The EMS Agency's is charged with the coordination of the Emergency Medical System for Los Angeles County, one of the busiest and largest systems in the nation. Coordination of the system ensures that a person calling 9-1-1 receives uniformly high quality care and transport to the appropriate hospital, from the ocean to the mountains and desert. The geographic size and complexity make this a difficult task yet effectively managed due to the dedication of thousands of our EMS personnel working around the clock to provide quality care.

Since its inception in the early 1970's, as one of the first providers of paramedic services, the County officials and consultants recognized the importance of data in systems management. Our current data base contains over 12 million patient records, processed through hard copy and hand entered into a computer data system. Over 600,000 patient care records are processed each year with little change since 1970. Technological advances and healthcare reform are rapidly leading EMS from a paper based system to electronic. While it may take several years for the complete transition, we are already seeing positive effects from the rapid transmission of our data. Without a robust and real time data, management of our system is always playing “catch” up with system wide events.

Our goals for this report continue to be:

**GOAL 1** - Provide EMS data to our participants, encourage them to recognize the importance of their data in managing our system and optimizing patient care.

**GOAL 2** - Highlight the detrimental impact of data gaps on our ability to make data driven decisions and the limitations they place on evaluating quality and outcomes of patient care.

**GOAL 3** - Document how the EMS system design improves patient outcome and parallels the healthcare needs of the community and addresses the leading causes of death and disability (heart attack, stroke, and trauma) in Los Angeles.

We would like to thank the Board of Supervisors, Dr. Mitch Katz, Director of the Department of Health Services and the EMS Commission for their ongoing support of the system. Most significantly we need to thank Richard Tadeo for his efforts in compiling and designing this comprehensive report.
Emergency Department Volume

Patients Per Treatment Bay

Request for ALS Unit Diversion due to Emergency Department Saturation

100% equals the total number of hours per year.
The increase in the 2012 trauma volume is attributed to the revision of the trauma triage criteria and guidelines that became effective July 1, 2012.
Throughout its 30-year history in Los Angeles County, The Trauma System has revised its criteria and standards to ensure that injured patients requiring the care of a trauma center are appropriately triaged and transported. While some criteria were retired (i.e., Abnormal Capillary Refill, No Spontaneous Eye Opening, Precarious Medical History), new standards were added (i.e., Blunt Head with a Glasgow Coma Scale less than or equal to 14, Paramedic Judgment). The most recent changes to the trauma center criteria and guidelines were implemented in July 2012 to align more closely with the recommendations of the Centers for Disease Control and Prevention. These recommendations were published in its Morbidity and Mortality Weekly Report: Guidelines for Field Triage of Injured Patients—Recommendations of the National Expert Panel on Field Triage. The EMS Agency continually evaluates the impact of these changes to the system.
Return of Spontaneous Circulation (ROSC)

Total Patients (n=1289)

Therapeutic Hypothermia vs No Therapeutic Hypothermia

ROSC Data:
January 1, 2011
to
June 30, 2012

Therapeutic Hypothermia: n=510/903 (56%)

<table>
<thead>
<tr>
<th>Cerebral Performance</th>
<th>V-Tach/V-Fib: n=199/510 (39%)</th>
<th>Non V-Tach/V-Fib: n=311/510 (61%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Lived</td>
<td>% Lived</td>
</tr>
<tr>
<td>1 - Good Cerebral performance</td>
<td>71</td>
<td>36%</td>
</tr>
<tr>
<td>2 - Moderate Cerebral Disability</td>
<td>13</td>
<td>7%</td>
</tr>
<tr>
<td>3 - Severe Cerebral Disability</td>
<td>21</td>
<td>11%</td>
</tr>
<tr>
<td>4 - Coma/vegetative state</td>
<td>15</td>
<td>8%</td>
</tr>
<tr>
<td>5 - Brain Death</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td>ND - Not Documented</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>64%</td>
</tr>
</tbody>
</table>

No Therapeutic Hypothermia: n=393/903 (44%)

<table>
<thead>
<tr>
<th>Cerebral Performance</th>
<th>V-Tach/V-Fib: n=70/393 (18%)</th>
<th>Non V-Tach/V-Fib: n=323/393 (82%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Lived</td>
<td>% Lived</td>
</tr>
<tr>
<td>1 - Good Cerebral performance</td>
<td>17</td>
<td>24%</td>
</tr>
<tr>
<td>2 - Moderate Cerebral Disability</td>
<td>5</td>
<td>7%</td>
</tr>
<tr>
<td>3 - Severe Cerebral Disability</td>
<td>7</td>
<td>10%</td>
</tr>
<tr>
<td>4 - Coma/vegetative state</td>
<td>7</td>
<td>10%</td>
</tr>
<tr>
<td>5 - Brain Death</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>ND - Not Documented</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>57%</td>
</tr>
</tbody>
</table>
**EMS SYSTEM REPORT**

**ROSC Volume by Gender and Ethnicity**

- **Female Patients with ROSC**
  - Therapeutic Hypothermia: 84 (37%)
  - NO Therapeutic Hypothermia: 141

- **Male Patients with ROSC**
  - Therapeutic Hypothermia: 156 (40%)
  - NO Therapeutic Hypothermia: 232

The chart shows the distribution of ROSC volume by gender and ethnicity.
**DATA FACTS**

**STEMI Receiving Center (SRC) Volume**

- Cath Lab Activations [ED & Prehospital]
- Cath Lab Cancelations
- Patients who received PCI
- Cath Lab without PCI

**SRC Cath Lab Activations with 12-Lead ECG Transmission**

- Total Prehospital ECG Transmissions
- Canceled Prehospital Cath Lab Activations
- Canceled Activations WITHOUT ECG Transmission
- Cancelled Activation WITH ECG Transmission
**SRC Volume by Gender and Ethnicity**  
**Calendar Year:** 2012

- **Male Patient with Prehospital ECG = STEMI**
  - White: 1073
  - Black: 351
  - Hispanic: 426
  - Asian/Pacific: 221
  - Native American: 3
  - Other: 107

- **Male Patient who received Percutaneous Coronary Intervention (PCI)**
  - White: 481 (45%)
  - Black: 74 (21%)
  - Hispanic: 77 (32%)
  - Native American: 1
  - Other: 55 (51%)

- **Female Patient with Prehospital ECG = STEMI**
  - White: 585
  - Black: 199
  - Hispanic: 227
  - Asian/Pacific: 100
  - Native American: 3
  - Other: 49

- **Female Patient who received Percutaneous Coronary Intervention (PCI)**
  - White: 161 (27%)
  - Black: 28 (14%)
  - Hispanic: 68 (30%)
  - Asian/Pacific: 31 (31%)
  - Native American: 3
  - Other: 5 (10%)
**DATA FACTS**

**Interfacility Transfer (IFT) from STEMI Referral Facility (SRF) to SRC**

**SRC Timeliness of Care**  
*(Median in minutes)*

<table>
<thead>
<tr>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>77</td>
<td>75</td>
<td>76</td>
<td>73</td>
<td>77</td>
<td>80</td>
<td>78</td>
<td>82</td>
<td>79</td>
<td>77</td>
<td>80</td>
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<tr>
<td>58</td>
<td>57</td>
<td>59</td>
<td>58</td>
<td>56</td>
<td>28</td>
<td>26</td>
<td>25</td>
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<td>26</td>
<td>25</td>
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<td></td>
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<tr>
<td>19</td>
<td>19</td>
<td>17</td>
<td>19</td>
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<td>19</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ED Door to Artery Opening**

**EMS Medical Contact to Artery Opening**

**Cath Lab to Artery Opening**

**ED Door to Cath Lab**

**EMS Medical Contact to ED Door**

No. of STEMI IFTs

No. of IFTs that did not receive PCI
The "at patient to ED arrival" time when the ASC is the closest facility is generally 1-4 minutes shorter compared to incidents in which the paramedics by-pass a closer hospital that is not a verified primary stroke center. This is attributed to the abundance of ASCs in LA County. Forty-four percent (n=32) of the 911 receiving hospitals in LA County are Approved Stroke Centers.
**DATA FACTS**

**ASC Volume by Age and Gender**

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1688</td>
<td>1688</td>
</tr>
<tr>
<td>Median Age</td>
<td>72 yrs</td>
<td>71 yrs</td>
</tr>
<tr>
<td>Female</td>
<td>1978</td>
<td>1823</td>
</tr>
<tr>
<td>Median Age</td>
<td>79 yrs</td>
<td>79 yrs</td>
</tr>
</tbody>
</table>

**Ischemic Stroke by Age and Ethnicity**

**ASC: ED Arrival to Brain Imaging Completed**

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Time Values</td>
<td>n = 3,481/3,667</td>
<td>n = 3,390/3,567</td>
</tr>
<tr>
<td>Median Time</td>
<td>37 minutes</td>
<td>35 minutes</td>
</tr>
<tr>
<td>≤ 25 minutes</td>
<td>n = 1,181/3,481</td>
<td>n = 1,194/3,390</td>
</tr>
<tr>
<td></td>
<td>34%</td>
<td>35%</td>
</tr>
<tr>
<td>26 - 60 minutes</td>
<td>n = 1,249/3481</td>
<td>n = 1,182/3,390</td>
</tr>
<tr>
<td></td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td>&gt; 60 minutes</td>
<td>n = 1,051/3,481</td>
<td>n = 1,014/3,390</td>
</tr>
<tr>
<td></td>
<td>30%</td>
<td>30%</td>
</tr>
</tbody>
</table>
**ASC: Last Known Well Time (LKWT) to Thrombolytic Therapy**

**Calendar Year 2012**

- **No Stroke/Unknown** n=433 (12%)
- **Other Stroke** n=57 (2%)
- **Transient Ischemic Attack** n=483 (14%)
- **Subarachnoid Hemorrhage** n=82 (2%)
- **Intracranial Hemorrhage** n=504 (14%)
- **Ischemic Stroke** n=2,008 (56%)

**Thrombolytic Therapy**

- **n=367 (10%)**
  - LKWT to ED greater than 3.5 hrs. or unknown n=54 (15%)
  - LKWT to ED 2-3.5 hrs. n=32 (9%)
  - Treated in less than 4.5 hrs. n=28 (87%)
  - LKWT to ED less than 2 hrs. n=281 (76%)
  - Treated in less than 3 hrs. n=246 (87%)
**Pediatric Specialty Care Centers**

19,639 Pediatric EMS Responses (CY 2012)

- **Medical Complaint:** 13,084 (67%)
- **Trauma Complaint:** 6,555 (33%)

- **Transported to Hospital:**
  - Medical Complaint: 10,350 (79%)
  - Trauma Complaint: 4,702 (72%)

**HOSPITAL DESTINATION:**
- Emergency Department Approved for Pediatrics = 10,396 (69%)
- Pediatric Medical Center = 1,949 (13%)
- Pediatric Trauma Center = 1,649 (11%)
- Perinatal Center = 52 (0.3%)
- Other = 1,006 (7%)

---

**Pediatric Complaint by Age**
**Dispatch Agency Incident Type** (Data Source: eCats)

Calendar Year: 2012

- Medical, 741,100, 80%
- Fire, 123,300, 13%
- Misc, 62,132, 7%

**Medical Incidents by Dispatch Center** (Data Source: eCats)

- Los Angeles County: 250,400 (34%)
- Los Angeles City: 331,826 (45%)
- Verdugo: 55,586 (7%)
- Long Beach: 44,195 (6%)
- South Bay Regional: 4,874 (0.7%)
- Beverly Hills: 4,120 (0.7%)
- Redondo Beach: 4,073 (0.6%)
- Santa Monica: 10,682 (1%)
- Torrance: 9,166 (1%)
- Culver City: 3,741 (0.5%)
- La Habra Heights: 402 (0.1%)
- La Verne: 2,171 (0.3%)
DATA FACTS

EMS Response by Provider Agency  
Calendar Year 2012: n=683,648

Los Angeles City - does not include non-transports 31%
Los Angeles County - estimated missing records 29%
Long Beach 11%
Ground Transport 99.8%

Other*:
- La Verne 0.7%
- Monrovia 0.6%
- Montebello 0.6%
- Manhattan Beach 0.5%
- San Gabriel 0.5%
- El Segundo 0.5%
- Hermosa Beach 0.4%
- South Pasadena 0.3%
- Santa Fe Springs 0.3%
- San Marino 0.2%
- Vernon 0.2%
- Sierra Madre 0.1%
- La Habra Heights 0.1%
- LA County Sheriff 0.02%

Redondo Beach 1%
Monterey Park 1%
Arcadia 1%
Beverly Hills 1%
Culver City 1%
Alhambra 1%
Torrance 1%
Santa Monica 1%
West Covina 2%
Burbank 2%
Compton 2%
Pasadena 4%

Calendar Year 2012: n=683,648

Scene Time (Median in Minutes)
Time at Patient to Time Left Scene

No Specialty Care Center Required

2006 2007 2008 2009 2010

Perinatal
STEMI
Pediatric Medical
Trauma
EDAP
Pediatric Trauma
Base Hospital Data:
Emergency Department Disposition

Base Hospital is the Receiving Facility

EMS: ONE MISSION. ONE TEAM.

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

EMS AGENCY

10100 Pioneer Boulevard, Ste. 200
Phone: 562-347-1500
Fax: 562-941-5835
Web: http://ems.dhs.lacounty.gov

For data request please complete and submit the Data Request Form at http://ems.dhs.lacounty.gov/SpCentersHospitalPrograms/TEMIS/TEMISDataReq.pdf

Total Base Contacts 256,188
Base Hospital identified as the Most Accessible Receiving Facility 131,517 51%
Patient was transported to the Base Hospital 123,169 48%