



CONTRA COSTA
HEALTH SERVICES

Emergency Medical Services Agency

2006/2007 Annual Program Report

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I. INTRODUCTION



A. Overview of EMS

Emergency Medical Services (EMS) is a system of services organized to provide rapid emergency medical response to serious medical emergencies, including immediate medical care and patient transport to definitive care in an appropriate medical setting. An effective EMS system involves a variety of agencies and organizations working together to accomplish this goal. While most EMS responses are day-to-day emergencies, EMS agencies also plan and prepare for disaster medical response.

The EMS system includes:

- Public safety dispatch centers
- Fire services
- Ground and air ambulance services
- Law enforcement agencies
- Hospitals and specialty care centers
- Training institutions and organizations
- Citizen, professional, and technical advisory groups
- Local and State EMS Agencies
- Other governmental and voluntary organizations

In California, EMS systems are organized on a county or regional basis. Local EMS Agencies (LEMSAs) are designated by county boards of supervisors as the lead agencies responsible for coordinating EMS services at the county or regional level consistent with State law and regulations.

The California Emergency Medical Services Authority (EMSA) approves local EMS system plans, provides guidance to local EMS agencies, develops EMS regulations, administers the Regional Poison Control Center program, and carries out other EMS activities. The State EMS Commission, with members appointed by the Governor and certain other State officials, is advisory to the EMSA and reviews and approves all EMS regulations.

In Contra Costa County, the Board of Supervisors has designated County Health Services as its Local EMS Agency. The EMS Director, EMS Medical Director, and staff carry out the EMS functions of Health Services. The EMS Medical Director has statutory responsibilities to oversee medical aspects of the EMS program. An Emergency Medical Care Committee (EMCC) provides advice regarding EMS matters to the Board of Supervisors and to the EMS Agency.

B. Local EMS Agency Functions

Principal functions of a local EMS agency as specified in the Health & Safety Code include:

- ★ Planning, implementing, and evaluating emergency medical services.
- ★ Monitoring/approving EMT-I, paramedic, and Mobile Intensive Care Nurse training programs.
- ★ Conducting credentialing programs for EMT-Is, paramedics and MICNs.
- ★ Authorizing advanced life support (ALS) programs.
- ★ Establishing policies and procedures for EMS system medical control, including those for dispatch, patient destination, patient care, and quality improvement.
- ★ Establishing ordinances and/or exclusive operating areas for regulation of ambulance services.
- ★ Approving and monitoring Prehospital Continuing Education Providers.
- ★ Developing and implementing a trauma system plan.



- ★ Conducting an impact evaluation when notified that an acute care hospital plans to downgrade or cease providing emergency medical services.

The County Board of Supervisors has further charged the Health Services Department as the local EMS Agency with the following responsibilities:

- ★ Implementing EMS program enhancements funded by County Service Area EM-1 (Measure H).
- ★ Tracking and monitoring hospital emergency and critical care capacity.

Additionally, the EMS Agency is the lead agency responsible for

- ★ Procuring and monitoring emergency ambulance services countywide.
- ★ Planning for and coordinating disaster medical response at local and regional levels.
- ★ Implementing and monitoring Emergency Medical Services for Children Program countywide.

To accomplish these functions, the EMS Agency employs a staff of 11, including the EMS director, EMS medical director, EMS assistant director, Health Services disaster preparedness manager, prehospital care coordinator, trauma coordinator, training coordinator, Regional Disaster Medical Health Specialist, a secretary, and a clerk.

C. Emergency Medical Care Committee

Each county may, under the California Health & Safety Code, establish an Emergency Medical Care Committee (EMCC) with membership prescribed and appointed by the county board of supervisors. A county EMCC acts as an advisory body to its board of supervisors and to its local EMS agency on all matters relating to EMS.

The Contra Costa EMCC consists of five consumer representatives and five consumer alternate representatives, one representative and alternate representative from each of the five supervisorial districts, and representatives and alternate representatives of the following groups and organizations:

- Alameda-Contra Costa Medical Association
- American Heart Association
- American Red Cross
- California Highway Patrol
- Contra Costa Contract Ambulance Provider
- Air Medical Transportation Provider
- Emergency Department Physicians
- Emergency Nurses' Association
- Contra Costa Fire Chiefs' Association
- Field Paramedic (1 private/1public)
- County Health Services
- Hospital Council – Bay Area Division
- Contra Costa EMS Training Institution
- Contra Costa Police Chiefs' Association
- Contra Costa Public Managers' Association
- Contra Costa Sheriff-Coroner
- Base Hospital
- Trauma Center
- Community Awareness and Emergency Response (CAER)
- Communications Center Managers' Association
- EMS Director

The EMCC meets quarterly and all meetings of the EMCC are open to the public. EMCC staff will provide reasonable accommodations for persons with disabilities planning to attend EMCC meetings.



E. County Service Area EM-1 (Measure H) Funding

Measure H assessments have been used to finance or assist with financing the following:

- ★ Increased paramedic ambulance units available to respond to 9-1-1 calls.
- ★ A countywide firefighter first responder defibrillation program including automated external defibrillators purchased and maintained for all fire response units.
- ★ Fire first responder paramedic services.
- ★ First responder training, equipment, and supplies.
- ★ Medical supply caches purchased and maintained for multicasualty/disaster response.
- ★ An upgrade to the MEDARS radio system used for ambulance-to-hospital communications.
- ★ Radios for ambulances to communicate with fire first responders.
- ★ An upgraded ambulance dispatch system and dispatcher preparedness.
- ★ Enhanced response to hazardous materials incidents.

D. Delivery of EMS Services

EMS services are typically provided in response to a medical emergency reported through the 9-1-1 emergency telephone system. A 9-1-1 call placed from any telephone is automatically routed to the appropriate designated Public Safety Answering Point (PSAP). Most calls from cellular phones are routed to the Vallejo California Highway Patrol dispatch center, although some are routed to local police departments and Sheriff's Dispatch. A dispatcher or complaint operator at the PSAP determines the nature of the emergency and, if the PSAP is part of a fire/medical dispatch center, obtains information necessary to dispatch appropriate response units. If the PSAP is not part of a fire/medical dispatch center, the call is transferred to a "secondary PSAP" where a dispatcher then obtains information necessary to dispatch appropriate fire/medical units.

The initial response to a potentially life threatening incident generally includes both a paramedic-staffed fire first responder unit and a paramedic-staffed ambulance. The location of fire stations throughout the county enables firefighters to make a rapid initial response to a medical emergency. All fire fighters are trained in first aid, CPR and defibrillation. Most are trained and certified as Emergency Medical Technicians (EMTs), which provide basic life support and many are trained and licensed as paramedics. Fire fighters arriving early on scene may be able to initiate lifesaving measures and achieve some patient stabilization before the ambulance arrives.

A private company, American Medical Response, under contract with the County, provides emergency ambulance services in most areas of the County. In the San Ramon Valley and Moraga-Orinda fire districts, emergency ambulance service is provided by the fire service. Depending upon the nature of the incident, an ambulance may be dispatched Code 3 (red lights and siren) or Code 2 (immediate response, but following normal traffic regulations).

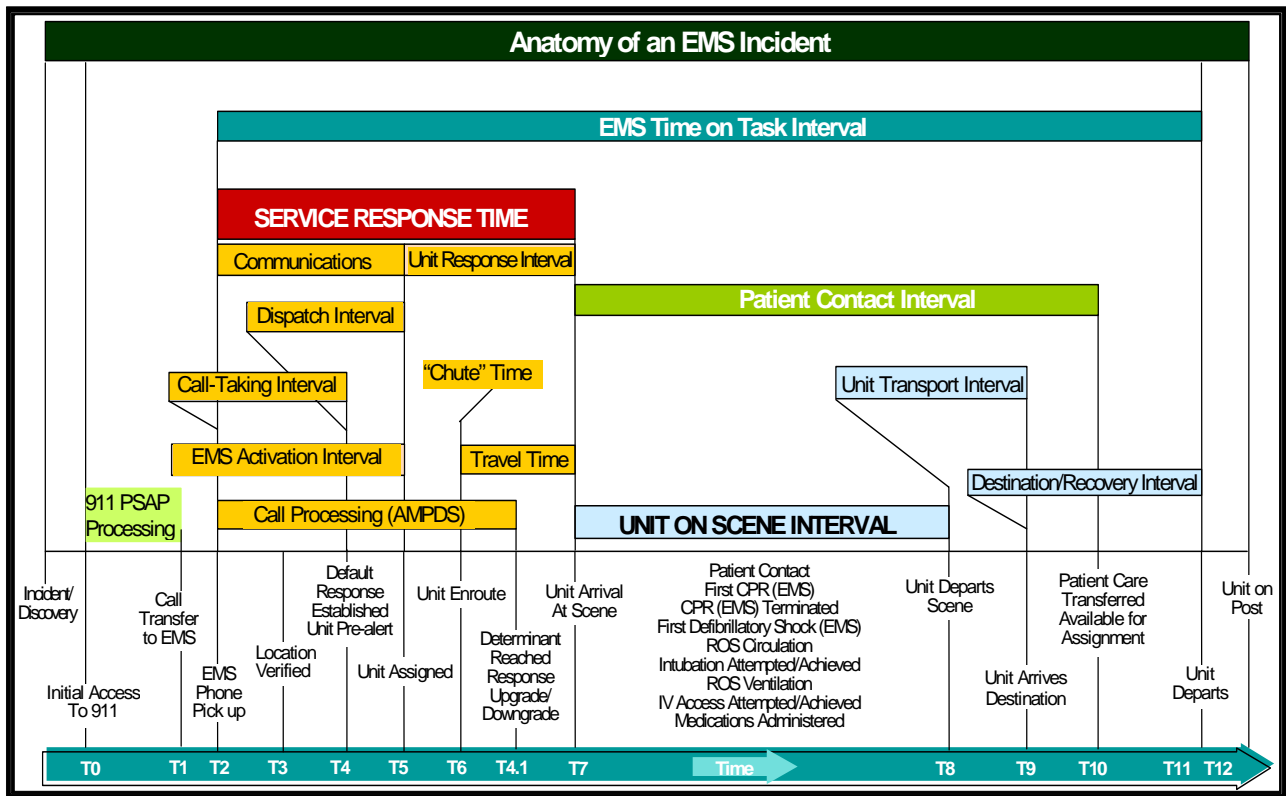
The staffing standard for response to potentially life threatening incidents is an advanced life support (ALS) ambulance staffed with 1 paramedic and 1 EMT-I, or 2 paramedics in areas where the first responder units are not staffed with paramedics. Paramedics are able to administer lifesaving drugs and perform other lifesaving procedures. Basic life support (BLS) ambulances are staffed with two EMT-Is and may be used for non-emergency response or to provide additional support at an emergency incident.

Patient treatment and transport are carried out under State and local EMS agency policies and procedures. These policies include, in the case of paramedics, making contact with a mobile intensive care nurse (MICN) or physician at the designated base hospital for medical consultation in patient management according to County EMS treatment guidelines.

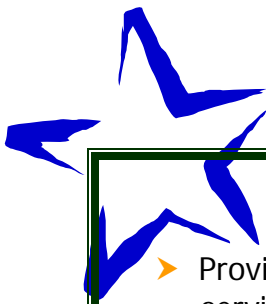


Patients are transported to hospitals able to provide needed services. Hospital destination is determined based upon patient preference and County EMS protocols. Critical patients may be directed to the nearest emergency department or to the trauma center. Non-critical patients may be transported to hospitals of choice within reasonable travel time.

Medical helicopter service is available to transport critical patients when ground ambulance transport time would be excessive. Two medical helicopter services, CALSTAR and REACH, are authorized to respond to local EMS calls on a daily rotation schedule. Both agencies provide advanced life support services and maintain 24-hour helicopter unit availability based at Buchanan Field in Concord. Other helicopter services are available to respond from neighboring counties if both CALSTAR and REACH are unavailable.



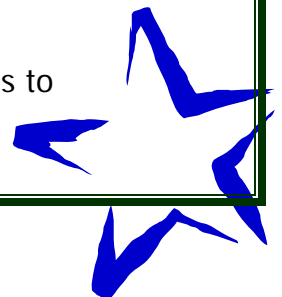
II. LIST OF MAJOR ACCOMPLISHMENTS



EMS Major Accomplishments

2006

- Provided ongoing oversight to the Countywide emergency medical services and trauma system, which included **65,052** responses to emergency medical calls made by County-contracted ambulance services, **338** medical helicopter transports by County-designated air ambulance services, and **917** serious trauma patients treated at John Muir Medical Center, the County-designated trauma center.
- The Emergency Medical Care Committee approved a new **Multicasualty Incident Plan**. (Implemented countywide in 2007)
- All emergency ambulance providers and most fire 1st responder agencies have implemented **12-lead electrocardiogram (ECG) programs**, providing the ability to identify heart attack victims in the field.
- Purchased a patient care **data collection system** for fire first responder paramedic providers.
- Participated along with local hospitals, ambulance providers, Public Health and others in the "Silver Dragon" exercise and supported regional activities.
- Ambulances no longer diverted from hospitals due to ED saturation. Hospitals responsible for advanced planning for high census periods.
- Purchased an **emergency care simulator** and other equipment to provide patient simulation training for fire and ambulance personnel through the **EMS Fire Training Consortium**.
- Developed training modules for the new MCI Plan and for evaluating respiratory problems for use by EMS providers countywide.
- Provided a fire communications upgrade that will assist fire dispatch centers in dispatching the closest fire first responder to an incident.
- Placed "Chempacks" containing medication for treatment of exposure to nerve agents, in Bay Area counties including Contra Costa.
- Developed and implemented the Contra Costa "Asset Logistics and Resource Management System" (ALARMS), a web-based asset-tracking database.
- Hospitals and ambulance providers appointed Terrorism Liaison Officers to be a part of the Early Terrorism Warning System.
- Expanded Public Access Defibrillation Programs.
- Interfacility transport paramedics transferred **772** in-patients to other acute care facilities as part of the County Interfacility Transfer Paramedic Program.



III. ISSUES IN THE FOREFRONT



A. Identification and Patient Management of “STEMI” Heart Attacks

Beginning in late 2006, a countywide prehospital 12-lead electrocardiogram (ECG) program was attained with the implementation of this program by American Medical Response. Prior to this time, Moraga-Orinda Fire District and San Ramon Valley Fire Protection District had provided this service as part of a pilot project. The prehospital 12-lead ECG can detect certain types of heart attacks, called “ST-segment elevation myocardial infarctions” or “STEMIs”, using computer software that accompanies the ECG equipment, leading to instant identification of many of these cases in the field.

The value of field identification of STEMIs is to facilitate rapid treatment of patients once they arrive in an emergency department. The two main treatment options provided by hospitals are fibrinolytic therapy (so-called “clot-busters”) or percutaneous coronary intervention (PCI), which involves cardiac catheterization and treatment of vessel clots and blockages directly. Of these two choices, PCI has become the favored approach for treatment of STEMI in the majority of cases. In either treatment, time delay can be critical, so early identification and preparation of the hospital emergency department and/or its catheterization laboratory can decrease time to intervention in many cases. Numerous studies have validated the value of prehospital 12-lead ECGs and timesavings for the hospital is noted to be in the range of 15-30 minutes while extra time in the field averages 3-4 minutes.

In 2007, the EMS Agency will work toward developing a system of STEMI Receiving Center hospitals (SRCs) that have the capability to provide PCI treatment. Patients with identified STEMIs will be directed to one of these centers for care. With advance notification, hospitals can provide catheterization more rapidly. The incidence of STEMI is 2.5-5% of patients with chest pain who receive ECGs in the prehospital setting. The number seen in Contra Costa County will likely be in the range of 100-150 patients/year.

B. Multicasualty Incident Plan (MCI)

The initial impetus for the development of Contra Costa County’s first MCI plan was the Yuba City bus crash in Martinez on May 1976. A school bus carrying the Yuba City High School choir crashed off of the Highway 680 overpass resulting in a massive rescue effort for EMS responders. Twenty-eight students and one teacher were killed in this terrible tragedy. It became clear that a plan was needed to assist in organizing EMS responses to incidents such as this.

The ideal EMS organization and response to MCIs includes multiple agencies with varied roles including fire/police communications centers, fire and police responders, ambulance and helicopter personnel, hospitals, and Contra Costa Health Services administrative staff when indicated. There have been several minor revisions to the initial MCI Plan, although this is the first with major changes in the approach and nomenclature.

Multi-Casualty Incident Plan Scope

In 2005 the EMS Director appointed a multi-disciplinary task force to assess the current MCI plan and, if necessary, to develop a new Multi-Casualty Incident Plan for Contra Costa County. The result was a complete revision, and following a comprehensive approval process, the Emergency Medical Care Committee approved the new Plan in December 2006. The Plan is now a component of the Contra Costa Emergency Medical Services Agency’s EMS System Plan, and as such covers the medical response to all medical incidents described in the Plan that occur within Contra Costa. The Plan will be drilled regularly, and reviewed both annually and following significant activations.

Multi-Casualty Incident Plan Objectives

- ★ Establishes a common organization, management, and communications structure for the coordination of emergency response to a multi-casualty incident.



- * Establishes methods of triage and transportation designed to provide the best medical outcome possible for the greatest number of casualties.
- * Establishes pre-defined responsibilities of all entities with key roles in achieving successful implementation of the Plan.

IV. EMS SYSTEM PARTICIPANTS



A. Advisory Committees

Emergency Medical Care Committee (EMCC)

The EMCC is a multidisciplinary committee appointed by the County Board of Supervisors, to provide advice and recommendations on EMS related matters to the Board, Health Services Director and its EMS Agency. Membership consists of consumer representatives, and representatives of EMS related organizations and groups. The EMCC meets quarterly (March, June, September, December), and meetings are open to the public. Specific meeting information is available through the EMS Agency offices or website at www.cccems.org.

Medical Advisory Committee (MAC)

The MAC provides advice and recommendations to the EMS Agency and EMS Medical Director on medically related topics. Examples include ALS/BLS medical treatment guidelines; new prehospital skills and medications; and prehospital policies/procedures related to patient medical management. Membership consists of a base coordinator/liaison physician, ALS provider agency representatives, and receiving hospital emergency physician representatives. MAC meets bimonthly.

Trauma Audit/Pre-Trauma Audit Committees (TAC/Pre-TAC)

Pre-TAC and TAC committees evaluate trauma system care and monitor compliance to trauma system standards established according to provisions of State trauma regulations in the County Trauma System Plan. TAC is held quarterly in conjunction with Alameda County providing monitoring for 2 separate trauma systems. County EMS Medical Directors appoint members of these confidential committees.

Co-chaired by the County EMS Medical Directors, TAC meets bimonthly and includes representation from the 4 Alameda/Contra Costa County trauma centers, representatives of non-trauma center receiving hospitals, prehospital care providers, and EMS staff. Trauma surgeons from trauma centers outside of Contra Costa and Alameda also participate in case review activities. Pre-TAC is responsible for review of all trauma related EMS system issues. This committee, which meets monthly, includes participation by trauma center and base hospital staff, ambulance and fire providers, EMS Agency staff, and others.

EMS Quality Improvement Committee (QI)

The QI committee's mission is to ensure that quality emergency medical services are available for all people in Contra Costa County and that the medical care is consistent with best practices and evidence based medicine. It relies on a quality improvement partnership with our fire EMS providers. Membership includes representatives from fire agencies, emergency ambulance providers and base hospital. Organizations involved in the Contra Costa EMS delivery system are committed to assuring the highest level of care to their patients. The QI meets monthly to facilitate evaluation, redesign and implementation of current local agency quality programs.

EMS Facilities/Critical Care Committee

The Facilities/Critical Care Committee evaluates and makes recommendations to the EMS Agency with respect to issues that impact hospitals and their interface with the EMS system. Membership includes ED nurse managers and others. This committee meets four times each year.

Hospital Disaster Forum (HDF)

The Hospital Disaster Forum provides a venue for discussion of issues of mutual concerns regarding the disaster preparedness of medical centers and the local medical health system. The Forum meets monthly and membership includes hospital preparedness coordinators, clinics, cities, ambulance, fire, Office of Emergency Services (OES), EMS, and Contra Costa Health Services.

Multicasualty Advisory Committee (MCAC)

The ad hoc multidisciplinary MCAC was originally organized by the EMS Agency in 1978 to develop an integrated emergency response plan for multicasualty incidents. There have been



several revisions of the Multicasualty Plan since that time. Representatives from police, fire, ambulance, public safety agencies, receiving hospitals, and EMS staff have developed a revised Multicasualty Incident Plan that was approved by the Emergency Medical Care Committee December 13, 2006. The new plan was implemented on July 1, 2007.

Data Advisory Group

The Data Advisory Group is a subcommittee of the Quality Improvement Committee with the charge of analyzing current quality improvement data process on a countywide basis and providing recommendations. Membership consists of interested individuals and agency experts with the knowledge and skills in data collection.

B. PSAPs and Dispatch Centers

Public Safety Answering Points

- Antioch Police Department
- California Highway Patrol
- Concord Police Department
- East Bay Regional Park Police
- Martinez Police Department
- Pinole Police Department
- Pleasant Hill Police Department
- Richmond Police Department
- Sheriff's Communications
- Walnut Creek Police Department

Fire/Medical Dispatch Centers

- Contra Costa County Fire Dispatch
- West County Consolidated Communications Operations (Richmond Police)
- San Ramon Valley Fire Dispatch
- Sheriff's Dispatch (multicasualty coordination)

Ambulance Dispatch Centers

- American Medical Response
- San Ramon Valley Fire
- Contra Costa County Fire (Moraga-Orinda only)

C. First Responders

County Fire Protection Districts

- Contra Costa County Fire Protection District - 30 stations
- Crockett-Carquinez Fire Protection District - 2 stations
- East Contra Costa County Fire Protection District - 8 Stations
- Pinole Fire Protection District (served by Pinole Fire Department)

Municipal Fire Departments

- El Cerrito Fire Department - 3 stations
- Pinole Fire Department - 2 stations
- Richmond Fire Department - 7 stations



Independent Fire Protection Districts

- San Ramon Valley Fire Protection District (10 stations)
- Rodeo-Hercules Fire Protection District (2 stations)
- Moraga-Orinda Fire Protection District (5 stations)
- Kensington Fire Protection District (served by El Cerrito Fire Department)

Paramedic First Responder Programs

- Moraga-Orinda Fire Protection District - Paramedic Engine (5 units)
- American Medical Response - Byron/Discovery Bay, Bethel Island, Oakley and Crockett areas – ALS Quick Response Vehicles - QRVs (4 units)
- Contra Costa Fire Protection District - Paramedic Engine (28 full time units and 2 part time.
- San Ramon Valley Fire Protection District – Paramedic Engine/Ambulance (5 staffed/3 backup)
- El Cerrito Fire Department – Paramedic Engine (2 units)
- Rodeo-Hercules Fire Protection District (2 units as of 1/2006)
- Pinole Fire Department (1 full-time unit, 1 part-time unit)
- California Highway Patrol - Helicopter Unit
- East Bay Regional Park - Helicopter Unit

Law Enforcement Defibrillation Programs

- Antioch Police Department
- Brentwood Police Department
- Hercules Police Department
- Kensington Police Department
- Lafayette Police Department
- Moraga Police Department
- Orinda Police Department
- Pittsburg Police Department
- San Ramon Police Department
- State Park Service, Mt. Diablo
- Blackhawk (Sheriff)

Other First Responders

- East Bay Regional Parks
- California Division of Forestry
- Private & military fire services

D. Emergency Ambulance Providers

- American Medical Response (15 – 48 ambulances)
- San Ramon Valley Fire (5 ambulances)
- Moraga-Orinda Fire (2 ambulances)

E. EMS Helicopters

Air Ambulances

- CALSTAR Buchanan Field in Concord (additional helicopters in Gilroy, Auburn, Ukiah, Vacaville, Salinas, South Lake Tahoe, and Santa Maria. Fixed wing base in Sacramento).



- REACH Buchanan Field in Concord (additional helicopters in Santa Rosa, Acampo, Redding, Lakeport, and Marysville. Fixed wing bases in Santa Rosa and Sacramento).
- Helicopter services available in surrounding counties include Stanford Life Flight, Palo Alto; Medi-Flight, Modesto; Air Med Team, Stanislaus County

Rescue Aircraft

- California Highway Patrol (ALS helicopter, including hoist ability)
- East Bay Regional Parks (ALS helicopter)
- U.S. Coast Guard (BLS rescue capabilities, including hoist ability)

F. Hospitals

Receiving Hospitals

- Contra Costa Regional Medical Center, Martinez
- Doctors Medical Center, San Pablo Campus
- John Muir Health, Walnut Creek Campus
- John Muir Health, Concord Campus
- Kaiser Medical Center, Antioch (opens 11/07)
- Kaiser Medical Center, Richmond
- Kaiser Medical Center, Walnut Creek
- San Ramon Regional Medical Center, San Ramon
- Sutter Delta Medical Center, Antioch

Base Hospital

- John Muir Health, Walnut Creek Campus

Trauma Centers




- John Muir Health, Walnut Creek Campus
- Children's Hospital and Research Center (regional trauma center for pediatric patients)

V. EMS SYSTEM ACTIVITIES



A. Emergency Ambulance Services

Emergency ambulance services are provided Countywide under performance-based contracts in each of three exclusive operating areas. The County currently contracts with American Medical Response, San Ramon Valley Fire Protection District and Moraga-Orinda Fire Protection District. Contracts are awarded on a competitive basis, as required by law, except for Moraga-Orinda Fire, which is exempt from the competitive bid requirement under Health & Safety Code provisions.

| | | |
|---|---|---|
|  American Medical Response | All of West, East, and North/Central County. Includes cities of Richmond, San Pablo, El Cerrito, Hercules, Pinole, Pittsburg, Antioch, Oakley, Brentwood, Martinez, Pleasant Hill, Lafayette, Walnut Creek, Concord, and Clayton. | 15 – 48 ALS/BLS ambulances |
|  Moraga-Orinda Fire | Area of Moraga-Orinda Fire Protection District including Town of Moraga and City of Orinda. | 2 ALS ambulances |
|  San Ramon Valley Fire | Area of San Ramon Valley Fire Protection District including cities of Danville and San Ramon. | 5 ALS ambulances |

Contracts with all three providers require ALS level response to all life threatening or potentially life threatening emergencies. The area of the County served by American Medical Response (AMR) is divided into five Emergency Response Zones (ERZs). Ambulance staffing is predicated on the availability of paramedic first response in each ERZ. Ambulance response times are established based on the availability of paramedic first response in each ERZ, and on access – rural areas with no or poor road access may have extended response times. Ambulance staffing levels and response times are identified in the following tables:

Staffing Levels Ambulance Emergency Response Areas (ERAs) 1st Response and Ambulance

| Provider | Description | Level of 1 st Response Staffing | Ambulance Staffing |
|------------------------------|--|--|-----------------------|
| AMR | ERAs 1, 2, and 5 | | |
| ERZ A | Territory of the City of Richmond | BLS | 2 paramedics |
| ERZ B | El Cerrito, Kensington, Pinole, Rodeo-Hercules, Crockett-Carquinez, San Pablo, El Sobrante, North Richmond, other areas of West County | ALS | 1 paramedic/1 EMT-I |
| ERZ C | Concord, Clayton, Lafayette, Martinez, Pleasant Hill, other areas of Central County | ALS | 1 paramedic/1 EMT-I |
| ERZ D | Antioch, Oakley, Pittsburg, Bay Point and surrounding areas of East County | ALS | 1 paramedic/1 EMT-I |
| ERZ E | Brentwood, Byron, Bethel Island, Discovery Bay, and other areas of far East County | ALS | 2 paramedics |
| Moraga-Orinda Fire | ERA 3 - Moraga-Orinda Fire Protection District | ALS | 1 paramedic/1 EMT-I |
| San Ramon Valley Fire | ERA 4 - San Ramon Valley Fire Protection District | ALS | 1 paramedic/1 EMT-I |



Maximum Response Time Requirements in Minutes and Percentile

| Provider | Code 3 | | Code 2 | | Rural | | | |
|-----------------------|--------------------|-----|--------|-----|--------------------|-----|--------|-----|
| | | | | | Code 3 | | Code 2 | |
| AMR | | | | | | | | |
| ERZ A | 10:00 | 95% | 30:00 | 90% | 20:00 | 95% | 45:00 | 90% |
| ERZ B | 11:45 | 90% | 30:00 | 90% | 20:00 | 90% | 45:00 | 90% |
| ERZ C | 11:45 | 90% | 30:00 | 90% | 20:00 | 90% | 45:00 | 90% |
| ERZ D | 11:45 | 90% | 30:00 | 90% | 20:00 | 90% | 45:00 | 90% |
| ERZ E | 11:45 ¹ | 90% | 30:00 | 90% | 20:00 ² | 90% | 30:00 | 90% |
| Moraga Orinda Fire | 10:00 | 95% | 15:00 | n/a | 20:00 | 95% | 30:00 | n/a |
| San Ramon Valley Fire | 10:00 | 95% | 15:00 | n/a | 20:00 | 95% | 30:00 | n/a |

EMS Responses with Average Response Times - 2006

| Provider | Code 3 ³ | Code 3 Average | Code 2 | Code 2 Average |
|-----------------------|---------------------|----------------|--------|----------------|
| AMR | | | | |
| ERZ A | 8,602 | 6.13 min | 1,202 | 10.16 min |
| ERZ B | 7,439 | 6.85 min | 2,406 | 11.28 min |
| ERZ C | 18,505 | 7.53 min | 6,908 | 12.89 min |
| ERZ D | 12,128 | 7.32 min | 4,727 | 12.40 min |
| ERZ E | 2,397 | 8.90 min | 1,017 | 14.97 min |
| Moraga Orinda Fire | n/a | n/a | n/a | n/a |
| San Ramon Valley Fire | 3,900 | 11.02 min | 46 | 16.51 min |

Note: Response data unavailable from Moraga/Orinda Fire Protection District. Does not include QRV responses.

The EMS system received **72,849** requests for emergency ambulance response in **2006**. Of these, **55,946 (76.8%)** were considered to involve potentially life-threatening situations to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining **16,903 (23.2%)** ambulance responses were dispatched Code 2 (immediate response without lights and siren).

The level of ambulance response - ALS (paramedic) or BLS (EMT or paramedic) - to emergency medical requests is determined by the Fire/Medical Dispatch center based on emergency medical dispatch protocols. BLS units are occasionally dispatched on Code 3 calls if paramedic units are not available. Of **55,946 Code 3 dispatches**, a **paramedic unit was dispatched on 55,880 (99.9%)**, and an EMT-I unit, on 66 (0.1%).

Of the total responses, AMR ran 68,392 (93.9%) and San Ramon Valley Fire Protection District, 4,457 (6.1%). Moraga-Orinda Fire Protection District data was unavailable. Paramedic staffing was provided on 99.4% of all Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 72,849 emergency ambulance responses by American Medical Response and San Ramon Valley Fire Protection District during the year, **54,170 (74.4%) resulted in patient transport to an emergency receiving hospital.**⁴

¹ AMR must respond within 10:00 minutes to calls within non-rural designated areas of ERZ E either by ambulance or Quick Response Vehicle (QRV).

² Priority 1 calls in rural-designated areas of Bethel Island & Discovery Bay have 16:45 minute or less response times.

³ Does not include QRV responses.

⁴ Data not available from Moraga/Orinda Fire Protection District.



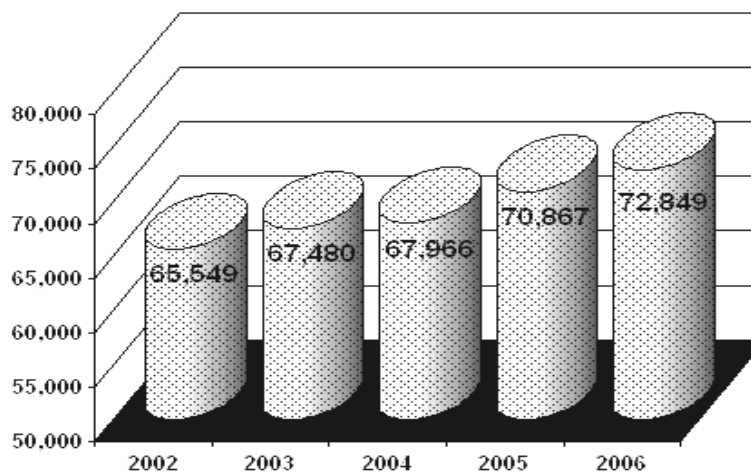
Ambulances responding to the remaining requests were canceled either enroute or at the scene without the need for patient transport. Reasons for cancellation vary from poor information regarding patient severity, to the patient having been transported by other means such as private auto, to the patient refusing ambulance transport. In many instances a situation that was initially perceived to be a medical emergency has been resolved or stabilized by the time the transport ambulance arrives.

Of the 54,170 patients transported by AMR and San Ramon Valley Fire, 11,583 (21.4%) were transported Code 3, lights and siren and 42,587 (78.6%) were transported Code 2.

5-Year Emergency Ambulance Dispatch Summary

| | 2002 | | 2003 | | 2004 | | 2005 | | 2006 ⁴ | |
|---|---------------|--------------|---------------|--------------|---------------|--------------|---------------|--------------|-------------------|--------------|
| | # | % | # | % | # | % | # | % | # | % |
| All Ambulance Dispatches | 65,549 | 100.0 | 67,480 | 100.0 | 67,966 | 100.0 | 70,867 | 100.0 | 72,849 | 100.0 |
| Code 3 (lights/siren) | 50,651 | 77.4 | 51,771 | 76.7 | 52,106 | 76.7 | 54,737 | 77.2 | 55,946 | 76.8 |
| Code 2 (no lights/siren) | 14,808 | 22.6 | 15,709 | 23.3 | 15,860 | 23.3 | 16,130 | 22.8 | 16,903 | 23.2 |
| American Medical Response | 60,255 | 92.0 | 61,664 | 91.4 | 62,350 | 91.7 | 63,406 | 89.5 | 68,392 | 93.9 |
| San Ramon Fire | 3,710 | 5.7 | 4,256 | 6.3 | 4,100 | 6.1 | 5,815 | 8.2 | 4,457 | 6.1 |
| Moraga-Orinda Fire | 1,494 | 2.3 | 1,560 | 2.3 | 1,516 | 2.2 | 1,646 | 2.3 | ⁵ | -- |
| Transport | 47,858 | 73.1 | 48,958 | 72.6 | 49,314 | 72.6 | n/a | -- | 54,170 | 74.4 |
| No Transport | 17,601 | 26.9 | 18,522 | 27.4 | 18,652 | 27.4 | n/a | -- | 18,679 | 25.6 |
| Avg. Code 3 Response | 7.15 minutes | | 7.43 minutes | | 8.01 minutes | | n/a | | 7.45 minutes | |
| Code 3 Responses Not Meeting Staffing Standard | 771 | 1.2 | 591 | 1.1 | 631 | 1.2 | n/a | -- | 66 | 0.1 |

All Ambulance Dispatches by Year



⁵ Data not available from Moraga/Orinda Fire Protection District.



B. First Responder Services

Most EMS responses involve dispatch of both first responder and ambulance units. Historically fire services have provided first response to medical emergencies. All firefighters are required by law to be trained in emergency first aid essentially all are certified as EMT-Is. Most fire services have implemented paramedic programs where firefighters licensed as paramedics respond on first responder units. Firefighters generally respond from the nearest fire station and are normally the first responder on the scene of a medical emergency. Eleven County-governed, independent district and municipal fire departments respond from a total of 69 fire stations within the County. Fire first responder services are now augmented in some remote areas of the County by 4 paramedic-staffed quick response vehicles (QRV's) deployed by American Medical Response.

First Responder Programs

Fire first responder paramedics provide a method for combining early advanced life support care with the generally shorter response times provided by first responder units. Several models of paramedic first responder service are provided in Contra Costa County. All First Responder Paramedic programs operate under base hospital medical direction as well as EMS Agency policies and procedures.



★ **Moraga-Orinda Fire Protection District**

Moraga Fire Protection District has provided paramedic ambulance services since 1977. In 1988, the Moraga Fire District implemented an ALS Engine program, to back up the Moraga paramedic ambulance. An ALS Engine, staffed with at least 1 paramedic and 1 EMT-I and stocked with ALS equipment, is dispatched simultaneously with an ALS transport unit to emergency medical requests.

In 1997, Moraga Fire Protection District merged with Orinda Fire Protection District to form the Moraga-Orinda Fire Protection District. By 1999 all first responder units were staffed to provide paramedic advanced life support care.

★ **San Ramon Valley Fire Protection District**

The San Ramon Valley Fire Protection District has provided paramedic ambulance services since 1984. In 1997, San Ramon Valley Fire Protection District implemented a program under which minimum ambulance staffing was dropped from 2 paramedics to 1 paramedic and 1 EMT-I. This enabled the District to increase the number of stations with paramedic staffing and provided flexibility for responses of paramedic ambulances and paramedic engines for critical patients. A dispatch plan, based on Medical Priority's Emergency Medical Dispatch System, assures 2 paramedics are on scene when needed for certain categories of patients. In addition to the ambulances essentially all fire apparatus is stocked with advanced life support equipment and staffed with at least 1 paramedic.



★ **Contra Costa County Fire Protection District**



In 1997, Contra Costa County Fire Protection District implemented a pilot first responder paramedic program in the Walnut Creek area with two engines staffed with 1 paramedic and 2 firefighters, and a "Medic Unit," a non-transport vehicle staffed with 1 paramedic. Contra Costa County Fire has continued to expand its first responder paramedic program. Currently there are 28 full time and 2 part time units. In addition, all stations were equipped with paramedic equipment to allow extra available paramedics to provide ALS service if needed.



★ El Cerrito Fire Department

In 2001, El Cerrito Fire Department implemented an ALS program by providing a paramedic engine to cover the Kensington and El Cerrito hills where ambulance response times are typically over 10 minutes. An additional paramedic engine went into service on July 1, 2007 making a total of 3 paramedic engines in El Cerrito

★ Pinole Fire Department

In 2005, Pinole Fire Department implemented a first responder paramedic program by providing a part time paramedic-staffed engine. Currently Pinole Fire includes 2 full time paramedic engines.



★ Rodeo Hercules Fire Protection District

In 2004, Rodeo Hercules Fire Protection District implemented a first responder paramedic program by providing a part-time paramedic-staffed engine. As of January 2006, Rodeo Hercules includes 2 full time paramedic engines.



★ Crockett Carquinez Fire Protection District

Crockett Carquinez Fire Protection District offers a basic life support fire first responder program. American Medical Response provides paramedic first responder services within the District with a QRV.



★ East Contra Costa County Fire Protection District

The East Contra Costa County Fire Protection District offers a basic life support fire first responder program. American Medical Response provides paramedic first responder services within the District with 3 QRVs.



★ Richmond Fire Department

Richmond Fire Department offers a basic life support fire first responder program. To meet the countywide standard of assuring a paramedic to provide advanced life support on-scene within 10 minutes, American Medical Response responds with 2 paramedic-staffed ambulances within a 10-minute response time standard in the Richmond area.



Paramedic Quick Response Vehicles (QRVs)

In 1992, the first paramedic-staffed non-transport quick response vehicle (QRV), funded by Measure H and provided by American Medical Response (AMR), was stationed in the Byron-Discovery Bay area to provide timely paramedic response in a remote area of the County where response times could be extended.



In 2004, AMR assumed responsibility for the QRV program and stationed 4 paramedic-staffed QRVs to provide a timely paramedic response in remote areas where the fire services have not implemented paramedic first responder programs. Three QRVs were stationed throughout East County (Byron/Discovery Bay, Bethel Island and Oakley areas) and 1 QRV was stationed to augment paramedic first responder services in the Crockett, Rodeo-Hercules, and Pinole areas of West County. In 2006, a total of 2,427 Code 3 responses and 563 Code 2 responses were made by QRVs in these areas.



Public Safety Automated External Defibrillator (AED) Program

The 1st responder defibrillation program, established on a countywide basis in 1992, provides rapid access to life-saving care for patients with cardiac arrest. Initially the program was implemented in fire services, but several police departments are also equipping squad cars with defibrillators. AEDs are currently being carried or are planned for police units in Antioch, Brentwood, Hercules, Kensington, Lafayette, Moraga, Orinda, Pittsburg, San Ramon, and Blackhawk.



Emergency Medical Guidelines for Law Enforcement Agencies

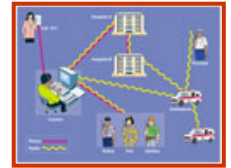


Emergency Medical Guidelines For Law Enforcement Agencies were first developed and implemented in 1992 following approval by the County Police Chiefs' Association and the Emergency Medical Care Committee. These guidelines provide direction to law enforcement personnel when they are the first to arrive on the scene of a medical emergency. The guidelines address the medical aspects of the officer's responsibility.

C. Dispatch and Communications

Medical Emergency & Disaster Ambulance Radio System (MEDARS)

MEDARS is the County radio system used for ambulance-to-hospital and for Sheriff's Dispatch-to-ambulance communications. This radio system includes 4 channels. XCCEMS1 is used for communications between ambulances and Sheriff's Dispatch. XCCEMS2, XCCEMS3, and XCCEMS4 are for ambulance-to-hospital communications.



Message Transmission Network (MTN)

MTN is a computer network designed to interconnect County's fire/medical dispatch centers, Sheriff's dispatch, and AMR dispatch. Currently, the MTN system is in use at Contra Costa Fire Dispatch and AMR Dispatch and in **2005** handled about 70% of all EMS dispatches Countywide. Richmond Police Dispatch implemented the MTN system in June 2006. By establishing a direct data link among the computer-aided dispatch systems, MTN decreases dispatch time, reduces dispatch errors, and provides system response data. MTN uses the All County Criminal Justice Information Network (ACCJIN), which provides an existing linkage among 9-1-1 answering points using similar protocols (TCP/IP) to those used on the Internet.

Priority Dispatching



Emergency Medical Dispatch (EMD) is a process where EMS dispatchers screen calls to provide appropriate EMS first responder and ambulance response, and provide simple emergency medical instructions for the caller to initiate prior to arrival of EMS personnel. In 1993, Medical Priority's ProQA Dispatch System was piloted in the San Ramon Valley Fire Protection District's dispatch center. By 2000, all fire/medical dispatch centers provided fire/ambulance dispatch utilizing this system. The National Academy of Emergency Medical Dispatch accredits dispatch agencies that use the Medical Priority Dispatch System and meet high standards of utilization, evaluation and education as "Centers of Excellence." All 3 public safety medical dispatch centers within Contra Costa County have achieved the "Center of Excellence" accreditation.

Fire Radios

Hi-band mobile radios, programmed with existing fire service radio channels, have been installed in most paramedic units to facilitate communication among paramedics, fire dispatch centers, and fire first responders. With the installation of Richmond Fire radios, planned for late 2007, this system will be complete.





ReddiNet

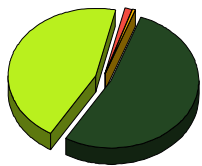


The ReddiNet system, implemented locally in 2001, is a proprietary system for networking hospitals and county central points for the purpose of sharing information of hospital status and other important information related to the EMS system, multicasualty incidents, and disasters. The system, initially designed as a microwave communications link between hospitals, is now also available on the Internet. Hospitals and EMS Agencies in Alameda and Contra Costa Counties, and in 2003, Solano County, are included in the local ReddiNet system. Since 2003, Marin, Napa, Sonoma, Mendocino, Lake and Humboldt have become part of the ReddiNet system.

In Contra Costa, Sheriff's Dispatch is the coordination point and Dispatch Centers for all 3 emergency ambulance providers participate. On a day-to-day basis hospitals can receive alert notices and timely incident updates from EMS and Sheriff's dispatch, can post hospital CT or internal "physical plant casualty" diversion and "census alert" status, and can send any important message to other hospitals individually or as a group. During multicasualty incidents, ReddiNet facilitates reporting of hospital information, tracking of ambulance assignments, and patient information. During a major disaster, ReddiNet is designed to provide a reliable communication path between hospitals and the counties' disaster operations centers. Periodic drills with the hospitals using ReddiNet provide practice in using this important communications tool.

D. Helicopter Transport

Operational Procedures for Patient Transport by Helicopter were originally developed during trauma system planning in 1985/1986. In 2002, policies addressing helicopter transport were implemented. Most local helicopter transports are for trauma patients from distant areas of Contra Costa to the John Muir Trauma Center in Walnut Creek. Doctors San Pablo also has a helipad that may be used as an ambulance/helicopter rendezvous point. The County's current standard of care for emergency patients transported by air is by an "air ambulance" which is staffed with 2 ALS care providers. Rescue aircraft are also requested for their special resources. As an example, a California Highway patrol helicopter has been used for its hoist capability. Additionally, a formal procedure for access of military aircraft has been adopted.



In 2006 there were 338 transports of local patients by helicopter, almost exclusively to trauma centers. One hundred fifty-six patients (46.2%) were from West County, 149 (44.1%) from East County, 14 (4.1%) from South County and 19 (5.6%) were Central County.



Local authorized air ambulance helicopter providers, CALSTAR and REACH, are dispatched on a daily rotation schedule and perform nearly all helicopter transports in the County. In 2006, CALSTAR transported 195 patients (57.7%); REACH 141 patients (41.7%); and CHP 2 (<1%). In addition to the local helicopter transports, 250 patients were transported by helicopter from out-of-County locations to John Muir Trauma Center.







E. Hospital Emergency Services

The California licensed acute care hospitals located in Contra Costa have 8 emergency departments that provide service 24 hours/day, 7 days/week, and serve as receiving facilities for patients transported by emergency ambulance. The staff of these emergency departments includes



at least 1 physician, trained and experienced in emergency medicine, 1 or more specialized registered nurses, plus clinical and clerical support staff. Specialty physicians are generally available for consultation on patients in the emergency department "on-call," from their offices or home. Kaiser Permanente will be opening a new acute care hospital in Antioch on November 7, 2007.

| | | | |
|---|---|--|---|
| Contra Costa Regional Medical Center |  | 2500 Alhambra Avenue Martinez, CA 94553 925-370-5000 | Acute Care Beds 164 Intensive Care Beds 8 |
| Doctors San Pablo |  | 2000 Vale Road San Pablo, CA 94806 510-235-7000 | Acute Care Beds 232 Intensive Care Beds 29 |
| John Muir Health, Walnut Creek |  | 1601 Ygnacio Valley Road Walnut Creek, CA 94598 925-939-3000 | Acute Care Beds 321 Intensive Care Beds 35 |
| John Muir Health, Concord |  | 2540 East Street Concord, CA 94524 925-682-8200 | Acute Care Beds 254 Intensive Care Beds 25 |
| Kaiser Medical Center, Antioch |  | 4501 Sand Creek Road Antioch CA 94531 | Opens 11/07 |
| Kaiser Medical Center, Richmond |  | 1330 So. Cutting Blvd. Richmond, CA 94801 510-307-1500 | Acute Care Beds 50 Intensive Care Beds 8 |
| Kaiser Medical Center, Walnut Creek |  | 1425 South Main Street Walnut Creek, CA 94596 925-295-4000 | Acute Care Beds 229 Intensive Care Bed 24 |
| San Ramon Regional Medical Center |  | 6001 Norris Canyon Road San Ramon, CA 94583 925-275-9200 | Acute Care Beds 123 Intensive Care Beds 12 |
| Sutter Delta Medical Center |  | 3901 Lone Tree Way Antioch, CA 94509 925-779-7200 | Acute Care Beds 111 Intensive Care Beds 12 |

Annual Hospital Capabilities and Resources Assessment

Contra Costa acute care hospitals perform annual self-assessments to identify critical care capabilities and hospital resources available to their patients. Data collected includes:

- ★ Special permit services such as emergency services burn unit, cardiovascular surgery service, and/or chronic dialysis unit.
- ★ Intensive care units and surgical services.
- ★ Hospital specialty services, e.g. hemodialysis, trauma, hand surgery, in-hospital pharmacy.
- ★ Physician specialty availability such as orthopedics, neurology, internal medicine, surgery, and anesthesiology.
- ★ Disaster and radiation/hazardous material exposure preparations.

The EMS Agency develops and distributes a report that includes information collected from the hospitals. It is available upon request or online at www.cccems.org.

Emergency Department (ED) Diversion

EMS policy, initially developed and implemented in 1985, permitted diversion of ambulances by emergency departments of acute care receiving facilities with over-crowded EDs. Hospitals were required



to contact the County Health Officer to direct ambulances to transport certain ambulance patients to other nearby hospitals. Over time, the practice of requesting diversion of ambulances for overcrowding became much more common likely from increased overcrowding and other factors. Do to the impact of ED diversion on the EMS system and on surrounding hospitals, the EMS diversion policy was modified to permit only 1 ED to use ED diversion at a time. In September 2006, diversion of ambulances for ED saturation (ED Sat) was initially suspended following the temporary closure of Doctors San Pablo ED. Most hospitals developed detailed internal plans to address the ED overcrowding problem so as not to impact the EMS system. In December 2006, based on support of the EMS Facilities and Critical Care Committee, EMS Policy was revised to eliminate diversion for ED saturation.

Internal Hospital Status Assessment

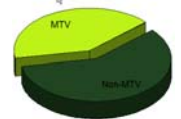
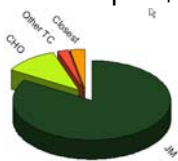
At the end of 1997, and into the 1st quarter of 1998, Contra Costa experienced an acute shortage of ED and critical care resources. This phenomenon was felt in surrounding counties and throughout much of the State. As a result, in 1998 Contra Costa hospitals worked in conjunction with the Hospital Council and EMS Agency to develop a framework for hospital response to scarcity in staffing, equipment, and/or bed capacity. Each hospital has internally integrated the Hospital Census Alert System for shortages in their facility. Starting in 2001, hospitals report their census alert status daily on the ReddiNet system.

F. Trauma System

In 1986, the Board of Supervisors approved a comprehensive Trauma System Plan for the County and designated John Muir Medical Center (Walnut Creek) as the County's Level II Trauma Center, and in June of that year, ambulance personnel began transporting critical trauma patients directly to John Muir, Walnut Creek. Ambulance and base hospital personnel use triage protocols, which include evaluation of mechanisms of injury and anatomic factors as well as a physiologic trauma scoring system to identify critical trauma patients. In 2001, a revised trauma system plan was developed to meet new State trauma system planning requirements.



In **2006**, 2,909 patients were identified as requiring **trauma triage**, 1006 (35%) of which were transported directly to John Muir Trauma Center. Ninety-four patients were transported to Children's Hospital, Oakland, and 23 to out-of-County adult trauma centers, primarily Eden Hospital, Castro Valley and Highland Hospital, Oakland. Patients in traumatic full arrest or whose airway cannot be managed are triaged to the closest basic emergency department for resuscitation. During the past 19.5 years of operation, a total of 56,976 patients have been triaged through the County trauma system.



Critically injured patients who arrive at non-trauma center hospitals may be transferred to trauma centers. Seventy-eight of 145 injured patients transferred to John Muir, Walnut Creek from within Contra Costa were retrospective "major trauma victims."

John Muir Trauma Center also received **381 trauma patients from surrounding counties**, generally by air transport. **One hundred forty eight** of the injured out-of-County patients were retrospective "Major Trauma Victims." In particular, John Muir Trauma Center receives a significant number of trauma victims from neighboring Solano County as triaged by Solano Base Hospitals. The number of patients John Muir Trauma Center receives from Solano has remained constant at about 12% of their trauma admissions. John Muir Trauma Center has seen an increase in the distance trauma patients are being transported to the Trauma Center, coming from as far away as Ukiah.

If trauma center resources are temporarily overwhelmed, the trauma center may consider "Trauma Center Bypass," directing any critical trauma patients to out-of-County trauma centers until



resources are again available. In **2006** John Muir Trauma Center bypass rate was 2.1 % and was most often due to operating room overload.

Trauma System Evaluation

A major aspect of the trauma system is an extensive trauma system and trauma center monitoring program. Part of this program is a unique, bi-county audit system called the Trauma Audit Committee (TAC) held in conjunction with Alameda County EMS and Alameda County trauma centers. This review process has been in place since the inception of the County trauma system. Trauma surgeons from other California trauma systems also participate in the trauma system evaluation and monitoring process, bringing outside perspectives and the additional expertise from teaching facilities.

Historically selection of cases to be presented at TAC meetings was done through the Pre-Trauma Audit Committee (PreTAC) meetings. Trauma Surgeon Directors on a rotating basis traveled to another of the 4 trauma centers to review care (chart review) provided trauma patients. In 2005 a new case review selection process was implemented which provided for Trauma Surgeon Director case review off site. The PreTAC continues to review EMS system issues related to trauma care.

John Muir Trauma Center also has its own internal monitoring and evaluation systems coordinated by an RN Trauma Program Coordinator. The Coordinator meets weekly with nurses, social service, physical therapists, neuropsychology, rehabilitation, nutritional services, pastoral care and patient accounting to analyze every patient on the trauma service from a multidisciplinary perspective.

Trauma Injury Prevention

John Muir Trauma Center supports an active injury prevention program that includes a prevention program for the elderly (falls and medication use); car seat inspections; school-based presentations; participation in health fairs; and representation on a number of injury prevention organizations, target groups and committees. John Muir Injury Prevention has received National Awards of Recognition for their programs and service to the community including recognition for the development of "Nurses & Cops Caring for Contra Costa Children," which provides free car seat inspections in all areas of Contra Costa throughout the year.



G. EMS for Children Program

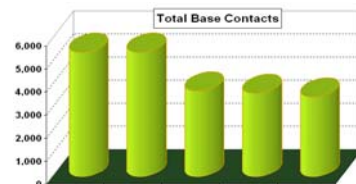


In 1999, the EMS Agency obtained a 2-year grant to develop and implement a local EMS for Children (EMSC) program. An EMSC Plan was adopted in 2001 which has been integrated into the County EMS System Plan. Hospital related EMSC issues are addressed through the EMS Facilities and Critical Care Committee. EMS staff actively participant on the Contra Costa Child Death Review Team (CDRT). An EMSC plan update is planned for 2007.

H. Medical Oversight

Base Hospital Services

John Muir Health, Walnut Creek provides direct (on-line) and indirect (retrospective review) medical oversight services for ambulances countywide. John Muir Base also provides trauma triage for ambulances transporting possible major trauma victims. In **2006 there were 3,443 base hospital contacts** by field personnel.



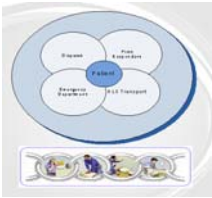
Field Treatment Protocols

First responders, paramedics, EMTs, and base hospital personnel use EMS Field Treatment Guidelines to provide care to patients in the field. These guidelines, based on current research and



medical need in the County, are reviewed and evaluated by the Medical Advisory Committee that makes recommendations to the EMS Medical Director for implementation. Field treatment protocols are reviewed and revised on an ongoing basis.

I. Quality Improvement (QI) Program



The EMS Agency has committed to implementing a comprehensive local EMS quality improvement program. EMS and provider agencies have reviewed and evaluated current quality processes, practices and programs over the past year and are working on:

- ★ Updating QI policies/programs assuring compliance with State regulations/guidelines.
- ★ Developing quality partners among providers, agencies and hospitals.
- ★ Creating appropriate tracking mechanisms to capture QI activities.
- ★ Re-designing current system of unusual occurrence reporting and data management.
- ★ Exploring technology solutions to improve processes/efficiencies within county EMS QI program.
- ★ Improving opportunities for direct pre-hospital provider feedback on QI issues through electronic newsletters and e-communications.
- ★ Creating a collaborative environment to share tools, resources and strategies to improve patient care outcomes with quality partners and stakeholders.
- ★ Establishing key indicator reports for patient care and patient safety.
- ★ Building measurement and data analysis systems in collaboration with EMS provider agencies

With the implementation of computerized patient care data collection options to look at patient safety, and patient care interventions and outcomes have been greatly enhanced. It is expected that data analysis will become increasingly important as users become expert at using pre-hospital care key indicators to establish an objective data oriented approach to what really “makes a difference” in the field. The EMS Agency publishes *EMS Best Practices*, an EMS provider focused quality newsletter to educate and increase provider awareness of what can be done to improve patient care. The ultimate objective is to establish quality improvement programs focused on patient satisfaction and patient safety.

J. Certification Programs

Paramedics. Paramedics are licensed by the State of California and are accredited by the local EMS Agency to practice in each county or EMS region in which they are employed. In **2006, 248 paramedics were either accredited or re-accredited** by the Contra Costa County EMS Agency to practice as paramedics locally.

EMT-Is. Any local EMS Agency may certify EMT-Is within the State. Once certified, an EMT-I may function as such statewide. In **2006, 512 EMT-Is were certified/recertified** locally.

MICNs. In 2006, 30 RNs were either authorized or re-authorized in Contra Costa to practice in the expanded MICN role locally.



K. Training Programs

Local EMS Agencies are required to review and approve training programs for prehospital personnel as meeting all requirements established by State regulations.

Paramedic Training Program. There is no local paramedic program provider currently.

MICN Training Program. John Muir, Walnut Creek offered a 3-day MICN training in 2006.

EMT Training Programs. Los Medanos Community College, Contra Costa County Fire, Moraga-Orinda Fire, Mt. Diablo Adult Education, Contra Costa College, West Contra Costa Adult Education, and Contra Costa County ROP offer local EMT courses.





- ★ Los Medanos Community College offers EMT training each semester (Pittsburg campus).
- ★ Contra Costa College offers EMT training each semester (San Pablo campus).
- ★ Mt. Diablo Adult Education offers EMT training throughout the year (Concord facility).
- ★ Health Career College offers EMT training throughout the year (Concord facility).
- ★ Contra Costa County R.O.P. offers EMT training throughout the year (Pleasant Hill facility).
- ★ Fire services offer training and continuing education to their in-house personnel.

L. Public Information Education Program

Emphases of the EMS agency public information and education efforts are on EMS system access, recognition of life threatening situations, prevention of injuries, and techniques and first-aid skills that the public can utilize in emergency situations (CPR specifically). In 2005, EMS distributed 42 Automatic External Defibrillators (AEDs) to public agencies within the County. This project included site selection, CPR/AED training to 121 staff members from various sites and AED orientations/demonstrations for the supplemental staff. EMS is now working with American Medical Response to assist with distribution of 25 AEDs annually.



- ★ CPR class availability is accessible through the EMS Agency maintained 1-800-GIVE-CPR number that is advertised in local telephone books. Beginning 2006, CPR class availability is posted on the EMS Agency website. The new 1-800-GIVE-CPR number answering message offers the caller a callback and refers the caller to the EMS Agency website where a listing of CPR providers in Contra Costa is provided. Since this change has occurred, the number of callers requesting callbacks has decreased dramatically.
- ★ EMS provides speakers for a number of community organizations such as the Rotary Club, acute care receiving and skilled nursing facilities, and school districts.
- ★ A Contra Costa EMS 9-1-1 Brochure is available for distribution.



M. Fire EMS Training Consortium



At the request of local fire services, the EMS Agency formed a Fire EMS Training Consortium in 2005 to develop and provide a countywide training standard for fire agencies and ambulance personnel. This program uses state of the art simulation technology to provide consistent, quality Fire EMS education and performance improvement. In 2006, a patient Emergency Care Simulator (ECS) was obtained, simulation curriculum/training materials were developed, and a mobile training program facilitated by AMR was implemented.

Since its inception 10 fire-ambulance agencies have participated with 24 core consortium faculty to generate 50 trainings in 51 days in the first quarter of 2007 training over 540 pre-hospital providers. The Consortium has begun standardizing prehospital curriculum and has facilitated and implemented Fire EMS training for the new MCI plan. In 2007 the first county prehospital educational needs assessment was developed and data is being collected by each participating agency to guide local curriculum planning. The Consortium plans to expand the simulator family to include a pediatric patient simulator and to build a library of consortium training modules including 12-lead and airway management.



N. Interfacility Transfer Paramedic Program

In 2002 an interfacility transfer paramedic program (Critical Care Transport-Paramedic - CCT-P) was developed to provide an alternative means of transferring stable patients who require, or may require, care within the CCT-Paramedic Scope of Practice during transfer. CCT-P units were initially used to transfer



patients from acute care hospitals to other acute care facilities. Policies enacted in 2004 permitted CCT-P units to be used by outpatient clinics to transport patients to acute care hospitals. The EMS Agency authorizes and contracts with interested ambulance companies that meet the training, staffing, equipment and oversight requirements.

CCT-P units are fully equipped advanced life support ambulances, staffed with a minimum of 2 qualified staff that includes at least 1 paramedic. CCT-Ps have an expanded scope of practice and the transferring physician specifies standing orders for patients based on skills and medications within the CCT-P scope of practice. In 2003 Contra Costa and Alameda Counties signed a reciprocal agreement allowing interfacility transfer paramedics to respond and transport patients throughout both Counties. In **2006** there was a significant expansion of the CCT-P scope of practice to include several new medications and intravenous infusions, and blood/blood products.

O. Do-Not-Resuscitate Program (DNR)



A DNR program for patients with terminal medical problems was implemented in 1993. This program evolved in response to concern from the public over a patient's right to self-determination. The Do-Not-Resuscitate program allows patients, in conjunction with their physicians, to refuse resuscitative measures in the prehospital setting, even if the 9-1-1 system is inadvertently activated. The DNR form is signed by both the patient and the patient's physician and is recognized by prehospital personnel Statewide. The DNR form provides prehospital personnel with a physician order to not resuscitate the patient. Comfort measures and care other than resuscitative measures are still provided by first responders and ambulance personnel. The EMS Agency has distributed thousands of DNR forms to individuals, hospitals, nursing homes, hospices, home health agencies, and private physicians throughout the County.

P. Disaster/Multicasualty Planning and Response

Multicasualty Incident Plan (MCI)

The MCI is a multi-agency plan setting forth roles and responsibilities of response and support agencies in the event of a large-scale incident involving a large number of casualties. The plan was originally developed and approved by the Board of Supervisors following the 1976 Yuba City/Martinez school bus accident. In 2005 the EMS Director appointed a multi-disciplinary work group to update the existing MCI plan. The new plan incorporated major changes to MCI activation that should increase competence of providers in the areas of incident command, triage, utilization of critical communication tools, and single point ordering. EMS staff in conjunction with Fire EMS Training Consortium developed and distributed training modules for fire, ambulance, police, and hospitals. The Emergency Medical Care Committee endorsed the plan in December 2006. The new plan was implemented on 7/1/07.



Medical Advisory Alert

The Medical Advisory Alert, a notification procedure used when an incident occurred or a condition existed that *might* tax local medical resources, was folded into the new MCI Plan as a Level 0 incident.

Multi-Casualty Supply Caches



First aid supplies purchased by the EMS Agency are organized into 25 multi-casualty supply caches stored/maintained in fire stations countywide. Fire agencies will transport caches to incidents when requested. Cache supplies include bandaging equipment, splinting supplies, oxygen administration supplies, and blood pressure equipment.



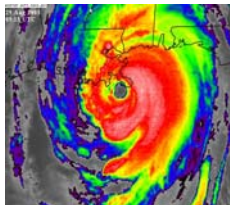
Health Services Emergency Preparedness Program

Contra Costa Health Services (CCHS) has established an emergency preparedness program emphasizing ongoing and corrective action planning, and continuity of critical services. A disaster planning work group meets monthly to develop and expand plans for Health Services divisions to be able to respond together to a wide variety of emergency situations from natural disasters, e.g., earthquakes and floods, to chemical or other toxic releases to public health emergencies. The CCHS Emergency Management Team consists of CCHS division directors and administrative staff necessary to provide a medical/health response to emergencies utilizing the Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS).



In August 2006, CCHS created an implementation plan after conducting a follow up survey to the "Code Orange," and the "Golden Guardian '05 Exercises" in which many best practices were observed and noted. Hospital emergency managers reported areas of greatly improved disaster preparedness and response due to their implementation of the following practices:

- ★ **Self-Preparedness.** Several local hospitals have developed or are developing programs to train their staffs on personal and family preparedness measures. During disasters, having sufficient staff becomes a major concern for hospitals. Staff members that have developed family support systems are more likely to report to work following a disaster.
- ★ **Hospital-to-Hospital Coordination.** Many local hospitals work with other network hospitals allowing for coordination of supplies, equipment, and personnel. Additional solutions are being identified to provide additional support or backup resources. For example, although owned and operated by different entities, Doctors San Pablo has developed agreements with its neighbor, Brookside Community Health Center, to provide services during disasters.
- ★ **Relationships with Local Law Enforcement.** Many Contra Costa hospitals have contacts with local law enforcement. For example, emergency managers at both Sutter Delta and Doctors San Pablo have developed close working relationships with members of local police departments. Strong relationships with these first responders allow for more coordinated efforts during disaster, particularly if security personnel resources are needed at the hospital.



- ★ **Model Disaster Equipment/Supply Lists.** Developing and maintaining a comprehensive cache of emergency equipment and supplies is a high priority for hospitals. As identified during the response to Hurricane Katrina, for example, San Ramon Regional Medical Center has developed a supply/equipment list currently being used by all Tenet hospitals. Consistency among supplies and equipment for network hospitals is beneficial to disaster response.

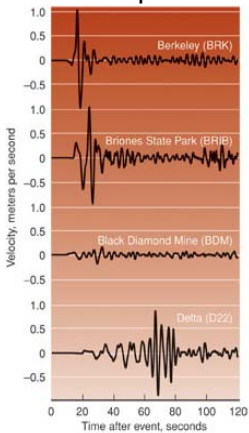
- ★ **Disaster Equipment/Supply Storage Solutions.** With the identified need to have additional medical and emergency supplies available to address patient surge, some hospitals have found additional storage solutions. For example, San Ramon Medical Center stores some emergency supplies at a distributor of medical/surgical supplies, so that "push packs" of equipment and supplies can be transported from the warehouse to the facility when needed.

- ★ **Hospital Emergency Incident Command System (HEICS).** Hospitals are successfully using the HEICS for both exercise play and actual events. For example, John Muir Health, Walnut Creek recently responded to a construction related natural gas leak by forming an Incident Command System, beginning emergency evacuations, and sending a liaison to work with fire response team to mitigate the event.





These best practices, implemented on a regional basis, improve the response of all Contra Costa hospitals. As the hospitals continue to participate in exercise and evaluation cycles, additional best practices that are discovered are noted and discussed at future meetings.

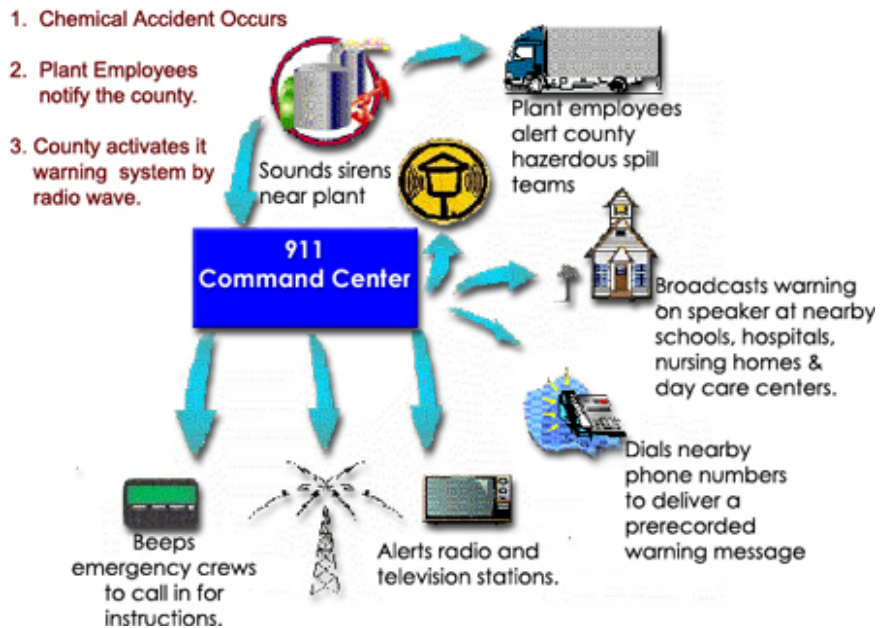


Utilizing a large-scale Bay Area earthquake scenario, CCHS, medical centers, clinics and other local medical facilities, participated in the Statewide Medical & Health (**Golden Guardian '06**) Exercise conducted in November 2006. The exercise was designed in collaboration with the California Office of Homeland Security. Both the Statewide Medical/Health, and Golden Guardian Exercises were conducted simultaneously and built on the same scenario. The goal in conducting the exercises simultaneously was to promote communications and coordination efforts between County Emergency Operations Center (EOCs) and the medical/health system.

The CCHS Department Operating Center (DOC) was activated as part of the exercise, and response staff practiced where to go, how to open and activate the DOC and assume assigned roles in the DOC as well as understand SEMS/NIMS functions. The drill also served to familiarize staff with various activation materials, and utilizing coordination tools such as IRIS, satellite phones, radios, ring-down lines to the County EOC, radios, and the RACES system. An After Action Report was developed for the follow-up of corrective actions.

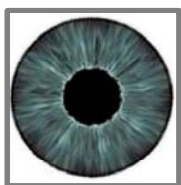
Community Warning System

Refineries and other industrial sites which use or store potentially hazardous chemicals use the Community Warning System to issue alerts that indicate incidents have occurred. These alerts range from Level 0 alerts at the low end to Level 3 alerts at the high end. EMS staff is alerted by pager to Level 2 (an incident has occurred resulting in minimal off-site impact) and Level 3 (an incident has occurred resulting in significant off-site impact) events. Both Level 2 and 3 alerts normally result in Medical Advisory Alerts.



Incident Response Information System (IRIS)

IRIS, an in-house software program developed for use by Health Services employees to facilitate communications among its various divisions and physical sites during major disasters, or during minor incidents of local significance. The program provides the potential for the creation of a 'virtual' Department Operations Center (DOC) during a large-scale event or disaster.





Regional Disaster Planning Grant



California Health and Safety Code Division 2.5, Section 1797.152, provides for the designation of **Regional Disaster Medical/Health Coordinators (RDMHC)**. The Contra Costa Health Officer has been the designated RDMHC for OES Mutual Aid Region II, (OES Coastal Region). Since 1990, the EMS Agency has received a series of disaster planning grants funded by the State EMS Authority (EMSA) and the California Department of Health Services (CDHS). These grants provides funding for Regional Disaster Medical Health Specialists, (RDMHS), to provide staff support to each of the RDMHCs, with a Scope of Work provided by State EMSA and CDHS. In **2006** staff continued work on the medical-health mutual aid system, the focus of the, 2006-2007 work objectives being:

- ★ Development of disaster response materials to support California Disaster Medical Response, California Medical/Health Mutual Aid, Regional Disaster Medical Health Coordinator/Specialist, and Medical Health Operational Area coordination.
- ★ Development of a Regional CHEMPACK Plan and distribution of CHEMPACKS regionally.
- ★ Continued work on the Super-Urban Area Security Initiative (S-UASI) Regional Emergency Coordination Plan, a response plan written specifically for the Regional Emergency Operations Center and a multi-county endeavor funded by San Francisco Urban Area Security Initiative (UASI).
- ★ Participated in local and regional exercises including mass prophylaxis, patient surge, multi- casualty, Departmental Operations Center, Strategic National Stockpile (SNS), Point of Distribution (POD) exercises and the 2006 Golden Guardian exercise.
- ★ Tested a Regional Medical-Health Mutual Aid System, developed by Santa Clara County for use by the California Costal Region's use as an electronic web based tool for exchanging medical health resource information, in the Golden Guardian Exercise.
- ★ Enhanced capacity for notification and information sharing in California Health Alert Network.
- ★ Initiated work to identify a Regional Medical Transport Dispatch Center as well as identifying locations for the placement of 5 Disaster Assistance Support Units.
- ★ Responded to a Tsunami Advisory, Wind Power Outage event and a Winter Freeze event.



CHEMPACK Project



Contra Costa County participates in the CHEMPACK Project, part of the Strategic National Stockpile (SNS) Program, designed to provide an available and sustainable resource of chemical and nerve agent antidotes throughout the United States. Managed by the Federal Centers for Disease Control and Prevention (CDC), the CHEMPACK Project is designed to provide enough chemical and nerve agent antidotes to treat up to 1000 people per container. There are 2 variations of CHEMPACK containers: the EMS container designed for pre-hospital emergency responder use (primarily preloaded auto-injectors), and the Hospital container, designed for hospital and treatment center use (primarily multi-dose vials).

Terrorism Early Warning Group(TWEG):

The EBTEWG, an Alameda and Contra Costa bi-county collaboration, is a regional hub for operational information-sharing pertaining to terror incident preparation, mitigation, response and recovery in the East Bay. In addition to significant law enforcement and fire department





participation, the EBTEWG includes the medical community including participants from local hospitals and ambulance providers serving as Terrorism Liaison Officers.

HRSA National Bioterrorism Hospital Preparedness Program

Contra Costa County has continued to receive funding for hospital and community clinic preparedness through the Health Resources and Services Administration (HRSA) National Bioterrorism Hospital Preparedness Program. The most recent Year 5 grant award was in the amount of \$539,656 covering the period September 1, 2006 through August 31, 2007. These funds have been used for continued acquisition of emergency supplies and equipment for the county's hospitals and community clinics, development of a web-based Asset, Logistics, and Resource Management System (ALARMS) to inventory and track emergency resources, training of hospital and clinic personnel, and for emergency preparedness exercises.

Hospital and community clinic preparedness activities are coordinated at the county level by the EMS Health Services Emergency Preparedness Manager with input from community partners through the Hospital Disaster Forum. In addition to each of the county's acute care hospitals, active participants in the Hospital Disaster Forum monthly meetings include the Hospital Council of Northern and Central California, Community Clinic Consortium of Contra Costa, Veterans' Administration Martinez Outpatient Clinic, American Medical Response, fire and law enforcement representatives, and County staff from the Sheriff's Office of Emergency Services, Health Services Public Health Division, and EMS. Three consultants have played major roles in the HRSA Bioterrorism Hospital Preparedness Program: The Abaris Group has assisted with planning and budgeting; Ecology and Environment, with exercises and exercise evaluation and developed the ALARMS software; and Global Vision Consortium has assisted the community clinics in emergency preparedness planning and training.

The HRSA National Bioterrorism Hospital Preparedness Program has now moved to the U.S. Health and Human Services Assistant Secretary for Preparedness and Response (ASPR) and will be known as the Hospital Preparedness Program (HPP). Funding is expected for the upcoming year, and capabilities that must be prioritized and funded for Year 7 are:

- ★ Interoperable communications,
- ★ Bed tracking,
- ★ Emergency System for the Advance Registration of Volunteer Health Professionals (ESAR-VHP),
- ★ Fatality management plans, and
- ★ Hospital evacuation plans.

Optional capabilities that may be funded to the extent that required capabilities are met include alternate care sites, mobile medical assets, pharmaceutical caches, personal protective equipment, and decontamination.

Homeland Security (HLS) Programs State and Local Domestic Preparedness Equipment Support Program

Contra Costa EMS continued preparedness activities with Fire, Law, OES and EMS agencies to implement Homeland Security grants that have provided communications equipment, personal protective equipment, detection equipment, EMS caches, EOC upgrades, strategic and tactical planning, and training for fire, EMS and law enforcement responders. A major priority is developing interoperable communications for emergency responders in Contra Costa and Alameda Counties. A 5-person County Approval Authority consisting of the Sheriff, Health Services Director, Contra Costa County Fire Chief, a municipal fire chief and a municipal police chief administers this HLS grant program.



Q. Disaster Medical Assistance Team (DMAT)



Contra Costa EMS is the sponsor of the California Bay Area Disaster Medical Assistance Team (DMAT). The federal entity, DMAT CA-6, is established under Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA). The majority of the team members belong to both entities with the difference being CA-6 deploys on federal missions and the nonprofit entity deploys to state and local missions.

Both DMAT CA-6 and the California Bay Area DMAT were formed in 1997 with support of Contra Costa, San Mateo, Alameda and San Francisco Counties.

Disaster Medical Assistance Teams are comprised of trained and prepared medical and support personnel organized to provide medical/health care to disaster victims. Teams can be staged prior to 'high-risk' events such as the Olympics, or can be deployed during or post event to provide medical services in an austere post-disaster environment. There are 28 federal DMATs considered operational nationwide, with 6 in California plus a mental health specialty team.

Following is the chronology of DMAT CA-6 and California Bay Area DMAT:

- 1997** ➤ Bay Area Disaster Medical Assistance Team formed and sponsored by Contra Costa Health Services.
- 1998** ➤ Bay Area DMAT CA6 attained Level II designation.
- 1999** ➤ Bay Area DMAT attained Level I designation.
 - Deployed to "Operation Refugees", Ft. Dix, New Jersey and to World Trade Council, Washington State.
 - Members traveled to Ukraine for joint training mission.
- 2000** ➤ DMAT CA-6 incorporated as a nonprofit organization with 501(c)(3) status.
 - Provided medical coverage for Wildland 2000 and at Fleet Week in San Francisco.
- 2001** ➤ CA Department of Forestry (CDF) contracted with DMAT CA-6 to pilot medical response to National Fire Service events when requested. CA-6 was the first team to undertake this type of response, and is the prototype for a nationwide collaborative between DMATs and U.S. Dept of Forestry.
 - Deployed to provide medical coverage at the Presidential Inauguration, Washington D.C.; for tropical storm Allison, Texas; for Wildland 2001, Salt Lake City; and for the 2001 Olympics.
 - Deployed to NYC/World Trade Center and to US Postal Service Annex for employee anthrax screening.
- 2002** ➤ Provided medical coverage for Wildland 2002, and to 4 major CA wildfires as part of the CDF contract.
 - Members staged for response at the 2002 World Series and Fleet Week in San Francisco.
- 2003** ➤ Staged to provide care for the Sunnyvale Anti-War Protests.
 - Deployed to 5 major Southern California fires as part of CDF contract.
 - Provided medical coverage for Moffett Field Air Show and San Francisco Fleet Week.
- 2004** ➤ On alert and/or deployed for Hurricanes Charley, Ivan, Frances and Isabel.
 - Deployed for major California wildfires as part of CDF agreement.
 - Participated in Contra Costa Flu Vaccine Clinics.
 - Provided medical coverage at Moffett Air Expo, SF Fleet Week and Republican National Convention.
 - Members traveled to Ukraine for Joint Training Exercise, and to Haiti to provide care in the Relief Mission, and to Guam for care of neonates in local emergency situation.
- 2005** ➤ Members deployed to provide medical coverage for firefighters participating in Wildland 2005.
 - Members deployed to provide medical support for Hurricane Katrina and were posted at the PMAC shelter in Baton Rouge, Nicholls State University in Thibadeaux, San Gabriel Morgue Operations, the Superdome and Louie Armstrong Airport in New Orleans, as well as a medical clinic in Cameron, LA and West Jefferson Hospital.
- 2006** ➤ Members deployed to provide medical coverage for firefighters participating in Wildland 2006.
 - Members traveled to Haiti to provide care in the Relief Mission.

VI. 2005 STATISTICAL REPORT

A. Ambulance Dispatch Report



Ambulance Dispatch Report

Year 2006

**Number of Dispatches, Response Code, and Response Level by Ambulance Provider
American Medical Response, San Ramon Valley Fire District, Moraga-Orinda Fire District⁶**

| Response Code & Level | All Providers | | American Medical Response | | San Ramon Valley Fire | | Moraga/Orinda Fire | |
|--------------------------------|---------------|--------------|---------------------------|--------------|-----------------------|--------------|--------------------|------------|
| | # | % | # | % | # | % | # | % |
| Total Dispatches | 72,849 | 100.0 | 68,392 | 100.0 | 4,457 | 100.0 | n/a | 0.0 |
| Code 3 Dispatches | 55,946 | 76.8 | 51,542 | 75.4 | 4,404 | 98.8 | -- | 0.0 |
| Code 2 Dispatches | 16,903 | 23.2 | 16,850 | 24.6 | 53 | 1.2 | -- | 0.0 |
| Total Code 3 Dispatches | 55,946 | 100.0 | 51,542 | 100.0 | 4,404 | 100.0 | -- | 0.0 |
| ALS Response | 55,880 | 99.9 | 51,476 | 99.9 | 4,404 | 100.0 | -- | 0.0 |
| BLS Response | 66 | 0.1 | 66 | 0.1 | 0 | 0.0 | -- | 0.0 |
| Total Code 2 Dispatches | 16,903 | 100.0 | 16,850 | 100.0 | 53 | 100.0 | -- | 0.0 |
| ALS Response | 16,515 | 97.7 | 16,462 | 97.7 | 53 | 100.0 | -- | 0.0 |
| BLS Response | 388 | 0.3 | 388 | 0.3 | 0 | 0.0 | -- | 0.0 |

⁶ Data not available for the Moraga Orinda Fire Protection District.



Ambulance Dispatch Report (cont.)

Year 2006

Patient Transport by Ground Ambulance Provider

American Medical Response, San Ramon Valley Fire District, Moraga-Orinda Fire District⁷

| Response Code & Level | All Providers | | American Medical Response | | San Ramon Valley Fire | | Moraga/Orinda Fire | |
|---------------------------------|---------------|--------------|---------------------------|--------------|-----------------------|--------------|--------------------|------------|
| | # | % | # | % | # | % | # | % |
| Total Dispatches | 72,849 | 100.0 | 68,392 | 100.0 | 4,457 | 100.0 | -- | 0.0 |
| Transported | 51,170 | 74.4 | 51,265 | 75.0 | 2,905 | 65.2 | -- | 0.0 |
| Canceled | 18,679 | 25.6 | 17,127 | 25.0 | 1,552 | 34.8 | -- | 0.0 |
| Total Patient Transports | 54,170 | 100.0 | 51,265 | 100.0 | 2,905 | 0.0 | -- | 0.0 |
| Transported Code 3 | 11,583 | 21.4 | 11,392 | 22.2 | 191 | 6.6 | -- | 0.0 |
| Transported Code 2 | 42,587 | 78.6 | 39,873 | 77.8 | 2,714 | 93.4 | -- | 0.0 |
| Total Canceled | 18,679 | 100.0 | 17,127 | 100.0 | 1,552 | 0.0 | -- | 0.0 |
| Enroute | 4,929 | 26.4 | 4,421 | 25.8 | 508 | 32.7 | -- | 0.0 |
| On Scene | 13,750 | 73.6 | 12,706 | 74.2 | 1,044 | 67.3 | -- | 0.0 |

⁷ Data not available for the Moraga Orinda Fire Protection District.



Ambulance Dispatch Report (cont.)

Year 2006

Responses by Community, Response Code, Average Code 3 Response Time, BLS Response on Code 3 Dispatches, and QRV Responses

American Medical Response West, San Ramon Valley Fire District, Moraga/Orinda Fire District

| Community | All Responses | | Code Two | | Code Three | | Code Three | | BLS Unit | QRV Responses |
|---------------------|---------------|------------|---------------|-------------|---------------|-------------|--------------------------------|-----------|------------|---------------|
| | # | % | # | % | # | % | Avg Response Time ⁸ | | | |
| Totals | 75,276 | 100 | 16,903 | 22.5 | 55,946 | 74.3 | 7.45 | 66 | 0.1 | 2,427 |
| Richmond | 9,811 | 13.0 | 1,207 | 12.3 | 8,603 | 87.7 | 6.13 | 6 | 0.1 | 1 |
| San Pablo | 3,441 | 4.6 | 872 | 25.3 | 2,569 | 74.7 | 5.86 | | 0.0 | |
| El Cerrito | 1,825 | 2.4 | 264 | 14.5 | 1,561 | 85.5 | 6.71 | | 0.0 | |
| El Sobrante | 798 | 1.1 | 224 | 28.1 | 574 | 71.9 | 7.24 | 1 | 0.2 | |
| North Richmond | 90 | 0.1 | 21 | 23.3 | 69 | 76.7 | 6.70 | | 0.0 | |
| Kensington | 216 | 0.3 | 37 | 17.1 | 179 | 82.9 | 9.91 | 1 | 0.6 | |
| Pinole | 1,460 | 1.9 | 392 | 26.8 | 1,061 | 72.7 | 6.13 | 2 | 0.2 | 7 |
| Hercules | 1,148 | 1.5 | 315 | 27.4 | 784 | 68.3 | 7.98 | 3 | 0.4 | 49 |
| Rodeo | 792 | 1.1 | 211 | 26.6 | 533 | 67.3 | 8.23 | | 0.0 | 48 |
| Crockett | 763 | 1.0 | 123 | 16.1 | 422 | 55.3 | 9.10 | | 0.0 | 218 |
| Port Costa | 29 | 0.0 | 4 | 13.8 | 17 | 58.6 | 14.57 | | 0.0 | 8 |
| Concord | 10,349 | 13.7 | 2,885 | 27.9 | 7,463 | 72.1 | 6.99 | 20 | 0.3 | 1 |
| Martinez | 3,268 | 4.3 | 881 | 27.0 | 2,382 | 72.9 | 8.11 | 4 | 0.2 | 5 |
| Pleasant Hill | 2,673 | 3.6 | 813 | 30.4 | 1,857 | 69.5 | 6.77 | 1 | 0.1 | 3 |
| Pacheco | 367 | 0.5 | 95 | 25.9 | 272 | 74.1 | 7.19 | | 0.0 | |
| Clayton | 558 | 0.7 | 162 | 29.0 | 368 | 65.9 | 11.24 | 1 | 0.3 | 28 |
| Clyde | 16 | 0.0 | 4 | 25.0 | 12 | 75.0 | 12.46 | | 0.0 | |
| Walnut Creek | 6,872 | 9.1 | 1,664 | 24.2 | 5,207 | 75.8 | 7.70 | 9 | 0.2 | 1 |
| Lafayette | 1,358 | 1.8 | 401 | 29.5 | 957 | 70.5 | 9.64 | 2 | 0.2 | |
| Orinda ⁹ | 28 | 0.0 | 9 | 32.1 | 19 | 67.9 | 10.46 | 1 | 5.3 | |
| Moraga ⁹ | 24 | 0.0 | 10 | 41.7 | 14 | 58.3 | 7.71 | | 0.0 | |
| Alamo | 468 | 0.6 | 9 | 1.9 | 459 | 98.1 | 6.76 | 1 | 0.2 | |
| Danville | 1,793 | 2.4 | 29 | 1.6 | 1,764 | 98.4 | 11.06 | | 0.0 | |
| San Ramon | 1,962 | 2.6 | 23 | 1.2 | 1,939 | 98.8 | 12.24 | | 0.0 | |
| Diablo | 38 | 0.1 | 0 | 0.0 | 38 | 100.0 | 14.48 | | 0.0 | |
| Blackhawk | 206 | 0.3 | 2 | 1.0 | 204 | 99.0 | 8.16 | | 0.0 | |
| Antioch | 8,009 | 10.6 | 2,105 | 26.3 | 5,876 | 73.4 | 7.11 | 7 | 0.1 | 28 |
| Pittsburg | 5,581 | 7.4 | 1,672 | 30.0 | 3,909 | 70.0 | 7.39 | 4 | 0.1 | |
| Bay Point | 1,713 | 2.3 | 464 | 27.1 | 1,249 | 72.9 | 7.59 | 1 | 0.1 | |
| Oakley | 4,144 | 5.5 | 769 | 18.6 | 2,249 | 54.3 | 6.76 | | 0.0 | 1,126 |
| Bethel Island | 808 | 1.1 | 104 | 12.9 | 462 | 57.2 | 9.67 | | 0.0 | 242 |
| Knightsen | 98 | 0.1 | 22 | 22.4 | 50 | 51.0 | 9.42 | | 0.0 | 26 |
| Brentwood | 2,917 | 3.9 | 727 | 24.9 | 1,997 | 68.5 | 7.63 | | 0.0 | 193 |
| Discovery Bay | 204 | 0.3 | 71 | 34.8 | 89 | 43.6 | 11.11 | | 0.0 | 44 |
| Byron | 1,309 | 1.7 | 273 | 20.9 | 670 | 51.2 | 10.43 | 1 | 0.1 | 366 |
| Out Of County | 37 | 0.0 | 3 | 8.1 | 33 | 89.2 | --- | 1 | 3.0 | 1 |
| Other/Unknown | 103 | 0.1 | 36 | 35.0 | 35 | 34.0 | 7.32 | | 0.0 | 32 |

⁸ Average response times do not include calls canceled enroute or QRV calls.

⁹ Data not available from the Moraga Orinda Fire Protection District.



Ambulance Dispatch Report (cont.)

Year 2006

Transports by Hospital Destination and Transport Code

American Medical Response, San Ramon Valley Fire District and Moraga-Orinda Fire District¹⁰

| Local Hospitals | All Transports | | Code 3 Transports | | Code 2 Transports | |
|-------------------------|----------------|--------------|-------------------|--------------|-------------------|--------------|
| | # | % | # | % | # | % |
| Totals | 54,170 | 100.0 | 11,583 | 100.0 | 42,587 | 100.0 |
| Contra Costa Regional | 8,034 | 14.8 | 4,141 | 35.8 | 3,893 | 9.1 |
| Doctors San Pablo | 6,842 | 12.6 | 1,249 | 10.8 | 5,593 | 13.1 |
| John Muir, Walnut Creek | 6,766 | 12.5 | 953 | 8.2 | 5,813 | 13.6 |
| Kaiser, Richmond | 4,331 | 8.0 | 728 | 6.3 | 3,603 | 8.5 |
| Kaiser, Walnut Creek* | 6,081 | 11.2 | 983 | 8.5 | 5,098 | 12.0 |
| John Muir, Concord* | 9,356 | 17.3 | 1,650 | 14.2 | 7,706 | 18.1 |
| San Ramon Regional | 1,627 | 3.0 | 142 | 1.2 | 1,485 | 3.5 |
| Sutter/Delta | 8,998 | 16.6 | 1,431 | 12.4 | 7,567 | 17.8 |

| Out-of-County Hospitals | All Transports | | Code 3 Transports | | Code 2 Transports | |
|-------------------------|----------------|-----|-------------------|-----|-------------------|-----|
| | # | % | # | % | # | % |
| Valley Care* | 55 | 0.1 | 1 | 0.0 | 54 | 0.1 |
| Alta Bates* | 756 | 1.4 | 122 | 1.1 | 634 | 1.5 |
| Kaiser/Oakland* | 124 | 0.2 | 19 | 0.2 | 105 | 0.2 |
| Eden* | 4 | 0.0 | 2 | 0.0 | 2 | 0.0 |
| Children's* | 218 | 0.4 | 38 | 0.3 | 180 | 0.4 |
| Highland* | 38 | 0.1 | 4 | 0.0 | 34 | 0.1 |
| Summit* | 65 | 0.1 | 7 | 0.1 | 58 | 0.1 |
| Kaiser/Vallejo | 307 | 0.6 | 41 | 0.4 | 266 | 0.6 |
| Marin General Hospital | 18 | 0.0 | 4 | 0.0 | 14 | 0.0 |
| Sutter/Solano | 52 | 0.0 | 11 | 0.1 | 41 | 0.1 |
| Sutter/Tracy | 22 | 0.1 | 1 | 0.0 | 21 | 0.0 |
| Helicopter Transport* | 281 | 0.0 | 9 | 0.1 | 272 | 0.6 |
| Other/Unknown | 195 | 0.4 | 47 | 0.4 | 148 | 0.3 |

¹⁰ Data not available from the Moraga Orinda Fire Protection District.

B. Helicopter Utilization Report

Helicopter Utilization Report

Year 2006

Contra Costa Patients Transported by Helicopter

| Origin | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|----------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|
| | Pts | % | Pts | % | Pts | % | Pts | % | Pts | % |
| TOTAL | 389 | 100.0 | 330 | 100.0 | 302 | 100.0 | 372 | 100.0 | 338 | 100.0 |
| West County | 135 | 34.7 | 141 | 42.7 | 105 | 34.8 | 139 | 37.4 | 156 | 46.2 |
| East County | 179 | 46.0 | 142 | 43.0 | 131 | 43.4 | 182 | 48.9 | 149 | 44.1 |
| South County | 37 | 9.5 | 28 | 8.5 | 49 | 16.2 | 22 | 5.9 | 14 | 4.1 |
| Central County | 38 | 9.8 | 19 | 5.8 | 17 | 5.6 | 29 | 7.8 | 19 | 5.6 |

Note: Information provided by air ambulance providers. None of these flights originated from outside of Contra Costa County.

Helicopter Transports Originating Within Contra Costa by Provider Agency

| Provider | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|
| | Pts | % | Pts | % | Pts | % | Pts | % | Pts | % |
| TOTAL | 389 | 100.0 | 330 | 100.0 | 302 | 100.0 | 372 | 100.0 | 338 | 100.0 |
| CALSTAR | 197 | 50.6 | 177 | 53.6 | 178 | 58.9 | 197 | 53.0 | 195 | 57.7 |
| REACH | 186 | 47.8 | 144 | 43.6 | 112 | 37.1 | 168 | 45.2 | 141 | 41.7 |
| CHP | 4 | 1.0 | 9 | 2.7 | 8 | 2.6 | 5 | 1.3 | 2 | 0.6 |
| Other | 2 | 0.5 | 0 | 0.0 | 4 | 1.3 | 2 | 0.5 | 0 | 0 |

Note: Information provided by air ambulance providers. None of these flights originated from outside of Contra Costa County.

C. Base Hospital Contact Report



Base Hospital Contact Report

Year 2006

Base Hospital Activity Summary

| | 2002 | | 2003 | | 2004 | | 2005 | | 2006 | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|--------------|-------|
| | # | % | # | % | # | % | # | % | # | % |
| Total Base Contacts | 5,380 | 100.0 | 4,185 | 100.0 | 3,701 | 100.0 | 3,599 | 100.0 | 3,443 | 100.0 |
| EMT-P Contacts | 4,284 | 79.6 | 3,993 | 95.4 | 2,989 | 80.8 | 2,389 | 66.4 | 1,851 | 53.8 |
| EMT-I Contacts | 173 | 3.2 | 86 | 2.1 | 39 | 1.1 | 2 | 0.05 | 1 | 0.0 |
| EMT Not Identified | 923 | 17.2 | 106 | 2.5 | 673 | 18.1 | 1,208 | 33.6 | 1,591 | 46.2 |
| Adult Patients | 4,943 | 91.9 | 3,833 | 91.6 | 3,461 | 93.5 | 3,368 | 93.6 | 3,259 | 94.7 |
| Pediatric Patients (age < or = 14) | 262 | 4.9 | 208 | 5.0 | 187 | 5.1 | 180 | 5.0 | 141 | 4.1 |
| Age Not Identified | 175 | 3.3 | 144 | 3.4 | 53 | 1.4 | 51 | 1.4 | 43 | 1.2 |

Note: Data provided by John Muir Health, Walnut Creek

D. Trauma System Report



Trauma System Report

Year 2006

On-scene Triage of Patients Within Contra Costa Meeting Field Trauma Criteria

| | 2002 | 2003 | 2004 | 2005 | 2006 |
|--|--------------|--------------|--------------|--------------|---------------|
| Total Patients Meeting One or More Field Trauma Triage Criteria | 2,729 | 2,695 | 2,439 | 2,691 | 2,909 |
| Triaged in field as major trauma | 923 | 890 | 929 | 1,106 | 1,541 |
| Transported to a trauma center | 914 | 879 | 911 | 1,063 | 1,140 |
| John Muir Health, Walnut Creek | 773 | 765 | 763 | 917 | 1,006 |
| Children's Hospital, Oakland | 119 | 83 | 120 | 121 | 94 |
| Other trauma center | 22 | 31 | 28 | 25 | 23 |
| Transported to the closest receiving hospital | 9 | 11 | 18 | 32 | ¹¹ |
| CPR/Unstable airway | 7 | 7 | 18 | 21 | - |
| Otherwise unstable | 0 | 4 | 0 | 0 | - |
| Trauma center on bypass | 2 | 0 | 0 | 11 | - |
| Triaged in the field as not having major trauma | 1,806 | 1,805 | 1,511 | 1,585 | 1,368 |

Field Triage Errors (errors per 100 patients triaged with major trauma)

| | | | | |
|-------------------------------|---|--|--|--|
| Undertriage error rate | $= \frac{\text{Patients field-triaged as not having major trauma, but subsequently found to have major trauma}}{\text{Total number of patients triaged in the field as having major trauma}} = \frac{49}{1,541} = \mathbf{3.2}$ | | | |
|-------------------------------|---|--|--|--|

Definitions:

Field triaged major trauma - All patients meeting County EMS criteria based on CRAMS score or anatomic factors for automatic consideration as major trauma patients plus all patients meeting trauma base hospital call-in criteria for whom a trauma center destination is given.

Retrospective major trauma determination - All patients whose hospital Injury Severity Score (ISS) is over 15 or who have an ISS between 10 and 14 with at least three-day hospital stay are considered to be major trauma patients. All patients not meeting these criteria are considered non-major trauma patients.

Undertriage and Overtriage Rates by Year

| Type of Triage Error | 2002 | 2003 | 2004 | 2005 | 2006 |
|----------------------|---------------|------|-------------------|------|------|
| Undertriage | 2.9 | 2.4 | 5.6 ¹² | 5.3 | 3.2 |
| Overtriage | ¹³ | 58.5 | 57.3 | 59.4 | 59.9 |

¹¹ Given information available, unable to select out these cases from the "Triaged in the field as not having major trauma" category.

¹² Undertriage error rate calculation has not changed over the course of years shown in this table, however improved data systems implemented in late 2003 (tracking patients via computerized ambulance patient care records) have facilitated better identification of undertriage cases. For that reason, undertriage error rates prior to 2004 may be underestimated.

¹³ Data not available.



Trauma Center Discharge Report 2005

John Muir Health, Walnut Creek

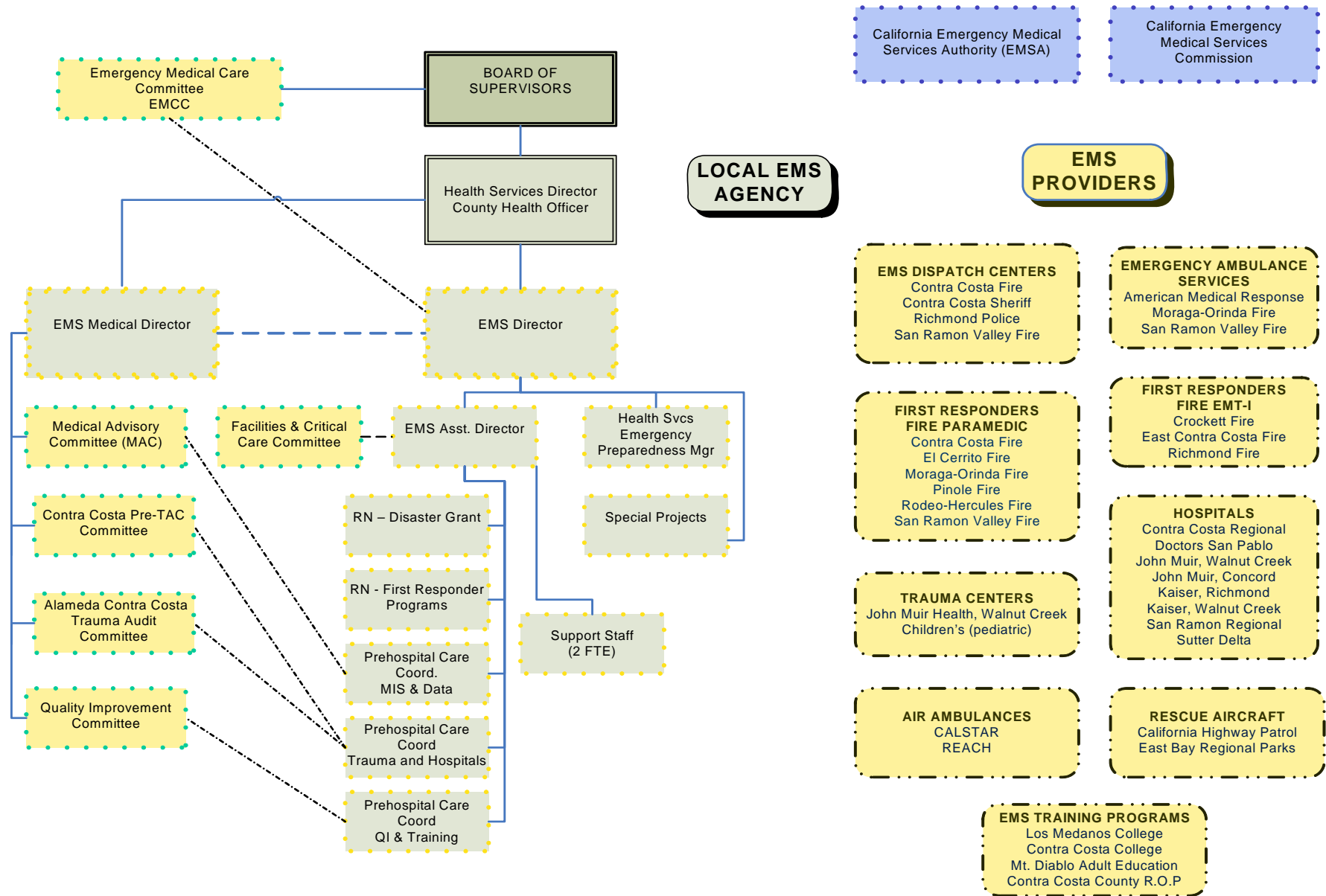
| Origin | 2003 | | 2004 | | 2005 | | 2006 | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| | # | % | # | % | # | % | # | % |
| All John Muir Health, Walnut Creek Trauma Patients | | | | | | | | |
| Total | 1,227 | 100.0 | 1,296 | 100.0 | 1,547 | 100.0 | 1,597 | 100.0 |
| Major Trauma Victims (Retrospective Review) | 543 | 44.3 | 585 | 45.1 | 689 | 44.5 | 640 | 40.1 |
| Not Major Trauma Victims (Retrospective Review) | 684 | 55.7 | 711 | 54.9 | 858 | 55.5 | 957 | 59.9 |
| Contra Costa Field Transports | | | | | | | | |
| Total | 881 | 100.0 | 1,046 | 100.0 | 1,214 | 100.0 | 1,216 | 100.0 |
| Major Trauma Victims (Retrospective Review) | 364 | 41.3 | 466 | 44.6 | 514 | 42.3 | 492 | 40.5 |
| Not Major Trauma Victims (Retrospective Review) | 515 | 58.7 | 580 | 55.4 | 700 | 57.7 | 724 | 59.5 |
| Patients Transferred from Contra Costa Hospitals | | | | | | | | |
| Total | 109 | 100.0 | 130 | 100.0 | 147 | 100.0 | 145 | 100.0 |
| Major Trauma Victims (Retrospective Review) | 62 | 56.9 | 75 | 57.7 | 81 | 55.1 | 78 | 53.8 |
| Not Major Trauma Victims (Retrospective Review) | 47 | 43.1 | 55 | 42.3 | 66 | 44.9 | 67 | 46.2 |
| Patients from Outside Contra Costa County | | | | | | | | |
| Total | 235 | 100.0 | 250 | 100.0 | 333 | 100.0 | 381 | 100.0 |
| Major Trauma Victims (Retrospective Review) | 115 | 48.9 | 119 | 47.6 | 175 | 52.6 | 148 | 38.8 |
| Not Major Trauma Victims (Retrospective Review) | 120 | 51.1 | 131 | 52.4 | 158 | 47.4 | 233 | 61.2 |

Note: Based on data from the John Muir Trauma Registry.

VII. EMS AGENCY ORGANIZATIONAL CHART



EMS Agency Organizational Chart



VIII. EMS EXPENDITURES



EMS Revenue & Expenditures by Year

Fiscal Years Ending 2001- 2007

| | FY 2000-01 | FY 2001-02 | FY 2002-03 | FY 2003-04 | FY 2004-05 | FY 2005-06 | FY 2006-07 |
|---|------------|------------|------------|------------|------------|------------|------------|
| | Final | Final | Final | Final | Final | Final | 7/31/2007 |
| County Service Area EM-1 (Measure H) | | | | | | | |
| Zone A (San Ramon Valley) | | | | | | | |
| Beginning fund balance | \$ 212,172 | \$ 228,641 | 238,947 | 311,221 | 225,290 | 266,677 | 158,645 |
| Revenue | 183,014 | 184,083 | 186,480 | 191,466 | 193,615 | 198,922 | 204,064 |
| Expenditures | 166,545 | 173,776 | 114,206 | 277,397 | 152,228 | 306,954 | 271,059 |
| Surplus (deficit) | 16,469 | 10,307 | 72,274 | (85,932) | 41,387 | (108,032) | (66,996) |
| Year end fund balance | 228,641 | 238,947 | 311,221 | 225,290 | 266,677 | 158,645 | 91,649 |
| Zone B (Balance of County) | | | | | | | |
| Beginning fund balance | 837,743 | 897,392 | 1,048,524 | 2,313,424 | 2,192,675 | 3,259,758 | 3,230,290 |
| Revenue | 4,206,156 | 4,334,861 | 4,246,115 | 4,353,031 | 4,403,691 | 4,429,758 | 4,485,987 |
| Expenditures | 4,146,507 | 4,183,730 | 2,981,215 | 4,473,779 | 3,336,609 | 4,459,225 | 3,808,745 |
| Surplus (deficit) | 59,649 | 151,132 | 1,264,900 | (120,748) | 1,067,082 | (29,467) | 677,242 |
| Year end fund balance | 897,392 | 1,048,524 | 2,313,424 | 2,192,675 | 3,259,758 | 3,230,290 | 3,907,533 |
| General EMS Program | | | | | | | |
| Revenue, total | 1,091,299 | 1,503,126 | 1,019,853 | 1,540,686 | 1,442,819 | 1,515,285 | 1,955,891 |
| EMS Fund (SB 12) | 377,562 | 259,930 | 210,815 | 468,210 | 299,731 | 290,647 | 311,879 |
| Grants | 201,311 | 779,087 | 698,445 | 143,270 | 579,867 | 322,033 | 887,941 |
| Trauma Fee (John Muir) | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 |
| CSA EM-1 (Measure H) | 421,213 | 369,687 | 0 | 812,275 | 412,773 | 742,818 | 606,416 |
| Other | 16,214 | 19,423 | 35,594 | 41,931 | 75,448 | 84,788 | 74,655 |
| Expenditures, total | 931,745 | 1,514,038 | 1,331,808 | 1,041,774 | 1,056,468 | 1,746,762 | 1,641,359 |
| Surplus (deficit) | 159,554 | (10,912) | (311,955) | 498,912 | 386,351 | (231,477) | 314,532 |

Source: Data compiled by EMS from Contra Costa Auditor-Controller financial reports.

IX. DEVELOPMENT OF EMS IN CONTRA COSTA



Chronology

The emergency medical services system approach and the use of paramedic personnel to provide advanced life support care under the supervision of a base hospital physician or mobile intensive care nurse began evolving as a new model for health care delivery in the late 1960s. Contra Costa as well as a number of other progressive counties throughout California began developing its emergency medical services system during this time. Following are milestones in the development of the EMS system in Contra Costa County:

- 1966
 - National Academy of Sciences "White Paper" entitled "**Accidental Death and Disability: The Neglected Disease of Modern Society**"⁶ identified deficiencies in providing emergency medical care in the country. The paper was the catalyst prompting federal leadership toward an organized approach to EMS and trauma care.
 - The 1966 **Highway Safety Act** further reinforced and encouraged states to set standards, regulate EMS, and implement programs designed to reduce injury.
- 1968
 - **Contra Costa Emergency Medical Care Committee (EMCC)** appointed by County Board of Supervisors to provide oversight of emergency medical services within the County.
- 1970
 - State **Wedworth-Townsend Act** enabled counties to conduct pilot projects using paramedics and mobile intensive care nurses (MICNs) to provide advanced life support services to patients in the field.
 - **Ambulance Regulations** added to the County Ordinance Code which included permit and ambulance registration processes.
- 1972
 - Ten **ambulance zones** established for provision of emergency ambulance service.
- 1973
 - Emergency Medical Services Systems (EMSS) Act provides federal guidelines and funding for the development of regional EMS systems.
- 1975
 - Health Department agreed to develop an **advanced life support program** and to provide coordination of emergency medical services countywide based on EMCC's recommendation and with County approval. Initial EMS Program developed with Federal funding under auspices of Comprehensive Health Planning.
 - First EMS System Plan developed for Contra Costa.
- 1976
 - Los Medanos Community College, in conjunction with Stanford University, developed first **training programs** for paramedics and MICNs.
- 1977
 - **First paramedics and MICNs graduated** from Los Medanos Community College training programs and were certified by County Health Officer.
 - John Muir Medical Center and Mt. Diablo Medical Center designated **Base Hospitals** for medical control of paramedic units throughout the County. (Initial base hospital services were provided on a monthly rotation schedule.)
 - **Joint Exercise of Powers Agreement** between Alameda and Contra Costa Counties established an East Bay EMS Region for development of a Regional EMS program.
 - **First paramedic-staffed ambulances** responded in Walnut Creek (Pomeroy Ambulance in May 1977); in Moraga (Moraga Fire Protection District in June 1977); in Concord (Michael's Ambulance in January 1978); and in Richmond (Cadillac Ambulance February 1978 - Labor issues delayed active participation in program until 1979).
- 1980
 - Joint Powers Agreement for Regional emergency medical services disbanded following recommendations from Alameda and Contra Costa Counties' EMCCs
 - Comprehensive **California Emergency Medical Services System and Prehospital Emergency Medical Care Personnel Act** passed. This legislation set EMS system standards, prehospital personnel training/certification standards, and provided basic standardized structure for EMS systems.
 - Provision added to the County Ambulance Ordinance, which established **exclusive ambulance zones** for emergency and non-emergency transport.
 - Brookside Hospital, San Pablo designated by County as third base hospital to provide medical direction for West County paramedic units.
- 1981
 - In 1981 the establishment of state law and the **California EMS Authority (EMSA)** provided for significant state EMS leadership in California regarding the development of EMS systems.
 - The California State Legislature enacted the "**Emergency Medical Services System and Prehospital Emergency Medical Care Personnel Act** (Health and Safety Code 1797, et al.)." This law specifically authorized



local EMS agencies to "...plan, implement, and evaluate an emergency medical services systems...consisting of an organized pattern of readiness and response services..."

- The Act further authorized local EMS agencies to plan, implement and monitor limited advanced life support and advanced life support programs.
- 1982** ➤ **Multicasualty Incident Plan** approved by County Board of Supervisors providing for on-scene coordination, resource notification, and patient distribution in multicasualty events.
- 1983** ➤ County Health Services designated as **Local EMS Agency** and County Health Officer designated as **EMS Medical Director** by Board of Supervisors pursuant to State EMS Act.
 - Competitive bid process for **emergency ambulance service contracts** conducted pursuant to revised County Ambulance Ordinance. A Request for Proposal process that sought highest level of service possible without County subsidy resulted in exclusive contracts with Cadillac Ambulance, Regional Ambulance, Moraga Fire District, San Ramon Valley Fire District, and East County Ambulance.
- 1984** ➤ **Paramedic level ambulance transport services** implemented by San Ramon Valley Fire District in a joint program with John Muir Medical Center.
 - Ten ambulance zones consolidated into 5 **Emergency Response Areas (ERAs)**. Following a competitive bid process, exclusive ambulance service contracts awarded to Cadillac Ambulance, Regional Ambulance, Moraga Fire and San Ramon Valley Fire.
- 1985** ➤ **EMS System Plan** developed according to standards set by EMS Authority.
 - First competitive bid process for paramedic **base hospital designation** administered for 4 base hospital zones countywide. Contracts awarded to John Muir Med Center, Mt. Diablo Med Center, Brookside Hospital and Los Medanos Hospital.
 - Small plane crashed into **Sun Valley Mall** injuring some 80 victims. Multicasualty plan implemented.
 - **Emergency Medical Dispatch (EMD)** standards/criteria developed; endorsed by EMCC.
 - Procedure for **Emergency Department (ED) diversion** implemented allowing diversion of an emergency ambulance away from an ED if # of critical patients in ED was such that additional critical patients could not be cared for adequately.
 - Brookside Hospital emergency department downgraded licensure to "Standby Emergency Services" and relinquished paramedic base hospital designation.
- 1986** ➤ Comprehensive **Trauma System Plan** approved by Board of Supervisors providing for designation of a single Level II Trauma Center.
 - John Muir Medical Center designated as County's **Level II Trauma Center**.
 - Bay Area **Trauma Registry Project** initially funded by State EMSA.
 - Operational Procedures for **Patient Transport by Helicopter** implemented.
 - **Cadillac Ambulance purchased by Regional Medical Systems (RMS)** making RMS the single private emergency ambulance provider in County.
 - **Competitive bidding process** for emergency ambulance providers in 5 ERAs. Service contracts awarded to Regional Ambulance, Moraga Fire and San Ramon Valley Fire.
 - **Base Hospital contracts** established with John Muir Med Center, Mt. Diablo Med Center and Los Medanos Hospital.
 - Emergency medical dispatch program including pre-arrival instructions implemented by **Contra Costa County Fire Dispatch Center**.
- 1987** ➤ Formal **Patient Transfer Guidelines**, including an EMS Agency administered multi-disciplinary quality assurance process adopted by Board of Supervisors, and by all hospitals within the County.
 - Health Services Department **Emergency Management Team**, consisting of key Health Services personnel, designated to respond to County EOC or Medical/Health Operations Center in a disaster.
 - Program for reporting **communicable disease exposure** implemented.
 - **Brookside Hospital** basic emergency license restored.
- 1988** ➤ **"Measure H,"** a general election ballot advisory measure calling for the establishment of a benefit assessment for enhanced EMS services, approved by 71.6% of voters Countywide.
 - **Joint Solano/Contra Costa EMS Hazardous Materials Training Project** supported by 5-year funding from consent agreement between IT Corporation and State Health Services and administered by EMS Agency.
 - Pilot **"first responder paramedic engine"** program undertaken by Moraga Fire.



- 1989** ➤ Countywide **Benefit Assessment District for Enhanced Emergency Medical Services**, County Service Area (CSA) EM-1, approved by all city councils and established by Board of Supervisors under Health Services administration.
- 1990** ➤ **CSA Em-1** became operational.
- **EMS Disaster Planning Project** funded by State EMSA and administered by EMS Agency. County Health Officer designated Regional Disaster Medical Health Coordinator (RDMHC) for OES Region 2 counties.
- **San Ramon Regional Medical Center** in the City of San Ramon licensed for Basic Emergency Services.
- 1991** ➤ **High-performance ambulance contracts** initiated with Regional Ambulance, San Ramon Valley Fire, and Moraga Fire.
- RFP competitive bid process performed to select equipment for a new **First Responder Defibrillation** Program. Physio Control semi-automatic defibrillators were selected.
- Countywide system of **Multicasualty Medical Caches** established for use in multicasualty or disaster situations.
- Specialized **Hazardous Materials Response Protocols** and training program developed and implemented.
- **Paramedic training program** offered at Los Medanos Community College.
- **Veterans Administration Hospital closed.**
- 1992** ➤ **Fire First Responder Defibrillation Program** implemented Countywide.
- **"Emergency Medical Guidelines for Law Enforcement Agencies"** endorsed by EMCC/County Police Chiefs' Asso.
- "EMS Operational Procedures For Response to an **Expanded Medical Emergency**" (EME) developed/implemented.
- **"Do Not Resuscitate" policy** established.
- **EMS treatment protocols for children** developed and implemented.
- John Muir Trauma Center permanently (20 years) designated as **Level II trauma center** following request-for-proposal review process.
- **In Fire Service EMS Models Assessment** completed.
- **Base Hospital** agreements renegotiated with Mt. Diablo, John Muir and Los Medanos hospitals.
- **Medical Transmission Network** or "MTN" fire/medical dispatch computer linkage project initiated
- **Paramedic** quick response vehicle (QRV) program funded by Measure H, provided by American Medical Response, and implemented in Byron/Discovery Bay area (5/1/92).
- **MEDARS** radio system used for ambulance-hospital communications upgraded from 2 to 4 channels.
- 1993** ➤ Base hospital services no longer provided by Los Medanos Hospital.
- General Chemical Company **chemical release** in Richmond area triggered large-scale fire, police and EMS response. Thousands of patients requested evaluation at local medical facilities in following weeks.
- Poison control public hotline terminated by **San Francisco Poison Control Center** due to funding issues. EMS Agency maintained PCC access via local 9-1-1 system.
- San Ramon Valley Fire's Dispatch Center piloted Medical Priority's computerized ProQA Dispatch System for **prehospital EMS dispatch.**
- Contra Costa County, Riverview, Orinda, Moraga and West County fire districts functionally integrated.
- **"Quality Action Team"** formed to improve EMS incident review.
- Mobile radios programmed with **fire service radio channels** installed in paramedic units.
- Funding obtained by EMS Agency for Highway Injury Record Linkage Software and Firearm Injury Reporting, Surveillance and Tracking System; programs administered by Health Services Injury Prevention.
- Board of Supervisors approved AMR contract through 7/2/95 and then through 5/2/96.
- 1994** ➤ **Continuing education** activities approved for EMT-Is to maintain State certification.
- **Los Medanos Community Hospital closed 4/23/94.**
- Responsibility for paramedic certification transferred from individual counties/regions to State EMSA.
- **Hospital Emergency Incident Command System** (HEICS) adopted by hospitals to provide an organized approach to hospital disaster management.
- **Medical/health mutual aid response** to Northridge earthquake in southern California coordinated among northern California coastal counties (Region II).
- **EMT-I training program for firefighters** established by EMS Agency.



- EMS Agency obtained State EMSA grant to study **poison control center alternatives**.
- **Emergency Medical Care Committee** restructured to report to Health Services Director.
- 1995 ➤ The Oakland and Richmond Kaiser hospitals merged. Richmond facility received only non-critical ambulance patients due to lack of ICU capabilities.
- Paramedic State licensing requirements implemented in place of local certification procedures.
- Assistant EMS Medical Director position allotted to the EMS Agency.
- The **1-800-GIVE-CPR** public information program began
- 1996 ➤ Dedicated **EMS Medical Director** position appointed for the EMS Agency.
- Standards for **EMS Enhanced First Responder Programs** developed.
- **Request for Proposal process** for emergency ambulance service (11/1/96). Contracts awarded San Ramon Fire and American Medical Response (10/28/97). Moraga Fire exempt from competitive bid process pursuant to EMS legislation.
- Bethel Island Fire's **First Responder Paramedic program** implemented (10/7/96).
- **San Ramon Valley Fire Dispatch** Center recognized as **Center of Excellence** by National Academy of Emergency Medical Dispatch.
- 1997 ➤ **Bay Area Disaster Medical Assistance Team (DMAT)** formed/sponsored by County Health Services.
- Contra Costa Fire Protection District's First Responder Paramedic Program implemented (8/1/97). **"Partners"** course used to train EMT-Is to assist paramedics.
- **Multicasualty response** to Concord Water World slide collapse. One death and 32 injured were triaged to area hospitals.
- **Public health nurse mutual aid** provided during northern California winter storms.
- **Computerized pen-based patient care reporting** implemented Countywide.
- Emergency Medical Care Committee re-appointed by the Board of Supervisors as a Board advisory committee.
- **Statewide Poison Control Center** system implemented.
- **John Muir and Mt. Diablo Medical Centers** merged to form John Muir/Mt. Diablo Health System.
- Brookside Hospital acquired by Tenet Corp. and renamed Doctors Hospital, San Pablo Campus. Doctors, Pinole became Doctors Hospital, Pinole Campus.
- Kaisers Richmond and Martinez downgraded services. Not designated to receive ambulance patients.
- Orinda Fire and Moraga Fire merged to form **Moraga-Orinda Fire Protection District**.
- **American Medical Response** purchased by Laidlaw. Merged its ambulance services under the AMR name.
- Interfacility Transfer Review process revised.
- 1998 ➤ Local emergency declared by Board of Supervisors for hospital emergency/critical care resource shortages.
- Contra Costa Regional Medical Center's **new hospital** opened.
- First load of **spent nuclear fuel rods** transported by train through County.
- Antioch Ambulance Service bought by Golden Empire Ambulance.
- American Medical Response accepted subsidy reduction to fund expansion of Contra Costa Fire First Responder Paramedic Program.
- West County Consolidated Communications Operations and Contra Costa Fire District Dispatch Center personnel trained in **Emergency Medical Dispatch**.
- **Multicasualty Incident (MCI) Plan** revised.
- **Resource Information Management System (RIMS)** installed to link OES Region II counties to statewide disaster information management system.
- First **hospital resource assessment** completed.
- Department-wide **Contra Costa Health Services Emergency Plan** completed.
- Moraga Police and Orinda Police Departments implemented **first responder defibrillation programs**.
- 1999 ➤ **Kaiser Richmond** opened inpatient critical care services.
- **Oakley Fire** organized as a fire protection district.



- **Multicasualty responses** to a fire at Tosco's Avon Refinery; to a fire at Chevron Refinery, North Richmond; and to Richmond Health Center for noxious odor assessment.
- Pilot **bi-phasic AED project** implemented.
- Health Services Department Operations Center (DOC) activated for **Y2K transition**.
- 2-year State grant for a Data Linkage and Outcome Project obtained.
- Orinda Police Department implemented first responder defibrillation program.
- Antioch Ambulance Company ceased all operations (7/99).
- Contra Costa Fire began **fire/medical dispatch** for Pinole, Rodeo, Hercules, and Crockett-Carquinez Fire.
- 2000 ➤ All **Moraga-Orinda Fire EMS** response vehicles staffed with paramedics.
- **Impact Evaluation Study** conducted including 2 public hearings prior to the March closing of Doctors Medical Center, Pinole Campus emergency department.
- All fire/medical dispatch centers provide fire/ambulance dispatch using **Medical Priority Dispatch System**.
- **EMS for Children** grant obtained to develop an EMS for Children Plan.
- 2001 ➤ **EMS for Children Plan** developed for Contra Costa through 2-year grant funding.
- EMS base hospital services no longer provided by Mt. Diablo Medical Center.
- **El Cerrito paramedic engine program** implemented to serve Kensington and areas in El Cerrito hills.
- **First responder defibrillation programs** implemented by Kensington and Brentwood Police Departments.
- County Trauma System Plan updated to reflect changes in California Trauma regulations/requirements.
- **Office of Justice Planning grant** (\$300,000) used to purchase mass decontamination, communications, and personal protective equipment for use by fire/other agencies.
- **Bioterrorism Workgroup** appointed by Health Services to plan/train for response to terrorist events.
- Regional Disaster Medical Health Response staff funded full-time by State EMSA.
- ReddiNet system implemented providing a communications link among hospitals, medical dispatch centers and EMS Agencies in Alameda and Contra Costa Counties.
- **EMS website** opened providing online access to EMS policies, protocols and other EMS-related information.
- 2002 ➤ Department of Justice **fingerprint background check** procedure for all EMT-I certification and recertification applicants implemented.
- East Diablo, Oakley, & Bethel Island Fire Protection Districts form **East Contra Costa Fire Protection District**.
- **AMR paramedic QRV** established in Bethel Island replacing Bethel Island paramedic engine.
- **Paramedic engine feasibility assessment** conducted by Fitch and Associates.
- **West County Dispatch Center (Richmond Police)** accredited as EMD **Center of Excellence** by National Academy of Emergency Medical Dispatch.
- Year 1 of 2-year state grant "**Medical Education for Drug Safety**" carried out by John Muir Medical Center Injury Prevention staff through the EMS Agency.
- **Paramedic Interfacility Transfer (CCT-P)** Program implemented that allows specially trained paramedics to transport critical, but stable patients from hospital to hospital for specialized procedures or higher level of care.
- Countywide post market evaluation of Medtronic-Physio-Control CR Plus defibrillator Implemented.
- **First responder defibrillation program** implemented by Blackhawk Police Department.
- **EMS Aircraft policies and procedures** for classification, authorization, request for, transport criteria and field operations revised.
- 2003 ➤ Contra Costa County Fire Dispatch accredited EMD **Center of Excellence** by Emergency Medical Dispatch National Academy.
- Fitch report released on the **integration of fire paramedic engines into the EMS response system**.
- Tenet's Doctors San Pablo management contract with West Contra Costa Health Care District terminated.
- Mental health committee convened to address education, data collection and review necessary for ED physicians to resume responsibility for writing 72-hour psychiatric holds (5150s) following County Mental Health policy changes.
- Reciprocal agreement with Alameda County implemented for **Paramedic Interfacility Transfer** Programs.
- 2004 ➤ **National Registry of Emergency Medical Technician's exam** adopted as the approved statewide EMT-I



certification exam.

- **First responder paramedic program** implemented by Rodeo Hercules Fire Protection District.
- Comprehensive Countywide EMS **quality improvement plan** implemented.
- Comprehensive plan developed for **integration of paramedic first responder and ambulance services** in those areas of the County covered by private ambulance services.
- **Request for Proposal process** for emergency ambulance service in areas of the County served by private provider American Medical Response. Proposals submitted by AMR and StarWest ambulance.
- EMS related **cultural disparity project** conducted along with American Medical Response.
- EMS **public access defibrillation (PAD)** project implemented including distribution of 42 defibrillators to government agencies and training of recipients.
- **Mass flu immunization clinics** held throughout the County.
- Trauma system and trauma center review process revised to take advantage of technology.
- Contra Costa **EMS educational conference** held for prehospital personnel.
- **Impact analysis** for possible closure of Doctors San Pablo.
- **First responder defibrillation** program implemented by San Ramon Police Department and Mount Diablo State Park.
- 2005 ➤ **First responder paramedic program** implemented by Pinole Fire Department.
- Five to nine-year contract for **emergency ambulance services** awarded American Medical Response.
- **Contra Costa EMS Fire Training Consortium** established to standardize training for fire first responders and ambulance personnel Countywide.
- **First responder defibrillation program** implemented by Antioch Police Department.
- A multidisciplinary committee convened to consider a Multicasualty Plan revision.
- **Richmond Police/Fire dispatch center and AMR's dispatch center linked** allowing requests for ambulances to go directly to AMR via computer versus a secondary phone call saving time in ambulance dispatch.
- 2006 ➤ ReddiNet system upgraded.
- MetiMan, an emergency care simulator purchased to provide patient simulation training for fire/ambulance personnel.
- An electronic patient care **data collection system** purchased for fire first responder paramedic providers.
- John Muir Mt. Diablo Health System renamed John Muir Health, Walnut Creek and John Muir Health, Concord.
- Doctors San Pablo declared bankruptcy. Ambulance traffic diverted to surrounding hospitals for a 2-month period. Hospital is downsized and structure reorganized.
- ED Diversion for ED overcrowding discontinued.
- **First responder defibrillation program** implemented by Lafayette Police and San Ramon Police Departments.
- **Public safety defibrillation program** implemented by Department.
- **CCT-P Scope of Practice** expanded to include a variety of new medications and infusions.
- 2007 ➤ **EMS Fire Consortium training program** implemented. Training packages developed and distributed.
- **Emergency care simulator** equipment for scheduled training transported by AMR to fire agencies countywide.
- New **Multicasualty Plan** implemented countywide 7/1/07. 10,000 triage tags purchased and distributed to fire first responder agencies and emergency ambulance service providers.
- Fire **electronic PCR** in use. 1/2/07
- EMS provider focused quality newsletter "**EMS Best Practices**" initiated.
- **SWAT paramedic program** proposal approved for Concord Police Department.

X. EMS & RELATED ABBREVIATIONS



Abbreviations

| | |
|---------------|---|
| ACLS | Advanced Cardiac Life Support |
| AED | Automatic External Defibrillator |
| AIS | Abbreviated Injury Score |
| ALARMS | Asset Logistics & Resource Management System |
| ALS | Advanced Life Support |
| BLS | Basic Life Support |
| BTLS | Basic Trauma Life Support |
| CAD | Computer Aided Dispatch |
| CAN | Community Alert Network |
| CCT | Critical Care Transport |
| CCT-P | Critical Care Transport – Paramedic |
| CDC | Center for Disease Control & Prevention |
| CPR | Cardiopulmonary Resuscitation |
| DMAT | Disaster Medical Assistance Team |
| DOC | Departmental Operations Center |
| EMCC | Emergency Medical Care Committee |
| EMD | Emergency Medical Dispatch |
| EMS | Emergency Medical Services |
| EMSA | Emergency Medical Services Authority |
| EMT | Emergency Management Team |
| EMT-I | Emergency Medical Technician-I |
| EMT-P | Emergency Medical Technician-Paramedic or “Paramedic” |
| EOC | Emergency Operating Center |
| ERA | Emergency Response Area |
| HazMat | Hazardous Materials |
| HEICS | Hospital Emergency Incident Command System |
| HRSA | Health Resources & Services Administration |
| ICS | Incident Command System |
| ISS | Injury Severity Score |
| LEMSA | Local EMS Agency |
| MCI | Multicasualty Incident |
| MEDARS | Medical Emergency and Disaster Ambulance Radio System |
| MICN | Mobile Intensive Care Nurse |
| MICP | Mobile Intensive Care Paramedic |
| MTN | Message Transmission Network |
| MTV | Major Trauma Patient |
| MHOAC | Medical/Health Operational Area Coordinator |
| NIMS | National Incident Management System |
| OES | Office of Emergency Services |
| PAD | Public Access Defibrillation |
| PEPP | Pediatric Education for Prehospital Professionals |
| PIE | Public Information and Education |
| PIO | Public Information Officer |
| PSAP | Public Safety Answering Point |

| | |
|--------------|--|
| RACES | Radio Amateur Civil Emergency Services |
| RDMHC | Regional Disaster Medical/Health Coordinator |
| RDMHS | Regional Disaster Medical/Health Specialist |
| RIMS | Response Information Management System |
| SARS | Severe Acute Respiratory Disease |
| SEMS | Standardized Emergency Management System |
| SNS | Strategic National Stockpile |
| WMD | Weapons of Mass Destruction |

XI. GLOSSARY OF EMS TERMS



EMS Terms

- **Advanced Cardiac Life Support (ACLS):** An advanced level certification provided by the American Heart Association generally required for paramedics, emergency nurses and emergency physicians.
- **Advanced Life Support (ALS):** Special services designed to provide prehospital emergency medical care, including, cardiopulmonary resuscitation, cardiac monitoring, cardiac defibrillation, advanced airway management, intravenous therapy, specified drug administration, and other specified techniques and procedures administered by paramedics as part of a local EMS system. Patient care is provided according to EMS Field Treatment Protocols.
- **Air Ambulance:** An aircraft used for responding to emergency calls and transporting critically ill or injured patients. The medical flight crew has at a minimum of 2 attendants certified or licensed in advanced life support.
- **Automatic External Defibrillator (AED):** Automatic or semi-automatic defibrillators assess a patient's cardiac status and provide a shock (or instruct the machine to shock) if needed. AEDs, are now available in public places by many communities for use by laypersons under Public Access Defibrillations Programs (PADs).
- **Base Hospital:** A hospital which, upon designation by the local EMS agency, is responsible for directing the advanced life support (ALS) system and prehospital care system assigned to it by the local EMS agency.
- **Basic Life Support (BLS):** Emergency first aid and cardiopulmonary resuscitation procedures, which as a minimum, include recognizing respiratory and cardiac arrest and starting cardiopulmonary resuscitation (CPR) to maintain life without invasive techniques until the victim is transported or until advanced life support is available.
- **Basic Trauma Life Support (BTLS):** A trauma care course developed by the American College of Emergency Physicians, and required for local paramedics.
- **Blunt trauma:** Injuries that occur without penetrating the body (e.g. vehicle injuries, falls, blunt instrument assaults).
- **Cardiac Arrest:** A condition where the heart stops beating (asystole) or where it quivers (ventricular fibrillation) and does not pump blood to the rest of the body resulting in death if not corrected.
- **Cardiopulmonary Resuscitation (CPR):** The procedure of performing artificial respiration and artificial circulation to a non-breathing, pulseless patient.
- **Center for Disease Control and Prevention (CDC):** The Center for Disease Control and Prevention (CDC) is recognized as the lead federal agency for public health.
- **Code 2:** Used by EMS systems to refer to immediate ambulance responses to potentially urgent but non-life threatening incidents without using red lights/sirens and adhering to all Vehicle Code requirements (speed limits and rights-of-ways).
- **Code 3:** Emergency unit response with red lights/siren to an emergency incident. When responding Code 3, emergency units may exceed posted speed limit within certain constraints and may proceed through red lights without making a full stop, although the driver is held responsible for assuring safety for his/her unit and other drivers while doing so.
- **Community Alert Network (CAN):** Community Alert Network, Inc. is a high-speed, telephone emergency notification service that provides the ability to get critical information to large numbers or a precise number of people in a short period of time. CAN uses computer, telephone and digitized voice technology.
- **Computer Aided Dispatch (CAD):** A computer system consisting of associated hardware and software to facilitate call taking; unit selection; resource dispatch/deployment; event time stamping; and real time incident database maintenance
- **County Service Area (CSA) EM-1:** A Special benefit assessment district established by the Board of Supervisors to fund local EMS enhancements.
- **Critical Care Transport-Paramedic (CCT-P):** Individual whose scope of practice includes the basic and optional scopes but also has an extended scope of practice through specialized training that includes advanced medications and procedures approved through EMDAAC and by the EMS Medical Director.
- **Defibrillator:** A piece of equipment which can momentarily arrest all non-coordinated contractions of heart muscle fibers with the use of electric current in order that a spontaneous beat may resume. Hospitals and paramedics (ALS providers) use manually operated defibrillators that require judgment on the part of the rescuer. First responders use automatic or semi-automatic defibrillators that assess the patient's cardiac status and provide a shock if necessary.
- **Departmental Operations Center (DOC):** An emergency operations center used by specific departments of government for emergency response coordination.
- **Disaster Medical Assistance Team (DMAT):** A group of health professionals/support personnel trained to provide medical/health care during disasters in austere environments. DMAT is part of the National Disaster Medical System (NDMS), which is part of the Emergency Preparedness and Response branch of the Federal Emergency Management Agency (FEMA).
- **Dispatch Center:** Coordinating center for efficient management of all participating emergency resources within a designated area of responsibility. Centers dispatch rescue personnel/equipment, and manage these resources to ensure maximum effectiveness.



- **Emergency (medical):** A condition or situation in which an individual has a need for immediate medical attention.
- **Emergency Ambulance:** A specialized vehicle equipped with appropriate medical equipment/supplies, and staffed with qualified personnel for transporting sick or injured patients.
- **Emergency Department:** The area of a licensed general acute care hospital that receives patients in need of emergency medical evaluation and/or care.
- **Emergency Medical Services Authority (EMSA):** The State EMS organization that develops standards for local EMS systems and provides coordination and leadership.
- **Emergency Medical Services Commission:** A State multidisciplinary committee established by State legislation to review and approve regulations, standards, and guidelines, as well as to advise the EMS authority on a variety of issues.
- **Emergency Medical Services Medical Director:** Licensed physician appointed as local EMS Agency medical director to provide medical control and to assure medical accountability through planning, implementation and evaluation of EMS system.
- **Emergency Medical Services System:** A organized and coordinated arrangement that provides for the personnel, facilities, and equipment for the effective and coordinated delivery of medical care services under emergency conditions.
- **Emergency Medical Services System Plan:** A plan for the delivery of emergency medical services consistent with State guidelines addressing components listed in Health and Safety Code Section 1797.103.
- **Emergency Medical Technician-I (EMT-I):** An individual trained in all facets of basic life support and certified by a local EMS Agency within California. In the Contra Costa County EMS system, EMT-I staffed ambulances generally provide back-up to paramedic staffed ambulances, although they may be dispatched to respond to certain requests which have been determined to require only basic life support services.
- **Emergency Medical Technician-Paramedic, EMT-P or Paramedic:** Individual whose scope of practice includes skills and procedures to provide advanced life support as part of an EMS system and who is licensed by the State of California and accredited by the local EMS agency has having met established criteria. In the Contra Costa County EMS system, paramedics are dispatched to all emergency medical requests unless it has been established by the fire/medical dispatch center that a basic life support ambulance is a sufficient level of response.
- **Emergency Operating Center (EOC):** Facility designed and equipped for use by city, county or other governmental agency leadership to manage disaster response within area of responsibility.
- **Emergency Response Area (ERA):** An ambulance zone designated by the county for issuing ambulance permits and identifying exclusive operating areas for emergency ambulance service agreements. Contra Costa consists of ERA's.
- **Fire/Medical Dispatch Center:** Public Safety Dispatch Center that receives requests for emergency medical services, dispatches medical first responders and initiates ground and air ambulance response.
- **First Responder:** The first EMS rescuer to arrive on scene of a medical emergency; generally a fire non-transport unit.
- **Hazardous Materials (HAZMAT):** Any material source of danger/element of risk to people/property.
- **Health & Safety Code:** State legislation that includes Division 2.5 EMS Statutes.
- **Health Services:** The department of County government responsible for health related issues. The local Board of Supervisors has designated Contra Costa Health Services, which includes the Emergency Medical Services Agency, as the "Local EMS Agency."
- **Hospital Emergency Incident Command System (HEICS):** A crisis management plan, developed expressly for comprehensive medical facilities, that is modeled closely after the Fire Service Incident Command System.
- **Incident Commander (IC):** Person designated to direct and/or control resources and is responsible for overall management of the event response.
- **Incident Command System (ICS):** A flexible organizational structure that provides a basic expandable system developed by Fire Services to mitigate any size emergency situation. In 1992 California law mandated that emergency responders and emergency planning officials within public service use this system.
- **Local EMS Agency (LEMSA):** A local agency, usually a county health department/office, that has primary responsibility for administration of emergency medical services in a county/multi-county area.
- **Measure H:** The Contra Costa County advisory ballot measure in the Fall of 1988, which, when passed overwhelmingly in each city and in the County unincorporated areas, advised a special assessment be collected to support EMS programs. It specifically added paramedic ambulances, EMS communications system enhancements, disaster supplies, and enhanced medical training and equipment for fire first responders.
- **Medical Control:** Medical management of the emergency medical services system. This is done prospectively through policies and procedures, on-line through base hospital consultation, and retrospectively through continuing education, case review, and quality improvement activities.
- **Mobile Intensive Care Nurse (MICN) or Authorized Registered Nurse (ARN):** A registered nurse who the EMS



Medical Director has authorized as qualified to issue instructions to prehospital emergency medical care personnel within an EMS system according to standardized procedures.

- **Multicasualty Incident (MCI):** Emergency incident involving any number of injured persons that over-taxes rescue and medical resources of responsible agencies within an area of the County.
- **Mutual Aid:** The furnishing of resources from one individual/agency to another, including facilities, personnel, equipment and/or services when requested during time of need pursuant to an agreement between individuals/agencies.
- **National Disaster Medical System (NDMS):** A cooperative asset sharing partnership created in the mid-1980s among the Department of Health and Human Services, the Department of Defense, the Department of Veterans Affairs and the Federal Emergency Management Agency (FEMA). The system provides medical response to a disaster site for patient evacuation, and hospitalization in a national network of hospitals.
- **National Incident Management System (NIMS):** A standardized management processes, protocols, and procedures established by the federal government that all responders - Federal, state, tribal, and local - use to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.
- **Pediatric Education for Prehospital Providers (PEPP):** Course developed by the American Academy of Pediatrics to better prepare prehospital personnel in caring for children.
- **Public Access Defibrillation (PAD):** A program sponsored by the American Heart Association and supported by EMS to make automatic electronic defibrillators (AEDs) available in public places for use by laypersons.
- **Public Safety Agency:** A functional division of a public agency that provides fire fighting, police, medical or other emergency services.
- **Public Safety Answering Point (PSAP):** The location where 9-1-1 calls are answered and either appropriate resources are dispatched or the request is relayed to the responding agency.
- **RACES:** Radio Amateur Civil Emergencies Service.
- **ReddiNet:** Proprietary system of networking hospitals and county central points for the purpose of sharing information of hospital status and other important information related to the EMS system, multicasualty incidents, and disasters.
- **Regional Disaster Medical/Health Coordinator (RDMHC):** An individual within each State OES Region whose principle function is to coordinate acquisition of medical/health mutual aid in response to a request from State EMSA, Department of Health Services, or Governor's OES in support of state medical/health response to a major disaster.
- **Regional Disaster Medical/Health Specialist (RDMHS):** An individual whose principle function is to assist an RDMHC in planning for and coordinating acquisition of medical and health mutual aid in response to a request from State EMSA, Department of Health Services, or Governor's OES in support of a state medical/health response to a major disaster.
- **Rescue Aircraft:** An aircraft whose usual function is rescue, but which may be used, in compliance with local EMS policy, for prehospital emergency patient transport when use of an air or ground ambulance is inappropriate or unavailable.
- **Response Time:** The actual elapsed time between receipt of a request for service and the arrival of the ambulance at the requested location.
- **Standardized Emergency Management System (SEMS):** A system required by Government Code for managing response to multi-agency and multi-jurisdictional emergencies in California. SEMS consists of five organizational levels that are activated as necessary: Field Response, Local Government, Operational Area, Region, and State.
- **START,** an acronym for Simple Triage and Rapid Treatment, a procedure adopted by California Fire Chief's Association.
- **Strategic National Stockpile (SNS):** Designed to provide a back-up supply of large quantities of essential medical items to states and communities who have exhausted local or regional supplies during an emergency. The federal Centers for Disease Control and Prevention manages the program. The first shipment of the SNS (either the 12-hour Push Package or Vendor Managed Inventory) would arrive within 12 hours of federal decision to deploy. It contains a broad range of material that authorities could use to protect and treat several hundred thousand people for an ill-defined causative agent.
- **Trauma Center:** A licensed general acute care hospital designated by the local EMS Agency as a Level I, II or III Trauma Center. Trauma centers provide staffing and equipment for immediate evaluation and intervention for severely injured patients. John Muir Medical Center is the designated Level II Trauma Center for Contra Costa County.
- **Trauma System Plan:** A formal plan for the transport and care of critically injured patients. Trauma system plans must be submitted to and approved by the EMS Authority. Contra Costa's Trauma System Plan includes the designation of one level II trauma center within the County.
- **Triage:** Continuous process of sorting accident victims according to severity of their injuries. Necessary when the number of victims exceeds the number of rescuers or resources available.
- **Weapons of Mass Destruction (WMD):** Include nuclear, biological or chemical weapons, which may be used in terrorist attacks.

**XII. DOCUMENTS AVAILABLE FROM THE EMS
AGENCY**



DOCUMENTS, PLANS AND OTHER EMS INFORMATION

9-1-1 Brochures
County Service Area EM-1 Proposal and Service Plan
Contra Costa Health Services Emergency Plan
Disaster Medical Assistance Team, DMAT CA-6 information
EMCC By-laws
Emergency Medical Guidelines for Law Enforcement Agencies, 2002
EMS Agency Annual Program Reports
EMS Emergency Operations Procedures
EMS System Plan, Annual Updates
Facilities Assessment, 2005
Message Transmission Network Specification
Multicasualty Incident (MCI) Plan July 2007
Paramedic Interfacility Transfer Program application packet (2005)
Partners Course
Prehospital Care Manual, (December 2007)
Public Access Defibrillation (PAD) packets
Regional Disaster Medical/Health Coordinator Emergency Plan
Request for Proposal for Emergency Ambulance Services, 2004
Request for Proposal for Trauma Center Designation, 1992
Trauma System Plan, 2001

EMS POLICIES

Abuse/Assault Reporting
Base Hospital Communications/Disrupted Communications
Communicable Disease Exposure
Contra Costa County Emergency Medical Services Fee Structure
County Paramedic Evaluator
Declining Emergency Care and/or Transport
Determination of Death in the Prehospital Setting
Do Not Resuscitate (DNR) Orders in the Prehospital Setting
Emergency Department Diversion and Unusual Event Notification
EMS Aircraft Policies and Procedures (2002)
EMS System Medical Direction and Oversight
EMT-1 Certification
EMT/Paramedic or Non-Transport ALS Program
First Responder/EMT AED
Hospital Guidelines for Interfacility Transfers via Ambulance
Management of Intravenous Lines and Other Pre-existing Patient Equipment
Managing Assaultive Behavior/Patient Restraint
MICN Authorization and Re-authorization
Paramedic Accreditation
Paramedic Interfacility Transfer (CCT-P) Program Standards (2002)
Patient Destination Determination
Physician on Scene
Prehospital Continuing Education Provider
Prehospital Credential Review Process Guidelines
Prehospital Patient Care Record (PCR)
Search For Donor Card
Transfer of Care in the Field
Transfer of Critical or Possibly Critical Trauma Patients to Trauma Center
Trauma Patients
Reporting of Unusual Prehospital Occurrences

XIII. CPR & FIRST AID RESOURCES



CPR/First Aid Resources

| AGENCY | CLASS LOCATION | COURSES | AHA CARD | WEBSITE |
|--|-------------------------------------|-----------------|----------|---|
| Adams Safety Training | San Ramon | CPR & First Aid | Yes | www.adamssafety.com |
| American Heart Association | Various locations | CPR & First Aid | Yes | www.americanheart.org |
| American Medical Response | Various locations | CPR & First Aid | No | |
| American Red Cross | Various locations | CPR & First Aid | Yes | www.bayarea-redcross.org |
| Concord, City of | Concord | CPR & First Aid | Yes | www.ci.concord.ca.us/ |
| CPR Training Center | Concord | CPR & First Aid | Yes | www.cprtrainingcenter.com |
| Fast Response | Berkeley Walnut Creek | CPR & First Aid | Yes | www.fastresponse.org/ |
| Fontaine Fire, Inc. | Danville (other by arrangement) | CPR & First Aid | Yes | www.fontainefire.com |
| Hercules Community Swim Center | Hercules | CPR & First Aid | Yes | www.ci.hercules.ca.us/New/ |
| John Muir Women's Health Center | Walnut Creek | CPR & First Aid | Yes | www.johnmuirhealth.com |
| Kaiser Clinic | Antioch | CPR & First Aid | Yes | http://members.kaiserpermanente.org/kpweb/classes/list.do |
| Lafayette, City of | Lafayette | CPR | Yes | www.lafmor-recreation.org |
| Los Medanos College | Pittsburg | CPR & First Aid | Yes | www.losmedanos.edu/ |
| Martinez Adult Education | Martinez | CPR & First Aid | Yes | www.martinez-ed.org/ |
| Mt. Diablo Adult Education | Concord | CPR & First Aid | Yes | www.mdusd.k12.ca.us/adulted |
| Moraga Orinda Fire | Moraga/Orinda | CPR & First Aid | Yes | www.mofd.org |
| National Safety Council | Various locations | CPR & First Aid | Yes | www.nsc.org |
| Orinda, City of | Orinda | CPR & First Aid | Yes | www.ci.orinda.ca.us |
| San Ramon, City of | San Ramon | CPR & First Aid | Yes | www.ci.san-ramon.ca.us/ |
| Walnut Creek, City of | Heather Farms Park, Walnut Creek | CPR & First Aid | Yes | www.walnutcreekrec.org |