CONTRA COSTA
HEALTH SERVICES

Emergency Medical Services Agency
2000 Annual Program Report

- July 2001 -

Table of Content

I. Introduction

A. Overview of EMS

Emergency Medical Services is a system of services organized to provide rapid 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 the goal of providing rapid emergency medical response and treatment. 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 Local EMS Agency. The EMS Director, EMS Medical Director, and staff carry out 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 medical control of the EMS system, including dispatch, patient destination, patient care, and quality assurance.
- ➢ 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 county-wide.
- ➢ Planning for and coordinating disaster medical response at local and regional levels.

To accomplish these functions, the EMS Agency employees a staff of 10, including the EMS director, part-time EMS medical director, program coordinator, Health Services disaster preparedness manager, two prehospital care coordinators, trauma coordinator, training coordinator, 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. The EMCC acts as an advisory body to its board of supervisors and local EMS agency on all matters relating to EMS.

The Contra Costa EMCC consists of five consumer representatives, one from each of the five supervisorial districts, and 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.

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). 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 the appropriate response units. If the PSAP is not part of a fire/medical dispatch center, the call may be transferred to a "secondary PSAP" where a dispatcher then obtains information necessary to dispatch fire and 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. In situations involving patient problems such as obstructed airway, severe bleeding, or cardiac arrest, fire fighters arriving early on scene may be able to initiate lifesaving measures and achieve some patient stabilization before the ambulance arrives. In several areas of the county, fire agencies staff first responder units with paramedics who are able to initiate advanced life support services prior to ambulance arrival.

A private company, American Medical Response under contract with the County, provides emergency ambulance services in most parts 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, and,
- An upgraded ambulance dispatch system and dispatcher preparedness.
- Enhanced response to Hazardous Materials incidents.

II. List of Major Accomplishments – 2000

- Provided ongoing oversight to the countywide emergency medical services and trauma system, which included some 61,531 responses to emergency medical calls made by County-contracted ambulance services, 380 medical helicopter transports by County-designated air ambulance services, and 776 serious trauma patients treated at John Muir Medical Center, the County-designated trauma center.
- Provided medical oversight to the countywide first responder defibrillation program, which provided defibrillation to 80 patients with 8 saves discharged from the hospital following successful defibrillation and treatment.
- 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 Bethel Island Fire, Contra Costa County Fire, and El Cerrito Fire; provided ongoing oversight to the countywide fire first responder defibrillation program.
- Completed Year 1 of a two-year State grant to develop and implement an EMS for Children Program for the County.
- Completed the Data Linkage and Outcome Project funded by a 2-year grant from the State EMS Authority.
- Obtained a $300,000 Office of Justice Programs grant to purchase mass decontamination units, communications equipment and personal protective equipment for use by fire and other agencies responding to a major hazardous materials.
- Obtained two State Health Department grants providing $27,000 for purchase of computer equipment for the Health Services Department Operations Center.
- Conducted an Impact Evaluation Study, including two public hearings, on the closure of emergency services at Doctors Hospital Pinole Campus.
- Continued sponsorship of the Bay Area Disaster Medical Assistance Team (DMAT CA-6), which was incorporated as a nonprofit organization with 501(c)(3) status.
- Obtained agreements from all hospitals to participate in the ReddiNet emergency communications system with the assistance of the Hospital Council.
- Issued major revision of EMS Field Treatment Guidelines.
- Completed Hospital Resource Assessment update.
- Distributed 9-1-1 Brochures to local hospitals, fire districts, schools, senior citizen groups and churches.
- Participated in a statewide hospital and ambulance service disaster exercise and conducted a departmental disaster communications exercise**.**

III. Issues in the Forefront

A. Paramedic First Responder Services

Paramedic first responder services remain a major issue in the forefront for EMS in Contra Costa County. Currently, six of the 11 fire service agencies in the county provide some level of paramedic first responder service using firefighter paramedics. In a seventh fire service agency, paramedic first responder service is provided by an AMR first responder unit located at the Byron Fire Station.

Fire Service	Stations	Stations with Paramedics	Comment
Bethel Island	1	1	Approximately 90% time paramedic staffing.
Contra Costa County	30	8	Central county only.
Crockett-Carquinez	2	0	
East Diablo	5	1	AMR first responder unit at Station 75 (Byron).
El Cerrito	3	1	Kensington station – February 2001.
Moraga-Orinda	4	4	
Oakley	2	0	
Pinole	1	1	
Richmond	7	0	
Rodeo-Hercules	2	0	
San Ramon Valley	9	8	Paramedic response to Station 37 (volunteer) provided from adjacent station.
Total	**66**	**24**	

Following Board of Supervisors direction, the EMS Agency has continued throughout the year 2000 working with the County Fire Chiefs Association and with American Medical Response to identify methods of implementing paramedic first responder services without incurring additional County costs. While progress was made in identifying costs of implementing paramedic first responder programs in the fire services, development of an anticipated plan for countywide paramedic first responder services was thwarted by the lack of identifiable funding. The EMS Agency is continuing to work with the fire services and with AMR to achieve first responder paramedic coverage where feasible.

While no new paramedic first responder services were initiated during 2000, a new service was added in the El Cerrito Fire Department beginning February 2001. The El Cerrito Fire program provides rapid paramedic first responder service to the Kensington area and to the adjacent El Cerrito hills area where ambulance response times are typically over 10 minutes. Funding for this program is provided by AMR through a subsidy reduction. In return, ambulance response time requirements in the Kensington/El Cerrito Hills area have been set at the 20-minute standard used for rural areas of the county. Through this program, residents of Kensington and the El Cerrito hills are assured rapid paramedic response.

B. Hospital Overcrowding and ED Diversion

Background. Hospital overcrowding with the accompanying diversion of ambulance patients from over-extended emergency departments has emerged as one of the major issues for EMS in California and across the nation. From around the country, newspapers report stories of ambulance crews having to search for hospitals open to receive their patients. Some California counties report hospitals being on diversion as much as a third of the time, and in some large cities, all hospitals may be on diversion simultaneously. In response to this crisis, EMS agencies have sought ways to limit diversion, in some areas resorting to rotating diversion or denying diversion altogether when multiple hospitals request diversion.

Hospital diversion policies have existed in many areas as long as there have been organized EMS systems. Diversion policies were developed to benefit the patient by avoiding transport of an emergency patient to a hospital that was temporarily overwhelmed with existing emergencies. Why take a heart attack patient to an emergency department where the only physician on duty was busy taking care of two critical patients who had just arrived when the EMS system could transport that patient a few minutes farther to a less busy emergency department? Diversion makes good sense under these circumstances. While there have always been anecdotal reports of diversion abuse, e.g., the hospital that went on diversion when things got busy on a Friday night and did not reopen until Sunday afternoon after someone noticed the lack of ambulance traffic, these situations were rare and, overall, diversion worked well.

What has changed in the past few of years is that hospital emergency departments have become chronically overcrowded. Emergency department volumes have increased. In many areas, hospitals have closed or downgraded services. Managed care practices have emphasized increased efficiency resulting in fewer hospitalizations and shorter lengths of stay, but increased acuity for those patients in the hospital and greater workloads for hospital staff. Many experts believe that excessive diversion is more a reflection of overall hospital management than simply high demand for emergency services. Emergency departments can quickly become saturated when the hospital admission processes are not able to move patients quickly out of the emergency department into a hospital bed. Emergency department resources are particularly taxed when patients needing intensive care are held in the emergency department. In the intensive care unit, a staffing ratio of one registered nurse for each two patients is required. However, there is no staffing ratio required in the emergency department, even for patient being held for intensive care admission.

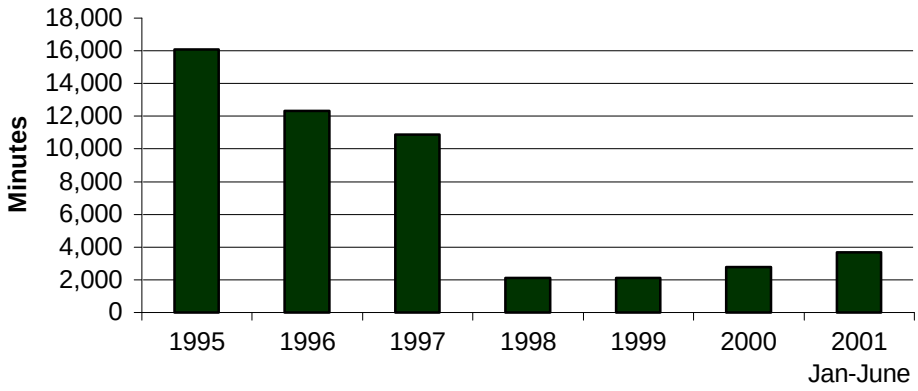
Managed care cost containment policies, hospital closures, and a nationwide shortage of registered nurses have contributed to the hospital overcrowding situation. Hospitals may have physical beds available, but are forced to curtail admissions, particularly to critical care units, due to lack of available nursing staff to meet mandated staffing ratios. High acuity of existing patients limits the flexibility of former times when a less sick patient could be discharged or moved from intensive care to acute care to make room for a seriously ill new patient. This lack of flexibility stresses the emergency care system during daily and seasonal demand peaks and threatens to cripple the system entirely during influenza epidemics as occur form time to time.

In Contra Costa County, following the declaration of local emergency due to hospital overcrowding during the influenza epidemic of 1997-98, steps were taken to limit hospital diversion by requiring prior County Health Officer approval. Recognizing the importance of avoiding diversion whenever possible, hospitals initiated internal procedures to minimize

diversion request. These procedures included the "census alert" system initiated through the Hospital Council and used to identify periods during which hospital were undertaking extraordinary steps to handle peak demand. Figure 1, below, shows the dramatic effect these steps had in reducing diversion in Contra Costa County. Despite these good results, diversion figures for 2000 and for the first six months of 2001 show that diversion is again increasing.

Figure 1

Contra Costa County ED Diversion - All Hospitals



C. EMS Vision

The EMS Vision process was undertaken by the State EMS Authority (EMSA) in late 1997 to develop goals for the improvement of EMS in California. The first report issued in June 1999 entitled "Shaping the Future of EMS in California" contained some 66 recommendations for the future of EMS. These recommendations were developed through a stakeholder consensus process. Recommendations were divided into six functional areas – Governance and Medical Control, Funding, Education and Personnel, System Review and Data, Access, and Prevention. For each of the six areas, a stakeholder group was formed with an EMS Commission lead to develop implementation plans. Reports from each of the six Vision committees were presented to stakeholder groups at a Vision conference held October 31 – November 1, 2000 in San Francisco. 2001 will be the final year of the Vision process.

A major objective and a major stumbling block for the Vision process has been the issue of shared governance for local EMS systems. Competing "county" and "municipal" governance models were proposed. Both models envision a joint powers of similar type of governance structure with a local EMS commission comprised of stakeholders and with a board of directors comprised of five elected officials – two representing municipalities, two representing the county, and a fifth neutral official. Under the "county" model, the board of directors would have final decision over all matters and a four-fifths majority would be required for all board action. Under the "municipal" model, any matter receiving two-thirds vote at the commission would not be subject to board review. Items failing to receive a two-thirds vote at the commission level would go to the board where a simple majority would prevail.

At this point, the California State Association of Counties (CSAC) and the California League of Cities (CLC) have commissioned a study of local EMS system governance by an independent consultant. Study results will be presented to a joint CSAC-CLC committee that will make its recommendations. The consultant's report should be completed by mid-2001.

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. From 1968 until 1994 the Contra Costa EMCC was appointed by and provided advice to the County Board of Supervisors. At that time the Health Services Department assumed the EMCC as an advisory body. In 1997, the Board of Supervisors re-established the EMCC as being advisory to the Board. 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.

Facilities/Critical Care:

This committee evaluates/makes recommendations to the EMCC with respect to issues that impact hospitals and their interface with the EMS system.

Hospital Disaster Forum (HDF):

This is a quarterly meeting of disaster planners from hospitals, cities, ambulance, fire, OES, and EMS. HDF provides for discussion of issues of mutual concern regarding hospital disaster preparedness.

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
- 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:

- Bethel Island Fire Protection District (1 station)
- Contra Costa County Fire Protection District (30 stations)
- Crockett-Carquinez Fire Protection District (2 stations)
- East Diablo Fire Protection District (5 stations)
- Oakley Fire Protection District (2 stations)
- Pinole Fire Protection District (covered by Pinole Fire Department)

MUNICIPAL FIRE DEPARTMENTS:

- El Cerrito Fire Department (3 stations)
- Pinole Fire Department (1 station)
- Richmond Fire Department (7 stations)

INDEPENDENT FIRE PROTECTION DISTRICTS:

- San Ramon Valley Fire Protection District (9 stations)
- Rodeo-Hercules Fire Protection District (2 stations)
- Moraga-Orinda Fire Protection District (5 stations)
- Kensington Fire Protection District (covered by El Cerrito Fire Department)

OTHER FIRST RESPONDERS:

- East Bay Regional Parks
- Private & military fire services

PARAMEDIC FIRST RESPONDER PROGRAMS:

- Moraga-Orinda Fire - Paramedic Engine (3 units)
- American Medical Response - Byron/Discovery Bay area – Medic Unit (1 unit)
- Bethel Island Fire Protection District - Paramedic Engine (1 unit)
- Contra Costa Fire - Paramedic Engine and Medic Units (8 units)
- San Ramon Valley Fire – Paramedic Engine/Ambulance (8 stations)
- El Cerrito Fire Department – Paramedic Engine in Kensington (in 2001)
- California Highway Patrol - Helicopter Unit

D. Emergency Ambulance Providers

- American Medical Response (16 – 31 ambulances)
- San Ramon Valley Fire (5 ambulances)
- Moraga-Orinda Fire (2 ambulances)

E. EMS Helicopters

AIR AMBULANCES:

- CALSTAR (1) Buchanan Field; (other helicopters in Gilroy and Roseville).
- REACH (1) Buchanan Field; (another helicopter in Vacaville).
- 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 (BLS helicopter-upgraded to ALS in 2001)
- 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 HOSPITALS:

- John Muir Medical Center
- Mt. Diablo Medical Center (relinquished base hospital status in 2001)

TRAUMA CENTERS:

- John Muir Medical Center
- Children’s Hospital, Oakland is the 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 – 31 ALS/BLS ambulances**
Moraga-Orinda Fire	Area of Moraga-Orinda Fire Protection District including town of Moraga and city of Orinda.	**2 ALS ambulances**
San Ramon Valley Fire	Area of San Ramon Valley Fire Protection District including cities of Danville and San Ramon.	**5 ALS ambulances**

Contracts with all three providers require ALS level response to all life threatening or potentially life threatening emergencies, 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 2000, the EMS system received 61,531 requests for emergency ambulance response. Of these, 47,381 (77.0%) were considered to involve potentially life-threatening situations to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining 14,150 (23.0%) ambulance responses were dispatched Code 2 (immediate response without lights and siren). Of the total responses, 56,202 (91.3%) were handled by American Medical Response, 3,624 (5.9%) by San Ramon Valley Fire Protection District ambulance, and 1,705 (2.8%) by Moraga-Orinda Fire Protection District ambulance. Average Code 3 ambulance response time countywide was 7.07 minutes. The county ambulance staffing standards were met on 46,512 (98.2%) of 47,381 Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 61,531 emergency ambulance responses during the year, 44,931 (73.0%) resulted in patient transport to an emergency receiving hospital. Ambulances responding to the remaining 16,600 (27.0%) 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

	1996		1997		1998		1999		2000	
All EMS Ambulance Dispatches	**46,980**	**100.0%**	**52,143**	**100.0%**	**53,490**	**100.0%**	**57,568**	**100.0%**	**61,531**	**100.0%**
Code 3 (lights & siren)	37,580	80.0%	41,849	80.3%	42,199	78.9%	44,851	77.9%	47,381	77.0%
Code 2	9,400	20.0%	10,294	19.7%	11,291	21.1%	12,717	22.1%	14,150	23.0%
American Medical Response	44,298	94.3%	48,311	92.7%	50,007	93.5%	52,169	90.7%	56,202	91.3%
San Ramon Fire	2,131	4.5%	3,209	6.2%	2,368	4.4%	3,825	6.6%	3,624	5.9%
Moraga-Orinda Fire	551	1.2%	623	1.1%	1,115	2.1%	1,574	2.7%	1,705	2.8%
Transport	34,010	72.4%	36,877	70.7%	38,510	72.0%	40,081	69.6%	44,931	73.0%
No Transport (Dry Run)	12,970	27.6%	15,266	29.3%	14,980	28.0%	17,487	30.4%	16,600	27.0%
Average Code 3 Response Time	6.92 minutes		6.98 minutes		7.22 minutes		7.10 minutes		7.07 minutes	
Code 3 Responses Not Meeting Ambulance Staffing Standard	497	1.3%	447	1.1%	499	1.2%	914	2.0%	869	1.8%

NOTE: Orinda Fire and Moraga Fire combined into the Moraga-Orinda Fire Protection District in 1997. Prior to that time, American Medical Response handled calls in Orinda.

B. Base Hospital and Paramedic Service Programs

Base Hospital Services:

Mt. Diablo Medical Center and John Muir Medical Center provide direct (on-line) and indirect (retrospective review) medical oversight services for ambulances countywide. There were 8,401 base hospital contacts by field personnel in 2000. (In 2001, Mt. Diablo ceased providing base hospital services.)

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. Changes made in 2000 (implemented February 2001) included adding end-tidal CO_2 detectors to intubations procedures and an update of 90% of treatment guidelines, with an increased emphasis on standing orders for paramedics.

C. 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. Firefighters respond from the nearest fire station and are normally the first responder on the scene of a medical emergency. Twelve County-governed, independent district and municipal fire departments respond from a total of 66 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. In 2000, 326 patients with cardiac arrest had a semi-automated external defibrillator (AED) attached. Shocks were administered to 80 patients, and of those 21 survived to hospitalization. A total of 8 patients were discharged alive from hospitals.

The survival rate has remained steady over the past several years, but the number of patients shocked as 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.

Of cases in which information is available, 40% of patients were receiving CPR prior to EMS arrival. This percentage is not substantially different than in 1999.

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.

➢ In 1988, the EMS Agency approved the use of a pilot program ALS Engine in Moraga Fire District, to provide back up ALS service to 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. This 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.

➢ In 1992, American Medical Response, East Diablo Fire District and the EMS Agency entered into a formal cooperative effort to provide a more timely, cost effective method of delivering ALS to citizens in the Discovery Bay/Byron areas by implementing an ALS First Responder Paramedic Unit. This program has had a positive impact on the manner in which ALS care is delivered to this low call volume area.

➢ In 1996, the EMS Agency approved an ALS Engine pilot program in the Bethel Island Fire District, to provide ALS service prior to the arrival of the AMR paramedic transport ambulance. In this largely volunteer fire district, experienced full-time paramedic employees of other ALS provider agencies are hired by Bethel Island on a part-time, on-call basis to staff its ALS Engine. This program was extended through 2000.

➢ In 1997, San Ramon Valley Fire 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.

➢ In 1997, Contra Costa Fire 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 engines and a "Medic Unit" extending coverage throughout Contra Costa Fire's district in the central county area.

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

A sixth First Responder Paramedic program has been approved for El Cerrito Fire. This program will begin operation in 2001 with one paramedic engine to cover the Kensington and El Cerrito hills areas where long ambulance response times are typical.

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, last revised in 1994, 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.

D. 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. The system includes four channels. Med-1 is used for communications between ambulances and Sheriff's Dispatch. med-2, Med-3, and med 4 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, Sheriff's 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, enhances ambulance monitoring capability of Sheriff's dispatch, 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. Contra Costa Fire Dispatch has been providing limited call screening and pre-arrival instructions for a number of years. In 1993, Medical Priority's ProQA Dispatch System, the only available computerized medical dispatch system, was selected for use as a pilot program. By 2000, all fire/medical dispatch centers provided fire/ambulance dispatch utilizing the Medical Priority Dispatch System.

Fire Radios:

Sixteen channel 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.

E. 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 2000, 2,885 patients were identified as requiring trauma triage, 776 of which were transported directly to John Muir Trauma Center. One hundred twenty-eight patients were transported to Children's Hospital, Oakland, and 48 to out of county adult trauma centers, primarily Eden Hospital, Castro Valley and Highland Hospital, Oakland. Patients in traumatic full arrest or whose airway cannot be managed (total of 29 in 2000), are triaged to the closest basic emergency department for resuscitation. During the past 14.5 years of operation, a total of 43,552 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. Fifty-two of the 86 injured patients transferred to John Muir in 2000 were retrospective "major trauma victims". John Muir Trauma Center also received 185 trauma patients from surrounding counties, generally by air transport. .

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 2000 John Muir Trauma Center bypass rate was 2.9% and was most often due to simultaneous arrival of multiple trauma patients. Twenty-four critical trauma patients were triaged to out of county trauma centers during trauma center bypass periods. Five critical trauma patients were triaged to non-trauma centers due to bypass periods, 3 of which were retrospectively major trauma victims (1 of the 3 patients was later transferred to John Muir).

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 Injury Prevention:

The EMS Agency supported injury prevention activities in 2000, by participating in the Childhood Injury Prevention Coalition and and events (e.g., bicycle Safety Days) and helmet use studies. The EMS Agency also participates on the County's Child Death Review Team. John Muir Trauma Center supports an active injury prevention program that includes car seat inspections, school based presentations, participation in health fairs, 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 for all areas of Contra Costa County throughout the year.

F. Helicopter Transport

The Operational Procedures for Patient Transport by Helicopter were originally developed during trauma system planning in 1985/1986 and were revised in 1994. 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 and may be used as an ambulance/helicopter rendezvous point. 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 U.S. Coast Guard helicopter has been used for its hoist capability. Additionally, a formal procedure for access of military aircraft has been adopted.

In 2000 there were 380 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 performed the majority of transports in 2000. John Muir Trauma Center received approximately 164 patients from other Bay area counties

G. Hospital Emergency Services

Interfacility Transfer Process:

The County Board of Supervisors initially approved County Patient Transfer Guidelines on February 2, 1988. These guidelines established the procedures necessary for the transfer of patients between acute care facilities. In 1998 a revision of the transfer review process was initiated to focus on aggregate data. In 2000, 3,549 transfers were reported. Trends and issues identified through this process are used to modify policy and to educate hospital and prehospital personnel throughout the county.

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 2000, the ED diversion policy was amended to allow diversion of certain types of patients when the hospital's CAT scan machine was not functional. During 2000, there were 4 facilities that utilized full diversion a total of 23 times for a total of 46 hours. There were no reports of problems in patient care resulting from these diversion incidents.

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. This system was implemented countywide in early 1999.

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. The granted disaster planning process has resulted in the designation of the Contra Costa County Health Officer as Regional Disaster Medical/Health Coordinator (RDMHC) and the assignment of a Regional disaster medical/Health Specialist (RDMHCS) as staff to the project for the northern California coastal area (OES Region II). These grants have enabled the EMS Agency to enhance and support the County's disaster preparedness and that of the other 15 operational areas within Region II by facilitating coordination among cities, hospitals, county EMS agencies and State EMS Authority in the event of an earthquake or other major disaster.

In 2000 the major objectives of the disaster planning grant were:

- ➢ To continue to develop, implement, and update a medical mutual aid system throughout the region
- ➢ To update Region II contact and resource information.
- ➢ To facilitate Region II participation in the annual Statewide Disaster Exercise,
- ➢ To assist Region II counties to develop their own Medical/Health Departmental Operations Center emergency response plans in accordance with The Standardized Emergency Management System (SEMS).
- ➢ To facilitate utilization of the Hospital Emergency Incident Command System (HEICS) and the Response Information Reporting System (RIMS).

In 2000, Region II provided on-call support for the earthquake in Napa.

Disaster Medical Assistance Team (DMAT):

A DMAT is volunteer team established under the National Disaster Medical System (NDMS), through the U.S. Public Health Service. DMAT volunteer teams are organized, trained, and prepared to provide medical and health care to disaster victims. In 1997, County Health Services began sponsoring a DMAT, drawing support from 4 other Bay area counties. A physician serves as DMAT CA-6 Commander, and over 130 individuals have submitted applications volunteering to become a part of the response team or of

team support services. DMAT CA-6 is the only DMAT based in northern California and one of just eight within the State.

In 2000, 5 DMAT members were sent to the Ukraine for a joint training/good will mission. Members were also dispatched to the Democratic National Convention. The DMAT obtained 501(c)3 status, so contributions are tax deductible. Contra Costa Health Services continues to sponsor of the team and provides an Administrative Officer. A DMAT brochure developed to provide information about the DMAT program.

Multicasualty Plan:

Following the Yuba City/Martinez school bus accident in 1976, which killed 29 and injured another 23 young adults, the EMS Agency recognized the need for a coordinated response to multicasualty events by police, fire and ambulance personnel. The multidisciplinary Multicasualty Advisory Committee (MCAC), produced the first Multicasualty Incident Plan in 1982. This plan established a common organization and management structure for coordination of emergency response to multicasualty incidents, and may be implemented whenever the number of injured exceeds local medical capabilities. The plan was updated in 1998 to incorporate the most current emergency medical response information.

Medical Advisory Alert:

The Medical Advisory Alert, a notification procedure developed in 1987, may be 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.

Expanded Medical Emergency:

Operational procedures were developed to 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. It is designed to avoid overloading one hospital with patients and to eliminate multiple calls to the base hospital regarding the same incident. Developed and initiated in 1992, this procedure is used frequently and successfully throughout the County.

Multi-Casualty Supply Caches:

In 1991 the EMS Agency purchased emergency medical supplies to be available for use countywide in a multicasualty or disaster situation. Supplies 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:

Emphasis in 2000 was on earthquake preparedness and response as we continued our effort to implement, practice, and refine the Health Services Emergency Plan. The Emergency Management Team (EMT) meets quarterly, and the Emergency Preparedness Work Group meets monthly. An Earthquake Exercise was conducted in

2000 with a West County scenario in which we practiced information gathering and Action Planning. Weekly L3 Radio tests and maintenance of the EMT Hotline were undertaken to assure alternate disaster communications. A model CCHS Employee Emergency Preparedness Training Module was developed and distributed for OES and County Emergency Services Board. Work continues on the Worksite Preparedness Program by refreshing the Building/Safety Warden Program and fire extinguisher use training. Health Services was awarded a $23,675 Center for Disease Control Grant for Bioterrism Response preparedness equipment, and CCHS was one of three Pilot Counties in California for Terrorism Assessment.

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

Contra Costa EMS continued preparedness activities in response to terrorism through participation in the implementation activities for the $300,000 Department of Justice Grant for the purchase of communications equipment, decontamination equipment, and personal protective equipment. This involved the coordination of an inter-agency application process of meetings with stakeholders and custodians for these community assets. The funds will be used to enhance the capabilities first response agencies that may be called upon to respond to acts of terrorism involving nuclear, biological or chemical agents. Various Fire, Law, OES and EMS agencies participated in a process continue to meet and coordinate the purchase of equipment that is designed to improve personal protective equipment, increased communications between agencies, and provide a means for decontaminating large numbers of responders. The equipment is being staged in four caches that are maintained at designated fire stations throughout the county for rapid transport and deployment at any location. A second 2001 Grant process is in the works.

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 2000, 83 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 June 1994, legislation passed which permits EMT-I's to either complete continuing education (24 hours), or an EMT-I refresher course every two years to maintain certification. Required written/skills testing process was modified from a 2 year to a 4 year cycle. In 2000, 190 EMT-I's were either certified or recertified in Contra Costa County.

MICN's:

In 2000, 15 RN's were either authorized or re-authorized in Contra Costa to practice in the expanded MICN role within the County.

Credential Review:

Credential review, as defined in state regulations, is a process reserved for formal investigation of cases where serious lapses in operational or medical protocol not

thought to be amenable to remediation have occurred, or cases where there has been a significant deviation from state regulations or county policy.

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 programs currently offered in the county.

EMT Training Programs: The EMS Agency has approved the local EMT courses offered by Los Medanos Community College, Mt. Diablo Adult Education, Contra Costa College and Safety Compliance Management

- ➢ Los Medanos Community College offers an EMT training program each fall at its Pittsburg campus.
- ➢ Contra Costa College offers an EMT training program each year at its San Pablo campus.
- ➢ Mt. Diablo Adult Education offers EMT training programs at various times throughout the year at its facility in Concord.
- ➢ Safety Compliance Management offers EMT training programs for contracted agencies at various times throughout the year.

MICN Training Programs: Los Medanos Community College conducted one MICN class in 1998. Stanford University and UC Davis also provide MICN training in the Bay area. Although lack of MICN classes makes it difficult for interested nurses to obtain this training, both base hospitals continue to have a sufficient number of MICN's for staffing purposes.

K. Public Information Education Programs

The Public Information and Education (PIE) Subcommittee of the Emergency Medical Care Committee is charged with providing public information and education concerning Emergency Medical Services. Emphasis has been 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.
- ➢ Revised the EMS 9-1-1 Brochure

L. Other Programs

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 program for Contra Costa. During 2000, pediatric training equipment was purchased and distributed for use by prehospital EMS providers; 8 instructors were provided training to teach Pediatric Education for Prehospital Professionals (PEPP) to prehospital personnel; Emergency Nursing Pediatric Course (ENPC) training was made available to ED nurses; and 2 pediatric experts (MD & RN) under contract with the county provided hospital site consultations to assist hospitals in optimal preparations to care for pediatric patients.

A. Ambulance Dispatch Report

Year 2000

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	**61,531**	**100.0**	**56,202**	**100.0**	**3,624**	**100.0**	**1,705**	**100.0**
Code 3 Dispatches	47,381	77.0	42,617	75.8	3,494	96.4	1,270	74.5
Code 2 Dispatches	14,150	23.0	13,585	24.2	130	3.6	435	25.5
Total Code 3 Dispatches	**47,381**	**100.0**	**42,617**	**100.0**	**3,494**	**100.0**	**1,270**	**100.0**
ALS Response	46,512	98.2	41,748	98.0	3,494	100.0	1,270	100.0
BLS Response	869	1.8	869	2.0	0	0.0	0	0.0
Total Code 2 Dispatches	**14,150**	**100.0**	**13,585**	**100.0**	**130**	**100.0**	**435**	**100.0**
ALS Response	8,648	61.1	8,083	59.5	130	100.0	435	100.0
BLS Response	5,502	38.9	5,502	40.5	0	0.0	0	0.0

Ambulance Dispatch Report (cont.)

Year 2000

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	**61,531**	**100.0**	**56,202**	**100.0**	**3,624**	**100.0**	**1,705**	**100.0**
Transported	44,931	73.0	41,256	73.4	2,748	75.8	927	54.4
Cancelled	16,600	27.0	14,946	26.6	876	24.2	778	45.6
Total Patient Transports	**44,931**	**100.0**	**41,256**	**100.0**	**2,748**	**100.0**	**927**	**100.0**
Transported Code 3	3,669	8.2	3,392	8.2	208	7.6	69	7.4
Transported Code 2	41,008	91.3	37,614	91.2	2,536	92.3	858	92.6
Helicopter	227	0.5	223	0.5	4	0.1	0	0.0
Transport Code Not Reported	27	0.1	27	0.1	0	0.0	0	0.0
Total Cancelled	**16,600**	**100.0**	**14,946**	**100.0**	**876**	**100.0**	**778**	**100.0**
Enroute	3,399	20.5	3,008	20.1	235	26.8	156	20.1
On Scene	13,201	79.5	11,938	79.9	641	73.2	622	79.9

Totals	**61,531**	**100.0**	**14,150**	**23.0**	**47,381**	**77.0**	**7.07**	**869**	**1.8**
Richmond	10,344	16.8	1,328	12.8	9,016	87.2	6.77	199	2.2
San Pablo	2,903	4.7	608	20.9	2,295	79.1	5.94	47	2.0
El Cerrito	1,543	2.5	211	13.7	1,332	86.3	7.35	27	2.0
El Sobrante	569	0.9	92	16.2	477	83.8	7.92	8	1.7
North Richmond	5	0.0	0	0.0	5	100.0	5.80	0	0.0
Kensington	206	0.3	16	7.8	190	92.2	10.67	5	2.6
Pinole	1,423	2.3	306	21.5	1,117	78.5	6.18	17	1.5
Hercules	785	1.3	183	23.3	602	76.7	8.13	11	1.8
Rodeo	464	0.8	132	28.4	332	71.6	8.84	10	3.0
Crockett	229	0.4	45	19.7	184	80.3	11.02	2	1.1
Concord	9,428	15.3	2,794	29.6	6,634	70.4	6.77	123	1.9
Martinez	2,963	4.8	881	29.7	2,082	70.3	7.94	85	4.1
Pleasant Hill	2,328	3.8	629	27.0	1,699	73.0	6.56	34	2.0
Pacheco	170	0.3	42	24.7	128	75.3	6.93	4	3.1
Clayton*	390	0.6	109	27.9	281	72.1	10.38	3	1.1
Clyde	10	0.0	4	40.0	6	60.0	9.17	0	0.0
Walnut Creek	5,788	9.4	1,435	24.8	4,353	75.2	7.27	91	2.1
Lafayette	1,064	1.7	315	29.6	749	70.4	9.18	17	2.3
Orinda	999	1.6	362	36.2	637	63.8	7.95	2	0.3
Moraga	726	1.2	91	12.5	635	87.5	7.32	1	0.2
Alamo	498	0.8	54	10.8	444	89.2	5.42	1	0.2
Danville	1,552	2.5	52	3.4	1,500	96.6	4.73	1	0.1
San Ramon	1,428	2.3	70	4.9	1,358	95.1	4.48	0	0.0
Diablo	58	0.1	1	1.7	57	98.3	3.09	0	0.0
Blackhawk	154	0.3	6	3.9	148	96.1	5.80	0	0.0
Antioch	5,828	9.5	1,726	29.6	4,102	70.4	6.65	72	1.8
Pittsburg	5,122	8.3	1,434	28.0	3,688	72.0	7.12	59	1.6
Bay Point	1,182	1.9	287	24.3	895	75.7	7.56	14	1.6
Oakley	1,023	1.7	279	27.3	744	72.7	9.28	13	1.7
Bethel Island	292	0.5	103	35.3	189	64.7	14.75	2	1.1
Brentwood*	1,394	2.3	369	26.5	1,025	73.5	8.91	15	1.5
Discovery Bay*	353	0.6	128	36.3	225	63.7	13.46	1	0.4
Byron*	224	0.4	51	22.8	173	77.2	11.91	4	2.3
Out of County	5	0.0	0	0.0	5	100.0	10.00	0	0.0
Other/Unknown	81	0.1	7	8.6	74	91.4	8.60	1	1.4

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

Hospital	#	%	#	%	#	%	#	%
Totals	**44,931**	**100.0**	**3,877**	**100.0**	**41,024**	**100.0**	**30**	**100.0**
Contra Costa Reg.	5,697	12.7	111	2.9	5,584	13.6	2	6.7
Doctors, Pinole	454	1.0	56	1.4	398	1.0	0	0.0
Doctors, San Pablo	7,877	17.5	671	17.3	7,201	17.6	5	16.7
John Muir	5,359	11.9	773	19.9	4,579	11.2	7	23.3
Kaiser, Richmond	2,404	5.4	110	2.8	2,291	5.6	3	10.0
Kaiser, Walnut Creek	4,043	9.0	288	7.4	3,755	9.2	0	0.0
Mt. Diablo	8,609	19.2	751	19.4	7,854	19.1	4	13.3
San Ramon Regional	1,502	3.3	144	3.7	1358	3.3	0	0.0
Sutter/Delta	6,826	15.2	612	15.8	6,212	15.1	2	6.7
Valley Care	39	0.1	0	0.0	39	0.1	0	0.0
Alta Bates	710	1.6	38	1.0	672	1.6	0	0.0
Children's	246	0.5	70	1.8	176	0.4	0	0.0
Highland	21	0.0	11	0.3	10	0.0	0	0.0
Kaiser, Vallejo	277	0.6	7	0.2	270	0.7	0	0.0
Summit	39	0.1	0	0.0	39	0.1	0	0.0
Kaiser, San Rafael	9	0.0	0	0.0	9	0.0	0	0.0
Marin General	13	0.0	0	0.0	13	0.0	0	0.0
Helicopter Transport	227	0.5	208	5.4	16	0.0	3	10.0
Other/Unknown	579	1.3	27	0.7	548	1.3	4	13.3

B. Helicopter Utilization Report

Contra Costa Patients Transported by Helicopter

Origin	1996		1997		1998		1999		2000	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	**268**	**100.0**	**273**	**100.0**	**376**	**100.0**	**400**	**100.0**	**380**	**100.0**
West County	114	42.5	130	47.6	127	33.8	140	35.0	163	42.9
East County	102	38.1	103	37.7	122	32.4	176	44.0	136	35.8
South County	23	8.6	12	4.4	9	2.4	21	5.3	33	8.7
Central County	29	10.8	28	10.3	29	7.7	55	13.8	43	11.3
Unknown					89*	23.7	8	2.0	5	1.3

*Information unavailable from air ambulance providers. A significant portion of these patients is thought to have been transported from outside of Contra Costa.

Helicopter Transports Originating Within Contra Costa by Provider Agency

Provider	1996		1997		1998		1999		2000	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	**268**	**100.0**	**273**	**100.0**	**376**	**100.0**	**400**	**100.0**	**380**	**100.0**
CALSTAR	251	93.7	244	89.4	195	51.9	182	45.5	197	51.8
REACH	7	2.6	13	4.8	86	22.9	204	51.0	174	45.8
CHP	6	2.2	3	1.1	3	<1	5	1.3	2	<1
Other	4	1.5	13	4.8	0	0.0		<1	4	1.1
Unknown	0	0.0	0	0.0	92*	24.5	9	2.3	5	1.3

*Information unavailable from air ambulance providers. A significant portion of these patients is thought to have been transported from out side of Contra Costa.

Transported to a trauma center	842	957	925	984	953
John Muir Medical Center	735	841	814	827	776
Children's Hospital, Oakland	87	88	99	129	129
Other trauma center	20	28	12	28	48
Transported to the closest receiving hospital	39	40	39	41	30
CPR/Unstable airway	38	39	38	41	29
Trauma center on bypass	1	1	1	0	1
Triaged in the field as not having major trauma	2,112	1,856	1,956	1,884	1,903

Field Triage Errors (errors per 100 patients triaged with major trauma) – 2000

Undertriage error rate	=	Patients field-triaged as not having major trauma, but subsequently found to have major trauma / Total number of patients triaged in the field as having major trauma	= 11/983	=	**1.1**
Overtriage error rate	=	Patients field-triaged as having major trauma, but subsequently found not to have major trauma / Total number of patients triaged in the field as having major trauma	= 430*/983	=	**43.7**

* Not all follow-ups received from Eden, Highland, or Children's Hospital Oakland.

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	1996	1997	1998	1999	2000
Undertriage	2.4	3.8	2.9	1.3	1.1
Overtriage	46.5	50.3	45.0	52.0	43.7

Patients without shockable rhythm	316	68.5	280	72.4	247	60.1	206	61.3	246	75.5
Patients with shockable cardiac rhythm	**145**	**100.0**			**164**	**100.0**	**130**	**100.0**	**80**	**100.0**
Witnessed arrest	82	56.6	Information not available		73	44.5	69	53.1	48	60.0
Unwitnessed arrest	63	43.4			91	55.5	46	35.4	21	26.3
Unknown	0				0	0.0	15	11.5	11	13.8
CPR prior to EMS arrival	66	45.5			40	24.4	54	41.5	32	40.0
No CPR prior to EMS arrival	79	54.5			117	71.3	57	43.8	38	47.5
Unknown	0	0.0			7	4.3	19	14.6	10	12.5
Patients with shockable cardiac rhythm	**145**	**100.0**	**107**	**100.0**	**164**	**100.0**	**130**	**100.0**	**80**	**100.0**
"Field Saves"	35	24.1	23	21.5	20	12.2	23	17.7	21	26.3
"System Saves"(patient discharged from hospital)	17	11.7	13	12.1	11	6.7	11	8.5	8	10.0

First Responder Defibrillation Activity Report by Agency -- 2000

	Defibrillator Attached	Patient Shocked	Patient Discharged
Total	**326**	**80**	**8**
Bethel Island	0	0	0
Contra Costa	188	50	7
Crockett	0	0	0
East Diablo	20	5	1
El Cerrito	21	6	0
Moraga-Orinda	3*	2*	0
Oakley	2	0	0
Pinole	6	1	0
Richmond	67	12	0
Rodeo	19	4	0
San Ramon	0	0	0

* Includes 1 patient where Moraga-Orinda Police attached the defibrillator and shocked patient.

Transferring facility					
Contra Costa Regional	6	5	38	52	68
Doctors' Pinole	50	88	194	114	16*
Doctors' San Pablo	197	244	686	652	599
John Muir	11	19	38	150	184
Kaiser Martinez	17	257	118*	0	0
Kaiser Richmond	126	1,312	1,498	809	1,138
Kaiser Walnut Creek	10	128	635	285	292
Mt. Diablo	127	148	203	253	267
San Ramon	20	21	52	62	50
Sutter Delta	335	302	623	749	933
Unknown	0	0	0	0	2

*Kaiser Martinez closed 1/98. Doctors Medical Center, Pinole Campus closed its emergency department 3/00.

Reason for Transfer

Reason for Transfer	1999		2000	
	#	%	#	%
Total reported transfers.	3,126	100.0	3,549	100.0
Higher Level of Care	1,274	40.8	1,570	44.2
5150	86	28.2	1,038	29.2
No Bed	308	9.9	276	7.8
Insurance Status	430	13.8	446	12.6
Other	137	4.4	126	3.6
Patient Request	78	2.5	78	2.2
Not Marked	13	0.4	15	0.4

Psychiatric	909	29.1	1,045	29.4
Pediatric	480	15.4	607	17.1
Cardiac	193	6.2	178	5.0
Respiratory	144	4.6	71	2.0
Neurosurgery	123	3.9	182	5.1
General Surgery	179	5.7	421	11.9
OB/GYN	106	3.4	132	3.7
Trauma	89	2.8	75	2.1
Other Medical	854	27.3	814	22.9
Other	46	1.5	14	<1
Not Marked	3	<1	10	<1

Mode of Transfer

Transfer Mode	1999		2000	
	#	%	#	%
Total reported transfers.	**3,126**	**100.0**	**3,549**	**100.0**
EMT-I Ambulance	2,063	66.0	2,403	67.7
Critical Care Transport	826	26.4	943	26.6
Paramedic Ambulance	69	2.2	47	1.3
Auto/Taxi	74	2.4	57	1.6
Other (including Helicopter)	77	2.5	74	2.1
Not Marked	17	<1	25	<1

# of events	115.5 hrs	41.3 hrs	17.1 hrs	2.5 hrs	0 hrs
Total time	2.3 hrs	1.6 hrs	4.3 hrs	1.25 hrs	0 hrs
Avg time/event					
Doctors San Pablo					
# of events	16	34	6	1	0[1]
Total time	24.7 hrs	77.8 hrs	6.2 hrs	2.5 hrs	0 hrs
Avg time/event	1.5 hrs	2.3 hrs	1.0 hrs	2.5 hrs	0 hrs
John Muir					
# of events	0	1	0	0	1
Total time	0 hrs	1.4 hrs	0 hrs	0.0 hrs	1.5 hrs
Avg time/event	0 hrs	1.4 hrs	0 hrs	0.0 hrs	1.5 hrs
Kaiser Richmond					
# of events	0	4/97 – Did not receive ambulance patients	N/A	0[2]	0
Total time	0 hrs			0.0 hrs	0.0 hrs
Avg time/event	0 hrs			0.0 hrs	0.0 hrs
Kaiser Walnut Creek					
# of events	0	3	0	0	1
Total time	0 hrs	12.8 hrs	0 hrs	0.0 hrs	2.2 hrs
Avg time/event	0 hrs	4.3 hrs	0 hrs	0.0 hrs	2.2 hrs
Mt Diablo					
# of events	19	9	1	0	0
Total time	46.2 hrs	14.0 hrs	1.7 hrs	0.0 hrs	0.0 hrs
Avg time/event	2.4 hrs	1.5 hrs	1.7 hrs	0.0 hrs	0.0 hrs
San Ramon Regional					
# of events	1	0	0	0	4
Total time	1.1 hrs	0 hrs	0 hrs	0.0 hrs	22.6 hrs
Avg time/event	1.1 hrs	0 hrs	0 hrs	0.0 hrs	5.6 hrs
Sutter Delta					
# of events	6	13	10	16	17[3]
Total time	5.5 hrs	28.5 hrs	10.2 hrs	27.8 hrs	19.7 hrs
Avg time/event	0.9 hrs	2.2 hrs	1.0 hrs	1.7 hrs	1.2 hrs

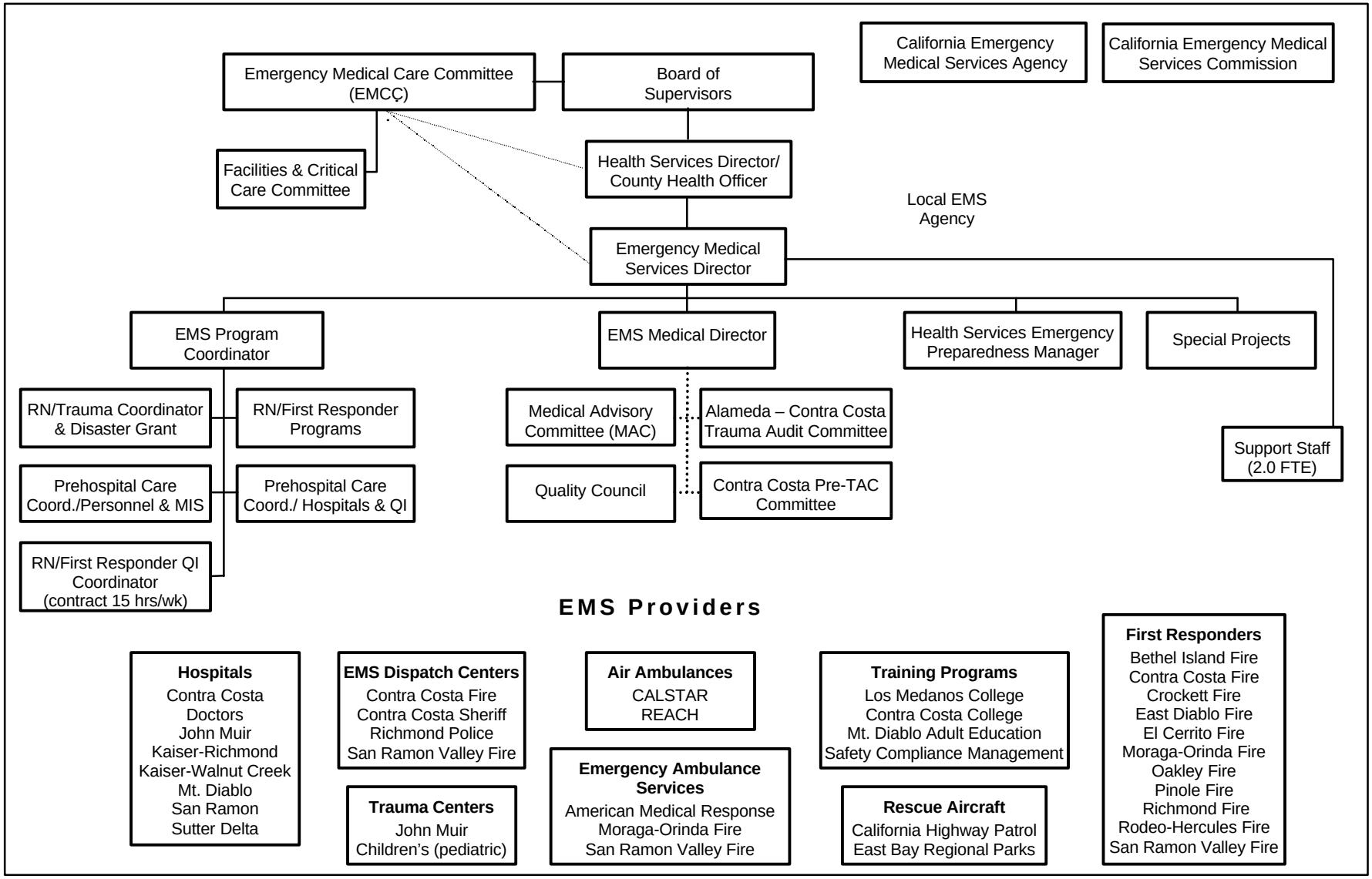
[1] Not included are 2 episodes of CT diversion totally 15.3 hrs, averaging 7.6 hrs/episode, and 1 episode of "internal disaster" (bomb threat) lasting 2.9 hrs.
[2] Limited ambulance traffic resumed 2/99.
[3] Not included is 1 episode of CT diversion totaling 3.3 hrs.

Total Base Contacts	**13,646**	**100.0**	**10,426**	**100.0**	**7,270**	**100.0**	**7,379**	**100.0**	**8,401**	**100.0**
ALS Care Provided	10,407	76.3	8,572	82.2	4,819	66.3	4,816	65.3	6,050	72.0
No ALS Provided	3,239	23.7	1,854	17.8	2,451	33.7	2,224	30.1	2,351	28.0
EMT-P Contacts	13,057	95.7	9,633	92.4	6,482	89.2	6,738	91.3	7,661	91.2
EMT-I Contacts	163	1.2	186	1.8	132	1.8	132	1.8	149	1.8
EMT Not Identified	1	0.0	607	5.8	103	1.4	509	6.9	591	7.0
Adult Patients	12,857	94.2	9,781	93.8	6,849	94.2	6,581	89.2	7,946	94.6
Pediatric Patients (age < or = 14)	525	3.8	403	3.9	290	4.0	589	8.0	290	3.5
Age Not Identified	158	1.2	231	2.2	149	2.0	209	2.8	165	2.0

Contacts by Base Hospital -- 2000

	System Totals	John Muir Base	Mt. Diablo Base
Total Base Contacts	**8,401**	**4,589**	**3,812**
ALS Care Provided	6,050	2,792	3,258
No ALS Care Provided	2,351	1,797	554
EMT-P Contacts	7,661	4,373	3,288
EMT-I Contacts	149	53	96
EMT Not Identified	591	163	428
Adult Patients	7,946	4,261	3,685
Pediatric Patients (age < or = 14)	290	203	87
Age Not Identified	165	125	40

VII. EMS Agency Organizational Chart



TOTAL	**620,945**	**600,131**	**827,423**	**835,386**	**774,444**

B. Measure H Enhancements (County Service Area EM-1)

Category	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-00
Direct costs:					
Salaries & benefits	178,254	176,573	167,657	181,583	230,252
Services & supplies	4,409,931	3,797,066	3,595,767	3,788,740	3,378,918
Paramedic ambulance services (AMR contract)	2,502,384	2,502,384	2,356,412	2,076,380	1,864,892
Paramedic ambulance services (Moraga Fire contract)	58,558	58,558	79,872	79,872	79,872
Paramedic services (San Ramon Valley Fire)	--	--	--	150,000	142,723
First responder services - East Diablo Fire paramedic program (AMR contract)	233,480	232,840	237,312	232,841	233,479
First responder services - Bethel Island Fire paramedic program	--	81,113	106,160	96,731	96,452
First responder services – Contra Costa Fire paramedic program	--	--	--	147,533	174,600
Base hospital services	100,000	100,000	--	50,000	-
First responder services - fire service reimbursements	830,714	299,999	306,902	306,932	308,228
First responder services - defibrillation program	133,029	94,436	58,070	171,018	76,078
Sheriff's dispatch	168,012	168,012	180,747	181,221	191,327
Other EMS dispatch and radio communications	38,031	15,695	59,775	74,766	61,267
Poison control center services	107,965	44,618	--	--	--
Hazmat program	150,000	150,000	150,000	150,000	150,000
Other services & supplies	87,758	49,411	60,517	71,446	0
Total direct costs	4,588,185	3,973,639	3,763,424	3,970,323	3,609,170
Administration/collection	403,000	383,922	357,720	400,647	432,964
Contribution to reserves	180,637	--	--	--	--
TOTAL	**5,171,822**	**4,357,561**	**4,121,144**	**4,370,970**	**4,042,134**

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 the 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 the recommendations of EMCC's from Alameda and Contra Costa Counties.

➢ Comprehensive **California Emergency Medical Services System and Prehospital Emergency Medical Care Personnel Act enacted**. This legislation set EMS system standards, as well as prehospital personnel training/certification standards, and provided a basic standardized structure for EMS systems throughout the State.

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 a revised County Ambulance Ordinance. A Request for Proposal process that sought the 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 formal RFP process for paramedic **base hospital designation** developed and administered for 4 base hospital zones countywide.

➢ **Emergency Medical Dispatch** (EMD) standards and criteria developed and recommended by the EMCC.

➢ Procedure for **Emergency Department (ED) diversion** implemented to allow diversion of emergency ambulances 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 the 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 service 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**, which included a multi-disciplinary quality assurance process to be administered by the EMS Agency, adopted by Board of Supervisors, as well as by all hospitals within the county.

➢ Health Services Department **Emergency Management Team** consisting of key Health Services personnel designated to respond to the 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 the voters countywide.

➢ Joint **Solano/Contra Costa County EMS Hazardous Materials Training Project** established with 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 Protection District.

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 administration of Health Services.

1990

➢ C**ounty Service Area EM-1** became operational.

➢ **EMS Disaster Planning Project** funded by State EMSA and administered by local EMS Agency. The County Health Officer is designated **Regional Disaster Medical Health Coordinator** (RDMHC) for OES Region 2 counties.

➢ San Ramon Regional Medical Center licensed for Basic Emergency Services opened in San Ramon.

1991

➢ **High-performance ambulance contracts** initiated with Regional Ambulance, San Ramon Valley Fire, and Moraga Fire. Standards set for required paramedic-staffed ambulance response to emergency calls at a 95% 10 minute maximum response for urban areas of county. Number of paramedic staffed ambulances increased from 12 to 19 to meet this standard with ambulance service subsidies funded by Measure H.

➢ **First Responder Defibrillation Program** developed. PhysioControl semi-automatic defibrillation equipment selected through RFP competitive bid process.

➢ Countywide system of M**ulticasualty Medical Caches** established including supplies to be used in multicasualty or disaster situations.

➢ Specialized **Hazardous Materials Response Protocols** and training program developed and implemented for ambulance personnel.

➢ P**aramedic training program** provided at Los Medanos Community College.

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.
- ➢ E**MS 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** contracts renegotiated with Mt. Diablo, John Muir and Los Medanos hospitals.
- ➢ The **Medical Transmission Network**, a fire/medical dispatch computer linkage project began.
- ➢ **First responder paramedic** program funded by Measure H and provided by American Medical Response implemented in Byron/Discovery Bay area.
- ➢ **MEDARS** radio system upgraded from two channels to four channels.

1993

- ➢ Base hospital services no longer provided by Los Medanos Hospital.
- ➢ **Chemical release** from General Chemical Company in Richmond area triggered a 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.
- ➢ Medical Priority's computerized ProQA Dispatch System for prehospital EMS dispatch was piloted by San Ramon Valley Fire's Dispatch Center.
- ➢ Functional integration of 5 County fire districts (Contra Costa County, Riverview, Orinda, Moraga and West County).
- ➢ County "Do Not Resuscitate" program reorganized to incorporate new State Guidelines.
- ➢ "**Quality Action Team**" formed to improve EMS incident review.
- ➢ 16 channel **mobile radios** programmed with existing fire service radio channels, installed in all paramedic units.
- ➢ State funding for **Highway Injury Record Linkage Software** (HIRLS) and **Firearm Injury Reporting, Surveillance and Tracking (FIRST) System** projects obtained by EMS Agency; programs administered by Health Services Injury Prevention Program.

1994

- ➢ Continuing education adopted as method 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 personnel trained in **Hospital Emergency Incident Command System** (HEICS).
- ➢ **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.
- ➢ State EMSA grant to study poison control center alternatives obtained by EMS Agency.
- ➢ Emergency Medical Care Committee restructured to report to Health Services Director.
- ➢ 1-800-GIVE CPR number continued under auspices of the EMS Agency.

1995

- ➢ Kaiser, Richmond and Oakland 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 Protection District successfully completed pilot **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. Contracts awarded to San Ramon Fire and American Medical Response. Moraga Fire exempt from competitive bid process.
- ➢ Bethel Island Fire's First Responder Paramedic program started.
- ➢ Emergency Medical Care Committee performed EMS System evaluation.
- ➢ Local hospitals and Health Services/EMS staff participated in "**Hospital Shelter-in-Place Project**" funded by local Emergency Planning Committee and State OES.
- ➢ **Computerized pen-based Patient Care Report** pilot introduced.

1997

- ➢ **Bay Area Disaster Medical Assistance Team** (DMAT) formed and sponsored by County Health Services.
- ➢ Contra Costa Fire Protection District's First Responder Paramedic Program implemented. **"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 Medical Center and Mt. Diablo Medical Center 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.

- ➢ Kaiser, Richmond and Kaiser, Martinez downgraded services provided. No longer designated ambulance-receiving facilities.
- ➢ Orinda Fire and Moraga Fire merged to form the Moraga-Orinda Fire Protection District.
- ➢ Laidlaw purchased American Medical Response and merged its ambulance services under the AMR name.
- ➢ I**nterfacility Transfer Review** process revised.

1998

- ➢ Board of Supervisors declared a local emergency due to shortage of hospital **emergency and critical care resources**.
- ➢ Contra Costa Regional Medical Center, the **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 accepts 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.
- ➢ **Defibrillation equipment** upgraded.
- ➢ **Multicasualty Incident (MCI) Plan** revised.
- ➢ Two year State grant obtained for a **Data Linkage and Outcome Project**.
- ➢ **Resource Information Management System** (RIMS) installed to link OES Region II counties to Statewide disaster information management system.
- ➢ **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.
- ➢ Oakley Fire organized as a fire protection district.
- ➢ Contra Costa Fire expanded Pilot First Responder Paramedic Program in central county.
- ➢ **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**.
- ➢ Two-year State grant obtained to develop an **EMS for Children** program.
- ➢ Bay Area DMAT attained Level I designation.
- ➢ Moraga and Orinda Police Departments implemented a first responder defibrillation program.
- ➢ Antioch Ambulance Company ceased all operations 7/99.
- ➢ Contra Costa Fire took on fire/medical dispatch for Pinole, Rodeo, Hercules, and Crockett-Carquinez Fire.

2000

- ➢ All Moraga-Orinda Fire EMS response vehicles staffed with paramedics.
- ➢ Doctor's Medical Center, Pinole Campus closed its emergency department in 3/00.
- ➢ All fire/medical dispatch centers provide fire/ambulance dispatch utilizing the Medical Priority Dispatch System.

X. Glossary of EMS Terms

- **Abbreviated Injury Score (AIS):** A scale created to describe the anatomical injuries resulting from trauma. AIS scores obtain a value from each of 9 body areas: head, face, neck, thorax, spine, upper extremities, lower extremities, and external/other. For each body region, a severity code is assigned which describes the 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:** Special services designed to provide definitive prehospital emergency medical care, including, but not limited to, cardiopulmonary resuscitation, cardiac monitoring, cardiac defibrillation, advanced airway management, intravenous therapy, specified drug administration, and other specified techniques and procedures administered by paramedics under the direct supervision of a base hospital as part of a local EMS system at the scene of an emergency, during transport to an acute care hospital, during interfacility transfer, and while in the emergency department of an acute care hospital until responsibility is assumed by the emergency or other medical staff of that hospital.
- **Air Ambulance:** Any aircraft specifically constructed, modified or equipped, and used for the primary purpose of responding to emergency calls and transporting critically ill or injured patients whose medical flight crew has at a minimum two attendants certified or licensed in advanced life support.
- **Authorized Registered Nurse (ARN) or Mobile Intensive Care Nurse (MICN):** 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.
- **Authorizing EMS Agency:** The local EMS Agency which approves utilization of specific EMS aircraft within its jurisdiction.
- **Base Hospital:** One of a limited number of hospitals which, upon designation by the local EMS agency and upon the completion of a written contractual agreement with 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 the emergency department of a base hospital, and who is knowledgeable in the medical protocols, radio procedure and general operating policies of the County EMS system, and a person from whom ambulance personnel may take medical direction by radio or telephone.
- **Basic Life Support:** Emergency first aid and cardiopulmonary resuscitation procedures which, as a minimum, include recognizing respiratory and cardiac arrest and starting the proper application of cardiopulmonary resuscitation (CPR) to maintain life without invasive techniques until the victim may be 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. This course is required for paramedics in Contra Costa County.
- **Blunt:** An injury that occurs without penetration of the body (e.g. motor vehicle injuries, falls, assaults with blunt instruments).
- **Cardiac Arrest:** A state when the heart stops beating or where it quivers (ventricular fibrillation) and

does not pump blood to the rest of the body, which will result in death. 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.
- **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 and sirens 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, as well as creation and real time maintenance of incident database.
- **County Service Area (CSA) EM-1:** Special benefit assessment district established by the Board of Supervisors to fund EMS enhancements.
- **CRAMS**: A 10-point scale 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. It was designed as a prehospital triage tool. 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 which assess the patient's cardiac status and provide the shock (or instruct that the shock be provided) if necessary.
- **Dispatch Center:** Coordinating center for efficient management of all participating emergency resources within a designated area of responsibility. Centers dispatch rescue personnel and equipment, and coordinates these various resources to ensure maximum effectiveness.
- **Emergency:** A condition or situation in which an individual has a need for immediate medical attention, or where the potential for such need is perceived by emergency medical personnel or a public safety agency.
- **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 customarily receives patients in need of emergency medical evaluation and or care.
- **Emergency Medical Services Aircraft:** Any aircraft utilized for the purpose of prehospital emergency patient response and transport. EMS aircraft includes 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:** A licensed physician appointed as the medical director of the local EMS Agency to provide medical control and to assure medical accountability through the 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 the 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 the EMS Agency in the county where training occurred. 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:** An individual whose scope of practice includes skills and procedures to provide advanced life support as part of an EMS system and who is certified 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 to be dispatched to all emergency medical requests unless it has been established by the fire/medical dispatch center that a basic life support ambulance is a sufficient level of response.
- **Emergency Operating Center (EOC):** A facility designed and equipped for the use by city, county or other governmental agency leadership to manage the disaster response to the community.
- **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 County is divided into five 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:** The division of State legislation that includes Division 2.5 EMS Statutes.
- **Health Services:** A 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 generic 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 the 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:** The local agency, usually a county health department, or office having 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 County, 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 it passed overwhelmingly in each city and in the unincorporated area of the County, advised a special assessment be collected to support EMS programs; specifically added paramedic ambulance units, EMS communications system enhancements, disaster supplies, and enhanced medical training and equipment for fire first-responders.
- **Medical Control:** The 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, quality improvement activities.
- **Morbidity:** Disability or abnormality resulting from an illness or injury.
- **Mortality:** Any death resulting from injury or illness.
- **Multicasualty Incident (MCI):** An emergency incident involving any number of injured persons that over-taxes the rescue and medical resources of the responsible agencies within an area of the County.
- **Mutual Aid:** The furnishing of resources from one individual or agency to another, including but not limited to facilities, personnel, equipment and/or services, pursuant to an agreement between the individuals and/or agencies when requested during time of need.
- **Penetrating:** Any injury that penetrates the skin (e.g. gunshot wounds or stabbings).
- **Predesignated Rendezvous Landing Site:** An emergency medical services landing site as authorized by the local EMS Agency with input of jurisdictional fire agency, predesignated to facilitate transport of patients when the scene does not allow for a landing site.
- **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 that the patient is expected to live. The components of Ps are RTS, age ISS and the type of injury (blunt or penetrating).
- **Public Safety Agency:** A functional division of a public agency which 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
- **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 Office of Emergency Services in support of a state medical/health response to a major disaster.
- **Rescue Aircraft:** An aircraft whose usual function is not prehospital emergency medical transport but which may be utilized, 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.
- **Revised Trauma Score (RTS):** A score using three physiological parameters to measure injury severity: The Glasgow Coma Scale, systolic blood pressure, and respiratory rate.

- **Response Information Reporting System (RIMS):** A statewide, computerized disaster information reporting system.
- **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. This is the initial triage system developed by Hoag Hospital and Newport Beach Fire Department, Newport Beach CA that has been 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 centers.
- **Trauma Center:** A licensed general acute care hospital that has been designated as a Level I, II or III Trauma Center by the local EMS Agency. The trauma center provides staffing and equipment to immediately provide 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 and must be updated annually. The Contra Costa County Trauma System Plan includes the utilization 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:** include nuclear, biological or chemical weapons used in terrorist attacks.

XI. List of Documents Available at the EMS Agency

9-1-1 Brochure
County Service Area EM-1 Proposal and Service Plan
Contra Costa Health Services Emergency Plan
Disaster Medical Assistance Team, DMAT CA-6 information
EMCC By-laws
Emergency Medical Guidelines for Law Enforcement Agencies, 1992
EMS Agency Annual Program Reports
EMS Aircraft – Classification, 1998
EMS System Plan, 1995
EMS System Plan, Annual Update - 1998
Expanded Medical Emergency Response Procedure
Facilities Assessment, 12/99
Medical Helicopter Dispatch Guidelines, 4/98
Message Transmission Network Specifications
Multicasualty Cache Supplies and Locations
Multicasualty Incident (MCI) Plan, 1/98
Operational Procedures for Patient Transport by Helicopter, 7/94
Partners Course
Patient Transfer Guidelines, 1997
Prehospital Care Manual, 1/00
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, 1986

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 CO_2 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
Reporting Abuse of Children or Elder/Dependent Adults
Reporting of Unusual Prehospital Occurrences
Transfer of Care in the Field
Transfer of Critical or Possibly Critical Trauma Patients to Trauma Center
Trauma Patients