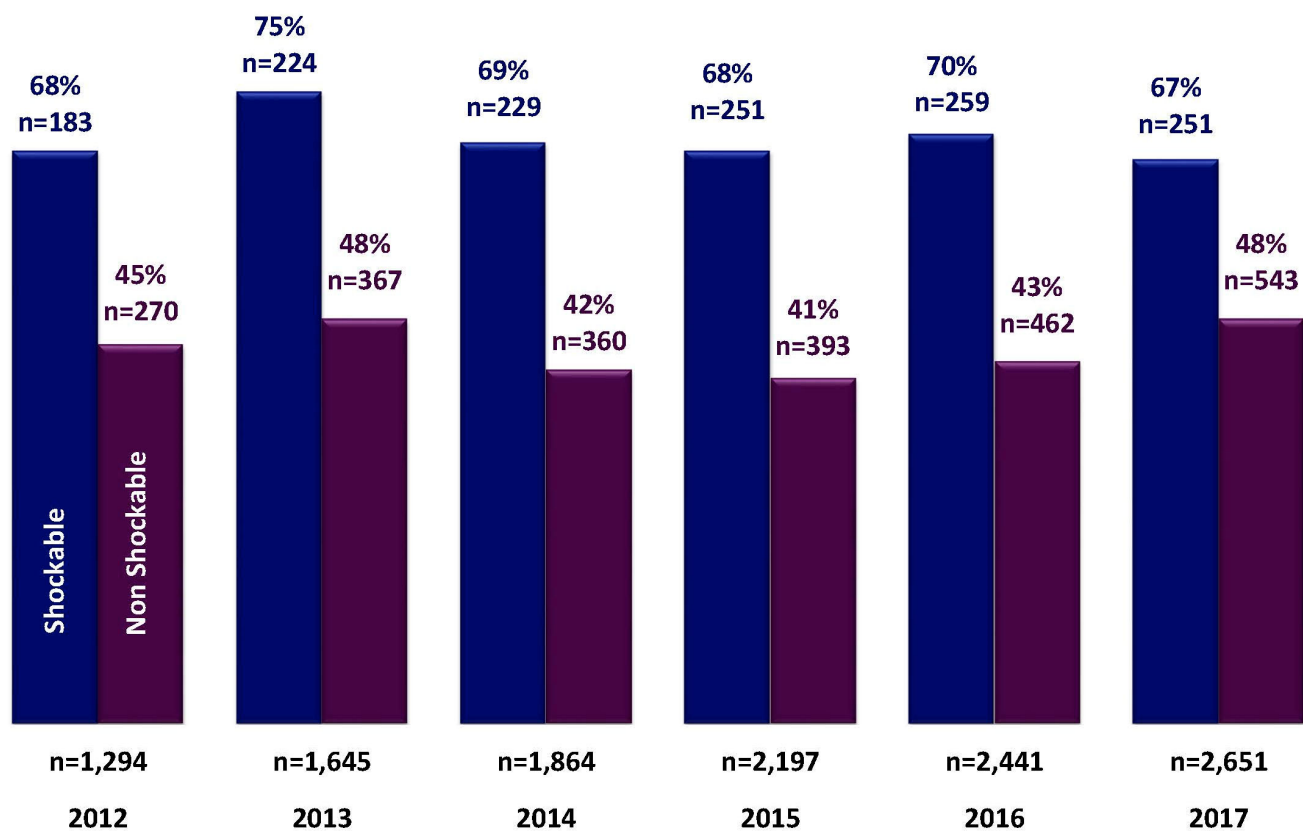




Frequency of Target Temperature Management (TTM)

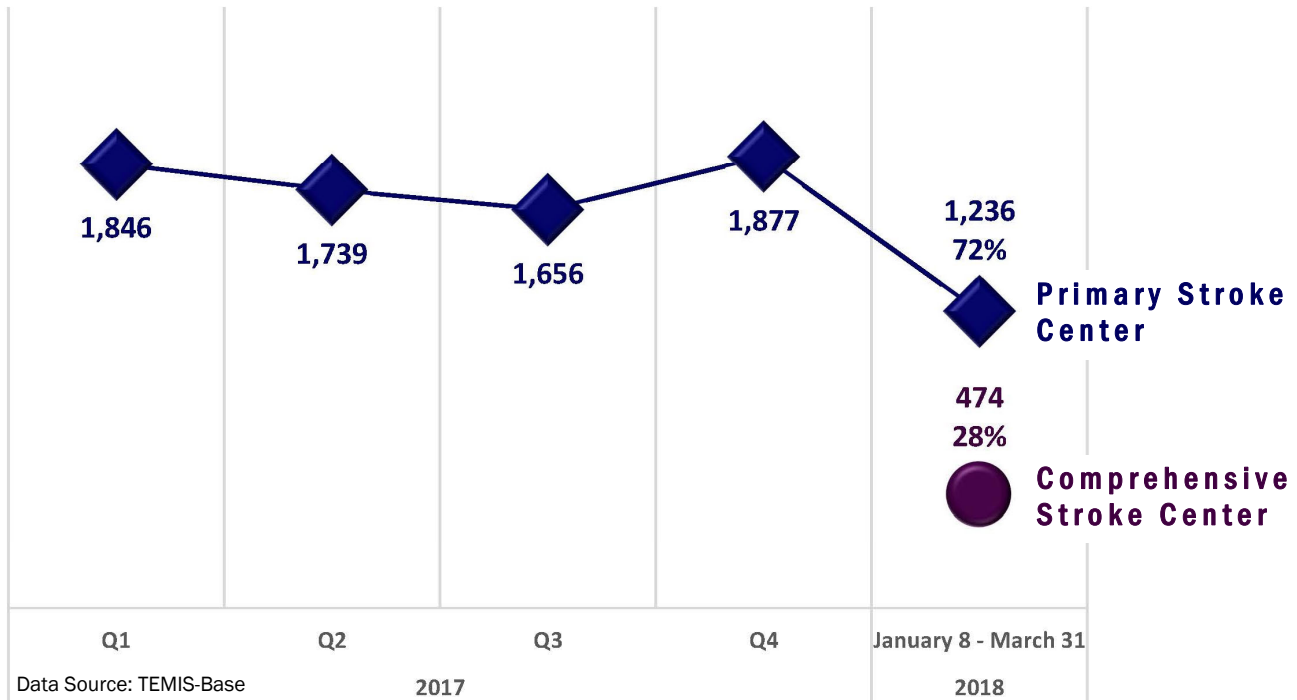


Frequency of TTM by Rhythm



Suspected Stroke Patient Destination

The rerouting of suspected stroke patients with large vessel occlusions based on a Los Angeles Motor Scale (LAMS) score of 4 or 5 to designated Comprehensive Stroke Centers began on January 8, 2018.



EMS STRONG
STRONGER TOGETHER

EMS AGENCY

To ensure timely, compassionate, and quality emergency and disaster medical services.

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