



EMS SYSTEM REPORT

SEPTEMBER 1, 2017

ISSUE 6

Message from the Director and Medical Director

INSIDE THIS ISSUE:

EMS RESPONSES	2
TRANSPORTS BY AGE	4
EMERGENCY DEPARTMENT	6
TRAUMA SYSTEM	8
STROKE SYSTEM	12
ROSC	14
STEMI SYSTEM	16
STEMI IFT	18
TIME TO 12-LEAD ECG	20

This is the 6th edition of the Los Angeles County EMS Agency Annual Data Report. The purpose of this report is to educate the community on the EMS System components, provide transparency of our performance, which in turn leads to continuous improvement. We provide important, descriptive data of our system including EMS transports to

9-1-1 receiving hospitals as well as to our specialty care centers including Trauma Centers, ST Elevation Myocardial Infarction (STEMI) Receiving Centers, Stroke Centers, and Pediatric Trauma Centers.

The EMS Agency and constituent groups are committed to improving the outcome for patients suffering from myocardial infarction and cardiac arrest. Ensuring the strong links in the "chain of survival" by organizing the annual SideWalk CPR with the EMS providers teaching thousands of participant hands only CPR throughout LA County, working with law enforcement to carry Automatic Defibrillators, to designating and monitoring our STEMI system, of which we recently celebrated the 10 year anniversary. Using these data we work with our STEMI Advisory Committee to provide ongoing quality improvement activities and improve our STEMI service to the County. With 35 STEMI Centers, patients have access to these services no matter where you are in the County. Each of the STEMI Centers are also Cardiac Arrest Centers receiving those patients who have

return of a heart beat after treatment in the field. The goal of which is to train the entire population to truly affect cardiac arrest outcome. This is an important change that has occurred in our system over time and allows for advanced therapies to treat patients who would have otherwise died in the field without this care.

Our Stroke System has grown considerably with 49 approved stroke centers within the County. We have been working with various stakeholders in our County to develop further regionalization of stroke care to Comprehensive Stroke Centers (CSC) for those patients for which clot removal could significantly improve their

outcome. We will be able to collect data on these patients over time and provide additional insights that can improve the lives of our patients with stroke. With the 49 Stroke Centers and the soon-to-be designated Comprehensive Stroke Centers, we anticipate rapid access to Stroke Center care throughout the County of Los Angeles.

Overall, the LA County EMS system has continued to grow and mature through the use of quality data and outcomes to drive the system performance. We have come a long way from providing minimal interventions in the field to providing more complex proven care that improves patient outcome, shortens length of hospital stay, and recognized the needs of the individual and their families. We are proud to present our 6th Annual Report to you.

Cathy Chidester
DirectorDr. Marianne Gausche-Hill
Medical Director

2017 System Demographics

SPECIAL POINTS
OF INTEREST:

- EMS responses by SPA is on page 3
- Time of EMS Dispatch is on page 5
- ISS by Mechanism of Injury are on pages 8-9
- EMS responses by SPA on page 16-17

73 9-1-1 Receiving Hospitals

- 37 EDAP (Emergency Department Approved for Pediatrics)
- 11 Pediatric Medical Centers
- 7 Pediatric Trauma Centers
- 15 Trauma Centers
- 21 Paramedic Base Hospitals
- 36 STEMI Receiving Centers
- 49 Approved Stroke Centers
- 64 Perinatal Centers
- 41 Hospitals with Neonatal Intensive Care Unit
- 9 SART (Sexual Assault Response Team) Centers
- 13 Disaster Resource Centers

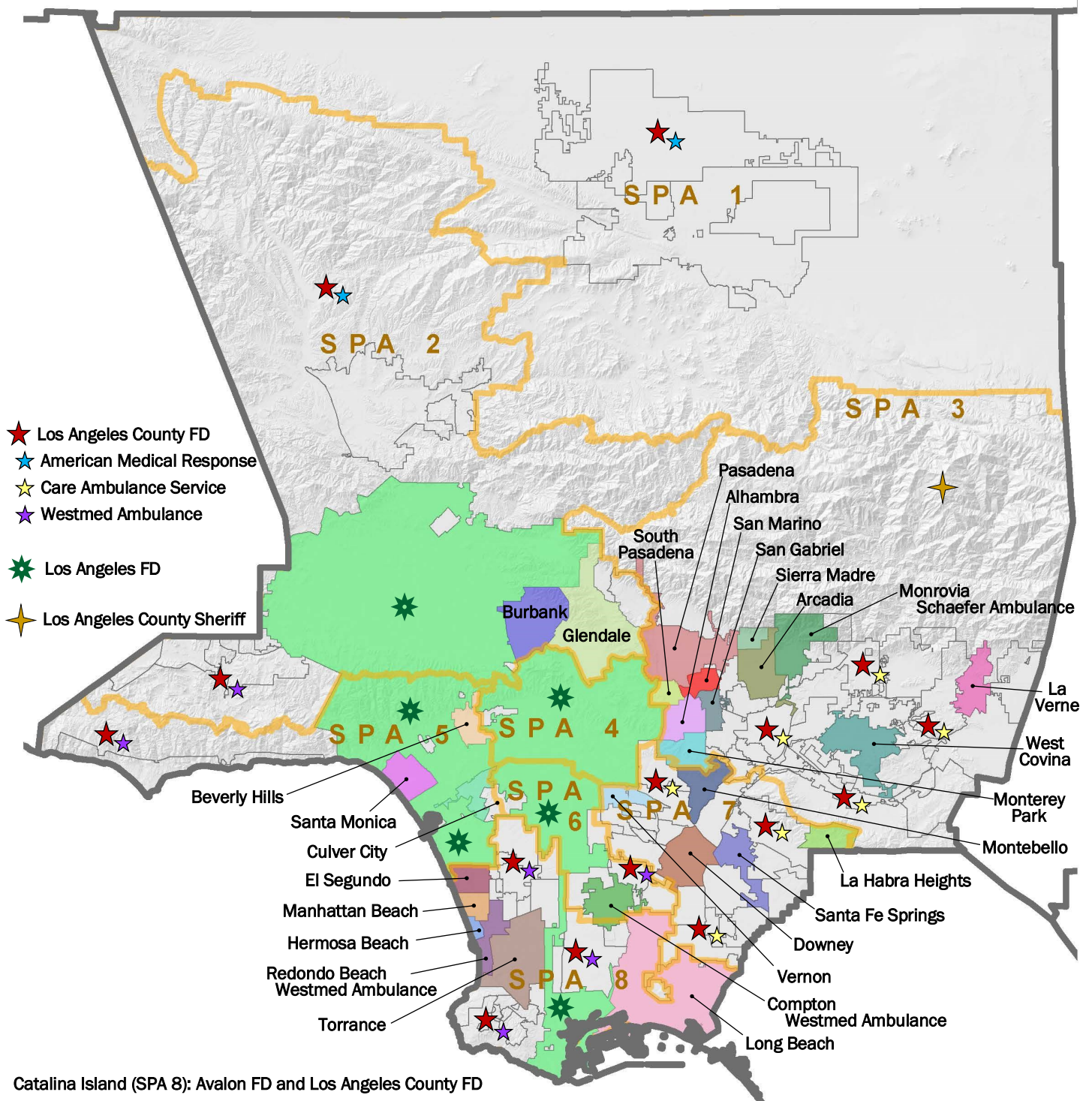
EMS Provider Agencies

- 32 Public Safety EMS Provider Agencies
- 38 Licensed Basic Life Support Ambulance Operators
- 14 Licensed Advanced Life Support Ambulance Operators
- 20 Licensed Critical Care Transport Ambulance Operators
- 11 Licensed Ambulette Operators

EMS Practitioners

- 4,108 Accredited Paramedics
- 7,933 Certified EMTs by LA Co EMS Agency
- 866 Certified Mobile Intensive Care Nurses

9-1-1 Jurisdictional Provider Agency by Service Planning Area (SPA)



EMS Responses by 9-1-1 Jurisdictional Provider Agency Fiscal Year 2015-2016 (n=669,059)

Los Angeles County Fire Department: n=286,746 (43%)

Los Angeles Fire Department: n=209,598 (31%) (does not include all non-transports)

Other Fire Departments: n=172,715 (26%)

SPA 1: n=28,266 (4%)

Los Angeles County Fire Department: n=28,266 (100%)

SPA 2: n=127,738 (19%)

Burbank Fire Department: n=7,646 (6%)

Glendale Fire Department: n=15,521 (12%)

Los Angeles County Fire Department: n=37,091 (29%)

Los Angeles Fire Department: n=67,480 (53%)

SPA 3: n=108,045 (16%)

Alhambra Fire Department: n=5,276 (5%)

Arcadia Fire Department: n=4,203 (4%)

La Verne Fire Department: n=3,057 (3%)

Los Angeles County Fire Department: n=59,047 (55%)

Los Angeles Fire Department: n=3,683 (3%)

Monrovia Fire Department: n=3,160 (3%)

Monterey Park Fire Department: n=3,694 (3%)

Pasadena Fire Department: n=13,733 (13%)

San Gabriel Fire Department: n=2,404 (2%)

San Marino Fire Department: n=1,232 (1%)

Sierra Madre Fire Department :n=479 (<1%)

South Pasadena Fire Department: n=1,597 (2%)

West Covina Fire Department: n=6,480 (6%)

SPA 4: n=91,566 (14%)

Los Angeles County Fire Department: n=15,860 (17%)

Los Angeles Fire Department: n=75,706 (83%)

SPA 5: n=48,139 (7%)

Beverly Hills Fire Department: n=4,528 (9%)

Culver City Fire Department: n=4,539 (9%)

Los Angeles County Fire Department: n=6,319 (13%)

Los Angeles Fire Department: n=23,494 (49%)

Santa Monica Fire Department: n=9,259 (19%)

SPA 6: n=60,522 (9%)

Compton Fire Department: n=8,599 (14%)

Los Angeles County Fire Department: n=29,679 (49%)

Los Angeles Fire Department: n=22,244 (37%)

SPA 7: n=83,433 (12%)

Downey Fire Department: n=8,476 (10%)

La Habra Heights Fire Department: n=681 (<1%)

Los Angeles County Fire Department: n=61,120 (73%)

Los Angeles Fire Department: n=4,906 (6%)

Montebello Fire Department: n=4,761 (6%)

Santa Fe Springs Fire Department: n=2,814 (3%)

Vernon Fire Department: n=675 (<1%)

SPA 8: n=121,350 (18%)

Avalon Fire Department: n=391 (<1%)

El Segundo Fire Department: n=1,783 (1%)

Hermosa Beach Fire Department: n=1,331 (1%)

Long Beach Fire Department: n=39,056 (32%)

Los Angeles County Fire Department: n=49,364 (40%)

Los Angeles Fire Department: n=12,085 (10%)

Manhattan Beach Fire Department: n=2,091 (2%)

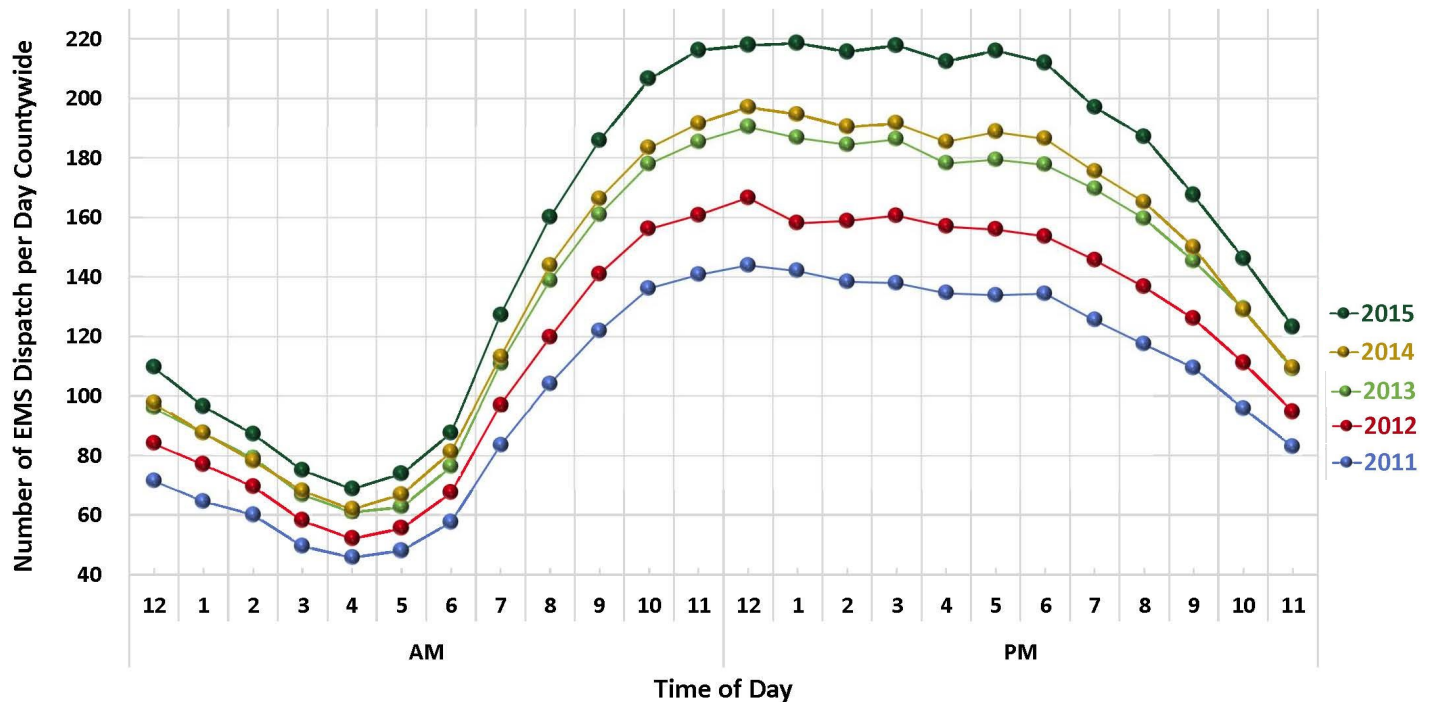
Redondo Beach Fire Department: n=4,828 (4%)

Torrance Fire Department: n=10,421 (9%)

EMS Responses and Transports:

Fiscal Year 2015-2016	Age in Years							Total	%
	< 1	1-8	9-14	15-35	36-55	56-75	>75		
EMS Responses	5,293	18,257	12,287	157,468	165,199	172,638	137,917	669,059	
Male	2,505	9,717	6,115	81,163	88,466	87,131	52,742	327,839	49%
Female	2,429	7,261	5,657	71,326	72,077	80,845	81,553	321,148	48%
Unknown	359	1,279	515	4,979	4,656	4,662	3,622	20,072	3%
EMS Transports	4,341	14,196	9,271	124,483	138,161	147,531	117,783	555,766	
Male	2,096	7,663	4,628	64,177	74,742	74,939	45,116	273,361	49%
Female	1,943	5,523	4,242	56,067	59,381	68,416	69,500	265,072	48%
Unknown	302	1,010	401	4,239	4,038	4,176	3,167	17,333	3%
Transports to ED Approved for Pediatrics	2,201	7,872	4,980	205				15,258	
Male	990	4,222	2,408	81				7,701	50%
Female	1,009	2,957	2,305	121				6,392	42%
Unknown	202	693	267	3				1,165	8%
Transports to Pediatric Medical Center	476	922	331	31				1,760	
Male	238	507	186	12				943	54%
Female	208	371	139	18				736	42%
Unknown	30	44	6	1				81	5%
Transports to Trauma Center	265	1,217	852	12,170	7,380	4,486	2,104	28,474	
Male	140	709	565	9,117	5,721	3,151	1,014	20,417	72%
Female	125	508	287	3,053	1,659	1,335	1,090	8,057	28%
Unknown	-	-	-	-	-	-	-	-	-
Transports to STEMI Receiving Center				199	948	1,933	1,294	4,374	
Male				149	679	1,303	617	2,748	63%
Female				46	246	584	653	1,529	35%
Unknown				4	23	46	24	97	2%
Transports to Stroke Center				166	690	1,587	1,736	4,179	
Male				74	356	819	684	1,933	46%
Female				86	319	728	1,004	2,137	51%
Unknown				6	15	40	48	109	3%

Time of EMS Dispatch



EMS Transports by Provider Agency (FY 2015-2016)

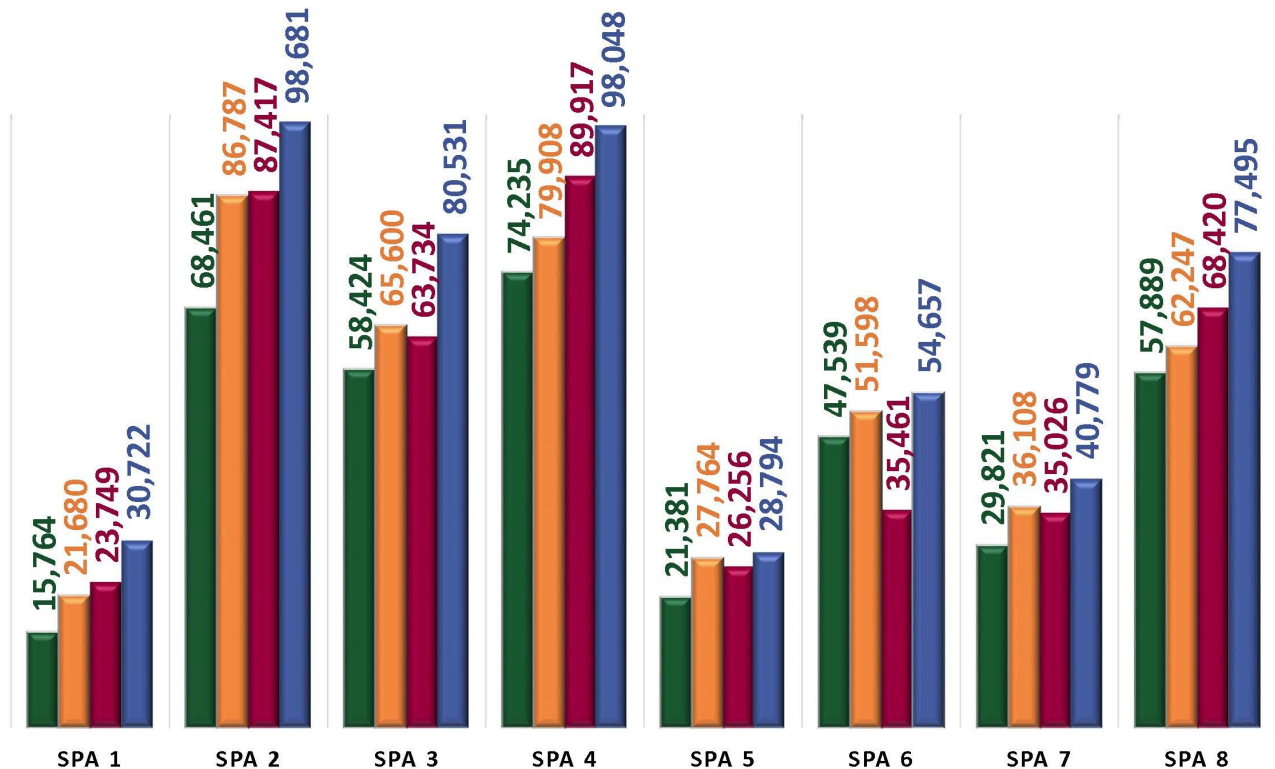
EMS Provider (n = Number of EMS Responses) | Number of Transports (% = Number of Transports/Number of Responses)

Avalon (n=391)	319 (82%)	Beverly Hills (n=4,528)	2,646 (58%)
Sierra Madre (n=479)	375 (78%)	Culver City (n=4,539)	3,273 (72%)
Vernon (n=675)	487 (72%)	Montebello (n=4,761)	3,031 (64%)
La Habra Heights (n=681)	507 (74%)	Redondo Beach (n=4,828)	3,426 (71%)
San Marino (n=1,232)	922 (75%)	Alhambra (n=5,276)	3,395 (64%)
Hermosa Beach (n=1,331)	884 (66%)	West Covina (n=6,480)	4,065 (63%)
South Pasadena (n=1,597)	1,081 (68%)	Burbank (n=7,646)	4,890 (64%)
El Segundo (n=1,783)	975 (55%)	Downey (n=8,476)	6,785 (80%)
Manhattan Beach (n=2,091)	1,397 (67%)	Compton (n=8,599)	6,268 (73%)
San Gabriel (n=2,404)	1,749 (73%)	Santa Monica (n=9,259)	7,311 (79%)
Santa Fe Springs (n=2,814)	2,258 (80%)	Torrance (n=10,421)	8,427 (81%)
La Verne (n=3,057)	1,639 (54%)	Pasadena (n=13,733)	10,528 (77%)
Monrovia (n=3,160)	2,321 (73%)	Glendale (n=15,521)	10,733 (69%)
LA County Sheriff (n=3,609)	2,676 (74%)	Long Beach (n=39,056)	27,006 (69%)
Monterey Park (n=3,694)	2,504 (68%)	LA City (n=209,598)*	207,402 (99%)
Arcadia (n=4,203)	2,997 (71%)	LA County (n=286,746)	201,939 (70%)

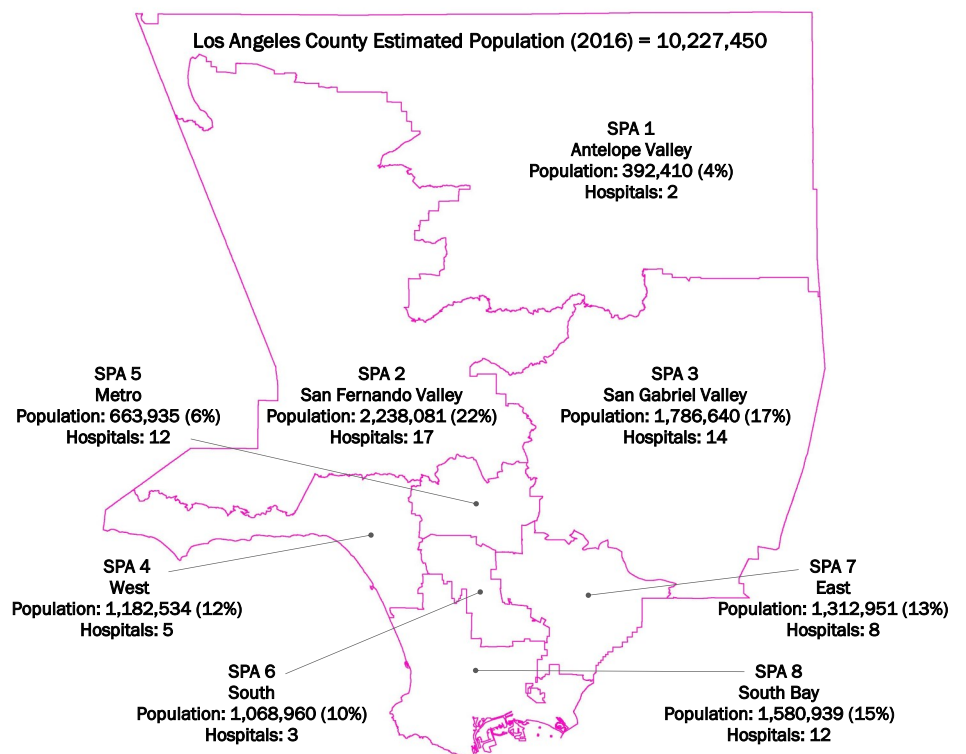
*Minimal data on patients who were not-transported.

9-1-1 Transports to Emergency Departments (ED) in LA County

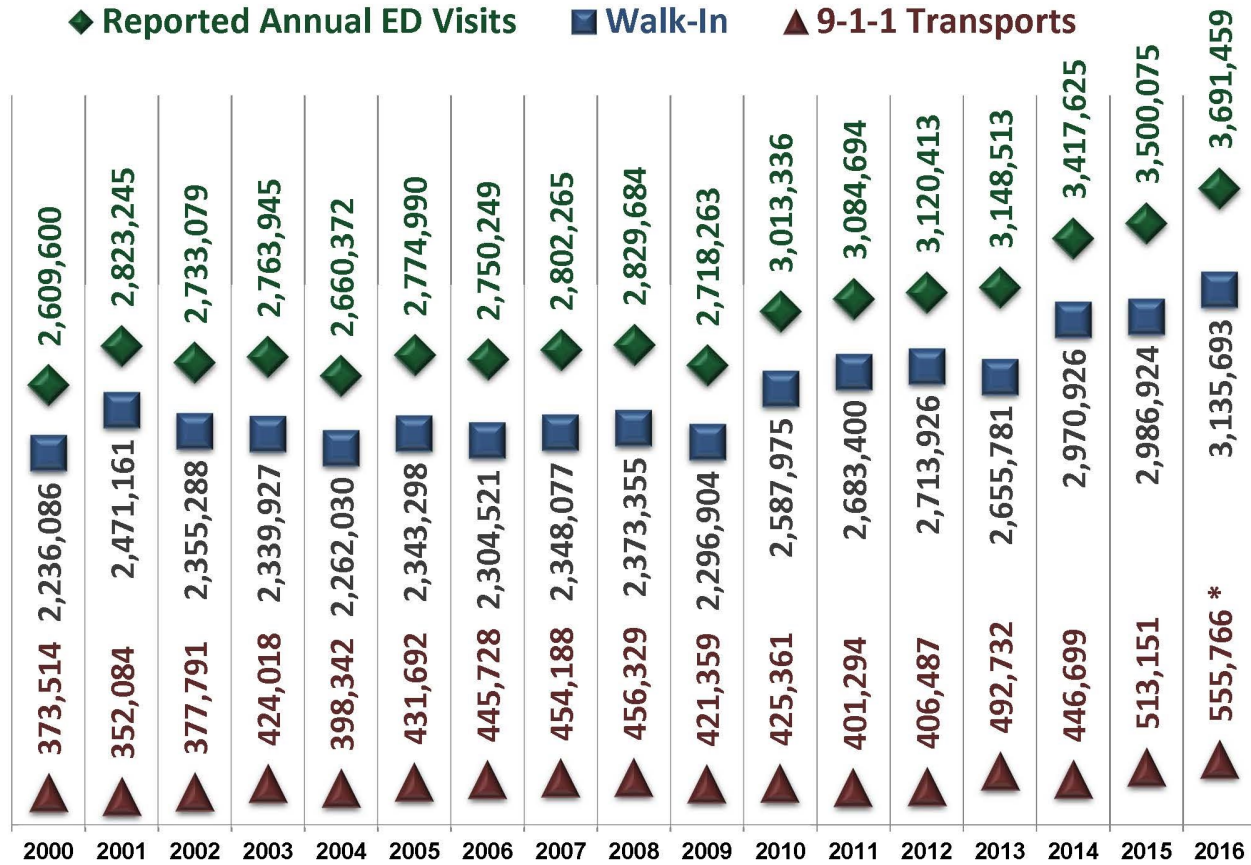
■ CY 2000 (n=373,514) ■ CY 2005 (n=431,692) ■ CY 2010 (n=429,980) ■ CY 2015 (n=509,707)



With over 500,000 9-1-1 transports per year, Los Angeles County EMS Agency oversees one of the largest and well respected EMS systems in the United States. Our system boasts 73 9-1-1 Receiving Hospitals, 15 Trauma Centers, 35 ST-Elevation MI Receiving Centers, 49 Stroke Centers, 37 Emergency Departments Approved for Pediatrics (EDAP) and 11 Pediatric Medical Center (PMC) for the most critically ill or injured children.



Emergency Department Volume

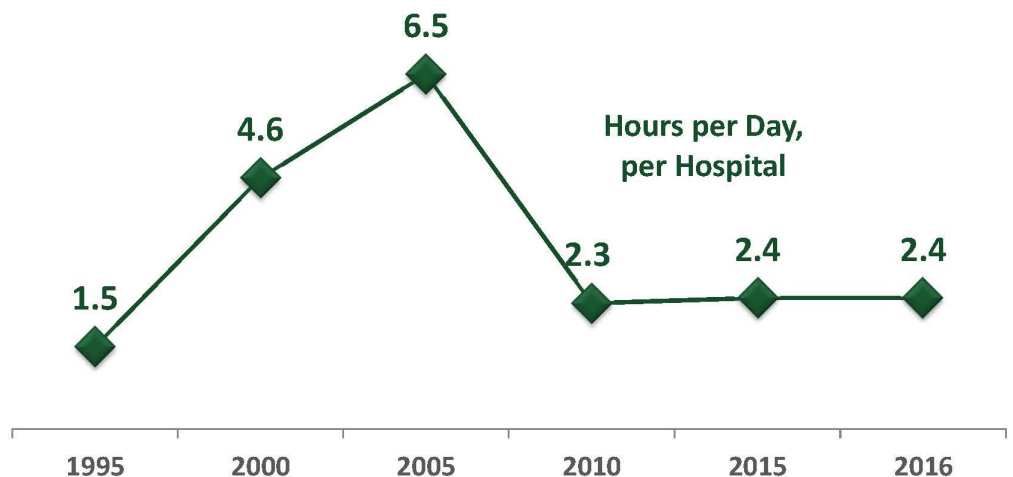


*FY 2015-2016 volume, 9-1-1 transport volume for CY 2016 is incomplete.

Request for Paramedic Unit Diversion due to Emergency Department Saturation

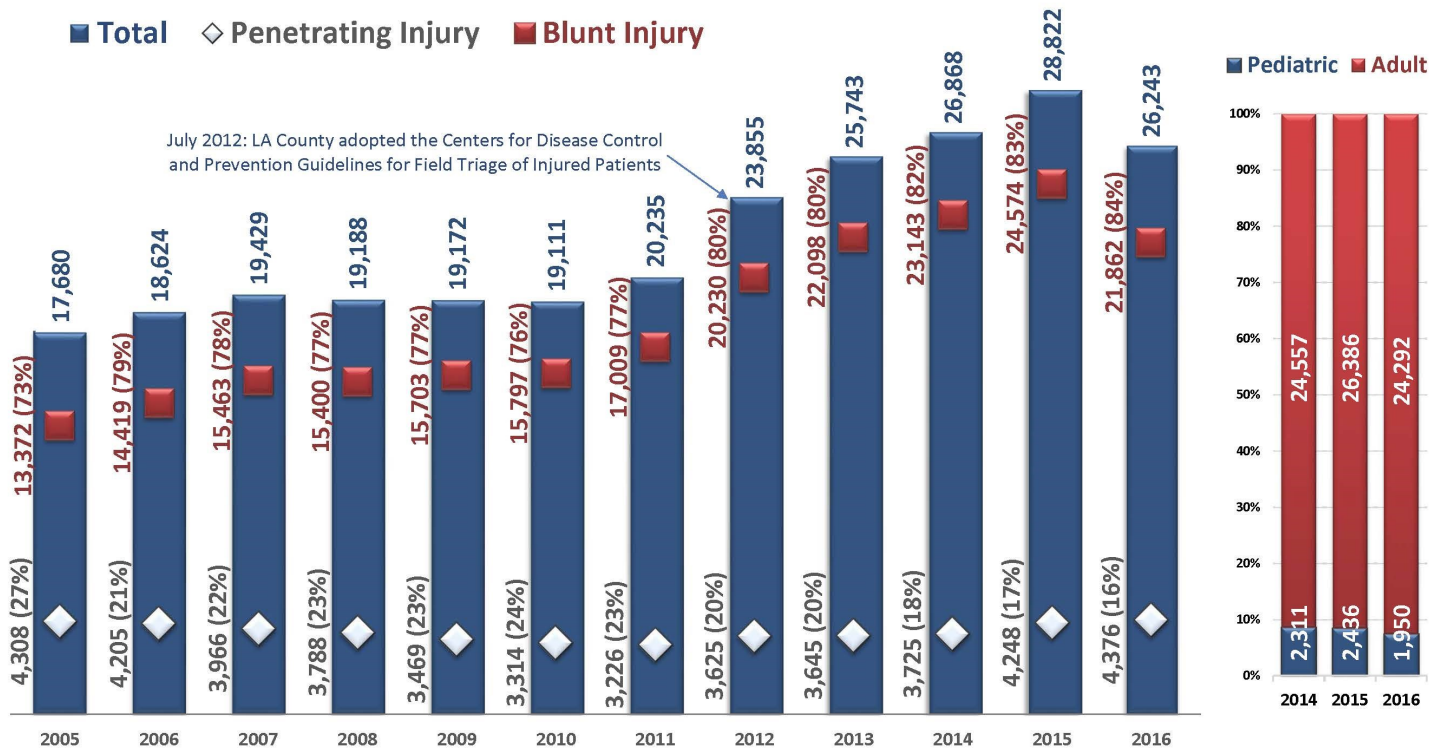
Hospitals have requested diversion of paramedic units from a low of 1.5 hrs/day/hospital in 1995 to a high of 6.5 hrs/day/hospital in 2005. Diversion policies were revised to mitigate the increasing diversion problem which has stabilized in the last 10 years to an average of 2.3 hrs/day/hospital.

However, ED overcrowding is now being manifested in prolonged Ambulance Patient Offload Times (APOT). The EMS Agency will be publishing APOT reports in the future as data on APOT collection becomes more consistent and timely.

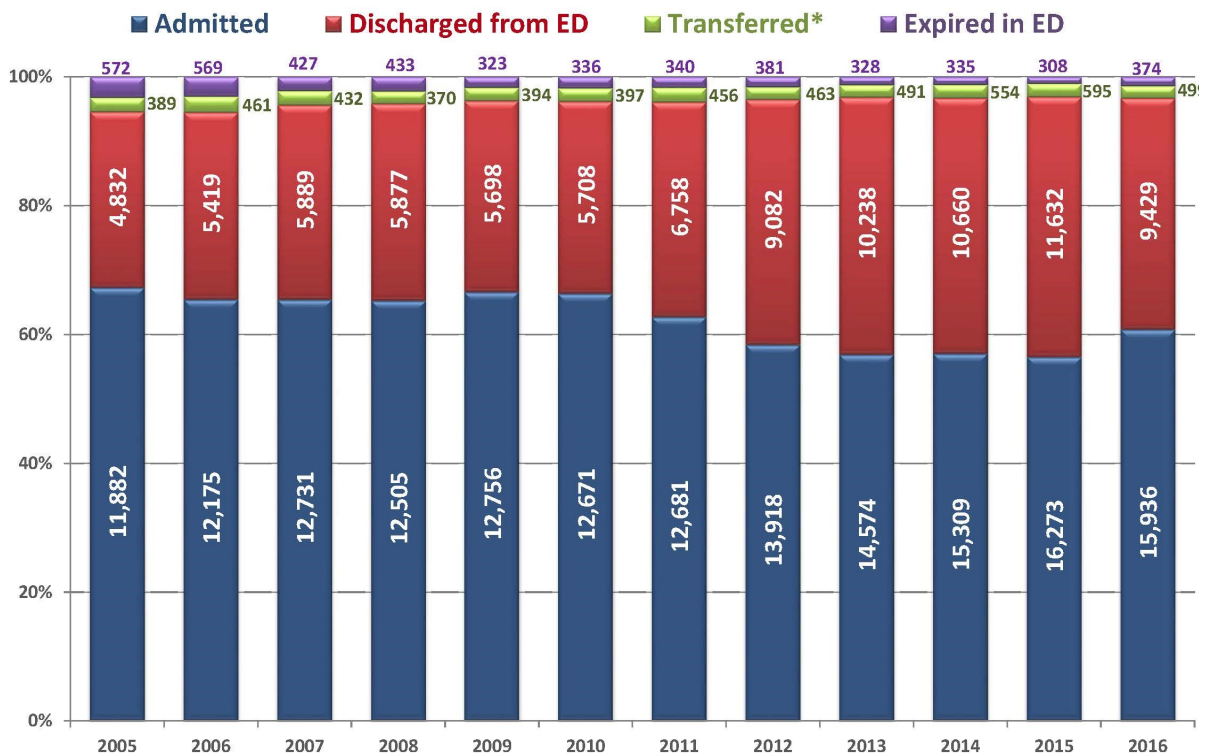




Trauma Center Volume



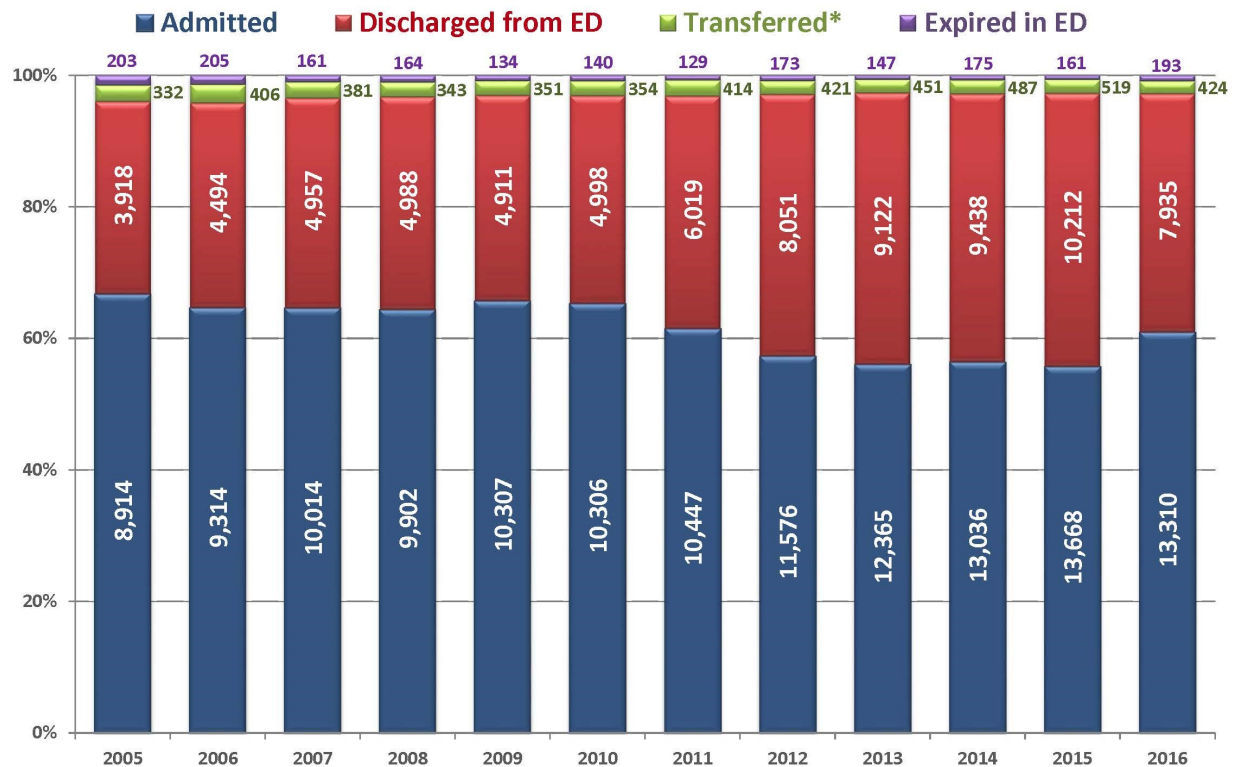
Patient Disposition: All Trauma



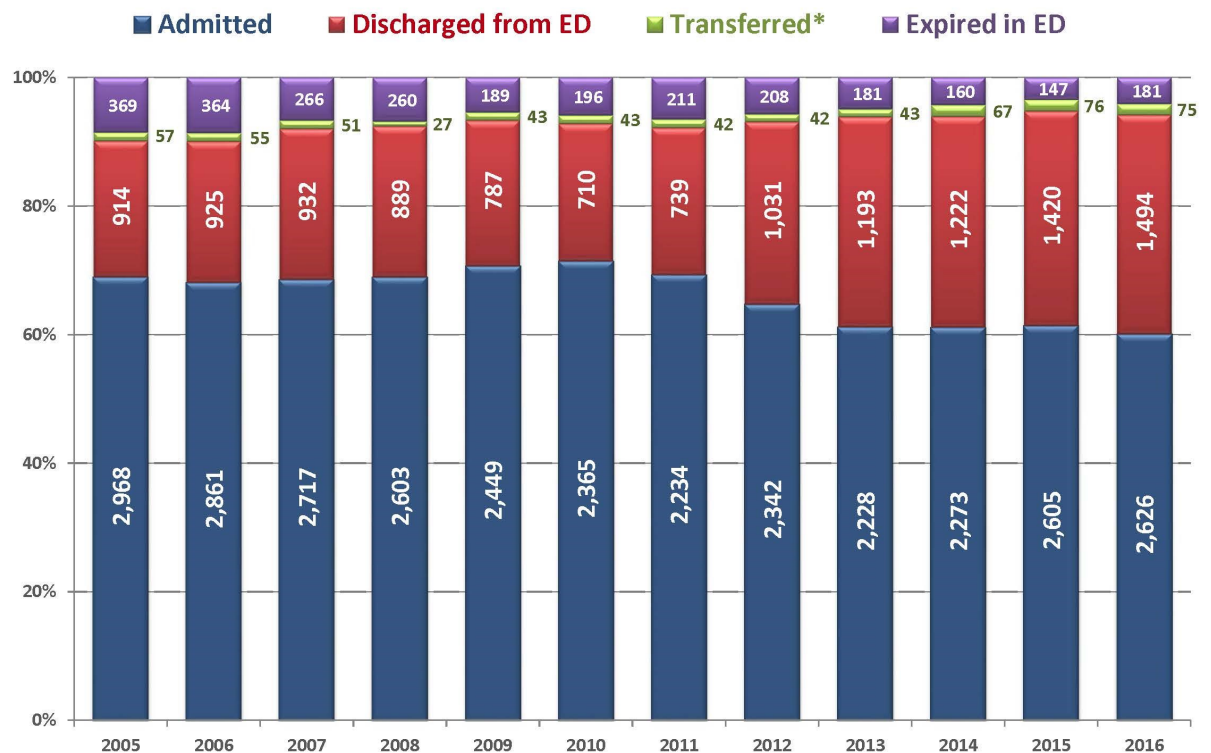
* Transferred to another health facility



Patient Disposition: Blunt Trauma



Patient Disposition: Penetrating Trauma

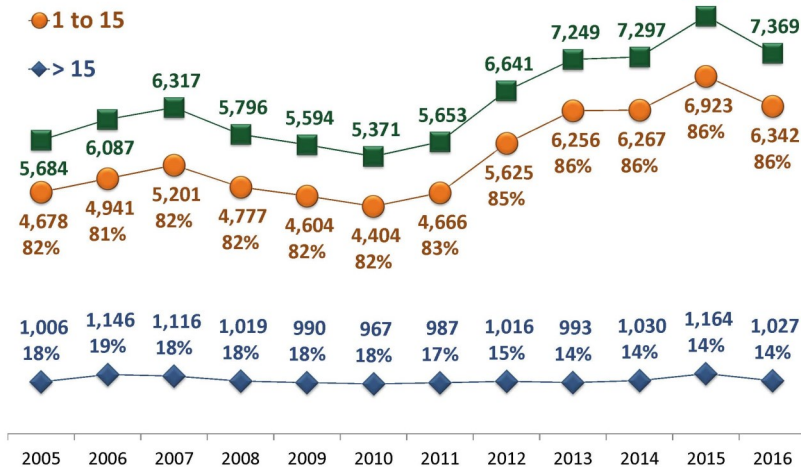


* Transferred to another health facility



Injury Severity Score by Mechanism of Injury

Motor Vehicular Accident



Definition:

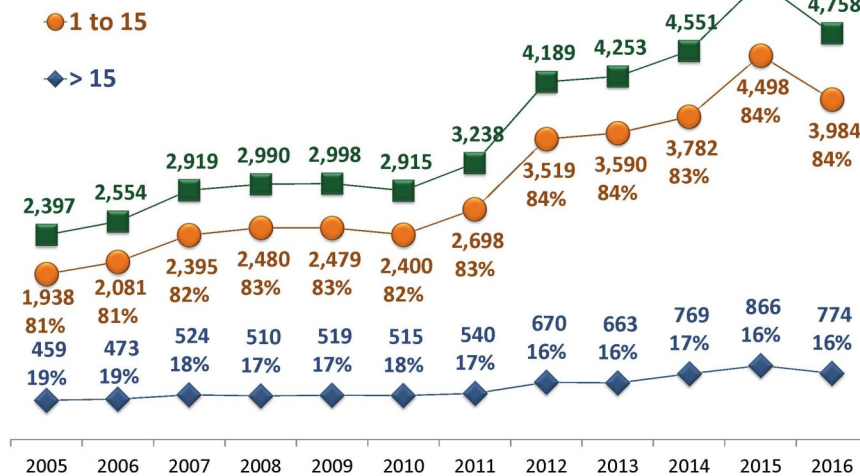
Injury Severity Score (ISS):

Is an established medical score to assess trauma severity.

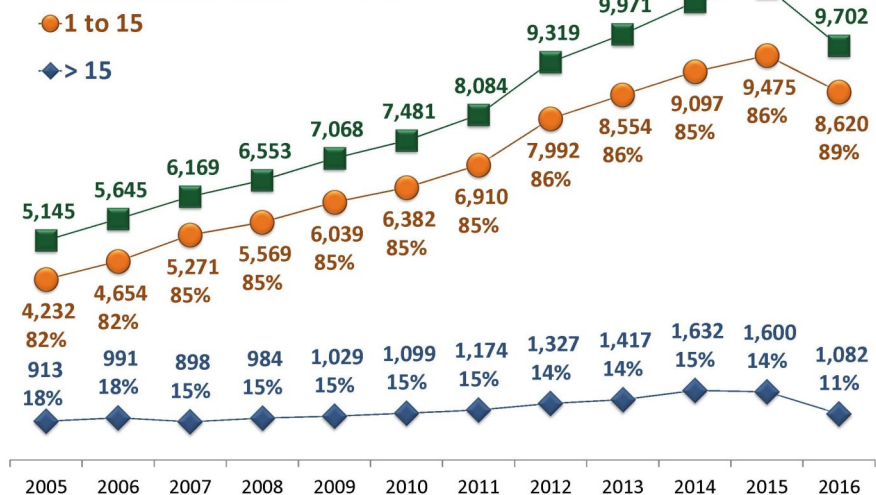
It correlates with mortality, morbidity and hospitalization time after trauma.

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

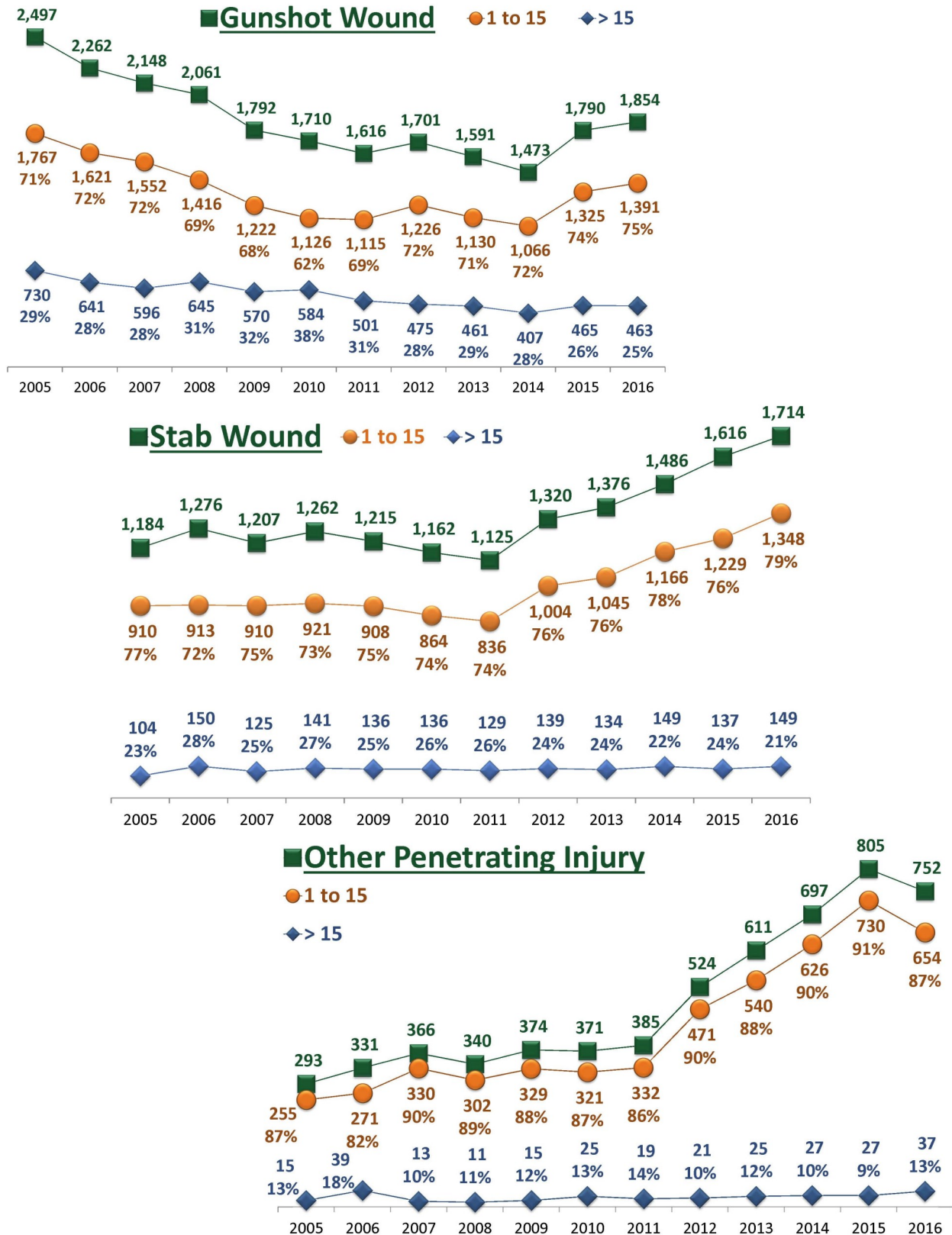


Other Blunt Injuries





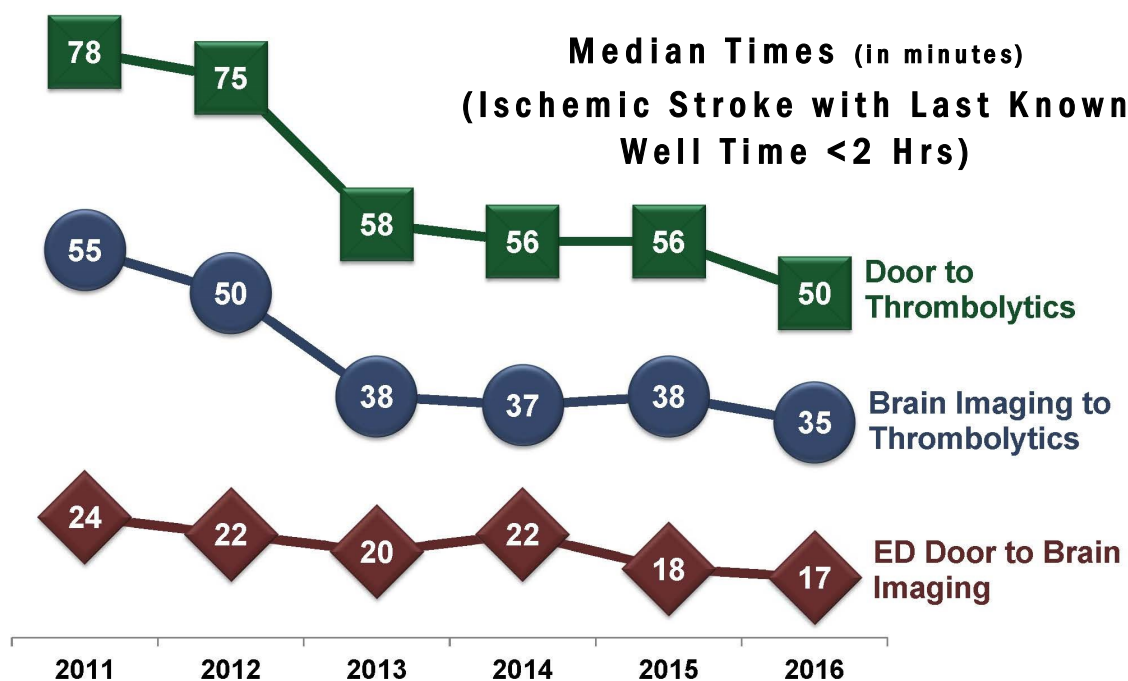
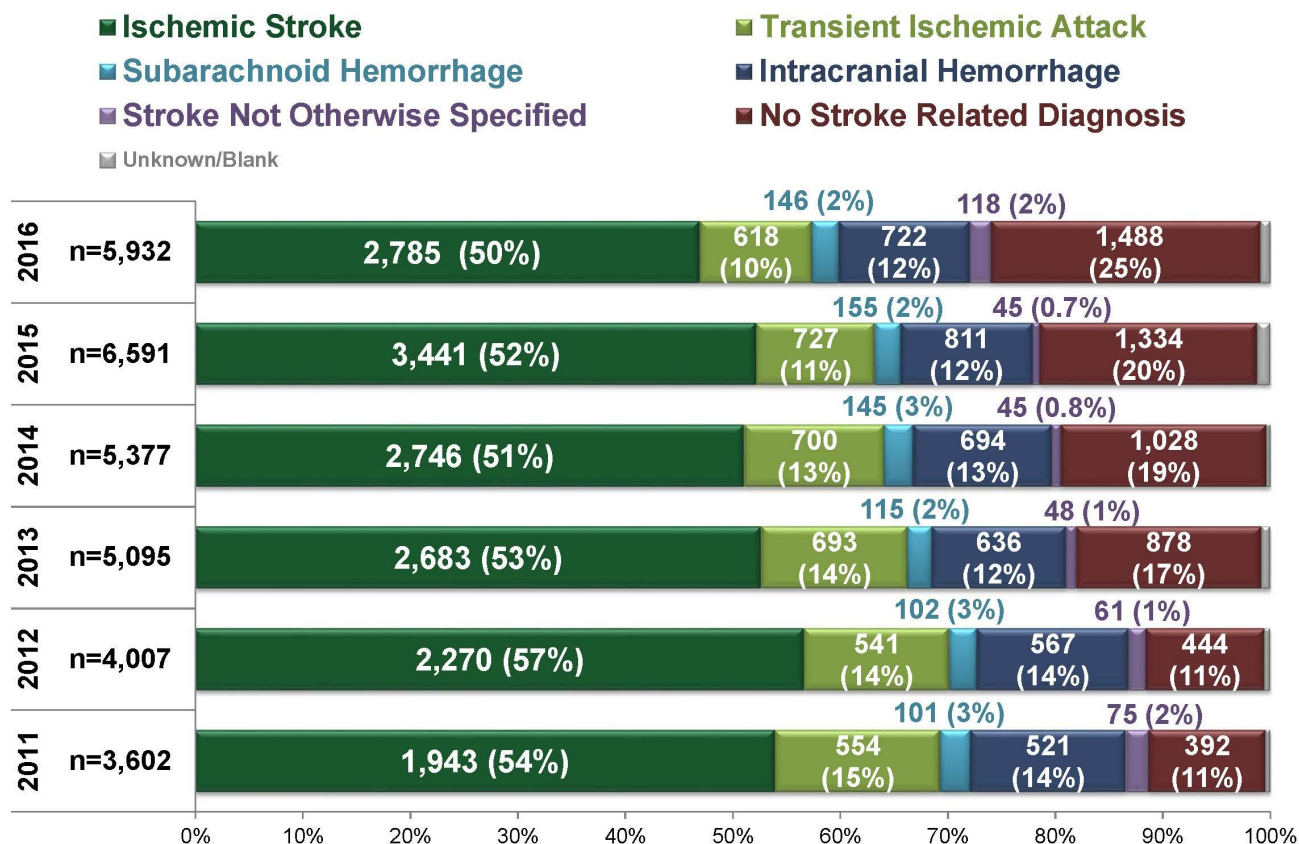
Injury Severity Score by Mechanism of Injury





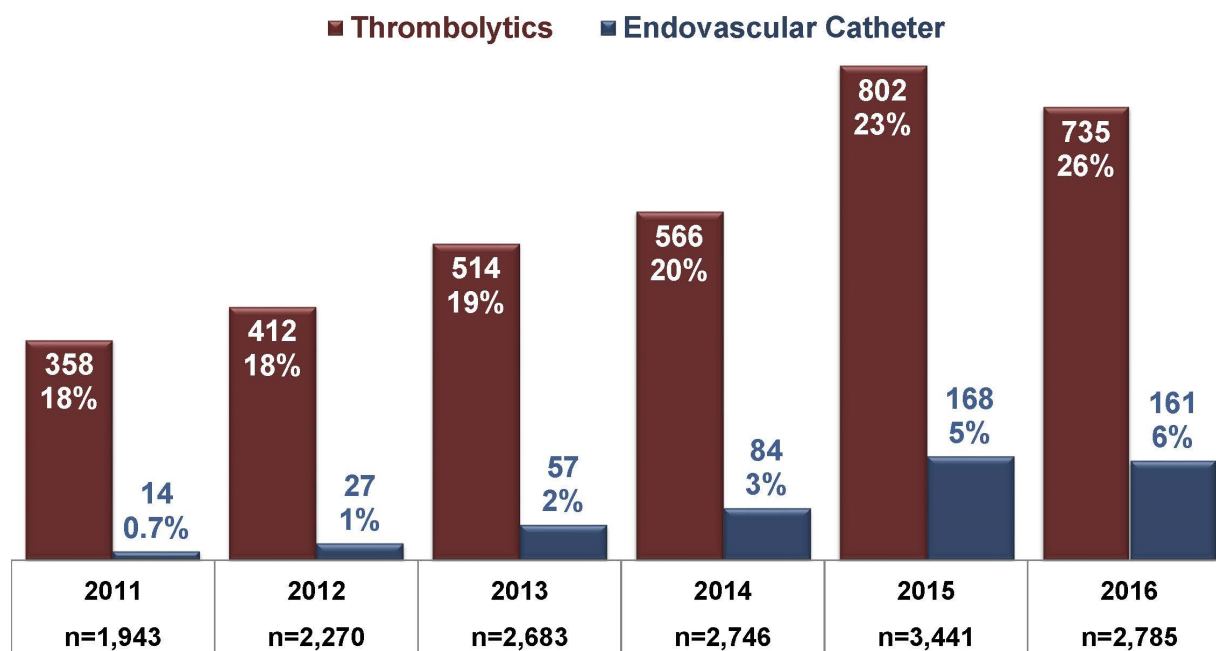
Approved Stroke Center Patients

Final Diagnosis of 9-1-1 Transports

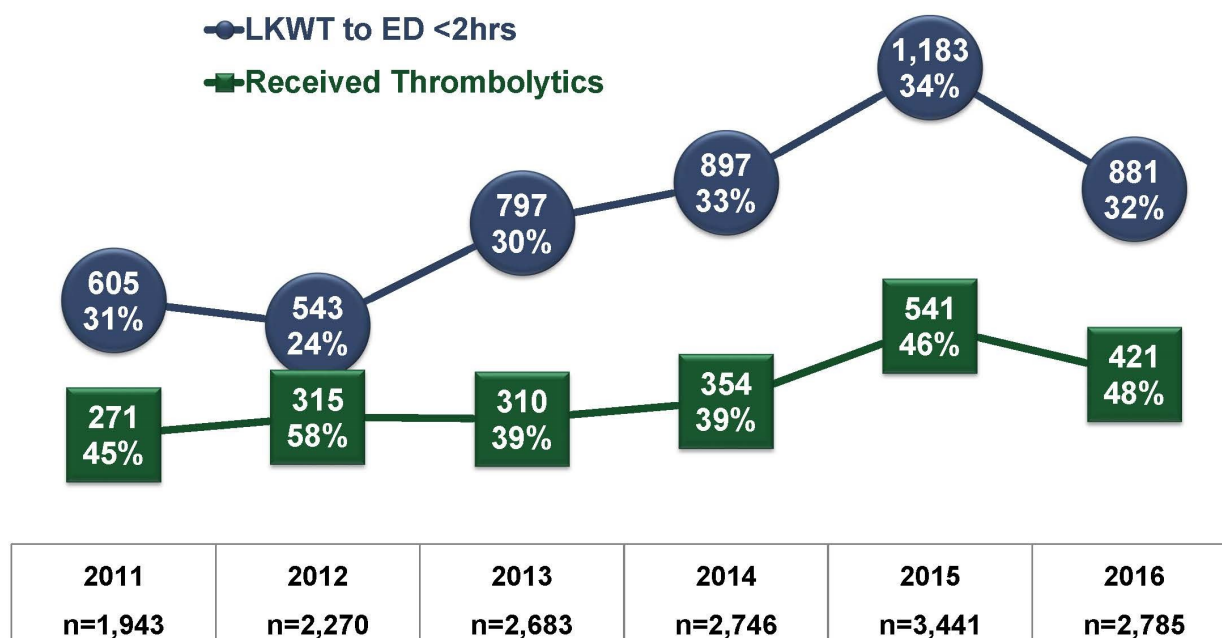




Treatment—All Ischemic Stroke



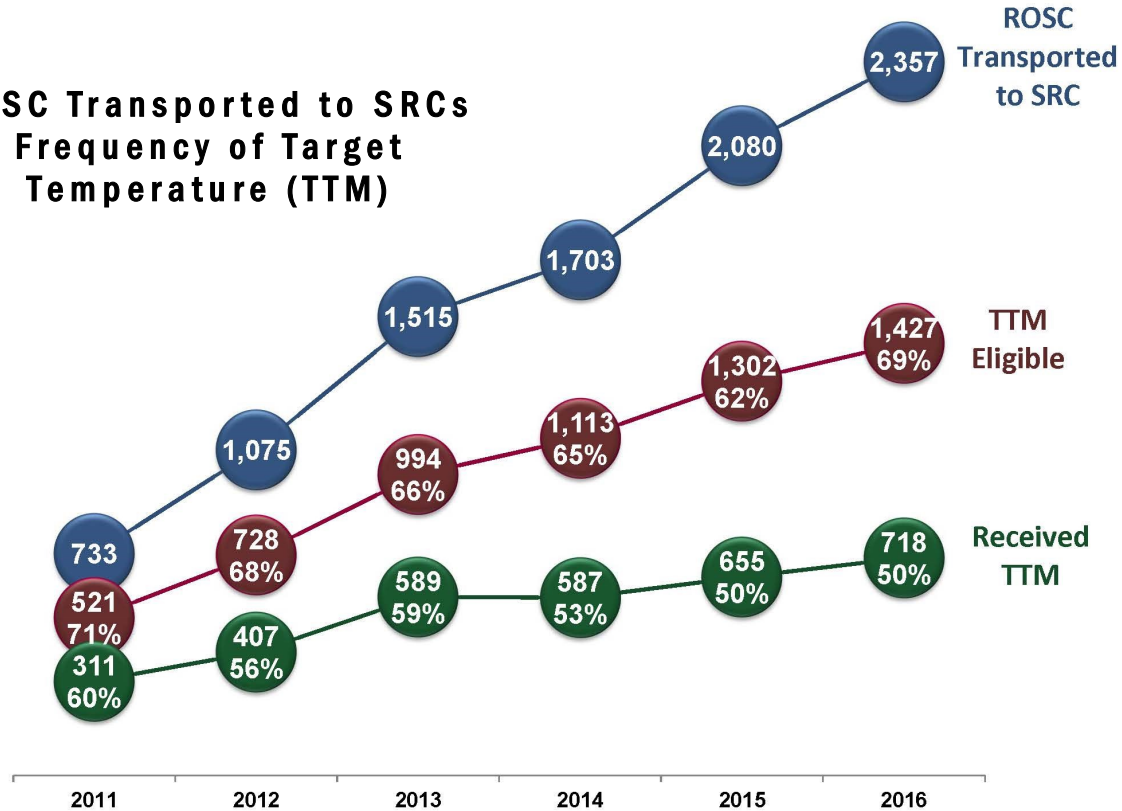
Ischemic Stroke Patients with Last Known Well Time <2 Hours



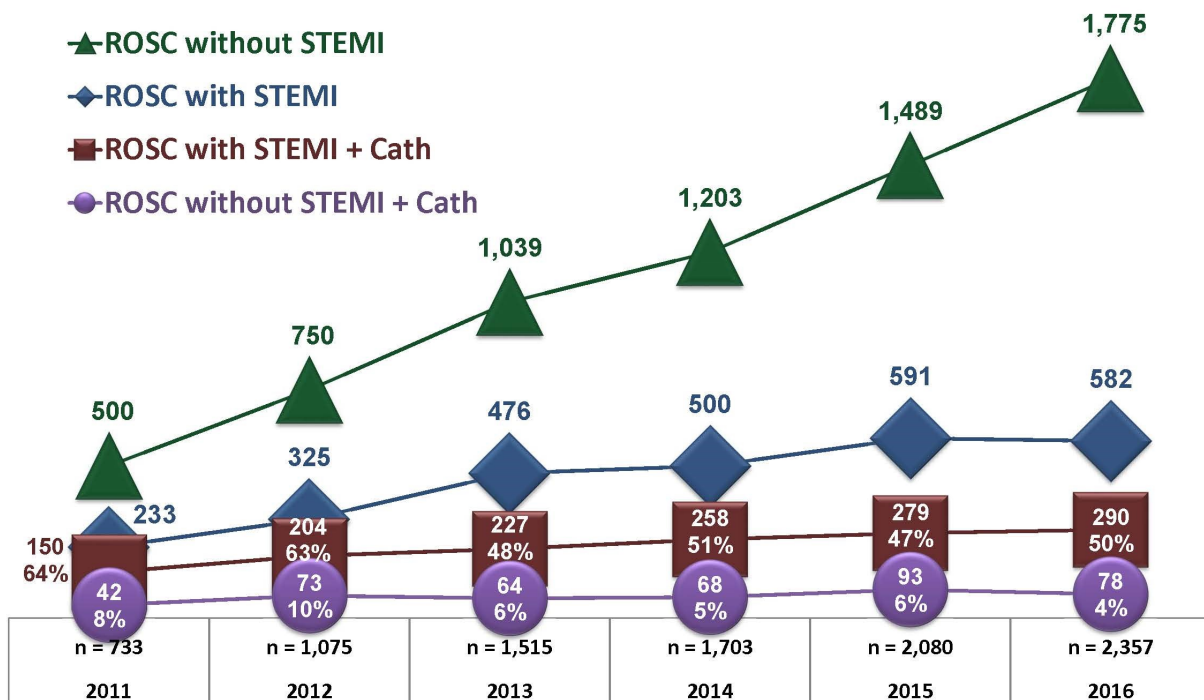


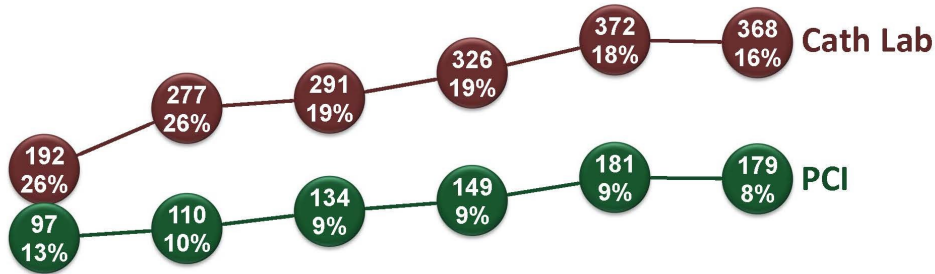
Out of Hospital Cardiac Arrest Return of Spontaneous Circulation (ROSC)

ROSC Transported to SRCs
Frequency of Target
Temperature (TTM)



Frequency of Immediate Catheterization





ROSC Frequency of Cath Lab and Percutaneous Coronary Intervention (PCI)

n = 733 2011	n = 1,075 2012	n = 1,515 2013	n = 1,703 2014	n = 2,080 2015	n = 2,357 2016
-----------------	-------------------	-------------------	-------------------	-------------------	-------------------

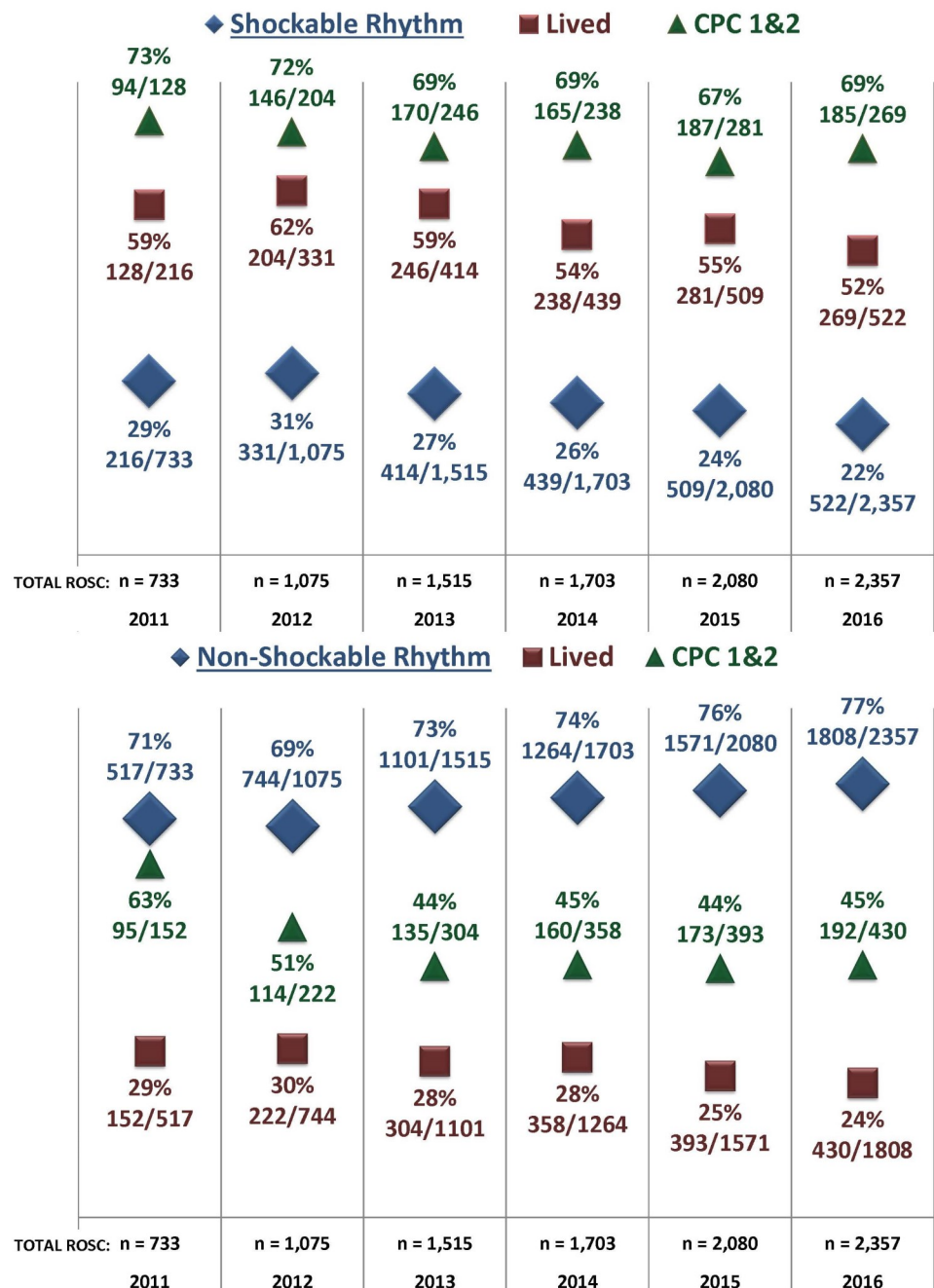
ROSC Patient Outcome

Definition:

Cerebral Performance Category (CPC) Scale

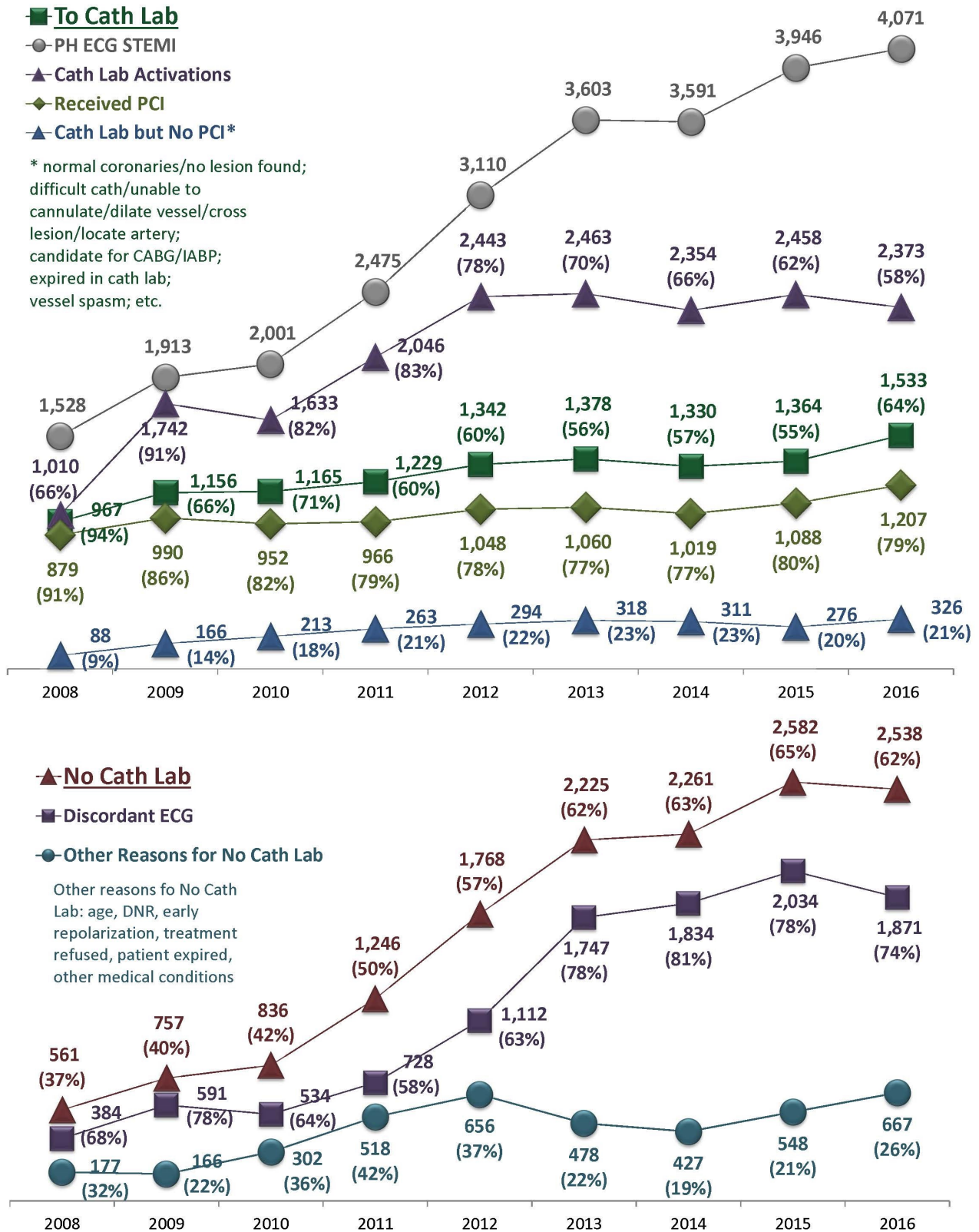
CPC 1—Good cerebral performance; conscious, alert, able to work, might have neurologic or psychologic deficit

CPC 2—Moderate cerebral disability: conscious, sufficient cerebral function for independent activities of daily life. Able to work in sheltered environment.

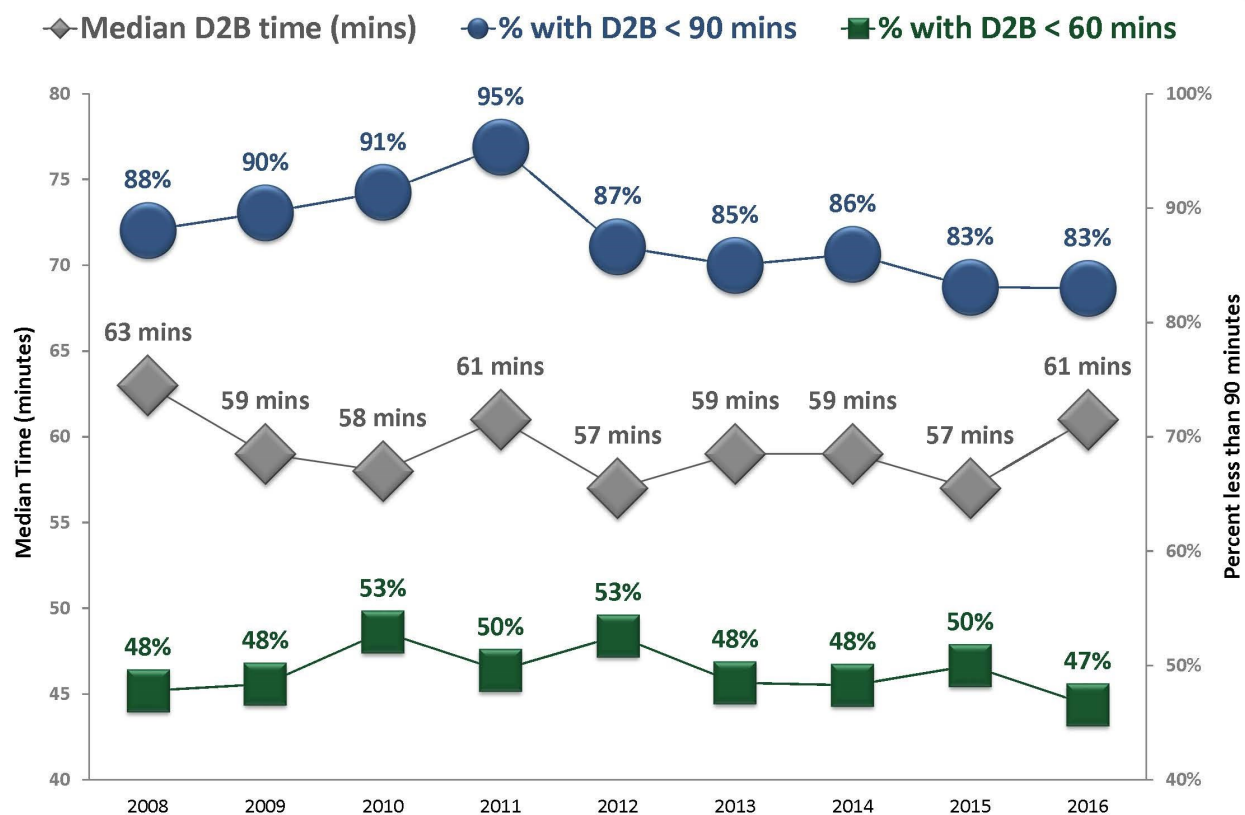




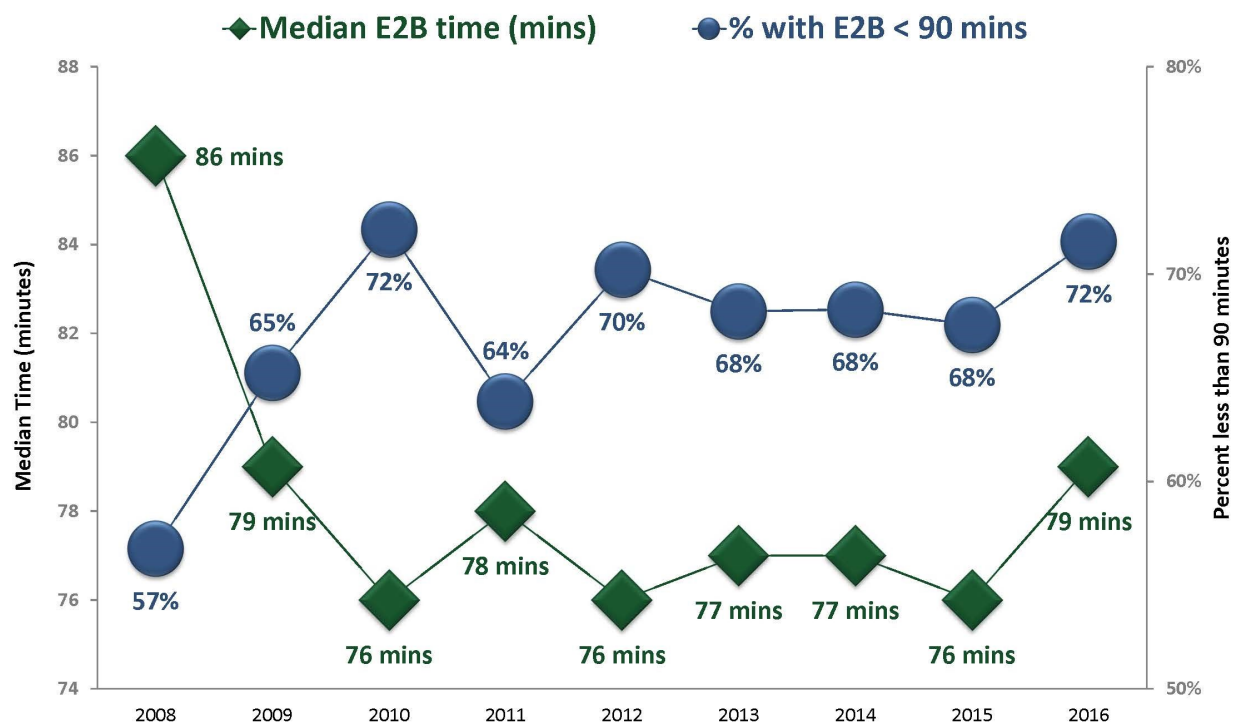
ST-Elevation Myocardial Infarction (STEMI) 9-1-1 Transports to STEMI Receiving Centers (SRC)



SRC: Door-to-Balloon (D2B) Time

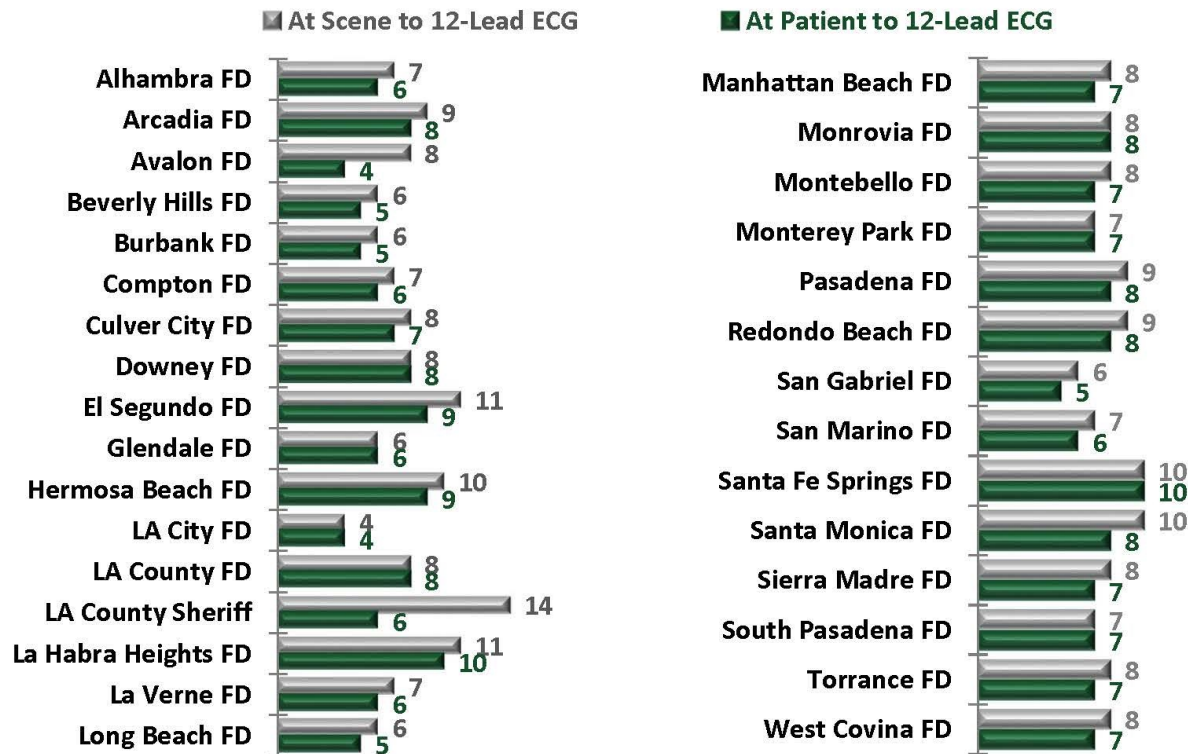


SRC: EMS Medical Contact-to-Balloon (E2B) Time

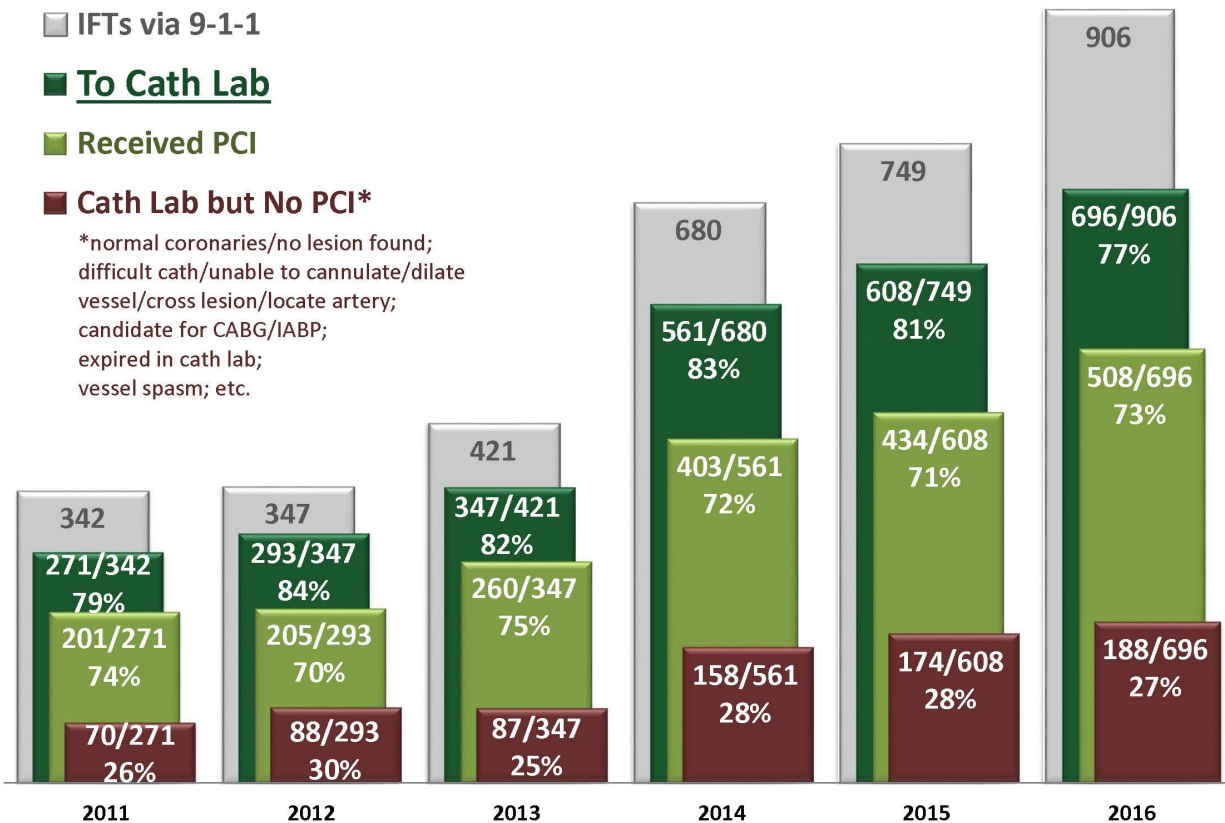


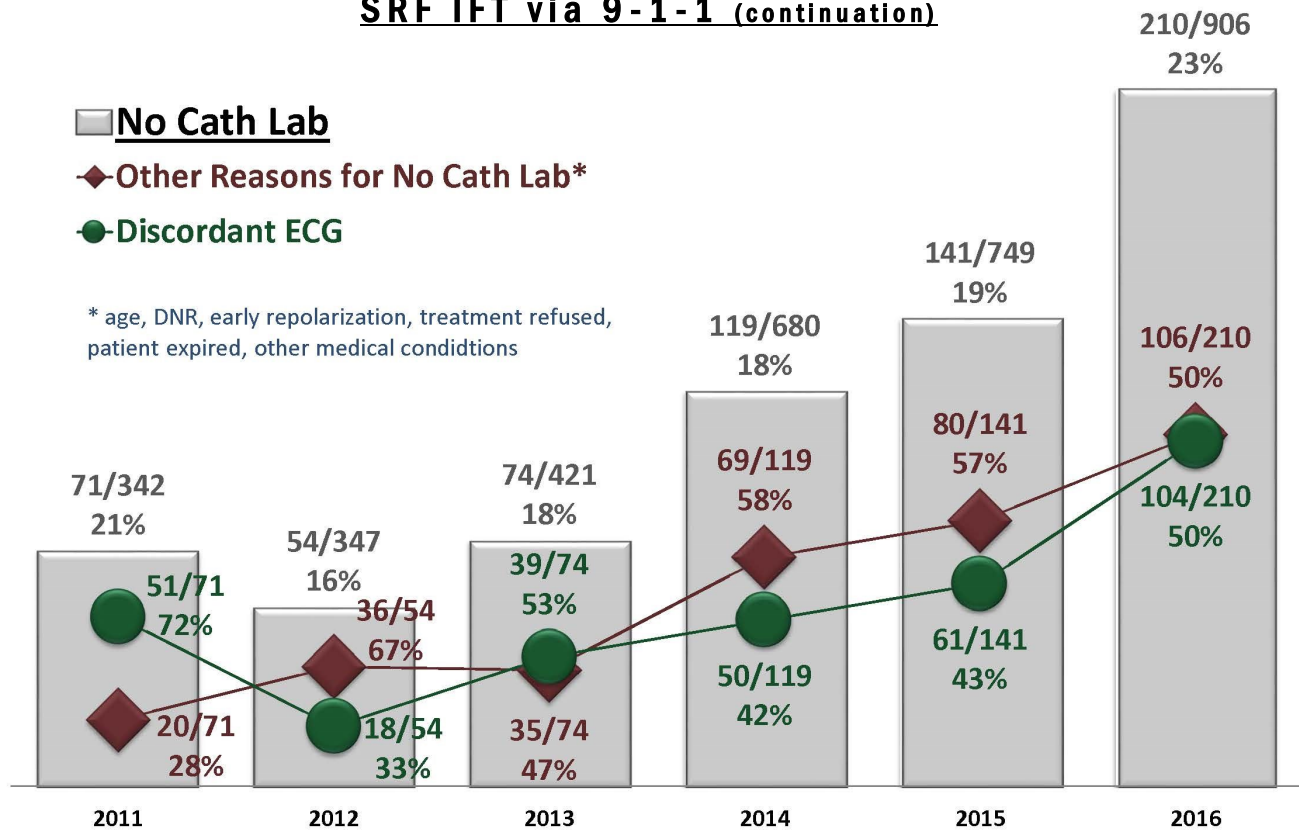
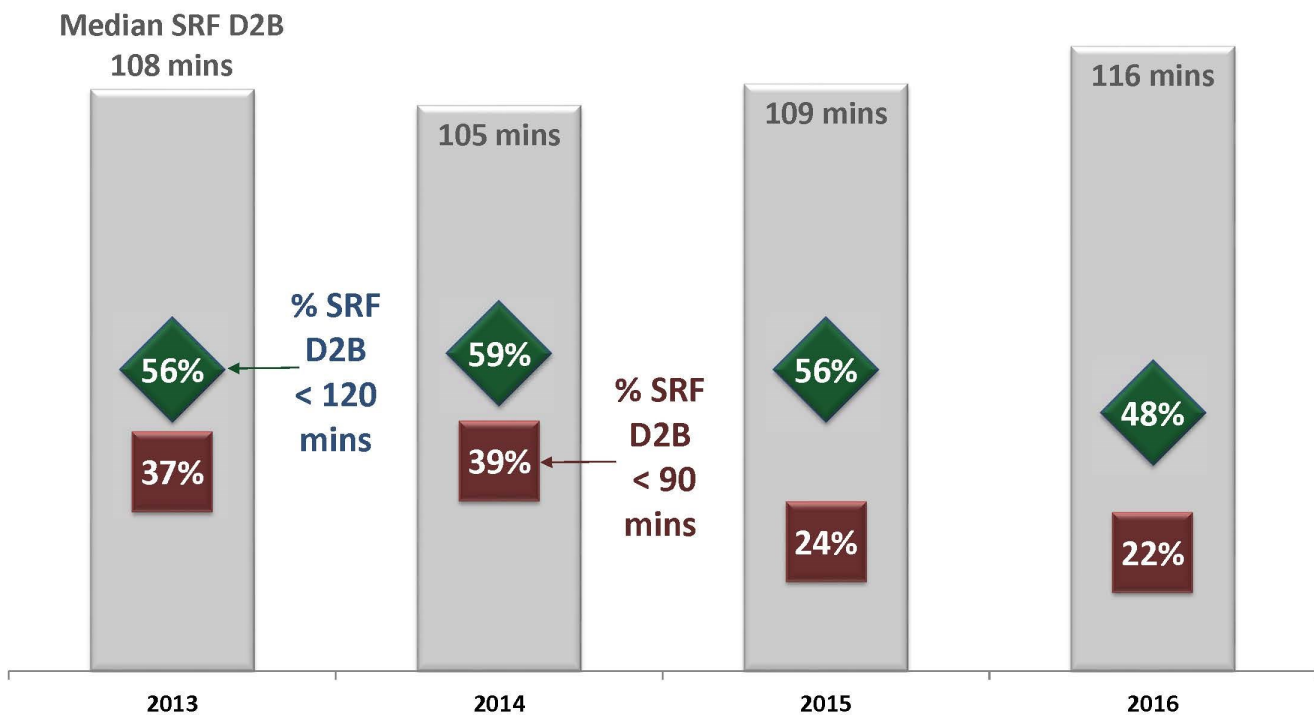


Median Time to ECG (minutes)



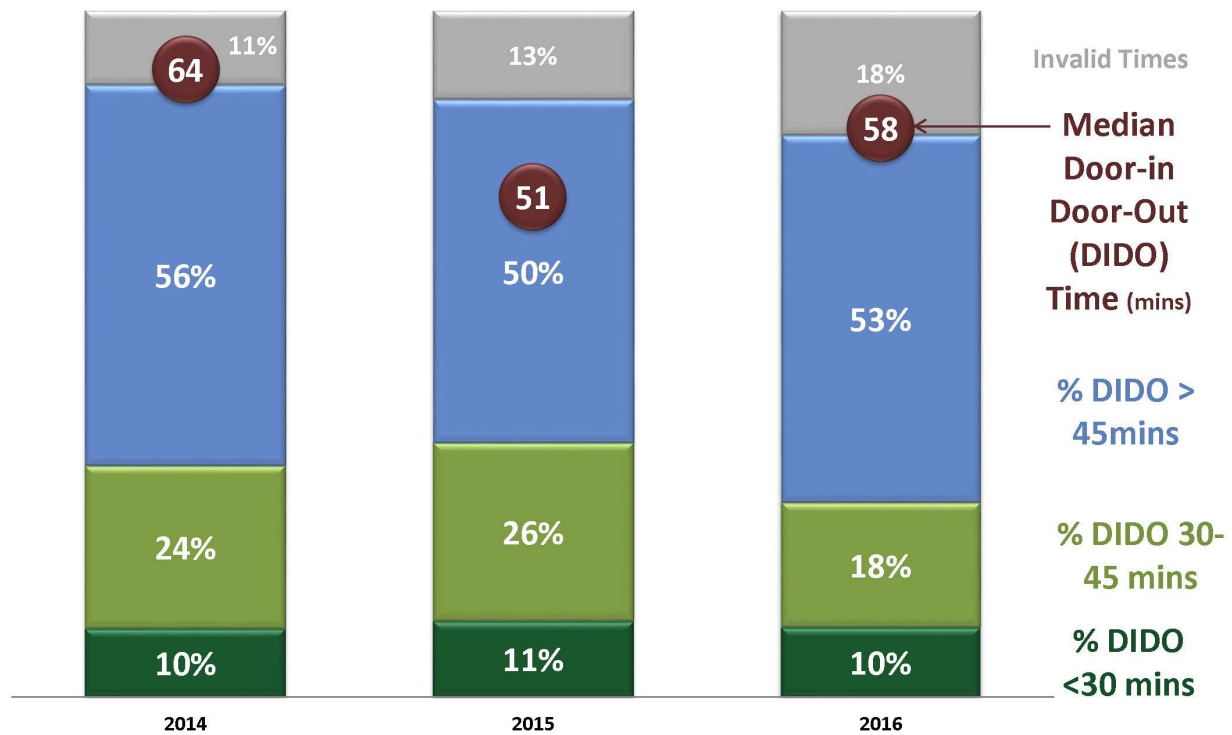
STEMI Referral Facility (SRF) Interfacility Transfers (IFT) via 9-1-1



SRF IFT via 9-1-1 (continuation)**SRF: Door-To-Balloon (D2B) Time**

LA County SRF D2B Goal: 90% D2B within 90mins

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



LA County SRF DIDO Goal: 30 mins

EMS STRONG
ALWAYS IN SERVICE

EMS AGENCY



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

10100 Pioneer Boulevard, Ste. 200

Phone: 562-347-1500

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

EDITORIAL BOARD

Cathy Chidester, RN, MSN

Director

Marianne Gausche-Hill, MD

Medical Director

Nichole Bosson, MD

Assistant Medical Director

Kay Fruhwirth, RN, MSN

Assistant Director, Admin. Services

CONTENT, DESIGN & PRODUCTION

Richard Tadeo, RN, BSN

Assistant Director, EMS Programs

Christine Clare, RN, MSN

Chief, Data & Hospital Programs

Michelle Williams, RN, BSN

Data Systems Manager