

EMERGENCY MEDICAL SERVICES AUTHORITY

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July 2, 2009

Larry Karsteadt
North Coast EMS Agency
3340 Glenwood Avenue
Eureka, California 95501

Dear Mr. Karsteadt:

After a careful review, the Emergency Medical Services Authority has determined that the *North Coast 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*.

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, appearing to read "Bonnie Sinz".

Bonnie Sinz, RN
EMS Systems Division Chief

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North Coast EMS Quality Improvement Program 2006*

Completed August 2006

Submitted to the California State EMS Authority July 2007

The purpose of the North Coast EMS Quality Improvement Program (QIP) is to identify individual components of the North Coast EMS System that can be measured and/or evaluated, regularly reviewed and modified in order to ensure optimal system performance. The North Coast EMS QIP satisfies the requirements of Title 22, Chapter 12, Section 4 of the California Code of Regulations.

The North Coast EMS QIP relies on input from all system participants, including EMS provider agencies, regional hospitals, provider and hospital employees, the State EMS Authority, public comment and North Coast EMS Agency staff. North Coast EMS requires each approved ALS provider, designated base hospital and trauma center to submit initial QIP Plans and quarterly QIP data for review and approval. In particular, these "Quarterly QIP Reports" have evolved into an essential QI mechanism, and include the focused review (generally clinical), of quality indicators corresponding to identified regionwide QI objectives determined by the North Coast EMS Medical Director in consultation with the North Coast EMS Executive Director, EMS Coordinator and other system participants. Subsequent to their submission by providers and hospitals, North Coast EMS circulates a summary of their Quarterly QIP Report findings. The Quarterly QIP Report Summaries are included in the North Coast EMS Informational Mailing which is circulated and posted on the agency's web site several times a year. ALS providers are also required by law to notify the Agency and EMSA of any potential violations by certified/licensed/accredited prehospital personnel.

The North Coast EMS QIP Plan is a narrative document, within which the activities described by the Model Guidelines have been addressed. In some cases, these activities (the intent of the regulations and guidelines) are accomplished through mechanisms or structures not contemplated in the guidelines. North Coast EMS interprets the "guidelines" as such and -- as frequently noted within the guidelines - not as dictates as to how the goals of the regulations and guidelines are to be accomplished. Given the particular challenges of administering EMS over such a large and sparsely populated portion of California, such flexibility in achieving the goals of the regulations is vital. North Coast EMS has successfully integrated a structured QIP process into the routine activities of all ALS provider agencies and hospitals. EMSA promulgation of the QIP

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regulations allowed for this evolution, just as EMSA's ongoing support is essential to the continuing improvements in our EMS system.

The North Coast EMS QIP Plan describes how the agency approaches quality improvement in the 8 areas addressed by the QIP regulations. These approaches are similar to the recommended approach, but vary according to specific circumstances. Particularly when focusing provider and hospital QI representatives attention on the identified quality indicators, North Coast EMS encourages them to establish a criteria for measurement rather than simply applying a "pass/fail" review. Providers and hospitals are further encouraged to considering their own approaches to measuring the quarterly identified "indicator" and, through the Quarterly QIP Report Summary, North Coast EMS shares the results regionwide, highlighting "best practices" rather than establishing a single measurement. In this way, provider and hospital QI representatives are empowered to apply their own creativity and initiative, not only to the focused indicator, but to other issues that they confront individually. North Coast EMS further promotes improvement by assembling the results of provider and hospital reports, agenizing them for group discussion, considering their significance, and goals and strategies for improvement. In subsequent focused reviews, North Coast EMS will revisit issues that merit further consideration.

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Significantly, for a region comprised of three counties, a single designated EMS QI Team is not feasible, and the function of this QI Team must be accomplished by the Committees and ad hoc committees described in the NCEMS QIP Plan. The North Coast EMS Coordinator typically acts as the QI Coordinator and QI issues are initially discussed with the NCEMS Executive and Medical Directors and subsequently, as needed, by the relevant NCEMS committee or ad hoc group. As noted within the document, the monthly Medical Advisory Committee (MAC) (Del Norte and Humboldt Counties) and Emergency Medical Care Committee (EMCC) (Lake County) meetings are well attended by the same provider and hospital representatives who serve as their agencies' and hospitals' QI coordinators. QI concerns are either agenized within these meetings or, when necessary, ad hoc confidentially protected committees comprised of involved QI representatives, are scheduled immediately following the MAC and EMCC meetings. Given the travel distances and expense involved in gathering regional representatives, North Coast EMS increasingly relies on conference calls to address particular QI discussions, and the Executive Director has taken a lead position on improving conference calling technology both within the region and Statewide.

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Importantly

North Coast EMS ensures the agency's EMS Coordinator and other agency representatives are able to attend data and QI seminars, workshops and other relevant educational opportunities. North Coast EMS pursues every opportunity to increase agency, provider and hospital personnel expertise in quality improvement.

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ALS provider and hospital QIP Plans have been approved by North Coast EMS and funding from their Quarterly QIP reports are updated in the North Coast EMS GF quarterly and annual reports, and the Regional EMS Plan. Also, any substantial non-

compliance to state and regional standards by certified/accredited personnel, or by approved or designated training programs, LALS/ALS providers, base hospitals, Emergency Departments Approved for Pediatrics, or Trauma Centers are assessed, and as needed, remediated, probated, suspended or revoked for cause through a process of fact finding and due process.

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The North Coast EMS QIP is reviewed yearly by the Agency and evaluated every five years by the State EMS Authority. It is made available to system participants and the public on the North Coast EMS web site www.northcoastems.com.

The North Coast EMS QIP focuses on the following system components:

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

Personnel

North Coast EMS is committed to facilitating the certification and employment of the highest possible level of prehospital personnel within our region. This objective is accomplished, in part, by providing clear requirements for regional accreditation of EMT-Is, EMT-IIIs, Paramedics and MICNs in accordance with State regulations (Relevant forms and policies are easily accessible to visitor to North Coast EMS's web site www.northcoastems.com). North Coast EMS supports prehospital provider education, both directly through training programs, and indirectly through approval of training programs and the personnel requirements included in provider agency agreements.

North Coast EMS participates as possible in State committees and task forces, and reviews and comments on all proposed changes to the State regulations concerning EMS certification. North Coast EMS also publicizes, and solicits comment from other North Coast EMS system participants concerning possible changes to ensure that State certification requirements are made after consideration of how they will effect the North Coast EMS region.

The North Coast EMS region shares challenges faced by other rural areas in training, maintaining certification of, and attracting qualified EMS instructors and responders. Availability of training in the more rural and

remote communities is an ongoing problem. North Coast EMS regularly alerts system participants to changes in requirements that may affect their personnel or potential hires, particularly testing requirements. As with all noteworthy issues, interested parties are advised via memos, regular meetings (EMCC and MAC), the North Coast EMS web site, and Informational Mailings (typically issued 2 to 3 times yearly).

Certification -

As possible, North Coast EMS prioritizes new certifications/accreditations in an effort to support provider staffing requirements. Time allowed for certification/accreditation "turn around" is defined by State regulation as well as North Coast EMS agency policy, but in all cases North Coast EMS accomplishes these certifications/accreditations well within the maximum allowable time. Provided certification/accreditation documentation is properly filed with the agency, North Coast EMS attempts to fulfill special provider requests for accelerated personnel accreditation.

Local accreditation of Paramedics includes requirements that the paramedic in question receive focused orientation to local practices and protocols. New paramedics are proctored by locally approved Field Training Officers (FTO) who must meet minimum requirements and be nominated by their assigned base hospital Prehospital Care Medical Director (PCMD) and Prehospital Care Nurse Coordinator (PCNC). North Coast EMS has recently contracted with Paramedic Sal Gurreri, one of the region's most experienced FTOs and prehospital educators to review and make improvements to the field internship process, principally focused on providing FTOs with more extensive training in adult learning theory and practice. Prior to recommending local accreditation of paramedics new to the area, the North Coast EMS Coordinator reviews at least 5 of the new paramedics' prehospital care reports, and 10 in the case of newly State licensed paramedics. The EMS Clinical Coordinator takes concerns to the North Coast EMS Regional Medical Director who may require additional evaluation or orientation of the newly accrediting paramedics.

Certification Review –

Quality reviews of prehospital or MICN performance are the direct responsibility of the licensure/accreditation/certification/approval holders' provider/employer and/or assigned Base Hospital. North Coast EMS participates in Case Reviews involving multiple agencies, or Case Reviews beyond the means or competence of the provider and/or base hospital. North Coast EMS Case Reviews are conducted according to North Coast EMS Policy 2104. North Coast EMS conducts or participates in Case Reviews of prehospital personnel and MICNs for questions that may affect licensure or accreditation. "Certification Review" procedures

are described in North Coast EMS Policy 2105. All reviews ensure due process and factually based evaluations following state standards.

Licensure/accreditation/certification/approval reviews are as comprehensive, and include documentation and audio recordings, as well as confidentially protected (by signed agreement) consultation or interviews of all parties who may be able to provide relevant information. Questions concerning paramedic licensure are forward to the EMSA as rapidly as possible, and North Coast EMS offers the EMSA investigatory assistance. The North Coast EMS Regional Medical Director makes determinations about EMT-I and EMT-II certification (conducted in accordance with Title 22, Chapter 9, Division 6 of the California Code of Regulations) and MICN approval. For Case Reviews of any other medical certification holder, North Coast EMS advises the appropriate credentialing or oversight authority.

Training –

North Coast EMS is involved in virtually all aspects of training for EMT-Is, Paramedics and MICNs, as well as monitoring and approval of first responder, EMT-I, Early Defibrillation, Emergency Medical Dispatcher, EMT-II, EMT-Paramedic, Mobile Intensive Care Nurse (MICN) training programs. As agency staff time and resources permit, North Coast EMS strives to ensure that training programs meet the highest possible State and National standards.

North Coast EMS has developed policies regarding required training program approval of first responder, EMT-I, Esophageal Tracheal Airway (ETAD), Automated External Defibrillation Skills Evaluator (AED), EMT-II, EMT-P and MICN training programs, consistent with state laws and regulations. Agency staff attempt to meet with each of the approved training program personnel to discuss California state laws and regulations, North Coast EMS policies and procedures, and expectations for training. North Coast EMS personnel monitor each training program as needed, followed by review of written evaluation results. North Coast EMS also approves CE providers following the SEMSA CE Regulations. Currently, North Coast EMS has approved a total of 31 training programs including: 9 ETAD, 6 EMT-I, 1 FTO, 1 MICN, 1 EMD, and several Hep/Nitro Infusion and Cardiac Pacing training programs in the region. North Coast EMS assumed administrative responsibility for the North Coast Paramedic Training Program approximately two years ago. There are 40 approved continuing education providers.

Students attending courses overseen by North Coast EMS are required to complete surveys evaluating the instruction received in all approved training programs. Results of regional surveys are used to guide policy and procedural changes to improve operations and the EMS system. The results of the training program surveys are compiled and forwarded to the training institutions to improve regional training, identify training and CE needs, and other EMS system needs.

Since 1999, North Coast EMS has assessed several needs related to personnel and training, and has implemented changes as needed. For example, staff worked with Prehospital Care Nurse Coordinators to create a new MICN reauthorization course to replace testing, in response to MICN feedback. A Cervical Spine program was implemented in response to regional personnel needs. Staff also implemented a layperson AED program, and in 2003 assessed training and equipment needs as part of two state funded special projects: Rural Outreach Training and a Prehospital MCI/Disaster Program.

Statewide EMS training changes and initiatives are routinely assessed by staff. Specifically, the EMS Coordinator was appointed to EMSA's Education and Personnel Vision Committee in FY 2000-2001, the Training and EMS Coordinators are members of the EMSC Committee, the Executive Director is a member of the State Trauma Committee, the State EMT-II Task Force and the EMS Administrators Association of California, and the Regional Medical Director is a member of the Emergency Medical Directors Association of California.

North Coast EMS's North Coast Paramedic Training Program meets all State EMSA requirements and is in the process of acquiring accreditation with the Commission on Accreditation of Allied Health Education Programs (CAAHEP) according to the requirements of the California Code of Regulations Title 22 section 100148.

The Program Self-Study Packet was presented to CAAHEP and a site visit was conducted in June 2006. Six minor potential *Essentials/Standards* violations were identified and all have been or will be corrected. The concluding statement was: "The Site Visit Team was very impressed with this program. The ability of several entities in the local community coming together to create a quality paramedic program is to be commended and can serve as a model to areas of the country with similar geographic and population concerns... The fact that this group of people stepped up to create a program of this caliber is outstanding." North Coast EMS is committed to addressing all findings, sponsoring future site visits and continuously improving the quality of the North Coast Paramedic Training Program.

Equipment and Supplies

Ambulance stocking –

Requirements for the stocking, maintenance and security of prehospital equipment and supplies are promulgated in North Coast EMS Policies 2204 (LALS Supply and Equipment List), 2205 (EMT-P Standard Drug/Intravenous Solution List), and 2209 (Controlled Substances). Currently North Coast EMS has suspended regular site visits to ALS Providers. Should available office staff time allow, North Coast EMS may resume regular site visits of ALS Providers. North Coast EMS may conduct spot check visits at the discretion of the North Coast EMS Executive Director and Regional Medical Director. These visits are generally made in response to Case Review requests when concerns about stocking or narcotic security are brought to the Agency.

General stocking and supplies issues are regularly included in the agendas of the Medical Advisory Committee (MAC) for Humboldt and Del Norte Counties, and to the Emergency Medical Care Committees (EMCC) in Lake and Humboldt.

Requests to consider the elimination, or inclusion of, drugs or supplies to the required list are reviewed by the Agency. Relevant clinical studies and publications are consulted through a Medline search, the North Coast EMS Regional Medical Director may take questions to Emergency Medical Directors Association of California (EMDAC) for discussion, or the Agency may ask EMSA to provide guidance. All supply and equipment issues are considered in light of California State requirements, national standards, ambulance operational limitations, and the weight of medical evidence.

General stocking and supplies issues are regularly included in the agendas of the Medical Advisory Committee (MAC) for Humboldt and Del Norte Counties, and to the Emergency Medical Care Committees (EMCC) in Lake and Humboldt.

Communications Coverage –

North Coast EMS provides oversight and consultative support for medical communications within the North Coast EMS region between prehospital and base hospital personnel. North Coast EMS policies 2404 (Standing Orders, Radio Delay, and Radio Failure Reporting), 2501 (Contact Hospital), 2502 (Radio Communication). See - "Clinical Care and Patient Outcome – Medical Oversight" below.

All agency participation agreements with hospitals and LALS/ALS providers specify communications requirements, including equipment requirements for LALS/ ALS service providers. The regional hospitals are required to maintain their own Emergency Department Med-Net radios; prehospital providers maintain their own mobile and portable Med-Net radios; and each county provides maintenance for the Med-Net repeaters located within the county.

The use of frequencies is coordinated through eight primary and one secondary public safety answering points, as well as several dispatching agencies. With special project funding in FY 1999-2000, North Coast EMS partially completed the Med-Net Mountaintop Repeater Replacement Project, replacing four of the seven repeaters in Humboldt, Del Norte and Lake Counties (a fifth repeater was replaced by the Lake County Fire Chiefs Association). In 2003, a sixth repeater was replaced with #EMS-1091 funds, and we decided that the seventh repeater did not need to be replaced due to lack of use. The North Coast EMS JPA Governing Board established a Med Net Repeater Replacement Trust Fund in 2001; each county and North Coast EMS contribute \$500 annually for this purpose.

Humboldt County OES, with North Coast EMS and Health Department assistance, utilized disaster-related funds to purchase a Med Net System supplement for countywide disaster purposes; implementation of this system is underway. This will include enhanced Med Net System coverage of the Hoopa Valley. Lake County recently used HRSA funds to replace a base hospital repeater. Both Humboldt and Lake are developing or updating County Emergency Communications Plans.

Documentation

Data Validation –

As part of the required EMSA General Fund contract, North Coast EMS has consistently submitted quarterly and annual reports that updated and addressed the contract Objectives and identified significant EMS Plan changes. Four years ago, uniform Objectives were developed by the seven regions to increase uniformity of the progress reports. These include specific data benchmarks required by the EMSA. Progress reports are periodically made available to the JPA Governing Board and included in widely distributed Informational mailings.

Every one or two years, the Agency updates the state approved Regional EMS Plan, and as needed, the state approved Regional Trauma Plan.

These address all of the state identified standards and guidelines associated with the EMS and Trauma Systems.

Prior to submitting most documents to the EMSA, North Coast EMS circulates draft copies to providers, hospitals, county representatives and other interested parties with the special knowledge needed to identify omissions, inaccuracies or questions.

Most documentation circulated by agency is also made available on the North Coast EMS web site. Interested parties are asked to notify North Coast EMS in writing whenever they identify omissions, inaccuracies or questions. North Coast EMS solicits suggestions for additions or changes to the agency's web site. The agency is considering hosting the web site on site and improving the use of the web site's calendar which is currently unreliable.

EPCIS is the electronic prehospital data collection system used within the North Coast EMS region since 2001. Based on State Data Element collection, the system has undergone many changes and has become increasingly reliable and useful. EPCIS has permitted North Coast EMS to maintain nearly real time data for the entire region. For several years now North Coast EMS has successfully captured nearly one-hundred percent of regional prehospital data electronically. EPCIS's array of reporting features - both ad hoc and routine - and the vendor's accessibility has allowed the Agency to make accurate and timely reports to the State, as well as answer increasingly frequent questions about EMS system performance and trends. This standard prehospital data collection is now being augmented by the efforts of Lake County providers and hospitals - most significantly by Sutter Lakeside Hospital, our region's first Trauma Center - to collect trauma registry data through the use of Collector software.

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North Coast EMS believes that the ultimate purpose for the collection of prehospital data is to inform all system participants about quantifiable aspects of their achievements. Efforts are made to ensure that all data presented by North Coast EMS can be easily interpreted by all interested system participants. For example, in 2004, the EMS Coordinator attended a workshop on EMS data presentation conducted by NEDARC representatives in Anaheim which immediately helped in the presentation of response time data by the agency.

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In response to requests from providers in Lake County, the Agency is upgrading its server and broadband connection, as well as purchasing an additional server to run "Citrix" software to permit internet use of EPCIS. North Coast EMS will be able to offer both the current "stand alone" as well as internet access to EPCIS. This will allow more flexibility for

providers with broadband internet access, while ensuring that those providers without broadband connections, or with special circumstances (e.g. PCRs written en route), will be able to continue to rely on the current system. (This system has been running successfully for nearly 3 years. As in years past, North Coast EMS uses EPCIS to collect data requested by the State. Currently, with EMSA grant support, a CEMSIS compliant version of the EPCIS PCR program is being beta tested at various sites within the region, and has met with enthusiasm by provider personnel. With ongoing support from EMSA, this software upgrade should be implemented with the next year, after which reporting on many of the Statewide Core Quality Indicators will be a primary agency focus. North Coast EMS will be requesting continued CEMSIS grant funding for the coming fiscal year. 3/09)

Currently North Coast EMS employees a number of indicators, many of which have been selected based on identified deficiencies (such as “Number of hours to complete PCR after call”), or in response to local concerns (such as “Response [time] frequency”), or as part of a State effort (such as “Return of Spontaneous Circulation” or for EMS for Children (EMSC), “Glucose [assessment done for] ALOC). Lack of standardized definitions (data dictionary) have made some reporting difficult, and this has invigorated North Coast EMS’s strong support for the State data standardization effort.

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Likewise, the North Coast EMS EMS Coordinator has been actively involved in the EMSAAC QI Coordinators group, including in initiatives to test and implement multi-LEMSA data collection and reporting and QIP training. The formation of the EMSAAC QI Coordinators group has provided North Coast EMS with a wealth of outside knowledge, experience and assistance, and North Coast EMS is dedicated to supporting its ongoing activities.

At every opportunity, both locally and when participating in Statewide committees, North Coast EMS continues to support the data standardization, collection and evaluation, and most particularly the CEMSIS initiative.

Security-

Requests for documentation by outside individuals or entities are answered according to North Coast EMS’s policy 2304 “Access, Release and Confidentiality of EMS Data.”

North Coast EMS maintains all Case Review documentation in a locked filing cabinet. Access to privacy protected documentation is provided on a need to see basis to individuals who have previously signed the agency’s

confidentiality agreement. Subpoenaed documentation is released only after consultation with Humboldt County Counsel.

Prehospital data is password protected and access is limited to office personnel and restricted and limited access is provided to hospital and prehospital personnel for legitimate quality assurance and quality improvement purposes, according to relevant North Coast EMS quality assurance and quality improvement policies (see policies 2100 – 2111).

Collector Trauma Registry data is also protected. Only authorized personnel (currently the hospital Trauma Coordinator) may access the registry program.

Clinical Care and Patient Outcome

Treatment Guidelines –

North Coast EMS is currently completing an extensive revision not only of our ALS Treatment Guidelines, but of a broader organizational evaluation of these guidelines to rationalize them, reduce redundancy and finally, to synchronize the treatment guidelines in our policy manual with those listed in our electronic prehospital data base (EPCIS).

North Coast EMS has struggled with the problem of ensuring treatment guidelines reflect current best practices and medical standards given the need for careful evaluation and public input when changes are considered. Added to this challenge is that of ensuring that these changes occur simultaneously in our own policy manual, those of our providers and base hospitals, in the “cardexs” we furnish our regions EDs and on our web site. Given limited resources and staff turn over, this process is unwieldy at best. The Agency will continue to strive to improve this system.

Changes to treatment guidelines may be inspired by the needs of our providers, suggestions from our base hospitals, ongoing review of the EMS literature including changes recommended by institutions and associations such as the AHA and NAEMSP and discussion at conferences and meetings, among others. Among the most important sources of input and sounding boards for changes are the EMSA, EMS Commission, EMSAAC, EMDAC and the EMSC Coordinators meetings and conferences. Other meetings regularly attended by North Coast EMS staff, and whose discussions may provoke or contribute to policy changes include, EMCC, MAC, RE-TAC, Fire Chiefs Association, Child Death Review, Injury Prevention, Child Passenger Seat, and the Humboldt/Del Norte Disaster Committee.

Committee Structure –

The following committees are tasked with evaluating and offering input into a variety of issues, including clinical, operational and administrative questions. Although the entire committee may discuss general clinical matters, specific cases are only dealt with after the formation of a sub-committees in which all members have been identified as having pertinent input or expertise and have signed confidentiality agreements. These include MAC and RE-TAC meetings at this time.

Emergency Medical Care Committee (EMCC) – Lake County

The Lake County EMCC is an advisory body to the Lake County Board of Supervisors and North Coast EMS. The committee is charged with the review of operations of ambulance services, and emergency medical care provided in Lake County. The committee is composed of Lake County Board of Supervisors appointees and includes representatives of public and private services, the health department, local hospitals, North Coast EMS and other agencies involved in EMS.

Medical Advisory Committee (MAC) & EMCC– Del Norte/ Humboldt

The MAC is a subcommittee of the Humboldt County EMCC, which is advisory to the Humboldt County Board of Supervisors and North Coast EMS. The EMCC is charged with the responsibility to review ambulance operations, first aid/CPR training and emergency medical care provided in the Del Norte/Humboldt county area. The EMCC is composed of Humboldt County Board of Supervisors appointees and includes representatives of prehospital and hospital personnel involved in EMS. The Medical Advisory Committee is the primary advisory body to North Coast EMS in Humboldt and Del Norte Counties for the development and modification of all North Coast EMS policies and operations. Members on this committee consist of the prehospital medical director and nurse coordinator from each of five hospitals in Humboldt/Del Norte Counties and one EMT representative.

Del Norte County also has a MAC-Like Committee that meets periodically to discuss and resolve EMS related issues.

Regional Trauma Audit Committee (ReTAC)

Currently there is a Regional Trauma Advisory Committee in Lake County. This group functions as the primary review committee for the new Trauma System in Lake County associated with the recent designation of Sutter-Lakeside Hospital as a Level IV Trauma Center. The committee serves as a multi-disciplinary advisory committee to the EMS Agency on all issues related to trauma care in the Lake County. The

RE_TAC includes the Trauma Director, Trauma Coordinator, Adventist Health-Redbud personnel, prehospital providers both ground and air, EMS Agency staff, Coastal Valley's EMS and the University of California of Davis Trauma Coordinator, and case specific invited representatives of the surgical community and medical examiners office. General concerns and disclosure protected case review occur at these quarterly meetings according to Policies 6543, 7000 through 7005.

Medical Oversight –

North Coast EMS is currently working to balance our region's potentially competing concerns of direct and retrospective prehospital medical control against efforts to reduce hospital operating costs. Three of our region's seven hospitals have initiated efforts to reduce or eliminate the use of MICN's and adopt other measures aimed at cost reductions. These efforts have raised questions about the degree of medical oversight that our hospitals can effectively provide in the absence of MICNs. North Coast EMS has invested considerable effort in conducting a dialogue with system participants and revising and creating policies to allow for "Modified Base Hospitals." The Agency will continue to evaluate the effect of these changes.

Given that EMS is predicated on direct and indirect medical oversight, and that this role was largely assumed by nurses in California, North Coast EMS requests that EMSA consider the long term ramifications of reducing this oversight, and make recommendations about "closing the loop." Specifically, North Coast EMS would ask whether the public is being adequately protected if oversight of prehospital medicine is increasingly shifted to the shoulders of already overtaxed ED physicians in increasingly busy EDs.

North Coast EMS provides retrospective medical oversight through the case review process (North Coast EMS policy 2104), through review of new and accrediting paramedics 10 and 5 "calls", i.e. the PCR's written by paramedic interns and paramedics prior to accreditation, through review of calls using the prehospital data base (EPCIS) for specific chief complaints or according to other criteria, and through policies and agreements obliging base hospitals and providers to provide prospective, online and/or retrospective review and input.

Besides standard procedure evaluation of success rates (ET, IV, etc.), EPCIS includes reports specifically designed, to North Coast EMS specifications, that collect performance and workload data required for periodic State reporting.

Providers and hospitals are able to retrieve data and run reports on EPCIS themselves and/or request data and reports from North Coast EMS. Currently only a few providers regularly request data and North Coast EMS will continue to encourage and facilitate greater provider and hospital familiarity with the exceptional reporting features available in EPCIS.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that describe response and chute time indicators, and that can quickly filter data to isolate a single county, provider, provider defined zone, ambulance or individual prehospital care giver, for any time period desired. These reports have been instrumental in helping North Coast EMS advise Humboldt and Lake Counties on both transport and clinical issues.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that isolate individual PCRs where scene times exceed certain parameters.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that determine the number of patients who receive various interventions or medications. Again, these reports can quickly filter data to isolate a single county, provider, ambulance or individual prehospital care giver, for any time period desired.

EPCIS includes a report, specifically designed to North Coast EMS specifications, that can identify the activities of individual prehospital provider agencies or provider, when the use of a particular treatment guideline exceeds any threshold (percentage of total calls) selected. This tool is particularly useful in validating the reliability of provider

North Coast EMS commends Judith Baird, PCNC Redwood Memorial Hospital for the development of a quarterly QI activity summary which North Coast EMS has adopted as a model for reporting by hospital and provider QI representatives. Hospitals and providers will begin providing the agency with these quarterly reports on October 10th 2006. North Coast EMS will review these reports in order to identify county or regional issues for further quality improvement.

North Coast EMS considered it essential that provider and hospital QI representatives engage in the process of reviewing the State QIP regulations, and offer individual as well as collective interpretations of how to best fulfill the State QIP requirements. Providers and hospitals were asked to prepare draft QIP Programs, for North Coast EMS review and comment.

North Coast EMS has identified the QIP Program developed by STAR as a clear, concise and comprehensive QIP model for other providers and hospitals. North Coast EMS congratulates Paramedic Mike Gladding for his exceptional effort.

Skills Maintenance/Competency

As noted elsewhere above, for a region comprised of three counties, a single EMS QI Team is not feasible, and the function of this QI Team must be accomplished by the Committees and ad hoc committees described in the NCEMS QIP Plan. As in most sparsely populated EMS jurisdictions, in the North Coast EMS region, many of those same committee members who participate in county or regional QI oversight, are the same individuals who train our prehospital personnel. E.g., for several years in the recent past, the North Coast EMS Medical Director and the Medical Director of The North Coast EMS Paramedic program were one and the same. Currently a former North Coast EMS Medical Director is the North Coast EMS Paramedic Program Director.

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Through policy and provider and hospital contracts, in accordance with State regulations, North Coast EMS ensures that all training is conducted by medical personnel with the appropriate expertise.

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As noted elsewhere above, an essential component of the North Coast EMS QIP is the quarterly focused review (generally clinical) of quality indicators corresponding to identified regionwide QI objectives determined by the North Coast EMS Medical Director in consultation with the North Coast EMS Executive Director, EMS Coordinator and other system participants. Through this mechanism, under the guidance of the North Coast EMS EMS Coordinator, ALS provider agencies and hospitals are tasked with establishing measureable criteria to evaluate the identified indicators. As these QI representatives are typically the same individuals who organize and conduct training, they are able to share their individual, and our regional findings with the EMS personnel under their supervision and incorporate findings and improvement goals into their training curriculum, especially CE offerings. Subsequently, these provider and hospital QI leaders are encouraged to follow up with re-evaluation of the identified indicators.

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Scope of Practice –

North Coast frequently receives requests to consider the addition or elimination of skills or medications from our regional EMS scope of practice. Each of these requests receives careful consideration, although many are immediately identified as required or prohibited by Title 22.

The North Coast EMS Regional Medical Director may make determinations about additions or eliminations independently, but generally these requests receive further review among office staff and the EMCC or MAC, including an evaluation of the EMS literature and of relevant prehospital data available through our prehospital data collection system (EPCIS). Further evaluation may require input from the wider EMS community, as was the case with a Humboldt County request to add Narcan to the EMT-I scope of practice. North Coast EMS consulted both the data, through an evaluation of Narcan uses and response times, and regional paramedics and MICNs, through a mail survey. The results convinced our EMS community and the Humboldt County Health Department that this addition was not desirable.

North Coast EMS has determined that "trial studies" require more staff time than is feasible for the foreseeable future and will not attempt these unless the need is decisive, or the trial is done in conjunction with one or more other LEMSAs with whom North Coast EMS may divide administrative duties.

In certain cases, the North Coast EMS Regional Medical Director may elect to request a further review of possible additions or eliminations by EMDAC and/or EMSA.

Skills Utilization Benchmarking –

Through the development of our "Seldom Used Skills" manual, insistence on end tidal CO2 monitoring, and other programs, North Coast EMS has demonstrated a commitment to ensuring the maintenance of prehospital provider skills.

Through North Coast EMS's Rural Outreach Project, the Agency has developed a focused education courses, including Childbirth, Burns, Triage, Trauma Care, Medical Care, Injuries, and MCIs. Lose of EMSA Special Project funding has virtually eliminated our ability to enhance the EMS System and provide important new training opportunities for rural and remote areas.

Although North Coast EMS encourages the consideration of skills utilization benchmarking where practical, the practice has only recently been studied by a limited number of, primarily, urban EMS agencies. In the largely rural North Coast EMS region, applying urban standards may or may not be feasible and/or desirable.

More generally, because the validation of benchmarking standards has not been accomplished, and currently depends largely on suspect or

discredited self-reporting techniques, applying this practice in the North Coast EMS region would likely meet with justifiable provider resistance.

North Coast EMS will remain attentive to ongoing benchmarking efforts documented in the EMS literature, and consider benchmarking standards according to their potential application to the North Coast EMS region. Likewise, as funds become available, North Coast EMS will seek ways of encouraging and obliging more simulated skills practice.

North Coast EMS encourages the State to consider the compatibility of employing data collected through prehospital data collection efforts in apply benchmarking goals of individuals or individual provider agencies. This practice promises to undermine the reliability of the data collected. In keeping with recent efforts to encourage self-reporting of medical errors by clinicians based on current NASA Aviation Safety Reporting System (ASRS) North Coast EMS will seek ways to encourage EMS personnel and provider agencies to contribute to our region's EMS system by reporting their own errors without fear of negative repercussions. North Coast EMS requests that EMSA provide leadership and guidance in this effort.

North Coast EMS will continue to encourage its hospitals and providers to "mine" their data to seek to identify broad system issues, while assuring prehospital data collectors (EMTs and Paramedics) that their diligent data collection efforts will not be used against them. North Coast EMS will remain committed to determining the need for "remedial pathways" from sources other than our prehospital data collection system.

Skills -- Advanced Provider --

See "Skills Utilization Benchmarking" above.

Transportation/Facilities

Each of the counties in the North Coast EMS region has an ordinance in effect that provides a mechanism to permit and monitor emergency medical transportation services. Each of these ordinances supersedes any other local regulatory programs in existence in the county.

Counties formally retain permitting and monitoring functions through Health Departments and Health Officers in Humboldt and Lake Counties, and by the Board of Supervisors in Del Norte County. North Coast EMS assists Counties, when possible, with ensuring ordinance compliance: the agency designates all LALS/ALS service providers, conducts LALS/ALS site visits as needed, approves provider and base hospital quality improvement programs, provides data when possible, and performs many

other functions to ensure compliance with appropriate statutes, regulations, policies and procedures. North Coast EMS also approves ALS provider and base hospital QIP Programs, and provides ongoing evaluation of the EMS system, including the transportation component when possible.

North Coast EMS works with Counties to provide information from the computerized data system or from the quality improvement program to help monitor the ambulance ordinances as appropriate. The Agency previously worked extensively with Lake County on clarifying and monitoring their ordinance, but had to discontinue monitoring the ordinance to focus on delegated LEMSA responsibilities. In Humboldt County, the Agency provides semi-annual "chute time" reports to the County, and completed the new zoning addition to the EPCIS program to provide additional data.

Hospital Diversion

North Coast EMS does not recognize hospital diversion, i.e. patients re-directed to more distant hospitals due to ED saturation. Hospital diversion is permitted only in case of internal hospital disaster and must be documented by the hospital to North Coast EMS according to North Coast EMS policy 2309.

Specialty Care Centers Destination

The North Coast EMS Regional Trauma System Plan was approved by the SEMSA in July 2003. Development of the Regional Trauma Plan involved extensive use of the Regional Trauma Advisory Committee and a public hearing.

As of April 4, 2006, North Coast EMS has designated Sutter Lakeside Hospital as a Level IV Trauma Center. North Coast EMS has defined destination determination for critical trauma patients in Policy 7000A and registry data collection and management requirements in Policy 7000B.

The trauma center standards require each designated trauma center to have a formalized system of quality review of their trauma program. This can be incorporated as part of an existing quality assurance committee but it must be multidisciplinary, include all the components of the trauma team and meet at least on a quarterly basis. This QA/SI program should include case reviews, special audits, which allow for issue identification and rapid problem solving within the facility.

Responsibility for assessing compliance of the standard of care within each trauma center, as well as compliance with the North Coast EMS

Trauma Standards, rests with the Director of the Trauma Service at each hospital. Case identification should be made through reports generation from the trauma registry.

The quality assurance/system improvement process, which is done on a quarterly basis, begins with a pre-review of the trauma registry data that has been submitted to the EMS agency. This review is established by the trauma coordinator and as needed the Regional Medical Director for the purpose of overall review, monitoring, and selection of trauma cases which, may represent treatment issues, failure to meet system standards, or have a special educational value. Such cases are selected, specific questions on identified issues are formulated and the respective trauma center directors are forwarded this information, in preparation for formal review at the ReTAC meeting.

Pre-review during the EMS review process includes not only the medical care received at the trauma centers, but also review of Prehospital care and trauma cases that may have gone to non designated hospitals. Case selection will be based upon:

- Treatment issues
- Failure of system standards
- Delayed scene times, transports, and transfers
- Delayed trauma team activations
- Educational Value

When a case or a issue is identified as a ReTAC review item, the designated trauma center will come prepared to present the details of trauma care management including the details for which the case is being reviewed, based upon the above listed issues.

Each designated trauma center shall submit a trauma registry record for each patient who meets the definition of the Critical Trauma Patient as described in the trauma triage criteria which considers physiologic and anatomical findings and selected mechanism of injury. Patients who are triage as Non-Critical Trauma Patients but are admitted or transferred to a higher-level trauma center shall be entered into the trauma registry. All trauma deaths that occur at the trauma center must be included in the trauma registry.

The trauma registry will be the initial source utilized for case identification through the use of audit filters. The trauma registry is a confidential database of patients who have sustained major injuries or complications within the regional trauma system. This database is utilized for statistical reporting on system activities and quality improvement review of patient outcomes. It is utilized by the trauma centers in their

quality assurance process, with cases forwarded to the ReTAC for review of systems issues. Audit filters will be established by the committee, to guide them in case review. In every case review, the committee will make a finding of the appropriateness of the care rendered and will make recommendations regarding changes in the system to ensure appropriate care.

Emergency Department Approved for Pediatrics (EDAP) was established in the North Coast EMS region in 1989 following EMSA guidelines, with the goal of improving pediatric emergency care by requiring minimum education standards for physicians and ED staff, minimum safe staffing levels, minimum equipment availability, and a pediatric CQI program. These minimum standards were agreed to by participating hospitals and are monitored by site visit evaluations.

Initially, all seven hospitals were designated as EDAPs, but only three remain at this time (Mad River, Redwood and Redbud). The lack of formal EDAP standards in California, despite years of Federal EMS for Children funding, coupled with the economic hardships faced by each facility have greatly reduced our ability to encourage ongoing designation of EDAPs.

North Coast EMS requests that EMSA champion the development of enforceable EDAP standards within State regulation.

Due to ongoing reductions in ESMA General Funds, North Coast EMS has been forced to discontinue the services of a Nurse Contract, a Trauma Contractor and our ability to maintain informal, desirable programs (like EMSC, EDAP, and full base hospital status) is decreasing

Public Education and Prevention

Community Involvement

North Coast EMS actively participates in numerous Humboldt County community involved groups, such as Childhood Injury Prevention, Child Passenger Safety Committee, Child Death Review Team, and the Water Safety Coalition. Due to lack of funding, involvement in the other regional counties is limited.

Reward and Recognition

North Coast EMS considers identifying exceptional system participation and clinical performance an essential part of Quality Improvement.

North Coast EMS in conjunction with National EMS Week, annually awards the Kris Kelly Memorial Star of Life Award. Each year in the spring nomination applications are sent to all the providers, hospitals and first responder agencies in the region, for their input. Nominations are submitted and reviewed by office staff and the agency Medical Director. Award winners are chosen in the areas of First Responder, Basic Life Support, Advanced Life Support, Base Hospital, Administration and Special Recognition. The awards are handed out during a presentation at the counties Board of Supervisors meetings. North Coast EMS also sends out a regional press release regarding National EMS Week and to announce the winners in each county.

Prevention Programs

With Federal Block Grant funds in 1996/97 and 1997/98, the agency implemented an EMS for Children (EMSC) project that included an injury prevention component. The project included a training program to increase parental understanding of child developmental stages, since lack of this knowledge has been identified to be a key contributing factor in many cases of pediatric death. An educational course focused on child development was also developed for presentation in the workplace or to other interested groups. Public service announcements focusing on the three most common causes of childhood death were developed. Referral directories listing services for children were distributed to the public, and resource directories listing children's services were provided to EMS providers. Copies of the Safety Awareness for EMS (SAFE) Program were distributed to interested EMS providers. Materials were also provided to existing injury prevention programs.

North Coast EMS promotes development and dissemination of informational materials whenever possible and as needed. For example, with flu vaccine in short supply a few years ago and a recent flu epidemic severely impacting emergency departments in other parts of the state, staff met with the Humboldt County Health Officer and several other providers to discuss the potential need for public education related to these issues. During the past three years, North Coast EMS also provided several public service announcements on local television, and well as newspaper articles, to promote safe practices, such as using bicycle helmets and child car seats. The Agency recently expanded its video selection and reference library, and modified the web page to provide further information. Finally, agency staff continue to participate in local child safety and EMS for Children activities.

Patient Education

North Coast EMS does not currently have or anticipate any programs aimed at patient education. The agency briefly considered education (chiefly through flyers distributed by ambulance crews and/or in the ED) aimed at encouraging more rational use of EMS resources, including 911 and the ED, but indefinitely postponed this until better information is available about the long term benefits and/or unintended consequences of such programs. We look to EMSA for further guidance in this area and hope that the EMSA will consider the special needs of rural communities when evaluating this issue.

Customer Satisfaction

In the development and implementation of all agency programs, North Coast EMS continually solicits comments and questions from system participants. North Coast EMS encourages input from the public and aggressively reviews concerns brought to the agency by members of the public. Generally North Coast EMS will discuss these concerns with the provider agency or hospital in question, and will ask that identified problems be addressed, that a report be made to North Coast EMS and that the member of the public who initiated the review be contacted and provided with relevant non-confidentiality protected information.

North Coast EMS is happy to report that the Lake County EMCC benefits from the regular attendance of a public representative.

Risk Management

Issue Resolution Process

North Coast EMS requires that all system participants to document time/date specifics for all their quality concerns. North Coast EMS encourages all issues to be resolved between parties directly effected. When this approach proves impractical or impossible for any reason, or when local issues may benefit from system wide review or changes, North Coast EMS may assume responsibility for review and resolution. In cases where issues may be beyond the resources or jurisdiction of North Coast EMS (generally those concerning paramedic licensure) North Coast EMS advises EMSA.

Resolution of all issues includes a review of all relevant State regulations, North Coast EMS policy and prior practice. Due process is afforded all concerned individuals and agencies.

System Monitoring

North Coast EMS is responsible for overall evaluation, planning, maintenance and enhancement of the EMS System, and virtually all activities are designed to continuously improve patient care, best practices. North Coast EMS has several EMS system evaluation programs and tools in use:

The Medical Priority, Inc. EMD Program, which meets national standards for dispatch, was implemented by North Coast EMS with EMSA funding;

The AED Program, which the agency reports on annually to EMSA; new regulations will no longer require monitoring by North Coast EMS, but reports will continue to be submitted.

The EPCIS Data Program, which is a tool for monitoring EMS system operations and is used to generate data audit screens to identify system trends and patient care problems. EPCIS also assists with research, is part of the QIP/CQI Program and will provide reporting to system participants and EMSA consistent with new and developing CQI requirements (e.g., statewide data set, etc.) ;

Training and CE programs are evaluated based on state standards, agency policies and procedures, site visits and written reports;

LALS/ALS providers are evaluated based on state standards and written reports, and have approved CQI Programs in place. Site visits are conducted as needed, such as for a new provider or to investigate problems. The agency also conducts certification and accreditation reviews of personnel;

Base hospitals are evaluated based on state standards, site visits and written reports, and all facilities have written participation agreements with North Coast EMS. Due to General Fund cuts, these site visits are no longer possible.

The EDAP Program evaluates pediatric capabilities of EDs based on local standards and state guidelines, site visits and reports. All EDAPs have written participation agreements with North Coast EMS;

The CQI Program is in place to provide a mechanism for review of prehospital care, incident reporting, problem identification, and system monitoring;

North Coast EMS has completed several surveys throughout the region to assess the needs regarding personnel, training, system design and

operations. The results of the regional surveys are used to guide policy and procedural changes to improve operations and the EMS system;

North Coast EMS participated in the Mt. Valley "EMS System Evaluation" special project, which utilized the "Rapid Cycle Improvement Program" for special short term studies (e.g. chest pain).

The Rural Trauma Program and the Rural/Urban Trauma Study evaluated trauma patient outcomes in this region;

North Coast EMS's Executive Director, Regional Medical Director, EMS Coordinator and Training Coordinator participate on various committees at the State level to improve EMS system evaluation mechanisms statewide, most recently the Vision System Information and the Vision Education Committees. North Coast EMS staff reviewed and commented on numerous documents last year, such as the proposed data set, LEMSA evaluation tools, a CQI guideline, clinical indicators, etc.

The EMS System Plan and this year's update serve as the current EMS System evaluation document and inventory update.

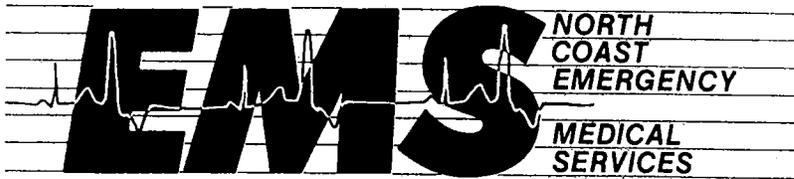
North Coast EMS has implemented and will monitor provider and hospital compliance with the QIP regulations. As part of this program, North Coast EMS requires quarterly summaries of each provider and hospital's QIP activities. These summaries will be reviewed by the agency to identify targets for county or region wide improvement that can be pursued jointly by all concerned system participants.

July 2007 Update

All providers and hospitals have submitted and had their QIP Plans approved by North Coast EMS.

QIP Activity Summaries from all providers and hospitals were received for the January 10, 2007 and April 10, 2007 due dates. Please find the North Coast EMS QIP STATUS SPREADSHEET attached. Please find the North Coast EMS Quarterly QIP Activity Summaries for the January 10, April 10 and July 10 2007 due dates attached.

*Submitted to EMSA July 27, 2007, next EMSA review submission July 27, 2011.



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North Coast EMS Quality Improvement Program 2006*

Completed August 2006

Submitted to the California State EMS Authority July 2007

The purpose of the North Coast EMS Quality Improvement Program (QIP) is to identify individual components of the North Coast EMS System that can be measured and/or evaluated, regularly reviewed and modified in order to ensure optimal system performance. The North Coast EMS QIP satisfies the requirements of Title 22, Chapter 12, Section 4 of the California Code of Regulations.

The North Coast EMS QIP relies on input from all system participants, including EMS provider agencies, regional hospitals, provider and hospital employees, the State EMS Authority, public comment and North Coast EMS Agency staff. North Coast EMS requires each approved ALS provider, designated base hospital and trauma center to submit initial QIP Plans and quarterly QIP data for review and approval. In particular, these "Quarterly QIP Reports" have evolved into an essential QI mechanism, and include the focused review (generally clinical), of quality indicators corresponding to identified statewide QI objectives determined by the North Coast EMS Medical Director in consultation with the North Coast EMS Executive Director, EMS Coordinator and other system participants. Subsequent to their submission by providers and hospitals, North Coast EMS circulates a summary of their Quarterly QIP Report findings. The Quarterly QIP Report Summaries are included in the North Coast EMS Informational Mailing which is circulated and posted on the agency's web site several times a year. ALS providers are also required by law to notify the Agency and EMSA of any potential violations by certified/licensed/accredited prehospital personnel.

The North Coast EMS QIP Plan is a narrative document, within which the activities described by the Model Guidelines have been addressed. In some cases, these activities (the intent of the regulations and guidelines) are accomplished through mechanisms or structures not contemplated in the guidelines. North Coast EMS interprets the "guidelines" as such and – as frequently noted within the guidelines - not as dictates as to how the goals of the regulations and guidelines are to be accomplished. Given the particular challenges of administering EMS over such a large and sparsely populated portion of California, such flexibility in achieving the goals of the regulations is vital. North Coast EMS has successfully integrated a structured QIP process into the routine activities of all ALS provider agencies and hospitals. EMSA promulgation of the QIP

regulations allowed for this evolution, just as EMSA's ongoing support is essential to the continuing improvements in our EMS system.

The North Coast EMS QIP Plan describes how the agency approaches quality improvement in the 8 areas addressed by the QIP regulations. These approaches are similar to the recommended approach, but vary according to specific circumstances. Particularly when focusing provider and hospital QI representatives attention on the identified quality indicators, North Coast EMS encourages them to establish a criteria for measurement rather than simply applying a "pass/fail" review. Providers and hospitals are further encouraged to considering their own approaches to measuring the quarterly identified "indicator" and, through the Quarterly QIP Report Summary, North Coast EMS shares the results regionwide, highlighting "best practices" rather than establishing a single measurement. In this way, provider and hospital QI representatives are empowered to apply their own creativity and initiative, not only to the focused indicator, but to other issues that they confront individually. North Coast EMS further promotes improvement by assembling the results of provider and hospital reports, agenizing them for group discussion, considering their significance, and goals and strategies for improvement. In subsequent focused reviews, North Coast EMS will revisit issues that merit further consideration.

Significantly, for a region comprised of three counties, a single designated EMS QI Team is not feasible, and the function of this QI Team must be accomplished by the Committees and ad hoc committees described in the NCEMS QIP Plan. The North Coast EMS Coordinator typically acts as the QI Coordinator and QI issues are initially discussed with the NCEMS Executive and Medical Directors and subsequently, as needed, by the relevant NCEMS committee or ad hoc group. As noted within the document, the monthly Medical Advisory Committee (MAC) (Del Norte and Humboldt Counties) and Emergency Medical Care Committee (EMCC) (Lake County) meetings are well attended by the same provider and hospital representatives who serve as their agencies' and hospitals' QI coordinators. QI concerns are either agenized within these meetings or, when necessary, ad hoc confidentially protected committees comprised of involved QI representatives, are scheduled immediately following the MAC and EMCC meetings. Given the travel distances and expense involved in gathering regional representatives, North Coast EMS increasingly relies on conference calls to address particular QI discussions, and the Executive Director has taken a lead position on improving conference calling technology both within the region and Statewide.

Importantly

North Coast EMS ensures the agency's EMS Coordinator and other agency representatives are able to attend data and QI seminars, workshops and other relevant educational opportunities. North Coast EMS pursues every opportunity to increase agency, provider and hospital personnel expertise in quality improvement.

ALS provider and hospital QIP Plans have been approved by North Coast EMS and finding from their Quarterly QIP reports are updated in the North Coast EMS GF quarterly and annual reports, and the Regional EMS Plan. Also, any substantial non-

compliance to state and regional standards by certified/accredited personnel, or by approved or designated training programs, LALS/ALS providers, base hospitals, Emergency Departments Approved for Pediatrics, or Trauma Centers are assessed, and as needed, remediated, probated, suspended or revoked for cause through a process of fact finding and due process.

The North Coast EMS QIP is reviewed yearly by the Agency and evaluated every five years by the State EMS Authority. It is made available to system participants and the public on the North Coast EMS web site www.northcoastems.com.

The North Coast EMS QIP focuses on the following system components:

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

Personnel

North Coast EMS is committed to facilitating the certification and employment of the highest possible level of prehospital personnel within our region. This objective is accomplished, in part, by providing clear requirements for regional accreditation of EMT-Is, EMT-IIIs, Paramedics and MICNs in accordance with State regulations (Relevant forms and policies are easily accessible to visitor to North Coast EMS's web site www.northcoastems.com). North Coast EMS supports prehospital provider education, both directly through training programs, and indirectly through approval of training programs and the personnel requirements included in provider agency agreements.

North Coast EMS participates as possible in State committees and task forces, and reviews and comments on all proposed changes to the State regulations concerning EMS certification. North Coast EMS also publicizes, and solicits comment from other North Coast EMS system participants concerning possible changes to ensure that State certification requirements are made after consideration of how they will effect the North Coast EMS region.

The North Coast EMS region shares challenges faced by other rural areas in training, maintaining certification of, and attracting qualified EMS instructors and responders. Availability of training in the more rural and

remote communities is an ongoing problem. North Coast EMS regularly alerts system participants to changes in requirements that may affect their personnel or potential hires, particularly testing requirements. As with all noteworthy issues, interested parties are advised via memos, regular meetings (EMCC and MAC), the North Coast EMS web site, and Informational Mailings (typically issued 2 to 3 times yearly).

Certification -

As possible, North Coast EMS prioritizes new certifications/accreditations in an effort to support provider staffing requirements. Time allowed for certification/accreditation "turn around" is defined by State regulation as well as North Coast EMS agency policy, but in all cases North Coast EMS accomplishes these certifications/accreditations well within the maximum allowable time. Provided certification/accreditation documentation is properly filed with the agency, North Coast EMS attempts to fulfill special provider requests for accelerated personnel accreditation.

Local accreditation of Paramedics includes requirements that the paramedic in question receive focused orientation to local practices and protocols. New paramedics are proctored by locally approved Field Training Officers (FTO) who must meet minimum requirements and be nominated by their assigned base hospital Prehospital Care Medical Director (PCMD) and Prehospital Care Nurse Coordinator (PCNC). North Coast EMS has recently contracted with Paramedic Sal Gurreri, one of the region's most experienced FTOs and prehospital educators to review and make improvements to the field internship process, principally focused on providing FTOs with more extensive training in adult learning theory and practice. Prior to recommending local accreditation of paramedics new to the area, the North Coast EMS Coordinator reviews at least 5 of the new paramedics' prehospital care reports, and 10 in the case of newly State licensed paramedics. The EMS Clinical Coordinator takes concerns to the North Coast EMS Regional Medical Director who may require additional evaluation or orientation of the newly accrediting paramedics.

Certification Review –

Quality reviews of prehospital or MICN performance are the direct responsibility of the licensure/accreditation/certification/approval holders' provider/employer and/or assigned Base Hospital. North Coast EMS participates in Case Reviews involving multiple agencies, or Case Reviews beyond the means or competence of the provider and/or base hospital. North Coast EMS Case Reviews are conducted according to North Coast EMS Policy 2104. North Coast EMS conducts or participates in Case Reviews of prehospital personnel and MICNs for questions that may affect licensure or accreditation. "Certification Review" procedures

are described in North Coast EMS Policy 2105. All reviews ensure due process and factually based evaluations following state standards.

Licensure/accreditation/certification/approval reviews are as comprehensive, and include documentation and audio recordings, as well as confidentially protected (by signed agreement) consultation or interviews of all parties who may be able to provide relevant information. Questions concerning paramedic licensure are forward to the EMSA as rapidly as possible, and North Coast EMS offers the EMSA investigatory assistance. The North Coast EMS Regional Medical Director makes determinations about EMT-I and EMT-II certification (conducted in accordance with Title 22, Chapter 9, Division 6 of the California Code of Regulations) and MICN approval. For Case Reviews of any other medical certification holder, North Coast EMS advises the appropriate credentialing or oversight authority.

Training –

North Coast EMS is involved in virtually all aspects of training for EMT-Is, Paramedics and MICNs, as well as monitoring and approval of first responder, EMT-I, Early Defibrillation, Emergency Medical Dispatcher, EMT-II, EMT-Paramedic, Mobile Intensive Care Nurse (MICN) training programs. As agency staff time and resources permit, North Coast EMS strives to ensure that training programs meet the highest possible State and National standards.

North Coast EMS has developed policies regarding required training program approval of first responder, EMT-I, Esophageal Tracheal Airway (ETAD), Automated External Defibrillation Skills Evaluator (AED), EMT-II, EMT-P and MICN training programs, consistent with state laws and regulations. Agency staff attempt to meet with each of the approved training program personnel to discuss California state laws and regulations, North Coast EMS policies and procedures, and expectations for training. North Coast EMS personnel monitor each training program as needed, followed by review of written evaluation results. North Coast EMS also approves CE providers following the SEMSA CE Regulations. Currently, North Coast EMS has approved a total of 31 training programs including: 9 ETAD, 6 EMT-I, 1 FTO, 1 MICN, 1 EMD, and several Hep/Nitro Infusion and Cardiac Pacing training programs in the region. North Coast EMS assumed administrative responsibility for the North Coast Paramedic Training Program approximately two years ago. There are 40 approved continuing education providers.

Students attending courses overseen by North Coast EMS are required to complete surveys evaluating the instruction received in all approved training programs. Results of regional surveys are used to guide policy and procedural changes to improve operations and the EMS system. The results of the training program surveys are compiled and forwarded to the training institutions to improve regional training, identify training and CE needs, and other EMS system needs.

Since 1999, North Coast EMS has assessed several needs related to personnel and training, and has implemented changes as needed. For example, staff worked with Prehospital Care Nurse Coordinators to create a new MICN reauthorization course to replace testing, in response to MICN feedback. A Cervical Spine program was implemented in response to regional personnel needs. Staff also implemented a layperson AED program, and in 2003 assessed training and equipment needs as part of two state funded special projects: Rural Outreach Training and a Prehospital MCI/Disaster Program.

Statewide EMS training changes and initiatives are routinely assessed by staff. Specifically, the EMS Coordinator was appointed to EMSA's Education and Personnel Vision Committee in FY 2000-2001, the Training and EMS Coordinators are members of the EMSC Committee, the Executive Director is a member of the State Trauma Committee, the State EMT-II Task Force and the EMS Administrators Association of California, and the Regional Medical Director is a member of the Emergency Medical Directors Association of California.

North Coast EMS's North Coast Paramedic Training Program meets all State EMSA requirements and is in the process of acquiring accreditation with the Commission on Accreditation of Allied Health Education Programs (CAAHEP) according to the requirements of the California Code of Regulations Title 22 section 100148.

The Program Self-Study Packet was presented to CAAHEP and a site visit was conducted in June 2006. Six minor potential *Essentials/Standards* violations were identified and all have been or will be corrected. The concluding statement was: "The Site Visit Team was very impressed with this program. The ability of several entities in the local community coming together to create a quality paramedic program is to be commended and can serve as a model to areas of the country with similar geographic and population concerns...The fact that this group of people stepped up to create a program of this caliber is outstanding." North Coast EMS is committed to addressing all findings, sponsoring future site visits and continuously improving the quality of the North Coast Paramedic Training Program.

Equipment and Supplies

Ambulance stocking –

Requirements for the stocking, maintenance and security of prehospital equipment and supplies are promulgated in North Coast EMS Policies 2204 (LALS Supply and Equipment List), 2205 (EMT-P Standard Drug/Intravenous Solution List), and 2209 (Controlled Substances). Currently North Coast EMS has suspended regular site visits to ALS Providers. Should available office staff time allow, North Coast EMS may resume regular site visits of ALS Providers. North Coast EMS may conduct spot check visits at the discretion of the North Coast EMS Executive Director and Regional Medical Director. These visits are generally made in response to Case Review requests when concerns about stocking or narcotic security are brought to the Agency.

General stocking and supplies issues are regularly included in the agendas of the Medical Advisory Committee (MAC) for Humboldt and Del Norte Counties, and to the Emergency Medical Care Committees (EMCC) in Lake and Humboldt.

Requests to consider the elimination, or inclusion of, drugs or supplies to the required list are reviewed by the Agency. Relevant clinical studies and publications are consulted through a Medline search, the North Coast EMS Regional Medical Director may take questions to Emergency Medical Directors Association of California (EMDAC) for discussion, or the Agency may ask EMSA to provide guidance. All supply and equipment issues are considered in light of California State requirements, national standards, ambulance operational limitations, and the weight of medical evidence.

General stocking and supplies issues are regularly included in the agendas of the Medical Advisory Committee (MAC) for Humboldt and Del Norte Counties, and to the Emergency Medical Care Committees (EMCC) in Lake and Humboldt.

Communications Coverage –

North Coast EMS provides oversight and consultative support for medical communications within the North Coast EMS region between prehospital and base hospital personnel. North Coast EMS policies 2404 (Standing Orders, Radio Delay, and Radio Failure Reporting), 2501 (Contact Hospital), 2502 (Radio Communication). See - “Clinical Care and Patient Outcome – Medical Oversight” below.

All agency participation agreements with hospitals and LALS/ALS providers specify communications requirements, including equipment requirements for LALS/ ALS service providers. The regional hospitals are required to maintain their own Emergency Department Med-Net radios; prehospital providers maintain their own mobile and portable Med-Net radios; and each county provides maintenance for the Med-Net repeaters located within the county.

The use of frequencies is coordinated through eight primary and one secondary public safety answering points, as well as several dispatching agencies. With special project funding in FY 1999-2000, North Coast EMS partially completed the Med-Net Mountaintop Repeater Replacement Project, replacing four of the seven repeaters in Humboldt, Del Norte and Lake Counties (a fifth repeater was replaced by the Lake County Fire Chiefs Association). In 2003, a sixth repeater was replaced with #EMS-1091 funds, and we decided that the seventh repeater did not need to be replaced due to lack of use. The North Coast EMS JPA Governing Board established a Med Net Repeater Replacement Trust Fund in 2001; each county and North Coast EMS contribute \$500 annually for this purpose.

Humboldt County OES, with North Coast EMS and Health Department assistance, utilized disaster-related funds to purchase a Med Net System supplement for countywide disaster purposes; implementation of this system is underway. This will include enhanced Med Net System coverage of the Hoopa Valley. Lake County recently used HRSA funds to replace a base hospital repeater. Both Humboldt and Lake are developing or updating County Emergency Communications Plans.

Documentation

Data Validation –

As part of the required EMSA General Fund contract, North Coast EMS has consistently submitted quarterly and annual reports that updated and addressed the contract Objectives and identified significant EMS Plan changes. Four years ago, uniform Objectives were developed by the seven regions to increase uniformity of the progress reports. These include specific data benchmarks required by the EMSA. Progress reports are periodically made available to the JPA Governing Board and included in widely distributed Informational mailings.

Every one or two years, the Agency updates the state approved Regional EMS Plan, and as needed, the state approved Regional Trauma Plan.

These address all of the state identified standards and guidelines associated with the EMS and Trauma Systems.

Prior to submitting most documents to the EMSA, North Coast EMS circulates draft copies to providers, hospitals, county representatives and other interested parties with the special knowledge needed to identify omissions, inaccuracies or questions.

Most documentation circulated by agency is also made available on the North Coast EMS web site. Interested parties are asked to notify North Coast EMS in writing whenever they identify omissions, inaccuracies or questions. North Coast EMS solicits suggestions for additions or changes to the agency's web site. The agency is considering hosting the web site on site and improving the use of the web site's calendar which is currently unreliable.

EPCIS is the electronic prehospital data collection system used within the North Coast EMS region since 2001. Based on State Data Element collection, the system has undergone many changes and has become increasingly reliable and useful. EPCIS has permitted North Coast EMS to maintain nearly real time data for the entire region. For several years now North Coast EMS has successfully captured nearly one-hundred percent of regional prehospital data electronically. EPCIS's array of reporting features - both ad hoc and routine - and the vendor's accessibility has allowed the Agency to make accurate and timely reports to the State, as well as answer increasingly frequent questions about EMS system performance and trends. This standard prehospital data collection is now being augmented by the efforts of Lake County providers and hospitals - most significantly by Sutter Lakeside Hospital, our region's first Trauma Center - to collect trauma registry data through the use of Collector software.

North Coast EMS believes that the ultimate purpose for the collection of prehospital data is to inform all system participants about quantifiable aspects of their achievements. Efforts are made to ensure that all data presented by North Coast EMS can be easily interpreted by all interested system participants. For example, in 2004, the EMS Coordinator attended a workshop on EMS data presentation conducted by NEDARC representatives in Anaheim which immediately helped in the presentation of response time data by the agency.

In response to requests from providers in Lake County, the Agency is upgrading its server and broadband connection, as well as purchasing an additional server to run "Citrix" software to permit internet use of EPCIS. North Coast EMS will be able to offer both the current "stand alone" as well as internet access to EPCIS. This will allow more flexibility for

providers with broadband internet access, while ensuring that those providers without broadband connections, or with special circumstances (e.g. PCR's written en route), will be able to continue to rely on the current system. (This system has been running successfully for nearly 3 years. As in years past, North Coast EMS uses EPCIS to collect data requested by the State. Currently, with EMSA grant support, a CEMSIS compliant version of the EPCIS PCR program is being beta tested at various sites within the region, and has met with enthusiasm by provider personnel. With ongoing support from EMSA, this software upgrade should be implemented with the next year, after which reporting on many of the Statewide Core Quality Indicators will be a primary agency focus. North Coast EMS will be requesting continued CEMSIS grant funding for the coming fiscal year. 3/09)

Currently North Coast EMS employees a number of indicators, many of which have been selected based on identified deficiencies (such as "Number of hours to complete PCR after call"), or in response to local concerns (such as "Response [time] frequency"), or as part of a State effort (such as "Return of Spontaneous Circulation" or for EMS for Children (EMSC) "Glucose [assessment done for] ALOC). Lack of standardized definitions (data dictionary) have made some reporting difficult, and this has invigorated North Coast EMS's strong support for the State data standardization effort

Likewise, the North Coast EMS EMS Coordinator has been actively involved in the EMSAAC QI Coordinators group, including in initiatives to test and implement multi-LEMSA data collection and reporting and QIP training. The formation of the EMSAAC QI Coordinators group has provided North Coast EMS with a wealth of outside knowledge, experience and assistance, and North Coast EMS is dedicated to supporting its ongoing activities.

At every opportunity, both locally and when participating in Statewide committees, North Coast EMS continues to support the data standardization, collection and evaluation, and most particularly the CEMSIS initiative.

Security-

Requests for documentation by outside individuals or entities are answered according to North Coast EMS's policy 2304 "Access, Release and Confidentiality of EMS Data."

North Coast EMS maintains all Case Review documentation in a locked filing cabinet. Access to privacy protected documentation is provided on a need to see basis to individuals who have previously signed the agency's

confidentiality agreement. Subpoenaed documentation is released only after consultation with Humboldt County Counsel.

Prehospital data is password protected and access is limited to office personnel and restricted and limited access is provided to hospital and prehospital personnel for legitimate quality assurance and quality improvement purposes, according to relevant North Coast EMS quality assurance and quality improvement policies (see policies 2100 – 2111).

Collector Trauma Registry data is also protected. Only authorized personnel (currently the hospital Trauma Coordinator) may access the registry program.

Clinical Care and Patient Outcome

Treatment Guidelines –

North Coast EMS is currently completing an extensive revision not only of our ALS Treatment Guidelines, but of a broader organizational evaluation of these guidelines to rationalize them, reduce redundancy and finally, to synchronize the treatment guidelines in our policy manual with those listed in our electronic prehospital data base (EPCIS).

North Coast EMS has struggled with the problem of ensuring treatment guidelines reflect current best practices and medical standards given the need for careful evaluation and public input when changes are considered. Added to this challenge is that of ensuring that these changes occur simultaneously in our own policy manual, those of our providers and base hospitals, in the “cardexs” we furnish our regions EDs and on our web site. Given limited resources and staff turn over, this process is unwieldy at best. The Agency will continue to strive to improve this system.

Changes to treatment guidelines may be inspired by the needs of our providers, suggestions from our base hospitals, ongoing review of the EMS literature including changes recommended by institutions and associations such as the AHA and NAEMSP and discussion at conferences and meetings, among others. Among the most important sources of input and sounding boards for changes are the EMSA, EMS Commission, EMSAAC, EMDAC and the EMSC Coordinators meetings and conferences. Other meetings regularly attended by North Coast EMS staff, and whose discussions may provoke or contribute to policy changes include, EMCC, MAC, RE-TAC, Fire Chiefs Association, Child Death Review, Injury Prevention, Child Passenger Seat, and the Humboldt/Del Norte Disaster Committee.

Committee Structure –

The following committees are tasked with evaluating and offering input into a variety of issues, including clinical, operational and administrative questions. Although the entire committee may discuss general clinical matters, specific cases are only dealt with after the formation of a sub-committees in which all members have been identified as having pertinent input or expertise and have signed confidentiality agreements. These include MAC and RE-TAC meetings at this time.

Emergency Medical Care Committee (EMCC) – Lake County

The Lake County EMCC is an advisory body to the Lake County Board of Supervisors and North Coast EMS. The committee is charged with the review of operations of ambulance services, and emergency medical care provided in Lake County. The committee is composed of Lake County Board of Supervisors appointees and includes representatives of public and private services, the health department, local hospitals, North Coast EMS and other agencies involved in EMS.

Medical Advisory Committee (MAC) & EMCC– Del Norte/ Humboldt

The MAC is a subcommittee of the Humboldt County EMCC, which is advisory to the Humboldt County Board of Supervisors and North Coast EMS. The EMCC is charged with the responsibility to review ambulance operations, first aid/CPR training and emergency medical care provided in the Del Norte/Humboldt county area. The EMCC is composed of Humboldt County Board of Supervisors appointees and includes representatives of prehospital and hospital personnel involved in EMS. The Medical Advisory Committee is the primary advisory body to North Coast EMS in Humboldt and Del Norte Counties for the development and modification of all North Coast EMS policies and operations. Members on this committee consist of the prehospital medical director and nurse coordinator from each of five hospitals in Humboldt/Del Norte Counties and one EMT representative.

Del Norte County also has a MAC-Like Committee that meets periodically to discuss and resolve EMS related issues.

Regional Trauma Audit Committee (ReTAC)

Currently there is a Regional Trauma Advisory Committee in Lake County. This group functions as the primary review committee for the new Trauma System in Lake County associated with the recent designation of Sutter-Lakeside Hospital as a Level IV Trauma Center. The committee serves as a multi-disciplinary advisory committee to the EMS Agency on all issues related to trauma care in the Lake County. The

RE_TAC includes the Trauma Director, Trauma Coordinator, Adventist Health-Redbud personnel, prehospital providers both ground and air, EMS Agency staff, Coastal Valley's EMS and the University of California of Davis Trauma Coordinator, and case specific invited representatives of the surgical community and medical examiners office. General concerns and disclosure protected case review occur at these quarterly meetings according to Policies 6543, 7000 through 7005.

Medical Oversight –

North Coast EMS is currently working to balance our region's potentially competing concerns of direct and retrospective prehospital medical control against efforts to reduce hospital operating costs. Three of our region's seven hospitals have initiated efforts to reduce or eliminate the use of MICN's and adopt other measures aimed at cost reductions. These efforts have raised questions about the degree of medical oversight that our hospitals can effectively provide in the absence of MICNs. North Coast EMS has invested considerable effort in conducting a dialogue with system participants and revising and creating policies to allow for "Modified Base Hospitals." The Agency will continue to evaluate the effect of these changes.

Given that EMS is predicated on direct and indirect medical oversight, and that this role was largely assumed by nurses in California, North Coast EMS requests that EMSA consider the long term ramifications of reducing this oversight, and make recommendations about "closing the loop." Specifically, North Coast EMS would ask whether the public is being adequately protected if oversight of prehospital medicine is increasingly shifted to the shoulders of already overtaxed ED physicians in increasingly busy EDs.

North Coast EMS provides retrospective medical oversight through the case review process (North Coast EMS policy 2104), through review of new and accrediting paramedics 10 and 5 "calls", i.e. the PCR's written by paramedic interns and paramedics prior to accreditation, through review of calls using the prehospital data base (EPCIS) for specific chief complaints or according to other criteria, and through policies and agreements obliging base hospitals and providers to provide prospective, online and/or retrospective review and input.

Besides standard procedure evaluation of success rates (ET, IV, etc.), EPCIS includes reports specifically designed, to North Coast EMS specifications, that collect performance and workload data required for periodic State reporting.

Providers and hospitals are able to retrieve data and run reports on EPCIS themselves and/or request data and reports from North Coast EMS. Currently only a few providers regularly request data and North Coast EMS will continue to encourage and facilitate greater provider and hospital familiarity with the exceptional reporting features available in EPCIS.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that describe response and chute time indicators, and that can quickly filter data to isolate a single county, provider, provider defined zone, ambulance or individual prehospital care giver, for any time period desired. These reports have been instrumental in helping North Coast EMS advise Humboldt and Lake Counties on both transport and clinical issues.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that isolate individual PCRs where scene times exceed certain parameters.

EPCIS includes reports, specifically designed to North Coast EMS specifications, that determine the number of patients who receive various interventions or medications. Again, these reports can quickly filter data to isolate a single county, provider, ambulance or individual prehospital care giver, for any time period desired.

EPCIS includes a report, specifically designed to North Coast EMS specifications, that can identify the activities of individual prehospital provider agencies or provider, when the use of a particular treatment guideline exceeds any threshold (percentage of total calls) selected. This tool is particularly useful in validating the reliability of provider

North Coast EMS commends Judith Baird, PCNC Redwood Memorial Hospital for the development of a quarterly QI activity summary which North Coast EMS has adopted as a model for reporting by hospital and provider QI representatives. Hospitals and providers will begin providing the agency with these quarterly reports on October 10th 2006. North Coast EMS will review these reports in order to identify county or regional issues for further quality improvement.

North Coast EMS considered it essential that provider and hospital QI representatives engage in the process of reviewing the State QIP regulations, and offer individual as well as collective interpretations of how to best fulfill the State QIP requirements. Providers and hospitals were asked to prepare draft QIP Programs, for North Coast EMS review and comment.

North Coast EMS has identified the QIP Program developed by STAR as a clear, concise and comprehensive QIP model for other providers and hospitals. North Coast EMS congratulates Paramedic Mike Gladding for his exceptional effort.

Skills Maintenance/Competency

As noted elsewhere above, for a region comprised of three counties, a single EMS QI Team is not feasible, and the function of this QI Team must be accomplished by the Committees and ad hoc committees described in the NCEMS QIP Plan. As in most sparsely populated EMS jurisdictions, in the North Coast EMS region, many of those same committee members who participate in county or regional QI oversight, are the same individuals who train our prehospital personnel. E.g., for several years in the recent past, the North Coast EMS Medical Director and the Medical Director of The North Coast EMS Paramedic program were one and the same. Currently a former North Coast EMS Medical Director is the North Coast EMS Paramedic Program Director.

Through policy and provider and hospital contracts, in accordance with State regulations, North Coast EMS ensures that all training is conducted by medical personnel with the appropriate expertise.

As noted elsewhere above, an essential component of the North Coast EMS QIP is the quarterly focused review (generally clinical) of quality indicators corresponding to identified regionwide QI objectives determined by the North Coast EMS Medical Director in consultation with the North Coast EMS Executive Director, EMS Coordinator and other system participants. Through this mechanism, under the guidance of the North Coast EMS EMS Coordinator, ALS provider agencies and hospitals are tasked with establishing measureable criteria to evaluate the identified indicators. As these QI representatives are typically the same individuals who organize and conduct training, they are able to share their individual, and our regional findings with the EMS personnel under their supervision and incorporate findings and improvement goals into their training curriculum, especially CE offerings. Subsequently, these provider and hospital QI leaders are encouraged to follow up with re-evaluation of the identified indicators.

Scope of Practice –

North Coast frequently receives requests to consider the addition or elimination of skills or medications from our regional EMS scope of practice. Each of these requests receives careful consideration, although many are immediately identified as required or prohibited by Title 22.

The North Coast EMS Regional Medical Director may make determinations about additions or eliminations independently, but generally these requests receive further review among office staff and the EMCC or MAC, including an evaluation of the EMS literature and of relevant prehospital data available through our prehospital data collection system (EPCIS). Further evaluation may require input from the wider EMS community, as was the case with a Humboldt County request to add Narcan to the EMT-I scope of practice. North Coast EMS consulted both the data, through an evaluation of Narcan uses and response times, and regional paramedics and MICNs, through a mail survey. The results convinced our EMS community and the Humboldt County Health Department that this addition was not desirable.

North Coast EMS has determined that "trial studies" require more staff time than is feasible for the foreseeable future and will not attempt these unless the need is decisive, or the trial is done in conjunction with one or more other LEMSAs with whom North Coast EMS may divide administrative duties.

In certain cases, the North Coast EMS Regional Medical Director may elect to request a further review of possible additions or eliminations by EMDAC and/or EMSA.

Skills Utilization Benchmarking –

Through the development of our "Seldom Used Skills" manual, insistence on end tidal CO2 monitoring, and other programs, North Coast EMS has demonstrated a commitment to ensuring the maintenance of prehospital provider skills.

Through North Coast EMS's Rural Outreach Project, the Agency has developed a focused education courses, including Childbirth, Burns, Triage, Trauma Care, Medical Care, Injuries, and MCIs. Lose of EMSA Special Project funding has virtually eliminated our ability to enhance the EMS System and provide important new training opportunities for rural and remote areas.

Although North Coast EMS encourages the consideration of skills utilization benchmarking where practical, the practice has only recently been studied by a limited number of, primarily, urban EMS agencies. In the largely rural North Coast EMS region, applying urban standards may or may not be feasible and/or desirable.

More generally, because the validation of benchmarking standards has not been accomplished, and currently depends largely on suspect or

discredited self-reporting techniques, applying this practice in the North Coast EMS region would likely meet with justifiable provider resistance.

North Coast EMS will remain attentive to ongoing benchmarking efforts documented in the EMS literature, and consider benchmarking standards according to their potential application to the North Coast EMS region. Likewise, as funds become available, North Coast EMS will seek ways of encouraging and obliging more simulated skills practice.

North Coast EMS encourages the State to consider the compatibility of employing data collected through prehospital data collection efforts in apply benchmarking goals of individuals or individual provider agencies. This practice promises to undermine the reliability of the data collected. In keeping with recent efforts to encourage self-reporting of medical errors by clinicians based on current NASA Aviation Safety Reporting System (ASRS) North Coast EMS will seek ways to encourage EMS personnel and provider agencies to contribute to our region's EMS system by reporting their own errors without fear of negative repercussions. North Coast EMS requests that EMSA provide leadership and guidance in this effort.

North Coast EMS will continue to encourage its hospitals and providers to "mine" their data to seek to identify broad system issues, while assuring prehospital data collectors (EMTs and Paramedics) that their diligent data collection efforts will not be used against them. North Coast EMS will remain committed to determining the need for "remedial pathways" from sources other than our prehospital data collection system.

Skills – Advanced Provider –

See "Skills Utilization Benchmarking" above.

Transportation/Facilities

Each of the counties in the North Coast EMS region has an ordinance in effect that provides a mechanism to permit and monitor emergency medical transportation services. Each of these ordinances supersedes any other local regulatory programs in existence in the county.

Counties formally retain permitting and monitoring functions through Health Departments and Health Officers in Humboldt and Lake Counties, and by the Board of Supervisors in Del Norte County. North Coast EMS assists Counties, when possible, with ensuring ordinance compliance: the agency designates all LALS/ALS service providers, conducts LALS/ALS site visits as needed, approves provider and base hospital quality improvement programs, provides data when possible, and performs many

other functions to ensure compliance with appropriate statutes, regulations, policies and procedures. North Coast EMS also approves ALS provider and base hospital QIP Programs, and provides ongoing evaluation of the EMS system, including the transportation component when possible.

North Coast EMS works with Counties to provide information from the computerized data system or from the quality improvement program to help monitor the ambulance ordinances as appropriate. The Agency previously worked extensively with Lake County on clarifying and monitoring their ordinance, but had to discontinue monitoring the ordinance to focus on delegated LEMSA responsibilities. In Humboldt County, the Agency provides semi-annual "chute time" reports to the County, and completed the new zoning addition to the EPCIS program to provide additional data.

Hospital Diversion

North Coast EMS does not recognize hospital diversion, i.e. patients re-directed to more distant hospitals due to ED saturation. Hospital diversion is permitted only in case of internal hospital disaster and must be documented by the hospital to North Coast EMS according to North Coast EMS policy 2309.

Specialty Care Centers Destination

The North Coast EMS Regional Trauma System Plan was approved by the SEMSA in July 2003. Development of the Regional Trauma Plan involved extensive use of the Regional Trauma Advisory Committee and a public hearing.

As of April 4, 2006, North Coast EMS has designated Sutter Lakeside Hospital as a Level IV Trauma Center. North Coast EMS has defined destination determination for critical trauma patients in Policy 7000A and registry data collection and management requirements in Policy 7000B.

The trauma center standards require each designated trauma center to have a formalized system of quality review of their trauma program. This can be incorporated as part of an existing quality assurance committee but it must be multidisciplinary, include all the components of the trauma team and meet at least on a quarterly basis. This QA/SI program should include case reviews, special audits, which allow for issue identification and rapid problem solving within the facility.

Responsibility for assessing compliance of the standard of care within each trauma center, as well as compliance with the North Coast EMS

Trauma Standards, rests with the Director of the Trauma Service at each hospital. Case identification should be made through reports generation from the trauma registry.

The quality assurance/system improvement process, which is done on a quarterly basis, begins with a pre-review of the trauma registry data that has been submitted to the EMS agency. This review is established by the trauma coordinator and as needed the Regional Medical Director for the purpose of overall review, monitoring, and selection of trauma cases which, may represent treatment issues, failure to meet system standards, or have a special educational value. Such cases are selected, specific questions on identified issues are formulated and the respective trauma center directors are forwarded this information, in preparation for formal review at the ReTAC meeting.

Pre-review during the EMS review process includes not only the medical care received at the trauma centers, but also review of Prehospital care and trauma cases that may have gone to non designated hospitals. Case selection will be based upon:

- Treatment issues
- Failure of system standards
- Delayed scene times, transports, and transfers
- Delayed trauma team activations
- Educational Value

When a case or a issue is identified as a ReTAC review item, the designated trauma center will come prepared to present the details of trauma care management including the details for which the case is being reviewed, based upon the above listed issues.

Each designated trauma center shall submit a trauma registry record for each patient who meets the definition of the Critical Trauma Patient as described in the trauma triage criteria which considers physiologic and anatomical findings and selected mechanism of injury. Patients who are triage as Non-Critical Trauma Patients but are admitted or transferred to a higher-level trauma center shall be entered into the trauma registry. All trauma deaths that occur at the trauma center must be included in the trauma registry.

The trauma registry will be the initial source utilized for case identification through the use of audit filters. The trauma registry is a confidential database of patients who have sustained major injuries or complications within the regional trauma system. This database is utilized for statistical reporting on system activities and quality improvement review of patient outcomes. It is utilized by the trauma centers in their

quality assurance process, with cases forwarded to the ReTAC for review of systems issues. Audit filters will be established by the committee, to guide them in case review. In every case review, the committee will make a finding of the appropriateness of the care rendered and will make recommendations regarding changes in the system to ensure appropriate care.

Emergency Department Approved for Pediatrics (EDAP) was established in the North Coast EMS region in 1989 following EMSA guidelines, with the goal of improving pediatric emergency care by requiring minimum education standards for physicians and ED staff, minimum safe staffing levels, minimum equipment availability, and a pediatric CQI program. These minimum standards were agreed to by participating hospitals and are monitored by site visit evaluations.

Initially, all seven hospitals were designated as EDAPs, but only three remain at this time (Mad River, Redwood and Redbud). The lack of formal EDAP standards in California, despite years of Federal EMS for Children funding, coupled with the economic hardships faced by each facility have greatly reduced our ability to encourage ongoing designation of EDAPs.

North Coast EMS requests that EMSA champion the development of enforceable EDAP standards within State regulation.

Due to ongoing reductions in ESMA General Funds, North Coast EMS has been forced to discontinue the services of a Nurse Contract, a Trauma Contractor and our ability to maintain informal, desirable programs (like EMSC, EDAP, and full base hospital status) is decreasing

Public Education and Prevention

Community Involvement

North Coast EMS actively participates in numerous Humboldt County community involved groups, such as Childhood Injury Prevention, Child Passenger Safety Committee, Child Death Review Team, and the Water Safety Coalition. Due to lack of funding, involvement in the other regional counties is limited.

Reward and Recognition

North Coast EMS considers identifying exceptional system participation and clinical performance an essential part of Quality Improvement.

North Coast EMS in conjunction with National EMS Week, annually awards the Kris Kelly Memorial Star of Life Award. Each year in the spring nomination applications are sent to all the providers, hospitals and first responder agencies in the region, for their input. Nominations are submitted and reviewed by office staff and the agency Medical Director. Award winners are chosen in the areas of First Responder, Basic Life Support, Advanced Life Support, Base Hospital, Administration and Special Recognition. The awards are handed out during a presentation at the counties Board of Supervisors meetings. North Coast EMS also sends out a regional press release regarding National EMS Week and to announce the winners in each county.

Prevention Programs

With Federal Block Grant funds in 1996/97 and 1997/98, the agency implemented an EMS for Children (EMSC) project that included an injury prevention component. The project included a training program to increase parental understanding of child developmental stages, since lack of this knowledge has been identified to be a key contributing factor in many cases of pediatric death. An educational course focused on child development was also developed for presentation in the workplace or to other interested groups. Public service announcements focusing on the three most common causes of childhood death were developed. Referral directories listing services for children were distributed to the public, and resource directories listing children's services were provided to EMS providers. Copies of the Safety Awareness for EMS (SAFE) Program were distributed to interested EMS providers. Materials were also provided to existing injury prevention programs.

North Coast EMS promotes development and dissemination of informational materials whenever possible and as needed. For example, with flu vaccine in short supply a few years ago and a recent flu epidemic severely impacting emergency departments in other parts of the state, staff met with the Humboldt County Health Officer and several other providers to discuss the potential need for public education related to these issues. During the past three years, North Coast EMS also provided several public service announcements on local television, and well as newspaper articles, to promote safe practices, such as using bicycle helmets and child car seats. The Agency recently expanded its video selection and reference library, and modified the web page to provide further information. Finally, agency staff continue to participate in local child safety and EMS for Children activities.

Patient Education

North Coast EMS does not currently have or anticipate any programs aimed at patient education. The agency briefly considered education (chiefly through flyers distributed by ambulance crews and/or in the ED) aimed at encouraging more rational use of EMS resources, including 911 and the ED, but indefinitely postponed this until better information is available about the long term benefits and/or unintended consequences of such programs. We look to EMSA for further guidance in this area and hope that the EMSA will consider the special needs of rural communities when evaluating this issue.

Customer Satisfaction

In the development and implementation of all agency programs, North Coast EMS continually solicits comments and questions from system participants. North Coast EMS encourages input from the public and aggressively reviews concerns brought to the agency by members of the public. Generally North Coast EMS will discuss these concerns with the provider agency or hospital in question, and will ask that identified problems be addressed, that a report be made to North Coast EMS and that the member of the public who initiated the review be contacted and provided with relevant non-confidentiality protected information.

North Coast EMS is happy to report that the Lake County EMCC benefits from the regular attendance of a public representative.

Risk Management

Issue Resolution Process

North Coast EMS requires that all system participants to document time/date specifics for all their quality concerns. North Coast EMS encourages all issues to be resolved between parties directly effected. When this approach proves impractical or impossible for any reason, or when local issues may benefit from system wide review or changes, North Coast EMS may assume responsibility for review and resolution. In cases where issues may be beyond the resources or jurisdiction of North Coast EMS (generally those concerning paramedic licensure) North Coast EMS advises EMSA.

Resolution of all issues includes a review of all relevant State regulations, North Coast EMS policy and prior practice. Due process is afforded all concerned individuals and agencies.

System Monitoring

North Coast EMS is responsible for overall evaluation, planning, maintenance and enhancement of the EMS System, and virtually all activities are designed to continuously improve patient care, best practices. North Coast EMS has several EMS system evaluation programs and tools in use:

The Medical Priority, Inc. EMD Program, which meets national standards for dispatch, was implemented by North Coast EMS with EMSA funding;

The AED Program, which the agency reports on annually to EMSA; new regulations will no longer require monitoring by North Coast EMS, but reports will continue to be submitted.

The EPCIS Data Program, which is a tool for monitoring EMS system operations and is used to generate data audit screens to identify system trends and patient care problems. EPCIS also assists with research, is part of the QIP/CQI Program and will provide reporting to system participants and EMSA consistent with new and developing CQI requirements (e.g., statewide data set, etc.) ;

Training and CE programs are evaluated based on state standards, agency policies and procedures, site visits and written reports;

LALS/ALS providers are evaluated based on state standards and written reports, and have approved CQI Programs in place. Site visits are conducted as needed, such as for a new provider or to investigate problems. The agency also conducts certification and accreditation reviews of personnel;

Base hospitals are evaluated based on state standards, site visits and written reports, and all facilities have written participation agreements with North Coast EMS. Due to General Fund cuts, these site visits are no longer possible.

The EDAP Program evaluates pediatric capabilities of EDs based on local standards and state guidelines, site visits and reports. All EDAPs have written participation agreements with North Coast EMS;

The CQI Program is in place to provide a mechanism for review of prehospital care, incident reporting, problem identification, and system monitoring;

North Coast EMS has completed several surveys throughout the region to assess the needs regarding personnel, training, system design and

operations. The results of the regional surveys are used to guide policy and procedural changes to improve operations and the EMS system;

North Coast EMS participated in the Mt. Valley "EMS System Evaluation" special project, which utilized the "Rapid Cycle Improvement Program" for special short term studies (e.g. chest pain).

The Rural Trauma Program and the Rural/Urban Trauma Study evaluated trauma patient outcomes in this region;

North Coast EMS's Executive Director, Regional Medical Director, EMS Coordinator and Training Coordinator participate on various committees at the State level to improve EMS system evaluation mechanisms statewide, most recently the Vision System Information and the Vision Education Committees. North Coast EMS staff reviewed and commented on numerous documents last year, such as the proposed data set, LEMSA evaluation tools, a CQI guideline, clinical indicators, etc.

The EMS System Plan and this year's update serve as the current EMS System evaluation document and inventory update.

North Coast EMS has implemented and will monitor provider and hospital compliance with the QIP regulations. As part of this program, North Coast EMS requires quarterly summaries of each provider and hospital's QIP activities. These summaries will be reviewed by the agency to identify targets for county or region wide improvement that can be pursued jointly by all concerned system participants.

July 2007 Update

All providers and hospitals have submitted and had their QIP Plans approved by North Coast EMS.

QIP Activity Summaries from all providers and hospitals were received for the January 10, 2007 and April 10, 2007 due dates. Please find the North Coast EMS QIP STATUS SPREADSHEET attached. Please find the North Coast EMS Quarterly QIP Activity Summaries for the January 10, April 10 and July 10 2007 due dates attached.

*Submitted to EMSA July 27, 2007, next EMSA review submission July 27, 2011.