Contra Costa County Health Services Department

Emergency Medical Services Agency

1992 Annual Program Report

- August 1993 -

Table of Contents

I. IntroductionI. Introduction

A. Overview of EMSA. Overview of EMS

Emergency Medical Services includes that 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 hospital 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. EMS includes ambulance services, fire services, law enforcement agencies, public safety dispatch centers, hospitals and specialty care centers, training institutions and organizations, citizen and medical advisory groups, local and state EMS agencies, and other governmental and voluntary organizations. While most EMS responses are to day-to-day emergencies, EMS agencies also plan and prepare for disaster medical response.

In California, EMS systems are organized on a county or regional basis. Local EMS Agencies designated by county boards of supervisors are responsible for local EMS planning and coordination consistent with State law and regulations. Local EMS agencies are the lead agencies coordinating EMS services at the county or regional level. The State Emergency Medical Services Authority (EMSA) is the lead EMS agency at the state level. The State 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 the County Health Services Department as the Local EMS Agency. The EMS functions of the Health Services Department are carried out by the EMS Director and staff. The County Health Officer is designated as the EMS Medical Director with statutory responsibilities to oversee medical aspects of the EMS program. An Emergency Medical Care Committee (EMCC) appointed by the Board of Supervisors meets regularly to provide advice regarding EMS matters to the Board and to the EMS Agency.

B. Local EMS Agency FunctionsB. Local EMS Agency Functions

The principal functions of a local EMS agency are specified in the Health & Safety Code. These include:

- Planning, implementing, and evaluating emergency medical services.
- Monitoring and approving EMT-I, paramedic, and Mobile Intensive Care Nurse

(MICN) training programs.

- Conducting certification/authorization programs for EMT-I's, paramedics and MICNs.

- 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.

- Developing and implementing a trauma system plan.

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).

Additionally, the EMS Agency is the lead agency responsible for:

- Planning and coordinating disaster medical response.

To accomplish these functions, the EMS Agency employees a full time staff of 9 persons, including the EMS director, program coordinator, two prehospital care coordinators, trauma coordinator, training coordinator, administrative aide, and two clerks.

C. Emergency Medical Care CommitteeC. 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 20 members. Each of the Contra Costa County Board of Supervisors selects one consumer representative. Additionally, the Board appoints members nominated by the following organizations:

American Heart Association
American Red Cross
California Highway Patrol
Contra Costa Ambulance Providers
Emergency Department Physicians
Emergency Nurses Association
Fire Chiefs' Association
Health Services Department
Hospital Council of Northern & Central California, East Bay Conference
Los Medanos College or Contra Costa College
Office of Emergency Services
Police Chiefs' Association
Public Managers' Association
Sheriff-Coroner Communication Division
Alameda-Contra Costa Medical Association

The EMCC meets on the second Wednesdays of January, February, April, May, July, August, October, and November, 4:00 to 5:30 p.m., in the County Emergency Operating Center located at 50 Glacier Drive, Martinez. All meetings of the EMCC and its subcommittees are open to the public.

During 1992, the EMCC held seven committee meetings (August meeting was canceled). Meetings were also held by various standing and ad hoc subcommittees. The EMCC actions and activities included the following:

- Approval of a new EMS 9-1-1 brochure developed by the EMCC Public Information and Education Subcommittee.
- Development of "Emergency Medical Guidelines for Law Enforcement Agencies."
- Support for continued funding for the State Emergency Medical Services Authority as a department of State government.
- Endorsement of draft agreement developed by CCC Fire Protection District for use of the Opticom traffic signal preemption system by fire, law enforcement, and ambulance.
- Endorsement of "Do Not Resuscitate" policy for terminally ill patients.

Two consumer members of the EMCC also served on a special evaluation committee to review the performance of the County's emergency ambulance contractors.

D. Delivery of EMS ServicesD. 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 necessary information to dispatch fire and medical units.

The initial response to a potentially life threatening incident includes both a fire 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. Firefighters are trained and equipped to provide rescue, first aid, and cardiac defibrillation.

Ambulance services in most parts of the county are provided by a private company, American Medical Response (formerly Regional Ambulance) under contract with the County. In the San Ramon Valley and Moraga areas, 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. Advanced life support (ALS) ambulance units are staffed with two paramedics and are always dispatched to potentially life threatening incidents. Paramedics work under direction of base hospital medical personnel and are able to administer lifesaving drugs and perform other invasive lifesaving procedures. Basic life support (BLS) ambulance units are staffed by two EMT-I's and may be used for non emergency response or to provide additional support at an emergency incident. In some areas, firefighter first responders may respond to medical emergencies in an ambulance vehicle rather than an engine. This provides backup transport capability to the paramedic ambulance in the event there are multiple victims or a delay in the paramedic ambulance response.

Patient treatment and transport is carried out under State and local EMS agency policies and procedures. These policies may include, in the case of paramedics, making contact with a mobile intensive care nurse (MICN) or physician at a designated base hospital to obtain direction in management of the patient. Patients are transported to an appropriate hospital. Hospital destination is based upon County EMS protocols and patient preference. Critical patients may be directed to the nearest emergency department or to the trauma center. Noncritical patients may be transported to a hospital of their choice within reasonable travel time.

Medical helicopter service is available to transport critical patients when ground ambulance transport time would be excessive. CALSTAR, one of five medical helicopter services authorized to respond to EMS calls in the Contra Costa, maintains a 24-hour helicopter unit staffed by specially trained flight nurses based at Buchanan Field in Concord. Other helicopter services are available to respond from neighboring counties if CALSTAR is unavailable.

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

In 1988, the voters of Contra Costa County passed countywide Measure H providing for enhancements to the EMS system including an 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 add six staffed paramedic ambulance units to respond to 9-1-1 calls, to establish a firefighter first responder defibrillation program and to purchase automatic defibrillators for all fire response units, to purchase medical supply caches for use in multicasualty and disaster response, to upgrade the MEDARS radio system used for ambulance-to-hospital communications, and to begin upgrading the ambulance dispatch system.

F. Development of EMS in Contra Costa CountyF. Development of EMS in Contra Costa County

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

1968 ➢ **Emergency Medical Care Committee (EMCC)** appointed by the Contra Costa County Board of Supervisors to provide oversight of emergency medical services within the county. This committee laid the foundation for the EMS system as it exists today.

1970 ➢ State **Wedworth-Townsend Act** passed enabling counties to conduct pilot projects using **paramedics** and **mobile intensive care nurses (MICNs)** to provide **advanced life support services** to patients in the field setting.

➢ **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 in Contra Costa County.

1975 ➢ EMCC recommended that the County develop an **advanced life support program** and identify an agency to **coordinate emergency medical services** throughout the county. The County Health Department established the **EMS Program** with Federal funding under the auspices of Comprehensive Health Planning.

1976 ➢ Los Medanos Community College in conjunction with Stanford University developed **training programs for paramedics and MICNs**.

1977 ➢ **First paramedics and MICNs graduated** from Los Medanos Community College training programs and certified by the County Health Officer.

➢ **Joint Exercise of Powers Agreement** between Alameda and Contra Costa Counties established the East Bay EMS Region as means for the development of a Regional EMS program.

1978 ➢ First **paramedic-staffed ambulances** put into service in Moraga by Moraga Fire Protection District, in Concord by Michael's Ambulance and in Walnut Creek by Pomeroy Ambulance.

➢ 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.)

1980 ➢ Joint Powers Agreement for Regional EMS disbanded at the request of the EMCCs of both Alameda and Contra Costa Counties.

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

➢ Provision establishing **exclusive ambulance zones** for emergency and non-emergency transport added to the County Ambulance Ordinance.

➢ Brookside Hospital designated by County as a third base hospital brought medical direction closer for west county paramedic units.

1982 ➢ The Board of Supervisors approved the County **Multicasualty Incident Plan** providing for on-scene coordination, resource notification, and patient distribution in multicasualty situations.

1983

- Health Services Department designated by the Board of Supervisors as **Local EMS Agency** pursuant to State EMS Act. County Health Officer designated **EMS Medical Director**.

- **Revised Ambulance Ordinance** established competitive bidding process for emergency ambulance service. **Request for Proposal (RFP)** results in selection of five providers based upon highest level of service without County subsidy: Cadillac Ambulance, Regional Ambulance, Moraga Fire District, San Ramon Valley Fire District, and East County Ambulance.

1984

- **San Ramon Valley Fire District** established paramedic level ambulance service through joint undertaking with John Muir Medical Center.

- Ten ambulance zones consolidated into **5 Emergency Response Areas (ERAs)**. Exclusive ambulance service contracts were awarded to 4 providers: Cadillac Ambulance, Regional Ambulance, Moraga Fire and San Ramon Valley Fire.

1985

- **EMS System Plan** developed according to standards set by the State 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 by an Ad Hoc subcommittee of the EMCC.

- Procedure for **Emergency Department (ED) diversion** developed and implemented to permit diversion of emergency ambulances away from an ED if the number of critical patients in the ED was such that more critical patients arriving in the department could not be cared for adequately.

- Brookside Hospital dropped as base hospital as a result of downgrading of emergency department from "Basic Emergency Services" licensure to "Standby Emergency Services" licensure.

1986

- Comprehensive **Trauma System Plan** providing for the designation of a single Level II Trauma Center approved by Board of Supervisors. RFP issued for trauma center designation. Trauma system **treatment and triage protocols** adopted. Ambulance personnel and first responders received **specialized training** in critical trauma patient management.

- John Muir Medical Center designated as **Level II Trauma Center** for the County

pursuant to the Trauma System Plan.

- The **Bay Area Trauma Registry Project** funded by the State undertaken to develop a trauma data registry.

- **Operational Procedures for Patient Transport by Helicopter** implemented.

- Cadillac Ambulance purchased by Regional Medical Systems making RMS the single private emergency ambulance provider in the county.

- **RFP process for emergency ambulance service** in 5 ERAs. Ambulance service contracts awarded to 3 providers: Regional Ambulance, Moraga Fire and San Ramon Valley Fire.

- **Base Hospital** contracts established with John Muir Medical Center (2 zones), 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** adopted by Board of Supervisors. Guidelines included development of multi-disciplinary quality assurance review process administered by EMS Agency.

- 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 the reporting of **communicable disease exposure** developed and made available to fire, police and ambulance agencies countywide.

- Basic Emergency status re-established for Brookside Hospital emergency department.

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 five year funding under a consent agreement between IT Corporation and State Department of Health Services. Joint project administered by Contra Costa 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 the County Board of Supervisors under administration of County Health Services.

1990

- **County Service Area EM-1** became operational.

- **EMS Disaster Planning Project** funded by the State administered by the EMS Agency. The County Health Officer is the designated Regional Disaster Medical Health Coordinator for OES Region 2.

- 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 required paramedic-staffed ambulance response to emergency calls a 95% 10 minute maximum response for urban areas of the county. With ambulance service subsidies funded by Measure H, this led to an increase from a total of 12 paramedic ambulance units serving the County to 19 paramedic units.

- **First Responder Defibrillation Program** developed and implemented including an RFP competitive bid process for semi-automatic defibrillator selection.

- Countywide system of **Multicasualty Medical Caches** established containing supplies to be used in multicasualty or disaster situations.

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

- The first **paramedic training program** to be provided in the County on an on-going basis began at Los Medanos Community College.

- First issue of the **EMS Newsletter** produced and distributed to provide EMS system participants with information regarding new policies/procedures, continuing education activities and other EMS related activities.

II. List of Major Accomplishments - 1992II. List of Major Accomplishments - 1992

- **First Responder Defibrillation Program** implemented countywide, resulting in 21 saves in 1992.
- "**Emergency Medical Guidelines for Law Enforcement Agencies**" endorsed by the EMCC and the County Police Chiefs' Association.
- EMS **Multicasualty Plan** revised.
- "**Operational Procedures For Response to an Expanded Medical Emergency**" developed and implemented.
- New **EMS 9-1-1 brochure** developed by the EMCC Public Information and Education Subcommittee.
- "**Do Not Resuscitate**" program implemented.
- **500** EMT-I's, **90** paramedics and **43** MICN's **certified/authorized.**
- **EMS treatment protocols for children** developed and implemented.
- **Two new radio channels** for ambulance to hospital communications obtained.
- New **ALS Medical Treatment Guidelines** developed and implemented.
- John Muir Trauma Center permanently (20 years) designated as **Level II trauma center** following request-for-proposal review process.
- **Proposed In Fire Service EMS Model Assessment** report completed and distributed.
- New **Base Hospital contracts** negotiated with Mt. Diablo Hospital, John Muir Medical Center, and Los Medanos Hospital. (Los Medanos dropped designation in early 1993).
- Design for **fire/medical dispatch linkage** and selection of vendor to execute final design/implementation completed.

- **First responder paramedic program** implemented in rural Byron/Discovery Bay area as a cooperative effort among East Diablo Fire, American Medical Response (formerly Regional Medical Systems), and the County.

- Office of Traffic Safety Grant obtained to facilitate trauma data collection.

III. EMS System ParticipantsIII. EMS System Participants

A. Advisory CommitteesA. Advisory Committees

Emergency Medical Care Committee (EMCC): The Health and Safety Code provides that each county may establish an Emergency Medical Care Committee (EMCC) with membership prescribed and appointed by the county's 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 is a 20 member multidisciplinary committee appointed by the Board of Supervisors. Membership is largely made up of representatives of EMS related organizations, although each Board member selects one consumer representative as well. The EMCC meeting schedule consists of eight meetings each year.

EMCC Public Information & Education Subcommittee (PIE): PIE is a Subcommittee of the Emergency Medical Care Committee charged with providing public education and information concerning emergency medical services to the community. PIE membership includes representatives of the EMCC, fire agencies, ambulance services, and the EMS Agency. Participation from all interested individuals is encouraged. PIE meets bi-monthly or more frequently as needed.

Medical Advisory Committee (MAC): This committee was established in 1977 to provide advice and recommendations to the EMS Agency and EMS Medical Director on medically related topics, particularly with respect to the paramedic program. Such topics include medical treatment guidelines for both ALS and BLS services; new prehospital skills and/or medications for the ALS program; prehospital policies and procedures related to the medical management of patients; and, review of medical quality assessment/improvement issues. MAC membership consists of base hospital coordinators and liaison physicians, a field paramedic representative from each of the ALS provider agencies, a physician from the emergency department of each receiving facility (if requested by that facility), and EMS staff. In 1992, the majority of MAC discussion and review concerned the development and implementation of pediatric treatment guidelines. Meetings are scheduled on an as needed basis for the second Tuesday of each month.

Measure H Oversight Committee: This committee was appointed by the Health Services Director to assist in ongoing program planning and monitoring and to advise the Department on preparation of the annual budget for the County Service Area for EMS. The Oversight Committee includes a representative of the Public Managers' Association, Fire Chiefs' Association, Police Chiefs' Association, East Bay Hospital Conference and two consumer members of the Emergency Medical Care Committee. Meetings are held on a bimonthly basis.

Pre Trauma Audit/Trauma Audit Committees (PreTAC and TAC): These confidential

quality assurance committees were established to review the care provided severely injured trauma patients in the County Trauma system including the John Muir Trauma Center. Members of both committees are appointed by the EMS Medical Director. The **Pre-Trauma Audit Committee (Pre TAC)**, which meets monthly, reviews all trauma related systems issues, trauma center cases selected by predefined quality assurance trauma data screens, and cases or system issues identified by other trauma system participants. Membership consists of representatives from receiving hospitals, base hospitals, the trauma center, a trauma surgeon from Alameda County and EMS staff.

Trauma center cases requiring further evaluation may be referred to the trauma center internal quality assurance/quality improvement for review, or may be referred to the bi-county **Trauma Audit Committee (TAC)** for it's evaluation and recommendations. This committee is unique in that it provides monitoring for two separate trauma systems. The bi-county (TAC) meets bimonthly and is composed of representatives of the four Alameda/ Contra Costa County trauma centers, non-trauma center receiving hospitals, base hospitals, coroner's offices, Alameda/Contra Costa Medical Association, and EMS agencies.

Transfer Review Committee: This confidential multidisciplinary committee was established as part of the County Patient Transfer Guidelines to review patient transfers between acute care hospitals. The committee members, appointed by the EMS Medical Director include representatives of a number of medical specialties, as well as of the East Bay Hospital Conference, Alameda-Contra Costa Medical Association, Emergency Department Nurses Association, and Emergency Medical Care Committee. The panel meets quarterly with its major objective to review and recommend action on specific patient transfer investigations, as defined in the County Transfer Guidelines.

Multicasualty Advisory Committee (MCAC): This multidisciplinary committee consists of representatives of police, fire, EMS and ambulance providers was originally appointed by the EMS Agency in 1978 to develop an integrated response plan to multicasualty incidents. MCAC has continued to meet on an as-needed basis to review multicasualty response incidents and to provide periodic updates to the Multicasualty Incident Plan.

Helicopter Operations Committee: This committee was established by the EMS Agency as a forum for review of Helicopter issues. The committee meets bi-monthly and consists of representatives from fire, law enforcement, hospitals, ambulance agencies and helicopter providers. These meetings offer an avenue for exchange of information among participants, including provider agency updates, review of procedures for discussion and clarification, operational issues, policies and procedures, equipment and training issues and other items of interest.

First Responder Defibrillation Operations Committee: This committee consists of training representatives of each of the fire first-responder agencies and is charged with reviewing operational matters related to the first responder defibrillation program.

Hospital Disaster Planning Forum: This forum was organized in 1990, as part of the Disaster

Planning Project funded by a grant from the State EMS Authority to provide an opportunity for interested individuals to discuss issues of mutual concern regarding hospital disaster preparedness. The membership of the forum consists of hospital disaster planners, city disaster planning personnel and the EMS Agency. This group meets bi-monthly.

B. PSAP's and Dispatch CentersB. 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
- San Pablo Police Department
- Sheriff's Communications
- Walnut Creek Police Department

Fire/Medical Dispatch Centers:

- Contra Costa County Fire Dispatch
- Richmond Police Dispatch
- San Ramon Valley Fire Dispatch
- Sheriff's Dispatch
- West Bay Dispatch (Pinole Police)

Ambulance Dispatch Centers:

- American Medical Response (formerly Regional Medical Systems)
- San Ramon Valley Fire
- Contra Costa County Fire (Moraga only)

C. First RespondersC. First Responders

County Fire Protection Districts:

- Bethel Island Fire Protection District (3 units)
- Contra Costa County Fire Protection District (25 units)
- Crockett-Carquinez Fire Protection District (3 units)

- East Diablo Fire Protection District (11 units)
- Moraga Fire Protection District (2 units)
- Oakley Fire Protection District (6 units)
- Orinda Fire Protection District (3 units)
- Pinole Fire Protection District (Covered by Pinole Fire Department)
- Riverview Fire Protection District (9 units)
- West County Fire Protection District (2 units)

Municipal Fire Departments:

- El Cerrito Fire Department (2 units)
- Pinole Fire Department (2 units)
- Richmond Fire Department (14 units)

Independent Fire Protection Districts:

- San Ramon Valley Fire Protection District (22 units)
- Kensington Fire Protection District (2 units)
- Rodeo-Hercules Fire Protection District (3 units)

Other First Responders:

- Dougherty Regional Fire Authority (5 units)
- East Bay Regional Parks
- Private & military fire services

Special Paramedic First Responder Programs:

- Moraga Fire - Paramedic Engine
- American Medical Response (Regional) - Byron/Discovery Bay area
- California Highway Patrol - Helicopter Unit

D. Emergency Ambulance ProvidersD. Emergency Ambulance Providers

- American Medical Response
- San Ramon Valley Fire
- Moraga Fire

E. EMS HelicoptersE. EMS Helicopters

Air Ambulances:

- CALSTAR based 24 hours per day at Buchanan Airport with a second helicopter based in Gilroy
- Stanford Life Flight based in Palo Alto
- Davis Life Flight based in Sacramento
- REACH based in Santa Rosa
- Medi-Flight, 2 helicopters based in Modesto

Rescue Aircraft:

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

F. HospitalsF. Hospitals

Base Hospitals:

- John Muir Medical Center
- Mt. Diablo Hospital Medical Center
- Los Medanos Community Hospital (relinquished base hospital designation in 1993)

Trauma Center:

- John Muir Medical Center

Burn Center:

- Brookside Hospital

Receiving Hospitals:

- Brookside Hospital
- Delta Memorial Hospital
- Doctor's Hospital of Pinole
- John Muir Medical Center
- Kaiser Medical Center, Martinez
- Kaiser Medical Center, Richmond
- Kaiser Medical Center, Walnut Creek
- Los Medanos Community Hospital
- Merrithew Memorial Hospital

- Mt. Diablo Hospital Medical Center
- San Ramon Regional Medical Center

IV. EMS Program ActivitiesIV. EMS Program Activities

A. Emergency Ambulance ServicesA. Emergency Ambulance Services

Emergency ambulance services are provided countywide under performance based contracts with the County in each of five exclusive operating areas (**Emergency Response Areas**) designated by the Board of Supervisors. Contracts are awarded on a competitive basis, as required by law, in all areas except ERA 3 which is served by Moraga Fire, which is exempt from competitive bidding under a provision of the Health & Safety Code. ERA's 1, 2, and 5 are served by American Medical Response (formerly Regional Medical Systems). ERA 4 is served by San Ramon Valley Fire. All five ERA's are covered by performance based contracts which 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.

ERA 1	All of west county and central county west of I-680 including cities of Richmond, San Pablo, El Cerrito, Hercules, Pinole, Martinez, Pleasant Hill, Lafayette, Orinda, and a portion of Walnut Creek	**American Medical Response** 7 ALS units 3+ BLS units
ERA 2	Central county east of I-680 including cities of Concord, Clayton, and a portion of Walnut Creek	**American Medical Response** 5 ALS units 2+ BLS units
ERA 3	Area of Moraga Fire Protection District including city of Moraga	**Moraga Fire** 1 ALS unit
ERA 4	Area of San Ramon Valley including cities of Danville and San Ramon	**San Ramon Valley Fire/John Muir Medical Center** 2 ALS units 6 BLS units
ERA 5	All of east county including cities of Pittsburg, Antioch, and Brentwood	**American Medical Response** 4 ALS units 1 BLS unit

January 1992 marked the beginning of the first year for which the Measure H funded enhancements to the County ambulance system were fully implemented. Under Measure H, six additional paramedic ambulance units were added by American Medical Response, bringing their total number of available paramedic ambulances to 16 units. With San Ramon Valley and Moraga Fire, the total number of in-service paramedic ambulance units available in the county was brought up to 19. BLS ambulance units remain available to respond to non-life threatening calls and to provide

backup during multicasualty incidents or during rare occasions when all ALS units are on calls.

During 1992, the EMS system received 40,780 requests for emergency ambulance response. Of these, 33,999 (83.4%) were considered to involve potentially life threatening situations to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining 6,781 (16.6%) ambulance responses were dispatched Code 2 (immediate response without lights and siren). Of the total responses, 37,737 (92.5%) were handled by American Medical Response, 2,492 (6.1%) by San Ramon Valley Fire Protection District ambulance, and 552 (1.4%) by Moraga Fire Protection District ambulance. Average Code 3 ambulance response time countywide was 6.11 minutes. The paramedic staffing standard was met on all but 544 (1.6%) of the 33,999 Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 40,780 emergency ambulance responses during the year, 29,755 (73.0%) resulted in patient transport to an emergency receiving hospital. Ambulances responding to the remaining 11,025 (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 perceived to be a medical emergency had been resolved or stabilized by the time an ambulance unit arrived on the scene.

Emergency Ambulance Responses

	1991		1992	
All EMS Ambulance Responses	39,496	100.0%	40,780	100.0%
Code 3 (lights & siren)	33,110	83.8%	33,997	83.4%
Code 2	6,386	16.2%	6,783	16.9%
American Medical Response	36,691	92.9%	37,737	92.5%
San Ramon Fire	2,330	5.9%	2,491	6.1%
Moraga Fire	475	1.2%	552	1.4%
Transport	29,057	73.6%	29,774	73.0%
No Transport (Dry Run)	10,439	26.4%	11,006	27.0%
Average Code 3 Response Time	6.91 minutes		6.11 minutes	
Code 3 Responses Not Meeting Paramedic Staffing Standard	1,987	6.0%	544	1.6%

B. Base Hospital and Paramedic Service ProgramsB. Base Hospital and Paramedic Service Programs

Base Hospital Services: In 1992, contract negotiations were successfully completed with John Muir Medical Center, Mt. Diablo Medical Center, and Los Medanos Community Hospital, for continued provision of **base hospital services**. The three bases logged a total of 18,339 contacts by prehospital personnel in 1992. Fifteen field care audits (five at each base) were offered as continuing education opportunities for paramedics and base hospital MICNs throughout the year. In addition, 3 base conferences were held in November during which system-wide specialized pediatric advanced life support training was performed. (Note:
In early 1993, Los Medanos Hospital administration requested termination of its base hospital contract with the County. Mt. Diablo Medical Center accepted base hospital responsibility for the east county area.)

EMS for Children: A significant aspect of the ALS program in 1992 was targeted towards developing a program for advanced life support and treatment of pediatric illnesses and injuries in the prehospital setting. Major efforts were made by the Medical Advisory Committee in preparation for the initiation of pediatric treatment guidelines and advanced skills in January of 1993. A literature search was conducted, treatment guidelines were developed, a training program was created, and the County applied to and received permission from the State EMS Authority to add two new skills to the County Paramedic Scope of Practice. Pediatric experts were involved in protocol development as well as training. Three hours of didactic and skills training were conducted for over 160 paramedics, 95 MICNs, and 30 physicians at three sessions in November.

Treatment Protocols: **ALS Field Treatment Guidelines** are used by paramedics, MICNs, and base hospital physicians to provide care to patients in the pre-hospital setting. 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**. In January 1992, the guidelines were converted from a flow-chart based format, to the current linear format. In addition, each guideline was reviewed and modified as appropriate. In November 1992, specialized pediatric treatment guidelines were added. Training and orientation was provided in November and December and the new pediatric treatment guidelines were prepared for implementation in January 1993.

C. First Responder ServicesC. First Responder Services

Because there are many more fire stations than ambulance stations, the responding fire unit usually arrives at the scene of an emergency a few minutes ahead of the ambulance. For this reason, the individuals on the fire response unit are known as the fire first responders. These first responders are trained and equipped to provide medical aid to patients until the ambulance arrives. All fire fighters are trained in first aid and CPR and many are trained and certified as Emergency Medical Technician-I's. In situations involving patient problems such as obstructed airway, severe bleeding,

or cardiac arrest, fire fighters arriving early on the scene may be able to initiate lifesaving measures and achieve some stabilization of the patient before an ambulance arrives. Fire first responders also provide rescue, extrication, and an extra pair of hands to care for patients with particularly complex medical problems.

Early Defibrillation Program: One of the major EMS program enhancements identified in the Measure H Service Plan was the establishment of a **first responder defibrillation program** in the fire services. Early defibrillation is the standard of care for patients in cardiac arrest. The successful resuscitation of patients in ventricular fibrillation is directly related to how quickly defibrillation is provided. As fire first responders are generally the first rescuers on scene, the EMS Agency developed and implemented a First Responder Defibrillation program in which all fire agencies in Contra Costa County participate to assure that this state-of-the-art cardiac care is provided patients countywide. Fire first responders use a **"semi-automatic" defibrillator** which, when applied to the patient's chest, automatically assesses the patient's heart rhythm and instructs the firefighter to shock the patient if he/she is in ventricular fibrillation. A defibrillator is available on each first response fire apparatus routinely used to respond to medical emergencies. Approximately 4 hours of training is necessary to prepare a firefighter to use the defibrillator. Training was completed and the program was available to citizens countywide on March 9, 1992.

A defibrillator was applied to 471 patients in cardiac arrest in 1992. Of those patients, 134 or 29% were assessed by the semi-automatic defibrillator to be in a shockable rhythm and were defibrillated. Thirty two of the 134 patients who received shocks were admitted to the hospital, for a 24% field save rate. Of those 32 patients who were shocked and admitted to the hospital, 21 or 16% of the patients receiving defibrillation were discharged from the hospital.

Paramedic First Responder Programs: Paramedic first responders provide a method for combining early advanced life support care with the generally shorter response times of first responder units. Two types of paramedic first responder service are provided in Contra Costa County.

- The EMS Agency approved the use of an **ALS Engine** in the **Moraga Fire District** in 1988, as a pilot program to provide back up ALS service to the Moraga paramedic ambulance. The ALS Engine is staffed with a minimum of one (1) paramedic and one (1) EMT-1. It is stocked with ALS equipment and supplies, and is dispatched simultaneously with an ALS transport unit. The pilot program was approved for permanent designation in 1992.

- In early 1992, the **EMS Agency, American Medical Response, and East Diablo Fire District** entered into a formal cooperative effort to provide a more timely, cost effective method of delivering ALS to the citizens of the Discovery Bay and Byron areas. This effort resulted in the creation of an **ALS First Responder Paramedic Unit** that was placed into service on May 18, 1992. The effectiveness of this unit during its first six months in operation was evaluated based on several factors including response times, scene management and safety, dispatch zones, field

documentation, communications abilities, quality assurance, training and single rescuer effectiveness. The implementation of this paramedic First Responder Unit has positively changed the manner in which ALS care is delivered to this low call volume area.

Both the Moraga Fire ALS Engine and the American Medical Response First Responder Paramedic Unit operate under base hospital medical control as well as EMS Agency policies and procedures (EMS Policy 33B).

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 address only the medical aspects of the officer's responsibility. As a result of the approval process for these guidelines, new lines of communications have opened up between the EMS community and many of the law enforcement agencies in the County.

D. Dispatch & CommunicationsD. Dispatch & Communications

MEDARS: **Medical Emergency & Disaster Ambulance Radio System (MEDARS)** is the County radio system used for communications between ambulances and hospitals, and between Sheriff's Dispatch and ambulances. Prior to March 1992, the system consisted of only two radio channels, MED 1-2, which provided one channel for communications between Sheriff's Dispatch and ambulances and only one channel for all paramedic and EMT units to use to contact hospitals in the County. Paramedic units use the radio to contact their base hospital to give a patient report and receive treatment orders. With the single channel available for all ambulance/hospital communications, this important communications capability was not always readily available when needed.

In March 1992, two additional channels, MED 3-4, were added to the system bringing the EMS communications system up to the current 4 radio channels, MED 1-4, with three of the channels used exclusively for ambulance/hospital communications, and one channel used exclusively for communications between Sheriff's Dispatch and ambulances. The two new channels are used in the central and eastern parts of the County. They are not available in the western part of the County, due to the possibility of interference with another Bay Area agency assigned to the same frequencies. The two new channels were designated for paramedic use only, to avoid overcrowding and possible communication delays. MED 2 continues to be used by paramedics in the western part of the County, and by EMT units throughout the County.

Message Transmission Network: The **Message Transmission Network (MTN)** is a computer link being designed to interconnect the county's 5 fire/medical dispatch centers and the ambulance

dispatch centers. The system is intended to decrease time and errors in the dispatch process. In 1992, the initial design of the system was established using the existing **All County Criminal Justice Information Network (ACCJIN)**. This design will allow for linkage with police dispatch centers as well. An RFP was issued for bids on detailed design and implementation of the computer link. The anticipated completion date for the first phase of the project is mid 1993.

Priority Dispatching: **Emergency Medical Dispatch (EMD)** is a process of screening calls to provide the appropriate EMS first-responder/ambulance response, and of providing simple emergency medical instructions to the caller to be initiated prior to the arrival of EMS personnel. Contra Costa County Fire Dispatch has been providing limited call screening and pre-arrival instructions for several years. The EMS approved card-based system that County Fire designed and currently uses was re-evaluated in 1992 by representatives of County Fire and a subcommittee of the EMS Medical Advisory Committee. Plans for 1993 include the selection of a computer-based EMD program, and the initiation of emergency medical dispatch at each of the 5 Fire/Ambulance Dispatch Centers in the County.

E. Trauma SystemE. Trauma System

In 1986, the Board of Supervisors approved a comprehensive **Trauma System Plan** for the County. That same year the County designated John Muir Medical Center as a Level II Trauma Center, and on June 30, 1986 trauma triage and transport protocols went into effect directing ambulance personnel to transport critical trauma patients directly to the John Muir Trauma Center. In 1992, 1088 trauma patients were triaged from the field to John Muir Trauma Center. The triage protocols used by ambulance and base personnel identify mechanisms of injury, anatomic factors and a trauma scoring system to assist in the identification of these critical trauma patients. Patients who are in traumatic full arrest or have unmanageable airways (total of 88 in 1992) are triaged to the closest basic emergency department. Procedures are in place to transfer critically injured trauma patients to John Muir who arrive at non-trauma center hospitals through self-transport or under triage from the field. During its first six and one half years of operation, a total of 18,801 patients have been triaged through the county trauma system. These include 7,447 patients transported to John Muir, 400 patients transported to other trauma centers (primarily Children's Hospital, Oakland) and 10,954 patients who were transported to non-trauma center hospitals, refused transport or expired in the field. If trauma center resources are temporarily overwhelmed, the trauma center staff may consider placing the trauma center on temporary "Trauma Center Bypass". In 1992, the John Muir Trauma Center bypass rate was 3% and was most often due to the simultaneous arrival of multiple trauma patients. During episodes of trauma bypass patients may be triaged to out-of-county trauma centers or to non-trauma centers within the County.

The following table identifies trauma patient distribution for 1992.

Trauma Prevention: The EMS Agency supported injury prevention activities in 1992, by participating in the Childhood Injury Prevention Coalition and its subcommittees. EMS has developed and submitted two injury prevention grant proposals through the State EMS Authority (EMSA); one for motor vehicle data collection and integration and the second for firearm surveillance. Additionally, the EMS Agency staff participates in the County's Childhood Death Review Team.

F. Helicopter TransportF. Helicopter Transport

The **Operational Procedures for Patient Transport by Helicopter** were originally developed

during trauma system planning in 1985/86. While available for transport of medical patients, the majority of helicopter transports have been of trauma patients from distant areas of the County to John Muir. The two hospitals within the County with FAA approved helipads are John Muir Medical Center in Walnut Creek and Brookside Hospital in San Pablo. The helipad at Brookside Hospital is often used as a ambulance/helicopter rendezvous point for west county cases where helicopter transport is indicated, but no safe landing site can be identified. The number of transports has steadily increased over the years as has the number of trauma patients. The County standard of care for air transport of emergency patients is by "**air ambulance**" which is staffed with **two ALS level care providers**. A **Helicopter Operations Committee** has been established by the EMS Agency as a forum for exchange of information among helicopter providers and other interested individuals.

G. Hospital Emergency ServicesG. Hospital Emergency Services

Transfer Review Process: Contra Costa County **Patient Transfer Guidelines** were approved by the County Board of Supervisors on February 2, 1988. These guidelines established the procedures necessary for the transfer of patients between acute care facilities. A process for review of interfacility transfers was identified in this document including the formation of the **Transfer Review Panel**, a confidential multidisciplinary committee to oversee the transfer review process. The panel members represent facilities and organizations from throughout the County including major medical specialties. The panel's purpose is to review and make recommendations on patient transfer investigations as outlined in the County Transfer Guidelines. In 1992, a total of 840 transfers were reported to, and reviewed by, the EMS staff. This staff evaluation resulted in indepth review of 14 cases by the EMS Agency staff and the Transfer Review Panel.

Emergency Department Diversion of Ambulances: **Diversion of ambulances** by the emergency departments of acute care receiving facilities in the County is permitted by EMS Policy #36, initially developed and implemented in August, 1985. Under the 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 which is able to provide immediate emergency treatment. The documentation pertaining to all reported incidents of ED ambulance diversion is reviewed by EMS staff. During 1992, there were 7 facilities which utilized diversion a total of 128 times. Overall, the trend for incidents of diversion has decreased over the past two years. There were no reports of problems in patient care resulting from these diversion incidents.

CHORAL: **Computerized Hospital On-line Resource Allocation Link (CHORAL)** is a software system designed to establish a countywide hospital communications network used to track critical care bed availability, primarily during disaster situations. In 1992, in conjunction with the **East Bay Hospital Conference**, the EMS Agency organized a demonstration of the CHORAL system to assist hospital personnel in evaluating the potential benefits of this system. Based on feedback from the Hospital Conference and the participating hospitals, the EMS Agency plans to

develop a proposal for implementing the CHORAL system in hospitals throughout the County in the coming year.

H. Disaster/Multicasualty PlanningH. Disaster/Multicasualty Planning

Disaster Planning Grant: Starting in 1990, the EMS Agency has received grants from the EMS Authority for EMS Disaster Planning. These grants have provided a mechanism for the EMS Agency to enhance the County's EMS disaster preparedness by improving coordination between cities, hospitals, EMS Agency and the State EMS Authority in the event of an earthquake or other major disaster. Initial efforts were toward development of procedures for the rapid assessment of hospital operating status and capacity, and for the communication of that information from hospitals to the County. The Hospital Council of Northern and Central California, East Bay Conference provided several training sessions for hospital personnel with funding from this grant. Plans for 1993 include the development of hospital evacuation procedures and the provision of disaster training exercises for EMS personnel.

Multicasualty Plan: The EMS Agency recognized the need for a coordinated response to multicasualty events by police, fire and ambulance personnel following the Yuba City/Martinez bus accident in 1976. The **Multicasualty Advisory Committee (MCAC)** multidisciplinary committee consisting of representatives of police, fire, EMS and ambulance providers was appointed in 1978 to develop an integrated response plan. The **Multicasualty Incident (MCI) plan** concept was first endorsed by the County Board of Supervisors in 1980 and in June 1982, the first Multicasualty Incident Plan was issued. The Plan establishes a common organization and management structure for the coordination of emergency response to a multicasualty incident. It establishes an efficient and effective emergency medical response to the injured and establishes methods of triage and transportation that will provide for the survival of the greatest number of casualties. The Plan may be implemented whenever the number of *injured* persons may exceed the medical capabilities of the jurisdictional resources. It is implemented by the Incident Commander of any incident whether it be a fire officer, law enforcement officer or ambulance crew member. The plan has been revised two times; in 1987 following the Sun Valley Mall plane crash and again in 1992 at which time hazardous materials response and helicopter response components were added.

In 1992 the **MCI Plan** was implemented four times, each for hazardous materials incidents. The four implementations were: the Rhone-Poulenc response, (June, 1992) involving 11 patients, the PAC-Bell response, (July, 1992) involving 21 patients; the Electro Forming response, (August, 1992) involving 69 patients and the Sun Valley Haz-Mat release, (September, 1992) involving 19 patients.

The Multicasualty Advisory Committee continues to meet on an as-needed basis to review multicasualty response incidents and to provide periodic updates to the Multicasualty Incident Plan.

Medical Advisory Alert: The Medical Advisory Alert is a component of the MCI Plan

developed in 1987, is an advisory "warning" indicating that an event has occurred or a condition exists which *may* tax the medical resources of the affected area and is based upon information received from on-scene personnel or via a public safety agency of jurisdiction. It is implemented by a fire or law enforcement agency, the on-duty ambulance field supervisor or the senior ambulance person on the scene or a base hospital. Additionally it can be initiated by the Health Officer, Sheriff's Dispatch or EMS staff. In 1992, six formal Medical Advisory Alerts were initiated.

Expanded Medical Emergency: The Operational Procedures for Response to an Expanded Medical Emergency were developed for responses to those incidents requiring higher levels of response than is required day to day, but not requiring the full response of support services initiated with the Multicasualty Plan. Its focus is to provide an organizational structure to incidents that have more than one transport unit responding to them. It is designed to avoid overloading one facility with patients and to eliminate multiple calls to the base hospital(s) regarding the same incident. Developed and initiated in 1992, it has been used successfully numerous times throughout the County.

HSD Emergency Management Team: The EMS Agency provides staffing and planning for the Health Services Emergency Management Team. This group, which consists of Health Services Department personnel designated to respond to the County EOC or Medical/Health Operations Center in a disaster, meets monthly for planning and exercises.

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. These supplies were organized into **multi-casualty supply caches** and were placed in fire stations throughout the County. The fire agencies agreed to store and maintain the caches in good condition, as well as to transport the cache(s), when possible, to an incident, when requested, within thirty minutes of that request. In 1992, five additional caches were purchased and placed in fire stations, for a total of twenty five caches. Cache supplies include bandaging equipment, splinting supplies, oxygen administration supplies, blood pressure equipment, etc.

Joint EMS HAZMAT Response Program: The Contra Costa/Solano County Joint EMS Hazardous Material (Hazmat) Response Program, funded by the IT Corporation under consent decree entered it's fifth and final year in 1992. Staffing during this period was a part-time contractor physician Project Director and a full time contractor RN Project Coordinator. Project accomplishments for 1992 include:

- Provision of ongoing training for ambulance personnel in responding to hazardous materials incidents.

- Revision of EMS Policy 51 "Ambulance Response to Hazardous Materials Incidents", and the reformatting of the medical management protocols for type-specific hazardous materials.

- Video taping of the 8 hour First Responder Awareness, EMS Response To Hazardous

Materials Incidents. Tapes provided to ambulance providers to assist in establishing in-house training programs.

- Provision of hazmat training for hospital emergency department personnel.

- Provision of technical assistance to hospitals in developing hazardous materials protocols.

- Organization of hazardous materials response drills for field and hospital personnel.

EMS increased interface with industry by participating as guest member on C.A.E.R. (Community Awareness and Emergency Response) and P.M.A.O. (Petro-Chemical Mutual Aid) thereby encouraging emergency medical response planning by integrating the chemical facility's emergency response plans with those of the local community.

I. Certification ProgramsI. Certification Programs

The EMS Medical Director certifies EMT-Is and paramedics, and authorizes Mobile Intensive Care Nurses to practice in Contra Costa County. The certification process is carried out by the EMS Agency staff.

Paramedics: In 1992 the State EMS Authority implemented a new **State certification** and local accreditation process by which a paramedic is tested by written exam and certified by the State. The State certified paramedic must then become accredited to work by the EMS Medical Director in his/her county of employment. The **local accreditation** process consists mainly of an EMS system orientation and a field evaluation by a paramedic preceptor. Paramedics are required to recertify/reaccredit every two years. Recertification/reaccreditation requirements include participation in continuing education activities, and successful completion of a written exam every four years.

In 1992, 90 paramedics were either accredited or re-accredited by the Contra Costa County EMS Agency to practice as paramedics within the County.

EMT-I's: EMT-I's are certified by the local EMS Medical Director of the county in which he/she was trained. Once an EMT-I is certified by any one of the local EMS Agencies in the State, he/she may function as an EMT-I State-wide.

EMT-I's are currently required to complete a refresher course every two years, prior to recertification. The State EMSA is evaluating alternatives to the refresher course such as continuing education requirements, similar to that required of paramedics. In 1992, 500 EMT-I's were either certified or recertified by the Contra Costa County EMS Agency.

MICN's: MICN authorization requirements are established by the local EMS Agency as an expanded role for Registered Nurses. Although there are no State regulations setting specific

standards for MICN's, county EMS Agencies authorize MICN's to perform the expanded MICN role in base hospitals within the county. In 1992, forty-three Rns were either authorized or re-authorized by the Contra Costa County EMS Agency to practice in the expanded MICN role within Contra Costa County.

Certification Review: Certification review, as defined in State regulations, is a process reserved for the formal investigation of cases where very serious lapses in operational or medical protocol not thought to be amenable to remediation, or cases where there has been a significant deviation from State regulations or county policy standards. Potential problem cases are identified by the provider agency, the base hospital or the EMS Agency. In 1992, certification review was undertaken by the EMS Agency in 11 cases with action taken against the involved individual's certification in 4 of the cases. EMS Policy 50 "Certification Review Process", which describes the procedure to be used if certification review becomes necessary, was amended in 1992 by adding base hospital reporting requirements and procedures.

J. Training programsJ. 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: Contra Costa County has two new paramedic training programs within the County. One is provided through Los Medanos Community College in Pittsburg, and the other by Med-Help, a private training program in Concord. Both paramedic training programs in the County have been approved by the EMS Agency.

- **Los Medanos Community College** began offering its new paramedic training program in 1991. Its second class, with approximately 25 students, started in the fall of 1992, and will complete the training in mid-1993.

- **Med-Help Training School** held its first paramedic training in 1992. Med-Help plans to delay offering further paramedic training classes until a review of the job market in the area can be completed.

EMT-I Training Programs: Los Medanos Community College and Med-Help Training School have offered EMT-I training for many years. Mt. Diablo Adult Education offered EMT-I training as a new program in 1992. The EMT-I courses offered by all three training programs have been approved by the EMS Agency.

- **Los Medanos Community College** offers an EMT training program each fall at their Pittsburg campus. In addition, they offer training through Contra Costa College in San Pablo.

- **Med-Help Training School** offers EMT training programs at their Concord facility. There are no plans to change the program schedules for 1993.

- **Mt. Diablo Adult Education** held their first EMT training program in 1992. They are anticipating starting their second class in early 1993.

MICN Training Programs: Several area training programs have found it necessary to temporarily or permanently discontinue their MICN classes. Los Medanos Community College, which has provided an MICN program for many years, discontinued its MICN training program in 1992 due to budget constraints and relatively low attendance. The only MICN training programs in the area are at Stanford University and UC Davis. Lack of MICN classes makes it much more difficult for interested nurses to obtain this required initial training although there does not appear to be a shortage of MICNs at this time. There are no plans to start a new MICN training program in the County at this time.

K. Public Information Education ProgramsK. 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. Activities included EMS 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). Early access of 9-1-1, as the first step in the **"Chain of Survival",** was a message consistently repeated in most forms of P.I.E. outreach activities during the year. PIE activities for 1992 included the following:

- Revision of the EMS Agency's **9-1-1 Brochure** to include information on how to access CPR training and the importance of accessing 9-1-1 early in an emergency situation. The brochures were distributed through fire districts, local CPR classes, and through special project mailings such as the Drowning Prevention project.

- Initial development of a program to add secondary hang-on signs reading **"SAVE A LIFE--LEARN CPR"** to existing **Adopt-A-Highway** signs at the request of the Contra Costa County Firefighters Union.

- Development and provision of local CPR class information to the San Francisco based **1-800-GIVE-CPR**, a resource which makes local CPR class information available to callers. The 1-800-GIVE CPR number was advertised in the EMS 9-1-1 Brochure, in local public telephone books and in local Bay Area Rapid Transit (BART) stations.

- Initial planning for several additional EMS related public service messages such as paper grocery bag advertisements to promote "Phone First" and "Chain of Survival", as well as posters portraying similar messages.

PIE membership includes representatives of the EMCC, EMS, fire and Ambulance provider agencies, and encourages participation from any interested individuals. The PIE Subcommittee meets bi-monthly or more frequently as-needed.

L. Other ProgramsL. Other Programs

DNR Program: The Do-Not-Resuscitate **(DNR)** program for patients with terminal medical problems was developed in 1992, and was implemented on January 1, 1993. This program evolved in response to concern from community groups, patient advocates, and medical personnel over the patient's right to self-determination. Historically, patients have received treatment to the fullest extent, regardless of their wishes, and discussions regarding the limits of resuscitation were reserved for medical personnel at the receiving hospital. This type of response has been changing in the prehospital setting over the last 2-3 years. Many EMS jurisdictions have established

programs which now allow the patient to forego resuscitation, even if the 9-1-1 system is accessed. The Do-Not-Resuscitate program in Contra Costa County allows patients, in conjunction with their physician, to refuse resuscitative measures in the prehospital setting. The DNR form is physician initiated and 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.

Since the inception of this program, the County EMS Agency has provided over 5000 DNR forms to hospitals, nursing homes, hospices, home health agencies, and private physicians throughout the County. The State EMS Authority is in the process of revising its Prehospital DNR Guidelines. The State EMSA has also developed a standardized DNR form, and will be distributing these documents in 1993. It is the intent of the County EMS Agency to phase in the State form when it becomes available. This new form will allow the patient to have his/her wishes to forego resuscitation followed anywhere in the State.

EMS Newsletter: The "**Emergency Medical Services Newsletter**" is in its third year of publication. The newsletter is printed bimonthly and is used to keep EMS system participants informed about new policies and procedures, upcoming continuing education activities and other EMS related projects and information. Distribution includes all ambulance personnel, base and receiving hospital personnel, fire and police public safety agencies, training institutions, and other interested parties.

V. Statistical ReportsV. Statistical Reports

A. Ambulance Dispatch ReportsA. Ambulance Dispatch Reports

AMBULANCE DISPATCH REPORT - 1992 **Table 1**

NUMBER OF RESPONSES, RESPONSE CODE, RESPONSE LEVEL, AND OUTCOME BY AMBULANCE PROVIDER

Response Code and Outcome	All Providers		Regional Ambulance		San Ramon Valley		Moraga Fire	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Number of Responses	40,780	100.0%	37,737	100.0%	2,491	100.0%	552	100.0%
Response Code								
Code 3	33,997	83.4%	31,379	83.2%	2,066	82.9%	552	100.0%
Code 2	6,783	16.6%	6,358	16.9%	425	17.1%	0	0.0%
Response Level								
ALS (Paramedic) Unit	32,750	80.3%	32,750	86.8%	N.A.	----	N.A.	----
BLS (EMT-1) Unit Only	4,946	12.1%	4,946	13.1%	N.A.	----	N.A.	----
Not Reported	3,084	7.6%	41	0.1%	2,491	100.0%	552	100.0%
Outcome								
Cancelled, Total	11,006	27.0%	9,924	26.3%	882	35.4%	200	36.2%
Transported, Total	29,774	73.0%	27,813	73.7%	1,609	64.6%	352	63.8%
Code 3 Transport	3,391	8.3%	3,202	8.5%	189	7.6%	N.A.	----
Code 2 Transport	25,881	63.5%	24,480	64.9%	1,401	56.2%	N.A.	----
Transport Code Unknown								

	502	**1.2%**	**131**	**0.4%**	**19**	**0.8%**	**352**	**63.8%**

Total	**40,780**	**100.0%**	**6,783**	**16.6%**	**33,997**	**83.4%**	**6.71**	**1.6%**
Richmond	**8,096**	**100.0%**	**1,108**	**13.7%**	**6,988**	**86.3%**	**6.69**	**2.3%**
San Pablo	**1,898**	**100.0%**	**478**	**25.2%**	**1,420**	**74.8%**	**6.30**	**2.0%**
El Cerrito	**1,080**	**100.0%**	**117**	**10.8%**	**963**	**89.2%**	**6.12**	**1.9%**
El Sobrante	**420**	**100.0%**	**66**	**15.7%**	**354**	**84.3%**	**8.05**	**2.5%**
NorthRichmond	**392**	**100.0%**	**41**	**10.5%**	**351**	**89.5%**	**6.51**	**1.4%**
Kensington	**168**	**100.0%**	**17**	**10.1%**	**151**	**89.9%**	**10.09**	**0.7%**
Pinole	**877**	**100.0%**	**123**	**14.0%**	**754**	**86.0%**	**6.05**	**2.7%**
Hercules	**438**	**100.0%**	**107**	**24.4%**	**331**	**75.6%**	**7.83**	**2.4%**
Rodeo	**409**	**100.0%**	**113**	**27.6%**	**296**	**72.4%**	**8.13**	**1.4%**
Crockett	**236**	**100.0%**	**48**	**20.3%**	**188**	**79.7%**	**11.27**	**1.6%**
Concord	**5,998**	**100.0%**	**1,292**	**21.5%**	**4,706**	**78.5%**	**6.57**	**1.0%**
Martinez	**1,615**	**100.0%**	**321**	**19.9%**	**1,294**	**80.1%**	**7.02**	**6.5%**
Pleasant Hill	**1,472**	**100.0%**	**262**	**17.8%**	**1,210**	**82.2%**	**6.65**	**0.7%**
Pacheco	**256**	**100.0%**	**36**	**14.1%**	**220**	**85.9%**	**6.74**	**2.3%**
Clayton	**252**	**100.0%**	**55**	**21.8%**	**197**	**78.2%**	**13.02**	**0.5%**
Clyde	**15**	**100.0%**	**1**	**6.7%**	**14**	**93.3%**	**8.92**	**0.0%**
Walnut Creek	**3,618**	**100.0%**	**533**	**14.7%**	**3,085**	**85.3%**	**6.70**	**0.4%**
Lafayette	**733**	**100.0%**	**127**	**17.3%**	**606**	**82.7%**	**7.01**	**0.5%**
Orinda	**473**	**100.0%**	**120**	**25.4%**	**353**	**74.6%**	**10.04**	**N.A.**
Moraga	**576**	**100.0%**	**38**	**6.6%**	**538**	**93.4%**	**4.30**	**N.A.**
Alamo	**341**	**100.0%**	**103**	**30.2%**	**238**	**69.8%**	**7.63**	**N.A.**
Danville	**1,010**	**100.0%**	**178**	**17.6%**	**832**	**82.4%**	**6.04**	**N.A.**
San Ramon	**1,145**	**100.0%**	**189**	**16.5%**	**956**	**83.5%**	**6.07**	**N.A.**
Antioch	**2,709**	**100.0%**	**249**	**9.2%**	**2,460**	**90.8%**	**5.97**	**1.6%**
Pittsburg	**3,370**	**100.0%**	**602**	**17.9%**	**2,768**	**82.1%**	**5.59**	**0.7%**
West Pittsburg	**1,151**	**100.0%**	**154**	**13.4%**	**997**	**86.6%**	**8.17**	**0.5%**
Oakley	**710**	**100.0%**	**102**	**14.4%**	**608**	**85.6%**	**7.30**	**2.6%**
Bethel Island	**206**	**100.0%**	**42**	**20.4%**	**164**	**79.6%**	**12.11**	**2.4%**

AMBULANCE DISPATCH REPORT - 1992 **Table 3**

Regional Ambulance, San Ramon Valley Fire District, Moraga Fire District

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

Hospital	All Transports		Trauma (Field Triage)		Non - Trauma		Code 3 Transports		Code 2 Transports		Transport Code Unknown	
	Number	Percent	Number	Percent	Number	Percent	Number	Percen	Number	Percent	Number	Percent
Total Transports	29,774	100.0%	2,518	100.0%	27,256	100.0%	3,391	100.0%	25,881	100.0%	502	100.0%
Brookside	5,206	17.5%	368	14.6%	4,838	17.8%	554	16.3%	4,628	17.9%	24	4.8%
Delta	2,319	7.8%	164	6.5%	2,155	7.9%	247	7.3%	2,057	8.0%	15	3.0%
Doctors	1,426	4.8%	79	3.1%	1,347	4.9%	177	5.2%	1,240	4.8%	9	1.8%
John Muir	3,989	13.4%	944	37.5%	3,045	11.2%	908	26.8%	2,898	11.2%	183	36.5%
Kaiser - Martinez	1,575	5.3%	115	4.6%	1,460	5.4%	75	2.2%	1,492	5.8%	8	1.6%
Kaiser - Richmond	1,290	4.3%	0	0.0%	1,290	4.7%	129	3.8%	1,156	4.5%	5	1.0%
Kaiser - Walnut Creek	2,021	6.8%	134	5.3%	1,887	6.9%	189	5.6%	1,735	6.7%	97	19.3%
Los Medanos	2,650	8.9%	158	6.3%	2,492	9.1%	273	8.1%	2,360	9.1%	17	3.4%
Merrithew	3,896	13.1%	59	2.3%	3,837	14.1%	99	2.9%	3,778	14.6%	19	3.8%
Merrithew - RCC	120	0.4%	0	0.0%	120	0.4%	0	0.0%	120	0.5%	0	0.0%
Mount Diablo	3,013	10.1%	151	6.0%	2,862	10.5%	396	11.7%	2,599	10.0%	18	3.6%
San Ramon	892	3.0%	76	3.0%	816	3.0%	134	4.0%	748	2.9%	11	2.2%
Alta Bates	487	1.6%	14	0.6%	473	1.7%	29	0.9%	392	1.5%	66	13.2%
Children's	136	0.5%	56	2.2%	80	0.3%	49	1.5%	84	0.3%	2	0.4%
Eden	8	0.0%	5	0.2%	3	0.0%	5	0.2%	3	0.0%	0	0.0%
Highland	25	0.1%	15	0.6%	10	0.0%	13	0.4%	12	0.1%	0	0.0%

Kaiser - Vallejo	**122**	**0.4%**	**7**	**0.3%**	**115**	**0.4%**	**2**	**0.1%**	**120**	**0.5%**	**0**	**0.0%**
Kaiser - Oakland	**121**	**0.4%**	**0**	**0.0%**	**121**	**0.4%**	**15**	**0.4%**	**105**	**0.4%**	**1**	**0.2%**
Summit	**88**	**0.3%**	**3**	**0.1%**	**85**	**0.3%**	**2**	**0.1%**	**63**	**0.2%**	**23**	**4.6%**
Other/Unknown	**390**	**1.3%**	**195**	**7.7%**	**195**	**0.7%**	**95**	**2.8%**	**291**	**1.1%**	**4**	**0.8%**

B. Trauma System Report**B. Trauma System Report**

Attached are more detailed data sheets noting additional information for the 1992 Trauma System year.

Patients meeting trauma criteria	3554
Patients transported to John Muir Medical Center	1144
Registries completed by John Muir	1019
Patients transported to Children's Hospital/Medical Center	59
Patients transported to other Trauma Centers	19
Number of retrospectively defined Critical Trauma Patients (CTP):	
John Muir	395
Children's	Unknown
Other Trauma Centers	Unknown
Number of Critical Trauma Patients to Non-trauma centers due to trauma center bypass:	4
	Delta/1
	Mt. Diablo/1
	BSH/1
	DHP/1
Number of Critical Trauma Patients to Non-trauma centers / missed triage	30
Number of Critical Trauma Patients to non-Trauma Centers / expired	88
Number of Critical Trauma Patients expired / John Muir	58
Average ratge of Trauma Center Bypass	3 %
Medical Helicopter Patient Transports	289

C. Early Defibrillation Program ReportsC. Early Defibrillation Program Reports

FIRST RESPONDER DEFIBRILLATION PROGRAM

Activity Report

For Year 1992

REPORT PERIOD: 1/1/92 - 12/31/92

NUMBER OF PATIENTS: 471

NUMBER OF PATIENTS SHOCKED: 134

NUMBER OF PATIENTS SHOCKED WHO WERE WITNESSED ARRESTS: 94

NUMBER OF PATIENTS SHOCKED WHO HAD CPR PRIOR TO FIRES ARRIVAL: 54

NUMBER OF PATIENTS SHOCKED WHO WERE FIELD SAVES (ADMITTED TO HOSPITAL): 32

NUMBER OF PATIENTS SHOCKED WHO WERE SAVES (DISCHARGED FROM HOSPITAL): 21

****

29% of the total number of patients had a shockable rhythm

24% of those patients with a shockable rhythm were admitted

16% of those patients with a shockable rhythm were discharged

70% of all patients with a shockable rhythm were witnessed arrests

40% of all patients with a shockable rhythm had CPR prior to fires arrival

FIRST RESPONDER DEFIBRILLATION PROGRAM

Activity Report by Fire Agency

For Year 1992

Fire Agency	Defibrillator Attached	Patient Shocked	Patient Admitted	Patient Discharged
Bethel Island	4	2	0	0
Contra Costa	194	60	16	12
Crockett-Carquinez	5	0	0	0
Dougherty	23	2	0	0
East Diablo	9	2	1	0
El Cerrito	20	7	2	1
Kensington	6	3	0	0
Moraga	0	0	0	0
Oakley	8	2	2	1
Orinda	13	4	0	0
Pinole	15	4	1	1
Richmond	82	23	3	2
Riverview	52	15	4	1
Rodeo	10	2	0	0
San Ramon	28	8	3	3
Total	471	134	32	21

D. Patient Transfer ReportsD. Patient Transfer Reports

PATIENT TRANSFER REVIEW

1992 VIOLATION SUMMARY

Total Cases Reviewed: 840

Indepth review of cases: 14

Facility "E"	1
Facility "J"	2
Facility "O"	1
Facility "D"	1 (no merit)
Facility "I"	2
Facility "N"	4
Facility "S"	1
Facility "C"	2

Violations Cited:	Procedural	Substantive	Non-violation	No Merit
	P = 2	S = 8	N = 3	NM = 1

SENDING FACILITY	CASE TYPE	REASON CITED
"J"	Med Surg	S: Unstable, inadequate evaluation S: Unstable
"O"	Peds	S: Unstable, inapprop. transport mode
"I"	OB Surg	S: Inapprop. transport mode S: Unstable, inapprop. mode
"N"	OB Med	S: Unstable S: Unstable
"S"	Psych/Med	S: No exam, no arrangements
"C"	Surg Psych	P: No arrangements P: No arrangements

PATIENT TRANSFER REVIEW

1991 Violation Summary

Total Cases Reviewed: 846

Indepth review of cases: 29

Facility "E"	3	
Facility "J"	6	
Facility "O"	5	(1 no merit)
Facility "T"	1	
Facility "D"	2	(1 no merit)
Facility "Y"	1	(1 no merit)
Facility "N"	8	
Facility "S"	1	
Facility "X"	1	
Facility "C"	1	

Violations Cited: Procedural Substantive Non-violation No merit

P = 8 S = 14 N = 4 NM = 3

SENDING FACILITY	CASE TYPE	REASON CITED
"E"	Psych Med	P: No arrangements S: Unstable, inadequate evaluation
"J"	Psych/Med OB Peds Psych Med	P: No arrangements S: Inapprop. consult, unstable S: Inadequate eval., missed dx. P: No arrangements S: Inadeq. eval and tx., unstable
"O"	Med Surg Psych Peds	P: Not stabilized S: Unstable S: No exam/eval., no arrangements P: Inapprop. mode, incomplete chart
"T"	Psych/Med	P: Incomplete report/information
"N"	Peds Med Med/Psych Surg Peds Peds Peds	S: No consult obtained, unstable S: Unstable S: Unstable S: Unstable, needed surg. consult P: No arrangements S: Inappropriate mode S: Inappropriate mode
"S"	Surg	S: No exam, no arrangements
"X"	Med	S: No exam, no arrangements
"C"	Med	P: No arrangements, no records

PATIENT TRANSFER REVIEW

1990 Violation Summary

Total Cases Reviewed: 788

Indepth review of cases: 31

Facility "E"	4
Facility "J"	6
Facility "O"	3
Facility "T"	1
Facility "D"	1
Facility "Z"	1 - determined not to be a transfer, but a 911 call.
Facility "N"	10
Facility "S"	1
Facility "X"	4

Violations Cited: Procedural Substantive
P = 4 S = 9

SENDING FACILITY	CASE TYPE	REASON CITED
"E"	5150	S: Parking lot triage, no eval/stabil.
"J"	Neurosurg Surg/Psych Peds	S: Transport mode P: No arrangements P: Transport mode
"D"	Med	S: Unstable, transport mode
"N"	Med Med OB Peds Surg Trauma	S: Transport mode S: Transport mode S: Unstable, transport mode S: Transport mode S: Not adequately stabilized P: Parking lot triage
"X"	Peds Peds	P: No arrangements S: Unstable, transport mode

PATIENT TRANSFER REVIEW

1989 Violation Summary

Total Cases Reviewed: 697

Indepth review of cases: 38

Facility "E" 3
Facility "J" 8
Facility "O" 3
Facility "T" 7
Facility "D" 1
Facility "I" 1
Facility "N" 11
Facility "S" 1
Facility "X" 3

*Violations Cited:	Procedural	Substantive
	P = 11	S = 10

*Differentiation between procedural and substantive violations was begun in 1989

SENDING FACILITY	CASE TYPE	REASON CITED
"E"	Med	P: No update after added tx.
"J"	Ortho Peds Trauma Surg	S: No consult/inadeq. tx & stabilization S: Mode of transport P: Insufficient info to rec. facility P: Inadequate info/update
"O"	Med Trauma	S: Unstable S: Inadequate tx, no arrangements
"T"	Surg/Trauma OB 5150 In-pt. 5150 In-pt. 5150	S: Inadequate stabilization/tx. P: Improper arrangements P: No records, no arrangements P: No arrangements P: No arrangements
"D"	OB	P: No arrangements
"I"	Trauma	S: Inadequate stabilization
"N"	Med/OD Neuro Surg Trauma Trauma Trauma	P: Transport mode P: Transport mode, incomplete records S: Unstable S: Unstable S: No surgical backup S: Not eval/stabilized, no arrangements
"X"	Trauma	P: Incomplete records

PATIENT TRANSFER REVIEW

1988 Violation Summary

Total Cases Reviewed: 535

Indepth review of cases: 47

Facility "E"	11
Facility "J"	6
Facility "O"	1
Facility "Y"	2
Facility "D"	5
Facility "I"	4
Facility "N"	13
Facility "S"	1
Facility "X"	4

**Violations Cited: 12

**(At this time there was no differentiation between what is currently considered either procedural or substantive violations)

SENDING FACILITY	CASE TYPE	REASON CITED
"E"	Psych Surg 5150	No MD contact/arrangements Unstable transfer No arrangements
"J"	5150/OD	Parking lot triage
"O"	5150	No evaluation/arrangements
"Y"	Surg	Inadequate records sent
"D"	OB	Inadequate evaluation
"I"	Med/Psych Neurosurg Med	No records/arrangements Inapprop. mode transport Parking lot triage
"N"	5150	No arrangements
"X"	Ortho	Inadequate eval/stabilization

E. Emergency Department Diversion ReportsE. Emergency Department Diversion Reports

EMERGENCY DEPARTMENT DIVERSION (BY-PASS)

Totals For the Year of 1992

HOSPITAL	NUMBER OF INCIDENTS	TOTAL TIME	PERCENT	AVERAGE
Brookside	74	164 hr 39 min	1.9%	2 hr 14 min
Delta Memorial	2	1 hr 10 min	< 1%	35 min
Doctors', Pinole	0			
John Muir	0			
Kaiser, Martinez	1	3 hr 45 min	< 1%	3hr 45 min
Kaiser, Richmond	0			
Kaiser, Walnut Creek	0			
Los Medanos	12	23 hr 52 min	< 1%	1 hr 59 min
Merrithew Memorial	37	104 hr 16 min	1.2%	2 hr 49 min
Mt Diablo	2	6 hr 3 min	< 1%	3 hr 2 min
San Ramon Regional	0			

EMERGENCY DEPARTMENT DIVERSION (BY-PASS)

Totals For the Year of 1991

HOSPITAL	NUMBER OF INCIDENTS	TOTAL TIME	PERCENT	AVERAGE
Brookside	103	228 hr 26 min	2.6%	1 hr 13 min
Delta Memorial	7	7hr 17 min	< 1%	1 hr 2 min
Doctors', Pinole	3	2 hr 45 min	< 1%	55 min
John Muir	0			
Kaiser, Martinez	0			
Kaiser, Richmond	0			
Kaiser, Walnut Creek	0			
Los Medanos	13	22 hr 31 min	< 1%	1 hr 44 min
Merrithew Memorial	4	6 hr 30 min	< 1%	1 hr 37 min
Mt Diablo	8	4 hr 9 min	< 1%	5 hr 38 min
San Ramon Regional	1	3 hr 40 min	< 1%	3 hr 40 min

EMERGENCY DEPARTMENT DIVERSION (BY-PASS)

Totals For the Year of 1990

HOSPITAL	NUMBER OF INCIDENTS	TOTAL TIME	PERCENT	AVERAGE
Brookside	149	314 hr 21 min	3.6%	2 hr 6 min
Delta Memorial	4	5 hr 10 min	< 1%	1 hr 18 min
Doctors', Pinole	1	0 hr 10 min	< 1%	10 min
John Muir	0			
Kaiser, Martinez	0			
Kaiser, Richmond	0			
Kaiser, Walnut Creek	0			
Los Medanos	23	60 hr 33 min	< 1%	7 hr 6 min
Merrithew Memorial	0			
Mt Diablo	2	unknown[1]	unk[1]	unk[1]
San Ramon Regional	0			

[1]Times not available.

pg 2

F. Base Hospital Contact Report F. Base Hospital Contact Report

BASE HOSPITAL CONTACT REPORT

John Muir, Mt. Diablo and Los Medanos Hospitals
For Year 1992

CONTACTS	John Muir	Mt. Diablo	Los Medanos
TOTAL BASE CONTACTS	11,047	3,473	3,811
ALS Care Provided	8,792	3,152	3,366
ALS Care Not Provided	2,255	321	445

BASE CONTACTS - CARDIAC ARREST

CARDIAC ARREST	John Muir	Mt. Diablo	Los Medanos
TOTAL CARDIAC ARREST	670	205	112
Cardiac - Medical	506	173	87
Cardiac - Trauma	47	6	2
Cardiac - Pronounced at Scene	117	26	23

VI. EMS Agency Organizational ChartVI. EMS Agency Organizational Chart

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VII. Glossary of EMS Terms

Advanced Cardiac Life Support (ACLS): An advanced level certification provided by the American Heart Association generally required for paramedics, emergency nurses and emergency physicians.

Advanced Life Support: 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, administration of specified drugs and other medicinal preparations, 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.

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.

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 has been trained to issue advice and instructions to prehospital emergency medical care personnel consistent with statewide guidelines.

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.

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.

Casualty Collection Point (CCP): A treatment area that can be activated to provide care for patients in a disaster until they can be evacuated to a medical facility.

Code 2: Used by EMS systems to refer to an immediate ambulance response to a potentially urgent but non-life threatening incident without the use of red lights and sirens and adhering to all requirements of the vehicle code (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 established to assist dispatchers in carrying out dispatching functions.

County Service Area (CSA) EM-1: Special benefit assessment district established by the Board of Supervisors to fund EMS enhancements.

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 which require judgement 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: A coordinating center for the efficient management of all participating emergency resources within a designated area of responsibility. The center dispatches 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 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 Care Committee (EMCC): A county committee consisting of membership appointed by the Board of Supervisors charged with reviewing the following EMS services within the county: ambulance services; emergency medical care, including large scale CPR and first aid training; and first aid practices.

Emergency Medical Services Authority (EMSA): The State EMS organization which 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 arrangement which 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.

First Responder: The first EMS rescuer to arrive on the scene of a medical emergency; generally a fire unit.

Health & Safety Code: The division of State legislation that includes Division 2.5 EMS Statutes.

Health Services Department: A department of county government responsible for health related issues. The Contra Costa County Health Services Department, which includes the Emergency Medical Services Agency, has been designated by the local Board of Supervisors as the "Local EMS Agency", and the County Health Officer as the "EMS Medical Director".

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.

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.

Measure H Oversight Committee: A committee established to make recommendations to the Health Services Director with regards to the planning and monitoring of the County Service Area CSA-EM1 including budget matters.

Medical Advisory Committee (MAC): A committee which was established by, and makes recommendations to, the EMS Director with regards to the medical components of the EMS system. Local medical treatment protocols and policies are generally recommended or approved by MAC. Membership consists of representatives of the base hospitals, receiving hospitals, paramedics, and EMS staff.

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.

Multicasualty Incident (MCI): An emergency incident involving any number of injured persons which over-taxes the rescue and medical resources of the responsible agencies within an area of the County.

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 which 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: The method used by ambulance personnel to determine whether an injured patient needs the specialized services of a trauma center. The method takes into consideration the mechanism of injury, obvious injuries and other information obtained in a brief patient exam.

Triage: A continuous process of sorting accident victims according to the severity of their injuries. Necessary when the number of victims exceeds the number of rescuers or resources available.

VIII. List of Documents Available From the EMS AgencyVIII. List of Documents Available From the EMS Agency

EMS System Plan, 1985

Trauma System Plan, 1986

Patient Transfer Guidelines, 1987

Paramedic Manual, 6/93

Multicasualty Incident (MCI) Plan, 1/92

County Service Area EM-I Proposal and Service Plan

Emergency Medical Guidelines for Law Enforcement Agencies, 1992

Request for Proposal for Trauma Center Designation, 1992

Request for Proposal for Emergency Ambulance Services, 1990

Multicasualty Cache Supplies and Locations

EMS Policies:

# 1	Communicable Disease Exposure (revised 1/1/93)
# 2	Ambulance-to-Hospital Radio Communications (revised 3/92)
# 3	Patient Destination Transport Code Determination (revised 3/92)
# 4	Combined Response With Alameda County-Based Units (1/1/93)
# 5	Drug Errors - Paramedics (revised 1/1/93)
# 6	Disrupted Communications (revised 7/1/93)
# 7	County Paramedic Evaluator (revised 7/1/92)
# 8	Hospice Agreements on Non-Emergency Ambulance Transport (rev.1/1/93)
# 9	Radio Channel Use For Field-To-Hospital Communications (revised 3/92)
#10	BLS Ambulance Management Of Emergency Scenes (6/1/92)
#11	EMT-1 Certification Process (revised 1/1/93)
#12	Fee Structure For EMT-1, EMT-P, AND MICN Certification (revised 1/1/93)
#13	Do Not Resuscitate (1/1/93)
#14	Patient Refusal of Emergency Medical Care/Ambulance Transport (revised 3/92)
#15	Endotracheal Intubation Certification (revised 1/1/93)
#16A	Paramedic Certification (revised 3/92)
#16B	Paramedic Accreditation (revised 4/1/93)
#17	Paramedic Team Splitting For Transport (revised 9/15/89)
#18	Pulse Oximetry (7/13/92)
#19	Guidelines for "Load & Go" Transport (revised 1/1/93)
#20	Paramedic Student Preceptor Program (7/1/93)
#21	
#22	
#23	
#24	MICN (Authorized Registered Nurse) (revised 1/1/93)
#25	
#26	Controlled Substances - Initial Inventory Procurement, etc. (revised 3/87)
#27	Elder Abuse Reporting (EMT-1 AND EMT-P) (revised 1/1/93)
#28	Paramedic Base Hospital Communications on ALS Calls (revised 3/19/93)
#29	Guidelines for the Utilization of EMT-1 & Paramedic Ambulances for Secondary Interfacility Transfers of Patients (revised 1/1/93)
#30	

#31
#32 Physician on Scene (4/1/84)
#33 Paramedic First Responder Units (revised 9/1/92)
#34 First-In Assistance on Code III Transports (5/1/85)
#35 Determination of Death in the Prehospital Setting (revised 3/19/93)
#36 Emergency Department Diversion (revised 3/91)
Addendum - Emergency Department ByPass Notification
#37
#38
#39
#40 EMT/EMT-P Administration of Oral Glucose Solution (revised 7/91)
#41 Physician Consultant Criteria For ALS Calls (5/15/92)
#42 BLS Transport Following ALS/BLS Tiered Response (revised 5/92)
#43
#44
#45
#46 Critical Trauma Patients (revised 1/1/93)
#47 Transfer of Critical Trauma Patients to Trauma Center (rev. 3/92)
#48
#49 Immediate Medical Control & Direction of EMT-P (revised 1/1/93)
#50 EMS Personnel Certification Review Process Guidelines (revised 3/92)
#51 Ambulance Response to Hazardous Material Spills (revised 3/92)
#52 Child Abuse Reporting — EMT-I and Paramedic (revised 1/1/93)
#53 1st Responder Defibrillation - Standards, Policies & Procedures (A thru H) (revised 1/1/93)