



# County of Santa Cruz

## HEALTH SERVICES AGENCY

POST OFFICE BOX 962, 1080 EMELINE AVENUE SANTA CRUZ, CA 95061-0962

(831) 454-4120 FAX: (831) 454-4488 TDD: (831) 454-4123

EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4000**  
**Rev. April 15, 2014**

### **Emergency Medical Services Program**

Approved

**Medical Director**

**Subject: LIFE THREATS**

#### **I. Purpose:**

The purpose of this policy is to outline the steps EMTs & paramedics will take to manage possible life threats in any child or adult patient they encounter. This policy is in effect for all treatment protocols & is to be referred to when "Treat Life Threats" appears in each document.

#### **II. Scope of Practice**

The interventions listed in this Policy will only be enacted by providers licensed & certified to perform those procedures.

#### **III. Managing Life Threats**

A. Airway Management - EMTs & paramedics will use the least invasive airway adjunct to secure a patient's airway. The goal is airway patency. To this end, EMTs & paramedics may perform the following interventions:

- ◆ Position the patient to maintain optimum air exchange.
  1. Patients with depressed mentation or decreased gag reflex should be placed in left lateral position.
  2. Patients in need of airway procedures or ventilatory support may require Fowler's, semi-Fowler's or supine position.
- ◆ Open the airway – head tilt/chin lift
  1. If spinal injury suspected, use modified jaw thrust.
- ◆ Insert an OPA/NPA as indicated. The NPA is contraindicated in patients with possible intracranial head injuries & neonates.
- ◆ Suction as needed utilizing a stiff tip or French tip suction device.
- ◆ Utilize BLS methods (abdominal thrusts/Heimlich maneuver) to relieve choking in conscious adults & children >1 year in age. In unconscious adults & children >1 year in age start CPR.
- ◆ Conscious airway obstructed infants <1 year of age use back blows/chest thrust. If unconscious, start CPR. No blind finger sweeps, only sweep if able to visualize object. Do not use abdominal thrusts to relieve choking in infants.

- ◆ Utilize direct laryngoscopy/MaGill forceps to further evaluate airway & remove FBAO (paramedics only).
- ◆ Utilize Versed, as indicated in Policy #5000, to assist with establishing & maintaining an airway (paramedics only).
- ◆ Insert an ETT or King Laryngeal Tube as indicated. Nasotracheal intubation is prohibited.

B. Breathing Management - Secure adequate ventilation using the least invasive airway adjunct necessary. EMTs & paramedics may perform the following interventions:

- ◆ Assist patient into position (Fowler's, left lateral, supine, etc.) as needed to support adequate ventilations.
- ◆ Oxygen therapy
  1. Administer O2 at rate appropriate to patient's condition. All patients should receive O2 based on overall clinical condition & complaint, regardless of O2 saturation reading.
  2. If there is a history of COPD, observe for respiratory fatigue/depression & assist ventilations as needed. Never withhold O2 from a patient in distress because of COPD history. Begin at 2 lpm and increase as needed.
  3. Patients presenting with signs & symptoms of pulmonary edema, or other severe respiratory distress should have O2 administered at 15-25 liters/minute via non-rebreather mask.
  4. Patients exposed to carbon monoxide should be treated similarly with high flow O2 administered continuously.
- ◆ Continuous Positive Airway Pressure (CPAP) Administration Per Policy# 5800.
- ◆ Assist Ventilations
  1. Assist ventilations with BVM as indicated. Providers may insert an ETT, King Laryngeal Tube, or trans-tracheal jet insufflation (Policy #5200) to achieve adequate respirations.
  2. Ventilatory rates (for patients with pulses):
    - ◆ Neonates (birth to 30 days of age) = 40 – 60 breaths/minute
    - ◆ Infants & children (1 month to puberty) = 20 breaths/minute
    - ◆ Adults = 10 – 12 breaths/minute
- ◆ Decompress tension pneumothorax (Policy #5300) as needed (paramedic only).

C. Circulatory Management - The goal of circulatory management is to maintain adequate perfusion to all vital organs.

- ◆ Position
  1. If stable, patient should be allowed to maintain position of comfort. Position patients with signs or symptoms of shock in supine or shock position.
  2. Patients >20 weeks pregnant, should be placed in left lateral position. If spinal immobilization is required, secure the patient to the backboard first, then tilt the board 20-30 degrees to the left.
- ◆ Fluid Administration (paramedics only). Initiate vascular access via IV/IO route:
  1. ADULTS: Titrate IV fluids to adequate perfusion in instances of hypovolemic/distributive shock. If cardiogenic shock suspected, limit bolus to 250cc prior to Base Station contact.
  2. PEDIATRICS: Initial bolus 20cc/kg. May repeat as needed to maintain/achieve adequate perfusion (not to exceed 4 boluses total without Base contact).
- ◆ Initiate CPR as indicated:
  1. ADULTS:
    - ◆ Push hard, push fast at rate of 100 compressions/minute. Allow for complete chest recoil between compressions.
    - ◆ Compress the chest 1.5 – 2.0 inches.
    - ◆ When possible, change compressors every 2 minutes.

- ◆ Limit pauses in compressions to ~ 5-10 seconds when switching compressors or performing other procedures.
  - ◆ When utilizing a BLS airway or ALS airway, ventilate the patient every 10<sup>th</sup> compression on the upstroke of the compression.
2. CHILDREN / INFANTS:
- ◆ Push hard, push fast at rate of 100 compressions/minute. Allow for complete chest recoil between compressions.
  - ◆ Compress the chest 1/3 to 1/2 the depth of the chest.
  - ◆ When possible, change compressors every 2 minutes.
  - ◆ Limit pauses in compressions to ~ 5-10 seconds when switching compressors or performing other procedures.
  - ◆ When utilizing a BLS airway or ALS airway, ventilate the patient every 10<sup>th</sup> compression on the upstroke of the compression.
- ◆ Defibrillation :
1. AED approved for use in children >1 year. Apply pediatric pads if available for children 1-8 years of age.
  2. Manual defibrillator may be used for all ages (paramedics only).
  3. History of cardiac arrest  $\leq 5$  minutes: attach defibrillator/AED and defibrillate as indicated. Resume CPR immediately post defibrillation.
  4. History of cardiac arrest  $\geq 5$  minutes: perform 2 minutes of CPR prior to considering defibrillation.
    - ◆ ADULTS: Apply single defibrillation at highest recommended energy setting (e.g. 360 joules on monophasic defibrillators, 200 joules on biphasic defibrillators) & resume CPR for two minutes immediately following the shock prior to checking for a pulse.
    - ◆ CHILD/INFANT: Apply single defibrillation at 2 joules/kg (4 joules/kg thereafter) and resume CPR for two minutes immediately following the shock prior to checking for a pulse.
  5. Following any defibrillation, always conduct 2 minutes of CPR prior to checking for a pulse and evaluating the EKG.
  6. Treat resulting rhythm per EMS protocol.
  7. When responders witness cardiac arrest, precordial thump may be employed to quickly treat confirmed ventricular fibrillation/pulseless ventricular tachycardia, prior to defibrillation. Precordial thump may also be used to treat witnessed cardiac arrest when no defibrillator is available.

**NOTES:**

1. Use the least invasive adjunct necessary to maintain ABCs.
2. The #1 cause of traumatic death in all patients, as well as cardiovascular collapse in the pediatric population, is hypoxia. Anticipatory airway & ventilatory support is the best way to prevent this.
3. Patients with unstable or compromised ABCs require constant re-evaluation.
4. Contact the receiving hospital as early as possible when you are transporting a patient with compromised ABCs.
5. In-Extremis Patients  
In-extremis patients are those patients in cardiac arrest or with life-threatening airway, breathing or circulatory compromise, despite pre-hospital basic & advanced life support interventions. These patients will be transported to the closest Emergency Department.

#### IV. Managing Medical Cardiac Arrest

- The initial emphasis in managing cardiac arrest patients is in establishing circulation via high quality, uninterrupted chest compressions.
- Circulation must be re-established first, followed by adequate ventilation and, when indicated, defibrillation.
- Ventilating patients, placing advanced airways, and establishing vascular access should not interfere with continuous chest compressions.
- All cardiac arrest management should be handled in a sequential and orderly fashion, with all job tasks clearly defined and delegated to resuscitation team members.
- The team leader should be the first on-scene paramedic when possible. The team leader should delegate all BLS tasks when possible, and should maintain overall patient care management. Overall scene management should be coordinated and supervised using the precepts of the Incident Command System.
- Patients who develop ventricular fibrillation while being monitored may receive a precordial thump prior to CPR compressions and defibrillation.
- Patients who develop ventricular defibrillation while being monitored may be immediately defibrillated. Chest compressions should be initiated while the defibrillator is being readied.
- High quality bystander CPR (e.g. - performed by a capable, off-duty responder) may suffice for the initial round of CPR prior to a rhythm and pulse check.
- King Tubes are the advanced airway of choice in managing cardiac arrest patients. Endotracheal intubation requires interruptions in chest compression that have been correlated with poorer overall survival rates. Endotracheal intubation may be used if it is deemed necessary to maintain airway patency.
- Vascular access should be established quickly using either intravenous or intraosseous routes. Vascular access and advanced airway access should be established simultaneously when possible, and with no appreciable interruption in chest compressions.
- BVM ventilation may be utilized throughout the resuscitation if adequate ventilation is achieved. In cases where BVM ventilation is used, the two-person method is preferred.
- Patients should be transported from the scene in the following circumstances:
  - A ROSC is achieved
  - The scene is deemed unsafe or an inappropriate location for a field determination/pronouncement of death..
  - In instances where on-scene survivors insist on transport of the patient.
  - The patient is deemed to be severely hypothermic.
  - The patient appears to be in the second or third trimester of pregnancy.
- Patients may be determined/pronounced dead on scene after following criteria established in Santa Cruz County EMS Policy 1140, Determination/Pronouncement of Death in the Field.

## Cardiac Arrest Sequence of Care

**1**

- Scene safety and universal precautions



**2**

- Determine unresponsiveness and check patient's airway, breathing and circulation



**3**

- Begin chest compressions @ 100 compressions/minute for two minutes
- Begin ventilations via BVM/OPA at one ventilation every 6 seconds, ventilating during every 10<sup>th</sup> compression upstroke
- Attach EKG quick patches/combo patches and turn on EKG monitor



**4**

- After delivering 200 compressions, stop CPR for no more than 10 seconds, analyze rhythm
- Ventricular fibrillation → defibrillate once at highest energy setting (adults) or 2 joules/kg (peds), restarting CPR while EKG monitor is charging.
  - Resume CPR for two minutes immediately following defibrillation.
  - Asystole/PEA → Immediately resume CPR for two minutes.



**5**

- Place a King LTD. King Tube should be placed and inflated during chest compressions. Seat the tube and confirm placement when CPR is stopped to reconfirm pulselessness, EKG rhythm, and necessity for defibrillation after 2 minutes of CPR.
  - Endotracheal intubation should only be used if the patient's airway cannot be managed using a King Tube.
    - Ventilate the patient every six seconds.



**6**

- Establish vascular access. If venous access is not easily established, establish intraosseous access.
  - Administer drug therapy in accordance with the appropriate protocol.



**7**

- Continue CPR; check for pulses, need for defibrillation every two minutes.
- Alternate compressors, when possible, after delivering 200 compressions.
- ROSC? Stop CPR and continue to ventilate 10-12/min (adult) or 20/min (peds)



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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4010**  
**Reviewed 01/07**

### Emergency Medical Services Program

Approved

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Medical Director

**Subject: FIELD PERSONNEL EXPOSURE TO A REPORTABLE DISEASE**

**Statement of Intent:** To provide a protocol for reporting incidents when Emergency Responder Personnel (paramedics, emergency medical technicians, firefighters, peace officers, lifeguards, and other public safety personnel) have been exposed to blood or body fluids/secretions (blood borne pathogens) or possible reportable disease or condition in Santa Cruz County.

**Authority:** Health and Safety Code, Division 2.5, Section 1797.188.

**Definitions:**

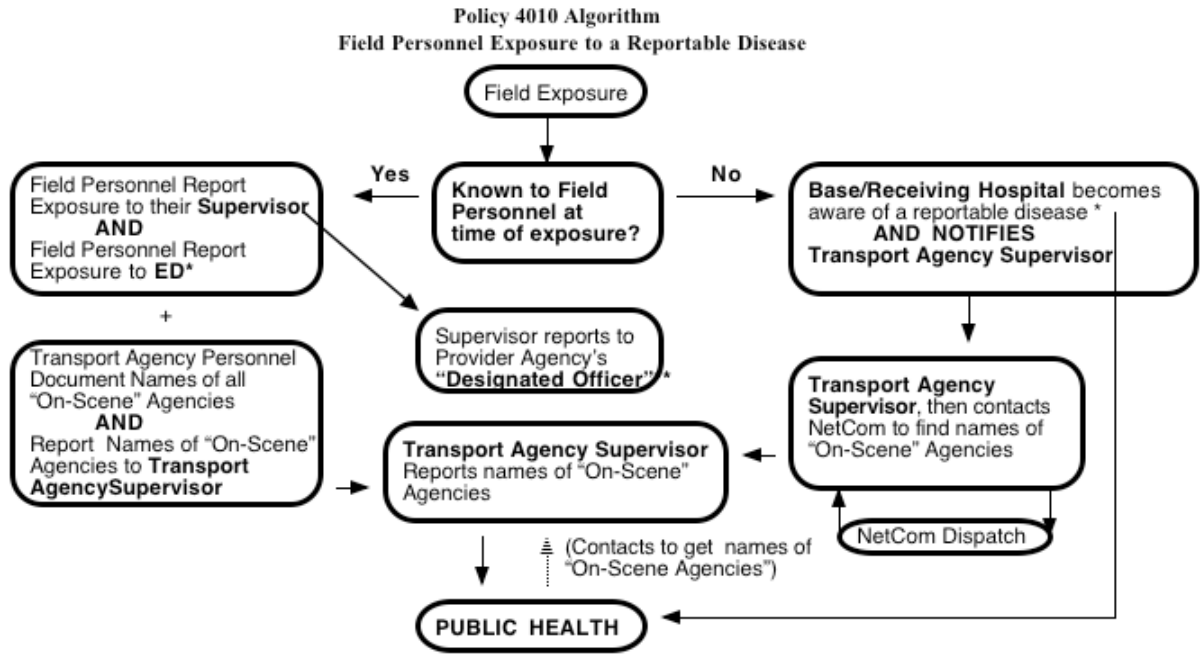
- “Exposed” means a significant risk of becoming infected with the etiologic agent of a disease.
- “Designated Officer” means an official from the Employing Agency designated to evaluate and respond to possible infectious disease exposures of employees.
- “Reportable Disease” means an infectious disease required to be reported to the local health officer pursuant to Section 2500 of the California Code of Regulations, Title 17.

**Policy:**

1. All Emergency Responder Personnel who have been exposed or believe they have been exposed to blood or body fluids/secretions by percutaneous, permucosal, or respiratory contact should **immediately** report the exposure:
  - a. To the admitting Emergency Department at the time the source patient is transported for evaluation, and
  - b. To their Employing Agency’s Supervisor.
2. Each affected Employing Agency’s Supervisor is responsible for making certain that the names and contact information of all their “on-scene” Emergency Responder Personnel has been reported to the receiving Emergency Department, in a timely manner. In addition, the Transporting Agency personnel (AMR) will document the name(s) of all Employing Agencies involved at the scene, and report that information to the transporting Agency’s (AMR) Supervisor **who will then notify Public Health.**
3. If the Base/Receiving Hospital becomes aware of a case where a patient transported by police or ambulance has **a reportable disease that the Emergency Responder Personnel were not aware of**, the procedure is as follows:
  - a. The **Base/Receiving Hospital is responsible for notifying Public Health in a timely manner that pre-hospital personnel had potential exposure to a reportable disease.**

This will be accomplished by the Hospital following its own internal reporting procedures which may designate the Emergency Department, the Hospital Infection Control Practitioner or other medical or administrative personnel to do the reporting.

**In addition, the Hospital shall contact the Supervisor of the Transporting Agency (AMR or law enforcement) & with NetCom's assistance, trace the call & notify the affected agencies.**



**\*Hospital reports to Public Health.** This will be accomplished by the Hospital following its own internal reporting procedures which may designate the Emergency Department, the Hospital Infection Control Practitioner, or other medical or administrative personnel to do the reporting.

**\*\*The "Designated Officer"** evaluates and responds to possible infectious disease exposures of employees and coordinates followup according to the Provider Agency policy.



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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4020**  
**Reviewed 01/07**

### **Emergency Medical Services Program**

Approved

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Medical Director

**Subject: EMERGENCY DEPARTMENT APPROVED FOR PEDIATRICS – SPECIALTY CENTER DESIGNATION**

#### **I. DEFINITION:**

An Emergency Department Approved for Pediatrics (EDAP) is a licensed basic Emergency Department (physician on duty 24 hours) that meets specific minimum criteria in order to provide emergency pediatric care. Refer to Pediatric Policy #1010 “Pediatric Patient Destination” for EDAP designation triage implications.

#### **AUTHORITY:**

Reference: Division 2.5 of the California Health and Safety Code, Chapter 2, Section 1797.67; Chapter 4, Article 1, Section 1797.222; Chapter 4, Article 2, Section 1798.150; Chapter 4, Article 3, Section 1798.170 and 1798.172.

#### **EDAP STANDARDS AND DESIGNATION**

##### **A. Professional Staff: Physicians**

- A.1 All emergency department physicians who are not Board certified by the American College of Emergency Physicians (ACEP) shall have successfully completed the Pediatric Advanced Life Support (PALS) provider course or Advanced Pediatric Life Support (APLS) course.
- A.2 All emergency department physicians who are not Board certified by the American Board of Emergency Medicine (ABEM) or by the American Board of Pediatrics (ABP) will obtain at least eight hours of continuing education in pediatric emergency care every two years. Suggested courses include, but are not limited to, the AHA PALS course or the AAP-ACEP APLS course when available.
- A.3 At least 50% of ED physician coverage must be by full-time staff doctors who are either emergency medicine physicians or are pediatricians with ED experience and boarded in pediatrics. This coverage is based on a monthly schedule since full-time is defined in the Section as working at least 100 hours per month in the ED.



- A.4 At least 50% of the emergency department coverage in any 24 hour period shall be provided by physicians who are board certified by the American Board of Emergency Medicine (ABEM) or the American Board of Pediatrics (ABP) and are certified in Pediatric Advanced Life Support (PALS) or APLS.
  - A.5 At least one other emergency department physician shall be on call and available within 30 minutes to assist in critical situations.
  - A.6 A designated pediatric consultant shall be available to the EDAP who is Board Certified in pediatrics and responsible for collaboration with the emergency department physicians and pediatric liaison nurse (PdLN) in both implementation and the documentation of ongoing chart reviews (quality assurance) of pediatric emergency cases brought to the EDAP. This review shall include, but is not limited to, all pediatric cardiopulmonary arrests and all pediatric emergency department deaths.
  - A.7 A pediatrician, Board certified in pediatrics, shall be on-call 24 hours/day and available within 30 minutes to the EDAP. A panel of several pediatricians on rotation may satisfy this requirement.
  - A.8 The Emergency Department Physician will ensure that a pediatrician is immediately consulted on all critically ill or injured pediatric patients and/or pediatric patients admitted to specialty care units of the hospital.
- B. Professional Staff: Nursing
- B.1 At least one Registered Nurse (RN) per shift shall have successfully completed the American Heart Association (AHA) Advanced Cardiac Life Support (ACLS) provider course.
  - B.2 A Pediatric Liaison Nurse (PdLN) shall be designated. This nurse may have shared responsibilities with several institutions. He/she may be employed in the emergency department or in other areas of the hospital such as a ward, ICU, nursery, or quality assurance. Additionally, the PdLN shall complete eight hours of Board of Registered Nursing (BRN) approved CEU's in pediatric emergency care topics per year. (CEU's may be applied toward fulfilling Santa Cruz County MICN certification requirements). Responsibilities of the PdLN shall include:
    - 2.a Ensuring and documenting appropriate nurse pediatric continuing education.
    - 2.b Maintaining a log of all pediatric emergency department visits. This can be accomplished by highlighting pediatric patients names when they are entered into the standard emergency department log.
    - 2.c Coordinating the review and follow-up of a sample of pediatric emergency department visits which will include all pediatric cardiopulmonary arrests, all pediatric emergency department deaths, and all pediatric emergencies transported by paramedics; including pediatric patients admitted through the emergency department to the critical care units of the EDAP facility and those cases referred by a PdLN or a physician.

- 2.d Coordination of the review of paramedic transported pediatric cases with the paramedic liaison nurse in hospitals where the EDAP is also the paramedic base station; including tape reviews of pediatric runs.
- 2.e Providing data to the EMS office as requested for program evaluation.
- 2.f ensuring injury prevention/health education protocols are followed, health education materials are available, and data is made available to the EMS Office for the purpose of evaluating the health education component.
- 2.g QA activities.
- 2.h There should be at least one registered nurse per shift who has completed a postgraduate course in pediatrics or has at least one year experience as an RN caring for pediatric patients in a pediatric emergency department, a pediatric ward, or a PICU. The postgraduate course should be at least 8 hours long and cover a broad spectrum of pediatric emergency topics. It is recommended that all emergency department nurses meet this requirement.
- 2.i All emergency department nurses (RN's and LVN's) shall fulfill a CE requirement of 6 hours of BRN approved pediatric emergency care in a two year period (CEU's may be applied toward fulfilling Santa Cruz County MICN certification requirements). Base station meetings that review pediatric calls and discuss pediatric care may substitute for this requirement.
- 2.j Emergency Department nurses shall provide injury prevention health education counseling to patients and/or parents as defined in the Santa Cruz County EDAP Health Education Component.

C. Policies, Procedures and Transfer Agreements

	<u>Essential</u>	<u>Desirable</u>
C.1 Written policies and procedures concerning the early transfer of critically ill and injured patients to pediatric intensive care units and trauma centers.	X	
C.2 Written policies and procedures for the Identification, evaluation, and referral of Suspected child abuse victims.	X	
C.3 Written transfer agreement (s) with one or More CCS approved PICU(s). The agreement Should address the following issues:	X	
3.a Agreement to accept all medically qualified pediatric patients without regard for race, ethnicity, religion, national origin, citizenship, sex, preexisting medical condition, physical or mental handicap, insurance status, economic status or ability to pay for medical services.	X	

3.b	Mechanism for making a single telephone call 24 hours a day for consultation and to arrange admission transportation to a CCS approved PICU, which has an available Bed.	X	
3.c	24 hour telephone consultation services provided by PICU staff members.	X	
3.d	Outline of the logistics for the transfer of a critically ill or injured patient to the PICU.	X	
3.e	Mechanism for reviewing data on patients transferred from an EDAP to a PICU.	X	
3.f	Joint reviews of patients transferred from the EDAP.		X
3.g	Written case summaries on all patients transferred from the EDAP.		X
3.h	On-going outreach education provided by the PICU for referring hospital nurses, physicians and ancillary staff.		X
3.i	Participation in EMSC QA review activities.		X

D. Equipment/Supplies/Trays Requirements

The emergency department shall have pediatric equipment, supplies and trays readily available and immediately accessible within the department (it is recommended that a “crash cart” system be utilized):

D.1 Equipment

- 1.a Monitor-defibrillator with 0-400 watt second capabilities and paddles in adult and pediatric sizes.
- 1.b Infusion pumps, drip or volumetric.
- 1.c Doppler sensing device for blood pressure measurements.
- 1.d Pediatric scale for weight measurement.
- 1.e Blood warmer
- 1.f Pediatric blood pressure cuffs: preemie, infant, child, adult, and thigh sizes.
- 1.g Stethoscopes with appropriate size bell and/or diaphragm for assessing a preemie, infant or child.

- 1.h printed pediatric drug dosage reference material (calculated on dose per kilogram basis), readily available on a wall-mounted chart.
- 1.i Pediatric bag-valve resuscitation device (ideally with an overrideable pop-off valve).
- 1.j Preemie, infant, child and adult size masks to use with bag-valve device.
- 1.k Magill Forceps (pediatric and adult).
- 1.l An appropriate infant warming procedure/device.
- 1.m Pulse oximeter with pediatric sensor.

#### D.2 Supplies

- 2.a Pediatric oral airways (sizes 0-5) endotracheal tubes (sizes 2.5-9.0) and infant and child laryngoscope blades curved 2, 3 and straight 0, 1, 2, and 3.
- 2.b Pediatric suction catheters sizes 6-14 fr.
- 2.c Pediatric IV supplies including volumetric sets, butterfly cannulas and IV catheters of varying sizes, including central lines, 14 gauge through 25 gauge. 250 or 500 and 1000 ml bags of NS, D5/0.25NS, D5/0.5NS, D5NS, D10/W.
- 2.d Needles for intraosseous infusion, preferably 18 gauge and 15 gauge short bone-marrow needles with stylets. (Example – disposable Illinois Jamshidi sternal/iliac aspiration needle with adjustable length.
- 2.e Pediatric nasogastric tubes, 6-16 fr. Including 5,8 infant feeding tubes.
- 2.f Pediatric Foley catheters, sizes 8-22 fr.
- 2.g Chest tube sizes 16-28 fr (size 26 fr. Is not available) and at least two in the newborn size range.
- 2.h Stiff cervical collars in sizes small, medium and large or equivalent. (Sandbags for children 6 years and under).
- 2.i Appropriate procedures/devices for ensuring pediatric restraint.

#### D.4 Trays

- 4.a Tracheostomy/cryothyrotomy tray with pediatric size tubes (Shiley tube sizes 0-6).
- 4.b Pediatric spinal tap tray with 22 gauge 1-1/2 inch spinal needle.
- 4.c Peritoneal lavage tray.
- 4.d Venesection tray appropriate for children.

E. Quality Assurance

- E.1 Quality assurance on a continuing and regular basis is essential. Quality assurance review for the purposes of EDAP designation is defined as a multi-disciplinary committee that meets regularly and reviews the treatment provided to children within the emergency department.
- E.2 The multi-disciplinary committee, at a minimum, should include representatives from ED nursing, physicians, pediatricians, surgeons, and various pediatric specialties as may be locally available. When possible the committee should also include a representative from a hospital with an approved pediatric intensive care unit with which the EDAP participating hospital has a signed agreement as required in Section E.3.
- E.3 The frequency of the meetings of the multi-disciplinary pediatric care review committee should be at a minimum at least quarterly.
- E.4 The multi-disciplinary committee should at a minimum review pediatric care in the following categories:
  - 4.a Pediatric deaths.
  - 4.b Pediatric cardiopulmonary arrests.
  - 4.c Pediatric patients treated by paramedics at the advanced life support level.
  - 4.d Pediatric patients admitted through the emergency department to the critical care units of the EDAP facility and those cases referred by a PdLN or a physician.
  - 4.e Out-of-County transfers.
  - 4.f Incident reports generated regarding the pre-hospital or EDAP care of a pediatric patient.
- E.5 The multi-disciplinary committee shall review the pediatric patients noted in Section 5.4 for, at a minimum, the following criteria:
  - 5.a Appropriateness of medical care.
  - 5.b Preventable deaths through either better prevention education, paramedic care or medical care.
  - 5.c Timely response to the patient of ancillary hospital services, and pediatric specialists.
- E.6 The County EMS program shall receive a summary report of each of the meetings of the multi-disciplinary committee. At a minimum, the report should indicate the number of cases reviewed and any actions recommended by the committee generally speaking.

F. Injury Prevention

- F.1 An injury prevention program shall be developed by the EDAP. The program shall be broadly applied to all age groups.

- F.2 The required injury prevention program shall be developed and submitted to the County for review within 6 months of designation.

#### DESIGNATION PROCESS

- A. To be considered for designation as an Emergency Department Approved for Pediatrics (EDAP) in Santa Cruz County, the facility shall prepare and submit a completed EDAP application form and supporting documentation (one original and five copies).
- B. All questions regarding EDAP standards, designation and the application process should be directed in writing to:
- EMS Program Manager  
Santa Cruz County Health Services Agency  
1080 Emeline Ave.  
Santa Cruz, CA 95060
- C. The cost of preparation of the application will be borne by the applicant.
- D. Designation of qualified applicants as an EDAP will be the responsibility of the EMS Medical Director.
- E. This designation does not constitute a contract for services.
- F. The EMS Medical Director reserves the right to reject any or all applications, wholly or in part, and to retain all proposals, whether selected or rejected.

#### SITE SURVEY

Within two weeks following receipt of the completed EDAP Application Form, the EMS Medical Director will inform the hospital of the status of the application and schedule a site visit. On preparation for the site visit, hospital personnel shall prepare evidence to verify adherence to the Santa Cruz County EDAP Standards.

The site visit shall include a meeting with the following persons:

- A. The Medical Director of Emergency Services.  
B. The Nursing Supervisors of Emergency Services.  
C. The Pediatric Liaison Nurse

The Site Survey Team shall be appointed by the Santa Cruz County and EMS Medical Director and shall consist of:

- A. One registered nurse with significant experience in pediatric care.  
B. One registered nurse representative from the Santa Cruz County Health Services Agency.  
C. One Board certified pediatrician.  
D. One Board certified Emergency Physician.

#### DESIGNATION

- A. Within one week following the site survey, the survey team will make designation recommendations. The hospital will be notified by mail of minor discrepancies and given a period of time for correction.

- B. Those facilities meeting all EDAP requirements will receive “Santa Cruz County Emergency Department Approved for Pediatrics Designation” within six weeks of proof of completion of EDAP standards.

#### APPEALS, REAPPLICATION, REDESIGNATION, FAILURE TO MAINTAIN COMPLIANCE

- A. Hospitals may appeal the results of an EDAP survey by submitting an appeal in writing to the Santa Cruz County EMS Medical Director.
- B. Hospitals that are not able to meet all the requirements for EDAP designation may reapply during the next scheduled survey period. Site surveys for EDAP designation will be made within six months.
- C. Extensions of designation may be approved by the EMS Medical Director without onsite surveys or reapplication. Extensions may be for up to two years. Extensions will be based upon compliance with the standards of designation as outlined in this policy at the discretion of the EMS Medical Director.
- D. Should a designated EDAP fail to meet any of the provisions specified in “Emergency Department Approve for Pediatrics Standard”, the hospital shall immediately notify, in writing, the EMS Medical Director. Withdrawal of EDAP designation may occur at any time thereafter.



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SERVICES PROGRAM

**Policy No. 4030**  
**Reviewed 4/1/2014**

### Emergency Medical Services Program

Approved

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Medical Director

**Subject: PATIENT ACUITY GUIDELINES**

**I. PURPOSE:**

To delineate patient clinical status levels and provide recommendations for evaluating patient acuity in order to facilitate accurate communication among prehospital and hospital providers.

**II. PATIENT ACUITY LEVELS**

All patients evaluated in the Santa Cruz County EMS system will be assigned a clinical acuity level, referred to as a "Patient Status Level." This 1 – 5 numeric acuity rating system describes patients from highest acuity (Status 1) to lowest acuity (Status 5). Guidelines for classification using this system are as follows:

**Status 1 Patients (*In Extremis*)**

Status 1 patients are those patients with immediate, life-threatening airway, breathing or circulatory *compromise*, despite pre-hospital basic & advanced life support interventions. *In extremis* patients will die quickly if their life threats cannot be reversed. Examples of Status 1 patient conditions include: cardiac or respiratory arrest, profound decompensated shock; respiratory failure; unmanageable obstructed airways; and uncontrolled life-threatening hemorrhage. These patients require immediate BLS and ALS interventions, and in most cases, immediate transport with treatments performed enroute to the hospital. When transported, *in extremis* patients should always be taken to the closest hospital.

**Status 2 Patients (Severe Distress)**

Status 2 patients are in substantial physiologic distress and without timely intervention, they will worsen. They are physiologically unstable, and often present with significantly abnormal vital signs. Most Status 2 patients have significant life threats including compromises to their respiratory, circulatory or neurologic systems. Examples of Status 2 patients include trauma patients with substantial multiple hits; respiratory distress patients requiring aggressive nebulizer therapy and/or CPAP; patients with anginal equivalent chest pain, and abnormal vital signs whose pain is refractory to nitroglycerin; seizing patients, or patients with significantly altered consciousness and abnormal vital signs. These patients require Code 3 transport to the hospital, and ALS intervention.



**Status 3 Patients (Moderate Distress)**

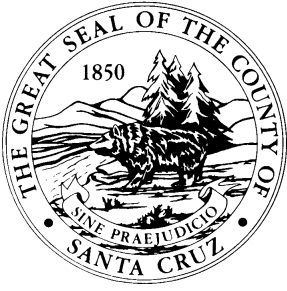
Status 3 patients are moderately distressed patients who require modest ALS interventions. They are physiologically stable, and will not likely worsen with/without intervention. Their vital signs may be mildly abnormal, secondary to pain or increased respiratory effort for example, but are stable. Status 3 patients include: post-seizure patients regaining full consciousness requiring a prophylactic IV; an asthmatic in compensatory respiratory distress who responds to a breathing treatment; a chest pain patient whose pain is resolved with nitroglycerin and oxygen therapy; trauma patients with extremity injuries requiring parenteral analgesia; or patients with significant mechanism but minor/moderate anatomic or physiologic findings. Status 3 patients may have significant co-morbidities which contribute to their chief complaint. These patients require Code 2 transport to the hospital (with some ALS interventions) to reduce pain and suffering, or for prophylactic purposes.

**Status 4 Patients (Mild Distress)**

Status 4 patients are mildly distressed patients who only require non-invasive care. They are physiologically stable, have normal vital signs, mild amounts of discomfort, and generally require only BLS interventions. Examples of Status 4 patients include: traffic collision patients requiring only spinal immobilization; patients with minor extremity injury; minor burns; pediatric patients with fever and/or URI symptoms but no respiratory distress; or elderly patients with isolated, non-systemic complaints (such as mild pain from chronic conditions). Status 4 patients may have major co-morbidities but these should not be seen as contributing to the patient's current distress. These patients require Code 2 transport to the hospital with BLS interventions.

**Status 5 Patients (No Apparent Distress)**

Status 5 patients show no physiologic distress, and have no substantive clinical findings on exam. Status 5 patients have normal vital signs and are extremely stable patients. These patients require no substantive treatment on scene or enroute to the hospital. Examples of Status 5 patients would include: a status-post choking child now appearing without any complaint, or a swimmer who was thought to be requiring rescue towed to shore by lifeguards with no complaints. Status 5 patients have no other substantial co-morbidities which might indicate subtle presentations of more serious conditions. They need only Code 2 transport to the hospital and may in fact AMA on scene.



# County of Santa Cruz

## HEALTH SERVICES AGENCY

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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4040**  
**April 15, 2014**

### **Emergency Medical Services Program**

Approved

Medical Director

**Subject: NON-INVASIVE GAS MONITORING**

#### **I. Purpose:**

The purpose of this policy is to outline guidelines for monitoring oxygen saturation (SpO<sub>2</sub>), end tidal capnography (ETCO<sub>2</sub>), and carbon monoxide (SpCO). Monitoring these gases will allow responders to better evaluate patients in the field, and will also help to diagnose specific problems relative to oxygenation, ventilation, and metabolism.

#### **II. Scope of Practice**

Monitoring SpO<sub>2</sub> is considered both a BLS and ALS provider skill; while monitoring ETCO<sub>2</sub> is reserved for ALS providers.

#### **III. Monitoring SpO<sub>2</sub>**

##### **Overview/Background**

SpO<sub>2</sub> measures the percentage of hemoglobin in a patient's red blood cells that have fixed oxygen. Thus, this tool is a rough measurement of a patient's oxygenation. This differs from P<sub>O2</sub>, which is a measure of the actual amount of oxygen dissolved in blood plasma. P<sub>O2</sub> and SpO<sub>2</sub> normally are very closely aligned, though SPO<sub>2</sub> readings will lag behind falling P<sub>O2</sub> numbers as a patient becomes hypoxic.

Factors that decrease SpO<sub>2</sub> include decreased pH (acidosis), increased blood levels of CO<sub>2</sub>, and increased physiologic temperature. Factors that increase SpO<sub>2</sub> include increased pH (alkalosis), decreased blood levels of CO<sub>2</sub>, and decreased physiologic temperature.

Because SpO<sub>2</sub> measures the ratio of saturated to unsaturated hemoglobin in arterioles, its accuracy can be impaired by any factor that influences arteriolar blood flow. Conditions that may cause false low readings include a cold environment, hypotension, and vasoconstriction from smoking or vascular disease. Substantial motion, fingernail polish, bright light, and shivering can also falsely lower readings. Carbon monoxide fixed to hemoglobin can cause falsely elevated readings, though this can be mitigated when a multi-gas sensing system is employed.

**Monitoring Indications**

- All patients in respiratory distress.
- Patients with altered mentation, or in any circumstance where airway or ventilation is impaired or may become impaired.
- Use as a “5<sup>th</sup> vital sign” to monitor the overall status of a patient in significant physiologic distress.
- May be used to detect blood flow to extremities with compromised blood flow/major injuries by placing the oximeter probe onto tissue distal to a fracture or crush injury.

**SpO2 Measurements, Interpretation, and Interventions**

<b>SpO2 Reading (%)</b>	<b>Interpretation</b>	<b>Intervention</b>
95 – 100%	Normal	Maintain saturation
91 – 94%	Mild Hypoxemia	Increase O2 delivery to increase saturation
86 – 90%	Moderate Hypoxemia	Increase O2 to increase saturation Assess and possibly increase ventilations
< 85%	Severe Hypoxemia	Increase O2 to increase saturation Increase ventilations

**IV. Monitoring ETCO2**

**Overview/Background**

End-tidal CO2 (ETCO2) is a measurement of the maximum amount of exhaled CO2 at the end of respiration. It provides excellent real time information about the effectiveness of a patient’s ventilation. ETCO2 can be used to estimate PaCO2 (the partial pressure of carbon dioxide in blood plasma) in patients with normal lungs. Normal PaCO2 and ETCO2 values range from 35 – 45 mmHg.

ETCO2 is very effective at identifying hypo- and hyperventilating patients, as well as those patients who develop sudden apnea. ETCO2 monitoring can help to detect problems with advanced airway adjuncts and positive pressure ventilation. Analysis of a patient’s capnographic wave form and trending of this wave form can help responders to identify bronchospasm, increased respiratory depression, inadvertent esophageal intubation, and a host of other issues.

While capnography is a direct measurement of ventilation in the lungs, it also indirectly measures metabolism and circulation. For example, an increased metabolism will increase the production of carbon dioxide, increasing the ETCO2. A decrease in cardiac output will lower the delivery of carbon dioxide to the lungs, decreasing the ETCO2.

**Monitoring Indications**

ETCO2 monitoring via waveform capnography **must be used** on those patients experiencing the following:

- Respiratory arrest or respiratory distress requiring positive pressure ventilation via BVM, King Tube, or ETI.
- Cardiac arrest

ETCO2 monitoring via waveform capnography should be **considered** in patients experiencing the following:

- Hypoventilation/respiratory insufficiency.
- Respiratory distress of any etiology
- Chest pain with respiratory distress
- Congestive heart failure
- Altered mentation/Overdose
- Patients who have received medications which may alter respirations (narcotics, benzodiazepines)

**Note:** Colormetric CO2 monitoring may be used in those instances that preclude the use of waveform capnography.

### **ETCO2 Measurements, Interpretation, and Interventions**

#### **SPONTANEOUS RESPIRATION ONLY**

<b>ETCO2 Reading</b>	<b>Interpretation</b>	<b>Intervention</b>
35 – 45 mmHg	Normal ETCO2	Maintain ventilation
> 45 mmHg	Hypoventilation	Increase ventilation
< 35 mmHg	Hyperventilation	Decrease ventilation

- **ETCO2 In Cardiac Arrest**

Monitoring ETCO2 during cardiac arrest measures cardiac output, and is a good way to measure the effectiveness of CPR. Reductions in ETCO2 during CPR are associated with comparable reductions in cardiac output. **Note:** Patients with extended down times may have ETCO2 readings so low that the quality of compressions will show little difference in this number.

ETCO2 may be the first sign of return of spontaneous circulation (ROSC). During cardiac arrest, if the CO2 number increases rapidly, stop CPR and check for pulses. Conversely, rapid drops in ETCO2 in a patient with ROSC may indicate that pulses have been lost and that CPR needs to be resumed.

An ETCO2 level of 10 mmHg or less, measured 20 minutes after the initiation of advanced cardiac life support accurately predicts death in patients with cardiac arrest associated with electrical activity but no pulse. In patients for whom this is the case, resuscitation may be discontinued per County Guidelines.

ROSC patients will usually present with an ETCO<sub>2</sub> of 18 or greater and will usually quickly climb to above 30 mm Hg in cases that will ultimately survive to discharge.

- **ETCO<sub>2</sub> in Bronchospasm/Asthma**

Bronchospasm will produce a characteristic “shark fin” capnographic wave form, as the patient has to struggle to exhale, creating a sloping “B-C” upstroke. The shape is caused by uneven alveolar emptying.

Asthma values change with severity. With mild asthma, the CO<sub>2</sub> will drop (below 35 mm Hg) as the patient hyperventilates to compensate. As the asthma worsens, the CO<sub>2</sub> levels will rise to normal. When the asthma becomes severe, and the patient is tiring and has little air movement, the CO<sub>2</sub> numbers will rise to dangerous levels (above 60 mmHg).

## V. **Monitoring SpCO**

### **Overview/Background**

Carbon monoxide (CO) is an odorless, colorless, tasteless heavier-than-air gas that is the most common product of combustion. Its affinity for hemoglobin is 250 times greater than that of oxygen, and when enough carbon monoxide is fixed to hemoglobin, hypoxia can occur. High carbon monoxide levels can cause fatal anoxia.

### **Monitoring Indications**

- SpCO monitoring should be included in the medical monitoring conducted at Emergency Worker Rehab. At present (4/1/2014) paramedics are not allowed to monitor CO readings in patients.

### **SpCO Measurements and Interpretation**

<b>SpCO Level</b>	<b>Interpretation</b>	<b>Signs and Symptoms</b>
< 3%	Normal Levels (nonsmokers)	None
4% - 11%	Minimal Levels	Usually none; possibly mild headache, nausea
12% - 20%	Mild exposure	Headache, n/v, dizziness, blurred vision
21% - 40%	Moderate exposure	Confusion, syncope, chest pain, weakness, rapid HR
41% - 59%	Severe exposure	Dysrhythmias, hypotension, MI, respiratory arrest, Seizures, coma, pulmonary edema, cardiac arrest
>60%	Fatal	Death 100% of the time

- Cherry red skin color is not always present in carbon monoxide poisoning, and when present, is often a late finding.
- Smokers often will have a chronic SpCO level of 4 – 10%
- Most non-smokers have a SpCO level less than 2.5%
- County Emergency Worker Rehab Plan endorsed by County Fire Chiefs, sets green (return to duty) level at <6; yellow level (hold and recheck at 20 minute mark) at 6 – 12%; and red level (must be evaluated by MD) at >12%.
- Fetal hemoglobin has a much greater affinity for SpCO than adult hemoglobin. Pregnant mothers may exhibit mild to moderate symptoms, yet the fetus may have devastating outcomes.
- Remember, SpCO poisoning is the great imitator. It can “masquerade” as many other etiologies. When in doubt, check for it.
- Missed SpCO exposure often leads to death and disability.
- **CO poisoning is a particular risk for firefighters.**

### **SpCO Treatment**

- Treatment is based on the severity of symptoms.
- **Treatment generally indicated with SpCO > 12-15%, but may begin at any level in which the patient is experiencing symptoms.**
- High-concentration O2 should be administered to displace CO from hemoglobin.
- Be prepared to treat complications (e.g., seizures, cardiac ischemia).
- ***Patients with severe poisoning may benefit from hyperbaric chamber therapy. The receiving ED will arrange this.***



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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4060**  
**Reviewed 4/2009**

### **Emergency Medical Services Program**

Approved

**Medical Director**

**Subject: PATIENT RESTRAINT**

#### **I. Purpose:**

To provide guidelines for the use of restraints (physical & chemical) on patients in the pre-hospital setting. On occasion it becomes necessary to use restraints on patients when their behavior poses a danger to themselves and most importantly, the emergency personnel on scene. Patients with an ALOC have the potential to cause great bodily harm to themselves and others. In these situations it becomes imperative to be able to quickly and effectively restrain these patients from causing further harm.

#### **II. Procedure:**

##### A. Physical Restraints.

- 1.) Restraints may be applied at the discretion of field personnel with reasons documented on PCR.
- 2.) Only soft restraints may be used by field personnel. This does not include law enforcement.
- 3.) Restraints should be securely fastened to patient, but at no time should circulation be compromised. CSM distal to any restraint shall be assessed frequently.
- 4.) At no time shall a restrained patient be left unattended.

##### B. Chemical Restraints.

- 1.) Versed may be administered as a chemical restraint by sedating patients who are in an excited, agitated, combative state, and who pose a threat to themselves or emergency personnel.
- 2.) Reasonable attempts will be made to contact the Base Hospital prior to the use of Versed. When Base Contact is not possible given the imminent threat of the patient to him/herself and/or emergency personnel, paramedics may administer Midazolam 5-10mg IM on standing order to adult patients. Hospital contact should be attempted as soon as possible thereafter. Base station contact is required for the use of versed for chemical restraint on all pediatric patients (age 14 or younger).

- 3.) Paramedics will monitor the patient's airway, breathing, circulation and level of consciousness throughout the call.

C. Law enforcement.

- 1.) Field personnel should not hesitate to call for law enforcement in situations where patient restraint is needed. If field personnel safety is an issue, consider requesting an officer accompany the patient to the hospital.
- 2.) The various law enforcement agencies in Santa Cruz County have specific, although differing, policies on how certain patients are to be managed. At no time shall field personnel argue with the officer having jurisdiction of the crime scene.
- 3.) It is the role of field personnel to provide the best patient care possible within the parameters set forth by law enforcement procedures as dictated by officers on scene.
- 4.) All patients that have been placed into restraint devices (handcuffs, etc) by law enforcement shall be accompanied by a law enforcement officer who can remove the restraints if needed. At no time shall a patient be transported in restraints without the means to be removed if needed for patient care.





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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4070**  
**April 1, 2012**

### **Emergency Medical Services Program**

Approved

Medical Director

**Subject: SPINAL IMMOBILIZATION**

#### **I. Purpose:**

To provide guidelines and recommendations for the spinal immobilization of prehospital patients in Santa Cruz County.

#### **II. Core Principles**

- A. The incidence of true spinal cord injuries from both blunt and penetrating mechanisms is exceedingly low and occurs less than 1 – 2 % of the time. The incidence of clinically significant spinal cord injuries, without neurologic symptoms, is exceedingly rare. The best candidates for full head-to-toe immobilization are victims of high impact mechanism with multi-systems injuries.
- B. Most spinal injuries, of any consequence, present with spinal pain and vertebral tenderness on palpation. Alert and oriented patients with true spinal injuries, tend to exhibit pain and tenderness to palpation, and generally vigorously self-splint. Substantial spinal injuries are best recognized through diligent physical exams. In general, ambulatory patients do not have serious thoraco-lumbar injuries.
- C. Mechanism of injury without subjective complaints or objective findings of spinal injury is generally a poor predictor of injury. Mechanism of injury should be more carefully considered in high-risk patients (elderly and the young) and in those patients for whom an accurate history and physical examination cannot be obtained. Elderly patients, and those with preexisting arthritis and other diseases which compromise their skeletal system, are more likely to have spinal injuries after a traumatic mechanism. These patients should be more conservatively managed, and there should be a greater suspicion for occult – hidden – spinal injuries, especially in those patients with chronic confusion/dementia.
- D. Spinal immobilization should reduce, rather than increase, patient discomfort. Immobilization that increases pain should be avoided. Full spinal immobilization, as traditionally practiced, has often caused more injuries than it has prevented. Spinal immobilization can be painful, and can induce pressure sores. Often needless radiologic studies are undertaken only to identify, what is in fact, provider induced pain.

- E. The goal of immobilization is to prevent further spinal injury during patient extrication, treatment, and transport. Patients with suspected spinal injuries should be maintained in, what is for them, a “neutral”, in-line position. This position will vary from patient to patient depending on the presence of arthritis or other spinal abnormalities. A patient’s cervical spine should never be moved if movement increases pain, neurologic deficits, or neck spasm.
- F. Immobilization should be accomplished using the most appropriate tools for the specific circumstance. The EMS spinal immobilization tool box may include tape, vacuum splints, pneumatic splints, stiff cervical collars, soft collars, short boards or KEDs, long boards, straps, head immobilization devices (“headbeds”, etc.), as well as soft materials such as pillows and pull sheets.

The County endorses equipment, which allows for the comfortable immobilization of patients wherein further harm is not induced. Equipment choices should abide by the “form follows function” axiom.

Ill-fitting equipment is worse than no equipment at all. For example, more harm may be caused by a cervical collar that hyperextends a patient’s injured cervical spine than by omitting a collar altogether.

- G. Appropriate spinal immobilization depends on an accurate history and physical exam of the spine.
- H. Spinal immobilization should not be utilized in order to simply extricate or move a patient.
- I. There is no evidence that supine immobilization of the spine is any better than placing a patient in semi-fowler’s position. It is also clearly less comfortable.
- J. Full spinal immobilization of penetrating thoracic trauma patients increases mortality and morbidity. Alert, neurologically intact victims of penetrating thoracic trauma without spinal pain do not require spinal immobilization.
- K. If there is any doubt during the evaluation of a patient’s spine, it is always better to immobilize the patient while deferring further spinal evaluation to the ED staff.

### **III. Immobilization Guidelines**

- A. Backboards must be appropriately padded to prevent pain and pressure sores.
- B. Partial immobilization of a patient with isolated neck pain is acceptable and encouraged. This may include a stiff or soft collar, use of cervical and thoracic vacuum splinting, pillows, the KED, etc. Patients with isolated cervical pain may be sat up in a semi- or high fowler’s position. Patients who are laid supine will be substantially more comfortable with their knees elevated.
- C. Full spinal immobilization (BB, headbed, collar, straps and tape) should be reserved, primarily for patients who have received a high impact with resulting multiple systems blunt trauma, and/or who are unable to provide accurate information to field responders. This level of immobilization is more comfortable if vacuum splinting is utilized.
- D. Pull sheets, other flexible devices, and concave “scoops” should be employed for moving patients whenever possible; backboards should be used only if these other devices are unavailable.
- E. Spinal movement and discomfort are reduced by allowing patients to self-extricate, when possible, and to place themselves onto gurneys and spinal immobilization devices. Back-boarding patients from a standing position is discouraged.

- F. Patients who truly require immobilization should be placed in equipment, which allows for a relatively comfortable maintenance of a neutral position. This can be accomplished with stiff neck or soft foam collars, partial immobilization only of the cervical spine, use of devices such as the KED or vacuum splint technologies, and positioning to include supine, semi-fowlers, and/or high fowlers positions.
- G. Logrolling a patient is very uncomfortable and leads to increased spinal movement. The preferred technique to getting patients onto backboards is to “forklift” the patient onto the backboard.
- H. Responders should document all history and exam findings on the Prehospital Care Report. The patient’s neurologic status (pre- and post-immobilization), along with all spinal immobilization interventions, should also be documented.
- I. Spinal immobilization may be withheld in patients without neck or spinal pain, tenderness, ALOC, intoxication or distracting injury, as long as the patient can be accurately evaluated. The following algorithm will be utilized when deciding whether or not to immobilize a patient’s spine:

#### **IV. Special Procedure for Care of Potentially Spine-Injured Football Athlete**

Unless there are special circumstances such as respiratory distress coupled with an inability to access the airway, the helmet should never be removed during the prehospital care of the football athlete with a potential spinal injury

The **facemask should always be removed prior to transportation**, regardless of current respiratory status. (Tools for facemask removal include screwdriver, FM Extractor, Anvil Pruners, or ratcheting PVC pipe cutter should be readily accessible).

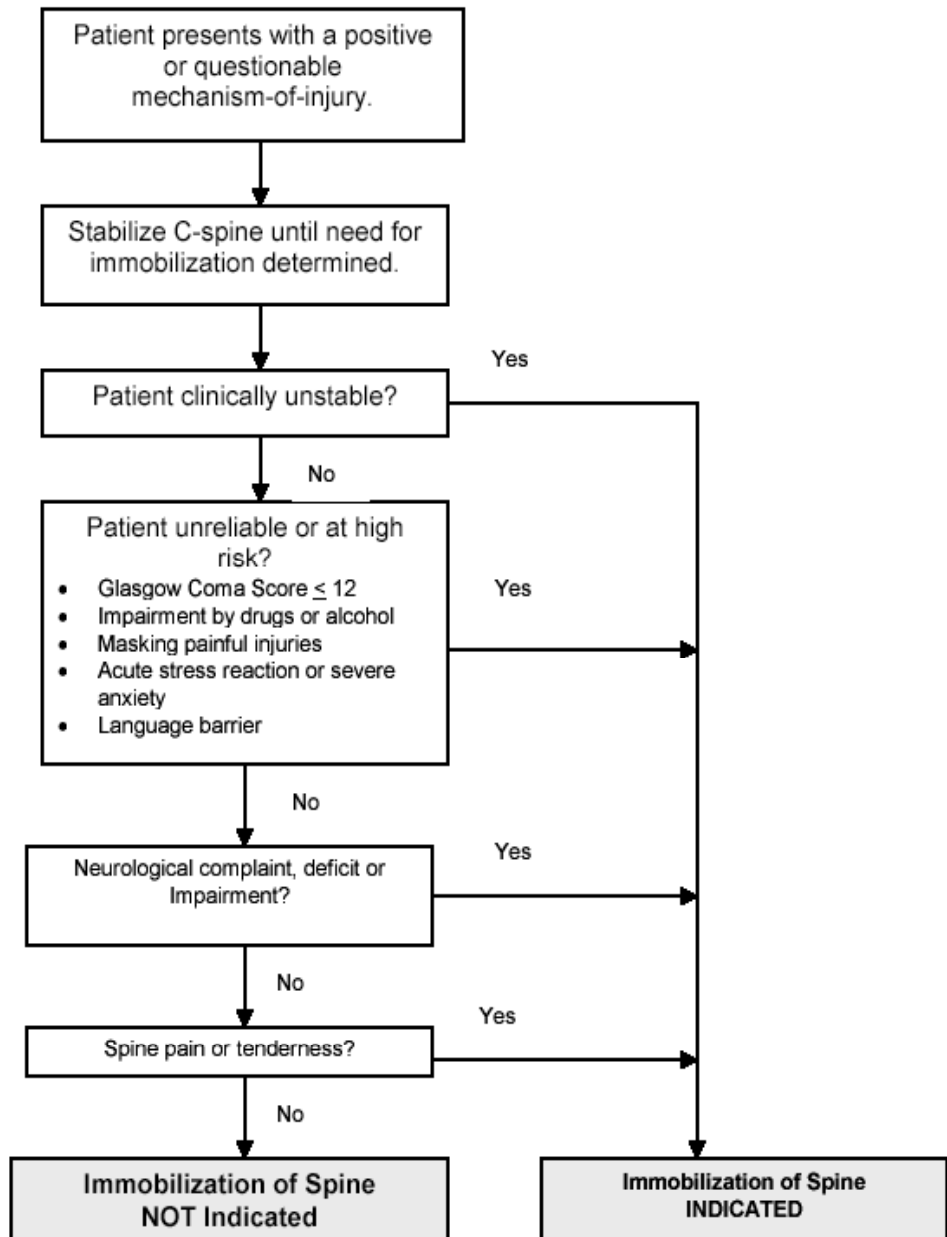
All loop straps of the facemask should be cut and the facemask removed from the helmet, rather than being retracted. The football helmet and chin strap should only be removed if: a) the helmet and chin strap do not hold the head securely, such that immobilization of the helmet does not immobilize the head; b) the design of the helmet and chin strap is such that, even after removal of the facemask, the airway cannot be controlled nor ventilation provided; c) the facemask cannot be removed after a reasonable period of time; or d) the helmet prevents immobilization for transportation in an appropriate manner.

**If the helmet must be removed, spinal immobilization must be maintained while removing.** In most circumstances, it may be helpful to remove cheek padding and/or deflate the air padding prior to helmet removal.

Shoulder pads do not necessarily have to be removed on-site. **The front of the shoulder pads can be opened to allow access for CPR and defibrillation.**

**Should either the helmet or the shoulder pads be removed - or if only one of these is present - then appropriate spinal alignment must be maintained at all times. It is recommended that if the helmet is removed, then the shoulder pads should also be removed.**

## Spinal Immobilization Decision Algorithm



**Patients at Higher Risk for Spinal Injuries**  
 Maintain a higher index of suspicion  
 Child ≤ 8 years, Elderly ≥ 70 years      History of serious spine problems



# County of Santa Cruz

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## HEALTH SERVICES AGENCY

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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4080**  
**Reviewed 01/07**

### **Emergency Medical Services Program**

Approved

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Medical Director

Subject: **FIRST RESPONDER FIRE ALS TRANSFER OF CARE TO TRANSPORT ALS**

#### **I. Purpose:**

In order to accomplish good continuity of patient care and field collaboration of all responders, the following shall be observed whenever possible:

- 1) Patients identified as Status Level IV (Severe Distress) or Status Level V (In Extremis) or identified as Major Trauma Victims (2 or 3 "hits" on the MAP Score) shall be accompanied by the First Responder Fire Paramedic during transport to the hospital or Landing Zone.
- 2) The Fire Paramedic will attempt to honor requests by the Transport Paramedic for the Fire Paramedic to accompany patient to the hospital.
- 3) Reasonable exceptions to the above criteria (1 & 2) may include situations where the transport unit (AMR) has an intern and enough resources on-board, or the Fire Paramedic is requested by his/her Captain to respond to an emergent fire call, or an MCI event where the Incident Commander requests the Fire Medic to remain an on-scene resource. All of these exception situations require cooperation between Fire and AMR.



# County of Santa Cruz

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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No: 4090**  
**Reviewed 01/07**

### **Emergency Medical Services Program**

**Approved**

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**Medical Director**

**Subject: NARCOTIC MEDICATION UTILIZED BY PARAMEDICS**

#### **I. Purpose:**

In order to maintain clear documentation and legal custody of narcotic usage in the prehospital environment the following will be observed:

The Paramedic actually administering the narcotic will not transfer the narcotic vial or syringe to the custody of a Paramedic from a different agency. The narcotic vial or syringe may be transferred to the custody of another Paramedic within the same agency. If the narcotic in the vial or syringe is not completely used by the Paramedic, the remainder will be disposed of in accordance to generally accepted wasting procedures.



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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4100**  
**Revised 07/11**

### Emergency Medical Services Program

Approved

Medical Director

Subject: PCR DOCUMENTATION

This document outlines standards for filling out the Web PCR. Its intent is to clarify those areas of the PCR subject to interpretations. The goal is to foster charting accuracy and consistency. Comments are included only for those areas of Web PCR that require clarification.

#### **Patient Information Screen**

Transport medics will enter the Hospital's Medical Record Number in the field designated for "Medical Record Number" using the "face sheet" provided by the hospital. If the face sheet is unavailable when the PCR is completed, indicate, "no face sheet".

#### **Dispatch Information Screen**

- **Patient medic** is the medic authoring the PCR. **Radio medic** will be the supporting medic from the same agency, if there is one. If the PCR is written by a fire medic, and he/she is the only medic on the engine, the radio medic field will be left blank.
- **Call times** – Fire department PCRs will only include **transport** and **facility** times if the fire medic accompanies the patient to the ED. If the fire medic does not accompany the patient to the ER, the documented times will include: received, enroute, on scene, and available. The transporting medic's chart will include all times.
- **First Resp:** The first paramedic unit on scene
- **Other Resp.:** The second paramedic unit on scene.
- **Other Provider:** BLS agencies (CHP, dog catcher, etc.) along with Calstar, law, etc.

#### **Event, History and Vitals Information Screen**

This section contains patient data reflecting the **first** clinical evaluation of the patient. With regards patient status, a determined or pronounced patient is a status 5 patient. A complete explanation of patient status levels can be found in Policy 1090.

## Head To Toe Exam Screen

Reflects the first head-to-toe exam of the patient.

- **WNL** – Must have qualifiers to say why the body system was within normal limits.
- **Abnormal** – Must have qualifiers to say why it was abnormal.
- **No Exam** – May be used without qualifiers; however, notation should be made as to why important, pertinent parts of the exam were omitted, if indeed they were.

## Disposition / Treatment Information Screen

**Disp.:** Names the actual agency transporting the patient.

**Narrative:** The narrative should include the subjective history of the present illness or injury. It should start by commenting about what the scene looked like upon the medic's arrival:

“Arrived to find patient in care of PD, c/o lacerations to face. Per PD, patient...”

“Arrived to find patient in care of AMR, with CPR in progress.”

The narrative may include mnemonics (PQRST, PASTMEDS, etc) along with associated review of systems (additional symptoms that patient is complaining of).

The narrative should not include lengthy information about patient treatment and treatment response. This should be included in the treatment section.

### **Treatment Record:**

- First line should always be “assessment,” whether this indicates assessment of the scene or of the patient. The first arriving medic should write in the comments section what he/she saw on arrival. The second arriving medic should write that the patient was in the care of the first-in medic, and the care being rendered.
- When a skill is attempted, separate successful from unsuccessful attempts on different lines. If you are unsuccessful, indicate why in the comments section.
- If you consider a treatment but don't actually do it (intubation, etc.), write “O” (for considered) under “attempt,” and then explain in the comments section.
- For IV attempts/fluids – document attempt, size of catheter, whether you were successful/unsuccessful, and then for “amount “ indicate the infusion rate – “TKO”, “W/O”, “125cc/hour.” In your comments section also include evidence that the IV was patent.
- The last line of the treatment section should include your comments documenting your patient's status either at the hospital or when AMR transported without you (for fire folks not transporting), or prior to leaving the patient who has AMAed. Include qualifiers such as “mild” “moderate” “severe” or use the 1 – 5 status numbering system. This line should also include total amount of IV fluid infused, and any pertinent changes in the patient's status not previously mentioned.





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EMERGENCY MEDICAL  
SERVICES PROGRAM

Policy No. 4110  
Reviewed 01/07

### Emergency Medical Services Program

Approved

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Medical Director

Subject: APPROVED ABBREVIATIONS

#### AMR/EMSIA Approved Abbreviations

<	less than
>	greater than
@	at
A.Fib	atrial fibrillation
abd	abdomen
A/O, A and O	alert and orientated
ALOC	altered level of consciousness
AM	before noon; time should be expressed in 24 h format
AMA	against medical advice
Approx.	approximately
ASA	acetylsalicylic acid, aspirin
ASAP	as soon as possible
auto	automobile

BG chem	blood glucose level
BM	bowel movement
BP	blood pressure
bpm	beats per minute
BSA	body surface area
BVM	bag valve mask
C/C	chief complaint
C/o	complaint of
C/P	chest pain
CA	cancer
CAD	coronary artery disease
CBL, clear bilat.	Clear bilaterally
CCU	coronary care unit
CHF	congestive heart failure
CNS	central nervous system
con't	continued
COPD	chronic obstructive pulmonary disease
CPR	cardiopulmonary resuscitation
CRIC	needle cricothyroidotomy
CT	Computerized tomography
CVA	cerebral vascular accident
DC, d/c	discontinue
DOD	Doctor's On Duty
DH	Dominican Hospital
dl	deciliter
DOE	dyspnea on exertion
DX	diagnosis

ECG	electrocardiogram
ED	Emergency Department
EKG	electrocardiogram
EMT-D	provider of BLS service and the ALS service automated defibrillation
EMT	provider of BLS service only
EMT-P	EMT-Paramedic, provider of BLS and ALS level of services; also MICP, Mobile Intensive Care Paramedic
epi	epinephrine
ET	endotracheal
ETA	estimated time of arrival
ETI	endotracheal intubation
ETOH	alcohol
exam	examination
f/u	follow-up
fx	fracture
GCS	Glasgow Coma Scale
GI	gastrointestinal
Gm	gram
GSW	gunshot wound
Gtt	drop
GYN	gynecological
H&P	history and physical
H <sub>2</sub> O	water
HA	headache
HazMat	Hazardous Material
HCTZ	hydrochlorothiazide
HR	heart rate
HTN	hypertension

Hx	history
ICU	intensive care unit
IM	intramuscular
IN	Intranasal
IO	intraosseous
IV	intravenous
IVP	intravenous push
JVD	jugular venous distension
Kg	kilogram
Lpm	liter per minute
Lac.	laceration
LLQ	left lower quadrant
LMP	last menstrual period
LTD	King Laryngeal Tube
LOC	loss of consciousness
LS	lung sounds
LUQ	left upper quadrant
m/o	month old
MAE	moves all extremities
MCA	motorcycle accident
mcg	microgram
MCL	mid-clavicular line
mEq	milliequivalent
mg	milligram
MI	myocardial infarction
MICN	Mobile Intensive Care Nurse; also ARN, Authorized Registered Nurse
ml	milliliter

MVA	motor vehicle accident
N/V	nausea and vomiting
NaCL	Sodium Chloride
NAD	no apparent distress
NC	nasal cannula
neuro	neurological
NKDA	no known drug allergies
NPA	nasopharyngeal airway
NRB	Non-rebreather mask
NS	normal saline
NSR	normal sinus rhythm
NTG	nitroglycerine
O <sub>2</sub>	oxygen
OB	obstetrics
OD	overdose
OPA	oropharyngeal airway
PTA	prior to arrival
pre	before
post	after
PAC	premature atrial contraction
PASTE	Provocation/Associated Chest Pain/Severity-Sputum/Time/Exercise Tolerance
PASTMEDS	Provocation/Associated Chest Pain/Severity/Time/Medications/Exercise Tolerance/Diagnoses/Sputum
PCN	penicillin
PE	physical examination
PEA	pulseless electrical activity
ped	pedestrian
pedi	pediatric

PERRL	pupils equal, round, reactive to light
PM	afternoon, time should be expressed in 24 h format
PMD	primary (private) physician
PND	paroxysmal nocturnal dyspnea, difficulty breathing that awakens the patient from sleep or prevents sleep
PO	by mouth
POV	privately owned vehicle
post-op	post operative
PQRST	Provocation/Quality/Region-Radiation/Severity/Time
PR	per rectum
PRN	as needed
Pt	patient
PVC	premature ventricular contraction
RR	Respiratory rate
RAS	released at scene
Resp.	respiratory
RLQ	right lower quadrant
RMC	Regional Medical Center, San Jose
ROM	range of motion
RUQ	right upper quadrant
Rx	prescription
s/p	status post
s/s	signs and symptoms
SC	subcutaneous
SCMC	Santa Cruz Medical Clinic
SL	sublingual
SUMC	Stanford University Medical Center
SOB	shortness of breath, equivalent to dyspnea

ST	sinus tachycardia
stat	immediately
SQ	subcutaneous
SVT	supraventricular tachycardia
SX	symptom
Temp.	temperature
TB	tuberculosis
TIA	transient ischemia attack
TKO	to keep open
TOC	Transfer of care form
Tx	treatment
VMC	Santa Clara Valley Medical Center
V-tach	ventricular tachycardia
Vag.	vaginal
VS	vital signs
WCH	Watsonville Community Hospital
WNL	within normal limits
w/o	wide open
y/o	year old



# County of Santa Cruz

## HEALTH SERVICES AGENCY

POST OFFICE BOX 962, 1080 EMELINE AVENUE SANTA CRUZ, CA 95061-0962

(831) 454-4120 FAX: (831) 454-4272 TDD: (831) 454-4123

EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4200**  
**Reviewed 4/2009**

### **Emergency Medical Services Program**

Approved

**Medical Director**

**Subject: Mass Casualty Incident**

#### I. Definition

Calls and incidents occur in any EMS system that, due to their size, complexity, and number of patients, may overwhelm the resources available for a typical EMS response. Any incident which significantly overwhelms the day-to-day emergency medical response system may be deemed a Mass Casualty Incident (MCI). Neither this policy, nor the Santa Cruz County Mass Casualty Plan that it references, is designed to accommodate a Countywide, ongoing disaster.

#### II. Authority and References

MCI organization is based on the latest version of the Santa Cruz County Multiple Casualty Incident Plan which is Attachment No. 8 to the Health Services Agency's Annex to the Santa Cruz County Emergency Plan. The Plan complies with the State of California Standard Emergency Management System (SEMS) as well as the principles and practices of standard Incident Command System (ICS) and the Simple Triage And Rapid Treatment (START) method of triage.

References: Operational System Description ICS 420-1, Incident Command System Publication. SEMS Guidelines, State of California Publication, Governor's Office of Emergency Services, 2006

#### III. Applicability

The MCI Plan is applicable to ALL emergency responders and to ALL governmental and non-governmental medical support services in Santa Cruz County.

#### IV. Scope and Activation

- A. An MCI may be declared when an incident overwhelms the initial responder's human resources and/or equipment.
- B. An MCI may be declared by any fire, law enforcement, or EMS personnel.



- C. When an MCI is declared, NetCom will be immediately notified so that appropriate incident organization may be established and appropriate resources activated.
- D. MCIs in Santa Cruz County will be managed using the guidelines established in the Santa Cruz County Mass Casualty Incident Plan. These will include using the precepts of the Incident Command System, Unified Command, and START Triage.
- E. In managing an MCI, it is understood that certain Santa Cruz County EMS policies and protocols may need to be modified in order to meet the needs of any particular incident. This may include field screening treatment and release of minor injured individuals, discontinuation of dual response by both first responders and ambulances, alternate patient transport modes or destinations as well as alternate patient field dispositions, among other things. At no time will any responder to an MCI work outside his/her scope of practice or outside an acceptable standard of care for the circumstances presented at the incident.
- F. When deviations in County EMS policies or protocols occur, they will be thoroughly documented. In addition, when necessary, Base Station contact will be made to advise the Base Station Physician of these changes, and to seek Base Station guidance. In all situations where the Incident Commander has modified or suspended specific Policies or Protocols an After Action Report will be submitted to the EMS Medical Director documenting the action.



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EMERGENCY MEDICAL  
SERVICES PROGRAM

Policy No. 4300  
Reviewed 04/01/2010

### Emergency Medical Services Program

Approved

Medical Director

Subject: EMERGENCY WORKER REHABILITATION

#### I. Overview

Emergency responder rehabilitation is designed to ensure the physical and mental well being of members operating at the scene of an emergency. Emergency responder rehabilitation is an essential element at the incident scene designed to prevent serious and life-threatening conditions such as heat stroke and heart attack. Fire ground rehab is the term used for the care given to emergency workers while performing their duties at an emergency scene. It includes monitoring vital signs, hydrating and nourishing responders, and identifying those responders who may safely return to the line, or who may need additional rehab time or further medical care.

#### II. Policy

- A. Emergency worker rehabilitation shall be activated in any emergency operation or training exercise where strenuous activity or exposure to environmental extremes exist.
- B. This policy is guided by the Santa Cruz County Fire Chief's Association Policy 3212, "Medical Management of Fire Fighter Rehabilitation."
- C. Rehabilitation will be coordinated through the structure and chain of command/accountability stipulated by the Incident Command System.
- D. Rehabilitation may be coordinated and administered by any EMT or paramedic so designated by the Incident Commander, and may include the use of all personnel qualified to perform their respective rehab assignments.

#### III. Oversight

County EMS has ultimate oversight authority over the clinical evaluation algorithm used in this policy, and will intermittently review it and make recommendations to the County Fire Chief's Association as warranted.



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EMERGENCY MEDICAL  
SERVICES PROGRAM

**Policy No. 4500**  
**Reviewed 9/2009**

### UC Fire Department Influenza Response Procedure

Approved

**Medical Director**

#### **I. PURPOSE**

To allow UC Fire personnel to determine if UCSC students presenting with suspected influenza-like illness (ILI) symptoms can safely remain on campus to manage their illness rather than being transported to local emergency departments.

#### **II. BACKGROUND**

UC Santa Cruz houses well over 8,000 students on campus. Should novel or seasonal influenza infect large numbers of students, the resultant rush of students to local emergency departments could potentially place a huge strain on local EMS resources. The focus of this procedure is to allow UC Fire Department personnel to respond to, and evaluate, students with ILI symptoms to determine if they truly need an EMS transport response and medical intervention, or if they can safely self isolate in their dorm rooms and weather their mild illness with the help of housing personnel and fellow students. This self-isolation will also serve to reduce the spread of influenza to the rest of the UCSC community and the City of Santa Cruz.

#### **III. CRITERIA FOR DETERMINING PRESENCE OF INFLUENZA-LIKE ILLNESS (ILI)**

1. Documented presence of influenza in the community.
2. Presence of fever  $> 100.4^{\circ}$  F and cough
3. Other symptoms may include:
  - a. Runny nose
  - b. Sore throat
  - c. Body aches
  - d. Sweating
  - e. Malaise
  - f. Vomiting and/or diarrhea

#### **IV. CRITERIA FOR IMMEDIATE MEDICAL EVALUATION BY A HEALTH CARE PROVIDER**

If the following conditions exist in addition to ILI symptoms, UC Fire responders will recommend that a health care provider evaluate the patient. If the patient wishes to be transported by ambulance, or displays any priority symptoms, personnel will request an ambulance through normal dispatching procedures.

1. Priority symptoms – shortness of breath, substantially altered vital signs, significant weakness, unrelenting vomiting or diarrhea, signs of dehydration, fever unrelieved by fever medications, severe headache or neck pain, painful urination, significant abdominal pain, chest pain, significant dizziness, altered mentation, other signs of severe illness.
2. Presence of chronic medical problems, including diabetes, respiratory disease, immunosuppression (due to diseases, chemotherapy, etc.), kidney disease, etc.
3. The patient is pregnant.

#### **V. CRITERIA FOR SELF-ISOLATING AND CONTINUING SELF CARE ON CAMPUS**

1. Patient has ILI symptoms.
2. Conditions in Section IV above are not present.
3. Patient wants to remain in on-campus housing during his/her illness.
4. Patient is able to care for him or herself – able to take liquids and food, shower, etc.
5. Patient has access to fever reducing medications; plenty of liquids and other home care essentials.
6. Patient may be regularly checked throughout the day by housing officials, dorm mates, or other personnel. Patient has access to 911 activation should this be needed.

#### **VI. PROCEDURE FOR LEAVING THE ILI PATIENT IN ON-CAMPUS HOUSING**

1. Leave influenza self care fact sheet with patient.
2. Confirm with housing personnel and dorm mates that the patient will be checked on a regular basis.
3. Review steps the patient can take to reduce transmission to other people in the dorm/apartment.
4. Confirm that the patient has all needed supplies for self-care, and if not, how these might be obtained.
5. Advise the patient to rest, stay hydrated, and take fever-reducing medications.
6. Confirm that the patient and other caregivers have a plan should the patient's condition worsen, including calling 911 as needed.
7. Advise the patient that he/she is contagious until at least 24 hours after the resolution of fever without the aid of fever-reducing medications.
8. Responder should fill out a Santa Cruz County EMS Release at Scene form, and have the patient and witnesses sign as indicated. In addition, UC FD personnel will maintain a brief record of all responses, including the patient's name and phone number, date, time, call location, and status of the patient in brief.

9. Responder will report all suspected ILI cases to Cowell Health Center for record keeping purposes. UC  
FD will report the number of patients contacted under this policy to the EMS Agency at least weekly.

## **VII. ENACTMENT OF THIS PROCEDURE**

County EMS reserves the right to enact, or rescind, this policy at any time, and will coordinate this decision-making process with UCSC FD personnel, UCSC Health Center staff, the EMS transport provider, and other relevant responding agencies.