



## Trauma 2016: Yesterday, Today, Tomorrow

Howard Backer, MD, MPH, FACEP  
Director, California Emergency Medical Services Authority

## California Trauma System

<b>Trauma Centers</b>	Patient care, quality Trauma Director and Coordinator Medical staff
<b>Local EMS Agency</b>	Medical direction, policies and procedures Plan, implement, evaluate Medical Director
<b>RTCC</b>	Regional coordination, QA/PI Chair plus TC and LEMSA staff
<b>EMSA</b>	Regulation, data, quality, oversight Trauma Coordinator

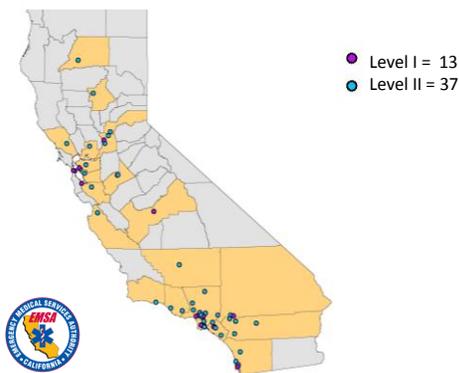
## State Trauma Leaders

- Bonnie Sinz, RN  
State Trauma Coordinator
- Robert Mackersie, MD, FACS  
Chair, Trauma Advisory Committee
- RTCC Chairs
  - David Shatz, North
  - Adella Garland, Bay Area
  - Jim Davis, Central
  - John Steele, South East
  - Gill Cryer, South West

### TRAUMA CENTERS BY DESIGNATION

Level I Pediatric Trauma Center Only	2
Level II Pediatric Trauma Center Only	2
Level I Trauma Center & Level I Pediatric Trauma Center	4
Level I Trauma Center & Level II Pediatric Trauma Center	4
Level II Trauma Center & Level II Pediatric Trauma Center	4
Level I Trauma Center	5
Level II Trauma Center	33
Level III Trauma Center	13
Level IV Trauma Center	11
<b>TOTAL:</b>	<b>78</b>

## Level I and II Trauma Centers



Access to level 1 and 2 adult trauma centers within 60 minutes by ground or air

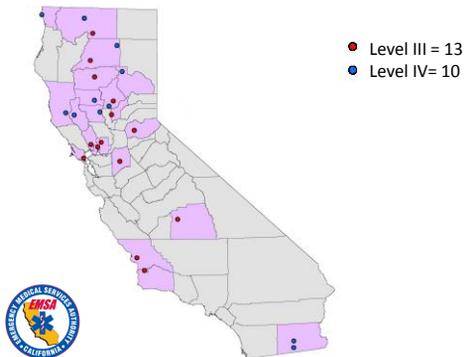
55.5% of land area  
97.7% general population

(Adding level 3 trauma centers covers 59% of land and 97.8% of population)

UP Trauma Maps



### Level III and IV Trauma Centers



### De-designated Trauma Centers

Facility	County	Level	Year
Orchard	Butte	4	2015
Oroville	Butte	3	2015
Colusa Regional	Colusa	4	2015
Mayers	Shasta	4	2015

### Newest California Trauma Centers

Facility	County	Level	Year
San Joaquin	San Joaquin	3	2013
Marion	Santa Barbara	3	2013
Natividad	Monterey	2	2015
Children's	Orange	2 Ped	2015
Children's	Madera	2 Ped	2016
Ridgecrest	Kern	4	2016

### Today's Trauma Center Environment - California

- According to a 2002 California HealthCare Foundation report, there were 46 trauma centers (all levels) throughout California in 2001.
- Number of trauma centers in California rose from 44 to 46 between 1990 and 2001, a 5 percent increase.
- However, between 2001 and July of 2014, the number of trauma centers rose from 46 to 76, a 65 percent increase.



SOURCE: California HealthCare Foundation, CA EMS Authority, 2014

From Abaris Webinar March 2016: Trauma Centers Benefits and Challenges

### Pediatric Trauma Centers



Access to level 1 and 2 pediatric trauma centers within 60 minutes by ground or air

37.1% of land area  
92.6% general population

UP Trauma Maps



## Specialty care systems

- Trauma, EMSC, Stroke, STEMI
- Validate Trauma System model
- Integration across jurisdictions
  - Locally developed
  - Regionally coordinated
  - State oversight, regulations, data,
- Integration across healthcare spectrum
  - 911, pre-hospital, ED, hospital, rehabilitation
  - Unique opportunity for QA/QI

## Triple Designation Specialty Centers Trauma, Stroke, STEMI (N= 30)



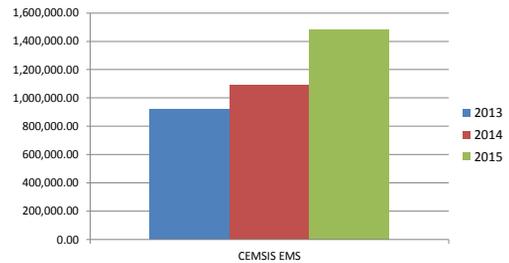
## Trauma Incident Rate

An Abaris 2006 study of the incident rate in California found that the trauma incident rate is on average 2.28 trauma cases per 1,000 population, which can be applied to the nation as a whole.

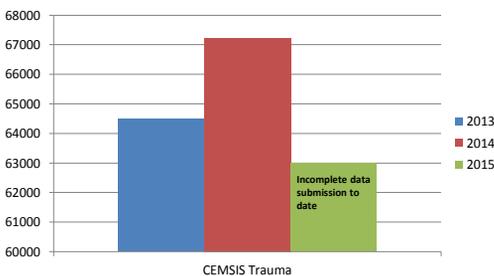
California County Trauma System Comparison 2006 Trauma Incident Rate (per 1,000 Population)			
Local EMS Agency	Total Trauma	Population	Utilization Rate per 1,000 Population
Marin	931	253,838	3.67
San Diego	30,957	3,064,433	3.86
Alameda	4,988	1,509,981	3.31
Sacramento	4,480	1,367,771	3.23
San Francisco <sup>1</sup>	3,296	1,074,727	3.07
Santa Clara <sup>2</sup>	5,060	1,780,449	2.84
Coastal Valleys <sup>3</sup>	1,800	702,382	2.56
Northern California <sup>4</sup>	1,562	623,803	2.50
Riverside <sup>5</sup>	4,895	1,966,607	2.49
Inland Counties <sup>6</sup>	3,479	1,406,291	2.47
Central California <sup>7</sup>	3,002	1,613,274	1.86
Los Angeles	18,632	10,257,994	1.82
Sierra - Sacramento <sup>8</sup>	1,331	768,257	1.73
Santa Barbara <sup>9</sup>	1,638	1,117,527	1.65
Kern	1,263	779,490	1.62
Contra Costa	1,611	1,030,732	1.56
Orange	3,531	2,071,524	1.71
Average	3911	2,061,344	2.28
Average Utilization Rate			2.28
Regional Designation			0.92

From Abaris Webinar March 2016: Trauma Centers Benefits and Challenges

## CEMSIS EMS Data



## CEMSIS Trauma Data



## CA Trauma System (2006 Trauma Plan) Issues identified

- The current trauma care delivery system is optional, locally based, and decentralized.
  - EMSA does not have resources to monitor regulatory compliance.
- No statewide information system on which to base program or policy decisions regarding trauma care.
- Rural California faces barriers to trauma care due to limited access and transportation.
- The cost of 24/7/365 readiness is not captured by cost accounting, so is not recovered.



## Trauma System Goals California Trauma Plan 2006

- ± Statewide trauma data system
- ± Formalize roles for RTCCs
- × Determine funding opportunities for maintenance and development
- ✓ Capability of mass casualty care
- ✓ Develop level 3 and 4 centers
- ? Rapid re-triage from outlying hospitals
  - × Transfer centers to coordinate optimal patient destination

## Draft Trauma Plan 2015

- Evaluation and recommendations on 15 system components
- Based on
  - HRSA benchmarks
  - ACS guidance document
  - California trauma experts
- Key recommendations
  1. Strengthen State Trauma Leadership
  2. Develop Statewide Trauma Registry
  3. Consider Trauma System Funding

## ACS Survey

- Two-tier system creates significant variability
  - Creates benefits and problems
  - LEMSAs functionally isolated
- Excellent leadership
- State has limited resources
  - Depends excessively on volunteerism
- Well-written and designed trauma plan
- Data getting better but not being optimally used

## ACS Core Recommendations

- Better balance between central and local authority and consistency
- Use data
  - Create templates for reporting data, local system quality and activities
- Support regional structure
- Seek stable funding and personnel resources
- Obtain approval for Trauma Plan but don't wait to implement
- Update regulations

## HSC 1798.161 Trauma Regulations

The authority shall submit draft regulations specifying minimum standards for implementation of regional trauma systems.

These regulations ... shall ensure that the trauma care system is fully coordinated with all elements of the existing emergency medical services system.

- (1) Prehospital care management guidelines for triage and transportation ....
- (2) Flow patterns of trauma cases and geographic boundaries ...
- (3) The number of trauma cases necessary to assure quality care.
- (4) The resources and equipment needed by trauma facilities.
- (5) The availability and qualifications of the health care personnel.
- (6) Data collection regarding system operation and patient outcome.
- (7) Periodic performance evaluation ...