

EMERGENCY MEDICAL SERVICES AUTHORITY

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July 2, 2009

Barry Fisher
Ventura County EMS Agency
2220 E. Gonzales Road, Suite 130
Oxnard, CA 93036

Dear Mr. Fisher:

After a careful review, the Emergency Medical Services Authority has determined that the *Ventura County Prehospital Emergency Medical Care Quality Improvement Program* is in compliance with Title 22, Division 9, Chapter 12 *EMS System Quality Improvement* and EMSA #166 *Emergency Medical Services System Quality Improvement Program Model Guidelines*.

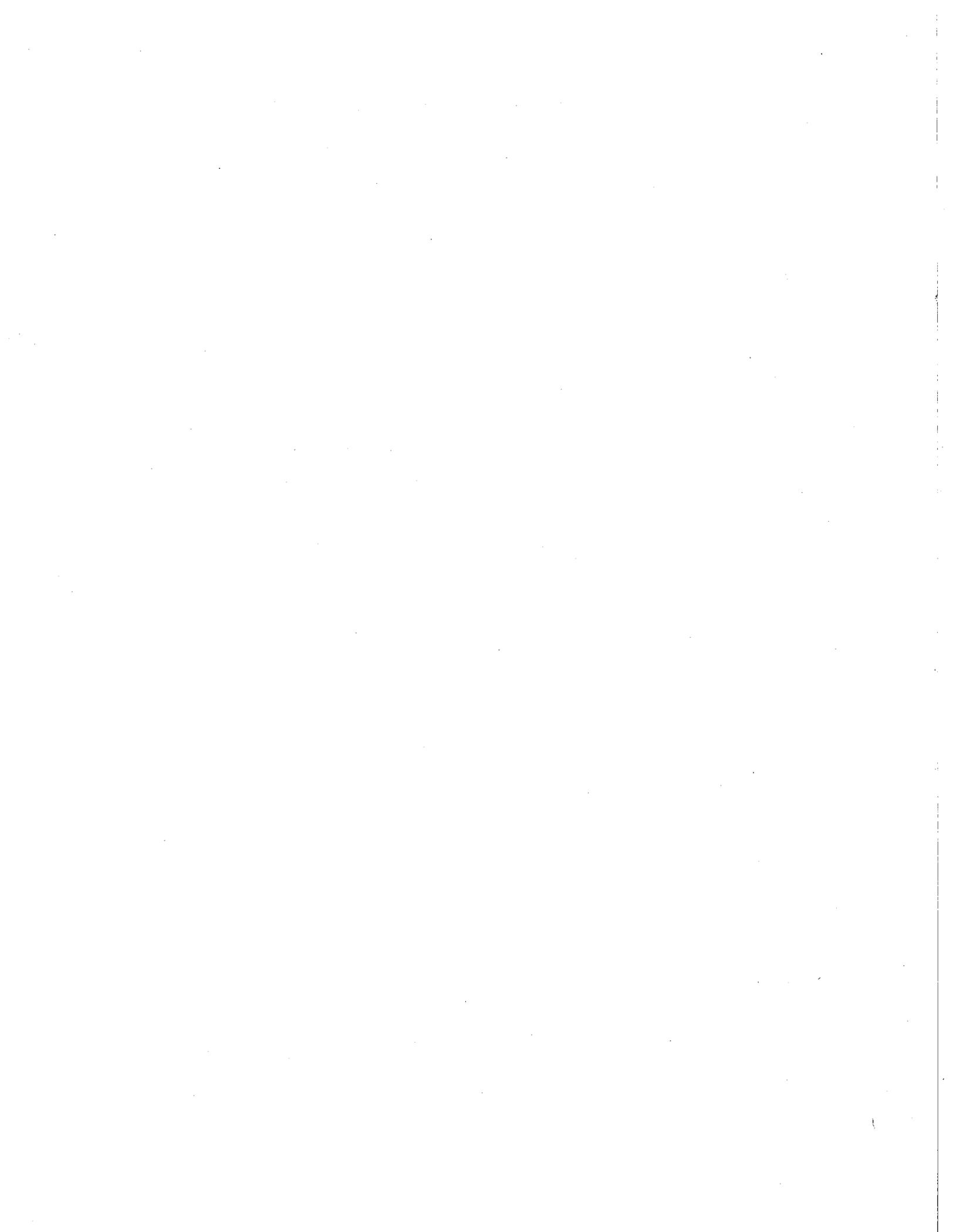
The Prehospital Emergency Medical Care Quality Improvement Program submitted by Ventura County EMS is a good plan that could easily be modeled by other local EMS Agencies as part of the efforts of the EMSAC Quality Improvement group. Your annual update will be due one year from your approval date. If you have any questions regarding the plan review, please call Tom McGinnis, at (916) 322-4336, extension 424.

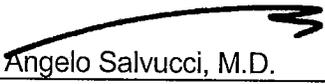
Sincerely,

A handwritten signature in cursive script that reads "Bonnie Sinz".

Bonnie Sinz, RN
EMS Systems Division Chief

ST:tm



COUNTY OF VENTURA HEALTH CARE AGENCY		EMERGENCY MEDICAL SERVICES POLICIES AND PROCEDURES	
Policy Title: Prehospital Emergency Medical Care Quality Improvement Program		Policy Number 120	
APPROVED: Administration:	<i>Barry R. Fisher</i> Barry R. Fisher	Date: 04-26-06	
APPROVED: Medical Director:	 Angelo Salvucci, M.D.	Date: 04-26-06	
Origination Date:	January 1996		
Date Revised:	March 9, 2006	Effective Date: June 1, 2006	
Review Date:	June 30, 2008		

- I. PURPOSE: To define the process to identify areas for improvement in the VC EMS system.
- II. AUTHORITY: Reference: H&S Code Section 1798 Medical Control
- III. POLICY: The Ventura County EMS Agency shall assess and evaluate all aspects of the EMS System in Ventura County.
- IV. Each pre-hospital provider (hospital provider, ambulance provider and first responder agency) will use the Ventura County Continuous Quality Improvement Program (CQI) as a model for their CQI plan with respect to the EMS portion of their activities.

Ventura County Emergency Medical Services Agency

Continuous Quality Improvement Program



Mission Statement

The mission of Ventura County's Emergency Medical Service Agency CQI program is to optimize the health of those requiring emergency medical care in the County of Ventura by promoting timely, highly skilled and effective medical care to those who request our services. We also intend to promote healthy lifestyles, and prevent and control disease, injury and disability through community education programs. Successful performance of this mission demands the development and modeling of strategies that ensure the delivery of cost effective, high quality response and delivery of assessment, treatment and transportation to the residents of, and visitors to, Ventura County who are in need of Emergency Medical Services.

Vision

To foster an ethical¹ work environment, in which all employees see themselves as valued members of a team working continuously to improve the health of the residents of, and visitors to, Ventura County, who require Emergency Medical Services.

Scope of Services

The Emergency Medical Services Agency provides oversight for all emergency medical care and transportation in the County of Ventura. It assures adherence requirements for personnel education and certification and oversees Advanced Life Support Service providers' compliance with the county contract. Services are provided by a professional and support staff which includes the EMS Medical Director, EMS Administrator, EMS Deputy Administrator, EMS CQI Coordinator, Administrative Assistant, and Student Aide. Programs are coordinated with other providers in the County.

Purpose

The purpose of the EMS Continuous Quality Improvement Program (CQIP) is to improve the quality and effectiveness of emergency medical services through standardization, coordination, and evaluation. The EMS CQI Program coordinates its continuous quality improvement effort with, and reports to, the Ventura County Public Health Department Continuous Quality Improvement Program.

Goals

- **Coordinate and facilitate implementation** of a comprehensive, customer-oriented continuous quality improvement program
- **Maximize utilization** of both human and material resources within the EMS Program

¹ See Appendix I, *Ventura County Public Health Code of Ethics*

- **Assure the greatest benefit** from services rendered for people who live with or are affected by the Emergency Medical Services Agency in Ventura County
- **Gauge the ongoing effectiveness** of EMS CQIP efforts resulting in increased services.

VC EMS Agency

The VC EMS Agency operates according to California Health and Safety Code Division 2.5, Section 1798 and 1798.204.

The VC EMS CQI Program operates under the direction of the VC EMS Medical Director and the VC EMS Administrator. The VC EMS CQI Coordinator acts as facilitator to this meeting.

I. Technical Advisory Group (TAG)

A. Structure

The Technical Advisory Group (TAG) will be multidisciplinary and will include, but not be limited to:

- VC EMS Agency Medical Director
- VC EMS Agency Representative
- ALS Service Provider Medical Director
- Receiving Hospital Medical Director
- EMS Educator(s)
- Base Hospital CQI Representative
- ALS CQI Representative
- EMD CQI Representative
- BLS CQI Representative

B. Interactions

The Technical Advisory Group will seek and maintain relationships with all EMS participants including but not limited to:

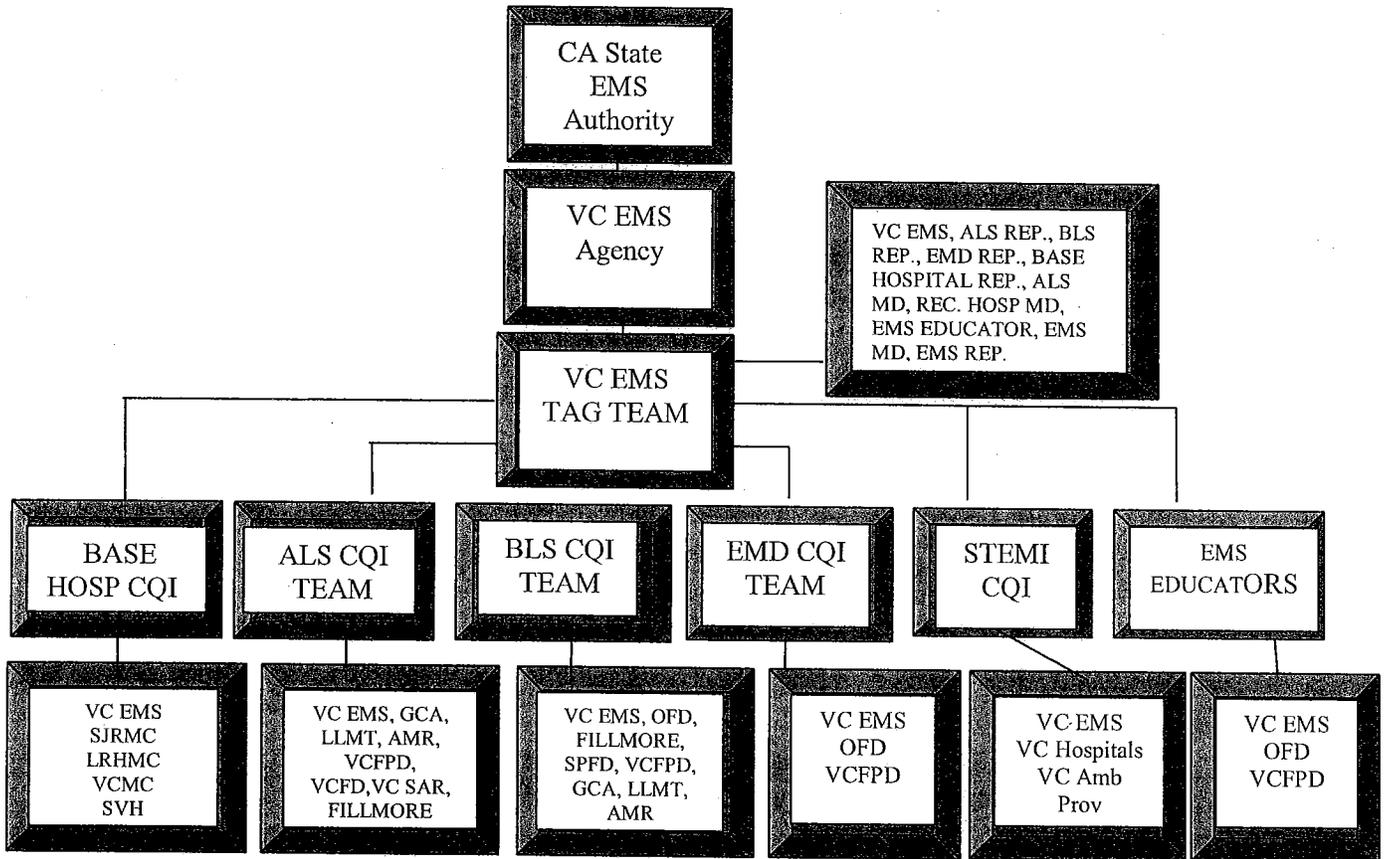
- State EMSA
- Other LEMSAs
- EMS Service Provider(s)
- Local Department of Health
- Specialty Care Center(s)
- Law Enforcement
- PSAP(s)
- EMS Dispatch Center(s)
- Constituent Groups

C. Roles and Responsibilities

The VC EMS TAG should be the central repository of local or regional EMS system information as it relates to EMS CQI Program activities. The team should perform the following functions:

- Cooperate with the EMSA in carrying out the responsibilities of statewide EMS QI Program and participate in the EMSA Technical Advisory Group
- Cooperate with the EMSA in the development, approval, and implementation of state required EMS system indicators
- Cooperate with the EMSA in the development, approval, and implementation of state optional EMS system indicators
- Maintain responsibility for monitoring, collecting data on, reporting on, and evaluating state required and optional EMS System indicators from the EMS providers and hospitals within the jurisdiction of the VC EMS.
- Identify and develop VC EMS specific indicators for system evaluation.
- Maintain responsibility for monitoring, collecting data on, and evaluating locally identified indicators
- Re-evaluate, expand upon, and improve state EMS system indicators and locally developed indicators annually or as needed
- Facilitate meetings and presentations on VC EMS indicators and the development of performance improvement plans for review by designated EMS providers
- Establish a mechanism to incorporate input from EMS provider advisory groups for the development of performance improvement plans
- Assure reasonable availability of EMS QI Program training and in-service education for EMS personnel under the statewide EMS CQI Program
- Prepare plans for improving VC EMS CQI Program

VC EMS Agency Continuous Quality Improvement Organizational Chart



II Base Hospital

A. Structure

The Base Hospital EMS QI Program should be a program reviewed by the VC EMSA for compatibility with the VC EMS CQI Program guidelines. The organizational chart should reflect the integration of the VC EMS CQI Program in the organization. There should be:

1. An EMS QI Team under the direction of the Base Hospital medical director. Lead staff should have expertise in management of the base hospital's EMS CQI Program. The following staffing positions are identified (note: organizations with limited resources may combine positions):
 - Base Hospital Medical Director (or designee)
 - EMS CQI Program Coordinator (Prehospital Care Coordinator)
2. An internal EMS QI Program Technical Advisory Group with members, which include but are not limited to:
 - Base Hospital Medical Director
 - VC EMS CQI Coordinator
 - EMS Service Provider Personnel (Physicians, RNs, Paramedics, EMTs)

B. Interaction

The Base Hospital's CQI Program should involve all EMS system participants including but not limited to the VC EMSA, dispatch agencies, ALS and BLS EMS service providers, receiving hospitals, and specialty care centers

Cooperation and interaction with all EMS system participants should include but not be limited to:

- State EMSA
- VC EMS
- Other Base Hospital(s)
- Receiving Facilities
- Local Department of Health
- Law Enforcement
- PSAP(s)
- Community Group(s)
- Non-EMS Public Representative(s)
- EMS Provider(s)

C. Roles and Responsibilities

The Base Hospital EMS QI Team should be a primary source of EMS activity reporting for statewide and local EMS system indicators. The Base Hospital EMS QI Program will perform the following functions:

- Cooperate with VC EMS in carrying out the responsibilities of the VC EMS CQI Program and participate in the VC MSA Technical Advisory Group
- Cooperate with VC EMS in the implementation of state required EMS system indicators
- Cooperate with VC EMS in the implementation of state optional EMS system indicators
- Cooperate with VC EMS in monitoring, collecting data on, and evaluating state required and optional EMS system indicators
- Cooperate with VC EMS in monitoring, collecting data on, and evaluating local/regional EMS system indicators
- Cooperate with EMSA and VC EMS in the re-evaluation and improvement of state and local EMS system indicators
- Identify and develop base hospital indicators for system evaluation

- Participate in meetings for internal review of base hospital indicators and development of performance improvement plans related to the findings
- Establish a mechanism to incorporate input from VC EMS, service providers, and other hospitals for the development of performance improvement plans
- Assure reasonable availability of EMS CQI Program training and in-service education for base hospital personnel
- Prepare plans for expanding or improving the Base Hospital EMS CQI Program
- Facilitate meetings and presentations of state and local EMS system indicators for peer review to local designated advisory groups and other authorized constituents
- Provide technical assistance to all EMS CQI Programs in the base hospital's jurisdiction
- Participate in annual CQI review conducted by VC EMS

D. Annual Updates

The Base Hospital EMS QI Team will annually publish summary reports of EMS QI Program activity for distribution.

III Emergency Medical Service Provider

A. Structure

The EMS Provider EMS QI Program should be reviewed by VC EMS for compatibility with the VC EMS CQI Program guidelines. The organizational chart should reflect the integration of the EMS CQI Program in the organization. There should be:

1. An EMS QI Team under the direction of the EMS Provider medical director or EMS administrator. Lead staff should have expertise in management of the EMS provider's EMS QI Program. The following staffing positions are identified (organizations with limited resources may combine positions):
 - Provider Medical Director or Designee
 - EMS CQI Program Coordinator
2. An internal EMS CQI Program Technical Advisory Group with members which include but are not limited to:
 - Medical Director or Medical Designee
 - VC EMSA CQI Coordinator
 - EMS QI Program Coordinator
 - Service Personnel (Physicians, RNs, Paramedics, EMTs)
 - Other system participants

B. Interaction:

The EMS Provider's EMS QI Program should involve EMS system participants including but not limited to dispatch agencies, the VC EMSA, EMS personnel training programs, hospitals, specialty care centers, and other EMS service providers. A regional approach, with collaboration between EMS service providers serving neighboring communities, is highly recommended

Cooperation with all EMS participants should include but not limited to:

- State EMSA

- VC EMS
- Other EMS Provider(s)
- Base and Receiving Facilities
- Local Department of Health
- Law Enforcement
- PSAP(s)
- Community Group(s)
- Non-EMS Public representative(s)
- EMS Dispatch Center(s)

C. Roles and Responsibilities

The EMS Provider's EMS CQI Program Technical Advisory Group should be the primary source of EMS QI Program activity reporting for statewide and local EMS System information. The EMS Provider's EMS CQI Program Technical Advisory Group will perform the following functions:

- Cooperate with VC EMS in carrying out the responsibilities of the VC EMS's CQI Program and participate in the VC EMSA Technical Advisory Group
- Cooperate with VC EMS in the implementation of state required EMS system indicators
- Cooperate with VC EMS in the implementation of state optional EMS system indicators
- Cooperate with VC EMSA in monitoring, collecting data on, and evaluating state required and optional EMS system indicators
- Cooperate with VC EMSA in monitoring, collecting data on, and evaluating local/regional EMS system indicators
- Cooperate in the re-evaluation and improvement of state and local EMS system indicators
- Develop, monitor, collect data on, and evaluate indicators specific to the EMS provider
- Conduct meetings for internal review of EMS provider information and development of performance improvement plans related to the findings
- Establish a mechanism to receive input from VC EMS, other service providers and other EMS system participants for the development of performance improvement plans
- Assure reasonable availability of EMS CQI Program training and in-service education for EMS provider personnel
- Prepare plans for expanding or improving the EMS Provider EMS CQI Program
- Participate in meetings and presentations of state EMSA and VC EMS system information for peer review to local designated advisory groups and other authorized constituents
- Participate in annual CQI review conducted by VC EMS
- Develop and conduct a system of Peer Review

D. Annual Updates

The EMS Provider EMS QI Team will annually publish summary reports of EMS QI Program activity for distribution.

IV Emergency Medical Dispatch

A. Structure

The EMD CQI Program should be reviewed by VC EMSA for compatibility with the VC EMS CQI Program guidelines

The organizational chart should reflect the integration of VC EMS CQI Program in the organization. There should be:

1. An EMD CQI Team under the direction of the EMD medical director. Lead staff should have expertise in management of the EMD CQI program. The following staffing positions are identified (organizations with limited resources may combine positions):

- Medical Director or Designee
- VC EMS CQI Coordinator
- EMD CQI Program Director
- Other county EMD representatives

B. Interactions

The EMD CQI Program should involve EMS system participants including but not limited to other local dispatch agencies, the VC EMSA, EMS personnel training programs, hospitals, specialty care centers, and other EMS service providers. A regional approach, with collaboration between EMD Program serving neighboring communities, is highly recommended

An internal EMD CQI Program Technical Advisory Group with members which include but are not limited to:

- Medical Director
- Chief/Administrator or designee
- EMD CQI Program Coordinator
- Service Personnel
- Other system participants

C. Roles and Responsibilities

The EMD CQI Program Technical Advisory Group should be the primary source of EMD CQI Program activity reporting for statewide and local EMS System information. The EMD CQI Program Technical Advisory Group will perform the following:

- Cooperate with VC EMS in carrying out the responsibilities of VC EMS's CQI Program and participate in VC EMS Technical Advisory Group
- Cooperate with VC EMS in the implementation of state required EMS system indicators
- Cooperate with VC EMS in the implementation of state optional EMS system indicators
- Cooperate with EMSA and VC EMS in monitoring, collecting data on, and evaluating state required and optional EMS system indicators
- Cooperate with VC EMS in monitoring, collecting data on, and evaluating local/regional EMS system indicators
- Cooperate in the re-evaluation and improvement of state and local EMS system indicators
- Develop, monitor, collect data on, and evaluate indicators specific to the EMD Program
- Conduct meetings for internal review of EMD information and development of performance improvement plans related to the findings
- Establish a mechanism to receive input from VC EMS, other service providers and other EMS system participants for the development of performance improvement plans
- Assure reasonable availability of EMD Program training and in-service education for EMS provider personnel
- Prepare plans for expanding or improving the EMD CQI Program
- Participate in meetings and presentations of state EMSA and VC EMS system information for peer review to local designated advisory groups and other authorized constituents
- Participate in annual CQI review conducted by VC EMS
- Provide monthly CQI reports as determined by VC EMS

D. Annual Updates

The EMD EMS CQI Team will annually publish summary reports of EMS CQI Program activity for distribution

V. Basic Life Support Service Provider

A. Structure

The EMS/BLS Provider CQI Program should be reviewed by VC EMS for compatibility with the VC EMS CQI Program guidelines. The organizational chart should reflect the integration of the EMS CQI Program in the organization. There should be:

1. An EMS/BLS CQI Team under the direction of the BLS Provider medical director or EMS Administrator. Lead staff should have expertise in management of the EMS/BLS provider's CQI Program. The following staffing positions are identified (organizations with limited resources may combine positions):
 - Provider Medical Director or Designee
 - EMS CQI Program Coordinator, or EMS Coordinator
2. An internal EMS/BLS CQI Program Technical Advisory Group with members which include but are not limited to:
 - Medical Director or Medical Designee
 - VC EMSA CQI Coordinator
 - EMS CQI Program Coordinator, or EMS Coordinator
 - EMTs
 - Other system participants

B. Interaction:

The EMS/BLS Provider's CQI Program should involve EMS system participants including but not limited to dispatch agencies, the VC EMSA, EMS personnel training programs, hospitals, specialty care centers, and other EMS service providers. A regional approach, with collaboration between EMS service providers serving neighboring communities, is highly recommended

Cooperation with all EMS participants should include but not limited to:

- State EMSA
- VC EMS
- Other EMS/ BLS Provider(s)
- Base and Receiving Facilities
- Local Department of Health
- Law Enforcement
- Community Group(s)
- Non-EMS Public representative(s)
- EMS Dispatch Center(s)

C. Roles and Responsibilities

The EMS/BLS Provider's CQI Program Technical Advisory Group should be the primary source of EMS/BLS CQI Program activity reporting for statewide and local EMS System information. The Provider's CQI Program Technical Advisory Group will perform the following functions:

- Cooperate with VC EMS in carrying out the responsibilities of the VC EMS's CQI Program and participate in the VC EMSA Technical Advisory Group
- Cooperate with VC EMS in the implementation of state required EMS system indicators
- Cooperate with VC EMS in the implementation of state optional EMS system indicators
- Cooperate with VC EMSA in monitoring, collecting data on, and evaluating state required and optional EMS system indicators
- Cooperate with VC EMSA in monitoring, collecting data on, and evaluating local/regional EMS system indicators
- Cooperate in the re-evaluation and improvement of state and local EMS system indicators
- Develop, monitor, collect data on, and evaluate indicators specific to the EMS/BLS provider
- Conduct meetings for internal review of EMS/BLS provider information and development of performance improvement plans related to the findings
- Establish a mechanism to receive input from VC EMS, other service providers and other EMS system participants for the development of performance improvement plans
- Assure reasonable availability of EMS/BLS CQI Program training and in-service education for EMS provider personnel
- Prepare plans for expanding or improving the provider EMS/BLS CQI Program
- Participate in meetings and presentations of state EMSA and VC EMS system information for peer review to local designated advisory groups and other authorized constituents

D. Annual Updates

The EMS/BLS Provider CQI Team will annually publish summary reports of program activity for distribution.

Goals

The following Dimensions of Performance² and additional Aspects of Care³ form the framework upon which the CQIP process is based. They are:

DOING THE RIGHT THING

- The **Efficacy** of service in relation to the client's needs.
- The **Appropriateness** of a specific service to meet the client's needs.

DOING THE RIGHT THING WELL

- The **Availability** of needed service to the client who needs it
- The **Timeliness** with which service is provided to the client
- The **Effectiveness** with which services are provided
- The **Continuity** of the services provided to the client with respect to other services, practitioners, and providers, over time
- The **Respect and Caring** with which services are provided

ADDITIONAL ASPECTS OF SERVICE

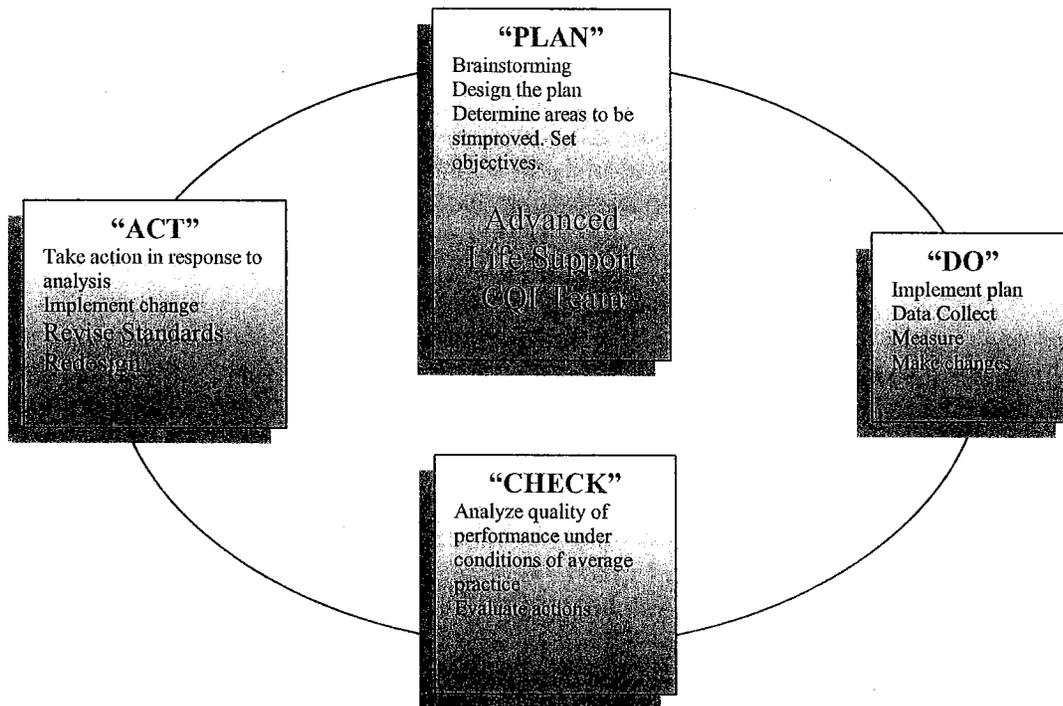
- Provider Staff Performance
- Support Staff Performance
- Client Record System
- Client Compliance
- Client Satisfaction

² Joint Commission On Accreditation of Health Care Organizations

³ Benson, Dale S., M.S. and Miller, Jane, R.N., *Quality Assessment and Improvement for Primary Care Centers*, Methodist Hospital of Indiana, 1991: Chapter 3, p. 17-24.

CQIP Methodology

We have chosen to use the "PDCA" methodology⁴ (Plan, Do, Check, Act). See Appendix VI.



Program-Level Continuous Quality Improvement Implementation Cycle

Plan

Each program will construct (or update) a strategic quality improvement action plan that links to the department's mission, vision, goals, and translates them into the program's specific domains. Programs will develop and implement ways to analyze input from internal and external customers, as well as identify external comparative data sources, and identify and prioritize program assets and needs.

The Nursing Process Model calls for programs to assess diagnosis problems and develop a plan to address them.

Do

Programs select models and methods for measuring objectives. Objectives should be "S-M-A-R-T" (*Specific, Measurable, Achievable, Relevant, Timely). Programs also develop and/or identify internal data sources (formal and/or informal) used in the next phase to establish benchmarks and assess improvement priorities. This includes developing strategies for improvement, identifying sources of relevant information, and identifying external data sources that can provide benchmarks for improvement.

Check

Programs will conduct evaluations to obtain judgments of quality (performance, outcome) about their service delivery or practice. They will also coordinate ongoing data analysis and evaluation and quality improvement efforts with the CQIP Committee. The purpose of this coordination is to improve the overall performance of Public Health.

Information from internal and external sources is collected and used to develop and assess quality improvement priorities. This step also utilizes external data and information sources to compare processes and outcomes with external benchmarks. The American Nurses Association (and other groups) provides general and specific standards for evaluation of processes and outcomes.

Act

Programs will identify next areas of improvement and revise specifications and standards to meet those new needs. They will conduct ongoing internal data analysis and evaluation, and identify areas needing quality improvement efforts. Programs will participate in the consolidation of their individual program CQIP plans to assure coordination and best use of department resources.

Priorities that programs have developed are translated into actual *improvements* and/or innovative actions. These actions then lead to the *redesign* of objectives, which completes the cycle by leading back to the "Plan" phase of designing new procedures.

SECTION I

DATA COLLECTION & REPORTING

Purpose

To improve the EMS system, information must first be collected, reported, and evaluated. The following are guidelines for data collection and reporting of EMS information.

A. Data Collection

Aspects of care which are identified as important should be monitored despite the possible complexity of necessary data or challenges associated with the data collection. All reliable sources of information should be utilized in the evaluation of system performance. EMS organizations should also consider the use of hard copy review, collection check-sheets, customer surveys, direct observation, and skills simulation.

B. Approach to Data System Development

Information systems should be designed to answer EMS system performance questions. It is strongly recommended that EMS organizations establish a practical consensus and clear understanding with all users regarding the purpose for collecting and processing the data. This step is vital to assure validity and reliability.

The following activities are recommended prior to data systems development:

1. Identify the specific mission and purpose of the organization
2. Identify the most important services that support the mission and purpose
3. Identify the resources, activities, and results that comprise the services
4. Identify what information must be reported to others, such as LEMSAs or the state EMSA
5. Identify specific questions (regarding the structures, activities, and outcomes within your organization), which need to be answered in order to better understand the success of the mission and purpose
6. Define how each question will be answered
7. Use the answers as the basis for developing indicators
8. Develop a quality indicator
9. Use the indicators as the basis for identifying what data is needed
10. Develop your technical plan for data collection based upon the elements identified
11. Test the process prior to investing in a data system
12. Recognize that an effective EMS QI Program is dynamic and therefore constantly changing, and incorporate this need for change into your data vendor contract (if applicable) and/or your data management plan

The California State EMS data set (with associated definitions) should be incorporated to allow for statewide data collection. Statewide EMS system indicators provide for comparative analysis between similar EMS providers/LEMSAs as well as statewide system evaluation. Additional data elements and code sets should be collected at a local level to focus on regional issues and concerns. The National EMS Information System (NEMSIS) data set (with associated definitions) may provide consistent data collection with these additional data elements.

Validity and Reliability

Validity - The data have validity if there is sufficient evidence to warrant the collection and use of the information for the purpose of measuring the performance of the EMS system. The information is valid if it is:

- Representative of important aspects of service performance
- Determined to be important for successful service performance
- Predictive of or significantly correlated with important elements of performance

Reliability – The data have reliability if the collection and interpretation methods can be trusted to be consistent and predictable. If the data collection is always performed in the same way, using the same data collection tools and interpreted with the same definitions, the information is likely to be reliable. Standardized definitions or agreement by the users regarding what the data will indicate and how they will be collected is critical to the success of the overall program.

C. Organizational Reporting

Data collection, reporting, and analysis shall occur at each of the four organizational levels. Each level shall submit information to their respective advisory group. Data collection and reporting should be done in the form of summary reports and may be based upon core EMS system indicators as adopted by the State EMSA, LEMSA, hospital, or individual EMS provider. Data collected specific to personnel shall only be exchanged between the personnel and provider levels. EMS information should be consistent in how it is organized, analyzed, presented and evaluated.

See *Appendix III* for specific diagram showing the flow and exchange of information at all levels.

SECTION II EVALUATION OF EMS SYSTEM INDICATORS

Organizational Structure

In order to provide a continuous evaluation of EMS services, it is recommended that the organizations establish technical advisory groups at each level (state, local, hospital, and provider). Each technical advisory group should be responsible for decision-making regarding evaluation and improvement and should be composed of stakeholders within the system under evaluation.

Organization of Information

EMS organizations shall develop indicators which address but are not limited to the following (*Appendix E*):

- (1) Personnel
- (2) Equipment and Supplies
- (3) Documentation
- (4) Clinical Care and Patient Outcome
- (5) Skills Maintenance/Competency
- (6) Transportation/Facilities
- (7) Public Education and Prevention
- (8) Risk Management

The recommended approach to organizing data and other sources of information is through the development and use of standardized indicators.

Indicators Defined

According to the Joint Commission on Accreditation of Healthcare Organizations, an indicator is "a quantitative performance measure... a tool that can be used to monitor performance and direct attention to potential performance issues that may require more intensive review within an organization." In other words, an EMS indicator measures the degree of conformance to a reasonable expectation as defined by the community served. Indicators may be related to structures (people, places, things), processes (activities occurring in a system), and outcomes (the results of the structures and activities within a system). In fact, the three types of indicators (structure, process, and outcome) are all related and dependent upon one another. Hence the following equation:

$$\text{STRUCTURE} + \text{PROCESS} = \text{OUTCOME}$$

Changes in structure may affect the process and the outcome. Likewise, changes in the process may affect the structure and outcome. Indicators, in short, are a way to simplify information so that data can be digested more efficiently and in a meaningful way.

Required EMS System Indicators

Statewide EMS system indicators as developed and adopted by the EMSA should be incorporated to allow comparison within the state at all levels. These indicators are developed through a statewide consensus process and supported by the statewide data system.

Optional EMS System Indicators

Recommended indicators are developed and designed on an as-needed basis and may be used for the long or short term or on an ad hoc basis depending on the goals of the group developing the indicators. While the state may develop some indicators, most development will occur at the local level. All EMS organizations are encouraged to develop their own indicators based upon their specific needs. Ad hoc indicators are not reported outside of the specific user group and level of organization.

Analysis

Prior to presenting or distributing indicators, it is recommended that the results be analyzed to include measurements appropriate for rapid interpretation by evaluators. Measurements may include the following:

- Statistical
 - Measures of Central Tendency
 - Measures of Dispersion
- Process Analysis
 - Trending
 - Causation
 - Benchmarking
 - Best Practices
 - Published References

Presentation

The results and measurements of indicators should be presented to the users of the information in a formal process and on a regularly scheduled basis. Each presentation should include the purpose, objectives, references, benchmarks, measurements, and indicator detail sheet for clarification of data. The indicator information should be displayed to evaluators in a format that is most appropriate for the speed and ease of interpretation. The following are typical ways to display an indicator result:

- Flow Chart
- Fishbone – Cause and Effect Diagram
- Pareto Chart
- Histogram
- Scatter Diagram
- Run Chart
- Control Chart

Examples, definitions, and application of these display methods are illustrated in *Appendix L*.

Decision-Making Process

Each organizational level should have a structured process for making decisions. The following is a general outline of the steps in a structured process for evaluation and decision-making by the Technical Advisory Group:

1. Identify the objectives of evaluation
2. Present indicators and related EMS information
3. Compare performance with goals or benchmarks
4. Discuss performance with peers/colleagues
5. Determine whether improvement or further evaluation is required
6. Establish plan based upon decision
7. Assign responsibility for post-decision action plan

SECTION III ACTION TO IMPROVE

Approach to Performance Improvement

Once valid information has been presented and reliability evaluated, the decision to take action or to solve a problem requires a structured approach that is adaptable and applied to each situation as it is identified. There are many standardized and well-developed quality/performance improvement programs, which may be used during this phase. In all cases, each EMS QI Program Technical Advisory Group should choose an improvement method that is systematic and based upon evidence. The approach to improvement should also be team oriented and be done in a way that does not overwhelm the process due to size and complexity. Small wins are sometimes the basis for the larger wins. It is recommended that initial improvement projects be simple and based upon a strong consensus within the Technical Advisory Group that improvement will benefit all.

Technical Advisory Group

The EMS QI Program at each organizational level should have an oversight body that is responsible for implementing the quality/performance improvement plan. This group may be the same group that collects data from and evaluates the local system. The group should be responsible for delegating action to smaller groups (e.g., the Quality Task Force) and for monitoring the process as it unfolds within the system.

Quality Task Force

It is recommended that the Technical Advisory Group utilize smaller groups within the organizational level to carryout improvement action plans. Quality Task Forces are smaller sub-groups of the larger quality oversight body. Task forces are established to develop and implement action plans. Each task force has one project and is responsible for reporting all activities to the larger oversight group. Once the project is completed, the task force is disbanded. There may be more than one task force working concurrently, with each task force working on a specific action plan.

Note: Availability of resources can vary greatly between urban and rural agencies. It is understood that one task force may handle multiple projects or the Technical Advisory Group may handle the projects without forming any task forces.

Performance Improvement Plan

While there are many approaches to a Performance Improvement Plan within an organization, it is recommended that each Quality Task Force choose a standardized approach and use the same process each time a project is undertaken. The following are traditional components of a standardized improvement process:

- Establish criteria for measurement and evaluation
- Evaluate information
- Make a decision to take action to improve
- Establish criteria for improvement
- Establish an improvement plan
- Measure the results of the improvement plan
- Standardize or integrate change (plan) into the system
- Establish a plan for monitoring future activities

SECTION IV TRAINING AND EDUCATION

Introduction

Effectiveness of the EMS QI Program and related training is directly proportional to the energy and resources committed. Administrative oversight should be available and directly involved in the process. When clinical issues are addressed, medical oversight is recommended.

Action to improve process is intertwined with training and education

Once the decision to take action or to solve a problem has occurred, training, and education are critical components that need to be addressed. As a Performance Improvement Plan is developed, the Technical Advisory Group will establish criteria for measurement and evaluation. Based on these criteria, delivery methods and content of training will be developed. This integrated process will avoid any misdirection that may occur when training is isolated from the EMS QI Program. Success of the performance improvement plan is dependent upon changing the behavior and knowledge of the staff who deliver care to patients or services to other participants (e.g., EMSA to LEMSA, LEMSA to EMS provider) in the EMS system. To implement change, you must deliver verifiable, ongoing training that is appropriate to the skill level and service goals of the organization.

Medical direction

To successfully implement a Performance Improvement Plan, the organization's EMS QI Program team shall have input into the content and delivery methods of related training and education. This involvement will provide consistency between the current and subsequent Performance Improvement Plans. The structure of the organization shall place the oversight for directing clinical training and education at the highest level of medical knowledge.

Measure the results of the Performance Improvement Plan

Once the Performance Improvement Plan has been implemented, the measurement of a successful outcome will be dependent upon the validity of the plan and the effectiveness of the training and education. If the outcome is not satisfactory, it is necessary to examine both the content of the Plan and delivery method of related training and education.

Integrate change

Once the Performance Improvement Plan has been successfully implemented, the organization needs to standardize the changes within appropriate policies and procedures. When appropriate, assure that staff have successfully completed the training and educational components of the plan. The final steps in integrating change into the system will be to schedule continuing education at appropriate reoccurring intervals and re-evaluate the original EMS system indicators.

SECTION V
Annual Update Guidelines

The Annual Update is a written account of the progress of an organization's activities as stated in the EMS QI Program. In compiling the Annual Update, refer to the previous year's update and work plan.

Description of agency

The description should include an organizational chart showing how the EMS CQI Program is integrated into the organization.

Statement of EMS CQI Program goals and objectives

Describe processes used in conducting quality improvement activities.
 Were goals and objectives met?

List and define indicators utilized during the reporting year

- Define state and local indicators
- Define provider specific indicators
- Define methods to retrieve data from receiving hospitals regarding patient diagnoses and disposition
- Audit critical skills
- Identify issues for further system consideration
- Identify trending issues
- Create improvement action plans (what was done and what needs to be done)
- Describe issues that were resolved
- List opportunities for improvement and plans for next review cycle
- Describe continuing education and skill training provided as a result of Performance Improvement Plans
- Describe any revision of in-house policies
- Report to constituent groups
- Describe next year's work plan based on the results of the reporting year's indicator review

Sample Work Plan Template

Indicators Monitored	Key Findings/Priority Issues Identified	Improvement Action Plan Plans for Further Action	Were Goals Met? Is Follow-Up Needed?

**SECTION VI
Confidentiality**

The activities of the VC EMS CQI Program are legally protected under the California Health & Safety Code Section 1157. The law protects those who participate in quality of care or utilization review. It provides further that "neither the proceedings nor the records of such reviews shall be subject to discovery, nor shall any person in attendance at such reviews be required to testify as to what transpired thereat."

All copies of minutes, reports, worksheets and other data are stored in a manner ensuring strict confidentiality. A written confidentiality policy detailing procedures for maintenance and release of data and other information governs the release of such information. This policy specifies the use of record number or other identifiers in place of client names, and code numbers in place of provider and staff names. This policy also provides methods for restricting all quality improvement documents solely to authorized individuals. In addition, all data shall be considered protected information under the provisions of the California Evidence Code 1157.

EMS Agency CQI Program Coordinator	EMS Agency CQI Medical Director	EMS Agency CQI Committee Member
Signature:	Signature:	Signature:
Date:	Date:	Date:
		Position:

APPENDIX I

VENTURA COUNTY PUBLIC HEALTH DEPARTMENT CODE OF ETHICS



It is the mission of the Ventura County Public Health Department (VCPH) to optimize the health of the community by promoting healthy lifestyles, and preventing and controlling disease, injury and disability. VCPH will operate according to the following code of ethics to carry out this mission. We will:

- Address the fundamental causes of disease and requirements for health, aiming to prevent adverse health outcomes and promote positive health outcomes.
- Develop and evaluate policies, programs, and priorities through processes that foster an opportunity for input from community members.
- Advocate and work for the empowerment of disenfranchised community members, making every effort to ensure that the basic resources and conditions necessary for health are accessible to all people in our communities.
- Seek the information needed to implement effective policies and programs that protect and promote health.
- Provide communities with the best available information needed for decisions on policies or programs.
- Act in an appropriate and timely manner on available health information within our resources and mandate.
- Incorporate into our programs and policies a variety of approaches that anticipate and respect diverse values, beliefs, and cultures in our communities, and that also respect and protect the rights of individuals.
- Implement programs and policies in a manner that most enhances our physical and social environment.
- Protect the confidentiality of information that can bring harm to an individual or community if made public. Exceptions must be justified on the basis of the high likelihood of significant harm to the individual or others.
- Ensure and continually enhance the professional competence of our employees, and of the department as a whole.
- Engage in collaborations and affiliations with our communities and other health and human services entities in ways that build the public's trust, the effectiveness of our employees, and of our department as a whole.

APPENDIX II

VENTURA COUNTY EMS AGENCY
PROGRAM INDICATORS



Measure	Definition	Goal
<i>Emergency Medical Dispatch</i> % "Call Entry" correctly followed	Verification of call back #, initial patient conditions to establish Priority Dispatch Determinant	Measured on high risk and random calls 96% C.E. Std, 90% Scoring Std
<i>Emergency Medical Dispatch</i> % correct EMD card selected	Prewritten dispatch card selected based on responses by reporting party	Measured on high risk and random calls 96% C.E. Std, 90% Scoring Std
<i>Emergency Medical Dispatch</i> %Dispatch/Treatment questions asked	Questions asked verbatim related to chief complaint	Measured on high risk and random calls 96% C.E. Std, 90% Scoring Std
<i>Emergency Medical Dispatch</i> %Correct Pre-arrival instructions given	Instructions given correctly to reporting party related to chief complaint	Measured on high risk and random calls 96% C.E. Std, 90% Scoring Std
<i>Emergency Medical Dispatch</i> % Correct final coding	Coding assigned and dispatched correctly	Measured on high risk and random calls 96% C.E. Std, 90% Scoring Std
<i>Advanced Life Support</i> %Rhythm Recognition on 100% patients with AF and SVT	Difference between Rapid Atrial Fibrillation and Supraventricular Tachycardia	Identification of paramedic skill reflective on county education and policy
<i>Advanced Life Support CQI</i> %Correct documentation	Prehospital documentation completed as required on above cases	100% correct documentation using county approved electronic documentation tool
<i>Advanced Life Support CQI</i> % Correctly Intubated Medical Arrests	Number of attempts, Number of successful attempts, reasons for failure. Correct use of policy.	Benchmark not determined Identification of success rate and focus areas for improvement
<i>Advanced Life CQI Team</i> % Correctly Intubated Traumatic Arrests	Number of attempts, Number of successful attempts, reasons for failure. Correct use of policy.	Benchmark not determined Identification of both success rate and focus areas needed for improvement
<i>Advanced Life Support CQI</i> %Correctly Intubated Respiratory Extremis	Number of attempts, Number of successful attempts, reasons for	Benchmark not determined Identification of both success rate and focus

	failure. Correct use of policy.	areas needed for improvement
<i>Advanced Life Support CQI</i> Correct parameters used to determine necessity for intubation on the patient in Respiratory Extremis	Level of Consciousness, Chief Complaint, O2 Saturation, Respiratory Effort, Glasgow Coma Scale, Skins will be the evaluation criteria for determining need for intubation on patients presenting with Resp Extremis	Determination of benchmark in progress. Goal is to provide prehospital care providers with parameters to use in determining need for intubation on the patient who is "alive".
<i>Base Hospital CQI</i> % Medication Errors in prehospital venue	Dose, route, patient, drug, calculation, and policy compliance measured	Measurement of skills performance. Determine focus areas for improvement
<i>Base Hospital CQI</i> % Correctly administered Versed in prehospital venue	Dose, route, patient, drug, calculation, and policy compliance measured	Measurement of skills performance. Determine focus areas for improvement
<i>Advisory Team CQI Trauma Study</i> Time Study <ul style="list-style-type: none"> • On Scene • Dispatch to arrival 	Compliance with required time to destination (8minutes) Reasonable amount of time spent on scene	100% compliance with dispatch to arrival time of 8 minutes Individual case evaluation of time on scene
<i>Advisory Team CQI Trauma Study</i> % Correct Trauma Assessment	Physical assessment and scene assessment done according to VC EMS policy with correct documentation	Comprehensive and appropriate physical and scene assessment performed
<i>Advisory Team CQI Trauma Study</i> % Indicated procedures performed	Correct procedures done in response to physical assessment and history	100% of indicated procedures completed based on physical and scene assessment
<i>Advisory Team CQI Trauma Study</i> % Correct medications given	Medications given according to physical assessment and history in accordance to VC EMS policy	Medications given according to policy 100% of the time
<i>Advisory Team CQI Trauma Study</i> % Vital signs taken	Objective data obtained on a regular basis, and in response to treatment administered	V/S will be monitored and documented according to pt condition and treatments administered 100% of the time
<i>Unusual Occurrences</i> % annual occurrences by categories, providers	Events outside the norm of acceptable patient care, or outside the normal flow of operations surrounding dispatch, response, rescue and disposition of all ALS and BLS Calls	Events trended to identify focal areas for improvement in delivery of EMS care in the County of Ventura.

Appendix III

Ventura County EMS Agency Flow of Information and Activity

This diagram illustrates the organizational structure for analysis, evaluation, and improvement and demonstrates the fundamental interconnectedness of these critical components. Comprehensive evaluation lays the foundation upon which improvement shall occur.

