EMERGENCY MEDICAL SERVICES AGENCY

DATA FACTS

LOS ANGELES COUNTY EMS SYSTEM REPORT

DECEMBER 31, 2024

ISSUE 13

Message from the Director and Medical Director

We are pleased to present the 13th edition of the Los Angeles County Emergency Medical Services (EMS) System Data Report. We continue to utilize our comprehensive data systems to support the various EMS programs and regionalized systems of care, as well as collaborate with various entities to leverage our data to continue innovation and enhancement of the Los Angeles County EMS system.

Richard Tadeo
Director

This past year, we successfully transitioned our EMS provider agency data repository to comply with the National EMS Information System (NEMSIS) 3.5 Standard, which has enabled us to submit data to the State of California EMS Information System (CEMSIS) within 72 hours of the EMS encounter. As the largest EMS system in California, Los Angeles County EMS data are an important contribution to support state and national data collection and reporting initiatives.

The Emergency Severity Index (ESI) and the out-of-hospital cardiac arrest outcome data are again included this year's report to demonstrate trends in the assessment and treatment of our most severely ill patients. New in this year's report are ED visits for patients with behavioral health complaints.

Our data continue to support multiple research initiatives. We applaud our EMS clinicians for their successful transition from a weight-based dosing of midazolam to age-based dosing for pediatric seizures (Pediatric Dose Optimization for Seizures in EMS (PediDOSE)) and their participation in the Pediatric Prehospital Airway Resuscitation Trial (Pedi-PART) to determine the optimal airway management strategies for our pediatric population.

We also developed a smart phone mobile application, RAPID LA County Medic, which will be available to all EMS personnel for easy access to all EMS Agency policies including our treatment protocols and medical control guidelines and includes just-in-time training videos and decision-support tools.

We transitioned the various pilot project sites for triage to alternate destination (psychiatric urgent care center) and designated these as 9-1-1 receiving facilities for behavioral health. As we close out 2024, we embark on: implementing a Health Data Exchange (HDE) for the bidirectional transmission of patient level data between the EMS provider agencies' electronic patient care report and the hospitals' electronic health record management systems; transitioning the pilot study of use of extracorporeal membrane oxygenation (ECMO) care for patients with persistent shockable cardiac arrest to designation of eCPR receiving centers; and explore the feasibility of implementing a pilot study on prehospital blood transfusion for our severely injured and hemodynamically unstable patients. We ring-in 2025 with much optimism that our data will continue to support these initiatives.

Dr. Nichole Bosson
Medical Director

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SPECIAL POINTS OF INTEREST:

- **Emergency Severity Index (page 5)**
- **Behavioral Health Emergency Department Visits (page 6)**
- **Trauma Mechanism of Injury (page 10)**
- **OHCA Overall Survival (pages 14-18)**

2024 System Demographics

69 9-1-1 Receiving Hospitals

- 37 EDAP (Emergency Department Approved for Pediatrics)
- 8 Pediatric Medical Centers
- 7 Pediatric Trauma Centers
- 15 Trauma Centers
- 21 Paramedic Base Hospitals
- 35 STEMI Receiving Centers
- 25 Comprehensive Stroke Centers
- 27 Primary Stroke Centers
- 44 Perinatal Centers
- 42 Hospitals with Neonatal ICU
- 13 SART (Sexual Assault Response Team)
- 13 Disaster Resource Centers
- 7 Psychiatric Urgent Care Centers

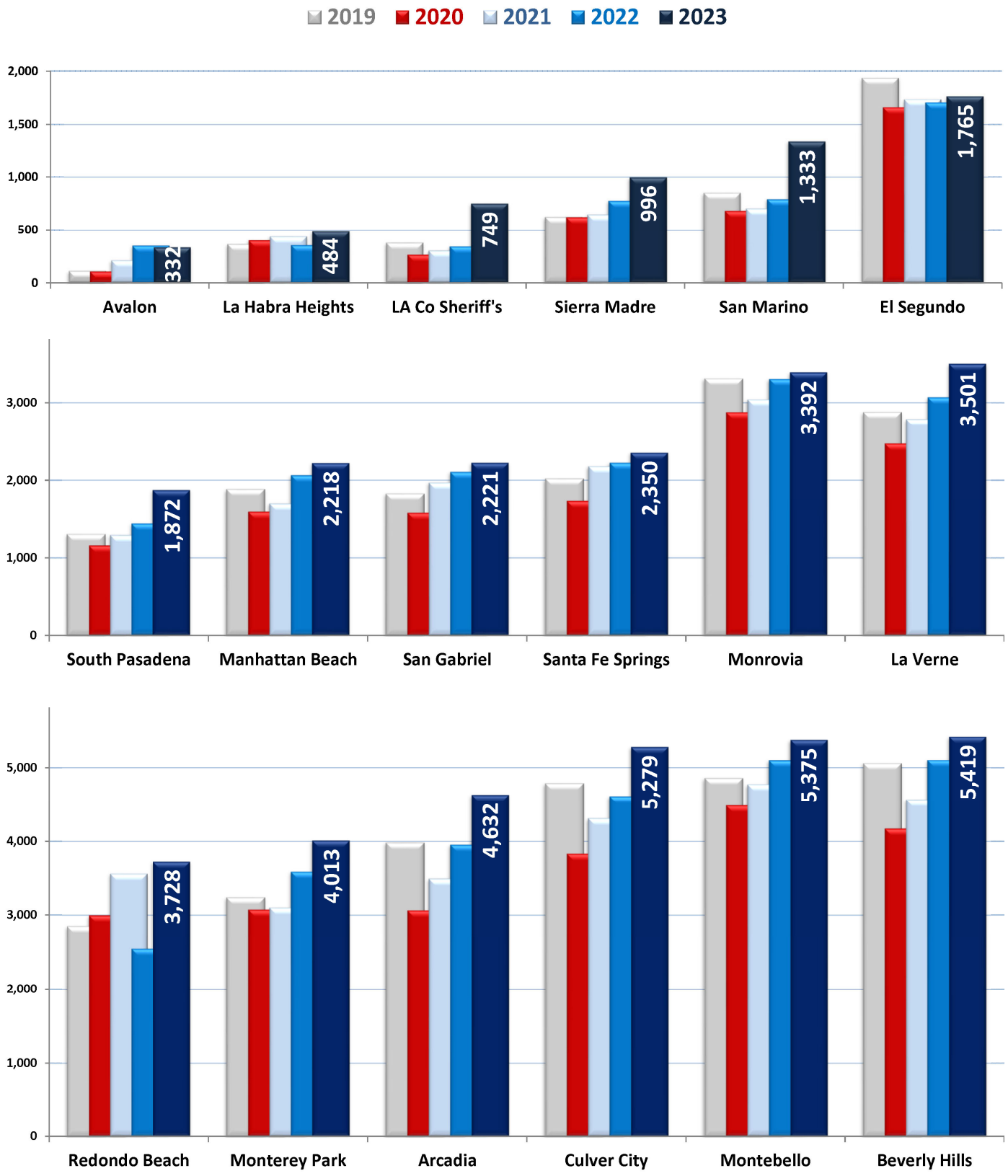
EMS Provider Agencies

- 33 Public Safety EMS Provider Agencies
- 38 Licensed Basic Life Support Ambulance Operators
- 16 Licensed Advanced Life Support Ambulance Operators
- 16 Licensed Specialty Care Transport Ambulance Operators
- 2 Licensed Ambulette Operators

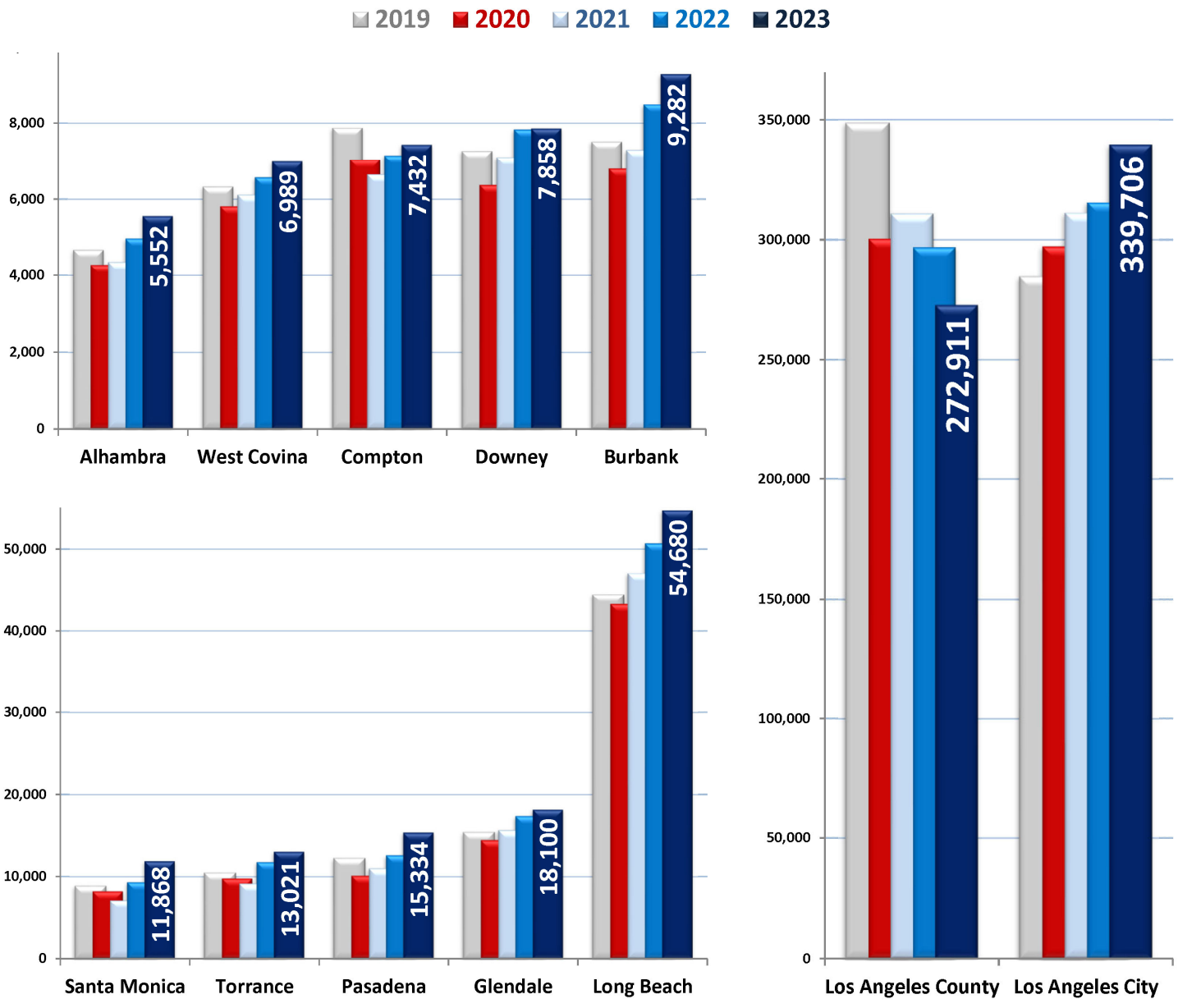
EMS Practitioners

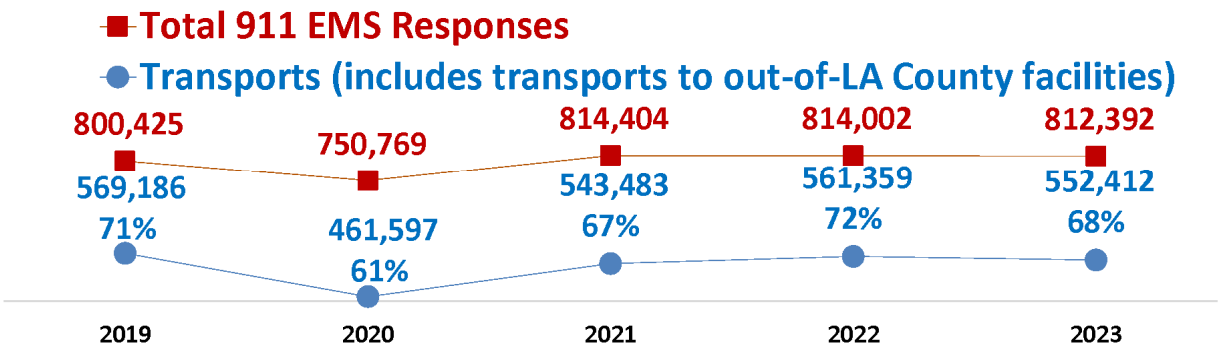
- 4,606 Accredited Paramedics
- 8,349 Certified EMTs by LA Co EMS Agency
- 877 Certified Mobile Intensive Care Nurses

EMS Responses by 9-1-1 Jurisdictional Provider Agency

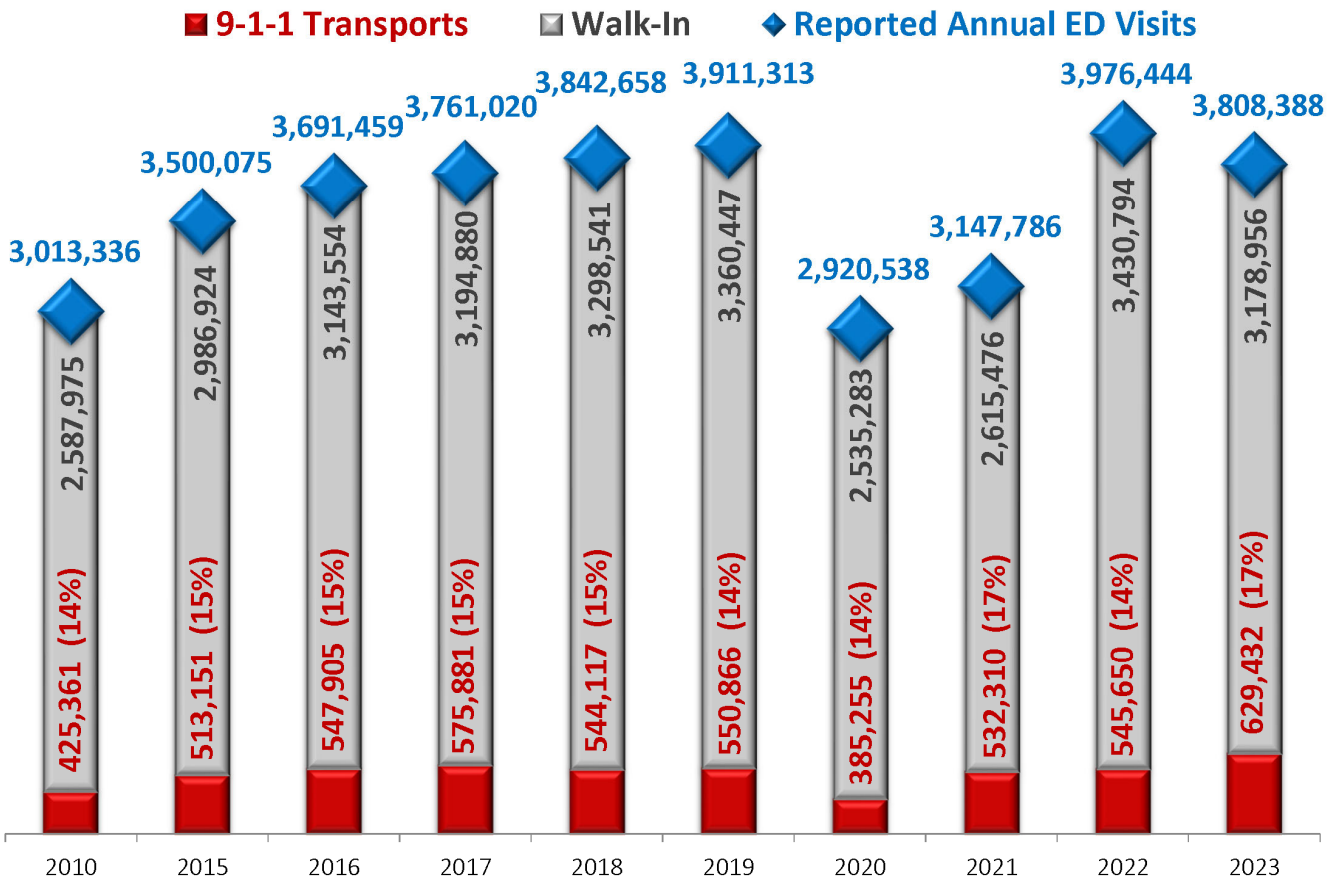


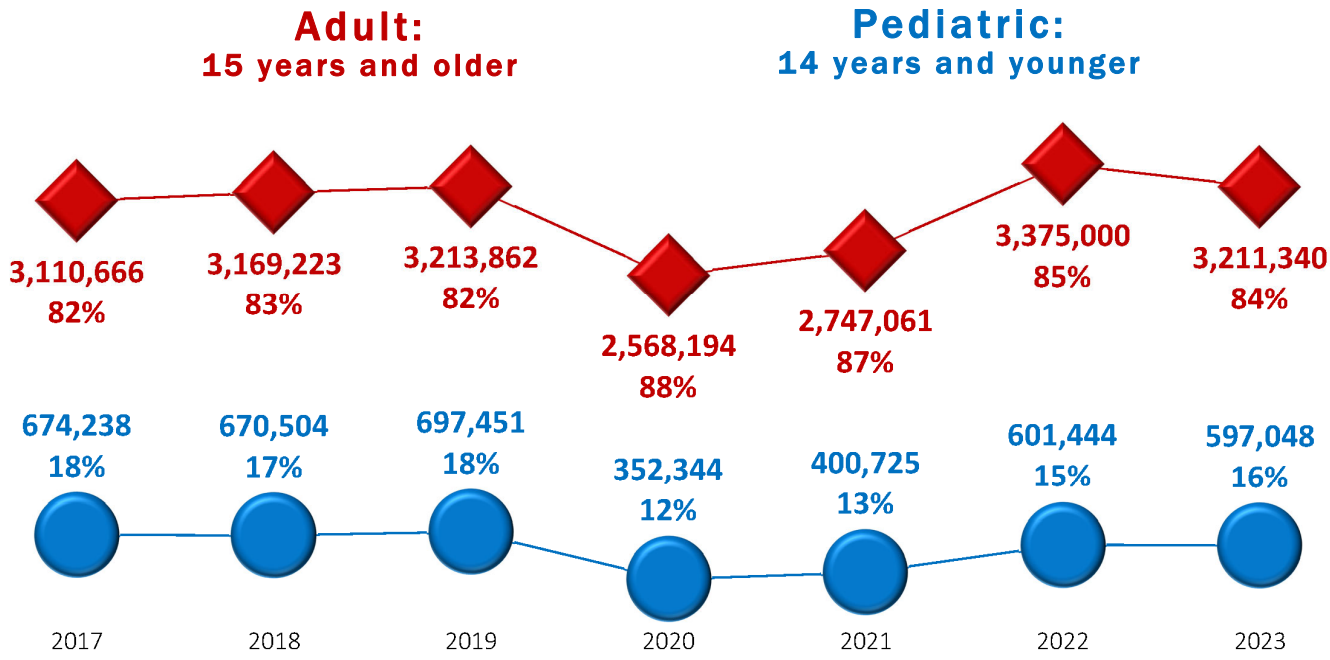
EMS Responses by 9-1-1 Jurisdictional Provider Agency



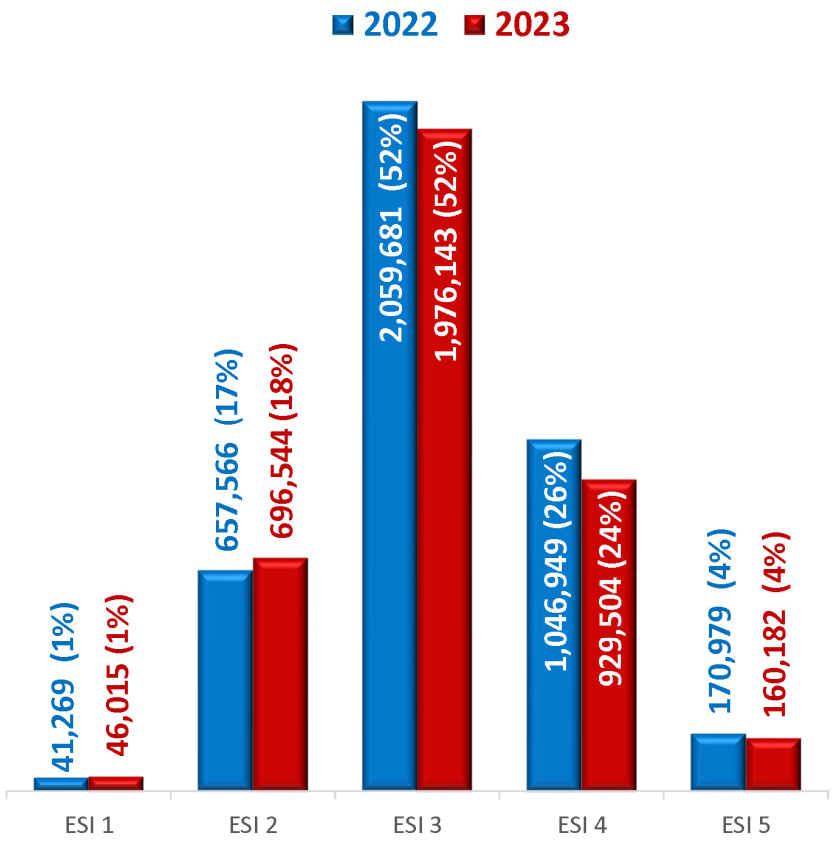


Emergency Department Volume





Emergency Severity Index (ESI)



ESI 1—Patient requiring immediate life-saving interventions: airway, emergency medications, or other hemodynamic; and/or any of the following conditions: intubated, apneic, pulseless, severe respiratory distress, SPO2 <90, acute mental status changes, or unresponsive (defined as nonverbal and not following commands (acutely); or requires noxious stimulus

ESI 2—Patient with a high risk of deterioration or signs of a time critical problem; confused/lethargic/disoriented; or severe pain/distress. Pediatric fever is age 1 to 28 days; temperature >38.0 C.

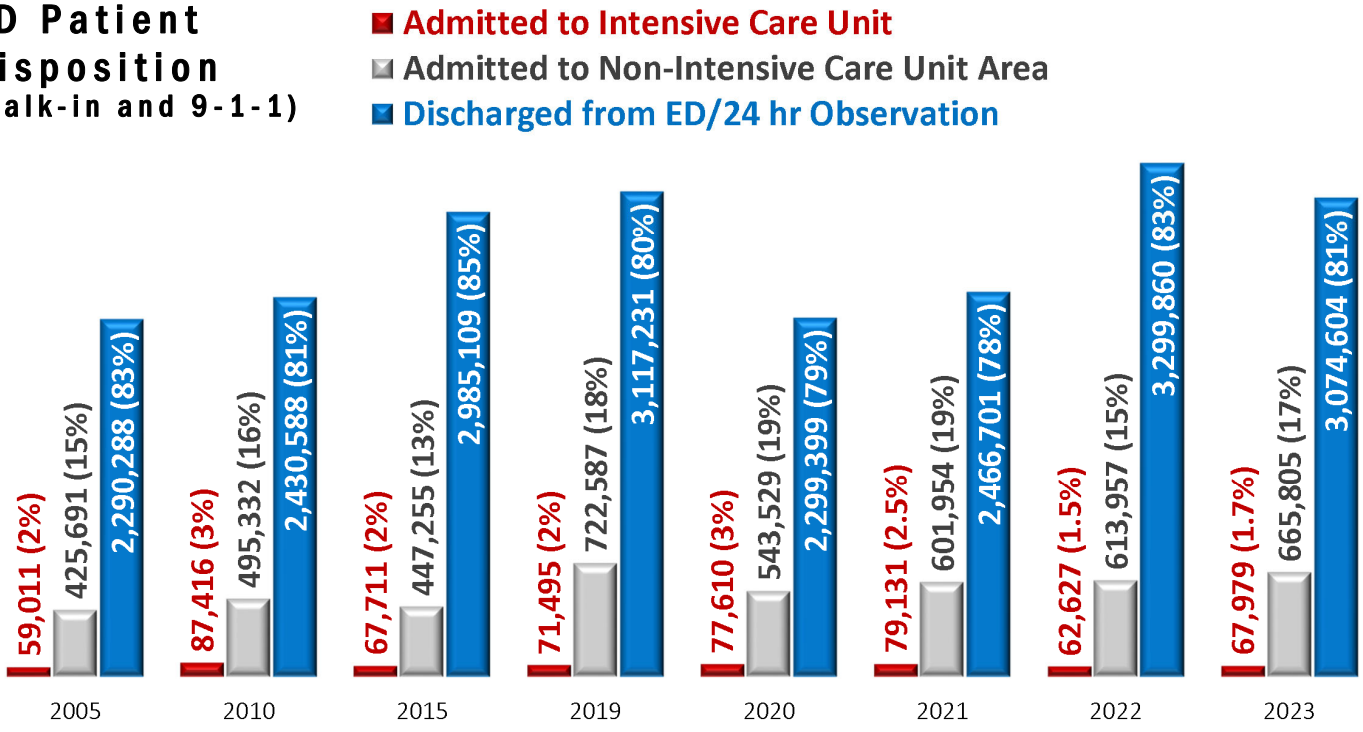
ESI 3—Patient is currently stable but requires multiple different types of resources* to diagnose or treat condition (e.g., diagnostic tests and procedures).

ESI 4—A patient requiring a single resource* such as only an x-ray or sutures.

ESI 5—A patient not needing any resources*.

*The following are not considered resources: simple wound care-dressing/recheck; sling, PO medications, saline lock, history and physical-including a pelvic exam; point of care testing; tetanus immunization; prescription refills, crutches; splint

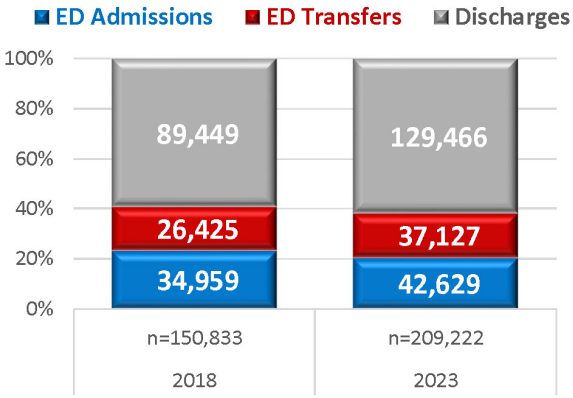
ED Patient Disposition
(walk-in and 9-1-1)



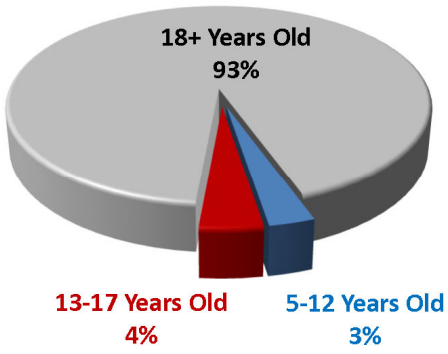
Emergency Department BEHAVIORAL HEALTH Visits

(Data self reported by hospitals)

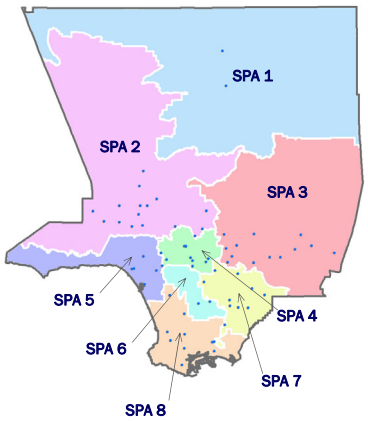
COUNTYWIDE



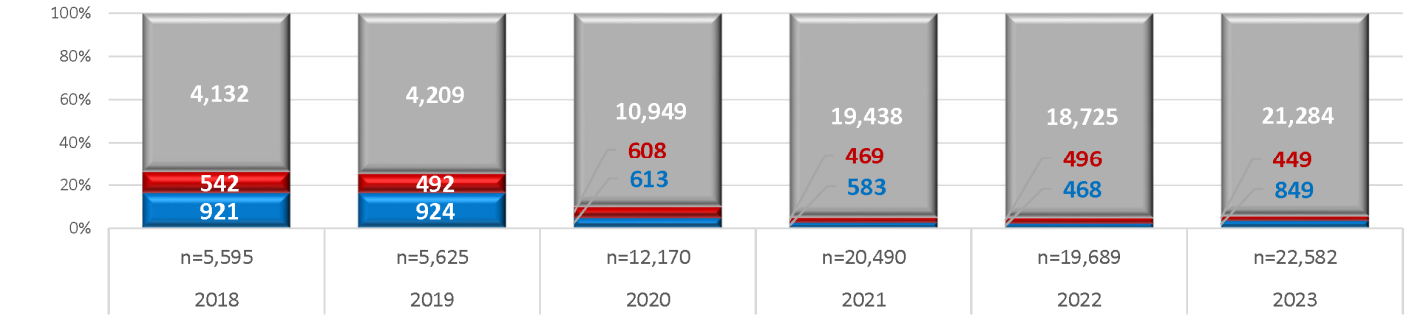
BY AGE



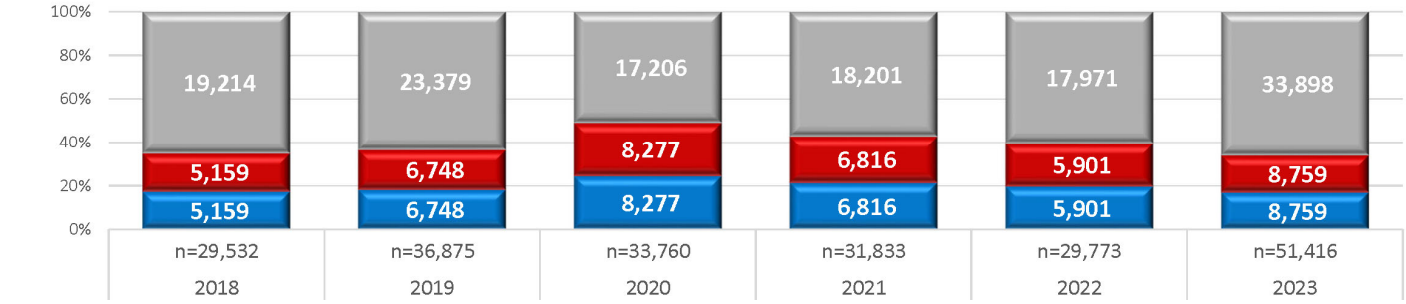
SERVICE PLANNING AREAS (SPA)



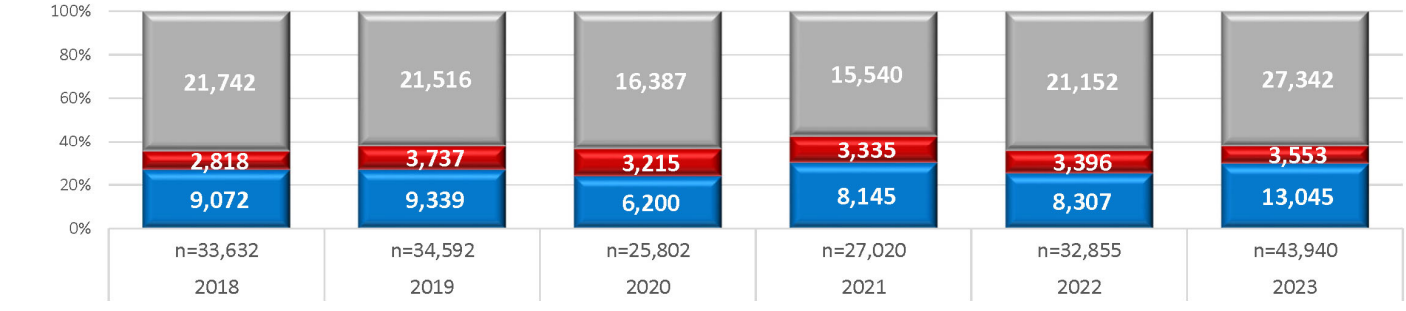
SPA 1

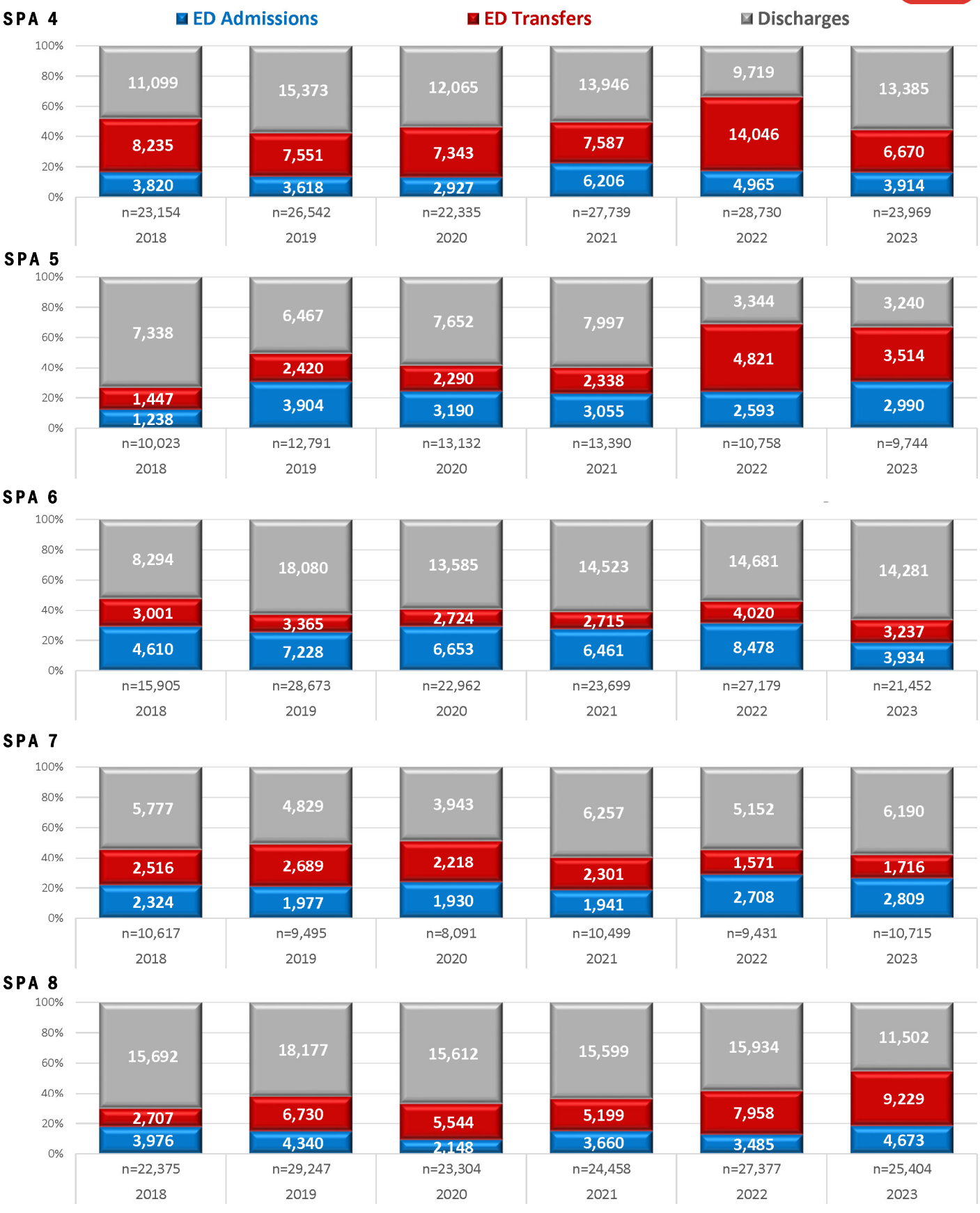


SPA 2

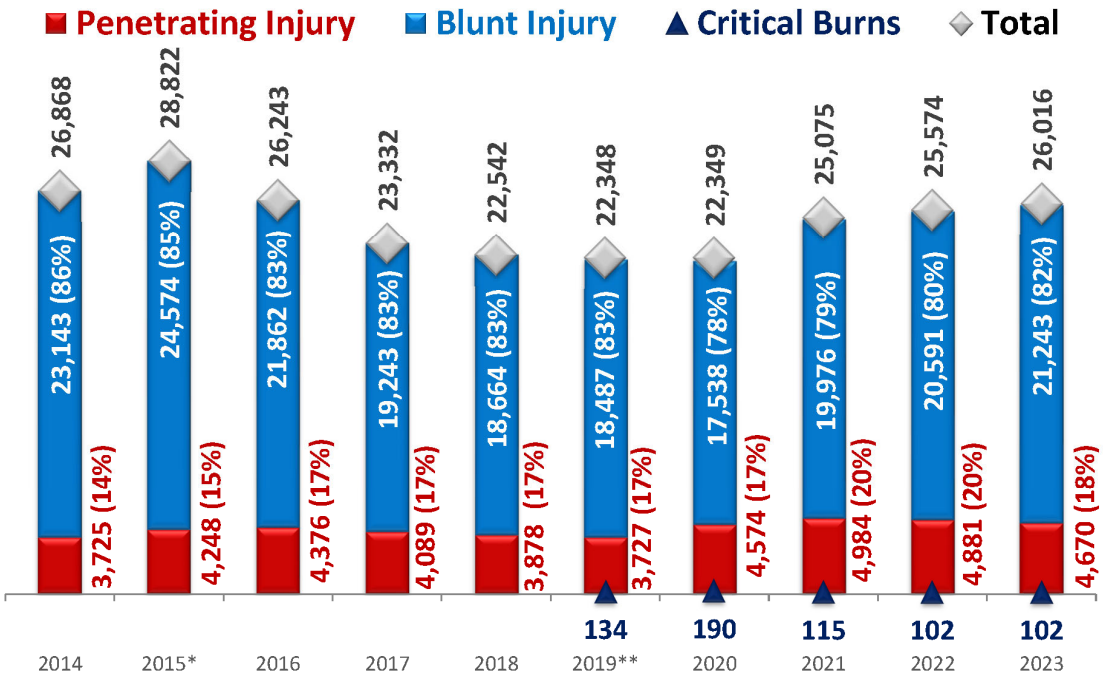


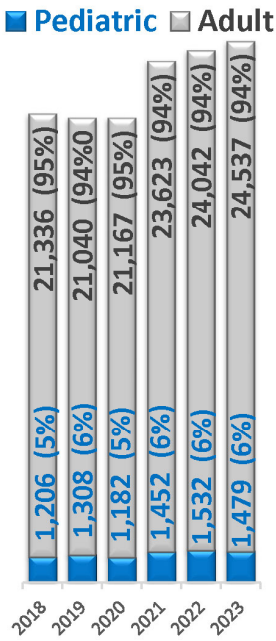
SPA 3




SPA 4
ED Admissions
ED Transfers
Discharges
100%
80%
60%
40%
20%
0%
11,099
8,235
3,820
15,373
7,551
3,618
12,065
7,343
2,927
13,946
7,587
6,206
9,719
14,046
4,965
13,385
6,670
3,914
n=23,154
2018
n=26,542
2019
n=22,335
2020
n=27,739
2021
n=28,730
2022
n=23,969
2023
SPA 5
7,338
1,447
1,238
6,467
2,420
3,904
7,652
2,290
3,190
7,997
2,338
3,055
3,344
4,821
2,593
3,240
3,514
2,990
n=10,023
2018
n=12,791
2019
n=13,132
2020
n=13,390
2021
n=10,758
2022
n=9,744
2023
SPA 6
8,294
3,001
4,610
18,080
3,365
7,228
13,585
2,724
6,653
14,523
2,715
6,461
14,681
4,020
8,478
14,281
3,237
3,934
n=15,905
2018
n=28,673
2019
n=22,962
2020
n=23,699
2021
n=27,179
2022
n=21,452
2023
SPA 7
5,777
2,516
2,324
4,829
2,689
1,977
3,943
2,218
1,930
6,257
2,301
1,941
5,152
1,571
2,708
6,190
1,716
2,809
n=10,617
2018
n=9,495
2019
n=8,091
2020
n=10,499
2021
n=9,431
2022
n=10,715
2023
SPA 8
15,692
2,707
3,976
18,177
6,730
4,340
15,612
5,544
2,148
15,599
5,199
3,660
15,934
7,958
3,485
11,502
9,229
4,673
n=22,375
2018
n=29,247
2019
n=23,304
2020
n=24,458
2021
n=27,377
2022
n=25,404
2023

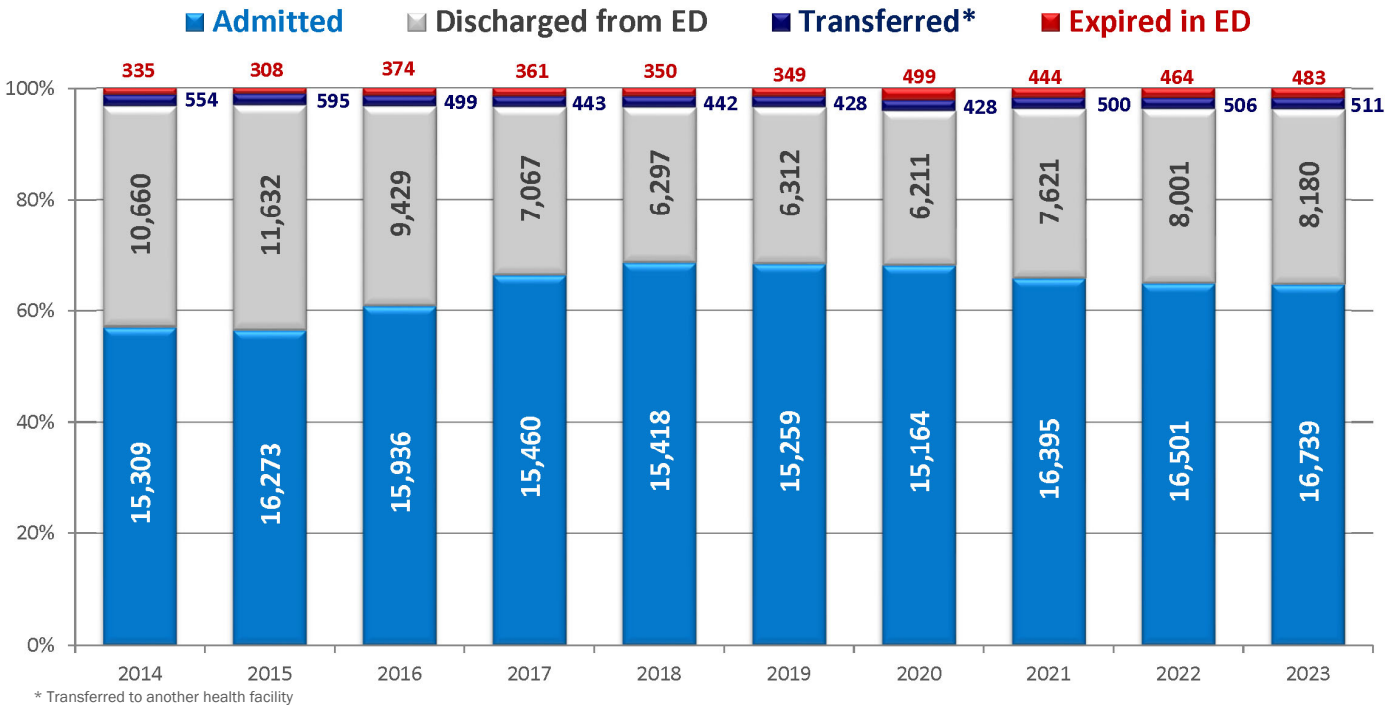
Trauma Center Volume (includes EMS transports and Walk-In patients who met trauma center criteria/guidelines)





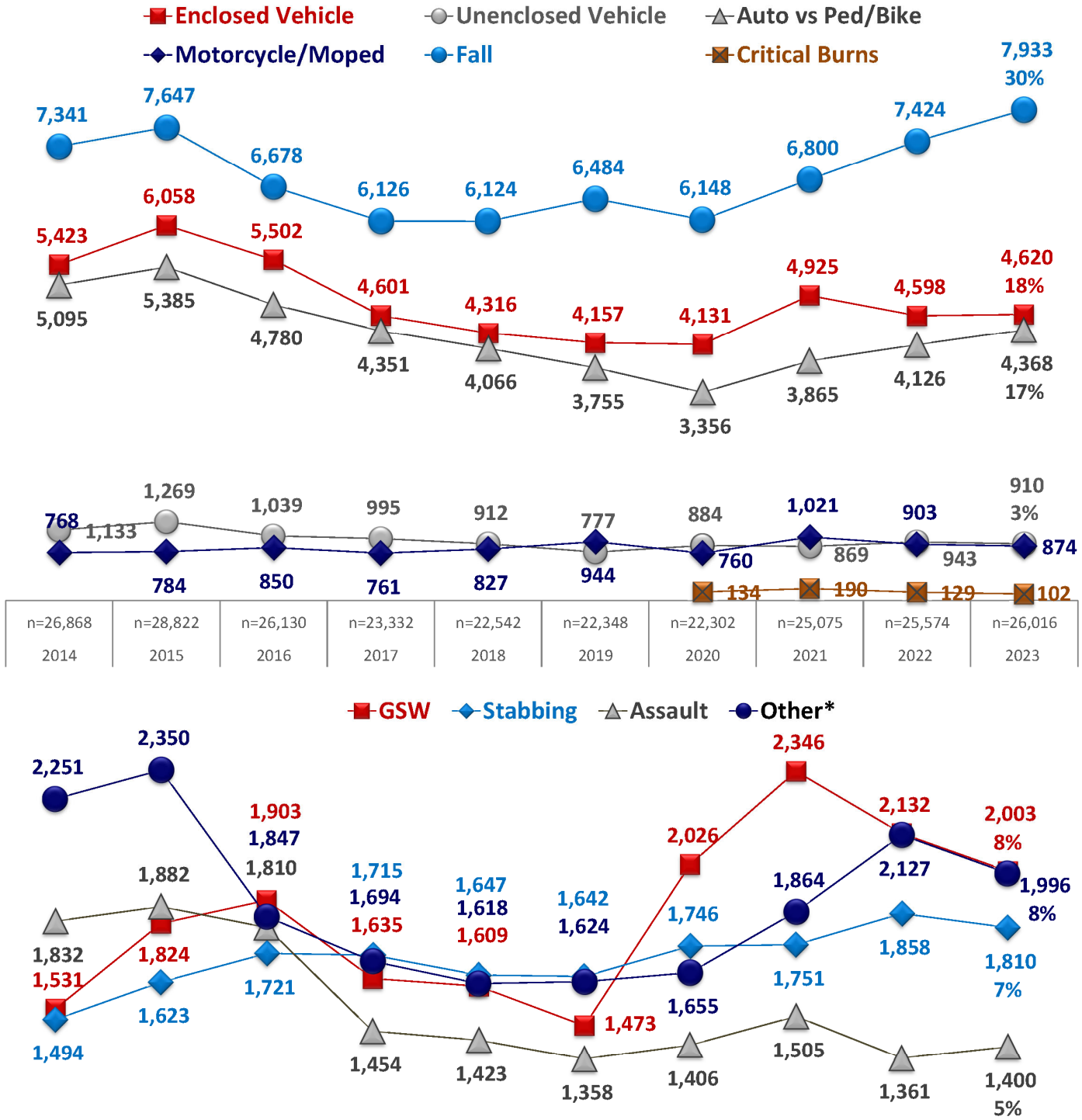
*2015 : Trauma Center Registry inclusion criteria was revised.
**2019: Critical Burns added as a Trauma Center Criteria

Patient Disposition of Trauma Center Patients



* Transferred to another health facility

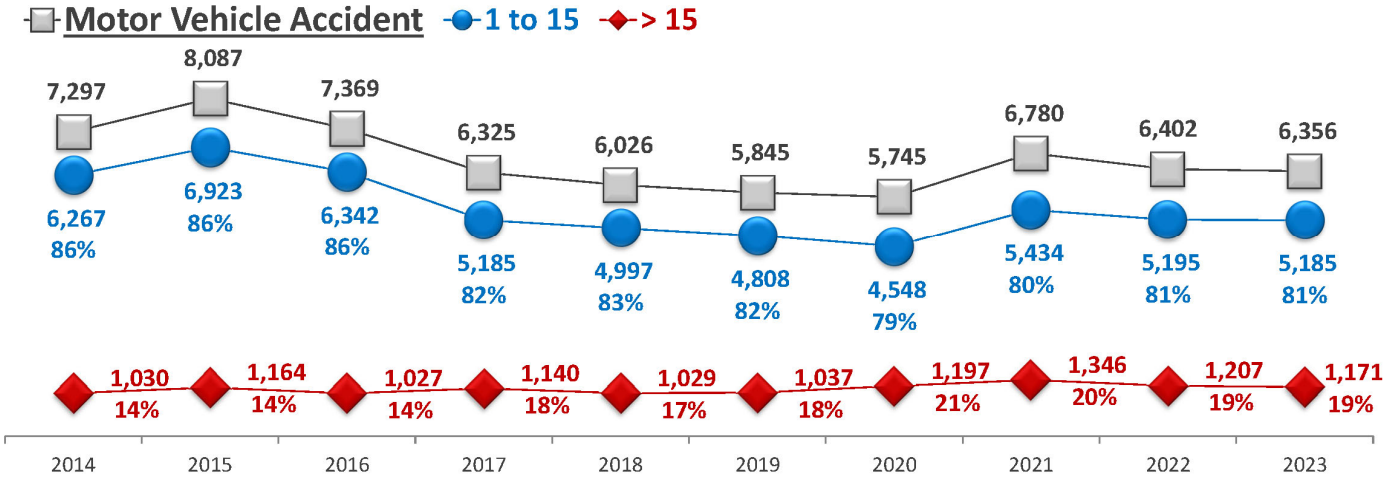
Mechanism of Injury: Patients Transported to Trauma Centers

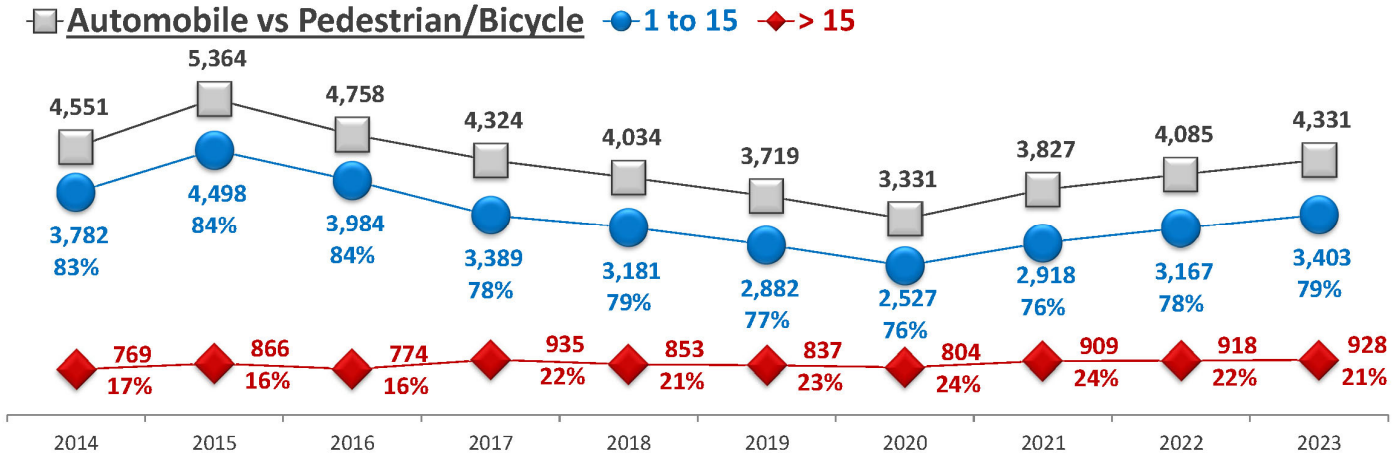


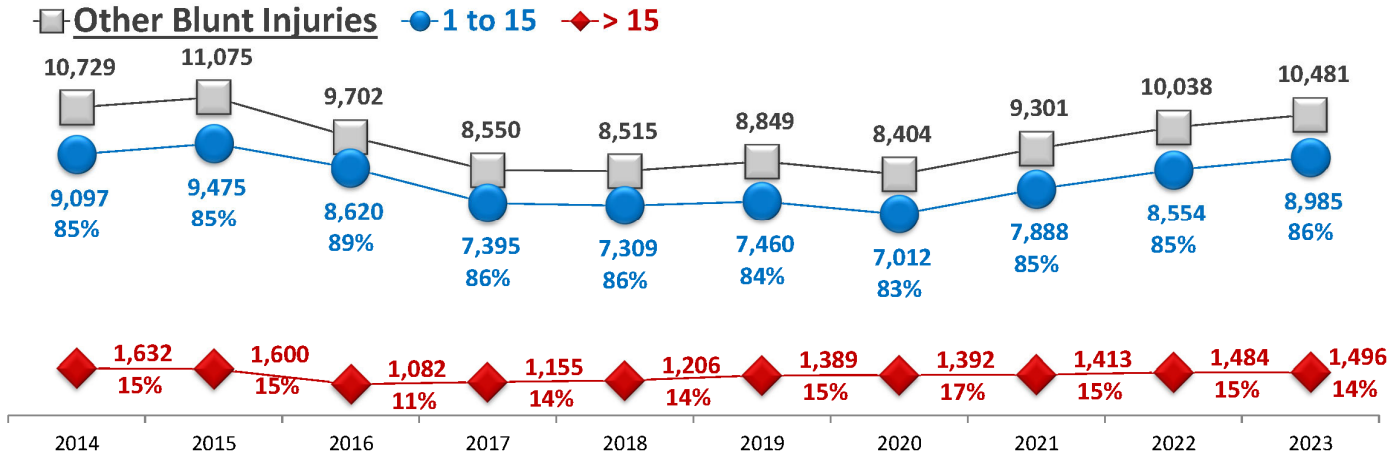
* Other: includes Sports, Work Related, Self-Inflicted, Unknown

Injury Severity Score by Mechanism of Injury

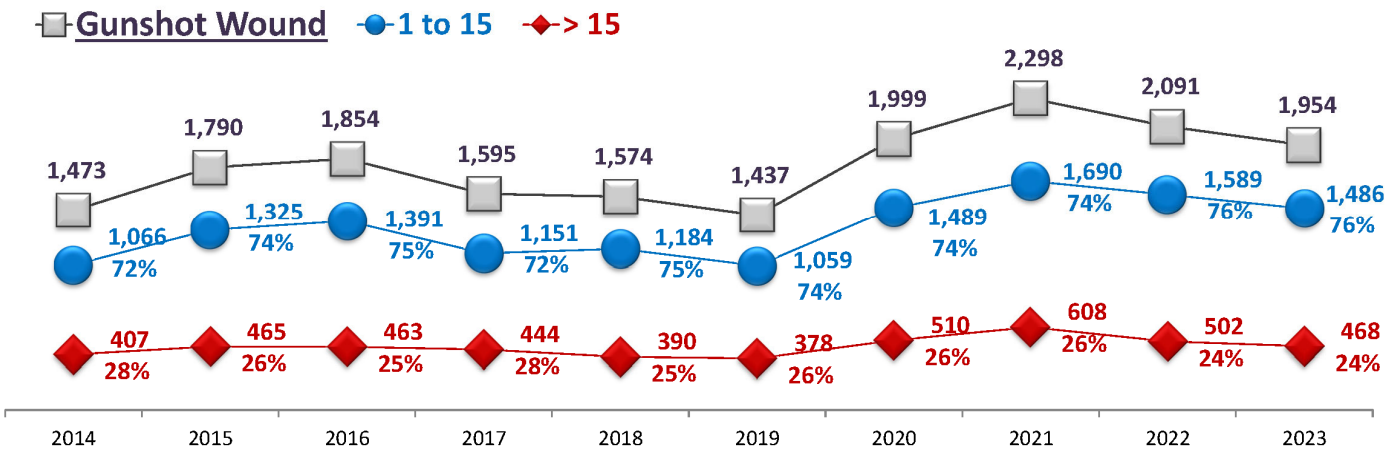
Injury Severity Score (ISS): Is an established medical score to assess trauma severity. It correlates with mortality, morbidity and hospitalization time after trauma. It is used to define the term major trauma. A major trauma (or polytrauma) is defined as the ISS being greater than 15.

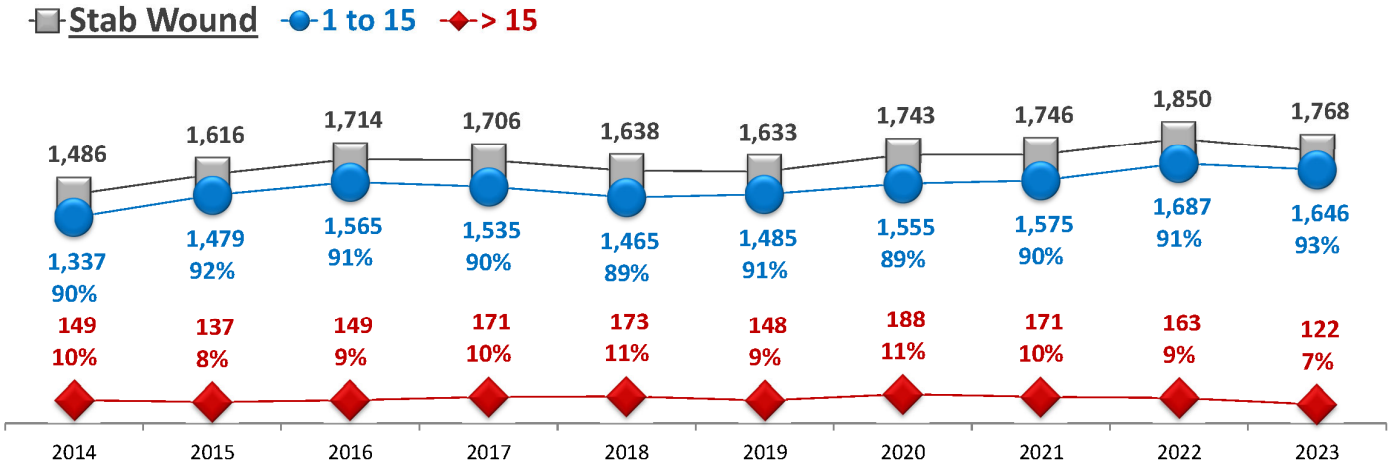


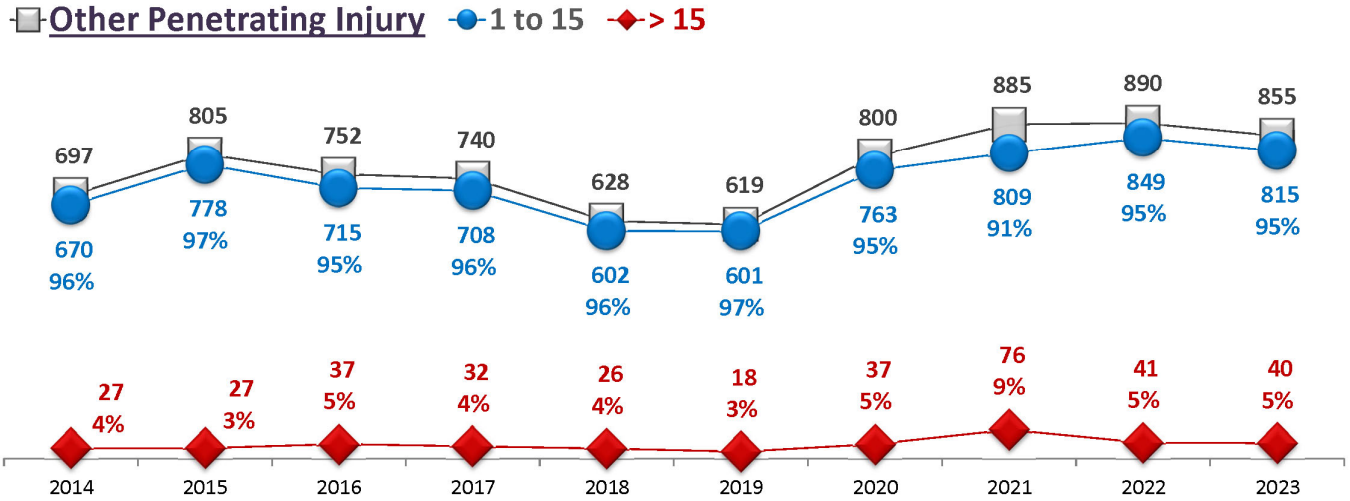




Injury Severity Score by Mechanism of Injury



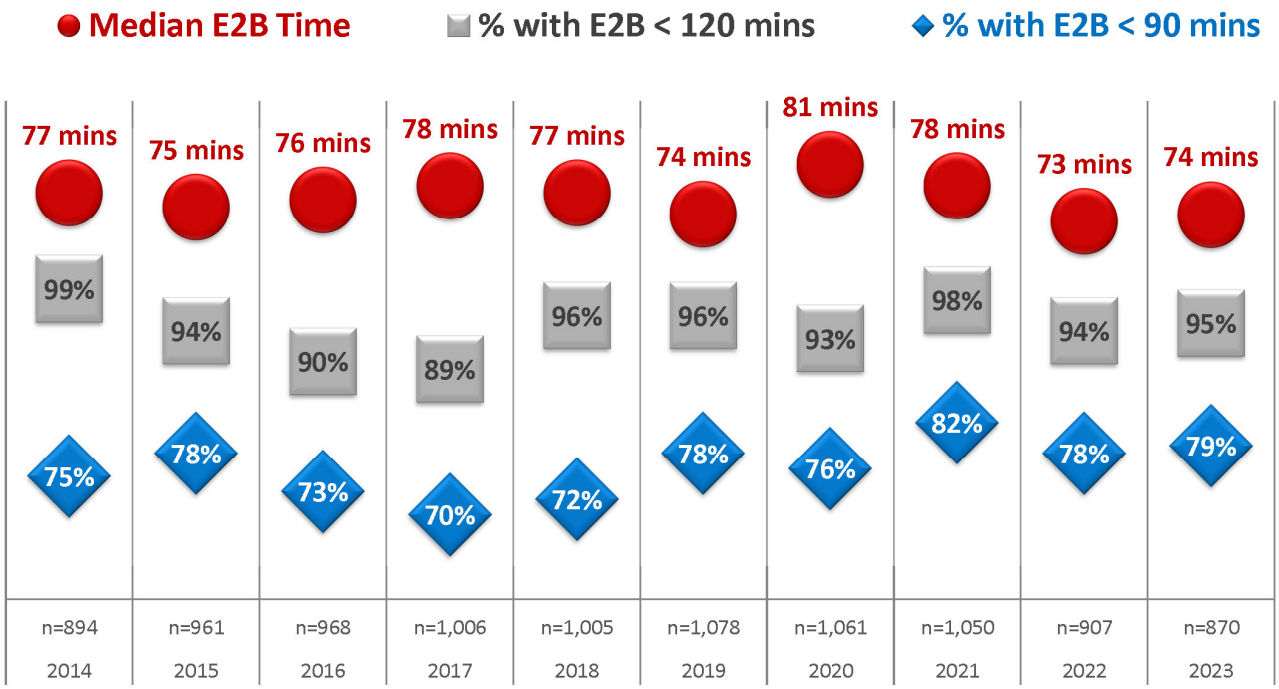




ST-Elevation Myocardial Infarction (STEMI)

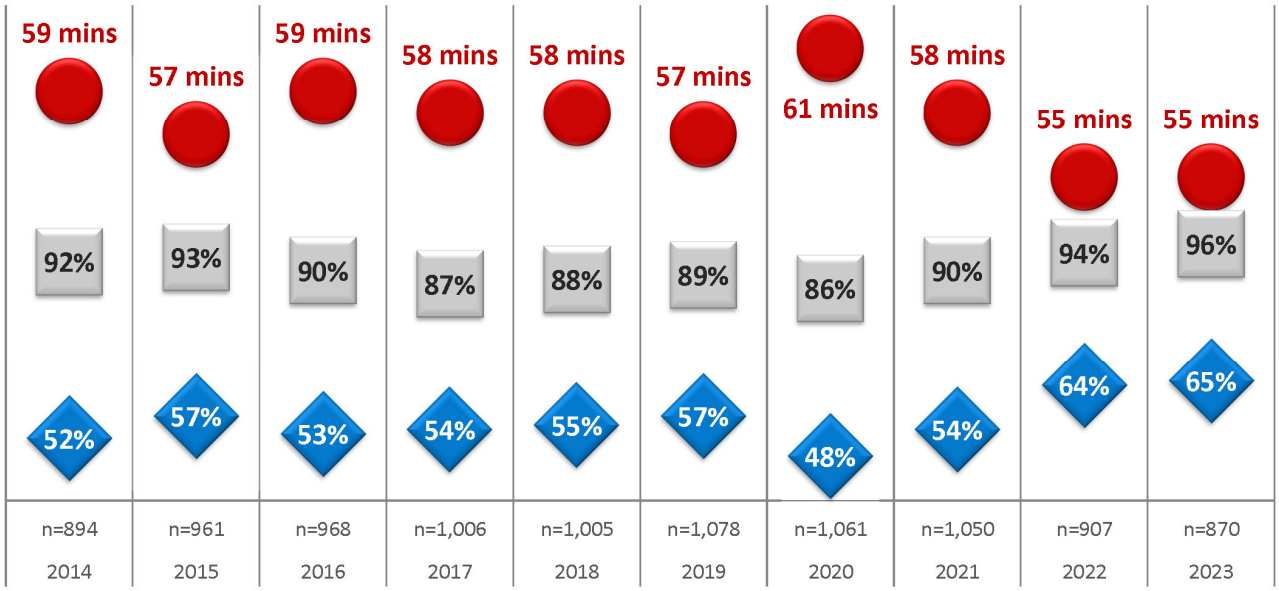
STEMI Receiving Center: EMS Medical Contact-to-Device (E2B) Time

LA County Target: within 120 minutes 90% of the time



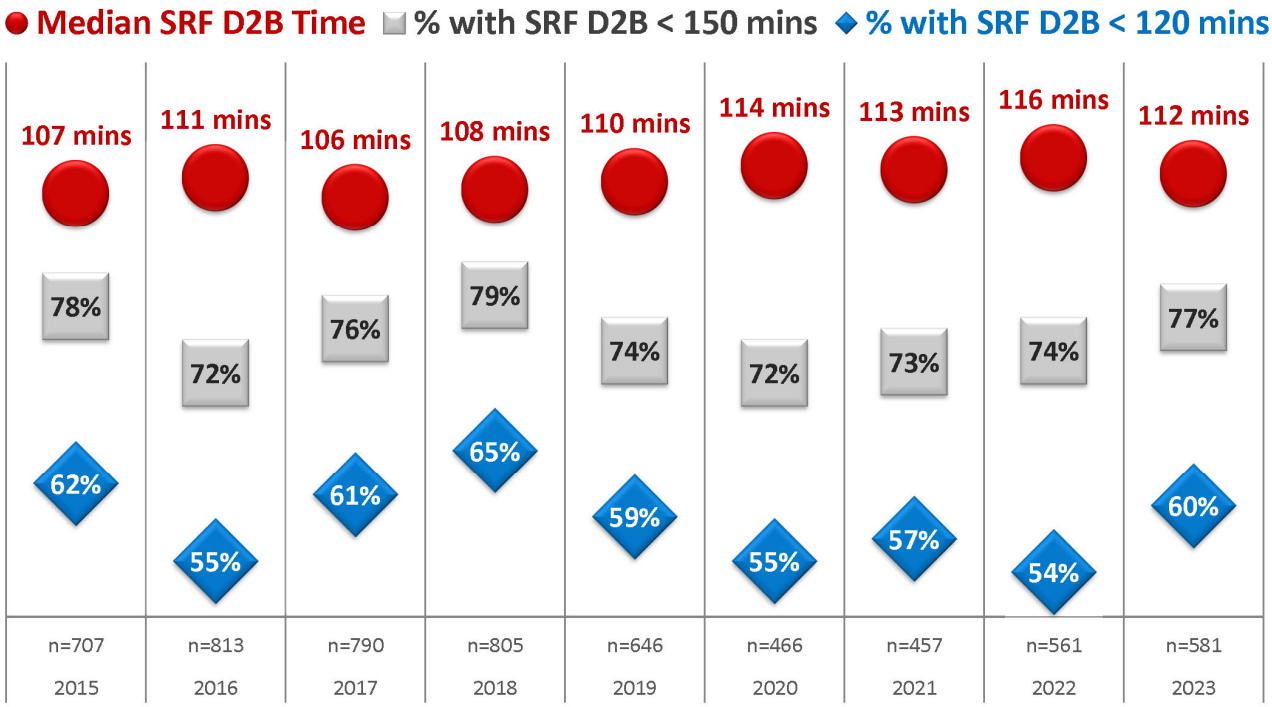
STEMI Receiving Center: Door-to-Device (D2B) Time

LA County Target: within 90 minutes 90% of the time



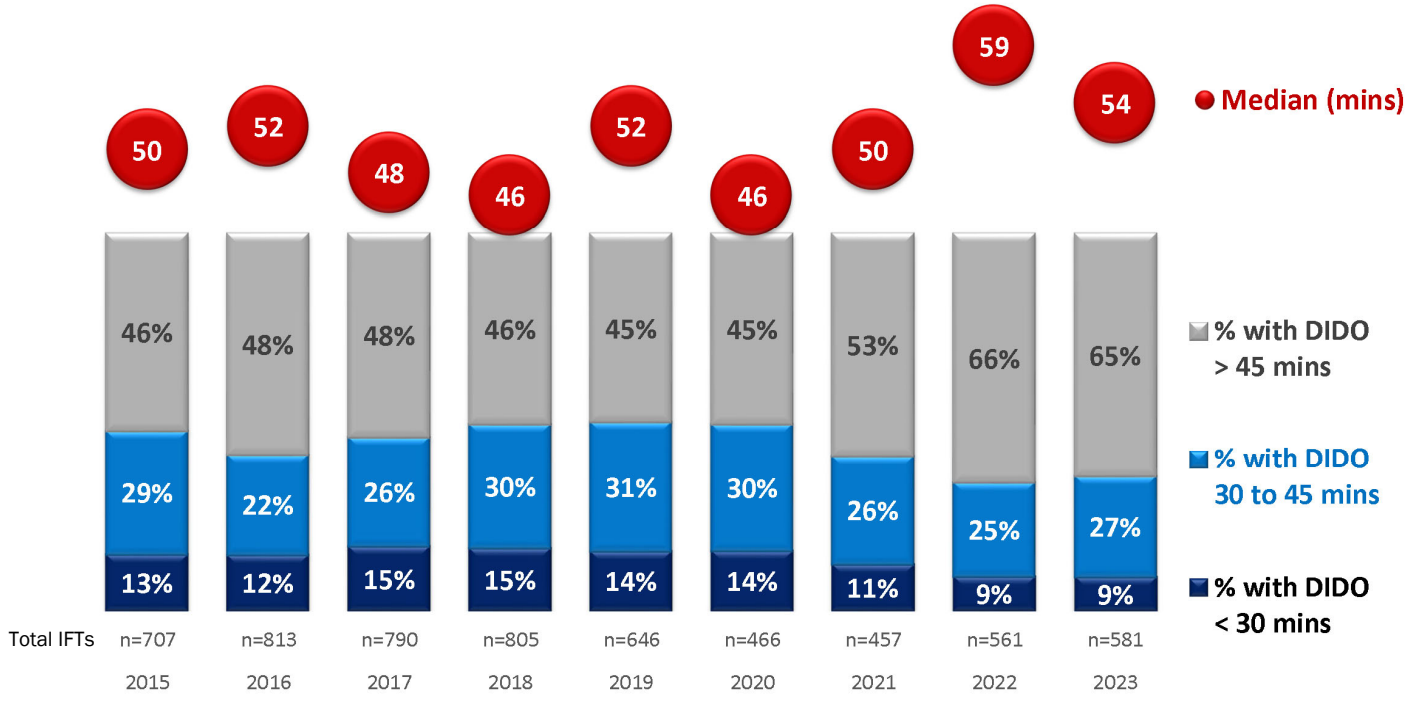
STEMI Referral Facility: Door-to-Device (D2B) Time

LA County Target: within 150 minutes 90% of the time



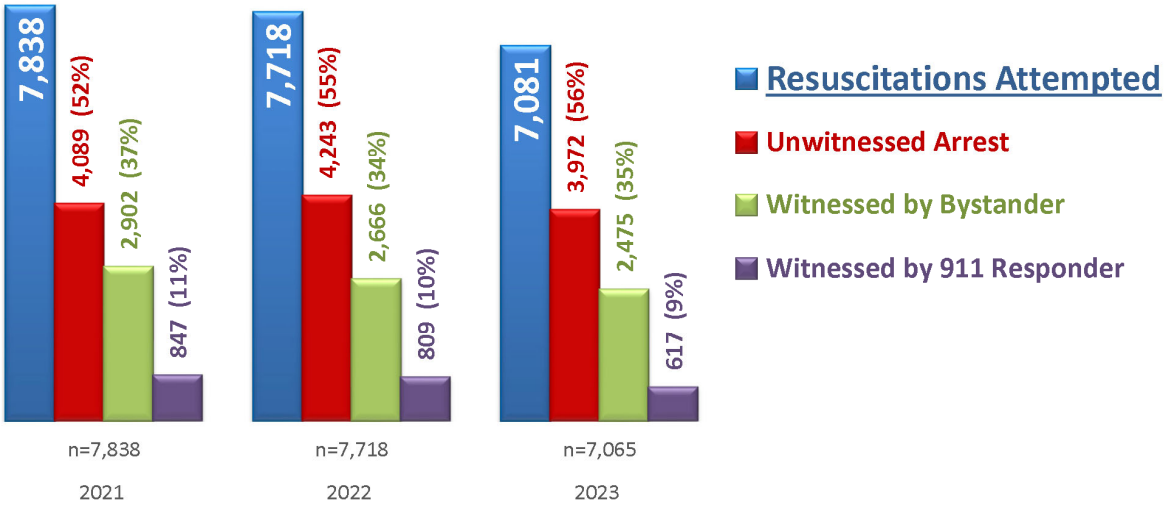
STEMI Referral Facility: Door-in Door-out (DIDO) Time

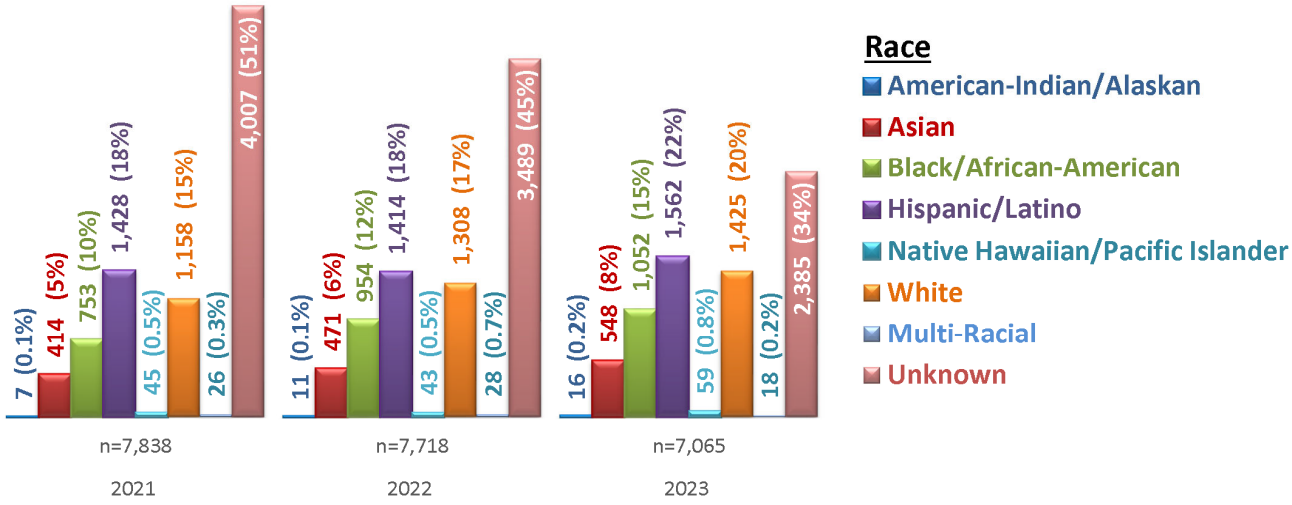
LA County Target: < 30 minutes

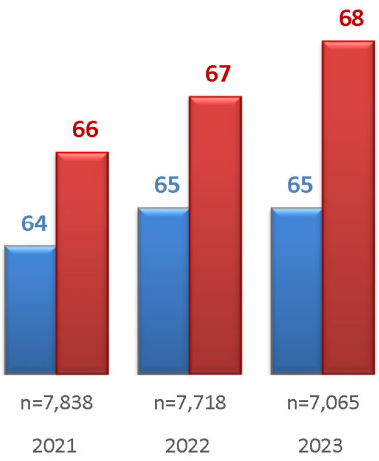


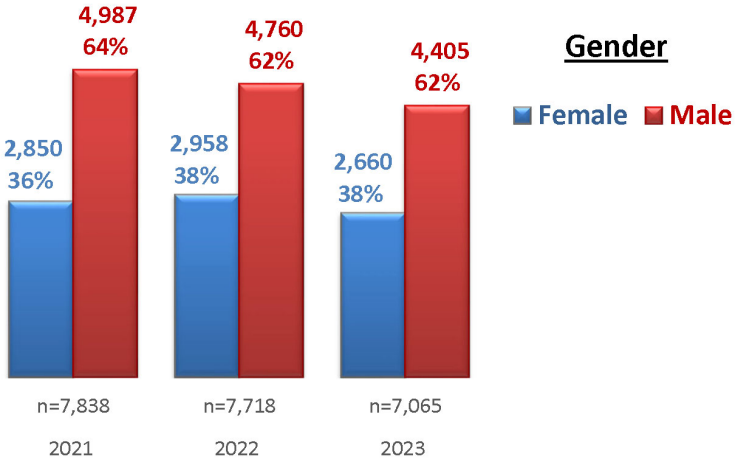
Out of Hospital Cardiac Arrest (OHCA)

Non-Traumatic Etiology



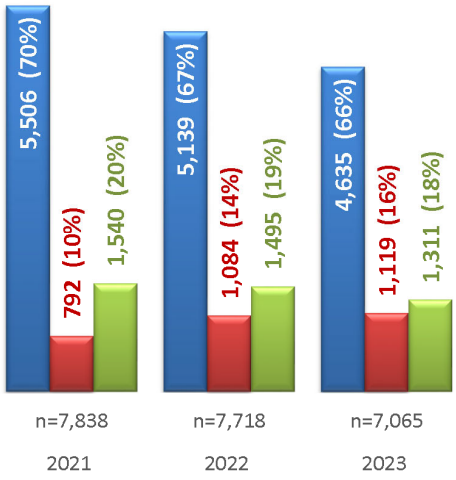






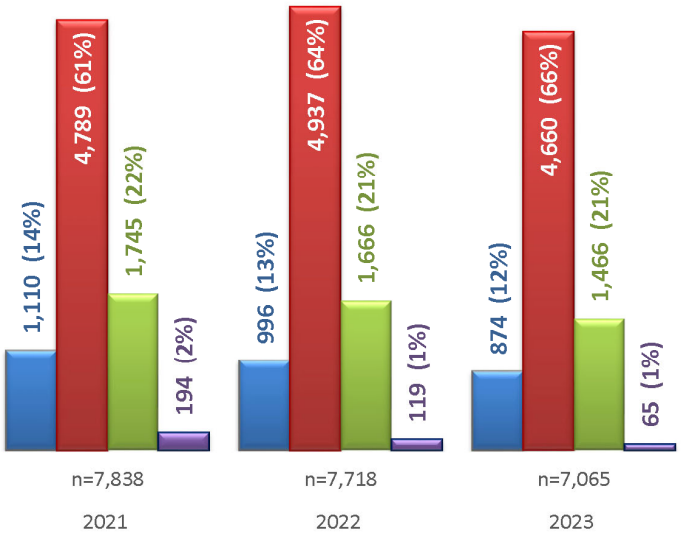
Data Source: Cardiac Arrest Registry to Enhance Survival

Arrest Location



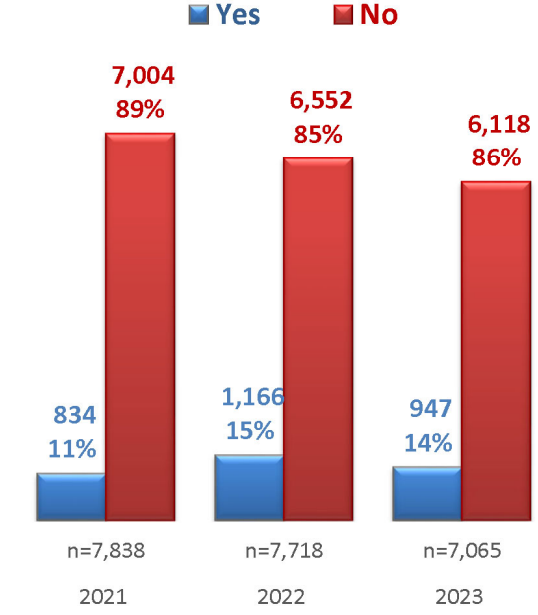
- Home/Residence
- Nursing Home
- Public Setting

First Arrest Rhythm

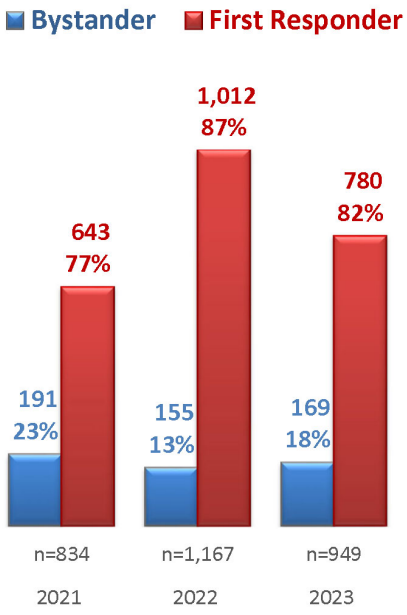


- Vfib/Vtach/Unknown Shockable Rhythm
- Asystole
- Idioventricular/PEA
- Unknown Unshockable Rhythm

Was an AED Applied prior to EMS Arrival?



Who First Applied AED?

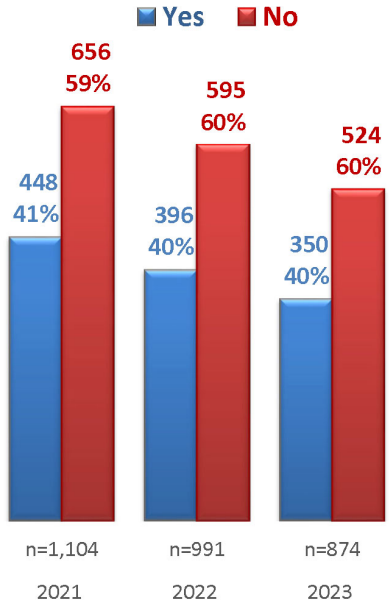


Out of Hospital Cardiac Arrest (OHCA)
Return of Spontaneous Circulation (ROSC)

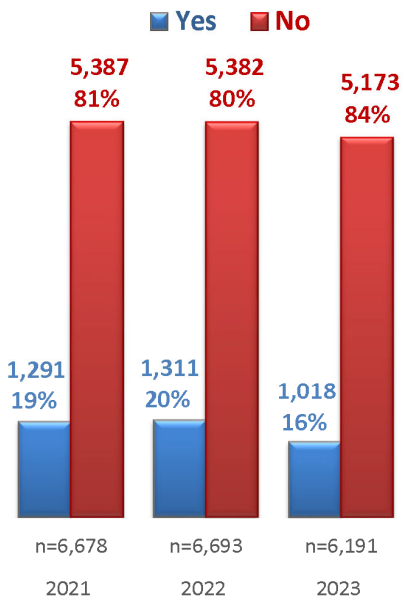
Who Initiated CPR?

Sustained ROSC All Patients

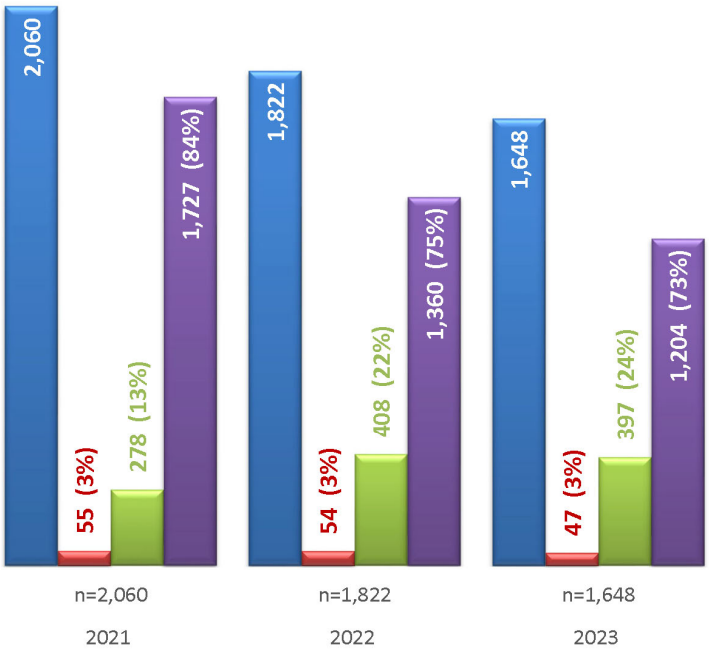
Sustained ROSC Shockable Rhythm



Sustained ROSC Non-Shockable Rhythm

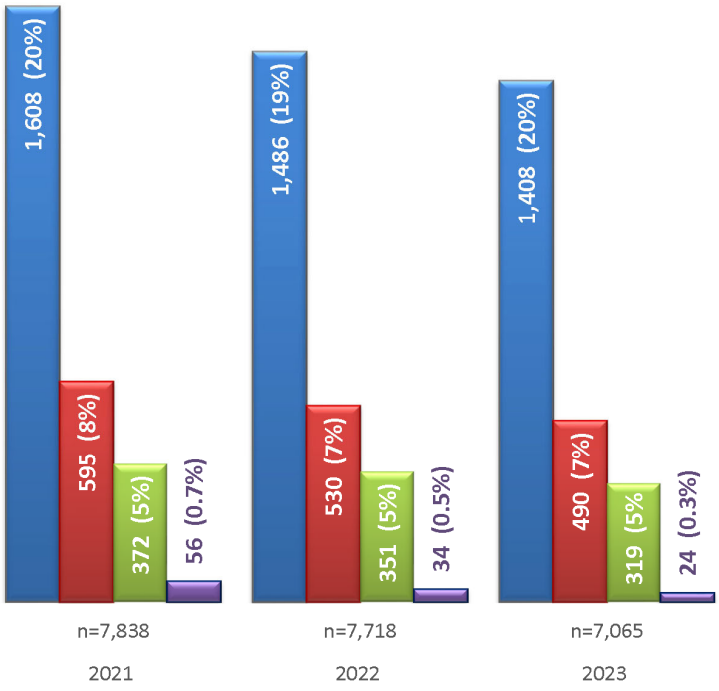


Data Source: Cardiac Arrest Registry to Enhance Survival



Who First Defibrillated the Patient?

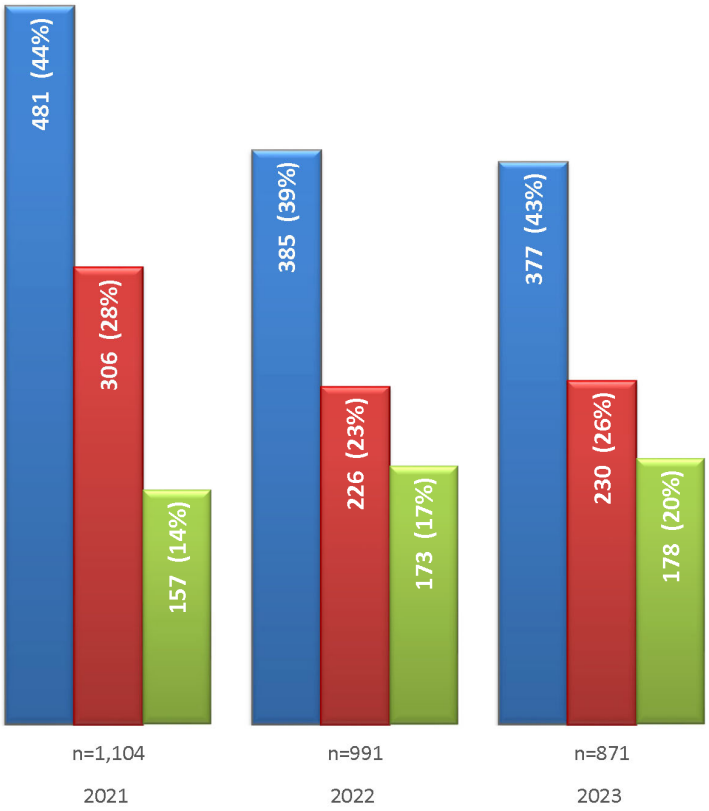
- Patients Defibrillated
- Bystander
- First Responder
- Responding EMS Personnel



Cardiac Arrest Outcome

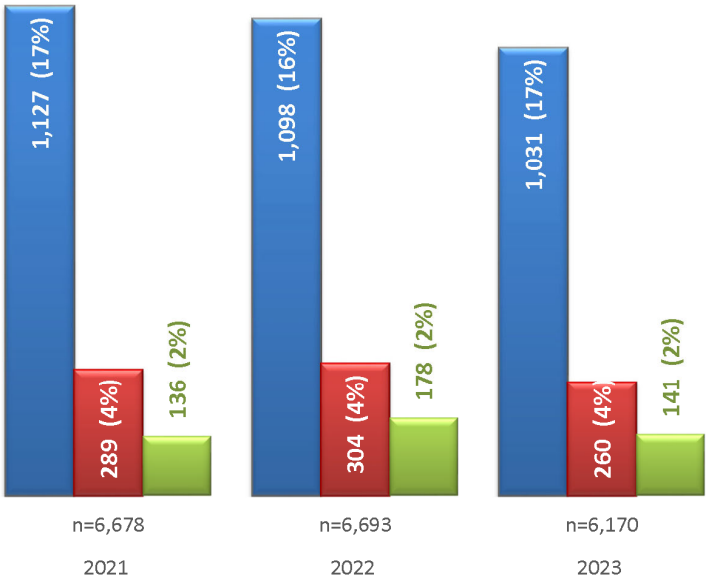
- Overall Survival to Hospital Admission
- Overall Survival to Hospital Discharge
- With Good or Moderate Cerebral Performance (CPC 1 or 2)
- Missing Hospital Outcome

Out of Hospital Cardiac Arrest (OHCA)



Cardiac Arrest Outcome: Shockable Rhythm

- Overall Survival to Hospital Admission
- Overall Survival to Hospital Discharge
- With Good or Moderate Cerebral Performance (CPC 1 or 2)

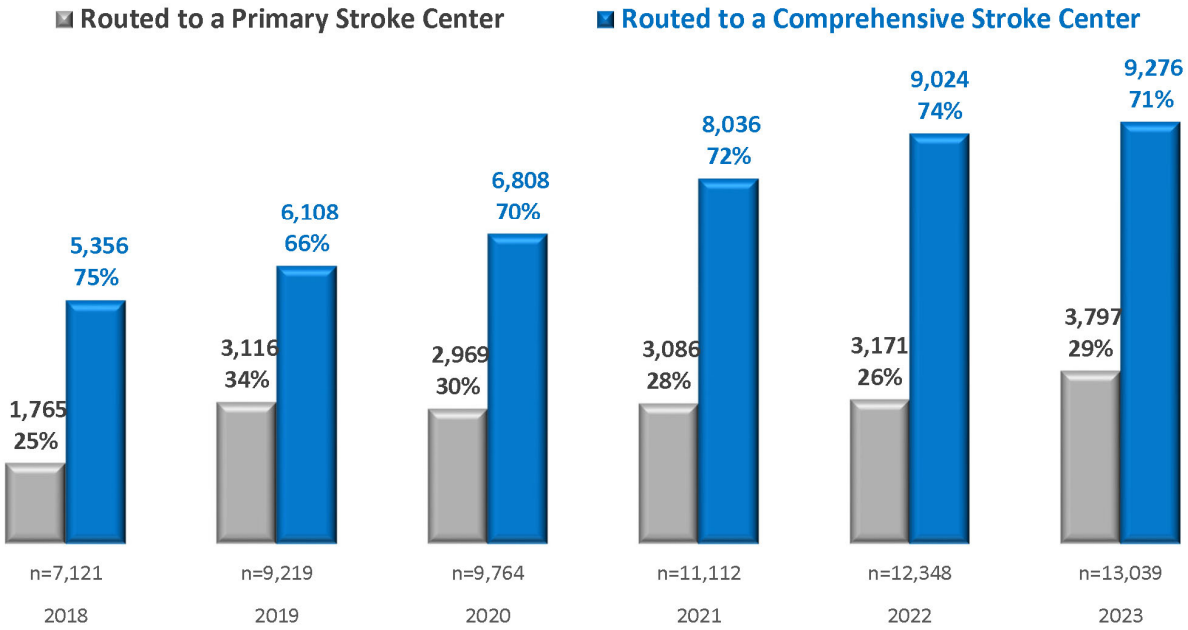


Cardiac Arrest Outcome: Non-Shockable Rhythm

- Overall Survival to Hospital Admission
- Overall Survival to Hospital Discharge
- With Good or Moderate Cerebral Performance (CPC 1 or 2)

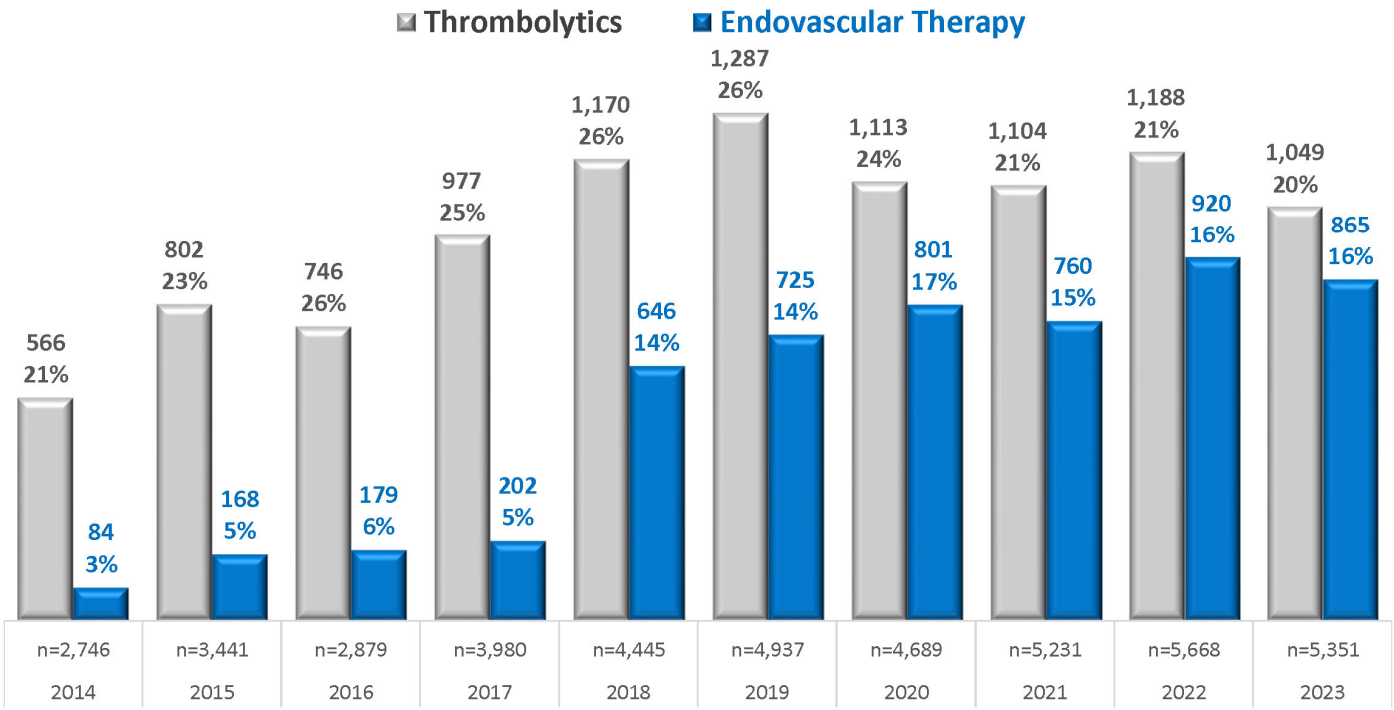
Suspected Stroke Patient Destination

The routing 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.

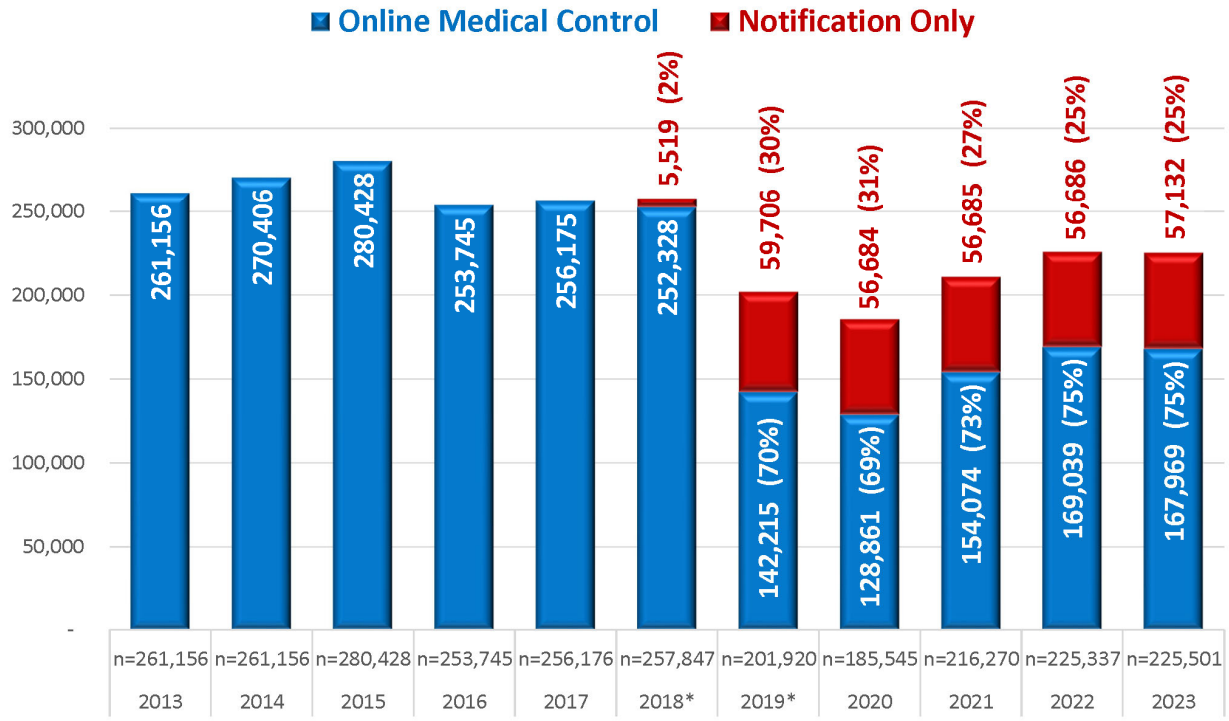


This chart is based on the Stroke Center Designation of the receiving facility, regardless of routing criteria.

Treatment—All Ischemic Stroke



Paramedic Base Hospital Contact



* Phased-in implementation of New Treatment Protocols started in July 1, 2018 and was fully implemented in April 1, 2019. The New Treatment Protocols reduced the number of EMS responses requiring online medical control.

EMS AGENCY

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