

ALAMEDA COUNTY
EMERGENCY MEDICAL SERVICES

2016 ALAMEDA COUNTY
TRAUMA SYSTEM STATUS REPORT



August 2017



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2016 EMS PLAN: TRAUMA SYSTEM STATUS REPORT

TRAUMA PLAN SYSTEM SUMMARY

BACKGROUND

The Alameda County Trauma System Plan was approved by the State of California and implemented in January of 1987. The purpose of the trauma system, as written in 1985, was to assure optimum preparation, response, and definitive care for the people that incur critical traumatic injuries within Alameda County. The goal remains unchanged. The many changes influencing the health care delivery system in the United States over the years have affected the trauma system in the County Operational Area. Yet, the fundamental components of the trauma system design remain intact and continue to meet the needs of the residents and visitors to Alameda County.

In November of 1986, the Board of Supervisors provisionally designated UCSF Benioff Children's Hospital, Oakland, as the pediatric trauma center and Sutter Eden Medical Center and Alameda Health System Highland Hospital Oakland as the adult trauma centers. The trauma system operations began on January 15, 1987.

The EMS Agency is responsible for overall trauma system monitoring and quality improvement, and for administration of the trauma center designation contract. The trauma system quality improvement process established by Alameda County includes a joint Alameda-Contra Costa County Trauma Audit Committee (TAC), facilitation of the region's Regional Trauma Coordinating Committee, and a trauma registry maintained both by the Trauma Center and by the County EMS Agency. Trauma system oversight is conducted by the EMS Director – Travis Kusman, MPH, Paramedic, EMS Medical Director - Karl Sporer MD, and EMS Prehospital Care Coordinator – Michael Jacobs, Paramedic. The Trauma Audit Committee meets quarterly to review cases treated at the four trauma centers that serve Alameda and Contra Costa Counties. The Alameda/Contra Costa County EMS Medical Directors, Trauma Service Directors, Trauma Surgeons or members of the Pre-Trauma Audit Committees submit cases to the Trauma Audit Committee for review. During 2009 a system was developed to allow trauma surgeons to review these cases electronically.

BRIEF OVERVIEW SUMMARY - TRAUMA CARE SYSTEM

Key elements of the current Trauma System Program include the following:

- Designation of one adult Level I trauma center; one adult Level II trauma center; and one Level 1 pediatric trauma center that serves all of Alameda County. The Alameda County trauma centers serve the surrounding counties on a less frequent basis, with the exception of UCSF Benioff Children's Oakland that also receives patients from other areas throughout Northern California.
- Trauma center designation is determined on the basis of an open competitive process including use of an American College of Surgeons Committee on Trauma (ACSCOT) team of experts to evaluate trauma center applications.
- Maintenance of verification (April 2014-2017) from the American College of Surgeons Committee on Trauma: Level 2 Adult Trauma Center status for Sutter Eden Medical Center, Level 1 Adult Trauma Center status for Alameda Health System Highland Hospital and Level 1 Pediatric Trauma Center status for UCSF Benioff Children's Hospital Oakland.

- Recognition of the Level I pediatric trauma center designated by Alameda County as the appropriate facility to serve the needs of pediatric trauma patients.
- Full integration of the trauma system into the existing EMS system.
- Field triage of all major trauma patients to a designated trauma center when possible.
- Use of air ambulance transport (helicopter) services to reduce trauma transport times when appropriate.
- Maintenance of a trauma registry to track trauma system and trauma center performance on a case-by-case basis.
- A bi-county trauma audit (quality assurance and improvement) process to assure expert review of the trauma center and the trauma system on an ongoing basis.
- Full participation in regional and state trauma system activities.
- Full participation in CEMSIS Trauma and EMS data sharing.
- Implementation of a county-wide pediatric disaster / medical surge plan to support traumatic injury as the result of catastrophic earthquake or multi-casualty events involving traumatic injury.
- Active injury prevention activities supporting preventable injuries in children in collaboration with Sutter Health Eden Medical Center, Alameda Health System Highland Hospital and UCSF Benioff Children's Hospital in Oakland.
- Development of an interfacility transfer processes to support enhanced trauma patient destination workflow implemented in January 2013.
- Implementation of Spinal Motion Restriction treatment protocols and equipment.

NUMBER AND DESIGNATION LEVEL OF TRAUMA CENTERS (2016)

TRAUMA CENTERS

- Alameda Health System – Highland Hospital, Oakland (previously Alameda County Medical Center / Highland) – Adult Level-1
- Sutter Health Eden Medical Center – Adult Level-2
- UCSF Benioff Children's Hospital Oakland – Pediatric Level-1

NEXT PAGE

CHANGES IN TRAUMA SYSTEM
PROGRESS TOWARD IMPLEMENTATION

RE-ORGANIZATIONS

- **TRAUMA HOSPITALS – DESIGNATIONS** - American College of Surgeons (ACS) Verification was completed at all Alameda County Trauma Centers in April 2014: UCSF Benioff Children’s Hospital Oakland (Level-1 Pediatric). Alameda County Medical Center (Highland) and Eden (Level 2 Adult). ACS Verification is now a requirement of the Alameda County Trauma Center MOU.

NEW CONTRACTS, AMENDMENTS, & REQUIREMENT UPDATES - 2015- 2018

- **ALAMEDA COUNTY BASE HOSPITAL SUBSIDY**
 - Alameda Health System - Oakland (previously Alameda County Medical Center / Highland) – Amendments 2016
- **TRAUMA CENTERS** - Master Contract Amendments July 2015-June 2018
 1. Alameda Health System – Highland Hospital, Oakland (previously Alameda County Medical Center / Highland)
 2. Sutter Health Eden Medical Center, Castro Valley
 3. UCSF Benioff Children’s Hospital Oakland

 - Contract / MOUs - Master Contract amendments for the 3 Trauma Centers approved for July 2015-16.
 - ACS Verification is now a requirement of the Alameda County Trauma Center MOU.
 - In May 2016, Alameda County EMS facilitated the American College of Surgeons (ACS) “Trauma Consultation,” survey at the Alameda Health System – Highland Hospital. The completed consultation assisted in creating a roadmap for movement towards Level 1 verification.
 - All trauma centers were scheduled for ACS re-verification in April 2017.
 - All trauma centers successfully completed ACS re-verification in April 2017: Alameda Health System Highland Hospital-Level 1 Adult (NEW), Sutter Eden Medical Center-Level 2 Adult and UCSF Benioff Children’s Hospital Oakland-Level 1 Pediatric.

NEXT PAGE

TRAUMA SYSTEM GOALS AND OBJECTIVES
INCLUDES PROGRESS TOWARD IMPLEMENTATION

TRAUMA PLANNING

- OBJECTIVE: The purpose of the trauma plan is to monitor the delivery of services, improve trauma care through use of best practice in reducing death and disability, and identify areas where improvement can be made.
 - Short-Range Plan: Maintain ACS Verification as a requirement of the MOU's with our trauma centers.
 - Long-Range Plan – Completion of a System-Wide Trauma Evaluation
 - Short Range Plan: Improve the functionality of our Trauma Audit Committee by adding a pre-TAC component. Improve our analysis of existing trauma data.
- PROGRESS TO DATE: ACS verification is now a requirement of current MOUs which were completed in 2015 and end in 2018.
 - Alameda Health System - Highland Hospital had an ACS consultation visit for up-grade to Level-1 status in May 2016 and achieved Level-1 verification in April 2017 in which EMS leadership participated (NEW)
 - EMS provided funding for all three trauma centers ACS re-verification visits in 2017 which were successfully completed.
 - ALCO EMS and its county trauma centers continue to participate in and host the RTCC and continue with the TXA pilot study.

COMPLIANCE WITH POLICIES - TRAUMA

- OBJECTIVE: Data
 - Leverage HL7 compliant software systems currently in place to get EMS data into hospital data systems, and get outcome data out of hospital systems
 - Long Range Plan. Continue Monitoring via site visits to monitor and evaluate system components; Continue 24/7 EMS Agency Duty Officer on-call and response capabilities for unusual occurrences, MCIs and other immediate system needs; and MCI after action reports and improvement plans
- PROGRESS TO DATE:
 - Development of a bidirectional exchange of data with hospitals.
 - Implementation of NEMSIS 3.4_complete.
 - Alameda County EMS has implemented the 2016 CEMSIS data element updates (“primary impression” and other elements).
 - Ensuring overarching Monitoring Mechanism: QI Committee and Plan; Policy Review; Unusual Occurrences; Trauma Audit; Training Program and CE Provider; and System Audits – Cardiac Arrest; intubation
 - On-going Evaluation & Improvement Plans - MCI “Real Event”: Train Derailment Incident March 7, 2016 – Evaluated MCI, ReddiNet, and HAvBED Policy

NEXT PAGE

QA/QI - TRAUMA

- OBJECTIVES:
 - Short Range Plan: Continue pre-hospital data analysis and reporting from EMS and providers utilizing Tableau analytic tool
 - Long-Range Plan - Integration of data with hospitals via HIE and/or other methods (NEW); Participate in the ACS Trauma Quality Improvement Program for EMS system performance (NEW)
 - 2015 QI Plan includes trauma on Website, Update QI plan in 2018
 - Improve QI communication to field from LEMSA
- PROGRESS TO DATE:
 - Alameda County EMS ensures QI System-Wide Procedures and Plan
 - Alameda County Trauma Centers participate in the ACS Trauma Quality Improvement Program (NEW)
 - Provider based QI Plans
 - EMS QI Plan approved by state EMSA
 - CA EMSA Core Measures
 - One ePCR data collection and reporting system for all 911 providers
 - Data analysis and trend identification
 - Training based on trends
 - Policy Review
 - QI committee groups: EMSA Core Measures; Quality Council, ePCR; Equipment, Trauma Audit, and Receiving Hospital
 - EMS representation at hospital Trauma Quality Review and Process Improvement Meetings (NEW)

TRAUMA SYSTEM PLAN

- OBJECTIVE: Review and update a trauma care system plan
- PROGRESS TO DATE:
 - Alameda County EMS has a plan for trauma care and determines the optimal system design for trauma care.
 - **Trauma Centers:** Alameda Health System (Highland Hospital), Sutter – Eden Medical Center; and UCSF Benioff Children’s Hospital, Oakland
 - **Trauma Plan Status:**
 - Trauma System Plan accepted in 2015 and 2016 with Alameda County partners
 - 2015 Trauma plan submitted in July 2016 and approved by EMSA in 2016.
 - 2014 Trauma plan submitted in December 2014 and approved by EMSA in 2015
 - MOU extended contracts with the 3 designated Trauma Centers

NEXT PAGE

- **Trauma Patient Volume for 2016**
 - UCSF Benioff Children’s Hospital759
 - Sutter Eden Medical Center.....2435
 - Alameda Health System – Highland Hospital.....2557
 - Total trauma patient volume.....5751
 - Total trauma activations.....4625
 - Total critical patient Level-1 activations.....959
- **Trauma Patient Volume for 2015**
 - UCSF Benioff Children’s Hospital787
 - Sutter Eden Medical Center.....2239
 - Alameda Health System – Highland Hospital.....2324
 - Total trauma patient volume.....5350
 - Total trauma activations.....4454
 - Total critical patient Level-1 activations.....972
- **Trauma Patient Volume for 2014**
 - UCSF Benioff Children’s Hospital.....807
 - Sutter Eden Medical Center.....1947
 - Alameda Health System – Highland Hospital.....2305
 - Total trauma patient volume.....5059
 - Total trauma activations.....4097
 - Total critical patient Level-1 activations.....914
- **Receiving Facilities/Non-Trauma Centers** – The non-trauma facilities in Alameda County receive some patients meeting Trauma Patient Criteria (CTP), as outlined in EMS Policy Trauma Triage Criteria. These facilities are directed to call 911 for emergent transfers to the closest trauma center.
 - Priority education and training on the Emergency Triage to Trauma Center Policy – Ensure process for re-triage of patients needing trauma care from non-trauma hospitals is efficiently adhered to.

PUBLIC INPUT

- **OBJECTIVE:**
 - Continue obtaining input from consumer and healthcare partners.
- **PROGRESS TO DATE:**
 - Various committee collaborations are continuing to ensure public input and EMS agency representation as follows: EMS Quality Council; Emergency Medical Oversight Committee EMOC; Receiving Hospital Committee; Trauma Audit Committee; Regional Trauma Audit Committee; Data Steering Committee; ePCR Change Committee; EMS Section Chiefs Committee; Alameda County Fire Chiefs Committee; EMSAAC/EMDAAC; LEMSA Coordinators Meeting; and other ad-hoc committees

TRIAGE & TRANSFER PROTOCOLS:

- Refer to the 2016 and 2017 policies and protocols or the Alameda County EMS Website:
<http://www.acphd.org/ems-admin-policies.aspx>

2016-17 TRAUMA PRIORITY WORKPLAN

IDENTIFIED MAJOR NEEDS

1. Facilitate Specialty Trauma Centers - Quality Improvement - Continued data collection for driving continual improvements in care; development of more robust and comprehensive collaborative trauma care quality improvement program

GOALS

1. Continued enhancement of quality improvement programs including those associated with trauma specialty systems of care
2. Continue to host the Regional Trauma Care Committee as well as participate in local EMS system Clinical Quality Oversight and Process Improvement collaborations.

MAJOR PROGRAM SOLUTIONS – TRAUMA SYSTEM

Refer to enhancements below that will strengthen the EMS system.

- **Identify and implement solutions consistent with the Triple Aim** of the Institute for Healthcare Improvement
- **Continuous quality improvement. Strengthen Continuous Trauma Quality Improvement Program** on an ongoing basis.
- **Emergency Department Pediatric “Readiness” for Trauma** - Site Visits and Evaluations - April and June in 2016 (Completed)
- **Facilitate EMS New Policy / Procedure Update** – Disseminate annual trauma policy information update; and conduct training
- **Strengthen Disaster Response Capability** - Strengthen regional resource inventory and relationships with neighboring Operational Areas. Develop a framework for transportation to assist in facilitating expansion and decompression of Operational Area (OA) medical surge capacity. Given limited transportation resources, a plan for medical surge acquisition and use of prehospital provider resources including alternative transportation vehicles is a priority.
 - The trauma centers all actively participated in the November 2016 statewide med/health exercise which tested the hospital capability for bed expansion to accommodate a surge of critical care patients. The trauma centers are all planning to participate in the terrorism MCI 2017 Medical/Health statewide exercise to test a surge of crush injuries and mass fatalities including significant children.
 - Under the HPP work plan grant, a pediatric medical surge plan has been updated in 2017 for Alameda County hospitals including the expectations for trauma centers.
 - The prehospital ALS and BLS and providers are convening to address surge capacity and - patient movement including preparing to move patients within the OP area in a disaster surge event.
 - The state and region including EMSA, CDPH, OES, ABAHO and the Bay Area UASI have several ongoing projects to expand surge capacity and patient movement options in the MHOAC program manual, patient movement plan, MAC Project, IRG project, and Catastrophic Earthquake Planning, EMS is participating on planning committees and aligning surge plans accordingly.
- **Enhance Bi-Directional Data Sharing Capabilities** - amongst Dispatch Centers, First Responder, Transport Providers and hospitals – Leverage HL7 compliant software systems to get EMS data into hospital data systems and get outcome data out of hospital systems.

- **Support for ePCR system** – Provide fully functional ePCR Training System, business Intelligence Portal, Tier 4 Hosting Center and redundant hardware for servers starting April 2016 through April 2017
- **Promote Patient Care “Best Practices”** - Sustain and strengthen research and disseminate information – Ensure sustainable research funding sources. Seek revenue to enhance already existing programs and to conduct approved trials.

NEXT PAGE

ALAMEDA COUNTY TRAUMA CENTERS 2016

(NEW)

	UCSF BENIOFF CHILDREN'S HOSPITAL OAKLAND	EDEN MEDICAL CENTER CASTRO VALLEY	HIGHLAND HOSPITAL (ALAMEDA HEALTH SYSTEM) OAKLAND
Total TRA Patient Count	759	2435	2,557
Trauma Activations	582	1592	2,451
Full Activation - Level I	75	337	547
Partial Activation - Level II	320	1255	1,904
Pri/Direct Admit	16	2	0
Trauma Consultations	124	123	256
Activations (other)	275	0	0
Admissions after TRA/ED	745	1485	1,337
ICU Admission Phase	116	309	192
OR Admission Phase	107	242	254
TCU Phase	0	64	291
Ward/Floor Phase	523	459	600
Discharged after TRA / ED	4	952	1,206
Home / Jail / Other	3	856	1,029
AMA / AWOL	0	13	82
Acute Transfers	0	71	64
Morgue	1	10	31
Outcome	0	0	0
Lived	754	2374	2,473
Died	5	58	84
POS > 50%	658	2268	2,387
POS > 50% and Died	0	34	28
POS < 50% and Lived	6	32	20
ISS > 15	76	268	337
GCS < 14	77	402	573
GCS < 9	45	189	276
Laparotomy	9	63	116
Thoracic Vas Cran Surg	19	90	142
Epi Subdural w/GCS < 12	3	56	105
Epi Subdural w/Cranial	2	21	30
Open Fracture	0	0	2
DOA	0	9	29
Death per Phase	0	0	0
ED / Trauma Room	1	12	31
TCU	0	0	5
ICU	3	29	30
OR	1	4	8
Ward	0	12	9
Blunt Rate	731	2300	2,084
Penetrating Rate	20	147	473
Male	460	1501	1,725
Female	299	946	827