NAPA COUNTY

EMERGENCY MEDICAL SERVICES

APPENDIX 4

QUALITY IMPROVEMENT PLAN

2019 – 2024

NAPA COUNTY

Health & Human Services Agency

www.countyofnapa.org/ems

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EMERGENCY MEDICAL SERVICES AUTHORITY
11120 INTERNATIONAL DR., SUITE 200
RANCHO CORDOVA, CA 95670
(916) 322-4336 FAX (916) 324-2875

May 6, 2025

Shaun Vincent, EMS Administrator
Napa County Emergency Medical Services Agency
2751 Napa Valley Corporate Dr., Bldg. B
Napa, CA 94558

Dear Shaun Vincent,

This letter is in response to Napa Emergency Medical Service (EMS) Agency's 2019-2024 EMS, Trauma, St-Elevation Myocardial Infarction (STEMI), Stroke, and Quality Improvement (QI) plan submissions to Emergency Medical Service Authority (EMSA) on March 10, 2025.

EMSA has reviewed the EMS plan based on compliance with statutes, regulations, and case law. It has been determined that the plan meets all EMS system components identified in Health and Safety Code (HSC) § 1797.103 and is approved for implementation pursuant to HSC § 1797.105(b). Based on the transportation documentation provided, please find the enclosed EMS area/subarea status, compiled by EMSA.

EMSA has also reviewed Trauma, STEMI, Stroke, and QI plans based on compliance with Chapters 7, 7.1, 7.2, and 12 of the California Code of Regulations, Title 22, Division 9, and has been approved for implementation.

Per HSC § 1797.254, local EMS agencies must annually submit EMS plans to EMSA. Napa County EMS Agency will only be considered current if an EMS plan is submitted each year.

Your 2025 EMS plan will be due on or before May 6, 2026. Concurrently with the EMS plan, please submit an annual Trauma, STEMI, Stroke, and QI plan.

If you have any questions regarding the EMS plan review, please contact Roxanna Delao, EMS Plans Coordinator, at (916) 903-3260 or roxanna.delao@emsa.ca.gov.

Sincerely,

Angela Wise

Angela Wise, Branch Chief
EMS Quality and Planning
On behalf of,
Elizabeth Basnett, Director

Enclosure:
AW: rd

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Napa County 2019-2024 EMS Areas and Subareas	Non-Exclusive	Exclusive	Method to Achieve Exclusivity	Emergency Ambulance	ALS	LALS	All Emergency Ambulance Services	9-1-1 Emergency Response	7-digit Emergency Response	ALS Ambulance	All ALS and CCT Ambulance Services	BLS Non-Emergency	Standby Service with Transport Authorization
Area/Subarea name	**EXCLUSIVITY**			**TYPE**			**LEVEL**						
Napa - Entire County		X	Competitive	X				X	X				X

INTRODUCTION

MISSION STATEMENT:

The Napa County EMS Agency will improve community health by facilitating a collaborative and integrated emergency medical services (EMS) system that delivers high-quality, cost-effective, and reliable clinical care.

VISION STATEMENT:

The Napa County EMS Agency envisions a sustainable EMS system that is driven to improve community health through robust systems of care, focused prevention strategies, research-driven decision making, and a culture of innovation & accountability.

NAPA COUNTY EMERGENCY MEDICAL SERVICES:

Napa County is one of four counties making up the greater North Bay Area, serving a population of 138,019 residents (United States Census, 2020), and comprising 748 square miles. Napa County consists of urban, suburban, rural and wilderness areas.

Continuous Quality Improvement (CQI) is a formal approach to the analysis of system performance and efforts to improve it. The Napa County EMS Agency is committed to the process of CQI. CQI is, by its very name, a continuous process. CQI includes such things as:

- Recognizing excellence, both individually and organizationally.
- Quantifying objectively what EMS does by trending, analyzing and identifying issues, concerns, and excellence based on those trends.
- Setting benchmarks.
- Promoting remediation rather than discipline. CQI also makes a powerful distinction between the two. Remediation is education. Discipline involves licensure/certification.
- Working hand in hand with training, education and with risk management.
- Identifying system issues when possible, rather than individual issues;
- Presenting itself as an evidence-based process equal to industry programs for education and personnel.

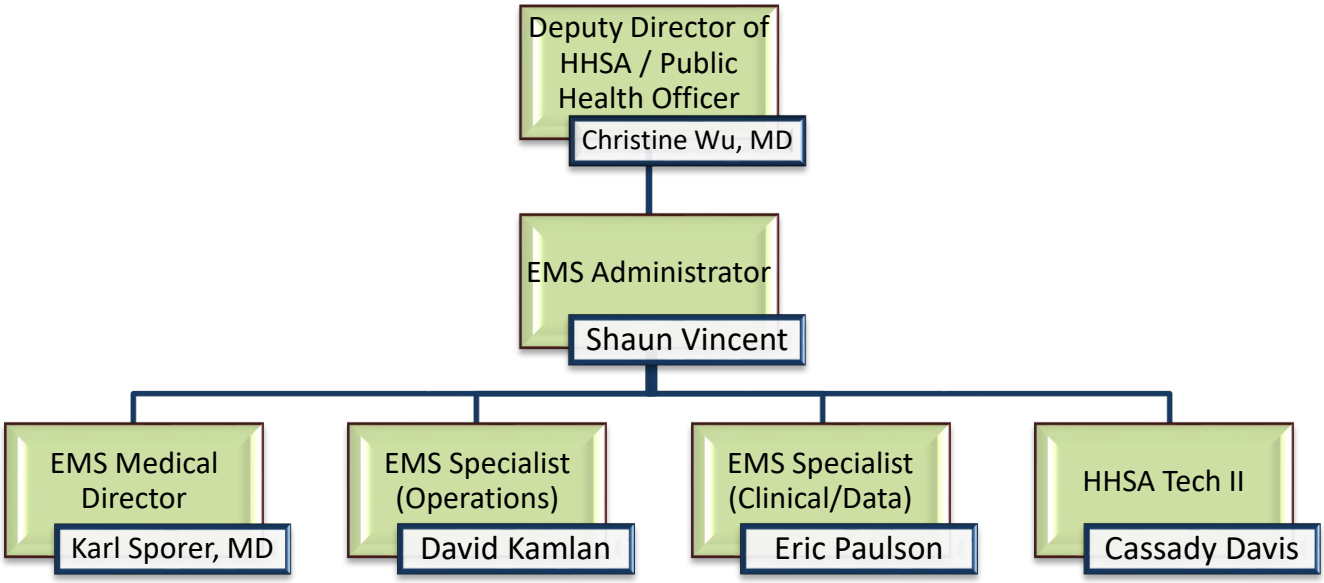
Continuous Quality Improvement is a never-ending process in which all levels of healthcare workers are encouraged to work together, without fear of repercussions, to develop and enhance the system they work in. Based on EMS community collaboration and a shared commitment to excellence, CQI reveals potential areas for improvement of the EMS system, identifies training opportunities, highlights outstanding clinical performance, audits compliance with treatment protocols, and reviews specific illnesses or injuries along with their associated treatments. These efforts contribute to the continued success of our emergency medical services through a systematic process of review, analysis, and improvement.

The Napa County EMS Agency monitors the Continuous Quality Improvement (CQI) activities of all the different components of the EMS System in a prospective (protocols, research), concurrent (ride-alongs, Field Training Officers), and retrospective (incident investigation, random audits) manner. Many of the QI activities take place at the organizational level.

This plan is a guideline for each Napa County provider and the Base Hospital to use when rewriting their organization's CQI plan. All EMS providers and Base Hospitals are required to submit their CQI plan to the Napa County EMS Agency for review and approval. All CQI plans must be in accordance with the Napa County EMS Agency's CQI plan.

The Napa County Emergency Medical Services Agency oversees the county's Emergency Medical Services (EMS) system. This comprehensive system includes Advanced Life Support (ALS) and Basic Life Support (BLS) first responders; ALS, BLS, and Critical Care Transport (CCT) ambulances; BLS air rescue, ALS air rescue, and air ambulance aircraft; dispatch agencies with trained personnel; Base Hospitals; Prehospital Receiving Centers; and specialized centers, such as STEMI, Stroke Receiving Centers, and a Trauma Center. EMS personnel in the field receive guidance through protocols and online medical direction provided by the Base Hospitals.

NAPA COUNTY EMS AGENCY ORGANIZATION CHART:



Deputy Director of HHSA - Public Health/Health Officer: Dr. Christine Wu

EMS Administrator: Shaun Vincent, EMT-P

EMS Medical Director (contractor): Dr. Karl Sporer

EMS Agency Administrative Assistant: Cassady Davis

EMS Specialist: David Kamlan, EMT-P

EMS Specialist: Eric Paulson, EMT-P

AUTHORITY:

On January 1, 2006, the California Emergency Medical Services Authority (EMSA) implemented regulations related to quality improvement for EMS throughout the state. Napa County EQIP satisfies the requirements of Title 22, Chapter 10, Article 4 of the California Code of Regulations.

In addition, EMSA document #166 "Emergency Medical Services System Quality Improvement Program Model Guidelines" provided additional information on the expectations for development and implementation of a Quality Improvement Program for the delivery of EMS for Local EMS Agencies and EMS service providers. Fundamental to this process is the understanding that the program will develop over time and allows for individual variances based on available resources.

This document defines eight areas of focus for QI activities as it relates to the entirety of the EMS system and not just in the areas of patient care and training. These are:

- Personnel
- Equipment and Supplies
- Documentation
- Critical Care and Patient Outcome
- Skills Maintenance/Competency
- Transportation/Facilities
- Public Education and Prevention
- Risk Management

STRUCTURE, ORGANIZATIONAL DESCRIPTION, RESPONSIBILITIES

Local Emergency Medical Services Continuous Quality Improvement (CQI):

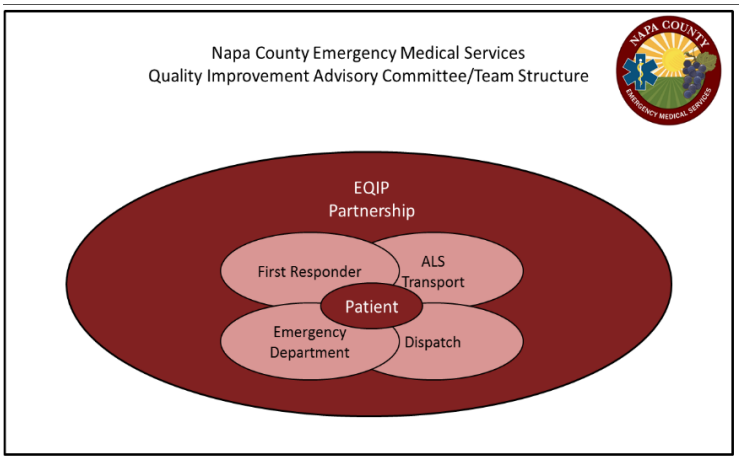
The purpose of the Napa County EMS Continuous Quality Improvement (CQI) Program is to monitor, review, evaluate, and improve the delivery of prehospital care services in Napa County. The Quality Improvement Plan of the Napa County EMS system is designed to create a consistent approach to facilitate attainment of the key EMS quality objectives based on input from the providers and customers of those services. These objectives include:

- Assuring that the level of patient care is consistent with policies, procedures, and guidelines.
- Assuring that the level of patient care is equitable across all patient demographics e.g., race, sex, age, etc.
- Maintain and continually improve the quality of patient care given by all EMS personnel/providers.
- Provide a mechanism whereby EMS personnel or other interested parties can have quality improvement (QI) issues and questions related to out-of-hospital care and the continuum of care addressed.
- Evaluate, on a continual basis, the Napa County EMS Plan and/or Emergency Medical Services Quality Improvement Program (EQIP), including the effectiveness of local policies and treatment protocols.
- Evaluate and improve system performance.
- Establish an advisory committee to the EMS Agency to: monitor; evaluate and report on the quality of care given by EMS personnel (e.g. County CQI, Medical Advisory Committee [MAC], Prehospital Trauma Advisory Committee [Pre-TAC], Cardiovascular Systems of Care [C-SOC]).
- Create a consistent approach to QI and a resource document for Paramedic Liaison Officers (PLO), Prehospital Liaison Nurse (PLN) and base hospital Physicians.

EMS QUALITY IMPROVEMENT PARTNERSHIP: NAPA COUNTY EMS CONTINUOUS

Quality Improvement (CQI) Committee:

The Napa County EMS CQI Committee is a patient focused partnership consisting of designated stakeholders, EMS Agency Medical Director, Provider EMS Medical Directors, and members of the EMS Agency staff assigned to clinical programs. EMS QI activities are coordinated under the EMS Medical Director and assigned EMS staff. This committee is advisory to the EMS Medical Director.



EMS CQI TEAM MEMBERSHIP COMPRISAL

Membership shall consist of the following:

- EMS Agency:
  - Medical Director
  - Assigned staff member(s)
- BLS First Responder Providers
  - One representative from each provider agency.
- ALS First Responder Providers
  - One representative from each provider agency
- ALS Ground Ambulance Providers
  - One representative from each provider agency
- BLS Ground Ambulance Providers
  - One representative from each provider agency
- Base Hospital
  - One representative
- Aircraft Providers
  - One representative from each helicopter/fixed-wing provider
- Receiving Hospitals
  - One representative from each facility
- Dispatch
  - One representative from each EMS dispatch center

Responsibilities of EMS CQI Committee

The EMS QI Committee performs the following functions in accordance with state guidelines as defined in the California Code of Regulations Title 22, Division 9, Chapter 10, Article 4 Section 100250.01:

- Develop and implement a system-wide EMS QI program which will include indicators to address the State EQIP focus areas.
- Annual evaluation of the system-wide EMS QI Program for effectiveness and outcomes
- Incorporation of input and feedback to and from EMS provider groups.
- Assure availability of training and in-service education for EMS personnel.
- Develop in cooperation with appropriate personnel/agencies a performance improvement action plan to address identified needs for improvement and provide technical assistance and medical oversight for system and clinical issues.

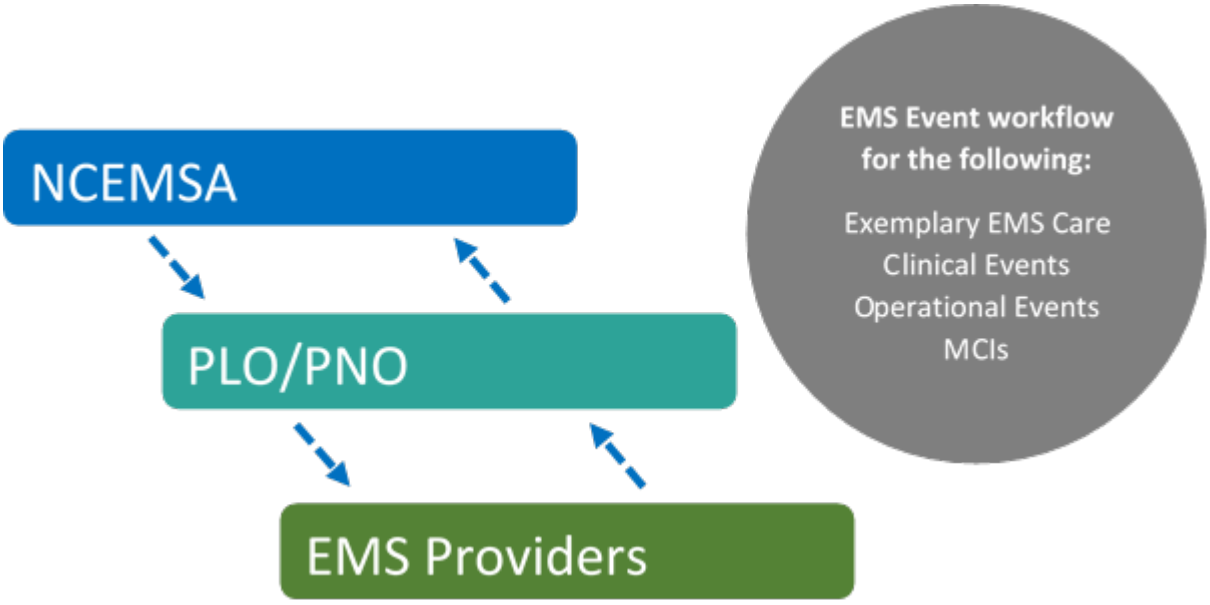
EMS CONTINUOUS QUALITY IMPROVEMENT (CQI) COMMITTEE PROCEDURES

- The EMS Agency Medical Director will oversee the QI program.
- EMS Staff will act to coordinate CQI committee programs and activities.
- The EMS CQI Committee shall meet at regular intervals as identified in EMS Agency policy. The CQI Committee currently meets bi-annually.
- All proceedings, documents, and discussions of the County CQI Committee are confidential and are covered under sections 1040, 1157.5 and 1157.7 of the Evidence Code of the State of California. All members shall sign a confidentiality agreement not to divulge or discuss information that has been obtained through County CQI Committee membership.

- The EMS Agency shall maintain all records in a confidential manner during the review process, and shall destroy identifiable patient information directly following the review process.

EMS EVENT REPORTING

The Napa County EMS has implemented an EMS Event Reporting system that enables participants to provide feedback on the clinical and operational effectiveness of the EMS system. This system allows the EMS Agency and providers to document and assess policies, treatment guidelines, and overall performance, addressing both positive aspects and areas for improvement. The EMS Event Report replaces the previous Quality Improvement Reporting and Unusual Occurrence Form. Recognizing exemplary patient care is a key component of the system, and since its launch, the form has been used to commend outstanding performance. Napa County EMS has also created a HIPAA-compliant online submission process via ImageTrend's License Management System portal. The EMS Event Reporting policy is outlined in Attachment B of this plan.



INTERAGENCY QUALITY IMPROVEMENT RESPONSIBILITIES

Interagency quality improvement responsibilities are summarized below and are based on Title 22 California Code of Regulations Chapter 10 Data and Quality Assurance.

EMS AGENCY RESPONSIBILITIES

1. Approve and review of primary training programs for: public safety first aid and first responder; Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT) and paramedic programs and continuing education (CE) programs for all levels of certification.
2. Seek innovative training programs and materials.
3. Certification of all EMTs and Emergency Medical Dispatchers (EMDs) in the Napa County EMS system.
4. Accreditation of paramedics in the Napa County EMS system.

5. Provide prospective system-wide direction through established county policies, treatment guidelines and procedures.
6. Establish procedures for informing all providers and hospitals of EMS system changes and updates.
7. Retrospective review of the Napa County EMS system via advisory committee(s), data collection and review, patient care report and tape reviews and special studies.
8. Coordination of data from the receiving hospitals into the PCR system.
9. Review and investigate all EMS Event Reports and take appropriate action. The EMS Agency will notify involved parties of resolutions.
10. Develop mechanism for the Paramedic Liaison Officers (PLO's) to notify the EMS Agency when paramedics are hired or leave their agency.

BASE HOSPITAL RESPONSIBILITIES

1. The Base Hospital Shall:
    a. Designate an emergency department (ED) physician as base hospital medical director.
    b. Designate a PLN.
    c. Assure the presence of a base hospital physician in the ED at all times to give radio direction / medical control to pre-hospital personnel.
    d. Provide for CE of certified EMS personnel, including clinical exposure time in specified areas in the hospital for both BLS and ALS pre-hospital care personnel.
    e. Establish and utilize a system of critiquing ALS care responses, both written and taped. This system would include but is not limited to:
        i. Providing feedback to the personnel involved.
        ii. Providing EMS Agency with findings and suggestions for changes, improvements, etc.
    f. Provide the EMS Agency with statistics and information needed for monitoring and evaluating all aspects of the EMS system.
    g. Maintain a log of all EMS calls related to patient care.
    h. Maintain a medically and legally proper system for documentation and storage of all out of hospital care written reports.
    i. EMS tape transmissions will be kept for ninety (90) days and used for the purpose of QI only.
    j. Develop and implement a QI program within the ED consistent with guidelines outlined in the Napa County's QI Program.
2. Criteria for PLN:
    a. Experienced in or have knowledge within the Napa County EMS system.
    b. Knowledge of regulations, policies, treatment guidelines, protocols and local optional scope of practice items developed for pre-hospital care providers.
    c. Comprehension of QI principles and practices.
3. PLN shall:
    a. Cooperate with the EMS Agency, hospitals, and providers in providing any necessary information needed on QI issues.

b. Investigate, critique, document, and report to the EMS Agency all reported incidences of deficiencies in patient care or non-compliance with local policy.

c. Provide both base hospital staff and field personnel with feedback on the outcome of any EMS Event Reports which were initiated by them.

d. Actively participate on appropriate EMS Committee(s). This would include but not be limited to:

    i. Field Care Audit;

    ii. Emergency Medical Care Committee (EMCC);

    iii. Medical Advisory Committee (MAC);

    iv. Prehospital Trauma Advisory Committee (Pre-TAC)

    v. County CQI Committee and

    vi. Cardiovascular Systems of Care (C-SOC)

e. Facilitate education programs for pre-hospital care personnel.

f. Relay information on EMS activities, system changes, and EMS policies to hospital administration, medical and nursing staff, as needed.

g. Keep monthly statistics of base hospital activities and other statistics that may be needed for system planning.

h. Organize and/or assist with pre-hospital training (e.g. FCA).

i. Assist providers with remedial education as needed.

j. Provide pre-hospital feedback via:

    i. EMS Event Reports.

    ii. Verbal or written patient care follow up.

    iii. Flagging calls via computer for County CQI Committee audit.

k. Assist in tracking information/data needed by the County CQI Committee.

4. Base hospital physicians shall:

    a. Provide on-line medical control to all EMS personnel.

    b. Participate in the clinical training of EMT's, paramedics and other base hospital Physicians.

    c. Act as a liaison between EMS personnel and physicians not familiar with the policies, treatment guidelines, protocols and local optional scope of practice items developed for pre-hospital care providers.

    d. Report any QI issues, according to County policy.

    e. Provide vision for system improvement.

RECEIVING HOSPITAL RESPONSIBILITIES

1. Provide admission or treatment and release diagnosis of patients transported to the facility by ambulance, upon request.
2. Assign a nurse liaison to interact with provider agencies, EMS Agency, base hospital and CQI Committee.
3. Participate in educational activities.

PREHOSPITAL ALS PROVIDER AGENCIES

1. Pre-Hospital ALS provider agencies shall:
    a. Participate in accreditation courses and the training of pre-hospital care providers. Design and participate in educational programs based on problem identification and trend analysis.
    b. Establish procedure for promptly informing all field personnel of system changes/updates. Assure all employees are properly oriented to the EMS System.
    c. Designate a Pre-hospital Liaison Officer (PLO) who will be responsible for coordinating the provider agency's interaction with the EMS system.
    d. Utilize criteria, approved by the local EMS medical director, for evaluation of individual pre-hospital care personnel. These should include, but not be limited to, the following:
        i. ePCR / audio tape review.
        ii. Field evaluations.
        iii. New employee evaluations.
        iv. Routine and problem orientated evaluations.
    e. Establish a system to maintain current records on all personnel. These should include copies of the items listed below:
        i. ACLS competency.
        ii. BLS certification.
        iii. Employee and field evaluations.
        iv. Paramedic/EMT licensure/certification
        v. County accreditation confirmation.
2. RN license for the State of California (flight and CCT nurses) shall:
    a. Develop and implement a QI program within the provider agency consistent with guidelines outlined in the Napa County EMS Quality Improvement Program (EQIP). In addition, all aircraft provider agencies shall:
        i. Provide the EMS Agency with statistical reports on all helicopter activity regulated by Napa County EMS policies / treatment guidelines.
        ii. Provide area hospitals and provider agencies with helicopter safety courses.
        iii. Assign a paramedic or RN to the County CQI Committee.
        iv. Facilitate education programs for flight crews specific to out of hospital care and flight medicine.
3. Criteria for PLO:
    a. Experienced in or have knowledge in the EMS system in Napa County.
    b. Knowledge of regulations, policies, treatment guidelines, protocols and local optional scope of practice items developed for pre-hospital care providers.
    c. Comprehension of QI principles and practices.
    d.

4. PLO shall:
    a. Cooperate with the EMS Agency, hospitals, and other providers agencies in providing any necessary information needed on QI issues.
    b. Investigate, critique, document, and report to the EMS Agency all reported incidences of deficiencies in patient care or non-compliance with local policy.
    c. Provide both base hospital staff and field personnel with feedback on the outcome of any EMS Event Reports which were initiated by them.
    d. Actively participate on appropriate EMS Committee(s). This would include but not be limited to:
        i. Emergency Medical Care Committee (EMCC)
        ii. Field Care Audit
        iii. Medical Advisory Committee (MAC)
        iv. Prehospital Trauma Advisory Committee (Pre-TAC)
        v. County CQI Committee
        vi. Cardiovascular Systems of Care (C-SOC)
    e. Facilitate education programs for pre-hospital care personnel.
    f. Relay information on EMS activities, system changes, and EMS policies to provider administration and other staff as needed.
    g. Keep monthly statistics of provider activities and other statistics that may be needed for system planning.
    h. Organize and or assist with pre-hospital training (e.g. FCA).
    i. Provide remediation for QI issues and keep appropriate documentation on file.
5. Pre-hospital care personnel shall:
    a. Participate in QI within own agency.
    b. Provide thorough and complete documentation on all PCRs as per policy.
    c. Promptly comply with the investigation of any QI incident your agency is involved in.
    d. Maintain record of your attendance at CE courses and tape reviews.
    e. Maintain certification/licensure as required by the State of California and the Napa County EMS Agency.

DATA COLLECTION & REPORTING

STATE CORE MEASURES

The Napa County EMS system participates in the Emergency Medical Services Authority Core Measures Project. All measurable Core Measures are submitted to the State EMS Authority by the prescribed deadline. The measurable Core Measures that Napa County currently submits are listed below:

SET NAME	SET ID	PERFORMANCE MEASURE NAME	YEAR BEGIN TO BE MEASURED
Trauma (n=1)	TRA-2	Transport of Trauma Patients to a Trauma Center	2014
	TRA-3	Documentation of GCS, SBP, and RR for Trauma Patients	2025
Hypoglycemia (n=1)	HYP-1	Treatment Administered for Hypoglycemia	2017
Stroke (n=1)	STR-1	Suspected Stroke Patient Receiving Prehospital Screening	2017
Pediatric (n=1)	PED-3	Respiratory Assessment for Pediatric Patients	2017
	PED-4	Documentation of Estimated Weight in Kilograms for Pediatric Patients Receiving Weight-based Medication	2024
Airway (n=3)	AIR-1	Successful First Pass Advanced Airway in Non-Cardiac Arrest Patients	2025
	AIR-2	Waveform Capnography Airway Device	2025
	AIR-3	BVM or SGA for Pediatric Patients	2025

AMBULANCE PATIENT OFFLOAD TIME (APOT)

The Napa County EMS Agency submits APOT data to the Emergency Medical Services Authority on a quarterly basis. The measurable data sets that Napa County currently submits are listed below:

SET NAME	SET ID	PERFORMANCE MEASURE NAME	YEAR BEGIN TO BE MEASURED
Ambulance Patient Offload Times (n=2)	APOT-1	Ambulance Patient Offload Time for Emergency Patients	2016
	APOT-2	Duration of Ambulance Patient Offload Time for Patients transported to the Emergency Department by 911 response emergency ambulance	2016

LOCAL INDICATORS

In addition to the Emergency Medical Services Authority Core Measures Project, the Napa County EMS System has developed additional indicators locally. The measurable Local Indicators that the Napa County EMS system currently uses are listed below:

Categories	Area of Focus	Metric ID	Metric Description
A Personnel	Certifications/ Licensure (n=2)	NPER-1	Certification/Authorization/Licensure for all EMS personnel is current
		NPER-2	Disaggregated sex and race/ethnicity data for EMT Certifications that are denied, revoked, or placed on probation. (AB2293)
B Equipment and Supplies	Ambulance Equipment (n=1)	NAMB-1	Annual ambulance inspections completed for every vehicle certified to operate in Napa County
C Documentation	ePCRs (n=1)	EPCR-1	Monthly reconciliation of failed ePCR imports and exports from provider agencies into the ImageTrend/CEMSIS data repository
D Clinical Care and Patient Outcome	Cardiac Arrest (n=16)	NCA-3	Transports vs Pronounced in Field
		NCA-4	OHCA patients admitted to hospital
		NCA-5	OHCA patients discharged alive with a CPC of 1-4
		NCA-6	OHCA discharged alive with a CPC of 1 or 2
		NCA-7	Survival with BLS and ALS airway devices
		NCA-8	Sex of OHCA patients
		NCA-9	Race/Ethnicity of OHCA patients
		NCA-10	Median Age of OHCA patients
		NCA-11	ETC02 ≤ 20 when patient pronounced in field
		NCA-12	Final rhythm of Asystole or PEA with all field pronouncements
		NCA-13	Utstein 1 (Napa and National data)
		NCA-14	Utstein 2 (Napa and National data)
		NCA-15	Non-traumatic survival (Napa and National data)
		NCA-16	Survival with presumed cardiac etiology
		NCA-17	Mechanical compression device utilized
		NCA-18	ETC02 for non-traumatic cardiac arrests patients
	Pediatrics (n=2)	NPED-1	Accuracy of pediatric medication administrations
		NPED-2	Length-based tape color documented for every pediatric patient
D Clinical Care and Patient Outcome	STEMI (n=15)	NACS-1	Aspirin administered for STEMIs
		NACS-2	Median Door to 1st Hospital EKG
		NACS-3	Median Hospital 1st EKG to Cath Lab
		NACS-4	Median Cath Lab to Balloon
		NACS-5	Median Door to Balloon
		NACS-6	Method of Arrival (EMS vs Walk-in)
		NACS-7	Sex of STEMI patients receiving PCI
		NACS-8	Race/Ethnicity of STEMI patients receiving PCI
		NACS-9	Median Age of STEMI patients receiving PCI
		NACS-10	Median Scene Time

		NACS-11	Median Transport Time
		NACS-12	Median First EMS Contact to Balloon
		NACS-13	Pre-Arrival Notification for all STEMIs
		NACS-14	False Positive STEMI Alerts
		NACS-15	% of time scene time ≤ 10 min
	Stroke (n=22)	NSTR-1	Median Scene Time
		NSTR-2	Median Transport Time
		NSTR-3	Median Door to CT Time
		NSTR-4	% Door to CT ≤ 25 min
		NSTR-5	Median CT to Needle
		NSTR-6	Median First EMS Contact to Needle
		NSTR-7	Median Door to Needle
		NSTR-8	% Door to Needle ≤ 45 min
		NSTR-9	% Door to Needle ≤ 30 min
		NSTR-10	% Stroke Arrival by EMS
		NSTR-11	Pre-Arrival Notification for all Strokes
		NSTR-12	Sex of stroke patients receiving thrombolytics
		NSTR-13	Race/Ethnicity of stroke patients receiving thrombolytics
		NSTR-14	Median Age of stroke patients receiving thrombolytics
		NSTR-15	Blood glucose level for all Stroke Alerts
		NSTR-16	IV established for all Stroke Alerts
		NSTR-17	LKWT documented for all Stroke Alerts
		NSTR-18	Stroke Scale Documented for all Stroke Alerts
		NSTR-19	Stroke Alert when LKWT < 4hrs from pt contact
		NSTR-20	DIDO - Median Door-in-Door-out Times
		NSTR-21	False Positive Stroke Alerts
		NSTR-22	% of time scene time ≤ 10 min
	Trauma (n=2)	NTRA-1	% of time scene time ≤ 10 min (ITLS)
		NTRA-2	% of time scene time ≤ 20 min (ACS)
E Skills Maintenance/ Competency	Advanced Airway (n=8)	NAA-1	ETT - Success per patient
		NAA-2	ETT - Success per attempt
		NAA-3	ETT - First pass success per patient
		NAA-4	SGA - Success per patient

		NAA-5	SGA - Success per attempt
		NAA-6	SGA - First pass success patient
		NAA-7	Primary airway device
		NAA-8	ETT ≥ 3 attempts
F Transportation / Facilities	Operations (n=3)	NOP-1	Helicopter Utilization (Transports vs Cancelations)
		NOP-2	Helicopter Utilization (Air ambulance transports)
		NOP-3	Helicopter Utilization (Air rescue transports)
G Public Education and Prevention	Cardiac Arrest (n=2)	NCA-1	Bystander CPR (Napa and National data)
		NCA-2	All AED usages (Layperson, Healthcare Provider, Law Enforcement, BLS Providers)
H Risk Management	Miscellaneous (n=1)	NAMA-1	AMA/RAS vs Transports

EVALUATION OF EMS SYSTEM INDICATORS

Current Status of EMS System

PERSONNEL

Napa County EMS has established policies related to the initial certification, re-certification, and accreditation of EMT, paramedic, and dispatch personnel in Napa County. Additional requirements for EMS personnel are included in provider contracts, including requirements for Advanced Cardiac Life Support (ACLS) or equivalent, Pediatric Advanced Life Support (PALS) or equivalent, and Prehospital Trauma Life Support (PHTLS) or equivalent.

EMTs, paramedics are required to stay current and knowledgeable regarding the policies and procedures of Napa County EMS. This is accomplished via policy update classes held during the first quarter of each year. Napa County EMS assists with this process by either hosting the policy update classes or developing training tools and hosting a train-the-trainer session on the new guidelines and procedures. Napa County dispatchers continue to meet training standards established by the International Academy of Emergency Dispatch (IAED).

Prehospital personnel performance issues are primarily addressed at the employer level. However, if an incident involves a potential threat to public health and safety, or if the incident involves the potential for patient harm, the incident must be reported to the Napa County EMS Agency. The Napa County EMS Agency established an EMS Event Reporting policy, attached as Attachment B of this document, and addresses the process for providing feedback and input regarding the EMS system.

EQUIPMENT AND SUPPLIES

The Napa County EMS Agency has established minimum equipment requirements for ALS ambulances and first response vehicles and BLS ambulances and first response vehicles. These requirements can be found in Administrative Policy 401-Equipment and Supply Standard.

The minimum equipment requirements are reviewed no less than once annually. Provider agencies are invited to provide feedback regarding minimum equipment requirements and introduce potential new equipment changes to our Medical Advisory Committee (MAC).

DOCUMENTATION

Napa County EMS providers are currently using several different software vendors for electronic patient care reporting. The Napa County EMS Agency has implemented ImageTrend as a data repository. All Napa County EMS Providers using an electronic PCR system have been

successfully integrated into ImageTrend. This repository is essential to enhancing our robust quality improvement program.

CLINICAL CARE AND PATIENT OUTCOME

Clinical care in Napa County is guided prospectively by treatment guidelines. This effort is led by the Medical Advisory Committee (MAC), a group made up of the Napa EMS Agency Medical Director and interested personnel from provider agencies and hospitals. Napa County currently uses a smartphone app and its webpage for distribution of policy and treatment guideline updates. Both the smartphone application and webpage can be updated anytime there is a policy or treatment guideline change. Beginning 2021 changes to existing or the establishment of new policies and treatment guidelines will be effective April 1st of each year. The Napa County EMS Agency uses a public comment process prior to deploying planned/non-urgent treatment guideline changes. Prior to the public comment process, the Napa County EMS Agency hosts several policy review workgroups with all system participants to discuss upcoming changes and hear proposed policy changes or additions from the system.

Napa County EMS currently has Trauma, STEMI, Stroke, and Cardiac Arrest systems of care in place. The clinical EMS Specialist oversees all systems of care with the EMS Medical Director and is working to develop an Emergency Medical Services for Children Program compliant with state regulation.

SKILLS MAINTENANCE/COMPETENCY

Regular skills maintenance and competency verification is conducted by provider agencies throughout the Napa County EMS system. These skills competencies include review of infrequent skills, local optional scope of practice (LOSOP) skills, and any trial study skills that may be occurring in the EMS system. In 2018, Napa County EMS began working to improve endotracheal intubation success rates through the establishment of additional training requirements. In 2019, the Napa County EMS Agency continued this work through collaboration with ALS providers by establishing an “Airway Workgroup.” A design thinking process was used to address intubation challenges and airway management as a whole. This workgroup of dedicated clinicians produced several policy changes that sent into effect on January 1st 2020. These efforts were derailed by the COVID-19 pandemic, as endotracheal intubation was discouraged in lieu of supraglottic airways for provider safety. As a requirement for continuous accreditation, Napa County Paramedics are required to perform three successful simulated endotracheal intubations bi-annually.

TRANSPORTATION/FACILITIES

Napa County has a total of two prehospital receiving centers; both are STEMI and Primary Stroke Receiving Centers, and one is also a Base Hospital and Level III Trauma Receiving Center

9-1-1 callers receive at least an ALS first responder (via fire department or AMR Quick Response Vehicle) in most areas of the county. American Medical Response provides all ground ALS transport services through an exclusive county-wide ambulance contract. Currently, The California Highway Patrol ALS Air Rescue program and REACH Air Ambulance Services are located at the Napa County Airport. Other ALS helicopters regularly respond to calls in Napa County.

ALS interfacility transports are handled by American Medical Response under their county-wide EOA and through their current agreement with Napa County. All ground BLS and CCT level calls are serviced by one of five different non-emergency providers.

PUBLIC EDUCATION AND PREVENTION

The Napa County EMS system is fortunate to have many providers dedicated to public education and prevention. The Emergency Medical Care Committee (EMCC) has established the sub-committee Public Information and Education (PIE) that focuses on providing information

and education about EMS to the public. The EMS system also benefits from several fire departments, local ambulance providers, and hospitals that routinely provide critical public information and education from hands only CPR to “Every 15 Minutes” programs.

Significant efforts have been made to improve public education through the PIE group. This education includes the use of PulsePoint, Hands-only CPR, and “Know the Signs”.

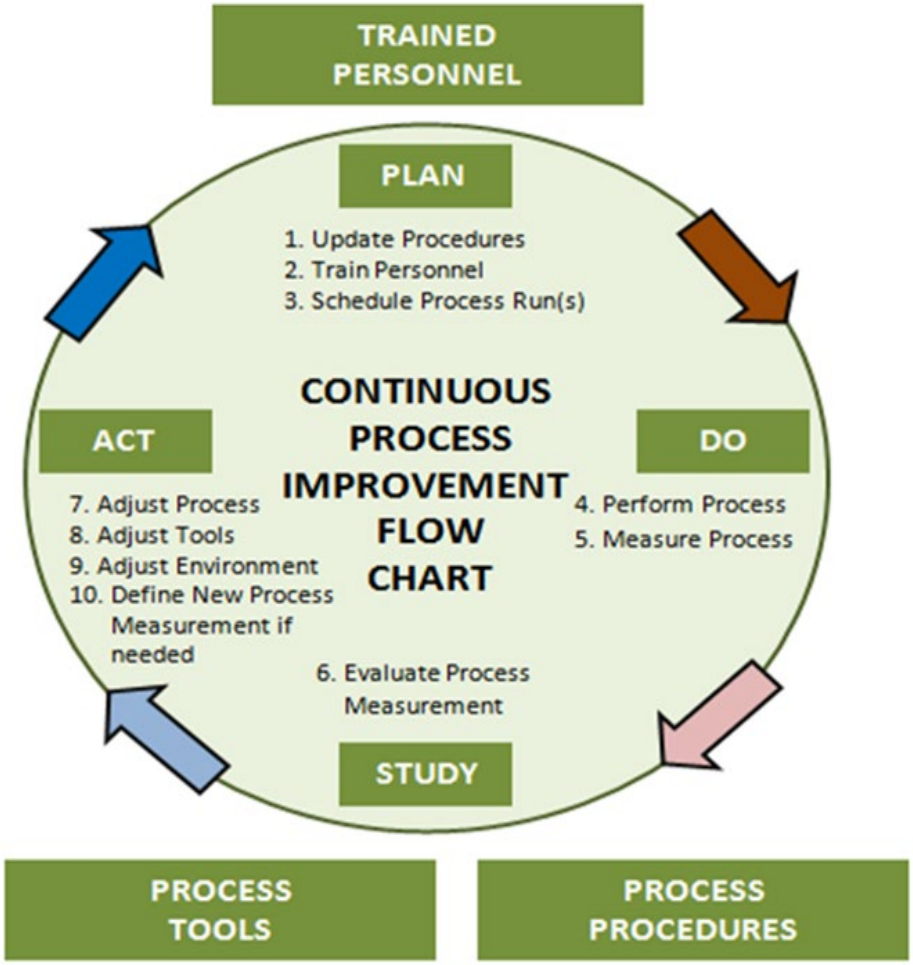
RISK MANAGEMENT

The Napa County EMS Agency fully investigates all complaints and issues regarding patient care or on-scene communications issues that are brought to our attention. These incident reviews are tracked and recorded and kept in a secure file. All incident reviews are protected from disclosure by the California Evidence Code 1157 and 1157.7. During annual inspection of each provider in Napa County, records are reviewed to ensure compliance with all federal, state, and local ordinances, laws, regulations, and policies.

ACTION TO IMPROVE

CQI is a dynamic process that provides critical feedback and performance data on the EMS system based on defined indicators that reflect standards in the community, state and the nation. The Napa County CQI Committee follows the Plan, Do, Study, Act (PDSA) Cycle for all improvements in the EMS system

1. Plan
    a. What is the objective?
    b. Questions and predictions
    c. Plan to carry out the cycle (who, what where, when?)
    d. Plan for data collection
2. Do
    a. Carry out the plan
    b. Document problems and unexpected observations
    c. Begin analysis of the data
3. Study
    a. Complete the analysis of the data
    b. Compare data to predictions
    c. Summarize what was learned
4. Act
    a. What changes are to be made?
    b. What is the next cycle?



TRAINING AND EDUCATION

EDUCATIONAL PROCESS

Training and CQI go hand in hand. As the CQI model identifies trends and quantifies issues in the EMS system, the provider QI coordinators incorporate training programs directed at correcting opportunities identified in the CQI process.

Currently, required education is provided by providers and base hospitals, and consists of the following:

- Basic Cardiac Life Support (BCLS)
- Advanced Cardiac Life Support (ACLS)
- Pediatric Advanced Life Support (PALS)
- Prehospital Trauma Life Support (PHTLS) or International Trauma Life Support (ITLS)
- Annual Policy Updates

Pre-hospital cases with a Trauma, Stroke, STEMI, or Cardiac Arrest "Alert" are flagged for review. The focus of each case assessment is performance metrics unique to that system of care. Additionally, Cardiac Arrest feedback is accompanied by an annotated CPR Report providing an objective clinical summary of events. The Napa County EMS Agency aims to provide all feedback in a timely fashion in hopes of maximizing effectiveness. All Medical Director case assessment feedback forms are included in this document as Attachment E.

The Napa County EMS Agency recognizes the value of video-based education as a training tool, and has collaborated with EMS system stakeholders to create several. Once viewed, they remain a resource to providers. Below are the videos currently available.

- Stroke Screening (Initial and Update)
    - With implementation of the Stroke System of Care, two additional screenings were included to capture posterior strokes including, "finger-to-nose," and "visual fields" exam. This video explains brain pathophysiology, provides live skill demonstrations, and offers key takeaways consistent with county policy.
- CPR Reports
    - This offers step-by-step instructions on interpreting CPR Reports and clarifying expectations for transmitting cardiac arrest data.
- MIVT Trauma Reporting
    - To address a need identified by the Trauma Center, this video explains how to use a standardized reporting format for trauma patients during the initial notification and bedside report through a live demonstration.

ANNUAL UPDATE

The Napa County EMS Agency Medical Director will evaluate the QI Program with the EMS CQI Committee at least once annually. This group will be tasked with ensuring that the QI Plan is in alignment with the County's strategic goals and will review the plan to identify what did and did not work. From this evaluation, an Annual Update will be provided that includes the following information:

1. Description of agency.
2. Statement of EMS QI Program goals and objectives.
3. List and define indicators utilized during the reporting year which include:
    a. Define state and local indicators.

b. Define methods to retrieve data from receiving hospitals regarding patient diagnoses and disposition.

c. Audit critical skills.

d. Identify issues for further system consideration.

e. Identify trending issues.

f. Create improvement action plans (what was done and what needs to be done).

g. Describe issues that were resolved.

h. List opportunities for improvement and plans for next review cycle.

i. Describe continuing education and skill training provided as a result of Performance Improvement Plans.

j. Describe any revision of in-house policies.

k. Report to constituent groups.

l. Describe next year's work plan based on the results of the reporting year's indicator review.

Attachment A:

Napa County EMS Quality Improvement Program Policy

NAPA COUNTY EMS AGENCY

EMS Quality Improvement Program

EMS ADMINISTRATION 603

PURPOSE

I. This policy identifies the primary responsibilities of all participants in the Napa County EMS Quality Improvement Program (EQIP) and to ensure optimal quality of care for all patients who access the EMS system.

POLICY

I. REQUIREMENTS

A. EQIP includes all Napa County EMS provider agencies participating in patient care and delivery.

B. EQIP shall be compliant with the California Code of Regulations, Title 22, Division 9, Chapter 10: Data and Quality Assurance.

C. The oversight for EQIP will be the responsibility of the Napa County EMS Agency Medical Director, who will solicit input from stakeholders participating in the Prehospital Quality Improvement (QI) Committee.

D. All proceedings, documents and discussions of the Prehospital QI Committee are confidential pursuant to section 1157.7 of the Evidence Code of the State of California.

1. Each member of the Prehospital QI Committee shall sign a confidentially agreement.
2. Each agency shall maintain all records in a confidential manner consistent with current patient privacy laws (HIPAA).

E. Appropriate QI indicators shall be reviewed at the EMS provider agency level on a monthly basis and a report of findings shall be made to the Napa County EMS Agency at agreed upon intervals. Aggregate data for the EMS System will be maintained by the Napa County EMS Agency and reported quarterly to all system stakeholders.

F. Each provider agency shall submit an annual report of QI activities to the Napa County EMS Agency.

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Attachment B:

Napa County EMS Event Reporting Policy

NAPA COUNTY EMS AGENCY

EMS Event Reporting

EMS ADMINISTRATION 602

PURPOSE

I. To establish a system of patient safety and EMS response-related reporting requirements for the purposes of review, data analysis, patient safety and EMS system performance

II. To define reporting requirements for events which may have the potential to cause community concern or represent a threat to public health and safety

III. To define the reporting and monitoring responsibilities of all EMS system participants

IV. To recognize exemplary prehospital care in the EMS system.

POLICY

I. REPORTING RESPONSIBILITY

A. The reporting requirements established by this policy apply to prehospital care providers, EMS service providers, EMD centers, and hospitals.

B. Providers shall directly report to the Napa County EMS Agency any event that is "required to be reported" by this policy.

II. REPORTING REQUIREMENTS

A. The following EMS events shall be reported to the Napa County EMS Agency via the **ImageTrend License Management System Portal.** within twenty-four (24) hours of the incident.

1. Any event that has resulted in or has the potential to lead to an adverse patient outcome.
2. Any deviation from a Napa County EMS Agency policy or protocol that resulted in patient harm, had the potential to result in harm or had a potential threat to public safety;
3. Medication, treatment or clinical errors that resulted in patient harm, had the potential to result in harm or had a potential threat to public safety;
4. Equipment failure or malfunction that resulted in patient harm, had the potential to result in harm or had a potential threat to public safety;
5. Technology or communications systems errors or malfunctions that resulted in patient harm, had the potential to result in harm or had a potential threat to public safety;
6. The collision of any ambulance or EMS response vehicle that results in injury;
7. Any unusual event/occurrence (e.g. MCI, abnormal patient condition, Base Hospital communication failure);
8. Any event or circumstance that is or shall be reported to another regulatory or enforcement agency, including but not limited to the California Emergency Medical Services Authority (EMSA), Napa County Public Health or California Department of Public Health (CDPH), or the Centers for Disease Control and Prevention (CDC).

B. Timely reporting of the following types of events is strongly encouraged:

1. Exemplary care in the field deserving of recognition and/or commendation.
2. Great Catches: A "great catch" includes recognition of provider action that contributes to the prevention of negative or adverse patient outcomes.

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Attachment C:

Napa County EMS Continuous Quality Improvement (CQI) Committee Policy

NAPA COUNTY EMS AGENCY

Continuous Quality Improvement Committee

EMS ADMINISTRATION 606

PURPOSE

I. To establish an advisory committee to the respective medical control committees and the Napa County EMS Agency to monitor, evaluate and report on the quality of out of hospital care.

II. This committee will not address individual performance or practice issues.

POLICY

I. OBJECTIVES

A. Delineate/evaluate scope of care including policies and treatment guidelines.

B. Set up criteria for identifying potential system problems before patient care is compromised.

C. Identify concurrent system problems involving patient care.

D. Develop and recommend to the medical control committees criteria for correcting potential or real problems.

E. Monitor effectiveness of corrective action strategies through re-audit activities.

F. It shall not be the function of this committee to become directly involved in the certification review process of any specific individual as the authority lies with the State EMS Authority or the Napa County EMS medical director or designee (Division 2.5, Section 1798.200 of the Health and Safety Code).

II. CONFIDENTIALITY

A. All proceedings, documents, and discussions of the County CQI Committee are confidential and are covered under sections 1040, 1157.5 and 1157.7 of the Evidence Code of the State of California. All members shall sign a confidentiality agreement not to divulge or discuss information that has been obtained through County CQI Committee membership.

III. MEMBERSHIP GUIDELINES

A. Membership will be assigned from each provider agency or hospital.

B. Each committee member shall be active in quality improvement (QI) within their agency or hospital.

IV. MEMBERSHIP COMPRISAL

A. Membership shall consist of the following:

1. EMS Agency:
    a. Medical director.
    b. Staff member(s).
2. BLS First Responder Provider(s):
    a. One (1) representative (PLO or designee) from each provider agency.
3. ALS First Responder Provider(s):
    a. One (1) representative (PLO or designee) from each provider agency.
4. ALS Ground Ambulance Provider(s):

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POLICY

a. One (1) representative (PLO or designee) from each provider agency.

5. Angwin Community Ambulance (ACA).
6. Base Hospital (Queen of the Valley Medical Center – QVMC):
    a. One (1) representative (PLN or designee).
7. Helicopter Providers:
    a. One (1) representative from each helicopter provider.
8. Receiving Hospital(s):
    a. One (1) representative from each facility.
9. Dispatch:
    a. One (1) representative from each EMS dispatch center.

V. SCOPE OF REVIEW

A. Delineate/evaluate scope of care including policies and treatment guidelines.

1. Take an inventory of the most common types of patients served, diagnoses and conditions treated, treatments and activities performed and types of practitioners providing care. This helps assure all aspects of care provided are considered during the evaluation process.
2. This inventory provides a basis for subsequent steps in the monitoring and evaluation process by helping assure that all aspects of the care provided are considered.
3. Utilization statistics collected at the EMS Agency, Dispatch, each facility and EMS provider agency, will help in determining high volume important activities.
4. Identify special cases that may serve to educate or allow the system to develop future contingency plans or changes in policies and/or guidelines.

VI. SENTINEL INDICATORS

A. The following are examples of indicators that may be used on a rotational basis to track trends in out of hospital care:

1. High volume areas-the aspect of care that occurs frequently or affects a large number of patients (e.g., chest pain, dyspnea, seizures).
2. High-risk areas-patients that are at risk for serious consequences or are deprived of substantial benefit if the care is not provided correctly (e.g. STEMI, RAS/AMA, local optional scope of practice [LOSOP] items, SCA management, etc.).
3. The aspect of care has tended to produce problems for prehospital personnel or patients (e.g., MCIs, pediatric patients).
4. Deviations from standards of care (e.g., treatment/procedure variation).
5. Transportation issues (e.g., non-transports, helicopter utilizations, code three (3) transports).
6. Appropriateness of protocol/treatment guideline adherence to specific criteria for a condition or procedure.
7. Adverse patient outcomes-unexpected events.
8. Threshold indicators-from statistical data.

Attachment D:

Medical Director Case Assessment Feedback Forms

Medical Director Case Assessment-Stroke

Call Number:

Date sent to medics:

Best Practices:

	Case	Goal
Stroke screen done and documented:		*CPSS, visual fields, FNF documented*
Stroke alert called:		
BS done:		
Last Known Well documented:		*Documented in clock time*

Comments for the case:

Medical Director Case Assessment-STEMI Case

Call Number:

Date sent to medics:

Best Practices:

	Case	Goal
ECG done		Within 10 min on scene
Aspirin given by EMS or prior to arrival: If not, why documented:		Always given, either by EMS or prior to arrival. If not, valid reason why not
ECG transmitted to hospital:		Always
STEMI alert made:		Within 10 min of ECG showing STEMI

Comments for the case:

Medical Director Case Assessment-SCA

Call Number:	
Date sent to medics:	

Best Practices:

Measure			Goal
Compression fraction:			*80-100%*
Pre-shock pause	Longest:		*<5 seconds*
	Average:		
Post-shock pause	Longest:		*<5 seconds*
	Average:		
Longest Pause:			*<10 seconds*
Number of pauses >10 seconds			
12-lead obtained after ROSC			

Comments for the case: