



Emergency Medical Services Agency
2003 Annual Program Report

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I. Introduction

A. Overview of EMS

Emergency Medical Services 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 (LEMSA's) 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 and approving EMT-I, paramedic, and Mobile Intensive Care Nurse (MICN) training programs.
- Conducting credentialing programs for EMT-I's, paramedics and MICN's.
- 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 the 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:

- Monitoring interfacility patient transfers.
- Implementing EMS program enhancements funded under 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.
- Implementing and monitoring an Emergency Medical Services for Children Program countywide.
- Planning for and coordinating disaster medical response at local and regional levels.

To accomplish these functions, the EMS Agency employs a staff of 11, including the EMS director, part-time EMS medical director, program coordinator, Health Services disaster preparedness manager, two prehospital care coordinators, trauma coordinator, training coordinator, half-time contract RN, and two clerks.

C. Emergency Medical Care Committee.

Each county may, under the 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 and its subcommittees are open to the public. The Emergency Medical Care Committee will provide reasonable accommodations for persons with disabilities planning to attend Emergency Medical Care Committee meetings who contact Lauren Kovaleff, EMS Program Coordinator at least 24 hours before the meeting, at (925) 646-4690.

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). Calls from cellular phones are routed to the California Highway Patrol dispatch center in Vallejo. 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 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, 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 areas, 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). Ambulances may be staffed with either paramedic-trained or EMT-I trained personnel.

The staffing standard for response to potentially life threatening incidents is an advanced life support (ALS) ambulance 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-I's 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.

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

In 1988 Contra Costa voters countywide passed ballot "Measure H" which provides for enhancements to the EMS system including increased paramedic ambulance service, additional medical training and equipment for firefighter first responders, and an improved EMS communications system. Following a 71.6% affirmative vote, the Board of Supervisors, with the support of the 18 city councils, formed County Service Area EM-1 to levy charges on real property as specified in Measure H. Assessments are limited to \$10.00 annually for a single-family residence. Commercial and industrial properties are generally assessed at \$30.00 or higher, depending upon the use code classification of the parcel.

Measure H assessments have been used to finance 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,
- 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 and,
- Enhanced response to Hazardous Materials incidents.

II. List of Major Accomplishments – 2003

EMS Major Accomplishments – 2003

- Provided ongoing oversight to the countywide emergency medical services and trauma system, which included some 67,480 responses to emergency medical calls made by County-contracted ambulance services, 330 medical helicopter transports by County-designated air ambulance services, and 765 serious trauma patients treated at John Muir Medical Center, the County-designated trauma center.
- Assisted with ongoing development and expansion of fire first responder paramedic services now provided by Moraga-Orinda Fire and San Ramon Valley Fire and, on a partial coverage basis, by Contra Costa County Fire, El Cerrito Fire, and Rodeo-Hercules Fire (2004); provided ongoing oversight to the countywide fire first responder defibrillation program.
- Continued to support the Bay Area Disaster Medical Assistance Team (DMAT CA-6).
- Initiated work on a comprehensive EMS system quality improvement plan.
- Specially trained interfacility transport paramedics transferred 553 in-patients to other acute care facilities as part of the County Interfacility Transfer Paramedic program.
- Participated along with hospitals, ambulance providers, Public Health and others in the Annual Statewide Disaster/Health Exercise.
- Implemented a Helicopter Review Taskforce to identify potential areas for system improvement.
- Participated on Health Services Bioterrorism Response Planning Committee to provide education and training on biological threats for emergency responders, clinicians, and the public.
- Updated EMS System Plan approved by California EMS Authority.
- Entered into reciprocal agreement with Alameda County for Interfacility Transfer Paramedic Programs.
- Co-sponsored, with the Contra Costa CAER group, a workshop for hospitals, medical clinics, ambulance providers, and others focusing on industrial incident related patient chemical exposure including assessment and decontamination.

III. Issues in the Forefront

A. Fitch Report Recommendations on Integration of Paramedic First Responder and Ambulance Services

In October 2003 Fitch & Associates issued their report to the EMS Agency on recommendation for the integration of paramedic first responder and ambulance services. The report followed a study undertaken on behalf of the EMS Agency and contained 13 specific recommendations on the EMS system. The report provided a financial analysis of fire paramedic first responder costs and potential savings to be realized through changes in ambulance staffing and response requirements. Fitch & Associates proposed that the areas currently served by AMR be divided into five response zones and that an ambulance RFP be developed that would allow implementation of integrated paramedic first responder and paramedic ambulance services on a zone by zone basis conditioned on fire services in a specific zone being ready to provide paramedic first responder coverage for the zone. The zones proposed in the Fitch report included:

Zone A – City of Richmond (Richmond Fire)

Zone B – West County, except Richmond (El Cerrito Fire, CCC Fire, Rodeo-Hercules Fire, Pinole Fire, Crockett-Carquinez Fire)

Zone C – Central County (CCC Fire)

Zone D – Pittsburg, Bay Point, Antioch area (CCC Fire)

Zone E – East County (East CCC Fire)

Under the Fitch recommendations, as endorsed by the Emergency Medical Care Committee, when fire services within any zone were prepared to provide zone-wide paramedic first responder coverage, ambulance the response standard for that zone would change from the existing 10-minute standard to a 13-minute/90% standard and ambulance staffing requirements would change from the existing two-paramedic requirement to one paramedic and one EMT-I. The resulting savings in ambulance cost would be used to support fire paramedic first responder service.

The financial analysis provided in the Fitch report showed a projected savings in ambulance costs of \$2.4 if both the staffing and response time changes were implemented countywide. These savings would substantially, but not completely, offset recurring costs for countywide fire paramedic first responder services estimated to be about \$3 million. Actual saving would not be known until completion of a request for proposal (RFP) process for emergency ambulance service. Such a competitive selection process is required periodically by state statute.

In May 2004, the Board of Supervisors authorized Health Services to modify and extend the emergency ambulance contract with American Medical Response through June 30, 2005 while conducting a competitive selection process for services to begin July 1, 2005. The modifications to the existing AMR contract would make ambulance staffing and response time changes recommended in the Fitch report, eliminate the County ambulance subsidy, expand the use of AMR quick response vehicles (QRV's), and enable to EMS Agency to establish a Paramedic First Responder Fund.

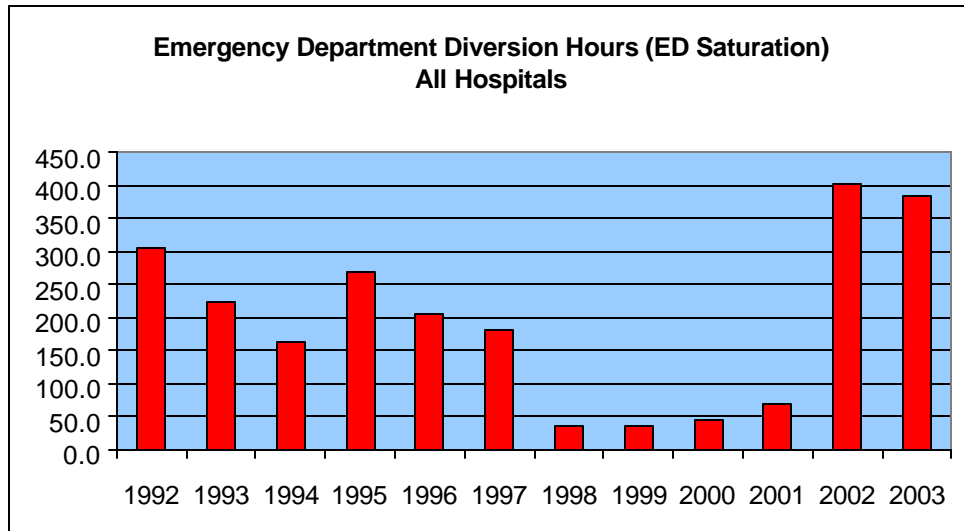
B. Preparation for Biological and other Terrorist Threats

Contra Costa EMS continues to work together with Public Health, public safety agencies, hospitals, ambulance services, and the Office of Emergency Services to maintain preparedness for response to biological and other terrorist threats. Three major formula grant programs continue to provide federal preparedness funding to local agencies in Contra Costa County.

- (1) **Federal Homeland Security** grants are provided annually to counties through the State Department of Homeland Security. At the local level, these grants are administered by the County Office of Emergency Services under the direction of an oversight authority (the "Gang of Five") consisting of the Sheriff, the Health Officer, the Contra Costa County Fire Chief, a municipal fire chief, and an municipal police chief. Homeland Security grants provides funding for first responder preparedness, including law enforcement, fire, and emergency medical services. Contra Costa's Homeland Security grant for FY 2003 amounted to slightly over \$1 million. Homeland Security funds were used to five fully equipped first aid trailers, personal protective equipment for EMS responders, equipment to upgrade response capabilities of Hazardous Materials emergency responders, and security upgrades for the County's Public Health Laboratory.
- (2) **Federal Centers for Disease Control and Prevention (CDC)** grants are provided through the State Department of Health Services and are administered at the local level by the County Health Services Public Health Division. These grants are used to enhance the public health system preparedness for response to bioterrorism. Contra Costa's FY 2003 grant amounted to \$1,454,610.
- (3) **Federal Health Resources and Services Administration (HRSA)** grants are also provided through the State Department of Health Services. The first year grant (FY 2002-03) was administered by the Hospital Council and provided mass decontamination and, for FY 2003 administered by the EMS Agency provides funding for hospital preparedness. This year's HRSA grant program has been expanded to include community clinics. FY 2003 HRSA grant funds, in the amount of \$812,596, will be used to complete purchasing of mass decontamination units for all hospitals, to purchase surge capacity units for all hospitals, to upgrade community clinic infrastructure, to plans for integration of the community clinics into the County's disaster response plan, and to provide first responder training to hospital and clinic staff.

C. Hospital Overcrowding and ED Diversion

Hospital overcrowding and emergency department diversion remained a concern in 2003. After taking steps to limit diversion during the influenza epidemic of 1997-98, emergency department ambulance diversion fell dramatically within the county. However, in 2002 diversion reached a new high of 400 hours and remained at about this level in 2003.



An examination of diversion by hospital shows that this problem is particularly acute in East County where diversion increased at Sutter Delta from 178 hours in 2002 to 234 hours in 2003 and at Mt. Diablo from 2 hours in 2002 to 50 hours in 2003. San Ramon Medical Center, on the other hand, reduced diversion from 137 hours in 2002 to 14 hours in 2003.

Hospital	Emergency Department Diversion (Hours)	
	2002	2003
Sutter Delta	178	234
San Ramon	137	14
John Muir	41	29
Contra Costa	35	39
Kaiser/WC	5	16
Mt. Diablo	2	50
Doctors	2	2
Kaiser/Richmond	0	0
Total	400	384

IV. EMS System Participants

A. Advisory Committees

Emergency Medical Care Committee (EMCC):

The EMCC is a multidisciplinary committee appointed by and advisory to the County Board of Supervisors, to the Health Services Director and its EMS Agency. Membership consists of representatives of EMS related organizations and consumers. The EMCC meets quarterly (March, June, September, December), and meetings are open to the public. Specific meeting information is available through the EMS Agency.

Medical Advisory Committee (MAC):

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

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

These committees evaluate trauma system care and monitor compliance to the trauma system standards established in the County Trauma System Plan according to provisions of State trauma regulations. Both TAC and Pre-TAC are held jointly with Alameda County and provide monitoring for two separate trauma systems. County EMS Medical Directors appoint members of these confidential quality improvement committees. Pre-TAC, which meets monthly, is responsible for initial committee review of all trauma related system issues, including select trauma center cases. Cases identified by Pre-TAC are referred to the Bi-County Trauma Audit Committee (TAC).

Co-chaired by the county EMS Medical Directors, TAC meets bimonthly and includes multidisciplinary representation from the four Alameda/Contra Costa County trauma centers, as well as representatives of non-trauma center receiving hospitals, prehospital care providers, ACCMA, coroner's offices, and EMS agency staff. Trauma surgeons from trauma centers outside of Contra Costa and Alameda County also participate in case review activities. Cases referred from Pre-TAC are reviewed along with cases identified as having teaching value. This committee presents observations and makes recommendations to respective EMS agencies regarding identified trauma system or trauma center issues.

Multicasualty Advisory Committee (MCAC):

This ad hoc multidisciplinary committee was originally organized by the EMS Agency in 1978 to develop an integrated emergency response plan for multicasualty incidents. The committee has also developed additional procedures for emergency response to varying magnitudes of emergency medical incidents. Representatives from police, fire, EMS, ambulance providers (both ground and air) and receiving hospitals participate. The Multicasualty Incident Plan was last revised in 1998.

First Responder Defibrillation Operations Committee:

This committee is charged with reviewing and evaluating operational matters related to the first responder defibrillation program. Membership consists of training representatives from each fire first-responder agencies. This group meets quarterly.

EMCC Facilities/Critical Care Committee:

This committee evaluates and makes recommendations to the EMCC with respect to issues that impact hospitals and their interface with the EMS system. Membership includes ED Nurse Managers and others. This committee meets every other month.

Hospital Disaster Forum (HDF):

Contra Costa County HDF meets quarterly and has membership consisting of disaster planners from hospitals, cities, ambulance, fire, OES, and EMS. HDF provides for discussion of issues of mutual concern regarding hospital disaster preparedness. Through the HDF, Contra Costa EMS facilitated the 2003 Statewide Med/Health Exercise for participating facilitates and agencies.

B. PSAP's 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)

Other First Responders:

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

Paramedic First Responder Programs:

- Moraga-Orinda Fire - Paramedic Engine (3 units)
- American Medical Response - Byron/Discovery Bay area and Bethel Island area – Medic Unit (2 units)
- Contra Costa Fire - Paramedic Engine (17 full time units and 3 part time units)
- San Ramon Valley Fire – Paramedic Engine/Ambulance (8 units)
- El Cerrito Fire Department – Paramedic Engine (2 units)
- California Highway Patrol - Helicopter Unit
- East Bay Regional Park - Helicopter Unit

D. Emergency Ambulance Providers

- American Medical Response (16 – 33 ambulances)
- San Ramon Valley Fire (5 ambulances)
- Moraga-Orinda Fire (2 ambulances)

E. EMS Helicopters

Air Ambulances:

- CALSTAR (1) Buchanan Field; (additional helicopters in Gilroy, Salinas, Auburn and Roseville and other areas of northern California).
- REACH (1) Buchanan Field; (additional helicopters in Santa Rosa and Sacramento).
- Helicopter services available in surrounding counties include Stanford Life Flight, Palo Alto; Davis Life Flight, Sacramento; Medi-Flight, Modesto; Air Med Team, Stanislaus County

Rescue Aircraft:

- California Highway Patrol (ALS helicopter)
- 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' Hospital, San Pablo Campus
- John Muir Medical Center, Walnut Creek
- Kaiser Medical Center, Walnut Creek
- Mt. Diablo Hospital Medical Center, Concord
- San Ramon Regional Medical Center
- Sutter Delta Medical Center, Antioch
- Kaiser Medical Center, Richmond

Base Hospital:

- John Muir Medical Center

Trauma Centers:

- John Muir Medical Center
- Children's Hospital and Research Center (regional trauma center for pediatric patients)

V. EMS Program 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 of the Health & Safety Code.

American Medical Response	All of west, east county 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.	16 – 33 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 (3 reserve)

Contracts with all three providers require ALS level response to all life threatening or potentially life threatening emergencies, and a 10-minute or shorter response time for at least 95 percent of all Code 3 calls within urban areas. An exception to the 10 minute/95% response standard is in the central county area of the Contra Costa Fire Protection District where a ten-minute/90% ambulance response standard has been set based on rapid paramedic first response by Contra Costa Fire paramedics.

During **2003**, the EMS system received **67,480 requests for emergency ambulance response**. Of these, **51,771 (76.7%) were considered to involve potentially life-threatening situations** to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining 15,709 (23.3%) ambulance responses were dispatched Code 2 (immediate response without lights and siren).

Of the total responses, 61,664 (91.4%) were handled by American Medical Response, 4,256 (6.3%) by San Ramon Valley Fire Protection District ambulance, and 1,560 (2.3%) by Moraga-Orinda Fire Protection District ambulance. Average Code 3 ambulance response time countywide was 7.43 minutes. Paramedic level staffing was provided on 98.9% of all Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 67,480 emergency ambulance responses during the year, **48,958 (72.6%) resulted in patient transport to an emergency receiving hospital**. Ambulances responding to the remaining 18,522 (27.4%) 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, which was initially perceived to be a medical emergency, had been resolved or stabilized by the time an ambulance unit arrived on the scene.

Emergency Ambulance Dispatches

	1999		2000		2001		2002		2003	
	#	%	#	%	#	%	#	%	#	%
All EMS Ambulance Dispatches	57,568	100.0	61,531	100.0	64,391	100.0	65,549	100.0	67,480	100.0
Code 3 (lights & siren)	44,851	77.9%	47,381	77.0%	48,950	76.0	50,651	77.4%	51,771	76.7%
Code 2	12,717	22.1%	14,150	23.0%	15,441	24.0	14,808	22.6%	15,709	23.3%
American Medical Response	52,169	90.7%	56,202	91.3%	58,860	91.4	60,255	92.0%	61,664	91.4%
San Ramon Fire	3,825	6.6%	3,624	5.9%	3,943	6.1	3,710	5.7%	4,256	6.3%
Moraga-Orinda Fire	1,574	2.7%	1,705	2.8%	1,588	2.5	1,494	2.3%	1,560	2.3%
Transport	40,081	69.6%	44,931	73.0%	47,625	74.0	47,858	73.1%	48,958	72.6%
No Transport (Dry Run)	17,487	30.4%	16,600	27.0%	16,776	26.0	17,601	26.9%	18,522	27.4%
Avg. Code 3 Response Time	7.10 minutes		7.07 minutes		7.18 minutes		7.15 minutes		7.43 minutes	
Code 3 Responses Not Meeting Ambulance Staffing Standard	914	2.0%	869	1.8%	832	1.7%	771	1.2%	591	1.1%

B. First Responder Services

Most EMS responses involve dispatch of both fire and ambulance units. All firefighters are required by law to be trained in emergency first aid and most are certified as EMT-I's. Several agencies have firefighters licensed as paramedics who respond on first responder units. Firefighters 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.

First Responder Automated External Defibrillator (AED) Program:

The first responder defibrillation program, established on a countywide basis in 1992, provides rapid access to life-saving care for patients with cardiac arrest. The survival rate since program implementation has remained steady over the past several years, but the number of patients shocked has decreased. In part, this is due to the increased presence of first responder

paramedic units, which utilize manual defibrillators instead of AED's. Data for first responder paramedic units is not included with AED program data.

First Responder Paramedic Programs:

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.

➤ **Moraga-Orinda Fire Protection District:** In 1988, the EMS Agency approved a pilot ALS Engine program in Moraga Fire District, to back up the Moraga paramedic ambulance. An ALS Engine, staffed with at least 1 (one) paramedic and 1 (one) EMT-1 and stocked with ALS equipment/supplies, was dispatched simultaneously with an ALS transport unit to emergency medical requests. The program received permanent approval in 1992.

In 1997, Moraga Fire Protection District merged with the 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.

➤ **East Contra Costa County Fire Protection District:** In 1992, American Medical Response, then East Diablo Fire District and the EMS Agency entered into a formal cooperative effort to provide a timelier, cost effective method of delivering ALS in the Discovery Bay/Byron areas by placing an AMR First Responder Paramedic Unit in the area. In 1996, the EMS Agency approved an ALS Engine pilot program in the then Bethel Island Fire Protection District, to provide ALS service prior to the arrival of the AMR paramedic transport ambulance.

Bethel Island Fire Protection District, East Diablo Fire Protection District and Oakley Fire Protection District **merged to become the East Contra Costa County Fire Protection District** in 2002. The Bethel Island Fire's First Responder Paramedic Program ended with the merger, and the EMS Agency added an American Medical Response first responder unit to the District to cover the Bethel Island/Oakley area. These units have had a positive impact on the manner in which ALS care is delivered to this low call volume area.

➤ **San Ramon Valley Fire Protection District:** In 1997, San Ramon Valley Fire Protection District implemented a program under which minimum ambulance staffing was dropped from two paramedics to one paramedic. 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 was developed based on Medical Priority's Emergency Medical Dispatch System to assure two paramedics are on scene when needed for certain categories of patients.

➤ **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. Two engines staffed with a paramedic and 2 firefighters, and "Medic Unit", a non-transporting unit staffed with one paramedic provides first responder services. In 1998 the program expanded to 3 (three) engines and a "Medic Unit", the additional engine having been added in the Martinez area. In 1999 the program expanded to seven (7) engines and a "Medic Unit" extending coverage throughout Contra Costa Fire's district in the central county area. In 2001 and 2002 the program was further expanded to twelve (12) and then to fifteen (15) units. Contra Costa County Fire has continued to expand their first responder paramedic program. As of June 2004, there are twenty (20) full-time units and 2 part-time units. In addition, all stations were equipped with paramedic equipment to allow extra available paramedics to provide ALS service.

➤ **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 areas where long ambulance response times are typically over 10 minutes. El Cerrito currently has 2 paramedic engines in their district, which also covers the Kensington area.

All First Responder Paramedic programs operate under base hospital medical direction as well as EMS Agency policies and procedures.

➤ **Rodeo Hercules Fire Protection District:** In 2004, Rodeo Hercules Fire Protection District implemented a first responder paramedic program. Once engine was staffed with paramedics on one shift in May of that year.

Emergency Medical Guidelines for Law Enforcement Agencies:

Emergency Medical Guidelines For Law Enforcement Agencies were 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, **newly revised in 2002**, address only the medical aspects of the officer's responsibility. EMS staff periodically attends the Law Enforcement Training Advisory committee (LETAC) to address system changes/issues.

C. Dispatch and Communications

MEDARS:

The **Medical Emergency & Disaster Ambulance Radio System** is the County radio system used for ambulance-to-hospital and for Sheriff's Dispatch-to-ambulance communications. This radio system includes four channels. Med-11 is used for communications between ambulances and Sheriff's Dispatch. Med-12, Med-13, and Med 14 are for ambulance-to-hospital communications.

Message Transmission Network (MTN):

MTN is a computer network designed to interconnect the county's four fire/medical dispatch centers, Sheriff's dispatch, and American Medical Response (AMR) dispatch. Currently, the MTN system is in use at Contra Costa Fire Dispatch and AMR Dispatch and handles about 70% of all EMS dispatches countywide. By establishing a direct data link among the various computer-aided dispatch systems, MTN decreases dispatch time, reduces dispatch errors, and provides system response data.

MTN makes use of 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/ambulance response, and provide simple emergency medical instructions for the caller to initiate prior to the arrival of EMS personnel. In 1993, Medical Priority's ProQA Dispatch System, the only available computerized medical dispatch system at the time, 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 the Medical Priority Dispatch 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 three public safety medical dispatch centers within Contra Costa County have achieved the "Center of Excellence" accreditation; San Ramon Valley Fire Protection District in 1996, West County Consolidated Communications Operations Center in 2002, and Contra Costa County Fire Protection District in 2003.

Fire Radios:

Hi-band mobile radios, programmed with existing fire service radio channels, have been installed in all paramedic units, to facilitate communication among paramedics, fire dispatch centers, and fire first responders except Richmond, which has an 800-trunking radio system.

ReddiNet:

The ReddiNet system, implemented locally in 2001, was designed as a microwave communications link between hospitals. Hospitals and the EMS Agencies in Alameda and Contra Costa Counties are included in our local ReddiNet system. In Contra Costa, Sheriff's Dispatch is the coordination point, and the dispatch centers for all three emergency ambulance providers are also included. On a day-to-day basis, hospitals can receive alert notices and timely incident updates from EMS and from Sheriff's dispatch, post hospital diversion and "census alert" status, and send any important message to other hospitals individually or as a group. During multicasualty incidents, ReddiNet facilitates the reporting of hospital information and tracking 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.

In **2003**, Solano County and its hospitals became part of the ReddiNet system and can effectively communicate with Contra Costa and Alameda counties and hospitals.

D. Helicopter Transport

The 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 helicopter transports are for trauma patients from distant areas of Contra Costa or from other counties to the John Muir Trauma Center in Walnut Creek. Doctors' Hospital, San Pablo also has a helipad that may be used as an ambulance/helicopter rendezvous point, or to receive patients with major burns to its Burn Unit. **The County's current standard of care for emergency patients transport by air is by an "air ambulance"** which is staffed with two 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 **2003 there were 330 transports of local patients by helicopter**, almost exclusively to trauma centers. 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 addition to the local helicopter transports, there were 153 patients transported by helicopter from out of county locations to the John Muir Trauma Center.

The EMS Medical Director appointed a Helicopter Review Taskforce to review helicopter utilization and to identify potential areas for system improvement. The majority of patients

transported by helicopter in Contra Costa are trauma victims and trauma center personnel participate on this Taskforce as well.

E. Hospital Emergency Services

The 8 California licensed acute care hospitals located in Contra Costa have emergency departments that provide service 24 hours/day, 7 days/week. The staff of these emergency departments includes at least one physician, trained and experienced in emergency medicine, one 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.

Annually EMS Agency staff request that all 8 hospitals perform self-assessments to identify critical care capabilities and other hospital resources available to their patients. Hospital data collected includes information about:

- 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 such as hemodialysis, trauma, specialized hand surgery and 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 resource document each year that includes information collected from all 8 hospitals. This document is available on request.

Emergency Department Diversion of Ambulances:

Diversion of ambulances by emergency departments of acute care receiving facilities in the County is permitted by EMS Policy, which was initially developed and implemented in 1985. Under ambulance diversion policy, hospitals whose emergency departments are temporarily overloaded, may direct certain ambulance patients to other nearby hospitals. The purpose of this policy is to assure that patients are transported to a hospital that is able to provide immediate emergency treatment. EMS staff reviews the documentation pertaining to all reported incidents of ED ambulance diversion. In 2001, the ED diversion policy was amended to allow diversion of certain types of patients when the hospital's CAT scan machine was not functional.

At the end of 1997, and into the first 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 of this shortage, in 1998 the hospitals in Contra Costa 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 developed and has internally integrated this Hospital Census Alert System for shortages in their facility. Starting in 2001, hospitals now report their census alert status on the ReddiNet system.

During **2003, there were 7 facilities that utilized full diversion for a total of 384 hours**. There were no reports of problems in patient care resulting from these diversion incidents. During that same period, **6 of 8 facilities utilized CAT Scan diversion a total of**

538 hours. CAT Scan diversion permits ambulances to divert patients who may require this procedure to another area hospital when the hospital's CAT Scanner is down for repairs or maintenance.

F. Base Hospital and Paramedic Service Programs

Base Hospital Services:

John Muir Medical Center provides direct (on-line) and indirect (retrospective review) medical oversight services for ambulances countywide. John Muir Base also performs trauma triage for ambulances transporting possible major trauma victims. In **2003 there were 4,185 base hospital contacts by field personnel.**

Treatment Protocols:

First responders, paramedics, EMT's, MICN's, and base hospital physicians use EMS Field Treatment Guidelines to provide care to patients in the field. These guidelines are reviewed and endorsed by the Medical Advisory Committee based on current research and medical need in the county and are adopted by the EMS Medical Director. Field treatment protocols are reviewed and revised on an ongoing basis. Improved mechanisms to verify endotracheal intubation placement were implemented in 2003.

Emergency ambulance personnel transport patients from the field to emergency departments in Contra Costa and in surrounding counties based on destination determination protocols.

G. Trauma System

In 1986, the Board of Supervisors approved a comprehensive Trauma System Plan for the County and designated John Muir Medical Center 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. 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. John Muir Trauma Service has received "Capitol Program" designation by the American College of Surgeons, the only Level II trauma center receiving this designation in northern California. This designation means that John Muir is designated to care for the President of the United States when he is in the Contra Costa area.

In **2003**, 2,761 patients were identified as requiring trauma triage, 765 of which were transported directly to John Muir Trauma Center. Two hundred patients were transported to Children's Hospital, Oakland, and 20 to out-of-county adult trauma centers, primarily Eden Hospital, Castro Valley and Highland Hospital, Oakland. Eleven of the 40 pediatrics patients transported to Children's Oakland were major trauma victims retrospectively. Patients in traumatic full arrest or whose airway cannot be managed are triaged to the closest basic emergency department for resuscitation. **During the past 17.5 years of operation, a total of 51,870 patients have been triaged through the County trauma system.**

Critically injured patients who arrive at a non-trauma center hospital may be transferred to a trauma center. **Sixty-two of the 109 injured patients transferred to John Muir from within Contra Costa in 2003 were retrospective "major trauma victims".** John Muir Trauma Center also received **235 trauma patients from surrounding counties**, generally by air transport. 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 receives from Solano has remained constant at about 12% of their trauma admissions. John Muir 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 additional critical trauma patients to out of county trauma centers until resources are again available. In **2003** John Muir Trauma Center bypass rate was 2.4 % and was most often due to operating room overload. Eleven critical trauma patients were triaged to out of county trauma centers during trauma center bypass periods.

Trauma System Evaluation:

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

John Muir Trauma Center also has its own internal monitoring and evaluation systems coordinated by an RN Trauma Program Coordinator. The Trauma Program Coordinator meets weekly with nurses, social service, physical therapists, neuropsychology, rehabilitation, nutritional services, pastoral care and patient accounting. These rounds analyze every patient on the trauma services from a multidisciplinary perspective. Current activities include the design and implementation of the Neuroscience Institute, to address the short and long term care of the traumatic brain injured patient.

Trauma Injury Prevention:

The EMS Agency supported injury prevention activities in 2003, by participating on the County's Child Death Review Team. 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.

In 2003 the EMS Agency obtained the second year of a state grant to fund "**Medication Education for Drug Safety (MEDS), a project being undertaken by John Muir Medical Center** to address the unique issues of older adults in an effort to reduce the number of preventable injuries to this population in the County. Through the project, medications taken by elderly adults will be evaluated on an individual basis, and education about medications being taken, including side effects, duplication and intended purpose of each medication, will be provided.

H. Disaster/Multicasualty Planning and Response

Disaster Planning Grant:

Since 1990, the EMS Agency has received a series of disaster planning grants through the State EMS Authority. California Health and Safety Code Division 2.5, Section 1797.152, provides for the designation of Regional Disaster Medical/Health Coordinators (RDMHC) and the Contra Costa County Health Officer has been the designated Region II RDMHC. The granted disaster planning process resulted in the assignment of a Regional Disaster Medical/Health Specialist (RDMHCS) as staff to the project for the northern California coastal area (OES Coastal Region). These grants have enabled the EMS Agency to enhance and support the Region's disaster preparedness by facilitating coordination among Operational Areas and their disaster preparedness and response stakeholders and State EMS Authority and Department of Health Services in the event of a major disaster.

In **2003** staff continued work on the medical mutual aid system region-wide including quarterly forums for medical/health emergency planners and others to gather and discuss pertinent issues. Staff assisted medical and health planners in other counties within the region on regional medical/health disaster related grant projects including DMAT activities. Specific objectives for the year included:

- Facilitating the National Disaster Medical System (NDMS) patient reception/distribution and hospital capacity process.
- Providing Regional input into Metropolitan Medical Response System (MMRS) development (City of Fremont).
- Facilitating education and dissemination of information regarding mitigation and recovery planning, and sheltering of the medically fragile.
- Assisting in Bioterrorism planning.
- Participating in the development of Ambulance Strike Team guidelines.
- Representing State EMSA in planning and preparedness venues such as meetings with the Veteran's Administration, major airports, Sandia and Lawrence Livermore labs.

Multicasualty Incident Plan (MCI):

The Multicasualty Incident Plan (MCI) is a multi-agency plan setting forth the roles and responsibilities of response and support agencies in the event of a large scale incident involving a large number of casualties. Originally developed and approved by the Board of Supervisors following the 1976 Yuba City/Martinez school bus accident, the plan is updated periodically to incorporate the most current emergency medical response information. There were no activations of the MCI plan in 2003.

Medical Advisory Alert:

The Medical Advisory Alert is a notification procedure that is implemented when an incident has occurred or a condition exists which *might* tax the local medical resources. When an MAA is implemented, Sheriff's Communications alerts those agencies with responsibilities in providing administrative or other support during a multicasualty incident that the potential for such a situation exists.

Community Warning System:

Refineries and other industrial sites which use or store potentially hazardous chemicals use the Community Warning System to issue alerts that 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 Levels 2 and 3 alerts normally result in Medical Advisory Alerts.

Expanded Medical Emergency:

Operational procedures activated under an Expanded Medical Emergency, provide an on-scene organizational structure for incidents requiring more than one ambulance, but not requiring the outside support services activated with the Multicasualty Plan.

Multi-Casualty Supply Caches:

First aid supplies purchased by the EMS Agency are organized into 25 multi-casualty supply caches that are stored and maintained in fire stations throughout the County. Fire agencies have agreed to rapidly transport caches to incidents if possible. Cache supplies include bandaging equipment, splinting supplies, oxygen administration supplies, and blood pressure equipment.

Health Services Emergency Preparedness Program:

Contra Costa Health Services places a priority on emergency preparedness, and has established an Emergency Preparedness Work Group, which meets monthly, to develop and expand upon plans for the various Health Services divisions to be able to respond together to a wide variety of emergency situations from natural disasters such as earthquakes and floods, to chemical or other toxic releases to biological disasters. The Emergency Preparedness Work Group meets monthly and consists of high-level representatives of key Health Services Divisions.

The Contra Costa Health Services Emergency Management Team (EMT) consists of Health Services division directors and administrative staff necessary to provide a health medical response to medical disaster situations, public health emergencies and the like within the Standardized Incident Management System (SIMS). The EMT meets quarterly.

In October 2003 the EMT participated in a large multi-casualty and hazardous materials incident exercise. The incident lead to the activation of the County/Op Area EOC at 50 Glacier Drive, the Health Services DOC at 1340 Arnold Drive, and other CCHS Emergency Operations Sites including EMS, Haz Mat, Environmental Health, and Mental Health Operations.

The annual State-wide Medical and Health Disaster Exercise involving all eight acute care hospitals within the County, local ambulance service providers, city/s, Contra Costa Public Health, EMS Agency staff, and others was held in November 2003. The threat was Pneumonic Plague. The scenario included managing overwhelming numbers of patients presenting with symptoms of the plague bacteria *Yersinia pestis*. Healthcare providers and governmental agencies managed the influx of large numbers of ill and infectious patients. For the first time Emergency Management Team members tested the use of the new Lotus Notes Health Services Department Operating Center Activity Log.

Department of Justice (DOJ) Programs State and Local Domestic Preparedness Equipment Support Program

Contra Costa EMS continued preparedness activities with various Fire, Law, OES and EMS agencies to implement the \$292,000 Department of Justice Grant for the purchase of communications equipment, radiological detection equipment, and personal protective equipment. The funds have been used to enhance the capabilities first response agencies that may be called upon to respond to acts of terrorism. The equipment is supplementing the existing equipment currently staged in four caches maintained at designated fire stations throughout the county for rapid transport and deployment at any location. A previous DOJ Grant administered by Richmond Fire, has been processed for the purchase of additional preparedness equipment.

Beginning in 2003, this grant program was moved to the new Department of Homeland Security and a five-person County Approval Authority was established consisting of Sheriff, Health Services Director, the Contra Costa County Fire Chief, a municipal fire chief and a municipal police chief.

I. 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 **2003, 200 paramedics were either accredited or re-accredited** by the Contra Costa County EMS Agency to practice as paramedics within the County.

EMT-I's:

Any local EMS Agency may certify EMT-I's within the State. Once certified, an EMT-I may function as such statewide. In **2003, 352 EMT-I's were either certified or recertified** in Contra Costa County. In 2002, a background check by the Department of Justice (DOJ) was added to the EMT -I certification/recertification requirements.

MICN's:

In **2003, 3 RN's were either authorized or re-authorized** in Contra Costa to practice in the expanded MICN role within the County.

J. 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 Programs:

There are no paramedic program providers currently based within the county.

EMT Training Programs:

The EMS Agency has approved the local EMT courses offered by Los Medanos Community College, Contra Costa County Fire, Mbraga-Orinda Fire Mt. Diablo Adult Education, Contra Costa College, West Contra Costa Adult Education and Safety Compliance Management.

- Los Medanos Community College offers EMT training each fall at its Pittsburg campus.
- Contra Costa College offers EMT training each year at its San Pablo campus.

- Mt. Diablo Adult Education offers EMT training at various times throughout the year at its facility in Concord.
- West Contra Costa Adult Education does not currently have any EMT training programs scheduled at its facility in Richmond.

Contra Costa Fire and Moraga-Orinda Fire Protection Districts offer training and continuing education to in-house personnel only.

MICN Training Programs:

A 3-day MICN training course was offered at John Muir Medical Center in November 2003. Six RN's completed the course.

K. Public Information Education Programs

Emphasis is on EMS system access, recognition of life threatening situations, prevention of injuries, self-help techniques and first-aid skills that the public can utilize in emergency situations (CPR specifically).

- Local CPR class availability is accessible through the 1-800-GIVE-CPR number maintained by the Contra Costa EMS Agency. This number is advertised in the EMS 9-1-1 Brochure, local newspapers, telephone books and CCC Cable TV.
- EMS has continued to provide speakers for a number of community and wellness organizations such as Junior Chamber of Commerce, the Rotary Club, acute care receiving and skilled nursing facilities, and school districts.
- EMS 9-1-1 Brochure is available.

L. Other Programs and Projects

Interfacility Transfer Paramedic Program (Critical Care Transport-Paramedic or CCT-P)

In 2002 an Interfacility Transfer Paramedic Program was developed to provide an alternative means of transferring stable patients who require, or who may require, care within the CCT-Paramedic Scope of Practice during transfer. CCT-P units may be used to transfer patients from acute care hospitals, or other medical facilities approved by the EMS Medical Director, to other acute care facilities. Contra Costa EMS 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 two qualified staff that includes at least one paramedic. Personnel assigned to a CCT-P unit work under existing medical control system and follow EMS policies and procedures. CCT-P's have an expanded scope of practice, and the transferring physician specifies standing orders for a patient based on skills and medications included in the County CCT-P scope of practice. CCT-P programs are required to have written quality improvement plans approved by the EMS Medical Director.

EMS/Hazmat Decontamination Workshop, October 2003

Contra Costa EMS and the Contra Costa County Community Awareness and Emergency Response (CAER) organization co-sponsored a workshop for hospitals, medical clinics, ambulance providers, and others that focused on patient chemical exposure assessment and decontamination related to industrial incidents. This provided opportunity to improve the

consistency between health care facilities in recognizing and handling patients that may or may not need decontamination (with special emphasis on walk-in patients with possible exposures to chemical agents). Topics discussed included:

- Typical local refineries, chemical plants, and transportation routes, with risks of population exposure associated with accidental releases, including local release prevention and emergency response programs.
- Overall preparedness and response strategies for use by all response providers to respond to a major incident in a community involving multiple chemical exposures.
- Notification of incidents using EDIS, CWS, ReddiNet and other communications and notification systems.
- Existing policies, protocols and procedures for patient chemical assessment and decontamination including methods used to determine degree of exposure and contamination, with general overview of decontamination and treatment protocol resources utilized.
- Emergency response command and operations roles and activities including issues that might affect the ability of local facilities to receive, assess, decontaminate and treat chemical exposure victims.
- Hospital response to the influx of victims (both EMS transported and self-presenters) including equipment, personnel, and training needed to accomplish patient and facility decontamination.

A DVD recording of the workshop has been developed and is available on request from CAER.

DNR Program:

A Do-Not-Resuscitate (DNR) program for patients with terminal medical problems was implemented in 1993. This program evolved in response to concern from the public over the 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 hospitals, nursing homes, hospices, home health agencies, and private physicians throughout the county.

EMS for Children Program:

In 1999, the EMS Agency obtained a two-year grant to develop and implement an EMS for Children (EMSC) program for Contra Costa. During 2001, an EMSC Plan was adopted which has been integrated into the County EMS System Plan. Hospital related EMSC issues and plan updates be addressed through EMS Facilities and Critical Care Committee.

Disaster Medical Assistance Team (DMAT):

Contra Costa EMS is the sponsor of the Bay Area Disaster Medical Assistance Team -D-MAT CA6. Disaster Medical Assistance Teams are comprised of trained, and prepared volunteer physicians, nurses, paramedics, and other medical and support personnel organized to provide medical and health care to disaster victims including patient reception from overseas conflict.

DMAT's are established under the National Disaster Medical System (NDMS), through the U.S. Public Health Service to serve as the operational response to a disaster.

The Bay Area DMAT was formed in 1997 with the support of Contra Costa, San Mateo, Alameda and San Francisco Counties. Since then, over 100 individuals have volunteered. DMAT CA-6 is the only DMAT based in central California. There are 28 teams considered operational nationwide, with six in California plus a mental health specialty team.

Following is the chronology of DMAT CA6:

- 1997** ➤ **Bay Area Disaster Medical Assistance Team** (DMAT) formed/sponsored by County Health Services.
- 1998** ➤ **Bay Area DMAT CA6** attained Level II designation.
- 1999** ➤ Bay Area DMAT attained **Level I designation**.
 - Members deployed to Ft. Dix for Operation Refugees, Kosovo refugees.
 - Members deployed to Washington State for World Trade Council Meetings.
 - Members traveled to Ukraine for joint training mission.
- 2000** ➤ DMAT CA-6 incorporated as a nonprofit organization with 501(c)(3) status.
 - Members deployed to provide medical coverage for firefighters participating in Wildland 2000.
 - Members provide medical care at Fleet Week in San Francisco.
- 2001** ➤ **DMAT CA-6** signed agreement with California Department of Forestry (CDF) to provide medical response on a pilot basis to NFS events when requested. CA-6 was the pilot DMAT team to undertake this type of response, and is the prototype for a nationwide collaborative between DMAT's and U.S. Dept of Forestry.
 - Members deployed to Presidential Inauguration in Washington D.C.
 - Members deployed to Texas for tropical storm Allison.
 - Members deployed to provide medical coverage for firefighters participating in Wildland 2001.
 - Members deployed to Ground Zero, NYC/World Trade Center. Members also assigned to the US Postal Service Annex for employee anthrax screening.
 - Members deployed to Salt Lake City for the 2001 Olympics.
- 2002** ➤ Members deployed to provide medical coverage for firefighters participating in Wildland 2002.
 - Members deployed to 4 major California wildfires as part of the CDF agreement.
 - Members staged for response at the 2002 World Series in San Francisco.
 - Members provide medical care at Fleet Week in San Francisco.
- 2003** ➤ Members staged for the Sunnyvale Anti-War Protests.
 - Members deployed to 5 major Southern California fires as part of the CDF agreement.
 - Members provide medical care at Moffett Field Air Show.
 - Members provide medical care at Fleet Week in San Francisco.
 - Members deployed to provide medical coverage for firefighters participating in Wildland 2003.
- 2004** ➤ Members (2) deployed to Guam for care of neonates in local emergency situation.
 - Members provide medical care at Moffett Field Air Show.

VI. 2001 Statistical Report

A. Ambulance Dispatch Report

Ambulance Dispatch Report

Year 2003

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

Response Code and Level	All Providers		American Medical Response		San Ramon Valley Fire*		Moraga/Orinda Fire	
	#	%	#	%	#	%	#	%
Total Dispatches	67,480	100.0	60,255	100.0	4,256	100.0	1,560	100.0
Code 3 Dispatches	51,771	76.7	46,448	75.3	4,155	97.6	1,168	74.9
Code 2 Dispatches	15,709	23.3	15,216	24.7	101	2.4	392	25.1
Total Code 3 Dispatches	51,771	100.0	46,448	100.0	4,155	100.0	1,168	100.0
ALS Response	51,180	98.9	45,864	98.7	4,148	99.8	1,168	100.0
BLS Response	591	1.1	584	1.3	7	0.2	0	0.0
Total Code 2 Dispatches	15,709	100.0	15,216	100.0	100	100.0	392	100.0
ALS Response	10,363	66.0	9,872	64.9	99	98.0	392	100.0
BLS Response	5,346	34.0	5,344	35.1	2	2.0	0	0.0

Ambulance Dispatch Report (cont.)

Year 2003

Patient Transport by Ambulance Provider

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

Response Code and Level	All Providers		American Medical Response		San Ramon Valley Fire		Moraga/Orinda Fire	
	#	%	#	%	#	%	#	%
Total Dispatches	67,480	100.0	61,664	100.0	4,256	100.0	1,560	100.0
Transported	48,958	72.6	44,954	72.9	3,070	72.1	934	59.9
Cancelled	18,522	27.4	16,710	27.1	1,186	27.9	626	40.1
Total Patient Transports	48,958	100.0	44,954	100.0	3,070	100.0	934	100.0
Transported Code 3	2,072	4.2	1,935	4.3	97	3.2	40	4.3
Transported Code 2	46,617	95.2	42,793	95.2	2,931	95.5	893	95.6
Helicopter	242	0.5	226	0.5	16	0.5	0	0.0
Transport Code Not Reported	27	0.1	0	0.0	26	0.8	1	0.1
Total Cancelled	18,522	100.0	16,710	100.0	1,186	100.0	626	100.0
Enroute	3,979	21.5	3,432	20.5	376	31.7	171	27.3
On Scene	14,543	78.5	13,278	79.5	810	68.3	455	72.7

Ambulance Dispatch Report (cont.)

Year 2003

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

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

Community	All Responses		Code Two		Code Three				
	#	%	#	%	#	%	Avg. Response Time*	BLS Unit Only on Response	
Totals	67,480	100.0	15,709	23.3	51,771	76.7	7.43	591	1.1
Richmond	10,922	16.2	1,337	12.2	9,585	87.8	6.96	90	0.9
San Pablo	2,598	3.9	762	29.3	1,836	70.7	6.16	15	0.8
El Cerrito	1,818	2.7	204	11.2	1,614	88.8	7.69	11	0.7
El Sobrante	457	0.7	82	17.9	375	82.1	8.51	2	0.5
Kensington	208	0.3	22	10.6	186	89.4	11.60	1	0.5
Pinole	1,515	2.2	374	24.7	1,141	75.3	6.75	12	1.1
Hercules	995	1.5	247	24.8	748	75.2	8.84	12	1.6
Rodeo	408	0.6	125	30.6	283	69.4	8.62	4	1.4
Crockett	256	0.4	67	26.2	189	73.8	12.58	2	1.1
Concord	10,089	15.0	2,947	29.2	7,142	70.8	6.96	130	1.8
Martinez	3,188	4.7	844	26.5	2,344	73.5	7.95	62	2.6
Pleasant Hill	2,418	3.6	703	29.1	1,715	70.9	6.89	24	1.4
Pacheco	178	0.3	49	27.5	129	72.5	7.10	3	2.3
Clayton*	475	0.7	131	27.6	344	72.4	10.23	2	0.6
Clyde	13	0.0	8	61.5	5	38.5	9.40	0	0.0
Walnut Creek	6,011	8.9	1,446	24.1	4,565	75.9	7.40	58	1.3
Lafayette	1,149	1.7	332	28.9	817	71.1	9.24	12	1.5
Orinda	838	1.2	230	27.4	608	72.6	8.06	0	0.0
Moraga	764	1.1	192	25.1	572	74.9	7.55	0	0.0
Alamo	609	0.9	47	7.7	562	92.3	6.72	1	0.2
Danville	1,798	2.7	52	2.9	1,746	97.1	6.91	2	0.1
San Ramon	1,755	2.6	71	4.0	1,684	96.0	7.10	5	0.3
Diablo	45	0.1	0	0.0	45	100.0	8.00	0	0.0
Blackhawk	189	0.3	2	1.1	187	98.9	7.58	0	0.0
Antioch	6,766	10.0	1,906	28.2	4,860	71.8	7.06	58	1.2
Pittsburg	5,714	8.5	1,785	31.2	3,929	68.8	7.33	61	1.6
Bay Point	1,141	1.7	306	26.8	835	73.2	7.88	12	1.4
Oakley	1,421	2.1	392	27.6	1,029	72.4	8.35	2	0.2
Bethel Island	513	0.8	127	24.8	386	75.2	9.84	1	0.3
Brentwood*	2,179	3.2	603	27.7	1,576	72.3	9.10	7	0.4
Discovery Bay*	552	0.8	200	36.2	352	63.8	12.73	0	0.0
Byron*	370	0.5	92	24.9	278	75.1	10.67	2	0.7
Other/Unknown	128	0.2	24	18.8	104	81.3	18.19	0	0.0

*Average response times do not include calls cancelled enroute or calls by Unit 75 (first responder)

Ambulance Dispatch Report (cont.)

Year 2003

Transports by Hospital Destination, Transport Code, and Major Trauma Victim Status

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

Hospital	All Transports		Code Three Transports		Code Two Transports		Transport Code Unknown	
	#	%	#	%	#	%	#	%
Totals	48,958	100.0	2,197	100.0	46,734	100.0	27	100.0
Contra Costa Reg.	7,124	14.6	64	2.9	7,060	15.1	0	0
Doctors, San Pablo	7,952	16.2	356	16.2	7,596	16.3	0	0
John Muir	5,818	11.9	497	22.6	5,319	11.4	2	7.4
Kaiser, Richmond	2,981	6.1	76	3.5	2,905	6.2	0	0
Kaiser, Walnut Creek	5,735	11.7	151	6.9	5,582	11.9	2	7.4
Mt. Diablo	8,107	16.6	394	17.9	7,713	16.5	0	0
San Ramon Regional	1,614	3.3	70	3.2	1,544	3.3	0	0
Sutter/Delta	7,553	15.4	400	18.2	7,153	15.3	0	0
Valley Care	35	0.1	0	0.0	35	0.1	0	0
Alta Bates	681	1.4	17	0.8	663	1.4	0	0
Kaiser/Oakland	107	0.2	2	0.1	105	0.2	1	3.7
Eden	6	0.0	2	0.1	4	0.0	0	0
Children's	220	0.4	25	1.1	195	0.4	0	0
Highland	30	0.1	6	0.3	24	0.1	0	0
Kaiser, Vallejo	311	0.6	3	0.1	308	0.7	0	0
Summit	38	0.1	0	0.0	38	0.1	0	0
Helicopter Transport	242	0.5	125	5.7	117	0.3	0	0
Other/Unknown	404	0.8	9	0.4	373	0.8	22	81.5

B. Helicopter Utilization Report

Helicopter Utilization Report

Year 2003

Contra Costa Patients Transported by Helicopter -

Origin	1999		2000		2001		2002		2003	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	400	100.0	380	100.0	428	100.0	389	100.0	330	100.0
West County	140	35.0	163	42.9	173	40.4	135	34.7	141	42.7
East County	176	44.0	136	35.8	191	45.1	179	46.0	142	43.0
South County	21	5.3	33	8.7	40	9.4	37	9.5	28	8.5
Central County	55	13.8	43	11.3	22	5.1	38	9.8	19	5.8
Unknown	8	2.0	5	1.3	0	0.0	0	0.0	0	0.0

*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	1999		2000		2001		2002		2003	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	400	100.0	380	100.0	428	100.0	389	100.0	330	100.0
CALSTAR	182	45.5	197	51.8	213	49.8	197	50.6	177	53.6
REACH	204	51.0	174	45.8	204	47.7	186	47.8	144	43.6
CHP	5	1.3	2	<1	5	1.2	4	1.0	9	2.7
Other		<1	4	1.1	6	1.4	2	0.5	0	0.0
Unknown	9	2.3	5	1.3	0	0.0	0	0.0	0	0.0

*Information provided by air ambulance providers. None of these flights originated from out side of Contra Costa County.

C. Base Hospital Contact Report

Base Hospital Contact Report

Year 2003

Base Hospital Activity Summary

	1999		2000		2001		2002		2003	
	#	%	#	%	#	%	#	%	#	%
Total Base Contacts	7,379	100.0	8,401	100.0	4,763	100.0	5,380	100.0	4,185	100.0
ALS Care Provided	4,816	65.3	6,050	72.0	2,138	44.9	1,875	34.9	1,063	25.4
No ALS Provided	2,224	30.1	2,351	28.0	2,625	55.1	3,505	65.1	3,122	74.6
EMT-P Contacts	6,738	91.3	7,661	91.2	4,021	84.4	4,284	79.6	3,993	95.4
EMT-I Contacts	132	1.8	149	1.8	129	2.7	173	3.2	86	2.1
EMT Not Identified	509	6.9	591	7.0	613	12.9	923	17.2	106	2.5
Adult Patients	6,581	89.2	7,946	94.6	4,107	86.2	4,943	91.9	3,833	91.6
Pediatric Patients (age < or = 14)	589	8.0	290	3.5	502	10.5	262	4.9	208	5.0
Age Not Identified	209	2.8	165	2.0	154	3.3	175	3.3	144	3.4

D. Trauma System Report

Trauma System Report

Year 2003

On-scene Triage of Patients Within Contra Costa Meeting Field Trauma Criteria - 2003

	1999	2000	2001	2002	2003
Total Patients Meeting One or More Field Trauma Triage Criteria	2,909	2,885	2,828	2,729	2,695
Triaged in field as major trauma	1,025	983	984	923	890
Transported to a trauma center	984	953	965	914	879
John Muir Medical Center	827	776	811	773	765
Children's Hospital, Oakland	129	129	122	119	83
Other trauma center	28	48	32	22	31
Transported to the closest receiving hospital	41	34	19	9	11
CPR/Unstable airway	41	29	15	7	7
Otherwise unstable					4
Trauma center on bypass	0	5	4	2	0
Triaged in the field as not having major trauma	1,884	1,903	1,844	1,806	1805

Field Triage Errors (errors per 100 patients triaged with major trauma) - 2003

Undertriage error rate	=	$\frac{\text{Patients field-triaged as not having major trauma, but subsequently found to have major trauma}}{\text{Total number of patients triaged in the field as having major trauma}}$	=	$\frac{21}{890}$	=	2.4
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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	1999	2000	2001	2002	2003
Undertriage	1.3	1.1	2.7	2.9	2.4
Overtriage	52.0	43.7	47.9	*	58.5

*EMS data not available.

Trauma Center Discharge Report
John Muir Medical Center (JMMC) - 2003¹

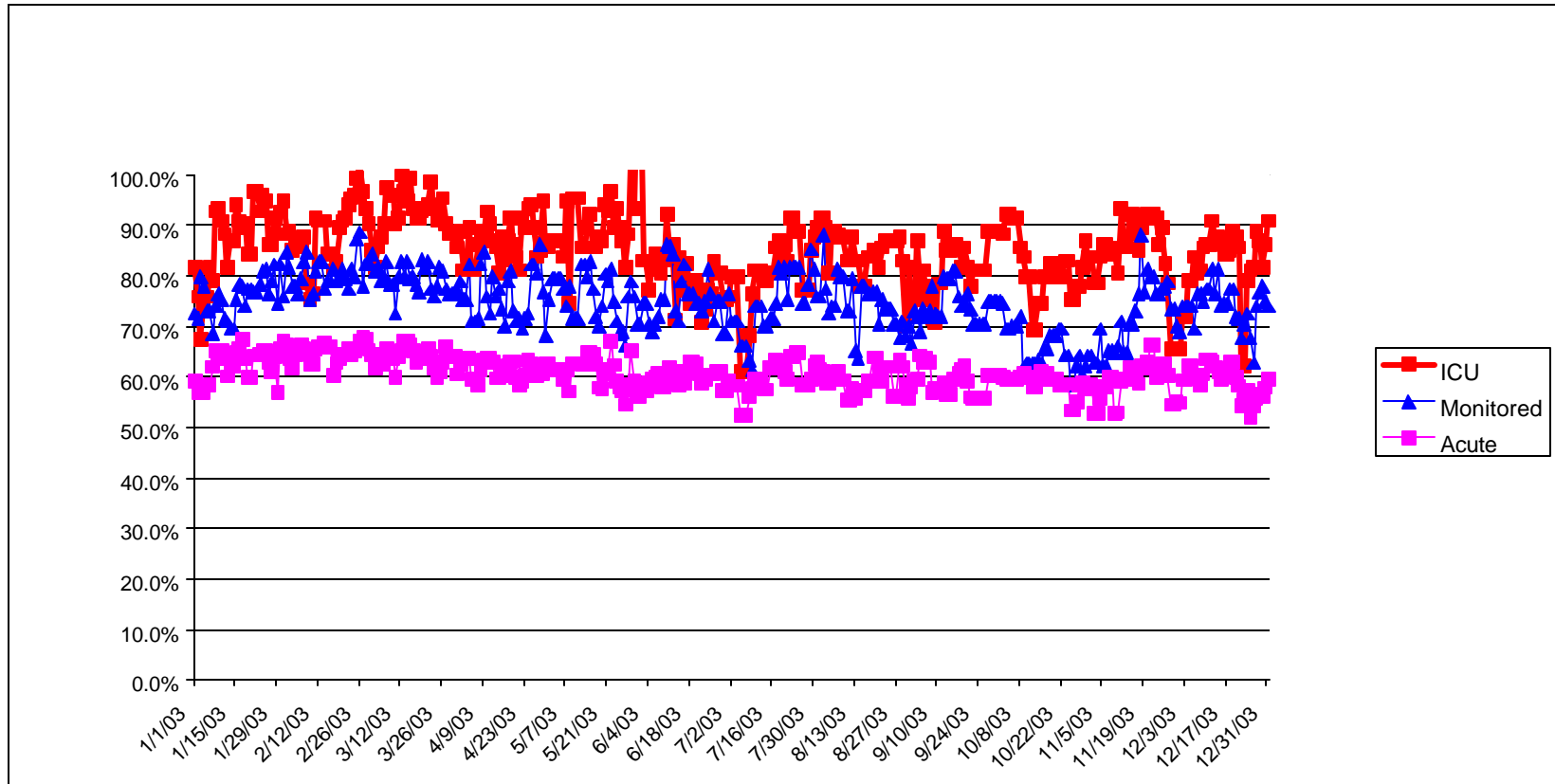
Discharges:	2002		2003	
	#	%	#	%
All JMMC Trauma Patients				
Total	1,259	100.0	1,227	100.0
Major Trauma Victims (Retrospective Review)	575	45.7	543	44.3
Not Major Trauma Victims (Retrospective Review)	684	54.3	684	55.7
Contra Costa Field Transports				
Total	905	100.0	881	100.0
Major Trauma Victims (Retrospective Review)	391	43.2	364	41.3
Not Major Trauma Victims (Retrospective Review)	514	56.8	515	58.7
Patients Transferred from Contra Costa Hospitals				
Total	132	100.0	109	100.0
Major Trauma Victims (Retrospective Review)	84	63.6	62	56.9
Not Major Trauma Victims (Retrospective Review)	48	36.4	47	43.1
Patients from Outside Contra Costa County				
Total	222	100.0	235	100.0
Major Trauma Victims (Retrospective Review)	100	45.0	115	48.9
Not Major Trauma Victims (Retrospective Review)	122	55.0	120	51.1

¹ Based on data from the John Muir Trauma Registry.

E. Hospital Census and Diversion Reports

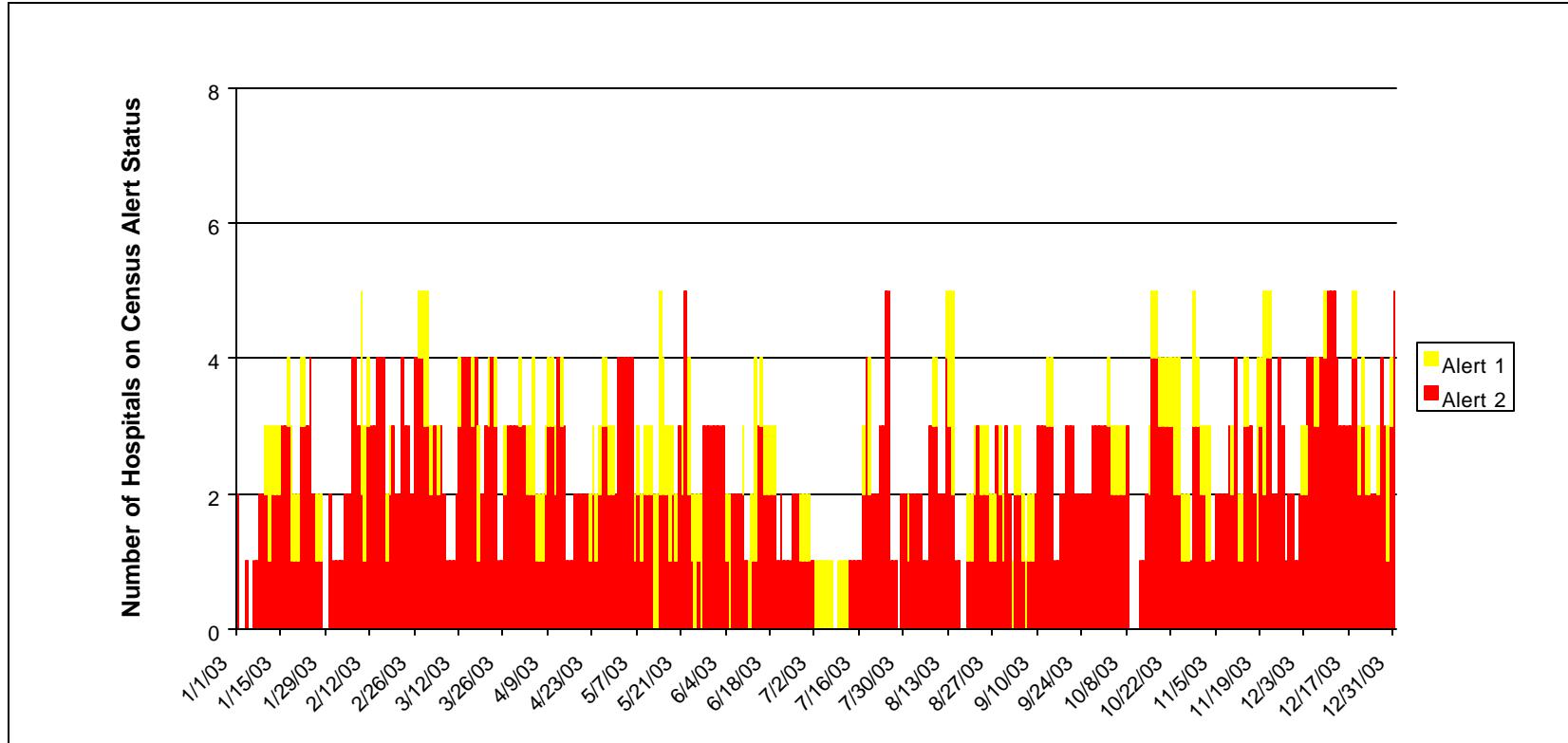
Daily Hospital Bed Utilization (Midnight Census)

All Contra Costa Hospitals - 2003



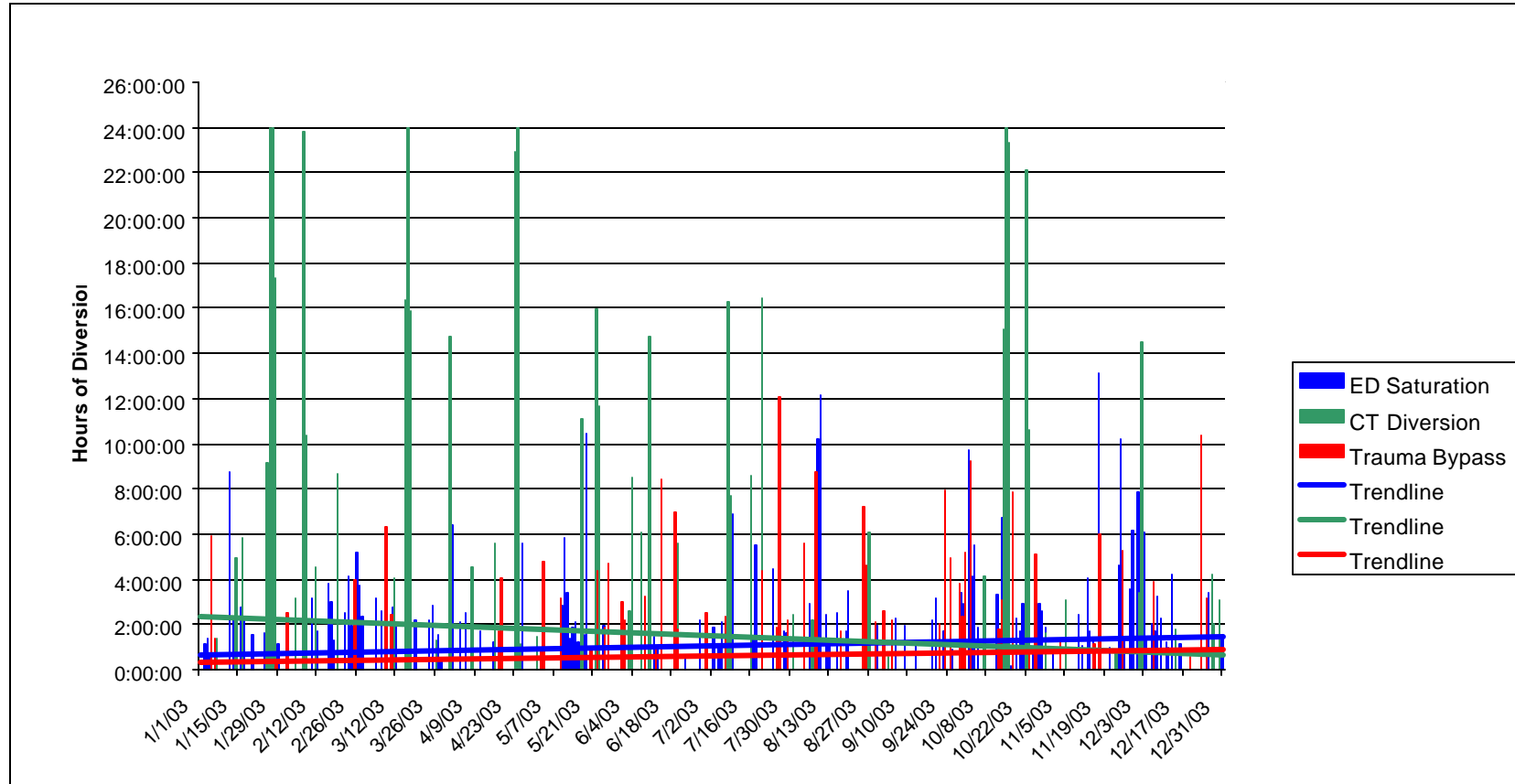
Hospital Census Alerts

All Contra Costa Hospitals - 2003



Hospital Diversion

All Contra Costa Hospitals - 2003



Hospital Bed Availability, Midnight Census, and Diversion Report by Hospital, January 1 - December 31, 2003

	Total	CCRMC	Doctors	John Muir	Kaiser-Rch	Kaiser-WC	Mt. Diablo	San Ramon	Sutter Delta
Licensed available beds:									
Acute care	1,490	164	233	321	50	229	259	123	111
Monitored	204	10	32	35	16	28	60	15	8
Intensive care	154	8	30	35	8	24	25	12	12
ED treatment spaces	172	19	24	15	15	52	22	9	16
Average daily patient census:									
Acute care	912	160	94	181	34	156	114	66	107
Monitored	152	9	18	26	15	25	43	10	8
Intensive care	132	7	27	30	6	25	19	7	11
Average percent capacity:									
Acute care	61.2%	97.6%	40.3%	56.4%	68.0%	68.1%	44.0%	53.7%	96.4%
Monitored	74.5%	90.0%	56.3%	74.3%	93.8%	89.3%	71.7%	66.7%	75.0%
Intensive care	85.7%	87.5%	90.0%	85.7%	75.0%	104.2%	76.0%	58.3%	91.7%
Average unoccupied available beds:									
Acute care	578	4	139	140	16	73	145	57	4
Monitored	52	1	14	9	1	3	17	5	2
Intensive care	22	1	3	5	2	-1	6	5	1
Emergency department:									
ED treatment spaces	149	19	24	15	15	23	22	9	22
Ave. admits waiting (midnight census)	12	2	2	3	1	3	0	0	1
Hospital diversion:									
ED saturation									
Number of episodes*	152	19	1	10	0	3	26	7	86
Total hours	383:12:00	38:41:00	2:24:00	28:42:00	0:00:00	15:38:00	50:10:00	13:50:00	233:47:00
Average hours/episode	2:31:16	2:02:09	2:24:00	2:52:12		5:12:40	1:55:46	1:58:34	2:43:06
CAT inoperative									
Number of episodes*	60	9	11	0	2	0	6	26	6
Total hours	545:09:00	133:49:00	133:44:00	0:00:00	34:12:00	0:00:00	24:19:00	164:58:00	54:07:00
Average hours/episode	9:05:09	14:52:07	12:09:27		17:06:00		4:03:10	6:20:42	9:01:10
Trauma diversion (John Muir only)									
Number of episodes*	56			56					
Total hours	217:13:00			217:13:00					
Average hours/episode	3:52:44			2:54:21					
Physical plant casualty									
Number of episodes*	2	0	0	0	0	0	0	0	2
Total hours	19:38:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	19:38:00
Average hours/episode	9:49:00								9:49:00
Hospital census alerts:									
All hospital census alert days reported	979	219	0	111	1	302	180	6	160
Level 2 census alert days reported	772	186	0	64	0	232	169	0	121

*Episodes spanning midnight counted as separate episodes for each day.

Source: Contra Costa EMS Agency, ReddiNet data.

Hospital Bed Availability, Midnight Census, and Diversion Summary Report, 1997 - 2003

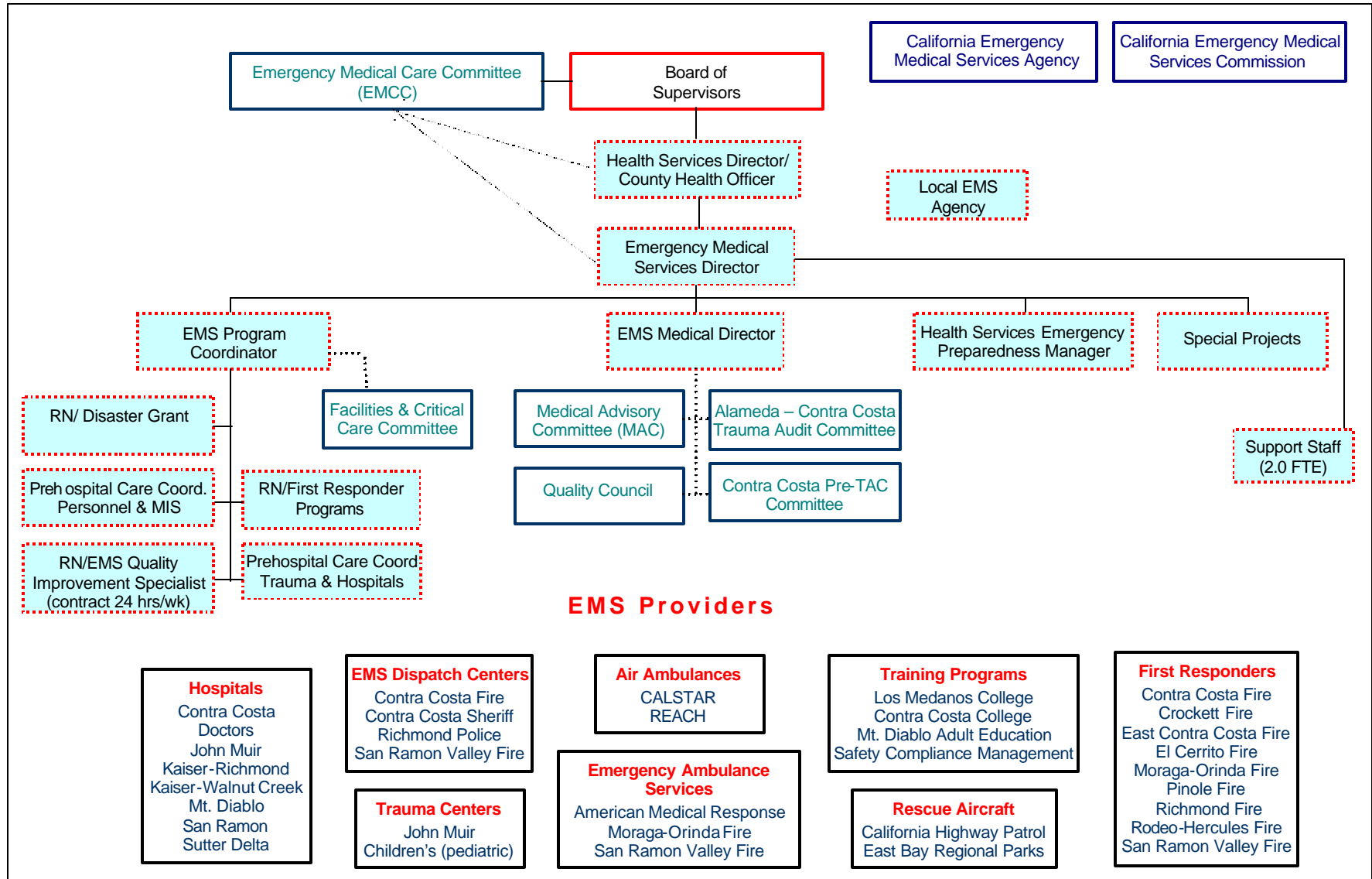
	1997	1998	1999	2000	2001	2002	2003
Licensed available beds:							
Acute care beds						1,471	1,490
Monitored beds						204	204
Intensive care beds						154	154
Average daily patient census:							
Acute care						895	912
Monitored						142	152
Intensive care						122	132
Average percent capacity:							
Acute care						58.2%	61.2%
Monitored						69.6%	74.5%
Intensive care						78.0%	85.7%
Average unoccupied available beds:							
Acute care						616	578
Monitored						62	52
Intensive care						32	22
Emergency department:							
ED treatment spaces						149	149
Average number of admits waiting (midnight census)						9	12
Hospital diversion:							
ED saturation							
Number of episodes*	88	21	20	23	34	111	152
Total hours	181.2	35.2	35.3	46	70.1	401.8	363.2
Average hours/episode	2.1	1.7	1.8	2	2.1	3.5	2.5
CAT inoperative							
Number of episodes*				5	44	86	60
Total hours				26.9	1,042.9	836.3	545.2
Average hours/episode				5.5	23.7	9.7	14.0
Trauma diversion (John Muir only)							
Number of episodes*						84	66
Total hours						244.1	217.2
Average hours/episode						2.9	2.9
Physical plant casualty							
Number of episodes*						3	2
Total hours						21.5	19.6
Average hours/episode						7.2	9.8
Hospital census alerts:							
All hospital census alert days reported						490	979
Level 2 census alert days reported						351	772

*Episodes spanning midnight counted as separate episodes for each day.

Source: Contra Costa EMS Agency.

VII. EMS Agency Organizational Chart

EMS Agency Organizational Chart



VIII. EMS Expenditures

EMS Expenditures by Year

Fiscal Years Ending 1994 – 2003

	FY 93-94	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03
Total expenditures	\$4,606,456	\$4,788,824	\$5,792,767	\$4,957,692	\$5,038,620	\$5,206,356	\$4,816,578	\$5,244,796	\$5,871,544	\$4,008,304
Basic EMS Expenditures (Budget Unit #6543)	545,747	564,743	620,945	600,131	827,423	835,386	774,444	931,745	1,514,038	912,883
Grant programs (approximate)	30,000	30,000	160,000	136,000	105,000	124,500	228,175	150,000	768,175	569,638
Regional Disaster Planning (EMSA)			80,000	90,000	80,000	80,000	80,000	80,000	120,000	135,000
Trauma Care (EMSA)									648,175	413,636
Medical Education for Drug Safety										21,002
Public Health Preparedness (DHS)							23,675			
Data Linkage (EMSA)						44,500	44,500			
EMS for Children (EMSA)							80,000	70,000		
Domestic Preparedness (OJP)							[290,644]*	[9,355]*		
Poison Control Alternatives (EMSA)			80,000	46,000	25,000					
Trauma Registry Computer (OTS)										
Disaster Planning (EMSA)	30,000	30,000								
Injury Prevention (EMSA)	[130,000]*	[70,000]*								
Non-grant programs	515,747	534,743	460,945	464,131	722,423	710,886	546,269	781,745	745,863	343,45
County Service Area EM-1 (Measure H)	4,060,709	4,224,082	4,991,185	4,922,581	4,211,197	4,370,970	4,042,134	4,313,052	4,357,506	3,095,421
Zone A (San Ramon Valley)	99,033	96,773	149,998	334,020	115,149	266,796	273,183	166,545	173,776	114,206
Zone B (balance of county)	3,961,676	4,127,308	4,841,187	4,588,561	4,096,048	4,104,174	3,768,951	4,146,507	4,183,730	2,981,215

*Amount not included in expenditure totals.

**IX. Development of EMS in Contra Costa
County.**

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 1960's. Contra Costa as well as a number of other progressive counties throughout California began developing their emergency medical services systems during this time. Following are milestones in the development of the EMS system in Contra Costa County:

- 1968** ➤ **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 (MICN's) 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 within the county.
- 1975** ➤ In response to EMCC's recommendation and with county approval, Health Department agreed to develop an **advanced life support program** and to provide coordination of emergency medical services countywide. Initial EMS Program developed with Federal funding under auspices of Comprehensive Health Planning.
- 1976** ➤ Los Medanos Community College, in conjunction with Stanford University, developed first **training programs** for paramedics and MICN's.
- 1977** ➤ **First paramedics and MICN's 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 the 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' EMCC's
 - 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.
- 1982** ➤ **Multicasualty Incident Plan** approved by County Board of Supervisors providing for on-scene coordination, resource notification, and patient distribution in multicasualty situations.
- 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** established 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** (ERA's). Exclusive ambulance service contracts awarded to Cadillac Ambulance, Regional Ambulance, Moraga Fire and San Ramon Valley Fire following competitive bid.
- 1985** ➤ **EMS System Plan** developed according to standards set by EMS Authority.
- First RFP process for paramedic **base hospital designation** developed and administered for 4 base hospital zones countywide.
- Small **plan crashed** into the Sun Valley Mall injuring some 80 victims.
- **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 number of critical patients in ED was such that any more 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. Trauma system **treatment and triage protocols** adopted. Ambulance personnel and first responders trained in specialized critical trauma patient management.
- 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 making RMS the single private emergency ambulance provider in county.
- **Competitive bidding process** for emergency ambulance providers in 5 ERA's. Service contracts awarded to Regional Ambulance, Moraga Fire and San Ramon Valley Fire.
- Base Hospital contracts established with John Muir Medical Center, Mt. Diablo Medical Center and Los Medanos Community Hospital.
- Emergency medical dispatch program including pre-arrival instructions implemented by Contra Costa County Fire Dispatch Center.
- 1987** ➤ Formal **Patient Transfer Guidelines**, including a multi-disciplinary quality assurance process administered by the EMS Agency, adopted by Board of Supervisors, and by all hospitals within 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** developed and available to fire, police and ambulance agencies countywide.
- Brookside Hospital restored to basic emergency licensure status.
- 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 County EMS Hazardous Materials Training Project supported by 5-year funding under consent agreement between IT Corporation and State Department of Health Services; 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 EM-1, approved by all city councils and established by Board of Supervisors under the administration of Health Services.
- 1990 > **County Service Area EM-1** became operational.
 - > **EMS Disaster Planning Project** funded by State EMSA and administered by local EMS Agency. The County Health Officer designated **Regional Disaster Medical Health Coordinator** (RDMHC) for "OES Region 2" counties.
 - > San Ramon Regional Medical Center, licensed for Basic Emergency Services, opened in the City of San Ramon.
- 1991 > **High-performance ambulance contracts** initiated with Regional Ambulance, San Ramon Valley Fire, and Moraga Fire. Standards set for paramedic-staffed ambulance response to emergency calls at 95% 10-minute maximum for county urban areas. Number of paramedic staffed ambulances increased from 12 to 19 to meet standard, with Measure H funded ambulance service subsidies.
 - > **First Responder Defibrillation** Program planned. RFP competitive bid process to select equipment. PhysioControl semi-automatic defibrillators were purchased.
 - > Countywide system of **Multicasualty Medical Caches** established; includes supplies to be used in multicasualty or disaster situations.
 - > Specialized **Hazardous Materials Response Protocols** and training program developed and implemented for ambulance personnel.
 - > **Paramedic training program** provided 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 the EMCC and the County Police Chiefs' Association.
 - > "EMS Operational Procedures For Response to an **Expanded Medical Emergency**" (EME) developed and implemented.
 - > "**Do Not Resuscitate**" program instituted, which provides patients with option of predetermining levels of resuscitation to be performed by field personnel.
 - > **EMS treatment protocols for children** developed and implemented.
 - > Two new **radio channels** for ambulance-hospital communications available.
 - > 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.
 - > Started fire/medical dispatch computer linkage project "**Medical Transmission Network**".
 - > **First responder paramedic** program funded by Measure H and provided by American Medical Response implemented in Byron/Discovery Bay area. 5/1/92
 - > **MEDARS** radio system upgraded from two channels to four 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 911 system.
 - > San Ramon Valley Fire's Dispatch Center piloted Medical Priority's computerized ProQA Dispatch System for **prehospital EMS dispatch**.

- Functional integration of 5 County fire districts (Contra Costa County, Riverview, Orinda, Moraga and West County).
- "**Quality Action Team**" formed to improve EMS incident review.
- Mobile radios programmed with **fire service radio channels**, installed in paramedic units.
- EMS Agency obtained funding 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-I's 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.
- **1-800-GIVE CPR** number continued under auspices of the EMS Agency.
- 1995** ➤ The Oakland and Richmond Kaiser hospitals merged. Richmond facility received only non-critical ambulance patients due to lack of ICU capabilities.
- Paramedic certification changed to State licensure.
- **Revised EMS System Plan** approved by EMCC and County Board.
- EMS Agency gained part-time Assistant EMS Medical Director.
- San Ramon Valley Fire successfully piloted **computerized medical dispatch program**.
- EMS started the **1-800-GIVE-CPR** public information program locally.
- **BLS standards** added to EMS Prehospital Care Manual.
- 1996** ➤ Asst. EMS Medical Director position became **EMS Medical Director**.
- Standards for **EMS Enhanced First Responder Programs** developed.
- **Request for Proposal process** for emergency ambulance service (11/1/96). Contracts awarded to San Ramon Fire and American Medical Response (10/28/97). Moraga Fire exempt from competitive bid process.
- Bethel Island Fire's **First Responder Paramedic program** started. 10/7/96
- Emergency Medical Care Committee performed EMS System evaluation.
- "**Hospital Shelter-in-Place Project**" funded by local Emergency Planning Committee and State OES.
- 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 victims of Concord Water World slide collapse. One death and 32 injured were triaged to area hospitals.
- Regional Disaster Medical Health Coordinator provided **public health nurse mutual aid** during 1996-97 No. California winter storms.
- **Computerized pen-based patient care reporting** implemented Countywide.

- Board of Supervisors appointed the EMCC as an 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 Doctor's Hospital, San Pablo Campus. Doctor's, Pinole became Doctor's 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.
 - Laidlaw purchased American Medical Response. Merged its ambulance services under the AMR name.
 - **Interfacility Transfer Review** process revised.
- 1998**
- Board of Supervisors declared local emergency due to shortage of hospital emergency and critical care resources.
 - Contra Costa Regional Medical Center's **new county 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.
 - **Bay Area DMAT** attained Level II designation.
 - Department-wide Contra Costa Health Services **Emergency Plan** completed.
- 1999**
- Kaiser Richmond opened inpatient critical care services.
 - Oakley Fire organized as a fire protection district.
 - Contra Costa Fire expanded central county pilot First Responder Paramedic Program.
 - **Multicasualty response** to a fire at Tosco's Avon Refinery.
 - **Multicasualty response** to a fire at Chevron Refinery, North Richmond.
 - **Multicasualty response** to Richmond Health Center for noxious odor assessment.
 - Pilot **Bi-phasic AED project** implemented.
 - Health Services Department Operations Center (DOC) activated for **Y2K transition**.
 - Year 1 of a 2-year State grant for a Data Linkage and Outcome Project.
 - Bay Area DMAT attained **Level I designation**.
 - Moraga and Orinda Police Depts. began 1st responder defibrillation programs.
 - 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 two public hearings prior to the March closing of Doctor's Medical Center, Pinole Campus emergency department.
 - All fire/medical dispatch centers provide fire/ambulance dispatch using Medical Priority Dispatch System.
 - Year 1 of a 2-year State grant to develop an **EMS for Children** program.

- Additional Contra Costa Fire **ALS engines** in Concord (1) and Baypoint (1).
- 2001**
- **EMS for Children Plan** developed for Contra Costa through 2-year grant funding.
 - Mt. Diablo Medical Center ceased providing EMS base hospital services in 2/01.
 - Mt. Diablo Medical Center no longer providing obstetric and neonatal services.
 - El Cerrito **paramedic engine program** implemented to serve Kensington and areas in the El Cerrito hills with long ambulance response times.
 - Kensington and Brentwood Police implemented **first responder defibrillation programs**.
 - County Trauma System Plan updated to reflect changes in California Trauma regulations and requirements.
 - Mt. Diablo Medical Center closed its in-patient obstetrics/neonatal services in July.
 - **Office of Justice Planning grant** (\$300,000) used to purchase mass decontamination, communications, and personal protective equipment for use by fire and other agencies responding to a major hazardous materials incident.
 - Purchased computer equipment for Health Services Operations Center using funds provided through two State Health Department grants (\$27,000).
 - **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 that provides a **communications link among hospitals and EMS Agencies** in Alameda and Contra Costa Counties.
 - Opened **EMS website** providing online access to EMS policies, protocols and other EMS-related information.
- 2002**
- Implemented Department of Justice **fingerprint background checks** on all EMT-I certification and recertification applicants.
 - East Diablo, Oakley, and Bethel Island Fire Protection Districts combined to form East Contra Costa County Fire Protection District.
 - Second AMR first responder paramedic unit established in Bethel Island as replacement for Bethel Island Fire paramedic engine.
 - Fitch and Associates retained to conduct **paramedic engine feasibility assessment**.
 - West County Dispatch Center (Richmond Police) accredited as EMD **Center of Excellence** by National Academy of Emergency Medical Dispatch.
 - Initial work with the American Heart Association on it's **Operation Heartbeat** and a local Public Access Defibrillation (PAD) program
 - Year 1 of State grant "**Medical Education for Drug Safety**" carried out by John Muir Medical Center Injury Prevention staff through the EMS Agency.
 - Developed and implemented a **Paramedic Interfacility Transfer (CCT-P)** Program that allows specially trained paramedics to transport critical, but stable patients from hospital to hospital for specialized procedures or higher level of care.
 - Implemented a countywide post market evaluation of Medtronic-Physio-Control CR Plus defibrillator.
 - Revised **EMS Aircraft policies and procedures** for classification, authorization, request for, transport criteria and field operations.
- 2003**
- Contra Costa County Fire Dispatch Center accredited EMD **Center of Excellence** by National Academy of Emergency Medical Dispatch.
 - Fitch report available describing how fire paramedic engines can be more fully integrated into the EMS response system including possible steps that could make funding available.
 - Tenet announces that it will terminate its Doctors San Pablo management contract with the West Contra Costa Health Care District.

- County Mental Health makes policy changes that restrict ED physicians from writing 72-hour psychiatric holds (5150's). Based on EMCC recommendation, a mental health committee convened to address education, data collection and review necessary for ED physicians to resume this responsibility.
 - Reciprocal agreement with Alameda County for **Paramedic Interfacility Transfer** Programs.
 - Year 2 of State grant "**Medical Education for Drug Safety**" carried out by John Muir Medical Center Injury Prevention staff through the EMS Agency.
- 2004**
- Implemented **National Registry of Emergency Medical Technician's exam** as the approved EMT-I certification exam
 - West County citizens voted to provide tax money for the West Contra Costa County Health Care District to help keep Doctors San Pablo open.
 - Rodeo Hercules Fire Protection District implemented a **first responder paramedic program**
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X. EMS & Related Abbreviations

Abbreviations

AIS	Abbreviated Injury Score
ACLS	Advanced Cardiac Life Support
ALS	Advanced Life Support
AED	Automatic Electronic Defibrillator
BLS	Basic Life Support
BTLS	Basic Trauma Life Support
CCT	Critical Care Transport
CPR	Cardiopulmonary Resuscitation
CDC	Center for Disease Control and Prevention
CAD	Computer Aided Dispatch
D-MAT	Disaster Management Assistance Team
EMSA	Emergency Medical Services Authority
EMS	Emergency Medical Services
EMT-I	Emergency Medical Technician-I
EMT-P	Emergency Medical Technician-Paramedic or Paramedic
EOC	Emergency Operating Center
ERA	Emergency Response Area
HRSA	Health Resources and Services Administration
HEICS	Hospital Emergency Incident Command System
ICS	Incident Command System
LEMSA	Local EMS Agency
MTV	Major Trauma Patient
MICN	Mobile Intensive Care Nurse
MCI	Multicasualty Incident
NDMS	National Disaster Medical System
NREMT	National Registry of Emergency Medical Technicians
OES	Office of Emergency Services
PAD	Public Access Defibrillation
PEPP	Pediatric Education for Prehospital Providers
PIE	Public Information and Education
PSAP	Public Safety Answering Point
RDMHC	Regional Disaster Medical/Health Coordinator
RDMHS	Regional Disaster Medical/Health Specialist
SARS	Severe Acute Respiratory Disease ()
SEMS	Standardized Emergency Management System
WMD	Weapons of Mass Destruction

XI. Glossary of EMS Terms

EMS Terms

- **Abbreviated Injury Score (AIS):** A scale created to describe anatomical injuries resulting from trauma. For each body region, a severity code is assigned which describes injuries as minor, moderate, serious severe, critical, maximum injury with little chance of survival, and unknown. The AIS is universally accepted and is the foundation for the Injury Severity Score.
- **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 specifically constructed, modified or equipped, and used primarily for responding to emergency calls and transporting critically ill or injured patients. The medical flight crew has at a minimum two attendants certified or licensed in advanced life support.
- **Automatic Electronic Defibrillator (AED):** Automatic or semi-automatic defibrillators assess the patient's cardiac status and provide a shock (or instruct the machine to shock) if needed. AED's, used for several years by first responders, are now being made available in public places by many communities for use by laypersons under Public Access Defibrillations Programs (PAD's). AED's may also be used in hospital and clinical settings where their simple operation may result in a more rapid emergency response.
- **Base Hospital:** One of a limited number of hospitals 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.
- **Base Hospital Physician:** A physician who is currently licensed in California, who is assigned to a base hospital emergency department, and who is familiar with County EMS system medical protocols, radio procedure and general operating policies, and who may provide medical consultation to ambulance personnel by radio or telephone.
- **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 occurs without penetration of the body (e.g. motor vehicle injuries, falls, assaults with blunt instruments).
- **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. Resuscitation, such as defibrillation, if provided soon enough may save the patient's life in some situations.
- **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.
- **Child Death Review Team:** A confidential forum consisting of representatives of criminal justice, health & social service organizations. Child deaths are discussed to improve the multi-agency response to child homicides. The ultimate goal is to reduce child abuse and child death.
- **Code 2:** Used by EMS systems to refer to immediate ambulance responses to potentially urgent but non-life threatening incidents without using red lights and sirens and adhering to all Vehicle Code requirements (speed limits and rights-of-ways).
- **Code 3:** Ambulance response with red lights/siren to an emergency incident. When responding Code 3, the emergency unit may exceed the posted speed limit within certain constraints and may proceed through red lights without making a complete stop, although the ambulance driver is held responsible for assuring safety for his/her unit and other drivers while doing so.
- **Computer Aided Dispatch (CAD):** A computer system consisting of associated hardware and software to facilitate call taking; unit selection; resource dispatch and deployment; event time stamping; and real time maintenance of incident database.
- **County Service Area (CSA) EM-1:** A Special benefit assessment district established by the Board of Supervisors to fund local EMS enhancements.
- **CRAMS:** A 10-point scale, designed as a prehospital triage tool to be used to identify Critical Trauma Patients. The acronym CRAMS represents five weighted component measures: **C**irculation, **R**espiration, **A**bdomen/Thorax, **M**otor and **S**peech. The scale ranges from 0 (most severe) to 10 (least severe).
- **Critical Trauma Patient (CTP):** Any patient who meets established field trauma triage criteria and is triaged to a trauma center or is triaged to a closer facility due to trauma center bypass or due to trauma full arrest or unmanageable airway.
- **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 automatically assess the patient's cardiac status and provide a shock if necessary.
- **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 Unit:** A vehicle specially constructed, 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 Aircraft:** Aircraft used for prehospital emergency patient response and transport. EMS aircraft include air ambulances and all categories of rescue aircraft.
- **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 the EMS system.
- **Emergency Medical Services System:** A specially 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 Nursing Pediatric Course (ENPC):** An educational program developed and sponsored by the Emergency Nurses Association for Emergency Department nurses.
- **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 5 emergency response areas.
- **Fire/Medical Dispatch Center:** A public Safety Dispatch Center that receives requests to respond to medical emergencies, dispatches medical first responders and initiates ground and air ambulance response.
- **First Responder:** The first EMS rescuer to arrive on the scene of a medical emergency; generally a fire non-transport unit.
- **Health & Safety Code:** State legislation that includes Division 2.5 EMS Statutes.
- **Health Resources and Services Administration (HRSA):** A branch of the U.S. Department of Health and Human Services whose mission is to improve and expand access to quality health care. Grants to assist hospitals prepare for response to bioterrorism and other terrorist threats are available through HRSA.
- **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 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.
- **Injury Severity Score (ISS):** The sum of the squares of the highest AIS codes in each of the three most severely injured body regions. The ISS is one component used in calculating the patient's probability of survival.
- **Local EMS Agency (LEMSA):** The local agency, usually a county health department or office, that has primary responsibility for administration of emergency medical services in a county or multi-county area.
- **Major Trauma Patient (MTV):** A retrospective determination made by assessing and scoring a patient's injuries using the Abbreviated Injury Scale (AIS) and Injury Severity Score (ISS). In Contra Costa, an ISS of greater than 15 or an ISS of 10 to 14 with a greater than 3 day length of hospitalization is classified as an MTV.
- **Measure H:** The Contra Costa County advisory ballot measure in the Fall of 1988, which, when passed overwhelmingly in each city and in the unincorporated area of the County, 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, e.g., policies and procedures; on-line, e.g., base hospital direction; and retrospectively, e.g., continuing education, case review, and quality improvement activities.
- **Mobile Intensive Care Nurse (MICN) or Authorized Registered Nurse (ARN):** A registered nurse who has been authorized by the medical director of the local EMS agency as qualified to issue instructions to prehospital emergency medical care personnel within an EMS system according to standardized procedures developed by the local EMS agency.
- **Morbidity:** Disability or abnormality resulting from an illness or injury.
- **Mortality:** Any death resulting from injury or illness.
- **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 but not limited to 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 between 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 of a disaster; patient evacuation, and hospitalization in a national network of hospitals.

- **Office of Emergency Services (OES):** Contra Costa OES is the Sheriff's Emergency Services Division responsible for County's disaster preparedness program and for staffing the County Emergency Operating Center (EOC) during an emergency. State OES, located within the California Department of Homeland Security, performs a similar function at the state level.
- **Operational Area:** A term used in State Standard Emergency Management System (SEMS) to refer to a county and all the local governmental jurisdictions within the county. For example, the Contra Costa operational area includes the County jurisdiction, all of the cities, and all of the special districts within the county.
- **Pediatric Critical Care Center (PCCC):** Licensed acute care hospital that offers specialized pediatric critical care services and acts as regional referral center for critically ill/injured children.
- **Pediatric Education for Prehospital Providers (PEPP):** Course developed by the American Academy of Pediatrics to better prepare prehospital personnel in caring for children.
- **Penetrating:** Any injury that penetrates the skin (e.g. gunshot wounds or stabbings).
- **Probability of Survival:** Statistically defines the patient's chance of surviving sustained injuries. The range of possible values for this probability (referred to as Ps) is from 0.0 to 1.0. A Ps of 0.0 indicates no chance of survival and a 1.0 means predictable survival. The components of Ps are RTS, age ISS and type of injury (blunt or penetrating).
- **Public Access Defibrillation (PAD):** A program sponsored by the American Heart Association and supported by EMS to make automatic electronic defibrillators (AED's) 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. The ReddiNet system in Contra Costa links hospitals, EMS agencies, and ambulance dispatch centers in both Contra Costa and Alameda Counties. ReddiNet is distributed through the Healthcare Association of Southern California and is in use by a number of other California counties.
- **Regional Disaster Medical/Health Coordinator (RDMHC):** An individual within each OES Region whose principle function is to coordinate the acquisition of medical and health mutual aid in response to a request from the State EMS Authority, 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 a regional RDMHC in planning for and coordinating the acquisition of medical and health mutual aid in response to a request from the State EMS Authority, 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 for 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.
- **Response Information Reporting System (RIMS):** A statewide, computerized disaster information reporting system.
- **Severe Acute Respiratory Disease (SARS):** A new, highly infectious disease caused by a form of corona virus. The virus is related to one of the common cold causing viruses, but is much more virulent with a death rate estimate by some experts to be around 15 percent. SARS emerged in southern China in late 2002 and rapidly spread to over 30 nations and territories by May 2003. The rapid spread of this virulent disease prompted the World Health Organization to issue travel advisories for China, Hong Kong, Vietnam, Canada, and Taiwan. Public health officials' concern is that SARS may become a pandemic rivaling that of the 1918 influenza.
- **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:** Acronym for Simple Triage and Rapid Treatment, a procedure adopted by the California Fire Chief's Association.
- **Trauma Care System:** A formally organized arrangement of health care resources, defined by the local EMS Agency, by which severely injured patients are triaged, transported to and treated at designated trauma center(s).
- **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.
- **Trauma Triage Criteria:** Method used by ambulance personnel to determine whether an injured patient needs the specialized services of a trauma center. The method considers the mechanism of injury, obvious injuries and other information obtained in a brief patient exam.
- **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
Domestic Violence Assessment Information Sheet (2002)
EMCC By-laws
Emergency Medical Guidelines for Law Enforcement Agencies, 1992
EMS Agency Annual Program Reports
EMS Emergency Operations Procedures
EMS System Plan, 1995
EMS System Plan, Annual Update - 1998
Expanded Medical Emergency Response Procedure
Facilities Assessment, 2002
Message Transmission Network Specifications
Multicasualty Cache Supplies and Locations
Multicasualty Incident (MCI) Plan, 1/98
Paramedic Interfacility Transfer Program application packet (2002)
Partners Course
Patient Transfer Guidelines, 1997
Prehospital Care Manual, (December 2003)
Regional Disaster Medical/Health Coordinator Emergency Plan
Request for Proposal for Emergency Ambulance Services, 1996
Request for Proposal for First Responder Defibrillation Equipment, 1991
Request for Proposal for Trauma Center Designation, 1992
Trauma System Plan, 2001

EMS POLICIES

Communicable Disease Exposure
Contra Costa County Emergency Medical Services Fee Structure
County Paramedic Evaluator
Determination of Death in the Prehospital Setting
Do Not Resuscitate (DNR) Orders in the Prehospital Setting
Emergency Department Diversion and Unusual Event Notification
EMT -1 Certification
End-Tidal CO2 Detection Devices
First Responder Defibrillation
First Responder Paramedic Programs
Hospital Guidelines for Interfacility Transfers via Ambulance
Immediate Medical Control & Direction of Paramedics
Management of Intravenous Lines and Other Pre-existing Patient Equipment
Managing Assaultive Behavior/Patient Restraint
MICN Authorization and Re-authorization
Paramedic Accreditation
Paramedic Base Hospital Communications on ALS calls
Paramedic Student Preceptor Program
Patient Destination Determination
Patient Refusal of Emergency Medical Care and/or Ambulance Transport
Physician on Scene
Prehospital Continuing Education Provider
Prehospital Credential Review Process Guidelines
Prehospital Patient Care Record (PCR)
Procedures for Controlled Substances
Pulse Oximetry
Abuse/assault Reporting
Reporting of Unusual Prehospital Occurrences
Transfer of Care in the Field
Transfer of Critical or Possibly Critical Trauma Patients to Trauma Center
Trauma Patients
Paramedic Interfacility Transfer (CCT-P) Program Standards (2002)
EMS Aircraft Policies and Procedures (2002)