EMS AGENCY: **Alameda County EMS**

CONTACT(S):   Cindy Abbissinio, EMS Director
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                                                   Phone: (510) 618-2020
                                                   FAX: (510) 618-2099
                                                   cabbissi@co.alameda.ca.us

OVERVIEW: The Alameda County EMS Trauma Registry contains approximately 400 data points. It contains data from patient care reports from the three Alameda County trauma centers; Children's Hospital, Eden Medical Center, and Highland Hospital. The registry includes e-codes, injury details, ISS, DX, TX, procedures, length of stay, complications, phase specific information (ED, ICU, etc.), and ICD-9 codes. The registry data is used to analyze and generate reports on care of trauma patients from the field through discharge from the hospitals.

EMS has begun implementation of data collection of medical incidents from dispatch, to first responder, transport, receiving hospital, and patient outcomes. We are currently working with eighteen Alameda County agencies in collection of fifteen first responder data points.

HOW DEVELOPED (IN-HOUSE, PROPRIETARY, FUNDING SOURCE): Project development and implementation managed by EMS staff in coordination with a contract with Lancet Technology and funded through the trauma system.

DATE IMPLEMENTED: August 1991

DATE LAST UPDATED: Monthly

DATA COLLECTION METHOD(S): Information from the PCR's (patient care reports), and the patient charts is abstracted and input at the trauma centers. We receive monthly exports of data from each of the trauma centers. Scene death information is received from the hospitals and inputted into our trauma registry on a monthly basis.

DATABASE PLATFORM: Sequel Server

SOFTWARE TYPE: Database by Lancet Technology

VENDOR NAME: Lancet Technology

LINKED DATABASE (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER): None

DATABASE UTILIZATION: To track trauma care, quality assurance, injury prevention in Alameda County.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL: Alameda County EMS is currently implementing an integrated, comprehensive data management system, which will allow us to participate in the state aggregate data collection process. System should be partially functional by January 2003.

STRENGTHS OF SYSTEM: The trauma registry is user friendly and flexible. Data points are easily added or changed, and reports can be generated to include any data point.

WEAKNESS(ES) OF SYSTEM: It only includes trauma patients. We have no database for the majority of patients who access the 911-system in Alameda County.

VALUABLE DATA SYSTEM EXPERIENCES: We participated in the evaluation of two trauma registries in 1991 in order to compare and assess the capabilities of BATR and Trauma One. After the evaluation was made and Trauma One was chosen, Lancet customized Trauma One and converted our old data.

OTHER DATA APPLICATIONS: Microsoft Access – Certifications, Unusual Occurrences, EMT-I Personnel, and Receiving Hospital Diversions

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): Microsoft Word 2000

COMMENTS/SUGGESTIONS:

EMS AGENCY: **Marin County EMS**

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                                                                Phone: (415) 449-6871
                                                                FAX: (415) 499-3747
                                                                tpeterson@co.marin.ca.us

OVERVIEW: The Marin County EMS Agency has collected prehospital care information electronically since 1987. With this system:

Users enter and print prehospital care records at receiving hospitals, provider agencies, and the EMS office.

Data is merged into and retrieved from the SQL Server from remote locations using Dial-Up networking. The server has multiple modems, permitting simultaneous access.

Receiving hospitals retrieve data for ALS calls if the patient was delivered to them. A comparison of the treatment guideline (protocol) used is made against the emergency department outcome to determine if appropriate treatment was given by the paramedics. This information is then sent back to EMS where it is available for retrieval by the provider agency.

Provider agencies use the receiving hospital comparison of treatment guideline to ED outcome as a major component in their CQI program,

Several commercial billing agencies retrieve patient care data from the SQL server to assist in preparing insurance/ patient billing.

HOW DEVELOPED: This system was developed in-house using input from local provider agencies and paramedics. State funding was not used in its development and the County holds a copyright on the program.

DATE IMPLEMENTED: 1987

DATE LAST UPDATED: January 2002

DATA COLLECTION METHOD(S):
? Prehospital care data is entered into data collection forms on desktop PCs then merged into the EMS SQL Server database via dial-up networking.
? Hand-held PDAs can also be used (hot-synched into the PC or beamed directly to a printer)
? 911 dispatch data is downloaded from the County CAD and merged into then EMS SQL Server.

DATABASE PLATFORM:
Marin County EMS uses a Client/ Server system - a relational database for the front-end and an SQL Server for the back-end.

SOFTWARE TYPE: Relational Database: Access 97, SQL Server: SQL Server 7.0

VENDOR NAME: Microsoft

LINKED DATABASE?: Prehospital, 911 Dispatch, ED Outcome, Trauma

DATABASE UTILIZATION:
? Collect patient care data
? Print readable patient care record
? Create ad hoc and recurring reports
? Print monthly vehicle dispatch reports, to include provider contract compliance.
? Helicopter transport review
? Provide billing agencies patient care data
? Create monthly detailed general and treatment guideline audits
? Assess improvements in patient care
? Continuing education tracking
? Assist providers in doing their CQI

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL: N/A

STRENGTHS OF SYSTEM:
? Software provided at no cost to any EMS agency desiring a state of the art prehospital patient care system
? System voluntarily adopted by all prehospital care providers and hospitals in the county.
? Ease of use requiring short in-service training time.
? Wide-area networking (WAN) permits extensive security provided by NT and SQL Servers and removes the need to transfer data files via diskette or modem.
? Providers and paramedics can perform their patient care CQI electronically.

WEAKNESS(ES) OF SYSTEM: Requires some in-house technical support to maintain system. Requires knowledge of Microsoft Access 97 and SQL Server 7.0. This is not a weakness of the system, rather the reality of maintaining a good prehospital patient care system.

VALUABLE DATA SYSTEM EXPERIENCES: The capabilities and performance of the system greatly improved when we moved from a stand-alone PC relational system to a Client-Server system using Access 97 as the front end and SQL Server 7.0 as the back end.

OTHER DATA APPLICATIONS: Paramedic, MICN, and EMT-I accreditation/ certification/ authorization and continuing education tracking

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): Microsoft Word 97

COMMENTS/SUGGESTIONS:
? Do not expect a working prehospital care database system to be maintenance free.
? To provide a continuous user-friendly service, the system requires the availability of someone who can address user-issues as they arise and can modify the system as needed. This system is essentially updated each January, with minor modifications in July.
? Equipment (PCs and printers) must be maintained, updated, and replaced as necessary.
? This system is also being used by:
    ? Nor-Cal Regional EMS, Inc. (Butte, Colusa, Glenn, Lassen, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity counties)
    ? Coastal Valleys Regional EMS (Mendocino, Napa, Sonoma counties)
    ? North Coast Regional EMS (Del Norte, Humboldt, Lake counties)
    ? State of Oregon (implementing in the near future)

EMS AGENCY:	**Merced County EMS**
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	FAX: (209) 381-1259
	cbaucom@co.merced.ca.us

OVERVIEW: The current system is quite dated, and still requires manual entry. We will be updating the PCR system during 2002 and changing over to a Palm Pilot entry system with data stored in a MS Access format.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE)
Developed in-house in 1993 with local funds.

DATE IMPLEMENTED: September, 1993

DATE LAST UPDATED: January, 2002

DATA COLLECTION METHOD(S): Patient care reports are collected on paper forms, and then entered into the database by the provider. The Agency then receives updates via CD-ROM.

DATABASE PLATFORM: MS Access 2000

SOFTWARE TYPE: Windows

VENDOR NAME: None

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER) Linked to Dispatch CAD and Receiving hospital ED records only.

DATABASE UTILIZATION: Statistical analysis, treatment trending, QI/QA.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: Ease of use, user-friendly interface.

WEAKNESS(ES) OF SYSTEM: Still dependent on manual entry, database is always 30 – 90 days behind real-time.

VALUABLE DATA SYSTEM EXPERIENCES: Enabled us to evaluate the appropriateness of CHP 1183 responses (MVC with no details). Changed the dispatching of local CHP office to include these responses.

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other):
MS Word 2000

COMMENTS/SUGGESTIONS: Local provider is in the process of implementing a Palm Pilot-based PCR entry program, and we will be completely revamping the database to allow us to directly import PCR data via T1 line through the County network.

2002 MIS RESOURCE GUIDE

EMS AGENCY:	**Monterey County EMS**
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	leventonc@co.monterey.ca.us

OVERVIEW: Paper PCR and Hospital Outcome Reports are hand-keyed into a computer database, which can then be linked to ambulance CAD data. Paper "First Responder Records" are hand-keyed into a separate database, which has not yet been linked to any of the above information.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE) In-house.

DATE IMPLEMENTED: Gradually over a ten-year period.

DATE LAST UPDATED: 1998

DATA COLLECTION METHOD(S): See above.

DATABASE PLATFORM: Q&A, dBASE

SOFTWARE TYPE:

VENDOR NAME:

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER)   PCR, Hospital Outcome Reports, CAD data.

DATABASE UTILIZATION: Regular (monthly) reports to EMS-system participants and ad hoc reports as necessary.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: We have information from dispatch through discharge on most patients.

WEAKNESS(ES) OF SYSTEM: Not all of the fields on the written records are transcribed into the database.

VALUABLE DATA SYSTEM EXPERIENCES:

California EMS Authority   Local EMS Agency
Surveys
MIS Resource Guide

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION (**WordPerfect, Word, Other**):
We use both MS Word and WordPerfect.

COMMENTS/SUGGESTIONS:

EMS AGENCY:	**Mountain-Valley EMS**

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ANDRIESE@AOL.COM

OVERVIEW: Using "EMS Data Pro Version 6.25"

HOW DEVELOPED:(IN-HOUSE, PROPRIETARY, FUNDING SOURCE)
In-house, funded by block grant and county funds.

DATE IMPLEMENTED: February 2, 1992

DATE LAST UPDATED: January, 2002

DATA COLLECTION METHOD(S): Keyboard entry, and electronic imports.

DATABASE PLATFORM: *Visual FoxPro 6.0*

SOFTWARE TYPE: Data Pro

VENDOR NAME: CompuCounsel

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER) Prehospital, hospital, CAD.

DATABASE UTILIZATION: Used for contract compliance evaluation, EMS system evaluation, policy and protocol development.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: Strong linkage capability, intuitive interface, strong report generation. Links between name/address/certification info and PCR database.

WEAKNESS(ES) OF SYSTEM: Lacks trend reports, user definable fields. Lacks procedure reports to cross with medication administration.

VALUABLE DATA SYSTEM EXPERIENCES: PLEASE GIVE A BRIEF DESCRIPTION. Experienced Data System Hard Drive Failiure. Revised, implemented and deployed Hard Disc Mirroring system for fault tolerance

OTHER DATA APPLICATIONS: Utilities for utilizing ICD.9 to calculate ISS, probability of survival.

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): Corel WordPerfect 8 and Microsoft Word 2000

COMMENTS/ SUGGESTIONS: Implementation of revised standardized data set, and the state data base collection and reporting system.

EMS AGENCY: **Orange County EMS**

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                                          disbell@hca.co.orange.ca.us

OVERVIEW: The Orange County EMS Agency implemented the management information system in July of 1984. Revelation (TM) was the database platform. In 1990, the agency converted to DataEase (TM). This was developed in-house with consultants. It utilizes the standardized forms, including a Patient Care Record (PCR), and Base Hospital Report (BHR). Trauma data is taken from the Trauma Registry form. In 1998, OCEMS began a feasibility study to evaluate alternative database system. In 1999, Lancet Technologies (TM) was selected and OCEMS began the process to replace DataEase (TM).

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE) In-house through public funds.

DATE IMPLEMENTED: July 1, 2000

DATE LAST UPDATED: November 2001

DATA COLLECTION METHOD(S): Standardized forms (NCR) - Prehospital Care Report, Base Hospital Report, Trauma Registry, Hospital Transport Data Discharge.

DATABASE PLATFORM: Windows/Windows NT OS & FoxPro Database

SOFTWARE TYPE: EMS Central (relational database customized from Fire One and Trauma One applications)

VENDOR NAME: Lancet Technologies, Inc.

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER) Yes, Trauma Data, Base Hospital Data, Hospital Discharge Data, Certification Data.

DATABASE UTILIZATION: The three trauma centers in Orange County use Trauma One from Lancet Technologies for several years. Since the conversion to EMS Central by Lancet, all Base Hospital and Trauma Centers now utilize the Lancet application. Hospital discharge data will still be manually keyed into the system until all Paramedic Receiving Centers begin reporting their data in an electronic format that can be used by the new system at EMS. This data can also be sent via e-mail or in diskette format.

Current Reports:

1. Air Ambulance Reports - to monitor the AA incidents and AA Prehospital patient care.
2. Autopsy Report - to identify trauma related deaths that went to a non-trauma PRC and evaluate the appropriateness of transport to the PRC.
3. Base Hospital Report - completed by the MICN at base with both hard copy and diskette sent to EMS.
4. Bypass Report - reports from all PCR's documenting the requested downtime and bypasses (alse using ReddiNet for bypass activity monitoring and reporting).
5. ETI Reports - Endotracheal Intubation/ Airway Management reports from the base hospitals documenting total attempts, number of successful ETI's, # of unsuccessful ETI's, # of candidates.
6. Hospital Discharge Data Summary - Outcome data from PRC ED departments.
7. Prehospital Care Report - field records for ALS patients sent by the PRC's.
8. Trauma Registry - from Trauma Center coordinators.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: One system used by Base Hospital, Trauma Centers, and EMS providing consistency among users. Ad Hoc reporting very flexible and exports to Windows applications easily. Open ended system allowing interfaces with other platforms and applications.

WEAKNESS(ES) OF SYSTEM: Customization of application results in many operational issues such as system crashes and unknown errors. Length of time for conversion from old data system to new data system was much longer than anticipated.

VALUABLE DATA SYSTEM EXPERIENCES:

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other):
Word 95 & 97, Office 98.

COMMENTS/SUGGESTIONS:

EMS AGENCY: **San Diego County EMS**

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                                                     Emergency Medical Services
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                                                     gjones@co.san-diego.ca.us

OVERVIEW: San Diego County's Emergency Medical Services agency began implementation of the automated information system in 1984 with the computerized trauma registry and Medical Examiner's report, and the optically scanned prehospital patient record (PPR). The Quality Assurance Network (QANet) wide area network (WAN) was implemented in 1994. This network electronically links base hospitals, receiving hospitals, prehospital providers (EMTs and paramedics) and County EMS through either hard wires (56K lines) or modems. Transition to a complete electronic format with data initially entered into one database is in process. Currently there are linkages between the multiple databases so that the data can be compiled for analysis and reporting.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE)
In-house through public funds.

DATE IMPLEMENTED: Initially 1984, QANet in 1994

DATE LAST UPDATED: QANet **-** September, 2001; Trauma Registry – January, 2000;

DATA COLLECTION METHOD(S): Hand entered "bubble" format PPR which is then optically scanned to Paradox Windows; PC entry (either point of contact or retrospective chart abstraction) of trauma registry at trauma centers into one of two registry products, then exported to a database at the EMS agency; import of Medical Examiner's data into Access; PC entry by prehospital personnel into the QANet (Paradox) at hospital/provider agency, or PDA collection of data at point of contact, downloaded to server at agency then transferred and entered into QA Net.

DATABASE PLATFORM: PC based Borland C, Delphi & Paradox

SOFTWARE TYPE:

VENDOR NAME:

LINKED DATABASES: Dispatch, prehospital (PPR), emergency departments (ED), Medical Examiner (ME), emergency medical technician/paramedic/ mobile intensive care nurse (EMT /PARAMEDIC/MICN) certification/accreditation/authorization databases are all linked via the QANet.

DATABASE UTILIZATION: The databases are utilized for continuous quality improvement, research, injury surveillance, system design, education, contract monitoring, policy and protocol development, and certification tracking.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: The strength of the system is that the QANet is a live, true-time data collection system to which all participants have access both for inputting data and retrieving their individual data.

WEAKNESS(ES) OF SYSTEM: The weakness is that the legacy trauma registry, ME and scanned PPR systems have yet to be integrated into the QANet , and the QA Net is outdated and sluggish. A new, technologically current system is planned for 2002.

VALUABLE DATA SYSTEM EXPERIENCES: Electronic Data Transmission: In 1994 San Diego County EMS began implementing electronic prehospital patient records through the QANet. With 8 base hospitals and over 30 agencies providing ALS and BLS care and responding to approximately 250,000 calls per year, this has been a monumental task. The biggest benefit of this system has been the availability of "real time" data for monitoring quality assurance.

Database Linkage: San Diego County EMS, working with the California Highway Patrol, completed a linkage between the Statewide Integrated Traffic Records System (SWITRS) data; prehospital, and ME patient data; and GIS software to create detailed records for motor vehicle injury crash investigation. This Traffic Related Injury GIS Database contains geocoded traffic records of every injury crash that occurs within the County. Data points include crash details, violations, precedent events, site description and location, victim demographics and nature and severity of injuries.

Surveillance: San Diego County EMS is utilizing data currently collected by prehospital providers and the Trauma System to identify populations at risk and to monitor changes in incidence and rates in these populations. Additionally, the Traffic Related Injury GIS Database allows EMS to create maps of injury crashes by any specific data element or combination of elements such as pedestrian injuries occurring to school age children on weekdays between 2:00 and 5:00pm. The location of schools, parks and playgrounds can then be layered to determine the geographic significance of these locations. Because this system also incorporates satellite photography, an ortho photo image of the location can

be created. The ortho photos have a resolution that allows one to view detail such as crosswalks, signage and obstructions.

Research and Evaluation: San Diego County EMS is currently involved in several research projects which include developing research methodology and protocols, designing data collection tools, collecting data, and evaluating and performing statistical analyses on results.

OTHER DATA APPLICATIONS: PARADOX APPLICATIONS: EMS Electronic Bulletin Board on QANet, Prehospital Audit Committee Reports (PAC), Sexual Assault Response Tracking System (SART).

GIS: ArcView 3.2

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): MSWord 2000

COMMENTS/SUGGESTIONS:

EMS AGENCY:	**San Joaquin County EMS**
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OVERVIEW:
Remote Area Network (Dial in process) to obtain data from providers. Data stored at EMS Agency on server. Data collection system developed under grant objectives

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE)
Developed pursuant to EMSA Grant in early '90s.

DATE IMPLEMENTED:
Initial grant obtained in 92-93?

DATE LAST UPDATED:
Latest update to software and collection methods occurred in 2001.

DATA COLLECTION METHOD(S):
Data collected from providers by both manual entry of patient care information and by electronic input from computerized recording process.

DATABASE PLATFORM: PC

SOFTWARE TYPE: Database

VENDOR NAME: Microsoft FoxPro

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER)
Currently collecting prehospital and receiving hospital information. Working on dispatch (CAD) data.

DATABASE UTILIZATION: (Don't understand this question)???

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: Assuming detailed information is obtained from providers, that same detailed information can be tabulated and reported.

WEAKNESS(ES) OF SYSTEM: For us, presently uses dial-in system that presents security issues for our LAN/WAN. Trying to revise system to more secure (while still reliable) process.

VALUABLE DATA SYSTEM EXPERIENCES:

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION **(WordPerfect, Word, Other):** Office standard is Windows 98SE, Office 97 Professional Edition (Word 97).

COMMENTS/SUGGESTIONS:

EMS AGENCY: **San Luis Obispo EMS**

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                                                       Phone: (805) 564-8728
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                                                       SLOEMSA@FIX.NET

OVERVIEW: Both San Luis Obispo County paramedic ambulance providers, the California Highway Patrol paramedic helicopter and two of the five paramedic fire departments, are participating in a pilot project originally designed to link patient care date collected by prehospital personnel with treatment and outcome data provided by receiving Emergency Departments. Originally, two different electronic data collection systems were used. The first to be implemented utilized customized EMS reporting software furnished by Digital Objectives running on the Newton Pen-based PDA. The second system was designed specifically for this project by AMBPAC, originally using laptop computers to collect detailed patient assessment and treatment information. Both system permitted printing reports at the emergency departments on prehospital assessment and treatment rendered by paramedics. A central database is maintained at the EMS Agency for statistical reporting, quality improvement, and research purposes. The next phase of the project attempted to integrate emergency department treatment data from hospital computer systems into the EMS Agency database to permit tracking patient treatment and outcome from EMS response through emergency department discharge.

At the current time, the only ambulance provider that used the Digital Objectives software has converted to the AMBPAC product following the release of version two software. Efforts to link emergency department data have not been successful due to changes in how hospitals manage their data systems. The hospitals that originally agreed to attempt to download data have since changed ownership. The previous management information systems (MIS) that stored data locally have converted to a centralized download to an out-of-state location. The result is an inability to receive the data prior to the download to the corporate MIS department.

The use of laptop PCs has been curtailed, data is now entered on desktop PCs at the paramedic crew stations. Reports are then faxed to the receiving emergency department. One of the reasons for the conversion was the unacceptable delay of returning units to their duty area due to data input times.

The latest version of AMBPAC software was recently installed over a several week period of time. This conversion was problematic for several reasons, including poor coordination between the software provider and users, a lack of software support documentation and the high learning curve for end users. The conversion is nearing completion with an increasing degree of confidence in the ultimate successful implementation.

The ultimate goal of the project remains, to link all available data from dispatch through discharge in order to assess the effectiveness of prehospital and emergency department care, and to assist in policy and procedure development.

HOW DEVELOPED:(IN-HOUSE, PROPRIETARY, FUNDING SOURCE) Design of project-specific hardware and software, and customization of proprietary products.

DATE IMPLEMENTED: Original project implemented June 1, 1995. Current project concept implemented August 1, 1996.

DATE LAST UPDATED: September 13, 2000

DATA COLLECTION METHOD(S): Data entry by paramedics using desktop computers and laptops.

DATABASE PLATFORM: *Microsoft Access-based host database designed by AMBPAC*.

SOFTWARE TYPE: Dataport II

VENDOR NAME: AMBPAC

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER) Not at this time.

PARTICIPATING IN STATE AGGREGATE DATA COLLECTION?(IF NOT, WHEN ANTICIPATED?) No, as soon as we can overcome issues of transferring data.

DATABASE UTILIZATION: CQI, system design and management, education and training, research, and policy and protocol development.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: Ease of data input by personnel with minimal computer experience and the volumes of useful data collected.

WEAKNESS(ES) OF SYSTEM: Relatively slow input times averaging approximately fifteen minutes per case. Inability to facilitate linkages as originally planned.

VALUABLE REPORTS: PLEASE GIVE A BRIEF DESCRIPTION AND ATTACH A SAMPLE REPORT IF POSSIBLE. The data was used to determine that the addition of cardiac pacing would not be beneficial to the system. This resulted in cost savings of over $60,000 to the ambulance and ALS fire service providers. Data, e.g., IV/intubation success rates and drug administration is extrapolated for use in routine provider QI activities. The system also facilitates the generation of response time reports to measure ambulance and fire service contract standards.

VALUABLE DATA SYSTEM EXPERIENCES: PLEASE GIVE A BRIEF DESCRIPTION. The data allows the EMS system to constantly review its activities to respond to changes in the delivery of patient care.

OTHER DATA APPLICATIONS: Ability to do customized ad-hoc reports.

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): Windows 98 - Word.

COMMENTS/ SUGGESTIONS: Develop specific performance and software maintenance contracts with any vendor and make the venue for litigation your home county.

Demand support from the vendor on developing outcome reports. It is not enough to collect the data, useful system report must be planned as part of the process.

EMS AGENCY:	**Sierra-Sacramento Valley EMS**
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OVERVIEW: The prehospital data collection system (EMScan) currently in use has been very successful in our region. AMR has a mirror-image of this system, making comparative data available. The software was purchased through grant funding in 1993.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE) Special Projects Grant Funding**.**

DATE IMPLEMENTED: May 1993.

DATE LAST UPDATED: This program is continually updated. Revisions to the scannable data sheets occurs annually.

DATA COLLECTION METHOD(S): Scannable portion of the PCR is downloaded from remote sites daily.

DATABASE PLATFORM: C++

SOFTWARE TYPE:

VENDOR NAME: Doug Brown, EMS Data Systems, Inc.

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER)

DATABASE UTILIZATION: QI, Medical Control Committee, TQI, helicopter utilization, medication usage, ground provider unit utilization, individual paramedic skills.

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL:

STRENGTHS OF SYSTEM: Ease of use, reliability, timeliness, cost effective.

WEAKNESS(ES) OF SYSTEM: Data collection elements must be changed on the scannable form. Due to the cost of the forms, providers are willing to make changes on an annual basis only.

VALUABLE DATA SYSTEM EXPERIENCES: This system allows the administrator to determine which data collection elements are mandatory or must trigger another element. The data on responses occurring one day prior are available for analysis. The software developer has successfully implemented linkages with other systems in our region. There is very little downtime in the field to complete the form and the system is very reliable.

OTHER DATA APPLICATIONS: Trauma data collection system, Collector, developed by Tri-Analytics, Inc.

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): MS Word & WP 9.0

COMMENTS/SUGGESTIONS:

EMS AGENCY: **Tulare County EMS**

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                                                   FAX: (559)624-1071
                                                   pcrawfor@tularehhsa.org

OVERVIEW:

Tulare County Consolidated Ambulance Dispatch (TCCAD) gathers response time and on-scene time information for the providers. All other information is gathered manually.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE)

DATE IMPLEMENTED: January 2000

DATE LAST UPDATED:

DATA COLLECTION METHOD(S): TCCAD Currently uses queries based in Microsoft Access to extract raw data from the database to Microsoft Excel. After this is done we sort through, and clean-up all data to produce response time, and on-scene time reports for the providers who in turn, report to the county.

DATABASE PLATFORM: Microsoft SQL 7.0

SOFTWARE TYPE: Windows NT/ Windows 98/ Microsoft Access/ Microsoft Excel

VENDOR NAME: Microsoft, and Tri-Tech Software Systems (CAD Software)

LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC RECORDS OR OTHER) NO

DATABASE UTILIZATION:

FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE FUNCTIONAL: New data collection software to be implemented by June of 2002.

STRENGTHS OF SYSTEM: New software implementation strengths will include automation, user definable, adaptable to various operating platforms, modular (option to purchase only what you need).

WEAKNESS(ES) OF SYSTEM: None apparent

VALUABLE DATA SYSTEM EXPERIENCES: As TCCAD's Communication Manager, I have just over three years of network administration, and a vast knowledge base of Microsoft Access, and Excel.

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other):

Word

COMMENTS/SUGGESTIONS: Tulare County is currently reviewing other methods of data collection.

EMS AGENCY:	Tuolumne County EMS
CONTACT(S):	Dan Burch , EMS Coordinator
	1210 Sanguinetti Road
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	TCEMS@mlode.com

OVERVIEW:
The Tuolumne County Ambulance service uses *EMS Outfielder*, installed on laptop computers to collect pre-hospital care and patient billing information. *EMS Outfielder* data is submitted to the Tuolumne County EMS Agency on a daily basis. The EMS agency conducts a cursory QA-QI review of each patient record when importing E*MS Outfielder* data into a central installation of *EMS Outfielder* and *EMS Data Pro.* Patient care reports meeting established criteria are immediately flagged for QA-QI follow-up. Air ambulance and in-hospital care data is then added to the pre-hospital care records in *EMS Data Pro*. Completing the EMS system data picture. *EMS Data Pro* is used to produce an extensive variety of reports from the patient care data.

The EMS agency also uses *EMS Data Pro* to track technician accreditation, certification, and educational requirements. *EMS Data Pro* is capable of producing certification cards and related certification and education reports.

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE)
EMS Outfielder is a proprietary product of CompuCounsel Consulting. The Tuolumne County EMS Agency funded modification of the product to provide a custom export of *EMS Outfielder* data to SweetSoft's *Ambulance 2000* billing software.

EMS Data Pro has been developed partly with public agency funding and partly by CompuCounsel. Tuolumne County and other *EMS Data Pro* user agencies provide input to CompuCounsel as needs arise or change, and fund customizations to this software.

DATE IMPLEMENTED:
EMS Data Pro July 1993
EMS Outfielder Summer 1999

DATE LAST UPDATED:
January 2002

DATA COLLECTION METHOD(S):
Patient care data is entered into keyboard based laptop computers using *EMS Outfielder*.
In-hospital data is added to pre-hospital patient care data at keyboard based desktop
computers using *EMS Data Pro*.

DATABASE PLATFORM:
EMS Outfielder and *EMS Data Pro* are written in Microsoft's *Visual FoxPro 6*.

SOFTWARE TYPE:
RDBMS with full programming language

VENDOR NAME:
CompuCounsel Consulting

**LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC
RECORDS OR OTHER)**
In-hospital care data is manually entered from hard copy hospital logs. Prehospital care records are
retrieved by matching Call Date and PCR Number, or by other searches when necessary.

DATABASE UTILIZATION:
Daily, monthly, quarterly, yearly QA-QI; planning; system evaluation; certification and
accreditation management.

**FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE
FUNCTIONAL:**

STRENGTHS OF SYSTEM:
EMS Outfielder has proven to be an ideal tool for us for collection of prehospital data and
for automating the production of PCRs and the collection of patient billing data. After an
short initial adjustment period, technicians experience shorter turn around times with
EMS Outfielder than with the previously used hard copy documentation.

Because of its highly flexible querying and reporting capabilities, *EMS Data Pro* is an
excellent tool for producing reports on patient care and on technician data.

CompuCounsel has been very responsive to needs for changes and improvements to their
software products, which is paramount because of the constant change in data system
needs in EMS.

WEAKNESS(ES) OF SYSTEM:
Despite the fact that *EMS Data Pro* can produce copious types of patient care reports,
including standard detail reports, tabular summary reports, quality improvement lists, and
protocol comparison reports, the need for even *more* reports does arise. We look forward
to the continued expansion and improvement of *Data Pro*'s querying and reporting
capabilities as our needs arise.

VALUABLE DATA SYSTEM EXPERIENCES:

OTHER DATA APPLICATIONS:

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other):
WordPerfect 2002

COMMENTS/SUGGESTIONS:

EMS AGENCY: **Ventura County EMS**

CONTACT(S):   Barry Fisher , EMS Director
NAMES, TITLES & PHONES, EMAIL   2323 Knoll Drive, Suite 100
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                                   Phone: (805) 677-5270
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                                   Barry.Fisher@mail.co.ventura.ca.us

OVERVIEW:

HOW DEVELOPED: (IN-HOUSE, PROPRIETARY, FUNDING SOURCE) Developed by
Rentfrow Inc. and Ventura County EMS. Partially funded by a data grant.

DATE IMPLEMENTED: August 2001 with two of the three ALS Transport providers.

DATE LAST UPDATED: Program last implemented January 25, 2002.

DATA COLLECTION METHOD(S): Automated Pen Tablet

DATABASE PLATFORM: Micro-soft sequal server 7.0

SOFTWARE TYPE: Windows Client Server

VENDOR NAME: Rentfrow Incorporated, Ventura California

**LINKED DATABASE?: (PREHOSPITAL, TRAUMA, BASE HOSPITAL, TRAFFIC
RECORDS OR OTHER)** Pre-Hospital, Base and Receiving Hospitals, Transport Providers
and eventually Fire Dept. First Response Paramedics.

DATABASE UTILIZATION: Unsure what your asking for?

**FOR THOSE IN THE DEVELOPMENT STAGE, DATE PLANNED TO BE
FUNCTIONAL:**

STRENGTHS OF SYSTEM: Quick access to data which can be downloaded into an
Access database.

WEAKNESS(ES) OF SYSTEM: The current weakness is the equipment in the field.
The initial computers that were purchased were not designed for field use. We are in the
process of upgrading to a new lap top computer. Building our own program is very
costly. If we had to do over, would probably look for an established program.

VALUABLE DATA SYSTEM EXPERIENCES: Having all data in one place. Still
too soon to fully realize all benefits of the new system.

OTHER DATA APPLICATIONS: Can also be expanded for use as a trauma registry.

WORD PROCESSING PROGRAM USED & VERSION (WordPerfect, Word, Other): Word

COMMENTS/SUGGESTIONS: