NORTH COAST EMERGENCY MEDICAL SERVICES
3340 Glenwood Street, Eureka, CA 95501 (707) 445-2081 (800) 282-0088 FAX (707) 445-0443

MEMORANDUM:

DATE: **January 8, 2014**

TO: **Joint Powers Governing Board Members**
County Health Officers
Lake County Administrative Officer
Prehospital Care Medical Directors
Prehospital Care Nurse Coordinators
Fire Chiefs' Associations/EMS Liaisons
EMCC Chairpersons
Interested Others

FROM: **Rhiannon Potts, Administrative Assistant**

RE: **E-Informational Mailing**

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1. For Your Information:

a. Change Notice # 101
Draft- Policy # 5103 Hemostatic Dressing Use (Please email comments by February 6, 2014 to Louis Bruhnke Louis@northcoastems.com).
Draft- Policy # 2208 Inter-Facility Transfer Procedure (Please email comments by February 6, 2014 to Louis Bruhnke Louis@northcoastems.com).

Replace- Policy # 5102 EMT-I Scope of Practice
Replace- Policy # 5308 Furosemide (Lasix)
Replace- Policy # 5318 Adult and Pediatric Intubation Protocol
Replace- Policy # 5402 EMT-P Scope of Practice
Replace- Policy # 5441 ETAD Protocol
Replace- Policy # 6530 Asthma/Bronchospasm
Replace- Policy # 7005 Trauma Quality Improvement

Remove- Policy # 2203 ETAD Authorized Service Provider
Remove- Policy # 3308 ETAD Training Structure & Instructor Qualifications
Remove- Policy # 4408 ETAD Skills Proficiency
Remove- Policy # 4409 ETAD Skills Proficiency Evaluator Approval
Remove- Policy # 5206 ETAD Scope of Practice
Remove- Policy # 6508 Ventricular Ectopy

b. Discontinuation of Combitube/ETAD Usage
c. Addition of Fentanyl to Local Paramedic Scope of Practice
d. EMS in the Clouds
e. Improving Patient Safety through Transparency
f. Trauma Plan Update
g. North Coast EMS 2013 Agency Emergency Medical Services Plan Update

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CHANGE NOTICE CHANGE #101

DATE: 01/08/2014

TO: ALL PREHOSPITAL CARE POLICY MANUAL HOLDERS

INSTRUCTIONS	POLICY #	POLICY DESCRIPTION	# OF PAGES
DRAFT	5103	Hemostatic Dressing Use	2
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REPLACE	5102	EMT-I Scope of Practice	2
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REPLACE	5441	ETAD Protocol	2
REPLACE	6530	Asthma/Bronchospasm	1
REPLACE	7005	Trauma Quality Improvement	5
REMOVE	2203	ETAD Authorized Service Provider	
REMOVE	3308	ETAD Training Structure & Instructor Qualifications	
REMOVE	4408	ETAD Skills Proficiency	
REMOVE	4409	ETAD Skills Proficiency Evaluator Approval	
REMOVE	5206	ETAD Scope of Practice	
REMOVE	6508	Ventricular Ectopy	

Subject: Scope of Practice/Procedure – BLS
Hemostatic Dressing Use

Associated Policies:

I. Purpose

After tourniquet placement and to aid in severe arterial bleeding, or to control severe bleeding where tourniquets are not indicated (trunk, head, neck, etc) use of a hemostatic agent is indicated.

II. Indications.

A. Severe uncontrolled external bleeding is not controllable with the use of a tourniquet or other means.
B. Nosebleeds that are not controlled by direct pressure.

III. Contraindications

A. Absolute:
1. None when used per protocol and manufactures recommendations.

IV. Equipment

A. Approved list of Hemostatic Dressings
1. Quick Clot(r), Z-Medica(r)
2. Quick Clot(r), Combat Gauze(r)
3. LEQuick Clot(r), EMS Rolled Gauze, 4x4 Dressing,TraumaPad(r)
4. Celox(r)
5. Celox(r) Gauze, Z-Fold Hemostatic Gauze
6. Celox(r) Rapid, Hemostatic Z-Fold Gauze

V. Procedure

A. Assure that the patient's airway is open and that breathing is adequate.
B. Identify location of severe bleeding.
C. For all bleeding wounds, attempt to control bleeding by first applying pressure directly on the wound with sterile dressings.
D. For severe bleeding to extremities, do not delay tourniquet application.
E. When bleeding is severe and continues after above procedures, Apply a hemostatic gauze dressing over the entire wound and directly to the bleeding site simultaneously applying direct pressure for at least three minutes of continuous pressure.
F. In case of severe nose bleeding, gauze will need to be folded and inserted into the bleeding nare. Insert the gauze as far up the nare as tolerated. Continue to apply external pressure until bleeding stops.
G. For larger wound, ensure that the hemostatic dressing is placed directly over the bleeding source. More than one dressing may be required to cover the wound. .
H. Wounds may need to be slightly opened to ensure that the hemostatic dressing is applied to all the surfaces of the wound.

Subject: Scope of Practice/Procedure – BLS
Hemostatic Dressing Use

Associated Policies:

I. Wrap and tie bandage to maintain pressure.
J. If severe bleeding persists from the trunk, neck, head or other location, a second layer of hemostatic gauze dressings could be used to ensure that the entire wound has been covered.
K. Additional bulky dressing should be applied over the dressing and held tightly in place.
L. Protect patient from heat loss.
M. Apply oxygen per Oxygen administration Protocol.
N. Reassess patient and wounds frequently for recurrence of bleeding.
O. Ensure that the use of hemostatic dressing is communicated to transporting ambulance and/or receiving hospital.
P. Communicate with transporting ambulance and/or Base hospital.

Approved: _____

Approved as to Form: _____

Subject: Administration - Provider
Inter-Facility Transfer Procedure

Associated Policies:

I. Authority and Reference (incorporated herein by references)
- A. Division 2.5 of Health & Safety Code
- B. California Code of Regulations, Title 22
- C. North Coast EMS Policies & Procedures

II. Policy

Patient transfers between acute care hospitals will be completed based upon the medical needs of the patient and through the cooperation of both the sending and receiving hospitals in accordance with approved procedures.

III. Procedures

A. Application of Policy and Procedure:

This policy shall be utilized for all patient transfers between acute care hospitals. These procedures are suggested for patient transfers from skilled care facilities to acute care hospitals, but are not necessary for transfers to a chronic care skilled care facility.

This procedure is not a substitute for required transfer policies and agreements. Each hospital shall have its own internal written transfer policy, clearly establishing administrative and professional responsibilities. Transfer agreements must also be negotiated and signed with hospitals that have specialized services not available at the transferring facility.

B. Responsibilities:

Hospitals licensed to provide emergency services must fulfill their obligation under California Health and Safety Code to provide emergency treatment to all patients regardless of their ability to pay. Transfers made for reasons other than immediate medical necessity must be evaluated to assure that the patient can be safely transferred without medical hazard to the patient's health and without decreasing the patient's chances for or delaying a full recovery. In these cases, the involved physicians and hospitals should generally take a conservative view, deciding in favor of patient safety.

If a hospital does not maintain an emergency department, its employees shall nevertheless exercise reasonable care to determine whether an emergency exists and shall direct the persons seeking emergency medical care to a nearby facility which can render the needed services, and shall assist in obtaining the emergency services, including ambulance transportation services, in every way reasonable under the circumstances. Notwithstanding the fact that the receiving facility or physicians at the receiving facility have consented to the patient transfer, the transferring

physician and facility have responsibility for the patient that he or she transfers until that patient arrives at the receiving hospital. The transferring physician determines what professional medical assistance should be provided for the patient during the transfer (if necessary, with the consultation of the appropriate EMS Base Hospital Physician).
The transferring physician has a responsibility to candidly and completely inform the receiving physician of the patient's condition so that the receiving physician can make suitable arrangements to receive the patient. It is the responsibility of the receiving facility, when accepting the patient, to provide personnel and equipment reasonably required in the exercise of good medical practice for the care of the transferred patient, in order to assure continuity of care.

C. Standard for Transfers:
   1. Physicians considering patient transfer should exercise conservative judgment, always deciding in favor of patient safety.
   2. If the patient presents to an emergency department, the patient must be evaluated to determine if the patient has emergency medical condition or is in active labor. If an emergency medical condition or active labor exists, the emergency department must provide emergency care and emergency services where appropriate facilities and qualified personnel are available. Emergency care shall be limited to diagnostics and procedures which directly contribute to patient survival.
   3. Immediate transfer of Major Trauma Patients
      a. Immediate transfer is at the discretion of the examining physician. It may be based on patient condition, availability of surgeon and operating room but not the patient's ability to pay.
      b. Those patients immediately transferred may be audited for both medical care and compliance with this procedure.
      c. As in all transfers, prior acceptance of the transfer by the receiving facility is required prior to transfer. Cases that are refused may be audited.
   4. The transferring physician must determine whether the patient is medically fit to transfer and when indicated, will take steps to stabilize the patient's condition.
   5. No transfer shall be made without the consent of the receiving physician and hospital. The receiving hospital may designate physicians who may provide consent for both the physician and the hospital. It is the responsibility of the receiving physician to

inform the transferring physician of the need for additional administrative consent.

6. The patient or the patient's legal representative must be advised, if possible, of the impending transfer. Adequate information shall be provided regarding the proposed transportation plans. This process should be documented according to State and Federal requirements.
7. Once the decision to transfer the patient has been reached, every effort should be made to effect the transfer as rapidly and safely as possible. The transferring physician must take into account the needs of the patient during transport and the ability of the transport personnel to care for the patient.
   Transport personnel are not authorized to, and shall not, provide services beyond their scope of practice.
   North Coast EMS Policy and Procedure details the scope of practice for EMT-I's, EMT-II's, and EMT-Paramedics. If the patient's needs are within the scope of practice of an EMT-IA, no interaction with a base hospital is necessary. EMT-II and EMT-P personnel may only function under the direction of a Base Hospital Physician or MICN. If the patient requires EMT-II or EMT-P level care, the transferring physician must contact the base hospital so that the patient's care can be coordinated during transport.
   If the patient's care needs exceed the scope of practice of the available EMS personnel, the transferring physician will arrange for the patient to be accompanied by a physician or registered nurse along with any other personnel, equipment, and supplies necessary for patient care. In these cases, while assisting the MD or RN with patient care, EMS personnel must function as EMT-IA's, unless authorized by the base hospital to function as an EMT-II or EMT-P, as appropriate.
8. Additional Requirements for Transfer for Non-Medical Reasons
   When patients are transferred for non-medical reasons, the transferring hospital must follow all of the above requirements. In particular, the transferring physician must ensure that emergency care and emergency services have been provided, and shall determine the transfer would not create a medical hazard to the patient and would not decrease the patient's chances for or delay the patient's full recovery.

D. Transfer Procedures:
   The following are the basic transfer procedures for all patient transfers:
   1. Transferring Facility

a. The transferring hospital will first provide all immediately necessary diagnostic tests, procedures, and treatment (including, if necessary, consultation) deemed appropriate by the transferring physician.

b. After determining the need for transfer, the transferring physician will notify the patient or his/her representative, explaining the reason for transfer. This process should be documented according to State and Federal requirements.

c. The transferring physician will contact and consult the receiving physician. The receiving physician will be advised of all information regarding the patient's condition, test results, procedures, and current treatment. (In case of STAT transfers, consider faxing information, so that patient transfer is not unnecessarily delayed.) The patient may be transferred only with the approval of the receiving facility and physician. The receiving hospital may designate physicians who may provide consent for both the physician and the hospital. It is the responsibility of the receiving physician to inform the transferring physician of the need for additional administrative consent.
If EMT-II or EMT-P personnel are requested for the transfer, the transferring physician must be consulted by base hospital personnel to facilitate care by EMS personnel.

d. To request an ambulance:
   1) Call the appropriate ambulance service directly.
   2) Identify sending and receiving facilities.
   3) Identify sending and receiving physicians.
   4) Provide patient's name, location, and condition.
   5) Detail the level of care and type of equipment needed (EMT-I, EMT-II or EMT-P) or advise if a RN or MD will accompany the patient.
   6) If the transferring facility is not the base, the base hospital should be informed that an ALS or LALS transfer is under way.

e. The transferring physician and nurse will complete documentation of the medical record. All pertinent test results, x-rays, and other patient data, including the patient transfer form will be sent with the patient at the time of transfer. If data is not available at the time of transfer, such data will be telephoned or faxed to the receiving hospital and sent as soon thereafter as possible.

2. Receiving Facility
   The receiving hospital shall instruct its personnel (including physicians who are authorized to accept patient transfers) on the appropriate procedures for completing transfers.

E. Audit of Transfer Procedures:
Violations of transfer procedures can result from either clinical or procedural errors on the part of individual hospitals and physicians, and/or other parties involved in the transfer process.
Examples of candidates for audit might include:
1. Inadequate stabilization of the patient.
2. Patient sent without adequate level of personnel or equipment.
3. Patient subject to excessive delay in transfer.
4. Patient sent without medical records and results of diagnostic tests.
5. Serious deterioration of the patient's condition enroute.
6. Inappropriate refusal or delay of the transfer by the receiving facility.

Audits may be conducted by North Coast EMS upon notification of any of the above, or complaints may be forwarded to the State Department of Health Services.

F. Procedure for Complaint Review:
The receiving hospital, and all physicians, other licensed emergency room health personnel, and certified prehospital emergency personnel who know of apparent violations of transfer procedures shall, and the corresponding personnel at the transferring hospital and the transferring hospital may, report the apparent violations to the State Department of Health Services on a form prescribed by the Department of Health Services within one week following its occurrence.

IV. Consideration for Emergency Trauma Transfer

A. Based on the patient's condition, geographic locale, expertise of prehospital providers, and the resources of the base, a decision must be made to accept the patient, to stabilize and transfer, or to bypass the patient to a more appropriate facility for definitive care.

B. Deactivation and mechanism of transfer arrangements should be simultaneous with patient stabilization. Once the need for transfer is recognized, this should be expedited. Obtain diagnostics and intervene only on aspects of patient care needed for safe transfer. (If obvious severe head injury is present and no neurosurgeon is available, initiate transfer proceedings without awaiting elaborate diagnostics.)

C. Consider and prepare for transfer early for children with severe multi-system injury.

Subject: Administration - Provider
Inter-Facility Transfer Procedure

D. Permission for emergency transfer should be predetermined by written transfer agreements.
E. Fax of transfer documents is encouraged.

Approved: _____

Approved as to Form: _____

Subject: Scope of Practice/Procedure – BLS Personnel
EMT-I Scope of Practice

I. Authority and Reference (incorporated herein by references)
- A. Division 2.5 of Health and Safety Code
- B. California Code of Regulations, Title 22
- C. North Coast EMS Policies and Procedures

II. Purpose

To define the regional Emergency Medical Technician-I (EMT-I) scope of practice.

III. Procedure

A. During training, while at the scene of an emergency, during transport of the sick or injured, or during interfacility transfer, a supervised EMT-I student or certified EMT-I is authorized to do any of the following:

1. Evaluate the ill and injured.
2. Render basic life support, rescue and emergency medical care to patients.
3. Obtain diagnostic signs to include but not be limited to the assessment of temperature, blood pressure, pulse and respiration rates, level of consciousness, and pupil status.
4. Perform cardiopulmonary resuscitation, including the use of mechanical adjuncts to basic cardiopulmonary resuscitation.
5. Use the following adjunctive airway breathing aids:
   a. oropharyngeal airway;
   b. nasopharyngeal airway;
   c. suction devices;
   d. basic oxygen delivery devices; and
   e. manual and mechanical ventilating devices designed for prehospital use.
6. Use various types of stretchers and body immobilization devices.
7. Provide initial prehospital emergency care of trauma.
8. Administer oral glucose or sugar solutions.
9. Extricate entrapped persons.
10. Perform field triage.
11. Transport patients.
12. Set up for ALS procedures, under the direction of an EMT-II or Paramedic.
13. Perform automated external defibrillation when authorized by an EMT AED service provider.

Subject: Scope of Practice/Procedure – BLS Personnel
EMT-I Scope of Practice

14. Assist patients with the administration of physician prescribed devices, including but not limited to, patient operated medication pumps, sublingual nitroglycerin, and self-administered emergency medications, including epinephrine devices.
15. Monitor intravenous lines delivering glucose solutions or isotonic balanced salt solutions including Ringer's lactate for volume replacement.
16. Monitor, maintain, and adjust if necessary in order to maintain, a pre-set rate of flow and turn off the flow of intravenous fluid.
17. Transfer a patient, who is deemed appropriate for transfer by the transferring physician, and who has nasogastric (NG) tubes, gastrostomy tubes, heparin locks, foley catheters, tracheostomy tubes and/or indwelling vascular access lines, excluding arterial lines.

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B. The scope of practice of an EMT-I shall not exceed those activities authorized in this policy.

Approved: _____

Approved as to Form: _____

Subject: Scope of Practice/Procedure – EMT/ PARAMEDIC
Furosemide (Lasix)

Associated Policies: 6502, 6503, 6531

I. Class
   A. Diuretic.

II. Indications
   A. Severe Congestive Heart Failure (CHF) with previous history, **and:**
      1. Patient transport time is anticipated to exceed 45 minutes,
      2. The use of nitrites and CPAP mask device (if available) have not resulted in patient improvement,
      3. The patient has a **history** of CHF and is currently prescribed **medication**(s) consistent with that history,
      4. The patient is NOT taking (a) bronchodilator(s),
      5. The patient is **afebrile,**
      6. The patient is **normotensive** or **hypertensive,**

III. Therapeutic Effect
   A. Stimulates kidneys to excrete water, salt and potassium which lead to decreased circulating blood volume.
   B. Produces vasodilatation.
   C. Very potent with slow onset of 30-120 minutes.

IV. Contraindications
   A. Absolute:
      1. Dehydration.
      2. Pregnancy.
      3. Suspected or know infectious, drug related or non cardiac causes of Congestive Heart Failure.

V. Adverse Effects
   A. Cardiac dysrhythmias.
   B. Transient hypotension.
   C. Nausea and vomiting.
   D. Dehydration.

VI. Administration and Dosage
   A. Adult: 20-80 mg slow IV over 1-2 minutes. Max single dose should never exceed 80 mg. DOSAGES GREATER THAN **40mg** REQUIRE A BASE ORDER.

VII. Special Information
   A. Sulfonamide sensitive persons may develop an allergic reaction.

Subject: Medical Direction
Furosemide (Lasix) Protocol

Associated Policies:

VIII. **ONLY TO BE USED BY PROVIDER AGENCIES WITH PRIOR NORTH COAST EMS APPROVAL. ALL USES OF FUROSIMIDE MUST BE REVIEWED BY THE PROVIDER QIP LIASION AND BASE HOSPITAL PCNC.**

Approved: _____

Approved as to Form: _____

Subject: Scope of Practice/Procedure – EMT-II
Adult and Pediatric Endotracheal Intubation Protocol

I. Indications
   A. Respiratory insufficiency.

II. Therapeutic Effects
   A. Isolates the trachea and permits complete control of the airway.
   B. Prevents gastric distension.
   C. Provides direct route for suctioning of respiratory passages.
   D. Permits administration of medications via endotracheal tube.
      1. Medications that can be administered:
         a. Epinephrine.
         b. Atropine.
         c. Narcan.
         d. Lidocaine.

III. Contraindications
   A. Absolute:
      1. None.
   B. Relative:
      1. Severe pharyngeal or esophageal burns: thermal or caustic.
      2. Possible epiglottis.
      3. Pediatric ET with short transport times of 10 minutes or less.

IV. Equipment
   A. Adult and pediatric laryngoscopes.
   B. Adult and pediatric endotracheal tubes (2.5-9.0mm).
   C. Tape or other device for securing tube.
   D. Inserting stylets.
   E. 10 ml syringe.
   F. Bag-Valve-Mask.
   G. Adult and pediatric Magill forceps.
   H. Suction device.
   I. Stethoscope.
   J. CO2 Detector Device-Adult and Pediatric

V. Adverse Effects
   A. Hypoxia.
   B. Esophageal or right main stem bronchus-intubation.
   C. Aspiration during the procedure.
   D. Vagal stimulation with severe bradychardia and hypotension.
   E. Laryngospasm.
   F. Vocal cord damage.
   G. Displacement of a cervical fracture and paralysis.
   H. Complete obstruction of airway in epiglottis.

Subject: Scope of Practice/Procedure – EMT-II
Adult and Pediatric Endotracheal Intubation Protocol

VI. Procedure
A. Insertion:
1. Ensure that the equipment is working and that suction is available.
2. Select appropriate size ET tube:
a. Adult: Average adult sizes of 7.0, 7.5 and 8.0 cuffed tubes.
b. Pediatric and infant sizes can be determined using:
1) Resuscitation tape should be used but ET tubes can be sized using the child's small fingernail.
2) Cuffed tubes for children greater than 1 year of age can be used by personnel have been specially trained in their use.
3) Uncuffed tubes are still acceptable for routine use in all ages of pediatrics.
3. Insert stylet and bend ET tube into a "Lazy J". The distal end of the stylet should be recessed from the tip of the tube.
4. Position patient:
a. Medical patient: Sniffing position. Facilitate this position for a child or infant by placing towel roll under shoulders.
b. Trauma patient: Neutral position with inline axial stabilization.
5. Preoxygenate the patient.
6. Grasp laryngoscope in the left hand and ET tube in the right.
7. Exert traction upward along the axis of the laryngoscope handle until glottic opening is exposed. Do not use top teeth as a fulcrum.
8. Insert ET tube into the trachea.
9. Inflate cuff in adult patient with 10cc air.
10. Remove syringe and stylet, maintaining tube position.
11. Ventilate patient and watch for chest rise, auscultate lung fields and epigastic area.
12. Place CO_2 Detector:
a. Use the correct size device. (Do not use Adult CO_2 detector on a patient less than 15kg).
b. Place on ET tube and ventilate patient.
c. Observe CO_2 detector for appropriate color change.
13. When Capnography is available,
a. Attach sensor endotracheal tube.
b. Note CO2 level and waveform changes.
c. Capnography should remain in place and monitored through out transport.
14. Note tube position and secure tube in place with tape or ET tube hold device.

Subject: Scope of Practice/Procedure – EMT-II
Adult and Pediatric Endotracheal Intubation Protocol

15. Reassess ventilations, watch for chest rise and auscultate lung fields

VII. When considering need for Extubation:

1. No chest rise with ventilation.
2. Absent breath sounds.
3. Presence of epigastric ventilation sounds.
4. Purple color on CO_2 detector with exhaustion for patient with a pulse.
5. ETCO2 less than 20 in a patient with a pulse, or less than 10 in a pulseless patient.
6. Only consider extubation on the patient who have return of spontaneous respirations, when they have regained consciousness, AND who are coughing, gagging AND struggling against the ET tube.
7. Critical airway patients (IE severe facial burns, severe facial injuries or any respiratory failure patient) that are ALREADY intubated with confirmed tube placement and who are "bucking" the tube or struggling against assisted ventilations, consider "light" sedation with
   a. Versed 1mg IV every 5 minutes or as needed to maintain control of the patient. DO NOT medicate to completely eliminate patient's own respiratory effort.
   b. Consider pain management in the critically injured patient with obvious painful injuries as their agitation may be due to pain.
   c. Consider Morphine OR Fentynl per protocol.
   d. Always monitor pulse Ox and ECG monitor or ETCO2 when available.

VII. If patient requires extubation,:

1. Ensure patient is awake and alert and able to protect their own airway. Patient should be explained the procedure when possible.
2. Turn patient on side or sit them upright and suction oropharynx.
3. If cuff was used, deflate cuff completely.
4. Removing the tube should occur while the patient is exhaling.
5. Gently but quickly remove the tube to avoid the gag reflex.
6. Patient may have a cough or sore throat.

Subject: Scope of Practice/Procedure – EMT-II
Adult and Pediatric Endotracheal Intubation Protocol

Approved: _____

Approved as to Form: _____

Subject: Scope of Practice/Procedure – Paramedic
EMT-P Scope of Practice

Associated Policies:

I. Authority and Reference
- A. Division 2.5 of Health and Safety Code
- B. California Code of Regulations, Title 22
- C. North Coast EMS Policies and Procedures

II. Purpose
To define the regional paramedic scope of practice.

III. Procedure
- A. While at the scope of an emergency, and during transport of the sick and injured, or as a part of their training or continuing education, a paramedic or a paramedic student may, in accordance with North Coast EMS policies and procedures and California State law, do the following:
  1. Perform any skill identified in the EMT-I scope of practice.
  2. Administer the following medications:
     - a. Activated charcoal.
     - b. Adenosine (Adenocard).
     - c. Albuterol Sulfate (Proventil, Ventolin).
     - d. Amiodarone
     - e. Aspirin.
     - f. Atropine Sulfate.
     - g. Atrovent (Ipratropium Bromide)
     - h. Calcium Chloride.
     - i. Dextrose 10%, 25% and 50%.
     - j. Diazepam (Valium).
     - k. Diphenhydramine Hydrochloride (Benadryl).
     - l. Dopamine Hydrochloride (Intropin).
     - m. Epinephrine.
     - n. Fentnyl.
     - o. Furosemide (Lasix) with EMSA &North Coast EMS approval only and in transport situations of greater than 45 minutes.
     - p. Glucagon.
     - q. Lidocaine Hydrochloride.
     - r. Lorazepam
     - s. Magnesium sulfate.
     - t. Midazolam.
     - u. Morphine Sulfate.
     - v. Naloxone Hydrochloride (Narcan).

w. Neosynephrine topical application during nasotracheal intubation.
x. Ondansetron (Zofran)
y. Oral Nitroglycerine preparations.
z. Sodium Bicarbonate.

3. Perform the following procedures:
   a. Adult and pediatric endotracheal (ET) intubation (pediatric ET use shall be limited to transport times of greater than 10 minutes) and use of Magill forceps.
   b. Adult nasotracheal (NT) intubation.
   c. Needle cricothyrotomy.
   d. Defibrillation.
   e. Synchronized cardioversion of conscious or unconscious patients.
   f. Valsalva maneuver.
   g. Insertion of intravenous (IV) catheters, saline locks, needles, or other cannulae in peripheral veins (including external jugular vein).
   h. Monitor and administer medications through a pre-existing central or peripheral vascular access device.
   i. Intraosseous infusion (IO) adult and pediatric.
   j. Administration of IV glucose or isotonic balanced salt solutions.
   k. Obtain venous blood samples for laboratory analysis.
   l. Determination of blood glucose level via glucose test strip.
   m. Administration of medications via IV, intramuscular (IM), subcutaneous (SQ), endotracheal (ET), nasotracheal (NT), and intraosseous (IO) routes, inhalation, transcutaneous, rectal, sublingual, intranasal, oral and topical..
   n. Aerosol therapy with small volume nebulizer.
   o. Rectal administration of Diazepam.
   p. Monitoring Potassium Chloride (KCl) equal to or less than 40 mEq/L.
   q. Use of non-invasive diagnostic monitoring devices (e.g., , end-tidal CO_2 detector, Capnography).
   r. Adult and pediatric nasogastric/orogastric tube insertion and suction.
   s. Needle thoracostomy.
   t. Monitoring thoracostomy tubes.

Subject: Scope of Practice/Procedure – Paramedic
EMT-P Scope of Practice

u. External Cardiac Pacing.
v. ETAD or King Airway. .

Approved: _____

Approved as to Form: _____

Subject: Scope of Practice/Procedure - Paramedic
ETAD Protocol

Associated Policies: 5303, 5402, 6504

I. Indications
- A. Unconscious patient with absent gag reflex who is apneic or hypoventilating.
- B. Unable to perform endotracheal intubation.

II. Contraindications
- A. Patient who appears under sixteen (16) years old.
- B. Patient under five (5) feet tall.
- C. Known esophageal disease (cancer, varices, surgery, etc.)
- D. Ingestion of caustic substance.
- E. Suspected narcotic overdose prior to administration of Naloxone.

III. Equipment
- A. ETAD Airway.
- B. 100+ cc syringe for inflation of pharyngeal cuff.
- C. 20cc syringe for inflation of distal cuff.
- D. Water soluble lubricant.
- E. Stethoscope.
- F. Portable suction device.

IV. Insertion Procedure
- A. Inflate each cuff and check for leaks, apply emesis diverter to Tube #2.
- B. Deflate cuffs.
- C. Apply water soluble lubricant to distal end of tube.
- D. Hyperventilate patient.
- E. Place patient's head in a neutral position. Grab
- F. lower jaw and lift upward.
- G. Insert tube, advance until teeth/gums are between black rings on tube.
- H. Inflate pharyngeal cuff (Port #1 with blue pilot balloon) with 100cc of air.
- I.J. Inflate distal cuff (Port #2 with white pilot balloon) with 15cc of air.
- K. Ventilate through Tube #1.
  Assess ventilation:
  1. Rise and fall of the chest. 2.
     Bilateral lung sounds. 3.
     Gastric auscultation.
- L. If CHEST RISE is PRESENT and GASTRIC SOUNDS are ABSENT:
  1. Secure tube.
  2. Verify placement. 3.
     Continue ventilation.

Subject: Scope of Practice/Procedure - Paramedic
ETAD Protocol

M. If NO CHEST RISE and GASTRIC SOUNDS are PRESENT
   1. Remove the emesis diverter and ventilate on Tube #2. 2. Assess ventilation as above.

N. If UNABLE to CONFIRM PLACEMENT via EITHER TUBE
   1. Remove ETAD.
   2. Continue ventilations with mask.

V. Special Information
   A. The ETAD will enter the esophagus 85% of the time, so inflation with Tube #1 is ordinary.
   B. If ventilation is through Tube #2 then the tube is in the trachea and Tube #2 may be used for medication administration and suctioning just as if it were an ordinary ET tube.
   C. The ETAD must be removed in order to re-attempt endotracheal intubation.
   D. An intubation attempt should not take longer than thirty (30) seconds.
   E. Removal of the ETAD should be accomplished with the patient on their side and suction immediately available.
   F. If resistance is met when advancing the tube then the attempt should be discontinued.

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Subject: Treatment Guidelines – ALS Personnel
Asthma/Bronchospasm

Associated Policies: 5307, 5329, 5411, 5413, 5440

I. Priorities
- A. ABC's.
- B. Determine degree of physiologic distress: respiratory rate > 20, use of accessory muscles, cyanosis, inadequate ventilation, depressed level of consciousness.
- C. Maintain airway, provide oxygen and ventilatory support.
- D. Determine which causes best fit patient signs and symptoms, initiate treatment.
- E. Transport (after initial therapy) Code 3 for patients in severe respiratory distress. Code 2 for other patients.

II. Asthma/Bronchospasm

Acute onset of respiratory difficulty usually with a history of prior attacks, wheezes, and coughing.

Pediatric note: Drug doses listed are for adults. Refer to a pediatric length based tape for appropriate drug concentrations and dosages, defibrillator energy settings, and equipment sizes.

Skills and procedures denoted by double asterisks (**) paramedic level only.

- A. Ensure a patent airway.
- B. Determine Pulse Oximetry.
- C. Deliver oxygen per the Oxygen Administration Policy.
- D. Cardiac monitor.
- E. IV access with fluid bolus, 250cc500cc. Do not delay medication administration while obtaining IV access.
- F. Consider:
  1. Albuterol Sulfate 1 via nebulizer using 2.5mg in 3cc unit dose vial mixed with Atrovent 0.5mg in 2cc for the initial dose.
  2. Repeat Albuterol Sulfate 2.5mg as needed.
  3. Repeat Atrovent only for Adult patients when transport times are prolonged.
  4. Epinephrine 0.01mg/kg of 1:1000 IM (intramuscular) (maximum 0.5mg), for severe distress. May repeat in twenty (20) minutes. Use caution in patients over 50 years of age and in patients with coronary artery disease.
  5. CPAP may be initiated at any time during treatment unless contraindicated. Continue inline Albuterol during CPAP therapy.
  6. May consider Magnesium Sulfate 10% 2 Grams over 20 minutes for severe asthma episodes.

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Subject: Trauma Quality Improvement
EMS System Process for Providing Trauma Quality Improvement

I. Authority:
a. Health and Safety Code, Division 2.5
b. California Code of Regulation, Title 22, Division 9

II. Purpose: To monitor and evaluate the medical care of patients with traumatic injuries and to provide an educational forum for the improvement of trauma care.

III. Policy:
Structure
The Trauma System quality improvement process will be provided by two major components:

- the internal QA program within each trauma center
- the EMS system process which includes:
  - the scheduled Regional Trauma Audit Committee (ReTAC)meetings.
  - ongoing review of each trauma center by the EMS staff.
  - the period evaluation of trauma care and the trauma system by an outside review team.

Internal Review – Trauma Center Quality Assessment/System Improvement(QA/SI)

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.

Responsible for assessing compliance of the standard of care within each trauma center, as well as compliance with the North Coast EMS Trauma Standards, is that the Director of the Trauma Service at each hospital. Case identification should be made through reports generation from the trauma registry.

Case identification for review should include the following:

All hospital trauma related deaths
Treatment/diagnostic delays
Errors in assessment or treatment
Compliances
Physician response delays
Transfers

Subject: Trauma Quality Improvement
EMS System Process for Providing Trauma Quality Improvement

All cases with identified Prehospital or system problems
Evaluation of preventable or potentially preventable deaths

Trauma Center Responsibilities

Trauma centers of all levels shall have a quality improvement process to include structure, process, and outcome evaluations which focus on improvement efforts to identify root causes of problems, intervene to reduce or eliminate these causes, and take steps to correct the process. In addition the process shall include:
A detailed audit of all trauma-related deaths, major complications and transfers (including interfacility transfer);

(a) A multidisciplinary trauma peer review committee that includes all members of the trauma team;
(b) Participation in the trauma system data management system;
(c) Participation in the local EMS agenc y trauma evaluation committee;
(d) Each trauma center shall have a written system in place for patients, parents of minor children who are patients, legal guardian(s) of children who are patients, and/or primary caretaker(s) of children who are patients to provide input and feedback to hospital staff regarding care provided to the child.

B. System Review – EMS and Regional Trauma Audit Committee

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 an issue is identified as a ReTAC review item, the designated

Subject: Trauma Quality Improvement
EMS System Process for Providing Trauma Quality Improvement

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.

Process

ReTAC are advisory committees to the North Coast Emergency Medical Services (NCEMS) on issues related to trauma care. ReTac is a subcommittee of the Medical Audit Committee in the Del Norte Humboldt region and of the EMCC in the Lake County region. Regional Trauma Audit Committees will be formed in the Humboldt/ Del Norte and the Lake County areas of the North Coast EMS Region.

Trauma System Monitoring Role

1. The Committee will assist the EMS Agency in the review and evaluation of the medical aspects of the Regions trauma system.
2. The Committee shall meet to monitor and assess the effectiveness of the trauma system and make known its findings and recommendations to the EMS Agency.
3. The local EMS Agency is responsible for oversight and quality review of the regional trauma system. This will include, at minimum: review of periodic reports and trauma registry data from designated trauma centers; review of complaints (written); review of appropriateness of trauma team activations ; review of trauma center's team activation policy for appropriateness; and use of ground and air ambulance resources; review of trauma triage patient destinations policies; periodic review of trauma center contract compliance; ongoing efforts to improve and expand the regional trauma system; etc.

Scope of Audit Review

The scope of the review to be conducted by the committee will include, but not be limited to a review of the following:

a) Trauma Deaths
b) Appropriateness of triage criteria
c) Prehospital trauma care
d) Hospital trauma care
e) Appropriateness of transfers
f) Patient outcomes

Membership

The membership shall be broad based and shall represent the participants in the Trauma Care System and the local medical community. All positions are for a two year term and may be renewed at the pleasure of the EMS Agency Medical Director.

Subject: Trauma Quality Improvement
EMS System Process for Providing Trauma Quality Improvement

Members:
a) Surgeon representative from each trauma center, as available.
b) Trauma Nurse representative from each trauma center
c) ED Physician representative from each trauma center
d) Prehospital provider representatives, one private Ambulance, one fire department
e) EMS Agency representative
f) Representative, physician or nurse, from each non trauma center
g) Other members as invited, for case specific review
    a. Surgical subspecialist
    b. Medical Examiner
    c. Prehospital and hospital providers
    d. Air ambulance providers

Attendance

1. Members are expected to participate in at least 50% of scheduled meetings
2. At a minimum the committee will meet bi-annually.

- Additional meetings may be held at the request of the NCEMS Executive Director, NCEMS Medical Director, or either Trauma Program Manager.
- Regional TAC meetings held by neighboring LEMSAs may be utilized to augment NCEMS ReTAC schedule.

3. Members should notify the EMS agency in advance of scheduled meeting when they are unable to attend.
4. Appointment to the committee is made by the EMS Agency Medical Director.
5. Resignation from the committee should be in writing to the EMS Agency
6. Invitees may participate in the medical review of specific cases when their expertise is requested.

Minutes

Due to the confidential nature of the committee business, minutes shall be prepared by EMS staff and distributed at the beginning of each meeting. They will be collected at the close of each meeting by EMS staff. No copies may be made or possessed by members of the Committee outside of the meeting.

Confidentiality

1. All proceedings, documents and discussions of the Trauma Audit Committee are confidential and are covered under Section 1040 and 1157.7 of the California State Evidence Code. The prohibition relating to discovery of testimony provided to the Committee, which is one established by a local government agency to monitor, evaluate, and report on the necessity, quality and level of specialty health services, including

Subject: Trauma Quality Improvement
EMS System Process for Providing Trauma Quality Improvement

but not limited to, trauma care services
2. Issues requiring system input may be sent in total to the EMS agency for input. Guests may be invited to discuss specific cases and issues in order to assist the Committee in making final case or issue determination. Guests may only be present for the portions of the meeting they have been requested to review or testify about.
3. All members must sign a confidentiality agreement not to divulge or discuss information that would be have been obtained solely through medical audit committee membership. Prior to any guest participation in the meting, the Chairperson is responsible for explaining and obtaining, a signed confidential agreement from the invited guest

Trauma Audit Process

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.

Approved: _____

Approved as to Form: _____

NORTH COAST EMERGENCY MEDICAL SERVICES
3340 GLENWOOD ST. • EUREKA, CA 95501 • (707) 445-2081 • (800) 282-0088 • FAX (707) 445-0443

MEMORANDUM

Date: November 27, 2013

To: All North Coast EMS Providers

From: Louis Bruhnke, Associate Director

RE: Discontinuation of Combitube/ETAD Usage

This memo is to advise all providers in the North Coast EMS region that after review and discussion it has been decided that we will be discontinuing the usage of the Combitube/ETAD device for all Basic Life Support (BLS) personnel effective January 1, 2014.

We will continue to allow the usage of this device as an alternate airway option for Advanced Life Support (ALS) personnel if the ALS provider so chooses. We will be sending out updated policies regarding this change in the next informational mailing.

If you are a BLS only provider you will need to remove this device from all your service units and make sure all your personnel are made aware of this change. All ETAD Provider contracts, ETAD certifications and ETAD approved training programs **will expire as of January 1, 2014.**

If you have any questions you can contact me by email at louis@northcoastems.com.

NORTH COAST EMERGENCY MEDICAL SERVICES
3340 Glenwood Street, Eureka, CA 95501 (707) 445-2081 (800) 282-0088 FAX (707) 445-0443

MEMORANDUM

DATE: December 2, 2013

TO: North Coast EMS ALS Provider Agencies, PCNCs, and PCMDs

FROM: Louis Bruhnke, Associate Director

RE: IMPORTANT: Addition of Fentanyl to Local Paramedic Scope of Practice

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Effective December 13, 2013, **Fentanyl** will be added to the North Coast EMS Paramedic Scope of Practice.

All ALS providers may initiate stocking and administering **Fentanyl** per North Coast EMS policy after December 13, 2013 and after having ensured that all their personnel have been trained to competency and oriented to North Coast EMS related policies and procedures. Providers must retain documentation of this training/competency for at least 4 years. Providers need only furnish North Coast EMS copies of this training documentation upon request.

Thank you.

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CYGNUS BUSINESS MEDIA

OCTOBER 2013 | VOL. 7.00

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VITAL INFORMATION FOR THE EMS COMMUNITY

EMS in the Clouds

How new technologies could allow emergency dispatch from home & other perspectives from this year's Pinnacle EMS Leadership Forum p. 41

HOW TO RECOGNIZE STROKE IN THE YOUNG P. 28

CE ARTICLE: SPECIAL DELIVERY P. 33

EMS 2020

Physical Fitness Standards in EMS p. 24

| By John Erich, Associate Editor

EMS in the CLOUDS

How cheap new communications technologies could someday allow emergency dispatch from home

Centralized communication centers may be vulnerable to disruptive innovation.

NHTSA

In the business world there's a concept called disruptive innovation. Generally that's an innovation that begins with some simple application at the lower end of a market, then fundamentally reshapes that market's value network and grows to displace previous technologies.

The guy who coined the term, Harvard business professor Clayton Christensen, illustrated it using an example of big integrated steel mills. Their business model was disrupted by mini-mills that could produce a narrower range of steel product—just rebar, for instance—at lower cost. Rather than compete for such small, minimally profitable market segments, the big mills ceded that ground to the mini-mills and stepped away from making rebar. The industry transitioned, prices fell and profits shrank.

Then another mini-mill started making angle iron cheaper.

As this process was repeated, it largely led to the demise of the big integrated mills. And here's where it becomes relevant to EMS.

When low-cost replaces high-cost, explained Guillermo Fuentes, MBA, a partner at prominent EMS consultants Fitch & Associates, at this year's Pinnacle EMS Leadership Forum, it drives unexpected change into systems and has consequences downstream. That's disruptive innovation, and it ultimately sees transformation of complicated, expensive products into simpler, more affordable ones. Think of what's happened with personal computers and smart phones.

"Economics will drive what changes in EMS—that's the most important thing for people to know," says Fuentes. "We're seeing it throughout healthcare. It has less to do with patient-centric or customer-driven demands; the economic modeling is going to change a lot of what EMS does and how it delivers service in the future."

At Pinnacle, Fuentes kicked off a four-part look at how communication center technology can revolutionize EMS operations. Comm centers are environments ripe for disruptive innovation. They are large, complicated, costly endeavors whose functions can increasingly be accomplished by distributed, decentralized technologies that are widely available and cost less.

Imagine a day when you can dispatch your EMS system from home using VoIP and the Internet.

"That's how commercial call centers were brought back to North America," notes Fuentes. "We moved them offshore for lower labor costs. Then VoIP technology became so common you could actually shift from one regional environment to another seamlessly. Now we see them coming back, and the way they're being competitive is, they're fundamentally distributing their function. People can work from their homes with a computer and a phone. You measure how many calls they receive and pay them by the call. You have no infrastructure costs and only pay for transactions that actually occur, so it's a very good business model."

That's happening in the business world, and it's not hard to imagine it in emergency services call-taking/dispatch. The key is cloud-based infrastructure, now so broadly accessible and accepted. In a world where individuals readily trust their personal e-mail to Google or Yahoo!, what need is there for emergency systems to host all their own servers? Fuentes predicts virtually all services will shed theirs for the cloud within a decade or so. Nothing says a CAD can't run over the Web.

We'll have some special requirements, of course. Connectivity will have to be redundant and unimpeachable; 9-1-1 calls can't be dropped. And all operations will have to be proven secure. Among old-liners in particular, suspicion lingers that information trafficked on the Internet is vulnerable to interception and loss. But for younger ascending leaders and emergency callers who've grown up in the Internet era, it will feel natural.

"Look at every kid who uses Apple products—the whole concept of the Apple platform is cloud-based technology," Fuentes says. "That generation won't understand why we wouldn't do this. To them it makes intuitive sense. They've done everything over their iPads and iPods basically from the day they were born."

Agencies can approach the process in small steps. Start by shedding basic administrative technologies in favor of hosted solutions. That will help establish comfort with using Internet-based platforms. Then take that in-house server farm and move it somewhere else.

"Once you realize you can move your own servers off site," Fuentes says, "you'll have a level of control and comfort with it. Then the logical step after that is to ask yourself, 'Do I really need control over my server farm?' And you can divest yourself of the server farm because you'll get comfortable with the fact that it's not there but readily accessible."

It's doubtful EMS call-taking and dispatch will ever be fully decentralized, but it's well possible that low-volume call centers merge, amalgamate or shift responsibilities at different hours of the day. Switching voice lines and virtual computerized dispatch systems will be that easy. Theoretically, a service could dispatch across a county or across the country with no difficulty at all.

"Based on virtual infrastructure, the sky's the limit," says Fuentes. "And it's coming. There's nobody who's going to avoid this evolution. It's going to happen."

By Rob Lawrence

Richmond Ambulance Authority Goes Virtual

The Richmond Ambulance Authority (RAA) recently turned its CAD and IT systems off over two afternoons and reverted to paper, pen and map board. This was not the result of a power outage or other disaster, but part of a planned takedown to install virtual servers.

RAA is sold on the notion that virtual servers are the first step toward being able to move to an effective cloud solution and had included the upgrade as part of its program for a while. The wisdom of this decision was confirmed after RAA CEO Chip Decker and Director of Information Technology Christopher Wishart attended Guillermo Fuentes' session at the Pinnacle Leadership Forum in July. The most likely next step will be to work toward a private cloud environment, at which time a public cloud option could be also be assessed.

With the installation of virtual servers for the RAA CAD, the physical number of servers was reduced by half, enabling the center to use less power to run physical machines. It is literally a cool idea, as the smaller amount of hardware on site reduces the heat buildup in the data center, lowering related cooling power costs.

From a continuity-of-operations perspective, this type of setup offers the best disaster recovery model at the lowest cost. The virtual machines are more fault-tolerant than physical machines, as they can be redeployed in a matter of minutes versus hours in the case of a failure. They also save management time, as the IT department can manage all four CAD virtual machines from a "single pane of glass," which means they can be accessed from a single window rather than having to connect to all four separately.

The additional technology bonus according to Wishart is that old can still operate with new: "Using virtual machines allows us to run legacy 32-bit servers on the same hardware that is running 64-bit servers, which was a major factor in the decision to virtualize." Contact RAA Director of IT Christopher Wishart with questions at Cwishart@raaems.org.

Rob Lawrence is the chief operating officer for the Richmond Ambulance Authority.

A Real-Time Look at the System: How Dashboards Keep Leaders in the Moment

In EMS we're pretty good at analysis after the fact. We review patient charts and assemble AARs on critical events. But that's a tough way to promote change. Telling Joe Paramedic to do something differently weeks or months after he did it is far less effective than correcting him within moments of the act.

Dashboards—visualized displays of real-time data that let leaders monitor key performance indicators as things happen—shrink that interval.

"With EMS people, if you catch us while something is fresh in our minds, what you tell us will resonate," says Todd Stout, founder and president of FirstWatch, which helps agencies marshal data for situational awareness, operations and clinical improvement. "What the real-time dashboards do is let us make changes right after or as things are happening and really affect how people function, rather than try to intellectually tell them, 'If you get that kind of call again, do it this way.' They might not get that call again for days!"

Stout provided some examples at Pinnacle that included a dashboard for Priority Dispatch's ProQA dispatch system. That might show you, for example, a call-taker who takes longer than expected to handle a certain call. Leaders can investigate that in near-real time, and if that call-taker is doing something wrong, bosses can remediate them now, before it becomes habitual or harmful.

By the same token, notes Stout, "There are thousands of agencies that use ProQA. And if people can figure out who's good at this, who does it well, then we have the opportunity to learn from those people too."

This can have some large financial implications. Looking at call volume for one California client, Stout said, FirstWatch found something interesting: Transient increases in call volume didn't mean volume would stay high. However, decreases in volume below a statistical level almost always meant volume would stay lower than normal for the next 6–8 hours. If a boss knows something like that, they can send crews home early or not fill empty slots, better matching supply to demand and reducing labor costs.

North Shore–Center for EMS (CEMS), Long Island, NY. Photo courtesy FirstWatch.

FirstWatch customers use dashboards (visualized displays of data) to monitor key performance indicators in real time.

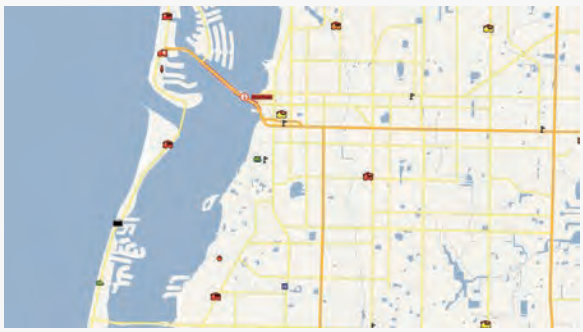
In Sedgwick Co., KS, they're using dashboards toward clinical goals. One example is patients with severe respiratory distress. Leaders want the SpO_2 levels of these patients above a certain threshold by the time they reach the ED. Thus they look in real time at relevant patient records using a dashboard that shows providers' percentage compliance with that SpO_2 goal. If a provider isn't getting those saturations up, it can be promptly addressed. "People always say, 'Oh, in EMS we only measure response times, and those don't matter!'" says Stout. "Well, you don't have to just do that. You just have to pick something else and start working on it. Doing that in real time—seeing which medics do what, which kinds of calls we can improve on—can really change a lot."

For more: www.firstwatch.net.

What Will You Do When the Bridge Falls Down? Modeling for Better Response

EMS systems have gotten better at incorporating historical data into their operations and planning. Odds are you deploy your workforce in response to established demand patterns and have major-incident plans that reflect known hazards like floodplains and hazmat sources.

Still, when planning for the future or even when daily events heat up, it can be challenging to process all that's at your disposal. How can you integrate all the sources of data you have and operationalize it all to maximum benefit? That's daunting.



This screen shot shows a call on an island (red person) with a closed bridge. Knowing that route is inaccessible can help dispatchers deploy other resources.

Optima Corp.

"How resources are positioned, what kind of additional resources we bring into or take out of a system—those are leadership decisions that can drastically impact efficiency and cost-effectiveness," says Chris Callsen, COO for North America for the Optima Corp., which produces optimization and simulation software for EMS and other industries. "A lot of organizations tend to let them happen in an ad hoc way."

Optima brings a bit of science to the process. Its Optima predict applies proposed changes to actual situations in discrete event simulations. Basically it lets leaders experiment with "what if?" and see what happens differently in a response system if they alter certain variables.

Say you want to gauge the impact of adding a station. You place it on a map, and the last year's worth of calls are replayed as if it were there. Perhaps

the first call near the station would have been run by that unit, freeing up the unit that actually did run it. That unit would then answer a different call. In complex EMS systems, you can imagine how rapidly that cascades.

"There are a lot of interrelationships and factors that impact one another as a system runs its activities," notes Callsen. "Understanding how all those things interact with one another lets you plan without making a bunch of assumptions."

Imagine having a firmer idea what might happen if you lost a key road or bridge. At Pinnacle, Callsen cited the example of Christchurch, New Zealand, which in February 2011 suffered a powerful earthquake that killed 185. As their operational environment evolved, leaders tracked conditions and used modeling to answer questions like where they should put temporary facilities; such modeling is also now informing rebuilding efforts and determining how the city can be better designed—for instance, where ambulance stations should be put—for future contingencies.

To realize possibilities like these, leaders first need a picture of their systems' data capabilities: Can they collect geospatial data about vehicles and responses? Can they collect time, location and management info on calls? Does their CAD system collect time stamps? Can all these data sources accurately depict what a system's done historically and is doing now?

Once you have all that information, the second priority is simple: Don't be shy about applying it through modeling, planning and in daily operations. Your citizens deserve better than guesswork.

"Technology will become increasingly important," adds Callsen, "both for how to select which resources to send on calls and how to best deploy what resources you have to do the most good."

For more: www.theoptimacorporation.com.

Dying Despite Defibrillators: What if Call-Takers Knew Where They Were?

TV newsman Tim Russert died of cardiac arrest in 2008 in a studio that had an AED on site. According to Russert's doctor, coworkers were preparing to use it as EMS arrived—almost 15 minutes after Russert collapsed. The doc described the interval to first shock as "significant—more than you would want."[1]

Russert isn't the only person to die in a building with an AED. Others have, like Russert, simply because bystanders didn't know there was one nearby.

"You can't get an AED if you don't know where one is," says Elliot Fisch, president and CEO of Florida-based Atrus, Inc., which maintains a national registry of AEDs for use in emergencies. "If survival from out-of-hospital cardiac arrest starts with calling 9-1-1, then 9-1-1 needs to know where those AEDs are."

Atrus' effort to solve that problem is AED Link, which displays the locations of devices listed in its National AED Registry to 9-1-1 personnel receiving cardiac arrest calls. Having such information quickly on hand can facilitate AEDs' retrieval and use, and improve victims' chances of survival.

Per the Cardiac Arrest Registry to Enhance Survival (CARES), AEDs are used in less than 5% of resuscitation attempts. A white paper from Atrus cites numerous tragic cases where they could have been, had someone known they were around when a victim collapsed.

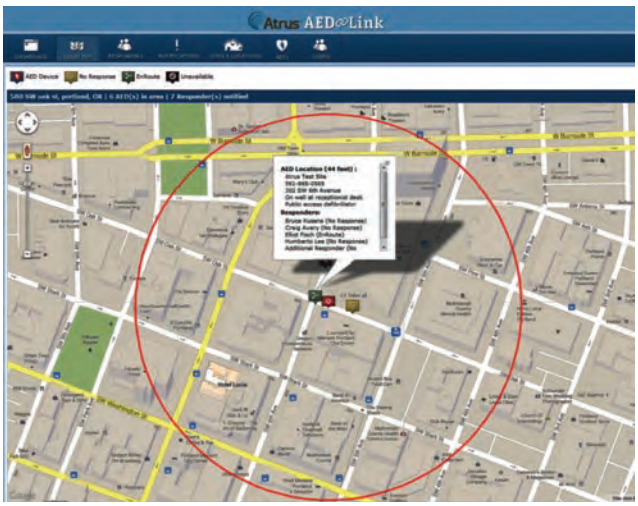
"Right at that moment," says Fisch, "we believe 9-1-1 should be able to say, 'I see there's a defibrillator at this location. Is there somebody with you who can go retrieve it?'"

The registry maintains an owner's name for each device, and AED Link pages them as part of any response. It also tracks availability: If a device is only accessible during 9–5 business hours, for example, it won't show as available outside those hours. And AED Link provides automatic maintenance reminders for AED owners for things like pads and batteries. It operates independently of CAD type and doesn't require a custom interface.

The National AED Registry is a Web-based cloud service, with AED owners responsible for maintaining the quality of their data. It also informs the unrelated but complementary Pulse Point app, which provides registered AED locations as part of its crowd-sourced approach to CPR.

The ongoing challenge, of course, is getting all those defibrillators and their locations identified and listed in the database.

"That challenge is a constant," says Fisch. "We know we'll never capture everything. But we can start with what we know. And we know there are AEDs in city, county and government buildings. We know they're in schools and parks and recreation centers and golf courses. So there are a certain number of AEDs we know are public access. We start with those, then provide a public information program with guidance for going out into communities and registering devices."



Atrus

For more: www.atrusinc.com, www.aedlink.com, www.nationalaedregistry.com.

REFERENCE

1. Parker-Pope T. Could a Defibrillator Have Saved Tim Russert? *New York Times,* 2008 Jun 19.

that Congress will restore DSH to its previous level. And even such a restoration would not solve the underlying structural problem of poor targeting by states. Moreover, reopening DSH for debate could result in even bigger cuts.

The second option is to create even clearer incentives for states to target their remaining DSH funds. CMS could retain the current framework for allocating states' shares but set a higher bar for identifying DSH providers, on the basis of the overall profile of a state's hospitals, not just the hospitals currently receiving DSH funds. This approach would provide incentives to states that don't target their DSH allocation to do so, without penalizing those already doing a good job.

The third option is to recognize that the Medicaid DSH program has largely become a federal program, with few state dollars supporting it.[1] Since the federal government is paying the tab, Congress could adopt a straightforward, national formula for determining hospital eligibility and DSH payment amounts. Support would thus be directed to safety-net facilities that serve important national health security interests, such as operating full-service emergency departments, participating in their state's trauma care system, and anchoring their region's disaster plan.[1]

If properly enforced, the proposed rule will help sustain the safety net. But if the state governments that refused to expand Medicaid also refuse to rethink their approach to allocating DSH funds, there will be little money left to sustain their safety-net hospitals when the cuts deepen in 2017. The cascade of service reductions and facility closures that this could trigger would have sweeping consequences. Safeguarding the safety net in such politically perilous times will require creative rulemaking by CMS. The proposed DSH rule is a good start, but much remains to be done.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Department of Family Medicine, University of California, Los Angeles, Los Angeles (K.N.); the Spivey/Harris Health Policy Group, Washington, DC (M.S.); and Public Health Systems and Preparedness, RAND, Arlington, VA (A.L.K.).

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Improving Patient Safety through Transparency

Allen Kachalia, M.D., J.D.

Transparency — especially when things go wrong — is increasingly considered necessary to improving the quality of health care. By being candid with both patients and clinicians, health care organizations can promote their leaders' accountability for safer systems, better engage clinicians in improvement efforts, and engender greater patient trust. Today, many institutions have initiated efforts to improve the sharing of information on publicly reported performance measures, but transparency regarding medical errors has proved much more difficult to achieve.

U.S. health care organizations still have a ways to go to achieve a culture in which all errors are openly identified and investigated. Ideally, the primary goal of these investigations is not punitive, but rather to understand what happened and facilitate open discussion in order to prevent similar mistakes from happening again. National surveys on the patient-safety culture of medical offices and hospitals consistently reveal substantial room for improvement in achieving these aims.[1] Last year, less than two thirds of staff members reported having a favorable perception of their hospital's openness in communication, and less than half reported that their hospitals respond to errors in a nonpunitive way.

Fortunately, there are some bright spots that demonstrate progress toward greater openness. For example, we have seen steady growth in the number of safety reports filed by clinicians now that institutions routinely

encourage such filings. Another prominent development has been the adoption of disclosure, apology, and offer (DA&O) programs. Taking a principled approach to addressing errors, organizations instituting these programs commit to fully investigating adverse events and implementing interventions to prevent their recurrence. They also openly admit their errors to patients (and make offers of compensation, when appropriate), letting the chips fall where they may when it comes to reputation and liability.

Contrary to many predictions that DA&O programs could result in the proliferation of legal claims and costs, data from two pioneering programs have revealed improved liability outcomes, including a 60% decrease in legal and compensation costs in one program.[2] Proponents of DA&O programs also tout downstream safety benefits from greater transparency. Early program successes have fueled extensive interest and a push for broader implementation, but there has not been immediate widespread adoption, so transparency is far from ubiquitous.

Long-standing barriers have slowed progress on this front. Institutions and clinicians continue to worry about the reputational and financial risk they assume when they admit to errors. An institution may fear that as the public hears more about its gaps in safety, its reputation and ranking — as well as patient volumes and revenue — may decline. Because the empirical data on DA&O programs are limited, organizational leaders may still worry that disclosure will also raise liability costs. As a result, if a patient is not aware of an error, the incentives to keep quiet can be very powerful. I'm hopeful, however, that the ethical imperative to proactively disclose errors, coupled with the growing evidence base on the associated liability and safety benefits, will continue to move our leaders toward greater transparency.

Health care organizations that aim to be transparent about error may take a number of steps to support and engage their clinicians in this endeavor. First, institutions may attempt to allay clinicians' fears over losing their jobs because of a human error. Embracing a "just culture" in which there is balanced accountability can help accomplish this aim[3]: balancing accountability means that clinicians do not face blame or repercussions for human errors (e.g., a simple error in execution) but are held accountable for reckless or intentional transgressions (e.g., a willful violation of a protocol).

Even if an institution chooses to address human errors by implementing better systems rather than by punishing its employees, effectively communicating this strategy to staff remains challenging, especially when it comes to cognitive errors made by a single individual. For example, many safety experts would say that even a simple human error in test interpretation merits a systems fix and not punishment for the clinician. Nevertheless, many clinicians may still see this kind of event primarily as an individual's, rather than a systems, failure — and therefore may be disinclined to report or discuss such events. Health care organizations may foster greater openness from their staff by ensuring that simple human errors will not lead to punishment and also that their clinicians understand that.

On the other end of the spectrum, reckless or willful violations that can lead to disciplinary action also pose a communication challenge. Because organizations tend to be reticent about discussing why corrective actions were taken against an employee involved in reckless or intentional wrongdoing, clinicians may incorrectly believe that the employee was punished for a systems error. This risk further reinforces the importance of disseminating information about what actually went wrong in all cases of error: only then may employees appreciate their institution's implementation of balanced accountability.

Second, patients' and providers' emotional and reputation-related concerns require sensitivity. Even if a case is treated and discussed as a systems failing, the clinicians involved may still feel accountable and readily identifiable. Similarly, patients and family members may want to put the event behind them but feel unable to do so if information about it is being disseminated. Consequently, organizations may benefit from involving patients and clinicians in the communication process and addressing their concerns before releasing information. Without these steps, transparency efforts may backfire if clinicians start to avoid discussion for fear of feeling exposed or if patients and families are further upset.

Third, organizations may attempt to reduce clinicians' concerns over liability-related reporting requirements. Under current law, when systems-level errors result in payments to patients or

families, physicians may still be reported to state boards as well as the National Practitioner Data Bank (NPDB) and may feel unfairly singled out. In addition, clinicians may worry about payments being made in cases in which no error occurred,[4] which further reduces the incentives to be open. Institutions can avoid triggering physician-reporting requirements by accepting sole liability for systems errors. However, that tack is somewhat controversial, because the NPDB is designed to help track all valid claims against physicians.

To address liability-related concerns, there are some potential legal reforms through which individuals would still be held accountable for reckless or intentional behavior, but not for human or systems errors. Options include changing NPDB and state-board requirements so that systems errors do not have to be reported against individuals. Another option is to enact "enterprise liability" legislation that allows or requires institutions to take sole fiscal and reporting responsibility for systems errors. A third is implementing a system of administrative health courts in which compensation for a claim does not result in the reporting of a clinician; under such a system, disciplinary investigations would have to be filed and investigated separately. Not only would such reforms better align liability with modern safety principles; they could also cultivate greater openness in clinicians. Experience in other countries shows that clinicians in such systems frequently advocate for patient compensation. And by removing clinicians' concerns from settlement discussions, organizations may also find themselves better positioned to resolve claims more quickly.

U.S. health care institutions have begun promoting transparency to improve the safety of care. Their success will require a collective understanding of the importance of transparency as well as a strong commitment to openness. Institutions are today better positioned to foster a culture that balances accountability and addresses the emotional and legal concerns of patients and clinicians. Liability reforms can also help to better align incentives to facilitate transparency. Ultimately, no matter how daunting the task, shining a light on our errors shows the path to improvement.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

From Brigham and Women's Hospital and Harvard Medical School — both in Boston.

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
EDMUND G. BROWN JR., *Governor*

EMERGENCY MEDICAL SERVICES AUTHORITY
10901 GOLD CENTER DR., SUITE 400
RANCHO CORDOVA, CA 95670
(916) 322-4336 FAX (916) 324-2875

October 14, 2013

Larry Karsteadt
Executive Director
North Coast EMS Agency
3340 Glenwood Avenue
Eureka, CA 95501

Dear Mr. Karsteadt:

The EMS Authority (EMSA) has approved North Coast EMS Agency's 2013 Trauma System Status Report. Thank you for providing the report in compliance with EMSA's Annual Trauma System Status Report Guidelines. All North Coast EMS Agency's trauma system information provided in the report is in compliance with California Code of Regulations, Title 22 Trauma Care Systems.

In accordance with the regulations, Section 100253, "The local EMS agency shall submit a trauma system status report as part of its annual EMS Plan update." In order to provide you with an appropriate schedule, North Coast EMS Agency's next Trauma System Status Report shall be included with its EMS Plan Update. According to our files, North Coast EMS Agency's next EMS Plan Update will be due December 2014. To keep on a schedule, your Trauma System Status Report should be submitted with the EMS Plan Update.

Upon review of the report, the EMS Authority has the following required actions/recommendations/comments:

Trauma System Summary
☐ **Accepted as Written** ☒ **Required Action** ☐ **Recommendation** ☐ **Comment**

Trauma patients from Lake County are transported, when possible, directly from the field to Trauma Centers outside of the county. It is understood that North Coast has the required MOU with Sacramento and Coastal Valleys EMS Agencies but it is unclear as to the need for one with Napa County.

Action: Provide with the next Trauma System Status Report statistics as to the number of critically injured patients transported from the field to Napa County's

Trauma Center. At that time we can determine the need for an intercounty agreement.

Changes in Trauma System
☒ **Accepted as Written** ☐ **Required Action** ☐ **Recommendation** ☐ **Comment**

Number and Designation Level of Trauma Centers
☒ **Accepted as Written** ☐ **Required Action** ☐ **Recommendation** ☐ **Comment**

Trauma System Goals and Objectives
☒ **Accepted as Written** ☐ **Required Action** ☐ **Recommendation** ☐ **Comment**

Changes to Implementation Schedule
☒ **Accepted as Written** ☐ **Required Action** ☐ **Recommendation** ☐ **Comment**

System Performance Improvement
☐ **Accepted as Written** ☒ **Required Action** ☐ **Recommendation** ☐ **Comment**

The revised Trauma System Status Report Guidelines now include a section asking for current Performance Improvement activities specific to the regulatory review of designated Trauma Centers. Thank you for the report on Sutter Coast Hospital. In reading the report it is clear they are an asset to your system.

Action: Provide information on the Performance Improvement review of Sutter Lakeside Hospital with your next Trauma System Status Report.

Progress on Addressing EMS Authority Trauma System Plan/Status Report Action Items
☐ **Accepted as Written** ☐ **Required Action** ☐ **Recommendation** ☒ **Comment**

There were no action items from previous correspondence.

Thank you again for submitting a report on North Coast EMS Agency's Trauma System. Your next Trauma System Status Report will be due December 2014 (see attached format). Please provide us with an electronic copy as well as two paper copies. If you have any questions, please contact Tom McGinnis at (916) 322-4336 or tom.mcginnis@emsa.ca.gov.

Sincerely,

Howard Backer, MD, MPH, FACEP
Director

Attachment

Emergency Medical Services Authority

Trauma System Plan Revision & Annual Trauma System Status Report Guidelines

Jerry Brown
Governor
State of California

Dianna S. Dooley
Secretary
Health and Human Services Agency

Dr. Howard Backer
Director
Emergency Medical Services Authority

Updated, June 2012

This document is intended to provide Emergency Medical Services (EMS) Agencies with instructions and minimum guidelines for preparing Trauma System Plan Revisions and Annual Trauma System Status Reports.

TRAUMA SYSTEM PLAN

California statute, Health and Safety Code Section 1798.162, allows local emergency medical services (EMS) agencies to implement a trauma system if the system meets the minimum standards set forth in the regulations. For preparation of the Trauma System Plan, refer to EMSA #151 - Trauma Plan Development Guidelines, January 2000. The guideline is available on the EMS Authority website: www.emsa.ca.gov/emsdivision/trauma_plan_cover.asp.

TRAUMA SYSTEM PLAN - SIGNIFICANT CHANGES

If significant changes to the trauma system occur after the Trauma System Plan has been approved, the Trauma System Plan must be revised and submitted to the EMS Authority for review and approval prior to the implementation of the changes. The California Code of Regulations outlines the requirements for significant changes to a Trauma System Plan.

- **Section 100253 (i):** After approval of a trauma system plan, the local EMS agency shall submit to the EMS Authority for approval any significant changes to that trauma system plan prior to the implementation of the changes. In those instances where a delay in approval would adversely impact the current level of trauma care, the local EMS agency may institute the changes and then submit the changes to the EMS Authority for approval within thirty (30) days of their implementation.

Significant changes would include designation or de-designation of trauma care facilities, changes in use of outside trauma care systems, change of trauma care system design, or major policy changes. Two copies of the revised Trauma System Plan should be submitted to the EMS Authority with a cover letter that clearly outlines the major changes.

Generally, significant changes will require the entire Trauma System Plan to be revised. However, specific section changes will be accepted only if they clearly fit within the old plan (i.e., page numbering remains the same, new sections are complete). A letter clearly outlining the changes must accompany two copies of

the section changes. Please contact the EMS Authority Trauma Coordinator to determine if section changes would be appropriate at (916) 322-4336.

The EMS Authority should be notified immediately upon **any** changes to the number of trauma centers. If a trauma center is added, a letter should be sent to the EMS Authority that includes the name of the trauma center, the street address, whether the trauma center is a public or private facility, the phone number for the hospital and the trauma office, the trauma center designation level, and the date it was designated.

The local EMS Agency should immediately contact the EMS Authority to alert them as to any possible de-designation or reduction in designation level of a trauma center and update the Authority as additional information becomes available. If the trauma center is ultimately de-designated or the designation level is reduced, a letter should be sent to the EMS Authority indicating the name, address and the level of the trauma center, and the date of de-designation or designation level reduction. The trauma plan should also be updated to indicate the addition or deletion of the trauma center and show how trauma patients will be cared for.

ANNUAL TRAUMA SYSTEM STATUS REPORT

Local EMS Agencies are required to include a trauma system status report as part of the annual EMS Plan update according to the California Code of Regulations.

- **Section 100253 (j):** The local EMS agency shall submit a trauma system status report as part of its annual EMS Plan update. The report shall address, at a minimum, the status of trauma plan goals and objectives.

The report is to be a separate chapter of the EMS Plan and is due one year from the approval of the most current EMS Plan. The report should include a summary of the trauma system, a description of any changes to the trauma system, the number and designation level of the trauma centers, an update of the status of the Trauma System Plan's goals and objectives and any modifications, progress toward or changes to the implementation schedule, and progress toward addressing any comments made in the EMS Authority's review of the Trauma System Plan. Any changes and/or additions to the Trauma System Plan should also be enclosed with the status report and clearly marked for incorporation into the trauma plan. A general format for the trauma system status report follows.

EMS Plan: TRAUMA SYSTEM STATUS REPORT

Trauma System Summary – Brief summary of trauma care system.

Changes in Trauma System – Describe any changes in the trauma care system and/or progress toward implementation.

Number and Designation Level of Trauma Centers – List the designated trauma centers and indicate any potential problems or possible changes in designation.

Trauma System Goals and Objectives – Provide update on progress toward meeting goals and objectives listed in the Trauma System Plan. Modify goals and objectives as appropriate.

Changes to Implementation Schedule – Indicate completion of activities and modify schedule as appropriate.

System Performance Improvement – Provide a description of trauma system review processes accomplished during the reporting year.

Progress on Addressing EMS Authority Trauma System Plan Comments – Trauma System Plan approval letters may include issues to be addressed or commented upon by the local EMS Agency. The status report should include an update of progress toward completion of these items along with any required changes accomplished as required in the approval letter. Changes should be accompanied by a cover letter which clearly indicates where the changes should be added to the Trauma System Plan.

Other Issues – Local EMS Agencies may include any other relevant issues as deemed appropriate.

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
EDMUND G. BROWN JR., *Governor*

EMERGENCY MEDICAL SERVICES AUTHORITY
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December 5, 2013

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

Dear Mr. Karsteadt:

We have completed our review of *North Coast EMS Agency's 2013 Emergency Medical Services Plan Update*, and have found it to be in compliance with the *EMS System Standards and Guidelines* and the *EMS System Planning Guidelines.* Following are comments on your EMS plan update:

Transportation Plan:
Based on the documentation you provided please see the attachment on the EMS Authority's determination of the exclusivity of North Coast EMS Agency's ambulance zones.

Your annual update will be due on December 5, 2014. Please submit North Coast EMS Agency's Trauma Status Report, as a separate document, with your EMS plan update. If you have any questions regarding the plan review, please contact Tom McGinnis at (916) 431-3678 or by email at tom.mcginnis@emsa.ca.gov.

Sincerely,

Howard Backer, MD, MPH, FACEP
Director

Attachment

CC: LK, LB, KRS, WC, JPA, In Email