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INLAND COUNTIES EMERGENCY MEDICAL AGENCY



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February 18, 2003

Nancy Steiner
EMSA
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Dear Ms. Steiner:

Please accept this letter as a formal request for an EMT-I Advanced Scope of Practice Trial Study by Inland Counties Emergency Medical Agency and San Bernardino County Sheriff's West Valley Search and Rescue. This Trial Study is much like previous advance scope trial studies approved by EMDAC with minor modifications.

This study will involve certain advanced scope procedures in which EMT-Is will be trained and tested to perform during the rescue of individuals in rural areas where there is minimal or no radio contact. Enclosed you will find the complete proposal and a request for approval of these procedures.

If you have any questions, please contact Sarah Momsen RN, at (909) 388-5814 or via e-mail at Smomsen@dph.sbcounty.gov.

Sincerely,

Conrad Salinas, MD
ICEMA Medical Director

Table of Contents

Trial Study Proposal	1
ICEMA EMT-I Trial Treatment Protocols	3
Lesson Plans	25
Continuing Education	43
Skill Documentation Form	44

**TRIAL STUDY
EMT-I ADVANCED SCOPE OF PRACTICE
INLAND COUNTIES EMERGENCY MEDICAL AGENCY
WEST VALLEY SEARCH AND RESCUE**

INTRODUCTION:

The population base for the County of San Bernardino is approximately 2 million. The geographic area covers 20,106 square miles, of which 90% is desert, with 75% of the population living in non-desert urban areas. Within this geographic area is the San Bernardino National Forest, Joshua Tree National Monument, Death Valley National Monument and several state parks and recreational areas.

With the vast amount of rural and wilderness areas in the county, a need has been recognized for a higher level of prehospital care than is currently available in these remote areas.

The County of San Bernardino draws large numbers of visitors and users of the recreational areas. With elevations ranging from below sea level (Death Valley) to mountain peaks rising to nearly 13,000 feet (San Gorgonio Peak), this results in the propensity of some of these individuals to become lost and or injured. Current trends in the county indicate that the number of people that will require rescue will rise from nearly 200 to well over 300 per year.

By state constitution, the sheriffs department is tasked with the responsibility of providing Search and Rescue for the unincorporated areas of the county. In San Bernardino County, the actual Search and Rescue operations are provided by a handful of well-trained and certified search and rescue teams.

Statistics show that most call outs of rescue teams occur in the late afternoon and evening hours or when adverse weather conditions exist. The actual injuries are often incurred hours prior to the request for a Search and Rescue team. This delay or environmental conditions may limit or preclude the use of rescue helicopter resources.

The typical search and rescue operation may last longer than twelve hours. This may include several hours to hike into the wilderness area, provide the necessary rescue procedures (high angle rope, ice climbing etc), and hand carry the injured individual several miles to a location that can be reached by a ground ambulance or other ALS provider.

In summation, the nature of Search and Rescue predisposes to long response times to patient access and prolonged extrications. Coupled with a lack of qualified wilderness ALS providers, the need for advanced skills is noted and desired to reduce the morbidity and mortality of individuals utilizing the recreational areas of San Bernardino County.

NAME OF PROPOSED PRODEDURE OR MEDICATION:

EMT-I advanced scope of practice would include:

1. Endotracheal intubation
2. Injections (subcutaneous, intramuscular, intravenous)
3. Oral medication administration
4. Determination of blood glucose level via fingerstick
5. Peripheral intravenous access
6. Determination of Death
7. Clearance of Spine/Transport without Immobilization
8. Medications
 - Albuterol nebulized (Proventil)
 - Aspirin
 - Dextrose 50%
 - Diphenhydramine (Benadryl)
 - Epinephrine via EpiPen or similar device
 - Glucagon
 - Naloxone (Narcan)
 - Nitroglycerin (NTG) spray
 - Oxygen
 - Prednisone

MEDICAL CONDITIONS:

The advanced EMT-I scope of practice will be used in the clinical conditions that warrant treatment under the following treatment protocols:

- TS01 Allergic Reaction and/or Anaphylaxis
- TS02 Altered Mental Status
- TS03 Cardiopulmonary Arrest
- TS04 Chest Pain (suspected cardiac origin)
- TS05 Dehydration
- TS06 Near Drowning/Drowning
- TS07 Respiratory Distress
- TS08 Trauma

PATIENT POPULATION:

Individuals who meet the parameters of the Treatment Protocols and with whom West Valley Search and Rescue have contact with during rescue operations.

RELEVANT STUDIES:

There is a growing recognition that advanced skills may be performed, at least to a limited extent, by basic personnel. The use of the automated external defibrillator (AED) was recently determined to be included within the EMT-I's basic scope of practice. The Inland Counties Emergency Medical Agency (ICEMA) has also included the use of an Esophageal -Tracheal Airway Device (ETAD) as an optional skill for EMT-I's. West Valley Search and Rescue is both an AED and ETAD provider.

Recent trial studies by Northern California EMS, Napa County EMS and Imperial County EMS Agencies have shown the benefit of having EMT-I's with advanced skills in the rural setting. These studies indicate that the advanced EMT-I's are able to accurately assess patients and successfully provide advanced procedures well before ALS would otherwise be available. The patients' conditions were improved by advanced EMT treatments. Quality improvement programs in conjunction with continuing education have modified and improved provider performance in these studies.

The ability of EMT's to successfully perform endotracheal intubations has been demonstrated by the Hayward Fire Department in Alameda County. The Hayward Fire Department has developed an extensive training program for endotracheal intubations by EMT's, including frequent educational updates and skills tests, and a detailed CQI program. As a result, the Hayward Fire Department has an 87% success rate of EMT intubations since the program was established in 1996.

Previous studies have also shown the success and benefit of peripheral intravenous access by EMT-I's. An 18-month trial study on the use of peripheral intravenous access by EMT-I's was conducted by ICEMA beginning in September 1996. Success rate for establishment of peripheral intravenous access by advanced EMT-I's was 89% (25/28). A similar trial study in Sierra County from October 1995 to August 2000 also demonstrated a high success rate of intravenous access by advanced EMT-I's.

A recent study defining the ability of prehospital care providers to correctly identify those patients requiring cervical spine immobilization after blunt trauma was published in the New England Journal of Medicine. This study demonstrated that prehospital care providers, utilizing a specific set of clinical criteria, were 99% accurate in identifying which patients required cervical spine immobilization. (Hoffman JR, et al: Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. New England Journal of Medicine, July 2000).

A recent paper in Academic Emergency Medicine reported that EMT's using AED's were able to successfully follow a termination-of-resuscitation guideline for out-of-hospital cardiac arrests. (Verbeek, et al: Derivation of a termination-of-resuscitation guideline for emergency medical technicians using automated external defibrillators. Academic Emergency Medicine, July 2002).

PROPOSED STUDY DESIGN:

All individuals selected will be certified EMT-I's and members of West Valley Search and Rescue. They must also have completed the optional skill training and be certified in the use of the esophageal-tracheal airway device. It is anticipated that the initial class will include approximately 15 EMT's.

Didactic education will total 60 hours, followed by a clinical requirement of sixteen (16) hours (two – 8 hour shifts) in a hospital emergency department and additional time in a hospital operating room with a minimum of four (4) live intubations. There will also be a field requirement of sixteen (16) hours (two – 8 hour shifts) with an ALS unit and paramedic preceptor. The EMT must successfully complete five ALS field contacts. A summary of the lesson plans is attached.

We anticipate that the EMT-I's trained in the advanced scope of practice will respond to the majority of search and rescue calls in the county of San Bernardino. The advanced EMT-I's will initiate the trial study's ALS procedures using standing order protocols. After rescue of the patient, if arrangements have not been made for ALS transport to the hospital, then the EMT's may arrange for a rendezvous with an ALS ground ambulance or EMS aircraft. A smooth and orderly transfer of patient care shall be made to the transporting ALS unit. Patients generally will be transported to San Antonio Community Hospital in

Upland or to either nearby trauma center, Arrowhead Regional Medical Center (Colton) and Loma Linda University Medical Center (Loma Linda).

Continuing education oversight will be provided by the West Valley Search and Rescue medical director and QI coordinator (see Continuing Education requirements). The trial study will continue for 18 months and then be evaluated for extension. All required reports will be reviewed by the Quality Improvement Committee, ICEMA Regional Quality Improvement Committee and the EMS Agency Medical Director prior to submission to the State EMS Authority.

The program effectiveness will be evaluated in several ways:

1. The participating EMT-I's retention of knowledge, assessment of skills and skill performance will be evaluated by mid-term and final exams as well as post-tests after initial and continuing education. Exams and post-tests must be submitted for approval by the EMS Agency Medical Director prior to testing.
2. All patient contacts will be reviewed to evaluate EMT performance. There will be an evaluation of patient assessment, including congruence with subsequent paramedic and hospital diagnosis, documentation, appropriateness and performance of field interventions, including whether interventions were actually performed when indicated.
3. Patient response, measured by change in vital signs, patient assessment and outcome.
4. For all cases, the estimated time interval will be recorded that ALS would have been provided without the availability of the EMT with advanced skills to care for the patient.

MEDICAL CONTROL:

Medical control will be through the specific EMT-I advanced scope of practice Treatment Protocols (attached). All patient contacts will be reviewed by the medical director/QI Committee within seven days of occurrence. West Valley Search and Rescue Trial Study Reviews will be forwarded within fourteen days of occurrence for further review by the EMS Agency Medical Director and the EMS Agency staff.

ICEMA will establish policies and procedures regarding certification, continuing education, data collection and other operational procedures.

TRAINING AND COMPETENCY TESTING:

Training will follow the attached lesson plan objectives. Qualified physicians, nurses (RN's), and paramedics will conduct the training sessions. Competency testing, both written and skills examinations, will be included in the training program. There will be both hospital clinical time and field preceptorship time, as outlined above. Training curriculum is available on request.

MEDICAL ADVISORY COMMITTEE:

It is anticipated that the trial study will be submitted, reviewed, and endorsed by the Medical Advisory Committee appointed by the local EMS Agency Medical Director.

**TRIAL STUDY
EMT-I ADVANCED SCOPE OF PRACTICE
INLAND COUNTIES EMERGENCY MEDICAL AGENCY
WEST VALLEY SEARCH AND RESCUE**

TREATMENT PROTOCOLS

- I. EMT-I's using the advanced scope of practice will be utilizing standing order protocols. Due to the nature of the response areas (mountainous terrain, etc) and the rescue situation, radio or telephone communications will be impractical if not impossible.
- II. EMT-I's using the advanced scope of practice will document on the patient care report form any treatment initiated on standing orders and will complete the Advanced Skill Documentation Form (see Appendix A).
- III. Definitions:
Pediatric patient = any patient 8 years of age or younger, or the appearance of.
- IV. Pediatric weights will be determined by use of the Broselow Tape.

ALLERGIC REACTION/ANAPHYLAXIS

CRITERIA

Apparent allergic reaction with wheezing, threatened airway, hypotension or shock.

PROTOCOL

1. Personal Protective Equipment.
2. Institute and/or maintain BLS procedures.
3. Epinephrine (1:1000) 0.3 mg SQ via EpiPen. Use caution for patients over age 40, and/or heart disease, hypertension.
4. May repeat Epinephrine (1:1000) 0.3 mg SQ in 5 minutes if condition worsens or in 15 minutes if condition does not improve.
5. Albuterol 5.0 mg via hand-held nebulizer for wheezing. May repeat albuterol nebulizer treatments as needed.
6. Benadryl 50 mg po. May repeat in 1 hour if not improved.
7. Establish peripheral intravenous access. If patient's systolic blood pressure < 90mm Hg, then give a bolus of 500 cc normal saline. May repeat the fluid bolus as needed to sustain a BP of >90 mm Hg systolic. Monitor lung sounds and decrease flow rate as needed.
8. Prednisone 40 mg po.

PEDIATRIC DOSE (use Broselow Tape)

1. If pediatric patient is >15 kg, then give epinephrine (1:2000) 0.15 mg SQ via EpiPen Jr.
2. Albuterol 2.5 mg via hand-held nebulizer or blow-by mask nebulizer.
3. If pediatric patient is 12.5 - 24 kg, then give Benadryl 12.5 mg po.
If pediatric patient is > 25 kg, then give Benadryl 25 mg po.
4. Prednisone 20 mg po.

ALTERED MENTAL STATUS

CRITERIA

Unresponsive (comatose), slow to respond (obtunded), responds with unintelligible sounds, inappropriate words, confusion and/or agitation.

PROTOCOL

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures.
3. Obtain blood by fingerstick and analyze blood sample via glucose stick.

FOR SUSPECTED HYPOGLYCEMIA

1. Establish peripheral intravenous access.
2. Dextrose 50% 25 gm IV if blood sugar < 80 or unobtainable (if patient presents with altered mental status and unable to swallow).
3. Glucagon 1 mg IM if blood sugar < 80 or unobtainable and peripheral intravenous access cannot be established.
4. If patient has blood sugar < 80 but is alert and can swallow, give oral glucose 15 gm in gel solution (prepackaged, single dose).

FOR SUSPECTED NARCOTIC OVERDOSE

1. Naloxone (Narcan) 2 mg IV in patients with depressed respirations (<12/min), pinpoint pupils and/or circumstantial evidence of drug use.
2. If no peripheral intravenous access, then Naloxone 2 mg IM. May repeat as needed.

PEDIATRIC DOSE

1. Dextrose 0.5 – 1.0 gm/kg IV
2. Glucagon 0.5 mg IM < 1 year of age
Glucagon 1.0 mg IM > 1 year of age
3. Naloxone 0.1 mg/kg IM or IV (maximum of 2 mg). May repeat as needed.

CARDIOPULMONARY ARREST (NON-TRAUMATIC)

CRITERIA

Confirmed unconscious, non-breathing and pulseless.

PROTOCOL

1. Personal Protective Equipment
2. Refer to Determination of Death on Scene policy – if appropriate.
3. Institute and/or maintain BLS procedures.
4. Apply AED and perform defibrillation as indicated.
5. Establish and maintain airway patency with basic airway adjuncts as per protocol.
6. Intubate with endotracheal tube.
7. If intubation unsuccessful after 3 attempts, insert esophageal-tracheal airway device.
8. Establish peripheral intravenous access.

CHEST PAIN (SUSPECTED CARDIAC ORIGIN)

CRITERIA

Typical symptoms of cardiac pain: “pressure” or “squeezing” pain, with or without radiation to arms or jaw. Patient may or may not have associated signs and symptoms of shortness of breath, nausea/vomiting, diaphoresis, or dizziness.

PROTOCOL

1. Personal Protective Equipment
2. Institute and/or maintain BLS protocols.
3. Establish peripheral intravenous access.
4. Nitroglycerine 0.4 mg metered dose oral spray for pain. May repeat every 5 minutes as long as blood pressure remains >90 mm Hg systolic.
5. Two chewable, non-enteric coated, baby aspirin (81 mg each tab X 2 tabs = 162 mg total dose).

DEHYDRATION

CRITERIA

Typical symptoms of dehydration: thirst, dry mucous membranes, poor skin turgor, sunken eyes and/or history of prolonged environmental exposure without sufficient intake of fluids.

PROTOCOL

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures.
3. Establish peripheral intravenous access.
4. If patient's systolic BP < 90 mm Hg, then give bolus of 500 cc normal saline. May repeat the fluid bolus as needed to sustain a BP of >90 mm Hg systolic. Monitor lung sounds and decrease flow rate as needed.
5. If patient's systolic BP > 90 mm Hg, then give bolus of 250 cc of normal saline. May repeat the fluid bolus as needed for continued clinical appearance of dehydration. Monitor lung sounds and decrease flow rate as needed.

PEDIATRIC DOSE (use Broselow Tape)

In pediatric patient, give 20 cc/kg fluid bolus for change in central/peripheral pulses, limb temperature transition, altered level of consciousness and/or systolic BP < 80 mm Hg. May repeat fluid bolus as needed.

NEAR DROWNING / DROWNING

CRITERIA

Obvious

PROTOCOL

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures, with spinal immobilization if appropriate.
3. If full arrest, begin CPR per protocol. If respiratory arrest with pulse, begin ventilation.
4. Establish and maintain airway patency with basic airway adjuncts per protocol.
5. Intubate with endotracheal tube with inline spinal immobilization.
6. If intubation unsuccessful after 3 attempts, insert esophageal-tracheal airway device.
7. Establish peripheral intravenous access.
8. If patient has spontaneous respiration and is conscious:
Albuterol 5.0 mg via nebulizer for wheezing.

PEDIATRIC DOSE

Albuterol 2.5 mg via hand-held nebulizer or blow-by mask nebulizer

RESPIRATORY DISTRESS

CRITERIA

Shortness of breath or difficulty breathing

PROTOCOL

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures.

UNCONSCIOUS WITH APNEA / INEFFECTIVE RESPIRATIONS

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures.
3. Intubate with endotracheal tube if unconscious.
4. If intubation unsuccessful after 3 attempts, insert esophageal-tracheal airway device.
5. Establish peripheral intravenous access.

RESPIRATORY DISTRESS SUSPECTED CARDIAC (CHF) ETIOLOGY

1. Personal Protective Equipment
2. Institute and/or maintain BLS procedures.
3. Establish peripheral intravenous access.
4. Nitroglycerin 0.4 mg metered dose oral spray for relief every 5 minutes as long as BP remains > 90 mm Hg systolic.

RESPIRATORY DISTRESS WITH BRONCHOSPASM (SUSPECT ASTHMA, COPD, TOXIC SUBSTANCE [SMOKE, GAS] INHALATION)

1. Personal Protective Equipment.
2. Institute and/or maintain BLS procedures.
3. Albuterol 5.0 mg via hand-held nebulizer. May continue treatment for distress as needed.
4. Epinephrine (1:1000) 0.3 mg SQ via EpiPen if patient < 40 years old.
5. Prednisone 40 mg po.
6. Establish peripheral intravenous access.

PEDIATRIC DOSE (use Broselow Tape)

1. Albuterol 2.5 mg via blow-by mask nebulizer or hand-held nebulizer. May continue nebulizer treatment for severe distress as needed.
2. If pediatric patient is >15 kg, then give epinephrine (1:2000) 0.15 mg SQ via EpiPen Jr. if the child is unable to cooperate with inhaled albuterol nebulizer treatment or child's respiratory status deteriorates.
3. Prednisone 20 mg po.