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## STROKE “NSRC” RECEIVING CENTERS (San Bernardino County Only)

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### I. PURPOSE

To provide developing guidelines to rapidly transport stroke patients who access the 9-1-1 system to a designated Neurovascular Stroke Receiving Center (NSRC) when indicated. Patients transported to NSRC will benefit from rapid assessment, intervention and treatment at a dedicated stroke specialty center. Patients will meet the defined criteria for triage as an acute ischemic or hemorrhagic cerebral vascular event.

### II. DEFINITIONS

**Interventional Neuroradiologic Capabilities:** Facilities with qualified interventional radiologists and/or neurosurgeons able to administer inter-arterial tissue plasminogen activator and/or perform mechanical clot retrieval.

**mLAPSS:** Modified Los Angeles County Prehospital Stroke Screening Scale.

**Neurovascular Stroke Base Station(s):** Facilities that have TJC or HFAP Primary Stroke Center accreditation that also function as a Paramedic Base Station.

**Neurovascular Stroke Receiving Centers (NSRC):** ICEMA designated Level I or Level II receiving hospital for patients triaged as having a cerebral vascular event requiring hospitalization for treatment, evaluation and/or management of this event.

**Neurovascular Stroke Referral Hospital(s) (NSRH):** General acute care hospitals that refer possible stroke patients to NSRC.

**NSRC Level I (NSRC-I):** A twenty-four (24) hours per day, seven (7) days per week acute care hospital that has successfully completed and maintains The Joint Commission (TJC) or Healthcare Facilities Accreditation Program (HFAP) accreditation as a Primary Stroke Center, **has interventional neuroradiologic and neurosurgical capabilities** and enters into a memorandum of understanding with ICEMA relative to being a Stroke Center.

**NSRC Level II (NSRC-II):** A twenty-four (24) hours per day, seven (7) days per week acute care hospital that has successfully completed and maintains The Joint Commission (TJC) or Healthcare Facilities Accreditation Program (HFAP) accreditation as a Primary Stroke Center and enters into a memorandum of understanding with ICEMA relative to being a Stroke Center.

### III. POLICY

The following requirements must be met for a hospital to be an ICEMA designated NSRC-I or NSRC-II:

- An ICEMA approved paramedic receiving hospital which is a full service acute care facility.
- Accreditation as a Primary Stroke Center by TJC or HFAP and proof of re-accreditation every two (2) years.
- A facility alert system for incoming stroke patients available twenty-four (24) hours per day, seven (7) days per week (i.e., in-house paging system).
- Provide continuous education (CE) opportunities for NSRC, NSRH and emergency medical services (EMS) field personnel in areas of pathophysiology, assessment, triage and management for stroke patients and report annually to ICEMA.
- Lead public stroke education efforts at the appropriate educational level and report annually to ICEMA.

### IV. STAFFING REQUIREMENTS

The hospital will have the following positions filled prior to becoming a NSRC-I or NSRC-II:

- Medical Directors

The hospital shall designate two (2) physicians with hospital privileges as co-directors of its NSRC program. One (1) physician shall be Board-certified or Board-eligible by the American Board of Medical Specialties or American Osteopathic Association, neurology or neurosurgery board. The co-director shall be a Board-certified or Board-eligible emergency medicine physician.

- Nursing Coordinator

The hospital shall designate a NSRC Nursing Coordinator who has experience in critical care or emergency nursing, and who has advanced education in stroke physiology or at least has two (2) years' dedicated stroke patient management experience. Certification in critical care or emergency nursing is preferred.

- On-Call Physicians Specialists/Consultants

A daily roster of the following on-call physician consultants and staff must be promptly available within thirty (30) minutes of notification of “Stroke Alert” twenty-four (24) hours per day, seven (7) days per week.

- Radiologist experienced in neuroradiologic interpretations.
- On-call Neurologist and /or tele-neurology services available twenty-four (24) hours per day; seven (7) days per week.
- Additional requirements for:

<b>NSRC-I</b>
<ul style="list-style-type: none"><li>• Interventional neuroradiologist or Interventional vascular neurosurgeon and an angiogram suite available twenty-four (24) hours per day; seven (7) days per week.</li><li>• Neurosurgeon available twenty-four (24) hours per day; seven (7) days per week.</li></ul>



<b>NSRC-II:</b>
<ul style="list-style-type: none"><li>• If neurosurgical services are not available in-house, the facility must have a rapid transfer agreement in place with a facility that provides this service. The agreement must be on file with the ICEMA. NSRC-Is must promptly accept rapid transfer requests from NSRC-IIs. Additionally, the facility must have a rapid transport agreement in place with an ICEMA permitted transport agency for that EOA.</li></ul>



## V. INTERNAL HOSPITAL POLICIES

The hospital shall develop internal policies for the following situations:

- Stroke Team alert response policy upon EMS notification of a “Stroke Alert”.
- Rapid assessment of stroke patient by Emergency and Neurology teams.
- Prioritization of ancillary services including laboratory and pharmacy with notification of “Stroke Alert”.
- Arrangement for priority bed availability in Acute Stroke Unit or Intensive Care Unit (ICU) for “Stroke Alert” patients.

Acknowledges that stroke patients may **only** be diverted during the times of Internal Disaster in accordance to ICEMA Reference #8060 - Requests for Hospital Diversion, (applies to physical plant breakdown threatening significant patient services or immediate patient safety issues i.e. bomb threat, earthquake damage, hazardous material or safety and security of the facility.) A written notification describing the event must be submitted to ICEMA within twenty-four (24) hours.

- Additional requirements for:

<b>NSRC-I</b>
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| <ul style="list-style-type: none"><li>• Emergent thrombolytic and mechanical therapy protocol to be used by Neurology, Emergency, Pharmacy, Interventional and Critical Care teams.</li><li>• Maintaining readiness of diagnostic computed tomography (CT), magnetic resonance imaging (MRI) and therapeutic resources such as an interventional suite upon notification of Stroke Team.</li><li>• Prompt acceptance of stroke patients from any NSRH as well as referral from NSRC-II to NSRC-I when interventional skills are required.</li></ul> |
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<b>NSRC-II</b>
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| <ul style="list-style-type: none"><li>• Emergent thrombolytic and tele-neurology (if waiver is approved) protocol to be used by Neurology, Emergency, Pharmacy and Critical Care teams.</li><li>• Maintaining readiness of diagnostic computed tomography (CT) and magnetic resonance imaging (MRI), upon notification of Stroke Team.</li></ul> |
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## **VI. DATA COLLECTION**

Data will be reported to the ICEMA Medical Director on a monthly basis using an ICEMA approved registry.

## **VII. CONTINUOUS QUALITY IMPROVEMENT PROGRAM**

NSRC shall develop an on-going CQI program which monitors all aspects of treatment and management of stroke patients and identifies areas needing improvement. At a minimum, the program will monitor the following parameters:

- Morbidity and mortality related to procedural complications.

- Tracking door to intervention times and adherence to minimum performance standards.

ICEMA will determine current performance indicators. Any specific or additional performance indicators will be determined in collaboration with the Stroke CQI Committee.

- Active participation in ICEMA Stroke CQI Committee activities.

## **VIII. PERFORMANCE STANDARDS**

Compliance with the American Stroke Association Performance Measures as a Primary Stroke Center.

## **IX. DESIGNATION**

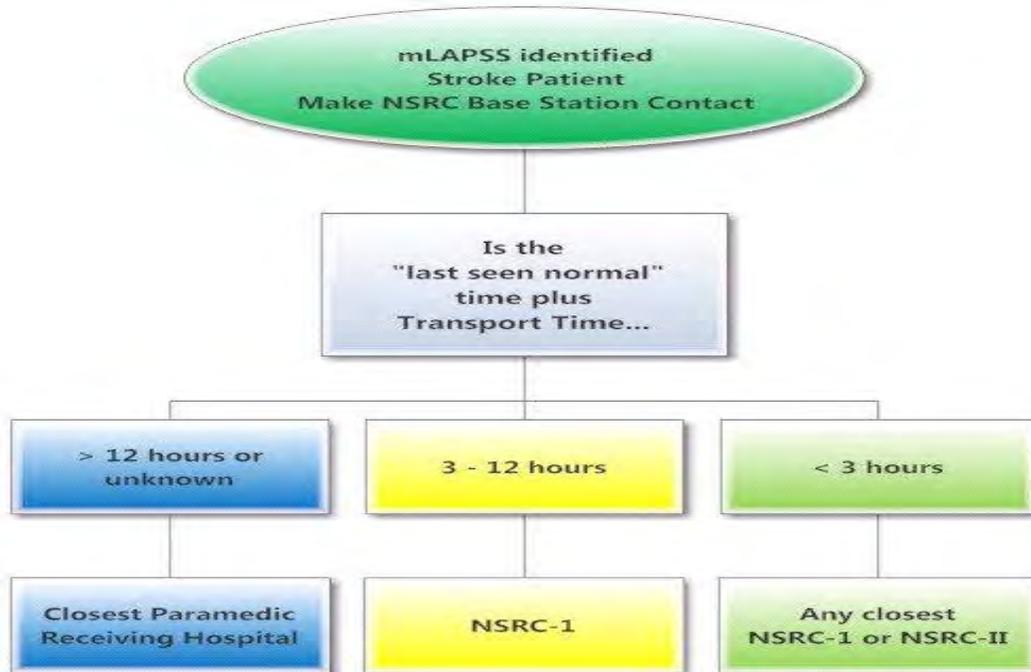
- The NSRC applicant shall be designated by ICEMA after satisfactory review of written documentation, a potential site survey and completion of an agreement between the hospital and ICEMA.
- Documentation of current accreditation as a Primary Stroke Center by TJC or HFAP shall be accepted in lieu of a formal site visit by ICEMA. NSRC-I shall submit Primary Stroke Center accreditation as well as supplemental documentation verifying neurovascular interventional service capabilities.
- Initial designation as a NSRC shall be for a period of two (2) years. Thereafter, redesignation shall occur every two (2) years contingent upon satisfactory review.
- Failure to comply with the agreement, criteria and performance standards outlined in this policy may result in probation, suspension or rescission of the NSRC designation.

## **X. PATIENT DESTINATION**

- A. The NSRC should be considered as the destination of choice if all of the following criteria are met:
- Stroke patients eligible for transport to NSRC (identified stroke patients) will be identified using the mLAPSS triage criteria.
  - Identified acute stroke patients with "last seen normal" time plus transport time equaling greater than twelve (12) hours, or if "last seen normal" time is unknown, transport to the closest paramedic receiving hospital.

- Identified stroke patients with “last seen normal” time plus transport time between three (3) to twelve (12) hours will be transported to NSRC-I.
  - Identified stroke patients with “last seen normal” time plus transport time less than (3) hours will be transported to any closest NSRC-I or NSRC-II.
  - NSRC Base Station contact is **mandatory** for all patients identified as a possible stroke patient.
  - The NSRC Base Station is the only authority that can direct a patient to a NSRC. The destination may be changed at NSRC Base Station discretion.
  - The NSRC Base Station, if different from the NSRC will notify the NSRC of the patient’s pending arrival as soon as possible, to allow timely notification of Stroke Team.
  - Air transport may be considered if ground transport is greater than thirty (30) minutes.
- B. The following factors should be considered in determining choice of destination for acute stroke patients. NSRC Base Station contact and consultation is mandatory in these situations:
- Patients with unmanageable airway, unstable cardiopulmonary condition or in cardiopulmonary arrest should be transported to the closest paramedic receiving hospital.
  - Patients with obvious contraindication to thrombolytic therapy should be strongly considered for transport to closest NSRC-I.
  - Patients with hemodynamic instability and exhibiting signs of inadequate tissue perfusion should be transported to the closest paramedic receiving hospital.

### XI. STROKE PATIENT DESTINATION DECISION TREE





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## MEDICATION - STANDARD ORDERS

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### **Adenosine (Adenocard) - Adult (ALS)**

*Stable narrow-complex SVT or Wide complex tachycardia:*

Adenosine, 6 mg rapid IVP followed immediately by 20 cc NS bolus, and  
Adenosine, 12 mg rapid IVP followed immediately by 20 cc NS bolus if patient  
does not convert. May repeat one (1) time.

*Reference #s 7010, 7020, 11050*

### **Albuterol Aerosolized Solution (Proventil) - Adult (LALS, ALS)**

Albuterol nebulized, 2.5 mg, may repeat two (2) times.

*Reference #s 6090, 7010, 7020, 11010, 11100, 14030*

### **Albuterol Metered-Dose Inhaler (MDI) (Proventil) - Specialty Programs Only Adult (LALS, ALS)**

Albuterol MDI, four (4) puffs every ten (10) minutes for continued shortness of  
breath and wheezing.

*Reference #s 6090, 6110, Sheriff's Search and Rescue*

### **Albuterol - Pediatric (LALS, ALS)**

Albuterol nebulized, 2.5 mg, may repeat two (2) times.

*Reference #s 7010, 7020, 14010, 14030, and 14070*

### **Aspirin, chewable (LALS, ALS)**

Aspirin, 325 mg PO chewed (one (1) adult non-enteric coated aspirin) or four (4)  
chewable children's aspirin

*Reference #s 2020, 6090, 6110, 7010, 7020, 11060*

### **Atropine (ALS)**

Atropine, 0.5 mg IVP. May repeat every five (5) minutes up to a maximum of 3 mg  
or 0.04 mg/kg

*Organophosphate poisoning:*

Atropine, 2 mg IVP, repeat at 2 mg increments if patient remains symptomatic

*Reference #s 6090, 6110, 7010, 7020, 11040, 12020, 13010*

**Calcium Chloride (ALS)**

*Calcium Channel Blocker Poisonings:*

Calcium Chloride, 1 gm (10 cc of a 10% solution) Base Station Only

*Reference #s 2020, 7010, 7020, 13010*

**Dextrose - Adult (LALS, ALS)**

Dextrose 50% 25 gm IV/IO of 50%

*Reference #s 2020, 6090, 6110, 7010, 7020, 8010, 11050, 11070, 11080, 13020, 13030*

**Dextrose - Pediatric (LALS, ALS)**

For neonates (0 - 4 weeks), if blood glucose < 35 mg/dL:

Dextrose 25% (0.25 gm/ml) Diluted 1:1, give 0.5 gm/kg (4 ml/kg) IV/IO

For patient < 10 kg and > 4 weeks, if blood glucose < 60 mg/dL:

Dextrose 25% (0.25 gm/ml), give 0.5 gm/kg (2 ml/kg) IV/IO

For patient > 10 kg and < 25kg, if glucose less than 60 mg/dL:

Dextrose 50% (0.5 gm/mL) Diluted 1:1, give 0.5 gm/kg (2 ml/kg) IV/IO

For patient > 25 kg, if glucose less than 80 mg/dL:

Dextrose 50% (0.5 gm/mL) Diluted 1:1, give 0.5 gm/kg (2 ml/kg) IV/IO

*Reference #s 2020, 7010, 7020, 13020, 13030, 14040, 14050, 14060*

**Diphenhydramine - Adult (ALS)**

Diphenhydramine, 25 mg IV/IO

Diphenhydramine, 50 mg IM

*Reference #s 6090, 6110, 7010, 7020, 11010, 13010*

**Diphenhydramine - Pediatric (ALS)**

Diphenhydramine, 1 mg/kg slow IV/IO, not to exceed adult dose of 25 mg, or

Diphenhydramine, 2 mg/kg IM not to exceed adult dose of 50 mg IM

*Reference #s 7010, 7020, 14030*

**Dopamine - Adult (ALS)**

Dopamine, infusion of 400 mg in 250 ml of NS, titrated between 5 - 20 mcg/kg/min to sustain a systolic blood pressure greater than 90 mmHG for signs of inadequate tissue perfusion/shock.

*Reference #s 7010, 7020, 8010, 8040, 10140, 11070, 11090, 14080*

**Dopamine - Pediatric (ALS)**

*Post resuscitation continued signs of inadequate tissue perfusion:*

9 to 14 years                      Dopamine, 400 mg in 250 ml of NS to infuse at 5 - 20 mcg/kg/min IV titrated to maintain signs of adequate tissue perfusion

*Reference #s 7010, 7020, 14040*

**Epinephrine (1:1000) - Adult (LALS, ALS)**

Epinephrine, 0.03 mg SC

*Cardiac Arrest, Asystole, PEA:*

Epinephrine, 1 mg IV/IO, or

*Reference #s 2020, 6090, 6110, 7010, 7020, 11010, 11070, 12020*

**Epinephrine (1:1000) - Pediatric (LALS, ALS)**

*Allergic Reactions:*

Epinephrine, 0.01 mg/kg SC not to exceed adult dosage of 0.3 mg

*Reference #s 2020, 6090, 7010, 7020, 11010, 14010, 14030*

**Epinephrine (1:10,000) - Pediatric (LALS, ALS)**

*Anaphylactic Shock (no palpable radial pulse and depressed level of consciousness):*

Epinephrine (1:10,000), 0.01 mg/kg IV/IO, no more than 0.1 mg per dose. May repeat to a maximum of 0.5 mg.

*Cardiac Arrest:*

1 day to 8 years                      Epinephrine (1:10,000), 0.01 mg/kg IO/IV (do not exceed adult dosage)

9 to 14 years                          Epinephrine (1:10,000), 1.0 mg IV/IO

*Post resuscitation continued signs of inadequate tissue perfusion:*

1 day to 8 years                      Epinephrine (1:10,000), 0.5 mcg/kg/min IV drip

*Reference #s 2020, 7010, 7020, 14030, 14040, 14090*

**Glucose - Oral - Adult (BLS, LALS, ALS)**

Glucose - Oral, one (1) tube for patients with an intact gag reflex and hypoglycemia.

*Reference #s 7010, 7020, 11080, 11090, 11110, 13020*

**Glucose - Oral - Pediatric (BLS, LALS, ALS)**

Glucose - Oral, one (1) tube for patients with an intact gag reflex and hypoglycemia.

*Reference #s 7010, 7020, 14050, 14060*

**Glucagon - Adult (LALS, ALS)**

Glucagon, 1 mg IM/SC/IN, if unable to establish IV. May give one (1) time only.

*Betablocker Poisoning:*

Glucagon, 1 mg IVP Base Station Only

*Reference #s 6090, 6110, 7010, 7020, 11080, 13010, 13030*

**Glucagon - Pediatric (LALS, ALS)**

Glucagon, 0.025 mg/kg IM/IN, if unable to start an IV. May be repeated one (1) time after twenty (20) minutes for a combined maximum dose of 1 mg.

*Reference #s 7010, 7020, 13030, 14050, 14060*

**Ipratropium Bromide Inhalation Solution (Atrovent) - Adult (ALS) use with Albuterol**

Atrovent, 0.5 mg

*Reference #s 7010, 7020, 11010, 11100*

**Ipratropium Bromide Metered-Dose Inhaler (MDI) (Atrovent) - Specialty Programs Only Adult (ALS) use with Albuterol**

Atrovent MDI, four (4) puffs every ten (10) minutes for continued shortness of breath and wheezing.

*Reference #s 6090, 6110, 7010, 7020*

**Ipratropium Bromide Inhalation Solution (Atrovent) - Pediatric (ALS) use with Albuterol**

1 day to 12 months    Atrovent, 0.25 mg  
1 year to 14 years     Atrovent, 0.5 mg

*Reference #s 7010, 7020, 14010, 14030, 14070*

**Lidocaine - Adult (ALS)**

*Intubation, King Airway, NG/OG, for suspected brain injury:*

Lidocaine, 1.5 mg/kg IV

*VT/VF:*

Lidocaine, 1.5 mg/kg

Repeat 0.75 mg/kg every five (5) to ten (10) minutes; maximum total dose of 3 mg/kg

*Refractory VF:*

Lidocaine, 0.75 mg/kg IV, repeat in five (5) to ten (10) minutes; maximum three (3) doses or total of 3 mg/kg

*VT/VF Infusion:*

Lidocaine, 1 - 4 mg /min (30 - 50 mcg/kg /min)

*V-Tach, Wide Complex Tachycardias:*

Lidocaine, 1 mg/kg slow IV, repeat at 0.5 mg/kg every ten (10) minutes until maximum dose of 3 mg/kg given.

Initiate infusion of Lidocaine 2 mg /min.

*Reference #s 2020, 6090, 7010, 7020, 8010, 8040, 10030, 10080, 11050, 11070, 15010*

**Lidocaine - Pediatric (ALS)**

*Intubation, King Airway, NG/OG, for suspected brain injury:*

Lidocaine, 1.5 mg/kg IV

*Cardiac Arrest:*

1 day to 8 years        Lidocaine, 1.0 mg/kg IV/IO

9 to 14 years         Lidocaine, 1.0 mg/kg IV/IO

May repeat Lidocaine at 0.5 mg/kg after five (5) minutes up to total of 3.0 mg/kg.

*Reference #s 2020, 7010, 7020, 14040*

**Lidocaine 2%**

*Pain associated with IO insertion:*

Lidocaine 2%, 0.5 mg/kg slow IO push not to exceed 50 mg total.

*Reference #s 2020, 7010, 7020, 10140*

**Magnesium Sulfate (ALS)**

*Polymorphic Ventricular Tachycardia:*

Magnesium Sulfate, 2gm in 100 ml of NS over five (5) minutes for polymorphic VT if prolonged QT is observed during sinus rhythm post-cardioversion.

*Eclampsia (Seizure/Tonic/Clonic Activity):*

Magnesium Sulfate, 4 gm diluted with 20 ml NS, IV/IO slow IV push over three (3) to four (4) minutes.

Magnesium Sulfate 2 gm in 100 cc of NS at 30 cc per hour IV/IO to prevent continued seizures.

*Reference #s 2020, 7010, 7020, 8010, 14080*

**Midazolam - Adult (ALS)**

*Seizure:*

Midazolam, 2.5 mg IN/IV/IO. May repeat in five (5) minutes for continued seizure activity, or

Midazolam, 5 mg IM. May repeat in ten (10) minutes for continued seizure activity.

Assess patient for medication related reduced respiratory rate or hypotension.

Maximum of three (3) doses using any combination of IM/IN/IV/IO may be given for continued seizure activity. Contact Base Station for additional orders and to discuss further treatment options.

*Pacing, synchronized cardioversion:*

Midazolam 2 mg slow IV push IV/IN

*Reference #s 6090, 6110, 7010, 7020, 10110, 10120, 11080, 13020, 14080*

**Midazolam - Pediatric (ALS)**

*Seizures:*

Midazolam 0.1 mg/kg IV/IO with maximum dose 2.5 mg. May repeat Midazolam in five (5) minutes. Do not to exceed adult dosage, or

Midazolam 0.2 mg/kg IM/IN with maximum dose of 5 mg. May repeat Midazolam in ten (10) minutes for continued seizure. Do not to exceed adult dosage. IN dosage of Midazolam is doubled due to decreased surface area of nasal mucosa resulting in decreased absorption of medication.

Assess patient for medication related reduced respiratory rate or hypotension.

Maximum of three (3) doses using any combination of IM/IN/IV/IO may be given for continued seizure activity. Contact Base Station for additional orders and to discuss further treatment options.

*Reference #s 7010, 7020, 14060*

### **Morphine Sulfate - Adult (ALS)**

Morphine Sulfate, 2 mg IV. May repeat in 2 mg increments every three (3) minutes, not to exceed 10 mg IV.

#### *Isolated Extremity Trauma, Burns:*

Morphine Sulfate, 5 mg IV. May repeat every five (5) minutes to a maximum of 20 mg for adequate tissue perfusion, or

Morphine Sulfate, 10 mg IM.

#### *Pacing, synchronized cardioversion:*

Morphine Sulfate, 2 mg IV. May repeat in 2 mg increments every three (3) minutes, titrated to pain, not to exceed 10 mg IV.

*Reference #s 2020, 6090, 6110, 7010, 7020, 7030, 9120, 10110 10120, 11060, 11100, 13030, 15010*

### **Morphine Sulfate - Pediatric (ALS)**

Morphine Sulfate, 0.1 mg/kg IV not to exceed 2 mg increments, for a total of 5 mg,  
or  
Morphine Sulfate, 0.2 mg/kg IM for a total of 10 mg IM, titrated for pain relief

#### *Burns:*

Morphine Sulfate, 0.1 mg/kg IV not to exceed 5 mg increments, for a total of 20 mg, or

Morphine Sulfate, 0.2 mg/kg IM for a total of 10 mg IM, titrated for pain relief

*Reference #s 2020, 7010, 7020, 7030, 14070, 15020*

**Naloxone (Narcan) - Adult (LALS, ALS)**

*Resolution of respiratory depression related to suspected narcotic overdose:*

Naloxone. 0.5 mg IV/IM/IN may repeat Naloxone 0.5 mg IV/IM/IN every two (2) to three (3) minutes if needed.

Do not exceed 10 mg of Naloxone total regardless of route given.

*Reference #s 6110, 7010, 7020, 11070, 11080*

**Naloxone - Pediatric (LALS, ALS)**

*Resolution of respiratory depression related to suspected narcotic overdose:*

1 day to 8 years            Naloxone, 0.1 mg/kg IO/IV

9 to 14 years              Naloxone, 0.5 mg IV/IO

Do not exceed the adult dosage of 10 mg IV/IM/IN.

*Reference #s 7010, 7020, 14040, 14050*

**Nitroglycerin (LALS, ALS)**

Nitroglycerin, 0.4 mg sublingual/transmucosal

One every three (3) minutes as needed. May be repeated as long as patient continues to have signs of adequate tissue perfusion. **If a Right Ventricular Infarction is suspected, the use of nitrates requires Base Station contact.**

Nitroglycerin is contraindicated if there are signs of inadequate tissue perfusion or if sexual enhancement medications have been utilized within the past forty-eight (48) hours.

*Reference #s 6090, 6110, 7010, 7020, 11010, 11060*

**Ondansetron (Zofran) - Patients four (4) years old to Adult (ALS)**

*Nausea/Vomiting:*

Ondansetron, 4 mg slow IV/ODT

All patients four (4) to eight (8) years old: may give a total of 4mgs of Ondansetron prior to Base Station contact.

All patients nine (9) and older: may give Ondansetron 4 mg and may repeat twice, at ten (10) minute intervals, for a total of 12 mgs prior to Base Station contact.

May be used as prophylactic treatment of nausea and vomiting associated with narcotic administration.

*Reference #s 6110, 7010, 7020, 9120, 10100, 15010, 15020*

### **Phenylephrine HCL (ALS)**

Phenylephrine, 0.5 mg metered dose may be repeated once prior to additional attempt

*Reference #s 7010, 7020, 10050*

### **Procainamide (ALS)**

*SVT, V-Tach or Wide Complex Tachycardias:*

Procainamide 20 mg /min IV; may repeat until arrhythmia suppressed, symptomatic hypotension, QRS widens by more than 50% or maximum dose of 17 mg/kg given. If arrhythmia suppressed, begin infusion of 2 mg /min.

*Reference #s 7010, 7020, 8010, 8040, 11050*

### **Sodium Bicarbonate (ALS)**

*Tricyclic Poisoning:*

Sodium Bicarbonate, 1 mEq/kg IVP

*Reference #s 2020, 7010, 7020, 13010*

### **Verapamil (ALS)**

*SVT if adenosine is ineffective:*

Verapamil, 5 mg slow IV over three (3) minutes, may repeat every fifteen (15) minutes to a total dose of 20 mg

*Reference #s 7010, 7020, 11050*



## CONTINUATION OF CARE OF A STEMI PATIENT (San Bernardino County Only)

**THIS POLICY IS FOR HOSPITAL-TO-HOSPITAL STEMI TRANSPORT ONLY AND SHALL NOT BE USED FOR ANY OTHER REQUESTS FROM OTHER ENTITIES.**

### PURPOSE

To develop a system of care that is consistent with standards of achieving a door to balloon (D2B) time of less than 90 minutes. This system of care consists of STEMI Receiving Centers (SRC), STEMI Referral Hospitals (SRH), EMS field providers, ICEMA and EMS leaders combining their efforts to achieve this goal.

### INITIAL TREATMENT GOALS

Patients arriving at SRH by non-EMS:

- <30 minutes at SRH Emergency Department (ED) (door in/door out).
- ECG obtained within 10 minutes of patient arrival.
- Consider transferring all STEMI patients who are candidates for primary PCI.
- First hospital D2B < 90 minutes.

### TIMELINES

- <30 minutes at SRH (door in/door out).
- <30 minutes to complete paramedic interfacility transport.
- <30 minutes at SRC before balloon inflation.

If there are significant delays in transport to a SRC, administration of lytic agents may be considered in patients.

### PROCEDURE FOR A CONTINUATION OF CARE OF A STEMI PATIENT TO SRC

CONTACT SRC ED PHYSICIAN DIRECTLY WITHOUT CALLING FOR AN INPATIENT BED ASSIGNMENT. Refer to attachment *SRH-SRC Buddy System Table*.

- The ED physician will be the accepting physician at the SRC.
- The SRC ED physician will contact the SRC interventional cardiologist panel per SRC facility protocol. SRC ED physicians and cardiologists have agreed to accept STEMI patients at all times irrespective of payer source unless the SRC is on internal disaster diversion in accordance with ICEMA Reference #8060 - San Bernardino County Requests for Hospital Diversion Policy.

1. Simultaneously call 9-1-1 and utilize following verbiage to dispatch:

**“This is a STEMI CONTINUATION OF CARE from \_\_\_\_\_  
to \_\_\_\_\_ (Hospital)  
(STEMI Hospital)**

Dispatchers will only dispatch transporting paramedic units without any fire apparatus.

2. Consider use of air ambulance if ground transportation is > 60 minutes. Requests for air ambulance shall be made to 9-1-1 and normal dispatching procedures will be followed; however, air ambulance STEMI patients will be transported to the SRC identified by the transferring ED.
3. Assess stability of airway and breathing, and intubate those at risk for respiratory failure prior to or during transport.
4. Patient must be kept NPO.
5. Provide continuous cardiac monitoring.
6. Send all required transfer paperwork including diagnostic lab, x-ray, physician and nursing notes with the transport team. However, do not delay transfer waiting for charting or lab results; these may be faxed to SRC later.

**NOTE: CRITICAL CARE TRANSPORTS**

EMT-Ps may transport patients on Dopamine, Lidocaine and Procainamide drips only. Heparin and Integrellin drips are not within the paramedic scope of practice and require a critical care transport nurse to be in attendance. At times, SRH may consider sending one of its nurses with the transporting paramedic unit if deemed necessary due to patient's condition. Nurse staffed critical care transport units may be available; however, they are subject to availability and delays. Unless medically necessary, avoid using medication drips that are outside of the paramedic scope of practice to avoid any delays in transferring of STEMI patients. Requests of nurse staffed critical care transfers must be made directly to the ambulance transporter.

**REFERENCE**

<u>Number</u>	<u>Name</u>
8060	San Bernardino County Requests for Hospital Diversion Policy



**STEMI REFERRAL HOSPITAL (SRH) -  
STEMI RECEIVING CENTER (SRC)**

**BUDDY SYSTEM**

STEMI RECEIVING CENTER (SRC)	STEMI REFERRAL HOSPITAL (SRH)
Desert Valley Hospital	<ul style="list-style-type: none"> <li>• Barstow Community Hospital</li> <li>• Victor Valley Community Hospital</li> <li>• Weed Army Hospital at Fort Irwin</li> </ul>
Loma Linda University Medical Center	<ul style="list-style-type: none"> <li>• Arrowhead Regional Medical Center</li> <li>• Bear Valley Community Hospital</li> <li>• J. L. Pettis VA Hospital (Loma Linda VA)</li> <li>• Redlands Community Hospital</li> </ul>
Pomona Valley Hospital Medical Center	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Montclair Hospital</li> </ul>
San Antonio Community Hospital	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Kaiser Ontario</li> <li>• Montclair Hospital</li> </ul>
St. Bernadine Medical Center	<ul style="list-style-type: none"> <li>• Colorado River Medical Center</li> <li>• Community Hospital of San Bernardino</li> <li>• Kaiser Fontana</li> <li>• Mountains Community Hospital</li> </ul>
St. Mary Medical Center	<ul style="list-style-type: none"> <li>• Barstow Community Hospital</li> <li>• Bear Valley Community Hospital</li> <li>• High Desert Medical Center</li> <li>• Robert E. Bush Naval Hospital-29 Palms</li> <li>• Victor Valley Community Hospital</li> </ul>



## CONTINUATION OF TRAUMA CARE

**THIS POLICY IS FOR CONTINUATION OF TRAUMA CARE PATIENTS FROM A REFERRAL HOSPITAL (RH) TO AN ICEMA DESIGNATED TRAUMA CENTER (TC) AND CONTINUATION OF TRAUMA CARE PATIENTS BETWEEN TCs WHEN A HIGHER LEVEL OF CARE IS REQUIRED; AND SHALL NOT BE USED FOR ANY OTHER FORM OF INTERFACILITY TRANSFER OF PATIENTS.**

### PURPOSE

To support a system of trauma care that is consistent with American College of Surgeons (ACS) standards and ensures the minimal time from patient injury to receiving the most appropriate definitive trauma care.

### DEFINITIONS

1. **Trauma Center (TC)** - A licensed general acute care hospital designated by ICEMA's Governing Board as a trauma hospital in accordance with State laws, regulations and ICEMA policies.
2. **Referral Hospital (RH)** - Any licensed general acute care hospital that is not an ICEMA designated TC.

### INCLUSION CRITERIA

Any patient meeting ICEMA Trauma Triage Criteria, (Reference ICEMA Policy #15030) arriving at a non-trauma hospital by EMS or non-EMS transport.

### INITIAL TREATMENT GOALS (at RH)

1. Initiate resuscitative measures within the capabilities of the facility.
2. Ensure patient stabilization is adequate for subsequent transport.
3. Transfer timeline goal is <30 minutes door-to-door-out.
4. **DO NOT DELAY TRANSPORT** by initiating any diagnostic procedures that do not have direct impact on **IMMEDIATE** resuscitative measures.

5. RH ED physician will make direct physician-to-physician contact with the ED physician at the TC.
6. The TC will accept all referred trauma patients unless they are on Internal Disaster as defined in ICEMA Policy #8060.
7. The TC ED physician is the accepting physician at the TC and will activate the internal Trauma Team according to internal TC protocols.
8. RH ED physician will determine the appropriate mode of transportation for the patient. If ground transportation is >30 minutes consider the use of an air ambulance. Requests for air ambulance shall be made to 9-1-1 and normal dispatching procedures will be followed; however, the air ambulance continuation of trauma run patient will be transported to the TC identified by the RH.
9. Simultaneously call 9-1-1 and utilize the following script to dispatch:  
  

**“This is a Continuation of Trauma Run from \_\_\_\_ hospital to \_\_\_\_ Trauma Center”**

*Dispatchers will only dispatch transporting paramedic units without any fire apparatus.*
10. RH must send all medical records, test results, radiologic evaluations to the TC. DO NOT DELAY TRANSPORT - these documents may be FAXED to the TC.

### **SPECIAL CONSIDERATIONS**

1. If the patient has arrived at the RH via EMS, the RH ED physician may request that transporting team remain with patient and immediately transport them once the minimal stabilization is done at the RH.
2. The RH may consider sending one of its nurses with the transporting paramedic unit if deemed necessary due to the patient’s condition or scope of practice.
3. Nurse staffed critical care (ground or air) transport units maybe used; but may create a delay due to availability. Requests of nurse staffed critical care transport units must be made directly to the transporter agency by landline.

### **REFERENCE PROTOCOLS**

<b><u>Protocol #</u></b>	<b><u>Protocol Name</u></b>
8060	San Bernardino County Requests for Hospital Diversion Policy
15030	Trauma Triage Criteria and Destination Policy



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## CONTINUATION OF CARE (San Bernardino County Only)

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### I. PURPOSE

To develop a system that ensures the rapid transport of patients at the time of symptom onset or injury, to receiving the most appropriate definitive care. This system of care consists of public safety answering point (PSAP) providers, EMS providers, referral hospitals (RH), Specialty Care Centers (Trauma, STEMI or Stroke), ICEMA and EMS leaders combining their efforts to achieve this goal.

This policy shall only be used for:

- Rapid transport of Trauma, STEMI and Stroke patients from RH to Specialty Care Center.
- Specialty Care Center to Specialty Care Center when higher level of care is required.
- EMS providers transporting unstable patients requiring transport to a Specialty Care Center to stop at any closest paramedic receiving hospital for airway stabilization, and continue on to a Specialty Care Center.

It is not to be used for any other form of interfacility transfer of patients.

### II. AUTHORITY

California Health and Safety Code, Division 2.5, 1797.204  
California Code of Regulations, Title 22

### III. DEFINITIONS

**Neurovascular Stroke Receiving Centers (NSRC):** A licensed general acute care hospital designated by ICEMA's Governing Board as a NSRC.

**Referral Hospital (RH):** Any licensed general acute care hospital that is not an ICEMA designated TC, SRC or NSRC.

**Specialty Care Center:** ICEMA designated Trauma, STEMI or Stroke Center.

**STEMI Receiving Centers (SRC):** A licensed general acute care hospital designated by ICEMA's Governing Board as STEMI Receiving Center with emergency interventional cardiac catheterization capabilities.

**Trauma Center (TC):** A licensed general acute care hospital designated by ICEMA's Governing Board as a trauma hospital in accordance with State laws, regulations and ICEMA policies.

#### IV. INCLUSION CRITERIA

- Any patient meeting ICEMA Trauma Triage Criteria, (refer to ICEMA Reference #15030 - Trauma Triage Criteria and Destination Policy) arriving at a non-trauma hospital by EMS or non-EMS transport.
- Any patient with a positive ST-elevation MI requiring EMS to a SRC (refer to ICEMA Reference #6070 - Cardiovascular "STEMI" Receiving Centers).
- Any patient with a positive mLAPSS or stroke scale requiring EMS transport to the NSRC.

#### V. INITIAL TREATMENT GOALS AT RH

- Initiate resuscitative measures within the capabilities of the facility.
- Ensure patient stabilization is adequate for subsequent transport.
- Do not delay transport by initiating any diagnostic procedures that do not have direct impact on immediate resuscitative measures.

##### ➤ TIMELINES

- < 30 minutes at RH (door-in/door-out).
- < 30 minutes to complete paramedic continuation of care transport.
- < 30 minutes door to intervention at RC.
- RH shall contact the appropriate Specialty Care Center ED physician directly without calling for an inpatient bed assignment. Refer to attachment SRH-SRC Buddy System Table.
- EMS providers shall make Specialty Care Center Base Station contact.
- The Specialty Care Centers shall accept all referred trauma, stroke and STEMI patients unless they are on Internal Disaster as defined in ICEMA Reference #8060 - Requests for Hospital Diversion Policy (San Bernardino County).
- The Specialty Care Center ED physician is the accepting physician at the Specialty Care Center and will activate the internal Trauma, STEMI, or Stroke Team according to internal TC, SRC or NSRC protocols.

- RH ED physician will determine the appropriate mode of transportation for the patient. If ground transportation is > 30 minutes consider the use of an air ambulance. Requests for air ambulance shall be made to 9-1-1 and normal dispatching procedures will be followed; however, the air ambulance Continuation of Care patient will be transported to the Specialty Care Center identified by the RH.
- Simultaneously call 9-1-1 and utilize the following script to dispatch:  
  
**“This is a Continuation of Care run from \_\_\_hospital to \_\_\_Trauma, STEMI or Stroke Center”**  
  
*Dispatchers will only dispatch transporting paramedic units without any fire apparatus.*
- RH must send all medical records, test results, radiologic evaluations to the Specialty Care Center. DO NOT DELAY TRANSPORT - these documents may be FAXED to the Specialty Care Center.

## VI. SPECIAL CONSIDERATIONS

- If the patient has arrived at the RH via EMS, the RH ED physician may request that transporting team remain with patient and immediately transport them once the minimal stabilization is done at the RH.
- EMT-Ps may only transport patients on Dopamine, Lidocaine and Procainamide drips. Heparin and Integrillin drips are not within the paramedic scope of practice and require a critical care transport nurse to be in attendance. Unless medically necessary avoid using medication drips that are outside of the paramedic scope of practice to avoid any delays in transferring of patients.
- The RH may consider sending one of its nurses with the transporting paramedic unit if deemed necessary due to the patient’s condition or scope of practice.
- Nurse staffed critical care (ground or air) transport units maybe used; but may create a delay due to availability. Requests of nurse staffed critical care transport units must be made directly to the transporter agency by landline.

**VII. SPECIALTY CARE CENTER - REFERRAL HOSPITAL BUDDY SYSTEM TABLE**

NEUROVASCULAR STROKE RECEIVING CENTERS (NSRC)	NEUROVASCULAR STROKE REFERRAL HOSPITALS (NSRH)
Arrowhead Regional Medical Center	<ul style="list-style-type: none"> <li>• Barstow Community Hospital</li> <li>• Community Hospital of San Bernardino</li> <li>• Desert Valley Hospital</li> <li>• Kaiser Fontana Medical Center</li> <li>• St. Bernardine Medical Center</li> <li>• St. Mary Medical Center</li> </ul>
Desert Regional Medical Center	<ul style="list-style-type: none"> <li>• Colorado River Medical Center</li> <li>• Hi-Desert Medical Center</li> </ul>
Loma Linda University Medical Center	<ul style="list-style-type: none"> <li>• Bear Valley Community Hospital</li> <li>• J.L. Pettis VA Hospital (Loma Linda VA)</li> <li>• Mountains Community Hospital</li> <li>• St. Mary Medical Center</li> <li>• Victor Valley Global Medical Center</li> <li>• Weed Army Community Hospital at Fort Irwin</li> </ul>
Pomona Valley Hospital Medical Center	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Montclair Hospital Medical Center</li> </ul>
Redlands Community Hospital	<ul style="list-style-type: none"> <li>• Bear Valley Community Hospital</li> <li>• Community Hospital of San Bernardino</li> <li>• St. Bernardine Medical Center</li> </ul>
San Antonio Community Hospital	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Kaiser Ontario Medical Center</li> <li>• Montclair Hospital Medical Center</li> </ul>
STEMI RECEIVING CENTER (SRC)	STEMI REFERRAL HOSPITAL (SRH)
Desert Valley Hospital	<ul style="list-style-type: none"> <li>• Barstow Community Hospital</li> <li>• Victor Valley Global Medical Center</li> <li>• Weed Army Community Hospital at Fort Irwin</li> </ul>
Loma Linda University Medical Center	<ul style="list-style-type: none"> <li>• Arrowhead Regional Medical Center</li> <li>• Bear Valley Community Hospital</li> <li>• J. L. Pettis VA Hospital (Loma Linda VA)</li> <li>• Redlands Community Hospital</li> </ul>
Pomona Valley Hospital Medical Center	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Montclair Hospital Medical Center</li> </ul>
San Antonio Community Hospital	<ul style="list-style-type: none"> <li>• Chino Valley Medical Center</li> <li>• Kaiser Ontario Medical Center</li> <li>• Montclair Hospital Medical Center</li> </ul>
St. Bernardine Medical Center	<ul style="list-style-type: none"> <li>• Colorado River Medical Center</li> <li>• Community Hospital of San Bernardino</li> <li>• Kaiser Fontana Medical Center</li> <li>• Mountains Community Hospital</li> </ul>
St. Mary Medical Center	<ul style="list-style-type: none"> <li>• Barstow Community Hospital</li> <li>• Bear Valley Community Hospital</li> <li>• Hi-Desert Medical Center</li> <li>• Robert E. Bush Naval Hospital-29 Palms</li> <li>• Victor Valley Global Medical Center</li> </ul>

**VIII. REFERENCES**

<u>Number</u>	<u>Name</u>
6070	Cardiovascular “STEMI” Receiving Centers
8060	Requests for Hospital Diversion Policy (San Bernardino County)
15030	Trauma Triage Criteria and Destination Policy



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## LOCAL MEDICAL EMERGENCY POLICY

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### I. PURPOSE

To provide guidelines to EMS field personnel regarding the treatment and transportation of patients during a declared Local Medical Emergency.

### II. POLICY

EMS field personnel shall follow the procedures and guidelines outlined below regarding the treatment and transportation of patients during a declared Local Medical Emergency.

### III. DEFINITION

**Local Medical Emergency:** For the purposes of this policy, a Local Medical Emergency shall exist when a “local emergency”, as that term is used in Government Code, Section 8630, has been proclaimed by the governing body of a city or the county, or by an official so designated by ordinance.

### IV. PROCEDURES

The following procedures shall apply during a Local Medical Emergency:

- A. A public safety agency of the affected jurisdiction shall notify the County Communications Center of the proclamation of a local emergency, and shall provide information specifying the geographical area that the proclamation affects.
- B. The Communications Center shall notify:
  - The County Health Officer/Designee.
  - ICEMA Duty Officer.
  - The County Sheriff’s Department.
  - Area EMS providers.
  - Area hospitals.

- C. This policy shall remain in effect for the duration of the declared Local Medical Emergency or until rescinded by the Medical and Health Operational Area Coordinator (MHOAC) which can be the County Health Officer and/or the EMS Agency Administrator or his/her designee.

**V. MEDICAL CONTROL**

- A. BLS, Limited ALS, and ALS EMS field personnel may function within their Scope of Practice as established in the ICEMA Policy, Procedure, and Protocol Manual without Base Station contact.
- B. No care will be given unless the scene is secured and safe for EMS field personnel.
- C. Transporting EMS providers may utilize BLS units for patient transport as dictated by transport resource availability. In cases where no ambulance units are available, EMS field personnel will utilize the most appropriate method of transportation at their disposal.
- D. Patients too unstable to be transported outside the affected area should be transferred to the closest secured appropriate facility.
- E. County Communications Center should be contacted on the 700/800 MHz system for patient destination by the transporting unit.
- F. Base Station contact criteria outlined in ICEMA Reference #5040 - Radio Communication Policy, may be suspended by the ICEMA Medical Director. EMS providers will be notified. Receiving facilities should be contacted with following information once en route:
- ETA.
  - Number of patients.
  - Patient status: Immediate, delayed or minor.
  - Brief description of injury.
  - Treatment initiated.

## **VI. DOCUMENTATION**

First responder and transporting agencies may utilize Cal Chiefs' approved triage tags as the minimum documentation requirement. The following conditions will apply:

- One section to be kept by the jurisdictional public safety agency. A patient transport log will also be kept indicating time, incident number, patient number (triage tag), and receiving facility.
- One section to be retained by the transporting EMS provider. A patient log will also be maintained indicating time, incident number, patient number (triage tag) and receiving facility.
- Remaining portion of triage tag to accompany patient to receiving facility which is to be entered into the patient's medical record.
- All Radio Communication Failure reports may be suspended for duration of the Local Medical Emergency.

All refusals of treatment and/or transport will be documented as scene safety allows.

## **VII. COUNTY COMMUNICATIONS CENTER**

County Communications Center will initiate a Multi-Casualty Incident (MCI) according to ICEMA Reference #5050 - Medical Response to a Multi-Casualty Incident. This information will be coordinated with appropriate fire/rescue zone dispatch centers and medical unit leaders in the field as needed.

## **VIII. RESPONSIBILITIES OF THE RECEIVING FACILITIES**

1. Receiving facilities upon notification by the County Communications Center of a declared Local Medical Emergency will provide hospital bed availability and Emergency Department capabilities for immediate and delayed patients.
2. Receiving facilities will utilize ReddiNet to provide the County Communications Center and ICEMA with hospital bed capacity status minimally every four (4) hours, upon request, or when capacities are reached.
3. It is strongly recommended that receiving facilities establish a triage area in order to evaluate incoming emergency patients.

4. In the event that incoming patients overload the service delivery capacity of the receiving hospital, it is recommended that the hospital consider implementing their disaster surge plan.
5. Saturated hospitals may request evacuation of stable inpatients. Movement of these patients should be coordinated by County Emergency Operations Center (EOC) and in accordance with local disaster response plans and if necessary, National Disaster Medical System categories.

**IX. REFERENCES**

<u>Number</u>	<u>Name</u>
5040	Radio Communication Policy
5050	Medical Response to a Multi-Casualty Incident



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## ORAL ENDOTRACHEAL INTUBATION - PEDIATRIC (Less than 15 years of age)

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Non-responsive and apneic patients.
- Patients with agonal or failing respirations, and/or no gag reflex.
- Unable to maintain BLS airway.

Procedure may **initially** be contraindicated with suspected ALOC per ICEMA Reference #14050 - Pediatric Altered Level of Consciousness.

### II. PROCEDURE

Use in-line cervical stabilization.

- Immediately prior to intubation, consider prophylactic Lidocaine 1.5 mg/kg IVP for suspected head/brain injury.
- Select stylet with appropriate tube size.
  - Visualize the vocal cords with the laryngoscope. Watch as the tube passes through the vocal cords. Advance the tube until the vocal cord marker is situated beyond the vocal cords. Placement efforts must stop after twenty (20) seconds for ventilation.
  - Listen for breath sounds, resume ventilation with 100% oxygen and secure the airway. Place all patients under the age of eight (8) years in full axial-spinal stabilization.
  - Monitor end-tidal CO<sub>2</sub> and/or pulse oximetry. If available, utilize Waveform Capnography to assess efficacy of compressions and ventilations.
  - Reassess tube placement, lung sounds, pulse ox, and capnography frequently and every time patient is moved.
  - Document verification of tube placement. Run a continuous strip of capnography readings during movement of patient to verify tube placement.

- Insert NG/OG immediately after intubation to relieve gastric distention
- After two (2) intubation attempts, Base Station contact is required. (An attempt is considered made when the tube passes the gum line.)
- If all procedures to establish an adequate airway fail, consider ICEMA Reference #10070 - Needle Cricothyrotomy.

### III. DOCUMENTATION

In the event the receiving physician discovers the device is improperly placed, an Incident Report must be completed by the receiving hospital and forwarded to ICEMA within 24 hours of the incident. Forms are available as part of the protocol manual and on the ICEMA website.

### IV. REFERENCES

<u>Number</u>	<u>Name</u>
10070	Needle Cricothyrotomy
14050	Pediatric Altered Level of Consciousness.



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## TRANSCUTANEOUS CARDIAC PACING

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Unstable Bradycardia, refer to ICEMA Reference #11040 - Bradycardias - Adult.
- Patient eight (8) years of age and younger - not indicated.

### II. PROCEDURE IN SYMPTOMATIC BRADYCARDIA

- Start at rate of sixty (60) and adjust the output control starting at lowest setting available on the monitor until capture is noted. Assess peripheral pulses and confirm correlation with paced rhythm.
- Determine lowest threshold response by turning the output control down, until capture is lost, and then turn it back up slightly until capture is noted again. Maintain the output control at this level.
- Assess peripheral pulses and confirm correlation with paced rhythm. Reassess patient for signs of adequate perfusion
- Any movement of patient may increase the capture threshold response; the output may have to be adjusted to compensate for loss of capture.
- With signs of inadequate tissue perfusion, increase rate (**not to exceed 100**) and contact Base Station.
- Consider Midazolam 2 mg slow IV push or 2 mg IN if patient is awake and alert with signs of adequate tissue perfusion.
- Consider Morphine Sulfate titrate in 2 mg increments up to 10 mg for patient complaint of pain with signs of adequate tissue perfusion.
- Contact Base Station to advise of patient condition.

### III. DOCUMENTATION

In the event the receiving physician discovers the device is improperly placed, an Incident Report must be completed by the receiving hospital and forwarded to ICEMA within twenty-four (24) hours of the incident. Forms are available as part of the protocol manual and on the ICEMA website.

### IV. REFERENCE

<u>Number</u>	<u>Name</u>
11040	Bradycardias - Adult



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## AXIAL SPINAL STABILIZATION

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### FIELD ASSESSMENT/TREATMENT INDICATORS

Any patient in which axial spinal stabilization is clinically indicated, including but not limited to the following:

1. Patient meets Mechanism of injury as described in ICEMA Reference #15030 - Trauma Triage Criteria and Destination Policy.
2. Soft tissue damage associated with trauma and/or blunt trauma above the clavicles.
3. Unconscious patients where the mechanism of injury is unknown.
4. All intubated neonatal and pediatric patients.
5. Cervical pain or pain to the upper one-third (1/3) of the thoracic vertebrae. Spinal tenderness or pain, with or without movement of the head or neck, distal numbness, tingling, weakness or paralysis.
6. Altered mental status.
7. Appear to be under the influence of alcohol or other drugs (even if the patient is alert and oriented).
8. Additional sites of significant distracting pain or is experiencing emotional distress.
9. Less than four (4) years of age with appropriate injuries requiring axial spinal stabilization.
10. Unable to adequately communicate with the EMS personnel due to a language barrier or other type of communication difficulty.
11. Any other condition that may reduce the patient's perception of pain.

ALS and or LIMITED ALS personnel may remove patients placed in axial spinal stabilization by Emergency Medical Responders and BLS personnel if the patient does not meet **any** of the above indicators after a complete assessment and documentation on the patient care record.

**INTERVENTIONS**

1. Apply manual axial stabilization.
2. Assess and document distal function before and after application.
3. For pediatric patients: If the level of the patient's head is greater than that of the torso, use an approved pediatric spine board with a head drop or arrange padding on the board to keep the entire lower spine and pelvis in line with the cervical spine and parallel to the board.
4. For patients being placed on a board, consider providing comfort by placing padding on the backboard.
5. Any elderly or other adult patient who may have a spine that is normally flexed forward should be stabilized in patient's normal anatomical position.
6. When a pregnant patient in the third trimester is placed in axial spinal stabilization, place in the left lateral position to decrease pressure on the Inferior Vena Cava.
7. Certain patients may not tolerate normal stabilization positioning due to the location of additional injuries. These patients may require stabilization in their position of comfort. Additional materials may be utilized to properly stabilize these patients while providing for the best possible axial spinal alignment.

**REFERENCE**

<u>Reference #</u>	<u>Name</u>
15030	Trauma Triage Criteria and Destination Policy



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## CONTINUOUS POSITIVE AIRWAY PRESSURE DEVICE (CPAP) - ADULT

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

Symptomatic relief of acute respiratory distress and increased work of breathing associated with adult respiratory emergencies in a conscious patient who is cooperative and able to follow instructions.

### II. CONTRAINDICATIONS

- Apneic
- Unconscious
- Pediatric (appearing to be less than 15 years of age)
- Suspected Pneumothorax
- Vomiting
- Systolic blood pressure 90 mmHg or less (relative contraindication consult with Base Station)

### III. PROCEDURE

1. Provide supplemental oxygen as clinically indicated.
2. Provide clinically indicated treatment following ICEMA Reference #11010 - Adult Respiratory Emergencies.
3. Obtain and document O<sub>2</sub> saturation levels every five (5) minutes.
4. Apply and begin CPAP at 0 - 2 cm H<sub>2</sub>O (or lowest level allowed by the device). Instruct patient to inhale through nose and exhale through mouth.
5. Slowly titrate pressure in 3 cm increments up to a maximum of 15 cm H<sub>2</sub>O according to patient tolerance while instructing patient to continue exhaling against increasing pressure.
6. CPAP should be continued until patient is placed on CPAP device at the receiving hospital Emergency Department (ED).

**IV. DOCUMENTATION**

Document CPAP level, O<sub>2</sub> saturation, vitals, patient response and adverse reactions on electronic or paper patient care report (PCR).

**V. REFERENCE**

<u>Number</u>	<u>Name</u>
11010	Adult Respiratory Emergencies



## ADULT RESPIRATORY EMERGENCIES

### I. CHRONIC OBSTRUCTIVE PULMONARY DISEASE

#### FIELD ASSESSMENT/TREATMENT INDICATORS

Symptoms of chronic pulmonary disease, wheezing, cough, pursed lip breathing, decreased breath sounds, accessory muscle use, anxiety, ALOC or cyanosis.

#### BLS INTERVENTIONS

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated, obtain O<sub>2</sub> saturation on room air, or on home oxygen if possible.

#### LIMITED ALS (LALS) INTERVENTIONS

- Maintain airway with appropriate adjuncts, including advanced airway if indicated. Obtain O<sub>2</sub> saturation on room air or on home oxygen if possible.
- Nebulized Albuterol 2.5 mg, may repeat two (2) times.

#### ALS INTERVENTIONS

- Maintain airway with appropriate adjuncts, including advanced airway if indicated. Obtain O<sub>2</sub> saturation on room air or on home oxygen if possible.
- Nebulized Albuterol 2.5 mg, with Atrovent 0.5 mg may repeat two (2) times.
- Place patient on Continuous Positive Airway Pressure (CPAP), per ICEMA Reference #10170 - Continuous Positive Airway Pressure Device (CPAP) - Adult.
- Consider advanced airway, per ICEMA Reference #10050 - Nasotracheal Intubation.
- Base Station physician may order additional medications or interventions as indicated by patient condition.

## **II. ACUTE ASTHMA/BRONCHOSPASM/ALLERGIC REACTION/ANAPHYLAXIS**

### **FIELD ASSESSMENT/TREATMENT INDICATORS**

History of prior attacks, possible toxic inhalation or allergic reaction, associated with wheezing, diminished breath sounds or cough.

### **BLS INTERVENTIONS**

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated, humidified oxygen preferred.

### **LIMITED ALS (LALS) INTERVENTIONS**

- Maintain airway with appropriate adjuncts, obtain O<sub>2</sub> saturation on room air if possible.
- Nebulized Albuterol 2.5 mg, may repeat two (2) times.
- For signs of inadequate tissue perfusion, initiate IV bolus of 300 cc NS. If signs of inadequate tissue perfusion persist may repeat fluid bolus one (1) time.
- If no response to Albuterol, give Epinephrine 0.3 mg (1:1,000) SC. Contact Base Station for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine.
- May repeat Epinephrine 0.3 mg (1:1,000) SC after 15 minutes one (1) time.
- Base Station physician may order additional medications or interventions as indicated by patient condition.

### **ALS INTERVENTIONS**

- Maintain airway with appropriate adjuncts, obtain O<sub>2</sub> saturation on room air if possible.
- Nebulized Albuterol 2.5 mg, with Atrovent 0.5 mg may repeat two (2) times.
- For signs of inadequate tissue perfusion, initiate IV bolus of 300 cc NS. If signs of inadequate tissue perfusion persist may repeat fluid bolus until signs of improved tissue perfusion.
- Place patient on Continuous Positive Airway Pressure (CPAP), per ICEMA Reference #10170 - Continuous Positive Airway Pressure Device (CPAP) - Adult.

- If no response to Albuterol, give Epinephrine 0.3 mg (1:1,000) SC. Contact Base Station for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine.
- May repeat Epinephrine 0.3 mg (1:1,000) SC after 15 minutes one (1) time.
- For suspected allergic reaction, consider Diphenhydramine 25 mg IV, or 50 mg IM.
- For persistent severe anaphylactic shock, administer Epinephrine 0.1 mg (1:10,000) slow IV push. May repeat as needed to total dosage of 0.5 mg.
- Consider advanced airway per ICEMA Reference #10050 - Nasotracheal Intubation.
- Base Station physician may order additional medications or interventions as indicated by patient condition.

### **III. ACUTE PULMONARY EDEMA/CHF**

#### **FIELD ASSESSMENT/TREATMENT INDICATORS**

History of cardiac disease, including CHF, and may present with rales, occasional wheezes, jugular venous distention and/or peripheral edema.

#### **BLS INTERVENTIONS**

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated. For pulmonary edema with high altitude as a suspected etiology, descend to a lower altitude and administer high flow oxygen with a non re-breather mask.
- Be prepared to support ventilations as clinically indicated.

#### **LIMITED ALS (LALS) INTERVENTIONS**

- Maintain airway with appropriate adjuncts, obtain O<sub>2</sub> saturation on room air if possible.
- Nitroglycerine 0.4 mg sublingual/transmucosal with signs of adequate tissue perfusion. May be repeated as long as patient continues to have signs of adequate tissue perfusion. Do not use or discontinue NTG in presence of hypotension (SBP <100).
- Nebulized Albuterol 2.5 mg, may repeat two (2) times, if nitro is not working.

### ALS INTERVENTIONS

- Maintain airway with appropriate adjuncts, obtain O<sub>2</sub> saturation on room air if possible.
- Nitroglycerine 0.4mg sublingual/transmucosal one every three (3) minutes as needed. May be repeated as long as patient continues to have signs of adequate tissue perfusion. **If a Right Ventricular Infarction is suspected, the use of nitrates requires Base Station contact.**
- Place patient on Continuous Positive Airway Pressure (CPAP), per ICEMA Reference #10170 - Continuous Positive Airway Pressure Device (CPAP) - Adult.
- Consider advanced airway, per ICEMA Reference #10050 - Nasotracheal Intubation.
- Base station physician may order additional medications or interventions as indicated by patient condition.
- In radio communication failure (RCF), the following medications may be utilized:
  - Dopamine 400 mg in 250 cc NS titrated between 5 - 20 mcg/min to maintain adequate tissue perfusion.
  - Nebulized Albuterol 2.5 mg with Atrovent 0.5 mg after patient condition has stabilized.

### IV. REFERENCES

<u>Number</u>	<u>Name</u>
10050	Nasotracheal Intubation
10170	Continuous Positive Airway Pressure Device (CPAP) - Adult



## SUSPECTED ACUTE MYOCARDIAL INFARCTION (AMI)

### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Chest pain (typical or atypical).
- Syncopal episode.
- History of previous AMI, Angina, heart disease, or other associated risk factors.

### II. BLS INTERVENTIONS

- Recognition of signs/symptoms of suspected AMI.
- Reduce anxiety, allow patient to assume position of comfort.
- Oxygen as clinically indicated.
- Obtain O<sub>2</sub> saturation.
- May assist patient with self-administration of Nitroglycerin and/or Aspirin.

### III. LIMITED ALS (LALS) INTERVENTIONS

- Aspirin 325 mg (one adult non-enteric coated aspirin or four (4) chewable children's aspirin).
- Consider early vascular access.
- For patients with chest pain, signs of inadequate tissue perfusion and clear breath sounds, give 300 ml NS bolus, may repeat.
- Nitroglycerin 0.4 mg sublingual/transmucosal, may repeat in three (3) minute intervals if signs of adequate tissue perfusion are present. Nitroglycerin is contraindicated (signs of inadequate tissue perfusion or recent use of sexual enhancement medications).
- Consider establishing a saline lock enroute on same side as initial IV.
- Complete thrombolytic checklist, if time permits.
- Contact Base Station.

#### IV. ALS INTERVENTIONS

- Aspirin 325 mg (one adult non-enteric coated aspirin or four (4) chewable children's aspirin).
- Consider early vascular access.
- For patients with chest pain, signs of inadequate tissue perfusion and clear breath sounds, give 300 ml NS bolus, may repeat.
- 12-Lead Technology:
  - Obtain 12-lead ECG. Do not disconnect 12-lead cables until necessary for transport.
  - If signs of inadequate tissue perfusion or if inferior wall infarct is suspected, obtain a right-sided 12-lead (V4R).
  - If right ventricular infarct (RVI) is suspected with signs of inadequate tissue perfusion, consider 300ml NS bolus, may repeat. Early consultation with Base Station or receiving hospital in rural areas is recommended. (Nitrates are contraindicated in the presence of RVI or hypotension.)
  - With documented ST segment elevation in two (2) or more contiguous leads, contact STEMI Base Station for destination decision while preparing patient for expeditious transport, per ICEMA Reference #6070 - Cardiovascular "STEMI" Receiving Centers. In Inyo and Mono Counties, the assigned Base Station should be contacted for STEMI consultation.
  - Repeat 12-lead at regular intervals, but do not delay transport of patient. If patient is placed on a different cardiac monitor for transport, transporting provider should obtain an initial 12-lead on their cardiac monitor and leave 12-lead cables in place throughout transport.
  - EMS field personnel shall ensure that a copy of the 12-lead ECG is scanned or attached as a permanent part of the patient's ePCR or O1A and submit to ICEMA if patient is going to a SRC as a suspected STEMI.
- Nitroglycerin 0.4 mg sublingual/transmucosal, may repeat in three (3) minute intervals if signs of adequate tissue perfusion are present. Nitroglycerin is contraindicated if there are signs of inadequate tissue perfusion or if sexual enhancement medications have been utilized within

the past forty-eight (48) hours. Utilize Morphine Sulfate for pain control when Nitroglycerin is contraindicated.

- Morphine Sulfate 2 mg IV, may repeat every three (3) minutes to total 10 mg. Consider concurrent administration of Nitroglycerin with Morphine Sulfate if there is no pain relief from the initial Nitroglycerin administration. Contact Base Station for further Morphine Sulfate orders.
- Consider establishing a saline lock as a secondary IV site.
- Make early STEMI notification to the STEMI Receiving Center.
- In Radio Communication Failure (RCF), may give up to an additional 10 mg Morphine Sulfate in 2 mg increments with signs of adequate tissue perfusion.

#### V. REFERENCE

<u>Number</u>	<u>Name</u>
6070	Cardiovascular "STEMI" Receiving Centers



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## DETERMINATION OF DEATH ON SCENE

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### I. PURPOSE

To identify situations when an EMT, AEMT or EMT-P may be called upon to determine death on scene.

### II. POLICY

An EMT, AEMT or EMT-P may determine death on scene if **pulselessness and apnea** are present with any of the following criteria. The EMT-P is authorized to discontinue BLS CPR initiated at scene if a patient falls into the category of obvious death. If any ALS procedures are initiated, only the Base Station physician/designee may determine death in the field. In any situation where there may be doubt as to the clinical findings of the patient, BLS CPR must be initiated and the Base Station contacted, per ICEMA Reference #12020 - Withholding Resuscitate Measures Policy. When death is determined, the County Coroner must be notified along with the appropriate law enforcement agency.

### III. DETERMINATION OF DEATH CRITERIA

- Decomposition.
- Obvious signs of rigor mortis such as rigidity or stiffening of muscular tissues and joints in the body, which occurs any time after death and usually appears in the head, face and neck muscles first.
- Obvious signs of venous pooling in dependent body parts, lividity such as mottled bluish-tinged discoloration of the skin, often accompanied by cold extremities.
- Decapitation.
- Incineration of the torso and/or head.
- Massive crush injury.
- Penetrating injury with evisceration of the heart, and/or brain.
- Gross dismemberment of the trunk.

## PROCEDURE

- If the patient does not meet the Determination of Death criteria, appropriate interventions must be initiated.
- Resuscitation efforts shall not be terminated en route per Government Code 27491. The patient will be transported to the closest facility where determination of death will be made by hospital staff.
- Most victims of electrocution, lightning and drowning should have resuscitative efforts begun and transported to the appropriate Hospital/Trauma Center.
- Hypothermic patients should be treated per ICEMA Reference #13030 - Cold Related Emergencies under Severe Hypothermia.
- A DNR report form must be completed, if applicable per ICEMA Reference #12020 - Withholding Resuscitative Measures.
- **San Bernardino County Only:**

A copy of the patient care report must be made available for the Coroner. This will be transmitted to them, when posted, if the disposition is marked "Dead on Scene" and the Destination is marked "Coroner, San Bernardino County" on the electronic patient care report (ePCR). If unable to post, a printed copy of the ePCR, O1A or a completed *Coroners Worksheet of Death* must be left at the scene. The completed ePCR or O1A must be posted or faxed to the Coroner before the end of the shift.

## LIMITED ALS (LALS) PROCEDURE

- All terminated LALS resuscitation efforts must have an AED event record attached to the patient care record report.
- All conversations with the Base Station must be fully documented with the name of the Base Station physician who determined death, times and instructions on the patient care report.

## ALS PROCEDURE

- All patients in ventricular fibrillation should be resuscitated and transported unless otherwise determined by the Base Station physician/designee.
- Severe blunt force trauma, pulseless, without signs of life (palpable pulses and/or spontaneous respirations) and cardiac electrical activity less than 40 bpm or during EMS encounter with the patient meets Determination of Death criteria.

- All terminated ALS resuscitation efforts must have an ECG attached to the patient care report.
- All conversations with the Base Station must be fully documented with the name of the Base Station physician who determined death, times and instructions on the patient care report.

**IV. SUSPECTED SUDDEN INFANT DEATH SYNDROME (SIDS) INCIDENT**

It is imperative that all EMS field personnel be able to assist the caregiver and local police agencies during a suspected SIDS incident.

**PROCEDURE**

- Follow individual department/agency policies at all times.
- Ask open-ended questions about incident.
- Explain what you are doing, the procedures you will follow, and the reasons for them.
- If you suspect a SIDS death, explain to the parent/caregiver what SIDS is and, if this is a SIDS related death nothing they did or did not do caused the death.
- Provide the parent/caregiver with the number of the California SIDS Information Line: **1-800-369-SIDS (7437)**
- Provide psychosocial support and explain the emergency treatment and transport of their child.
- Assure the parent/caregiver that your activities are standard procedures for the investigation of all death incidents and that there is no suspicion of wrongdoing.
- Document observations.

**V. REFERENCES**

<u>Number</u>	<u>Name</u>
12020	Withholding Resuscitative Measures
13030	Cold Related Emergencies



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## RESPIRATORY EMERGENCIES - PEDIATRIC (Less than 15 years of age)

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Asthma
- Toxic Inhalation
- Difficult Breathing

### II. BLS INTERVENTIONS

- Assess environment and determine possible causes.
- If safe remove patient from any suspected contaminant.
- Recognize signs and symptoms of respiratory distress for age.
- Reduce anxiety, assist patient to assume position of comfort.
- Oxygen administration as clinically indicated (humidified oxygen preferred).

### III. LIMITED ALS (LALS) INTERVENTIONS

- Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible.
- Nebulized Albuterol 2.5 mg may repeat two (2) times.
- If no response to Albuterol, consider Epinephrine (1:1,000) 0.01 mg/kg SC not to exceed adult dosage of 0.3 mg.
- Obtain vascular access at a TKO rate.
- Consider ICEMA Reference #14030 - Pediatric Allergic Reaction if allergic reaction suspected.
- Base Station physician may order additional medications or interventions as indicated by patient condition.

**IV. ALS INTERVENTIONS**

- Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible.
- Nebulized Albuterol 2.5 mg with Atrovent may repeat two (2) times.
  - 1 day to 12 months - Atrovent 0.25 mg.
  - 1 year to 14 years - Atrovent 0.5 mg.
- If no response to Albuterol and Atrovent, consider Epinephrine (1:1,000) 0.01 mg/kg SC not to exceed adult dosage of 0.3 mg.
- Obtain vascular access at a TKO rate.
- Consider ICEMA Reference #14030 - Allergic Reactions - Pediatric (Less than 15 years of age), if allergic reaction suspected.
- Base Station physician may order additional medications or interventions as indicated by patient condition.

**V. REFERENCE**

<u>Number</u>	<u>Name</u>
14030	Allergic Reactions - Pediatric (Less than 15 years of age)



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## AIRWAY OBSTRUCTION - PEDIATRIC (Less than 15 years of age)

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Universal sign of distress.
- Sudden alteration in respiratory effort or signs of obstruction - coughing, gagging, stridor, wheezing, or apnea.
- Altered level of consciousness (for younger children this is measured by the inability to recognize caregiver, no aversion to being cared for by EMS field personnel, limp and/or ineffective cry).

### II. BLS INTERVENTIONS - RESPONSIVE

- Assess for ability to cry, speak or cough (e.g., “are you choking?”).
- Administer abdominal thrusts (repeated cycles of five (5) back slaps and five (5) chest thrusts for infant less than one (1) year), until the foreign body obstruction is relieved or until patient becomes unresponsive.
- After obstruction is relieved, reassess and maintain ABCs.
- Obtain O<sub>2</sub> saturation.
- Administer oxygen.
- If responsive, place in position of comfort, enlisting help of child’s caregiver if needed. If child is uninjured but unresponsive with adequate breathing and a pulse, place in recovery position.

### III. BLS INTERVENTIONS - UNRESPONSIVE

- Position patient supine (for suspected trauma maintain in-line axial stabilization). Place under-shoulder support to achieve neutral cervical spinal position if indicated.
- Begin CPR, starting with thirty (30) compressions.
- Open airway using the head tilt-chin lift method (for suspected trauma, use jaw thrust). Remove object if visible.

- If apneic, attempt two (2) ventilations with bag-valve mask. If no chest rise or unable to ventilate, continue cycles of thirty (30) compressions to two (2) ventilations until obstruction is relieved or able to ventilate.
- If apneic and able to ventilate, provide one (1) breath every three (3) to five (5) seconds. Confirm that pulses are present and reassess every two (2) minutes.

#### IV. LIMITED ALS (LALS) INTERVENTIONS

- If apneic and able to ventilate, consider King Airway placement, per ICEMA Reference #10020 - King Airway Device (Perilaryngeal) - Pediatric.
- If obstruction persists continue with compressions until obstruction is relieved or arrival at hospital.
- Transport to closest receiving hospital for airway management.

#### V. ALS INTERVENTIONS

- If apneic and able to ventilate, consider intubation per ICEMA Reference #10040 - Oral Endotracheal Intubation - Pediatric.
- If obstruction persists and unable to ventilate, visualize with laryngoscope and remove visible foreign body with Magill forceps and attempt to ventilate.
- If obstruction persists, consider Needle Cricothyrotomy per ICEMA Reference #10070 - Needle Cricothyrotomy.

#### VI. REFERENCES

<u>Number</u>	<u>Name</u>
10020	King Airway Device (Perilaryngeal) - Pediatric
10040	Oral Endotracheal Intubation - Pediatric
10070	Needle Cricothyrotomy



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## ALTERED LEVEL OF CONSCIOUSNESS - PEDIATRIC (Less than 15 years of age)

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Patient exhibits inappropriate behavior for age.
- History or observation of an Apparent Life Threatening Event (ALTE).

### II. BLS INTERVENTIONS

- Assess environment and determine possible causes for illness.
- Axial-spinal stabilization, if clinically indicated.
- Oxygen therapy, if clinically indicated.
- Airway management, as indicated (OPA/NPA, BVM Ventilation).
- Obtain core temperature, if elevated begin passive cooling measures.

### III. LIMITED ALS (LALS) INTERVENTIONS

- Establish advanced airway as needed.
- Obtain vascular access.
- For symptomatic hypotension with poor perfusion, consider fluid bolus of 20 ml/kg of NS not to exceed 300 ml NS.
- Check blood glucose level.
  - For neonates (0 - 4 weeks), if blood glucose < 35 mg/dL:  
Dextrose 25% (0.25 g/ml) Diluted 1:1 Give 0.5 g/kg (4 ml/kg) IV/IO
  - For patient < 10 kg and > 4 weeks, if blood glucose < 60 mg/dL:  
Dextrose 25% (0.25 g/ml) Give 0.5 g/kg (2 ml/kg) IV/IO
  - For patient > 10 kg and < 25kg, if glucose less than 60 mg/dL:  
Dextrose 50% (0.5 g/mL) Diluted 1:1 Give 0.5 g/kg (2 ml/kg) IV/IO
  - For patient > 25 kg, if glucose less than 80 mg/dL:  
Dextrose 50% (0.5 g/mL) Diluted 1:1 Give 0.5 g/kg (2 ml/kg) IV/IO

- May repeat blood glucose. Repeat Dextrose if extended transport time.
- Glucagon 0.025 mg/kg IM/IN, if unable to start an IV. May be repeated one (1) time after twenty (20) minutes for a combined maximum dose of 1 mg.
- For suspected narcotic ingestion, may give Narcan 0.1 mg/kg IV/IM/IN. Do not exceed the adult dosage of 10 mg IV/IM/IN.
- Base Station may order additional medication dosages and additional fluid boluses.

#### IV. ALS INTERVENTIONS

- Establish advanced airway as needed.
- Obtain vascular access and place on cardiac monitor
- For symptomatic hypotension with poor perfusion, consider fluid bolus of 20 ml/kg of NS not to exceed 300 ml NS. May repeat twice for continued signs of inadequate tissue perfusion.
- Check blood glucose level.
  - For neonates (0 - 4 weeks), if blood glucose < 35 mg/dL:  
Dextrose 25% (0.25 g/ml) Diluted 1:1 Give 0.5 g/kg (4ml/kg) IV/IO
  - For patient < 10 kg and > 4 weeks, if blood glucose < 60 mg/dL:  
Dextrose 25% (0.25 g/ml) Give 0.5 g/kg (2 ml/kg) IV/IO
  - For patient > 10 kg and < 25kg, if glucose less than 60 mg/dL:  
Dextrose 50% (0.5 g/mL) Diluted 1:1 Give 0.5 g/kg (2 ml/kg) IV/IO
  - For patient > 25 kg, if glucose less than 80 mg/dL:  
Dextrose 50% (0.5 g/mL) Diluted 1:1 Give 0.5 g/kg (2 ml/kg) IV/IO
  - May repeat blood glucose. Repeat Dextrose if extended transport time.
  - Glucagon 0.025 mg/kg IM/IN, if unable to start an IV. May be repeated one (1) time after twenty (20) minutes for a combined maximum dose of 1 mg.
- For suspected narcotic ingestion, may give Narcan 0.1 mg/kg IV/IM/IN. Do not exceed the adult dosage of 10 mg IV/IM/IN.

- Base Station may order additional medication dosages and additional fluid boluses.



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## BURNS - PEDIATRIC (Less Than 15 Years of Age)

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Any burn patient requires effective communication and rapid transportation to the closest receiving hospital.

In Inyo and Mono Counties, the assigned Base Station should be contacted for determination of appropriate destination.

### I. FIELD ASSESSMENT/TREATMENT INDICATORS

Refer to ICEMA Reference #8030 - Burn Destination and Criteria Policy.

### II. BLS INTERVENTIONS

- Break contact with causative agent (stop the burning process).
- Remove clothing and jewelry quickly, if indicated.
- Keep patient warm.
- Estimate percentage of total body surface area (TBSA) burned and depth using the “Rule of Nines”. An individual’s palm represents 1% of TBSA and can be used to estimate scattered, irregular burns.
- Transport to ALS intercept or to the closest receiving hospital.

#### A. Manage Special Considerations

- **Thermal Burns:** Stop the burning process. Do not break blisters. Cover the affected body surface with dry, sterile dressing or sheet.
- **Chemical Burns:** Brush off dry powder, if present. Remove any contaminated or wet clothing. Irrigate with copious amounts of saline or water.
- **Tar Burns:** Cool with water, do not remove tar.
- **Electrical Burns:** Remove from electrical source (without endangering self) with a nonconductive material. Cover the affected body surface with dry, sterile dressing or sheet.

- **Eye Involvement:** Continuous flushing with NS during transport. Allow patient to remove contact lenses if possible.
- **Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.

### III. LIMITED ALS (LALS) INTERVENTIONS

- Airway Stabilization (as indicated). Burn patients with respiratory compromise or potential for such, will be transported to the closest receiving hospital for airway stabilization.
- IV/IO Access (warm IV fluids when available).
  - *Unstable:* Vital signs (age appropriate) and/or signs of inadequate tissue perfusion consider starting a second IV or saline lock. Administer 20 ml/kg NS bolus IV/IO, may repeat one (1) time.
  - *Stable:* Vital signs (age appropriate) and/or signs of adequate tissue perfusion.
  - < 5 years of age: IV NS 150 ml/hour
  - > 5 years of age - < 15 years of age: IV NS 250 ml/hour
- Transport to appropriate facility:
  - Critical trauma patients with associated burns or burn patients sustaining critical trauma, should be transported to the closest Trauma Center. Trauma Base Station contacted shall be made.
- Refer to Burn Classifications Table.

#### A. Manage Special Considerations

- **Respiratory Distress:**
  - 1 day to 12 months old - Nebulized Albuterol 2.5 mg, may repeat two (2) times.
  - 1 year to < 15 years old - Albuterol 2.5 mg, may repeat two (2) times.
  - Administer humidified oxygen, if available.

- **Deteriorating Vital Signs:** Transport to the closest receiving hospital. Contact Base Station.
- **Pulseness and Apneic:** Transport to the closest receiving hospital and treat according to ICEMA protocols. Contact base station.
- **Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.
- **Precautions and Comments:**
  - Contact with appropriate advisory agency may be necessary for hazardous materials, before decontamination or patient contact.
  - Do not apply ice or ice water directly to skin surfaces as additional injury will result.
  - Do not apply cool dressings or allow environmental exposure, since hypothermia will result in a young child.

#### IV. ALS INTERVENTIONS

- Advanced airway (as indicated).
  - **Airway Stabilization:** Burn patients with respiratory compromise or potential for such, will be transported to the closest receiving hospital for airway stabilization.
- Monitor ECG.
- IV/IO Access (Warm IV fluids when available).
  - *Unstable:* Vital signs (age appropriate) and/or signs of inadequate tissue perfusion consider starting a second IV or saline lock. *Administer* 20 ml/kg NS bolus IV/IO, may repeat one (1) time.
  - *Stable:* Vital signs (age appropriate) and/or signs of adequate tissue perfusion.
  - < 5 years of age: IV NS 150 ml/hour
  - > 5 years of age - < 15 years of age: IV NS 250 ml/hour
- Treat pain as indicated.

- **IV Pain Relief:** Morphine Sulfate 0.1 mg/kg IV/IO slowly, do not exceed 5 mg increments, may repeat every five (5) minutes to a maximum of 20 mg IV/IO when the patient maintains age appropriate vital signs and adequate tissue perfusion. Document vital signs every five (5) minutes while medicating for pain, and reassess the patient.
- **IM Pain Relief:** Morphine Sulfate 0.2 mg/kg IM, 20 mg IM maximum. Document vital signs and reassess the patient.
- Transport to appropriate facility:
  - Critical trauma patients with associated burns or burn patients sustaining critical trauma, should be transported to the closest Trauma Center. Trauma Base Station contacted shall be made.
  - Insert nasogastric/orogastric tube as indicated.
- Refer to Burn Classification Table.

**A. Manage Special Considerations**

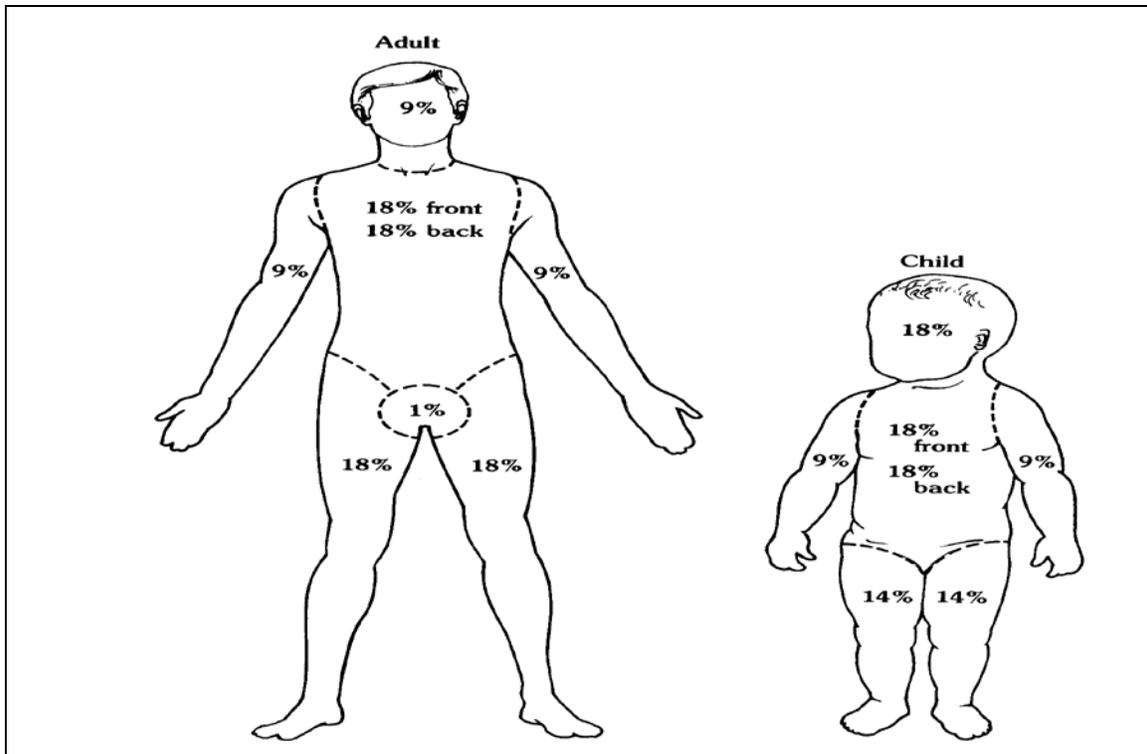
- **Respiratory Distress:** Intubate patient if facial/oral swelling are present or if respiratory depression or distress develops due to inhalation injury.
  - 1 day to 12 months old - Nebulized Albuterol 2.5 mg, may repeat two (2) times.
  - 1 year to < 15 years old - Albuterol 2.5 mg, may repeat two (2) times.
  - Administer humidified oxygen, if available.
- **Deteriorating Vital Signs:** Transport to the closest receiving hospital. Contact base station.
- **Pulseness and Apneic:** Transport to the closest receiving hospital and treat according to ICEMA protocols. Contact base station.
- **Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.

- **Precautions and Comments:**
  - Contact with appropriate advisory agency may be necessary for hazardous materials, before decontamination or patient contact.
  - Do not apply ice or ice water directly to skin surfaces as additional injury will result.
  - Do not apply cool dressings or allow environmental exposure, since hypothermia will result in a young child.

**V. BURN CLASSIFICATIONS**

PEDIATRIC BURN CLASSIFICATION CHART	DESTINATION
<p><b><u>MINOR</u> - PEDIATRIC</b></p> <ul style="list-style-type: none"> <li>• &lt; 5% TBSA</li> <li>• &lt; 2% Full Thickness</li> </ul>	<p><b>CLOSEST MOST APPROPRIATE RECEIVING HOSPITAL</b></p>
<p><b><u>MODERATE</u> - PEDIATRIC</b></p> <ul style="list-style-type: none"> <li>• 5 - 10% TBSA</li> <li>• 2 - 5% Full Thickness</li> <li>• High Voltage Injury</li> <li>• Suspected Inhalation Injury</li> <li>• Circumferential Burn</li> <li>• Medical problem predisposing to infection (e.g., diabetes mellitus, sickle cell disease)</li> </ul>	<p><b>CLOSEST MOST APPROPRIATE RECEIVING HOSPITAL</b></p>
<p><b><u>MAJOR</u> - PEDIATRIC</b></p> <ul style="list-style-type: none"> <li>• &gt; 10% TBSA</li> <li>• &gt; 5% Full Thickness</li> <li>• High Voltage Burn</li> <li>• Known Inhalation Injury</li> <li>• Any significant burn to face, eyes, ears, genitalia, or joints</li> </ul>	<p><b>CLOSEST MOST APPROPRIATE BURN CENTER</b></p> <p>In San Bernardino County, contact: Arrowhead Regional Medical Center (ARMC)</p>

**VI. “RULE OF NINES”**



**VII. REFERENCES**

<u>Number</u>	<u>Name</u>
8030	Burn Destination and Criteria Policy
12010	Determination of Death on Scene



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## NEWBORN CARE

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### I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Field delivery with or without complications.

### II. BLS INTERVENTIONS

- When head is delivered, suction mouth then the nose, and check to see that cord is not around baby's neck.
- Dry infant and provide warm environment. Prevent heat loss (remove wet towel).
- Place baby in supine position at or near the level of the mother's vagina. After pulsation of cord has ceased double clamp cord at approximately seven (7) inches and ten (10) inches from baby and cut between clamps.
- Maintain airway, suction mouth and nose.
- Provide tactile stimulation to facilitate respiratory effort.
- Assess breathing if respirations < 20 or gasping, provide tactile stimulation and assisted ventilation if indicated.
- Circulation:
  - Heart Rate < 100 ventilate BVM with 100% oxygen for thirty (30) seconds and reassess. If heart rate is still < 100 /min, begin CPR with ventilations at a 3:1 ratio of compressions to ventilations (approximately 100 compressions and 30 ventilations /min).
- If central cyanosis is present, utilize supplemental oxygen at 10 to 15 L/min using oxygen tubing close to infant's nose and reassess. If no improvement is noted after thirty (30) seconds assist ventilation with BVM.
- Obtain Apgar scoring at one (1) and five (5) minutes. Do not use Apgar to determine need to resuscitate.

**APGAR SCORE**

<b>SIGN</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Heart Rate</b>	Absent	< 100 /minute	> 100 /minute
<b>Respirations</b>	Absent	< 20 /irregular	>20 /crying
<b>Muscle Tone</b>	Limp	Some Flexion	Active Motion
<b>Reflex Irritability</b>	No Response	Grimace	Cough or Sneeze
<b>Color</b>	Blue or pale	Blue Extremities	Completely Pink

**III. LIMITED ALS (LALS) INTERVENTIONS**

- Obtain vascular access via IV if indicated.
- Obtain Blood Glucose by heel stick
  - If blood glucose < 35 mg/dL:  
Dextrose 25% (0.25 g/ml) Diluted 1:1 Give 0.5 g/kg (4 ml/kg) IV/IO.
- Contact Base Station if hypovolemia is suspected. Base Station may order 10 ml/kg IV NS over five (5) minutes. If unable to contact Base Station and transport time is extended give 10 ml/kg IV NS over five (5) minutes, may repeat one (1) time.

**IV. ALS INTERVENTIONS**

- Obtain vascular access via IV/IO if indicated.
- Consider advanced airway, per ICEMA Reference #10040 - Oral Endotracheal Intubation - Pediatric, if BVM is ineffective or tracheal suctioning is required. If available, utilize Waveform Capnography to assess efficacy of compressions and ventilations. Place orogastric tube after advanced airway is in place. Reassess placement after every intervention.
- Obtain Blood Glucose by heel stick.
  - If blood glucose < 35 mg/dL:  
Dextrose 25% (0.25 g/ml) Diluted 1:1 Give 0.5 g/kg (4 ml/kg) IV/IO
- Evaluate airway for hypoxemia and assess body temperature for hypothermia then consider Epinephrine 0.01 mg/kg IV/IO (1:10,000) if heart rate < 60 after one (1) minute.

- Contact Base Station if hypovolemia is suspected. Base Station may order 10 ml/kg IV NS over five (5) minutes. If unable to contact Base Station and transport time is extended give 10 ml/kg IV NS over five (5) minutes, may repeat.

For persistent hypotension despite adequate ventilation and fluid resuscitation, Base Station may order Epinephrine 0.005 mg/kg (1:10,000) IV/IO every ten (10) minutes. If unable to contact Base Station and transport time is extended give indicated dosage and contact Base Station as soon as possible.

## V. REFERENCE

<u>Number</u>	<u>Name</u>
10040	Oral Endotracheal Intubation - Pediatric



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## TRAUMA - ADULT (15 years of age and older)

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Any critical trauma patient (CTP) requires effective communication and rapid transportation to the closest trauma center. If not contacted at scene, the receiving trauma center must be notified as soon as possible in order to activate the trauma team.

In Inyo and Mono Counties, the assigned Base Station should be contacted for determination of appropriate destination.

### I. FIELD ASSESSMENT/TREATMENT INDICATORS

Refer to ICEMA Reference #15030 - Trauma Triage Criteria and Destination Policy.

### II. BLS INTERVENTIONS

- Ensure thorough initial assessment.
- Ensure patent airway, protecting cervical spine.
- Oxygen and/or ventilate as needed, O<sub>2</sub> saturation (if BLS equipped).
- Keep patient warm.
- For a traumatic full arrest, an AED may be utilized, if indicated.
- Transport to ALS intercept or to the closest receiving hospital.

#### A. Manage Special Considerations

- **Axial Spinal Immobilization:** If the patient meet(s) any of the following indicators using the acronym (NSAID):

**N**-euro Deficit(s) present?  
**S**-pinal Tenderness present?  
**A**-ltered Mental Status?  
**I**-ntoxication?  
**D**-istracting Injury?

- Consider maintaining spinal alignment on the gurney, or using spinal axial immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization using long board.

- **Abdominal Trauma:** Cover eviscerated organs with saline dampened gauze. Do not attempt to replace organs into the abdominal cavity.
- **Amputations:** Control bleeding. Rinse amputated part gently with sterile irrigation saline to remove loose debris/gross contamination. Place amputated part in dry, sterile gauze and in a plastic bag surrounded by ice (if available). Prevent direct contact with ice. Document in the narrative who the amputated part was given to.

**Partial Amputation:** Splint in anatomic position and elevate the extremity.

- **Bleeding:**
  - Apply direct pressure and/or pressure dressing.
  - To control life-threatening bleeding of a severely injured extremity, consider application of tourniquet when direct pressure or pressure dressing fails.
- **Chest Trauma:** If a wound is present, cover it with an occlusive dressing. If the patient's ventilations are being assisted, dress wound loosely, (do not seal). Continuously reevaluate patient for the development of tension pneumothorax.
- **Flail Chest:** Stabilize chest, observe for tension pneumothorax. Consider assisted ventilations.
- **Fractures:** Immobilize above and below the injury. Apply splint to injury in position found except:
  - **Femur:** Apply traction splint if indicated.
  - **Grossly angulated long bone with distal neurovascular compromise:** Apply gentle unidirectional traction to improve circulation.
  - **Check and document distal pulse before and after positioning.**
- **Genital Injuries:** Cover genitalia with saline soaked gauze. If necessary, apply direct pressure to control bleeding. Treat amputations the same as extremity amputations.

- **Head and Neck Trauma:** Place brain injured patients in reverse Trendelenburg (elevate the head of the backboard 15-20 degrees), if the patient exhibits no signs of shock.
  - **Eye:** Whenever possible protect an injured eye with a rigid dressing, cup or eye shield. Do not attempt to replace a partially torn globe, stabilize it in place with sterile saline soaked gauze. Cover uninjured eye.
  - **Avulsed Tooth:** Collect teeth, place in moist, sterile saline gauze and place in a plastic bag.
- **Impaled Object:** Immobilize and leave in place. Remove object if it interferes with CPR, or if the object is impaled in the face, cheek or neck and is compromising ventilations.
- **Pregnancy:** Where axial spinal stabilization precaution is indicated, the board should be elevated at least 4 inches on the right side for those patients who have a large pregnant uterus, usually applies to pregnant females  $\geq$  24 weeks of gestation.
- **Traumatic Arrest:** CPR if indicated. May utilize an AED if indicated.
- **Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.

### III. LIMITED ALS (LALS) INTERVENTIONS

- Advanced airway (as indicated).
  - **Unmanageable Airway:** Transport to the closest most appropriate receiving hospital when the patient requires advanced airway and an adequate airway cannot be maintained with a BVM device.
- Apply AED.
- IV Access (warm IV fluids when available).
  - *Unstable:* BP<90mmHG and/or signs of inadequate perfusion, start 2<sup>nd</sup> IV access.
  - *Stable:* BP>90mmHG and/or signs of adequate tissue perfusion.

**Blunt Trauma:**

- *Unstable:* IV NS open until stable or 2000 ml maximum is infused
- *Stable:* IV NS TKO

**Penetrating Trauma:**

- *Unstable:* IV NS 500ml bolus one (1) time.
- *Stable:* IV NS TKO

**Isolated Closed Head Injury:**

- *Unstable:* IV NS 250ml bolus, may repeat to a maximum of 500 ml.
- *Stable:* IV NS TKO

- Transport to appropriate hospital.

**A. Manage Special Considerations**

- **Axial Spinal Immobilization:** ALS personnel should remove axial spinal immobilization devices from patients placed in full axial spinal immobilization precautions by first responders and BLS personnel if the patient does not meet any of the following indicators using the acronym (NSAID):

N-euro Deficit(s) present?  
S-pinal Tenderness present?  
A-ltered Mental Status?  
I-ntoxication?  
D-istracting Injury?

- Consider maintaining spinal alignment on the gurney, or using spinal axial immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization using long board.

- **Fractures**

- **Isolated Extremity Trauma:** Trauma without multisystem mechanism. Extremity trauma is defined as those cases of injury where the limb itself and/or the appendicular skeleton

(shoulder or pelvic girdle) may be injured, e.g., dislocated shoulder, hip fracture or dislocation.

- Administer IV NS 250 ml bolus one (1) time.
- **Impaled Object:** Remove object upon Trauma Base Station physician order, if indicated.
- **Traumatic Arrest:** Continue CPR as appropriate.
  - Apply AED and follow the voice prompts.
- B. Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.
  - *Severe Blunt Force Trauma Arrest:* If indicated, transport to the closest receiving hospital.
  - *Penetrating Trauma Arrest:* If indicated, transport to the closest receiving hospital.
  - If the patient does not meet the “Obvious Death Criteria” in ICEMA Reference #12010 - Determination of Death on Scene, contact the Trauma Base Station for determination of death on scene for those patients who suffer a traumatic cardiac arrest in the setting of penetrating trauma and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.
  - Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without Trauma Base Station contact.
  - **Precautions and Comments:**
    - Electrical injuries that result in cardiac arrest shall be treated as medical arrests.
    - Consider cardiac etiology in older patients in cardiac arrest with low probability of mechanism of injury.
    - If the patient is not responsive to trauma-oriented resuscitation, consider medical etiology and treat accordingly.
    - **Unsafe scene may warrant transport despite low potential for survival.**

- Whenever possible, consider minimal disturbance of a potential crime scene.
- **Base Station Orders:** May order additional fluid boluses.

#### IV. ALS INTERVENTIONS

- Advanced Airway (as indicated):
  - Unmanageable Airway: If an adequate airway cannot be maintained with a BVM device; **and** the paramedic is unable to intubate or perform a successful needle cricothyrotomy (if indicated), **then**, transport to the closest receiving hospital and follow ICEMA Reference #8120 - Continuation of Care.
- Monitor ECG.
- IV/IO Access (Warm IV fluids when available).
  - *Unstable:* BP <90mmHG and/or signs of inadequate perfusion, start 2<sup>nd</sup> IV access.
  - *Stable:* BP >90mmHG and/or signs of adequate tissue perfusion.

#### **Blunt Trauma:**

- *Unstable:* IV NS open until stable or 2000 ml maximum is infused
- *Stable:* IV NS TKO

#### **Penetrating Trauma:**

- *Unstable:* IV NS 500 ml bolus one (1) time.
- *Stable:* IV NS TKO

#### **Isolated Closed Head Injury:**

- *Unstable:* IV NS 250 ml bolus, may repeat to a maximum of 500 ml
- *Stable:* IV NS TKO
- Transport to appropriate hospital.
- Insert nasogastric/orogastric tube as indicated.

A. **Manage Special Considerations**

- **Axial Spinal Immobilization:** ALS personnel should remove axial spinal immobilization devices from patients placed in full axial spinal immobilization precautions by first responders and BLS personnel if the patient does not meet any of the following indicators using the acronym (NSAID):

**N**-euro Deficit(s) present?

**S**-pinal Tenderness present?

**A**-ltered Mental Status?

**I**-ntoxication?

**D**istracting Injury?

- Consider maintaining spinal alignment on the gurney, or using spinal axial immobilization on an awake, alert and cooperative patient, without the use of a rigid spine board.
- Penetrating trauma without any NSAID indicators are not candidates for spinal immobilization using long board.
- **Chest Trauma:** Perform needle thoracostomy for chest trauma with symptomatic respiratory distress.
- **Fractures:**
  - **Isolated Extremity Trauma:** Trauma without multisystem mechanism. Extremity trauma is defined as those cases of injury where the limb itself and/or the appendicular skeleton (shoulder or pelvic girdle) may be injured, e.g., dislocated shoulder, hip fracture or dislocation.

➤ **IV Pain Relief:**

Morphine Sulfate 5 mg IV slowly. May repeat every five (5) minutes to a maximum of 20 mg, if the patient maintains a BP >90mmHG and shows signs of adequate tissue perfusion. Document BPs every five (5) minutes while medicating for pain and reassess patient.

Consider Ondansetron 4 mg slow IVP/PO as prophylactic treatment of nausea and vomiting associated with narcotic administration.

*Note: Patients in high altitudes should be hydrated with IV NS prior to IV pain relief to reduce the incidents of nausea,*

*vomiting, and transient hypotension, which are side effects associated with administering IV Morphine.*

Administer IV NS 250ml bolus one (1) time.

➤ **IM Pain Relief:**

Morphine Sulfate 10 mg IM. Document vital signs and reassess patient.

Consider Ondansetron 4 mg IM/PO as prophylactic treatment of nausea and vomiting associated with narcotic administration.

- **Head and Neck Trauma:** Immediately prior to intubation, consider prophylactic Lidocaine 1.5 mg/kg IV for suspected head/brain injury.
  - **Base Station Orders:** When considering Nasotracheal intubation ( $\geq$  15 years of age) and significant facial trauma, trauma to the face or nose and/or possible basilar skull fracture are present, Trauma Base Station contact is required.
  - **Impaled Object:** Remove object upon Trauma Base Station physician order, if indicated.
  - **Traumatic Arrest:** Continue CPR as appropriate.
- Treat per ICEMA Reference #11070 - Cardiac Arrest - Adult.

**B. Determination of Death on Scene:** Refer to ICEMA Reference #12010 - Determination of Death on Scene.

- *Severe Blunt Force Trauma Arrest:* If indicated, pronounce on scene.
- *Penetrating Trauma Arrest:* If indicated, transport to the closest receiving hospital.
- If the patient does not meet the “Obvious Death Criteria” in ICEMA Reference #12010 - Determination of Death on Scene, contact the Trauma Base Station for determination of death on scene for those patients who suffer a traumatic cardiac arrest in the setting of penetrating trauma with documented asystole in at least two (2) leads, and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.

- Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without Trauma Base Station contact.
- **Precautions and Comments:**
  - Electrical injuries that result in cardiac arrest shall be treated as medical arrests.
  - Consider cardiac etiology in older patients in cardiac arrest with low probability of mechanism of injury.
  - **Unsafe scene may warrant transport despite low potential for survival.**
  - Whenever possible, consider minimal disturbance of a potential crime scene.
- **Base Station Orders:** May order additional medications and/or fluid boluses.

## V. REFERENCES

<u>Number</u>	<u>Name</u>
8120	Continuation of Care
11070	Cardiac Arrest - Adult
12010	Determination of Death on Scene



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## TRAUMA TRIAGE CRITERIA AND DESTINATION POLICY

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### I. PURPOSE

To establish Trauma Triage Criteria that is consistent with the American College of Surgeons standards that will help identify trauma patients in the field, and based upon their injuries, direct their transport to an appropriate Trauma Center.

### II. AUTHORITY

California Health and Safety Code, Division 2.5  
California Code of Regulations, Title 22 Chapter 7

### III. DEFINITIONS

**Adult Patients:** A person appearing to be > 15 years of age.

**Pediatric Patients:** A person appearing to be < 15 years of age.

**Critical Trauma Patients (CTP):** Patients meeting ICEMA's Critical Trauma Patient Criteria.

**Trauma Center:** A licensed general acute care hospital designated by ICEMA's Governing Board as a trauma hospital in accordance with State laws and regulations.

**Pediatric Trauma Center:** A licensed acute care hospital which usually treats (but is not limited to) persons <15 years of age, designated by ICEMA's Governing Board, meets all relevant criteria, and has been designated as a pediatric trauma hospital, according to California Code of Regulations, Title 22, Division 9, Chapter 7, Section 100261.

**Inadequate Tissue Perfusion:** Evidenced by the presence of cold, pale, clammy, mottled skin, and/or capillary refill time > 2 seconds. Pulse rate will increase in an attempt to pump more blood. As the pulse gradually increases (tachycardia), it becomes weak and thready. Blood pressure is one of the last signs to change (hypotension). Altered level of consciousness may also be an indicator to inadequate tissue perfusion, especially in the very young.

## IV. POLICY

### A. Transportation For Patients Identified as a CTP

- Adult patients will be transported to the closest Trauma Center.
- Pediatric patients will be transported to a Pediatric Trauma Center when there is less than a 20 minute difference in transport time to the Pediatric Trauma Center versus the closest Trauma Center.
- Helicopter transport shall not be used unless ground transport is expected to be greater than 30 minutes and EMS aircraft transport is expected to be significantly more expeditious than ground transport. If an EMS aircraft is dispatched, adherence to the Aircraft Rotation ICEMA Reference #8070 (in San Bernardino County) is mandatory.
- Patients with an unmanageable airway shall be transported to the closest receiving hospital for airway stabilization. Trauma Base Station contact shall be made.
- Hospital Trauma Diversion Status: Refer to ICEMA Reference #8060 - San Bernardino County Hospital Diversion Policy.
- Multi-Casualty Incident: Refer to ICEMA Reference #5050 - Medical Response to a Multi-Casualty Incident Policy.
- CTP meeting physiologic or anatomic criteria with associated burns will be transported to the closest Trauma Center.

### B. Trauma Triage Criteria of the CTP

A patient shall be transported to the closest Trauma Center when any one of the following physiologic and/or anatomic criteria is present following a traumatic event (Trauma Base Station contact shall be made):

#### 1. Physiologic Indicators:

- **Glasgow Coma Scale (GCS)/Level of Consciousness (LOC)**
  - **Adult**
    - GCS  $\leq$  13
    - LOC > 3 minutes
    - nausea/vomiting in the setting of significant head trauma

- **Pediatric**
  - GCS  $\leq$  13
  - any LOC
  - nausea/vomiting in the setting of significant head trauma

- **Respiratory**

- **Adult**
  - requiring assistance with ventilation **or**
  - hypoxic = O<sub>2</sub> saturation that is consistently < 90% **and a**
  - RR < 10 or > 29
- **Pediatric**
  - requiring assistance with ventilation **or**
  - hypoxic = O<sub>2</sub> saturation that is consistently < 90% **and a**
  - < 10 years: RR < 12 or > 40
  - < 1 year: RR < 20 or > 60

- **Hypotension**

- **Adult**
  - exhibits inadequate tissue perfusion
  - BP < 90 mmHG
  - tachycardia
- **Pediatric**
  - exhibits inadequate tissue perfusion
  - abnormal vital signs (according to age)

## 2. **Anatomic Indicators:**

- **Penetrating injuries to:**

- head
- neck
- chest
- abdomen/pelvis extremity proximal to the knee or elbow

- **Blunt chest trauma resulting in:**

- ecchymosis
- unstable chest wall
- flail chest

- **Severe tenderness to:**
  - head
  - neck
  - torso
  - abdomen
  - pelvis
- **Paralysis:**
  - traumatic
  - loss of sensation
  - suspected spinal cord injury
- **Abdomen:**
  - tenderness with firm and rigid abdomen on examination
- **Amputations:**
  - above the wrist
  - above the ankle
- **Fractures:**
  - evidence of two or more proximal long bone fractures (femur, humerus)
  - open fractures
  - two or more long bone fractures
- **Skull Deformity**
- **Major Tissue Disruption**
- **Suspected Pelvic Fracture**

### 3. Mechanism of Injury:

If a patient has one or more of the following mechanisms of injury **with** any of the above physiologic or anatomic criteria transport to the closest Trauma Center.

If there are no associated physiologic or anatomic criteria and the potential CTP meets one or more of the following mechanisms of injury, contact a Trauma Base Station for physician consultation to

determine the patient destination. In some cases, a Trauma Base Station may direct a patient a non-trauma receiving hospital.

- **High Speed Crash:**
  - initial speed > 40 mph
  - major auto deformity > 18 inches
  - intrusion into passenger space compartment > 12 inches
  - unrestrained passenger
  - front axle rearward displaced
  - bent steering wheel/column
  - starred windshield
  
- **Vehicle Rollover:**
  - complete rollover
  - rollover multiple times
  - unrestrained
  - restrained with significant injuries or high rate of speed
  
- **Motorcycle Crash:**
  - 20 mph **and/or**
  - separation of rider from the bike with significant injury
  
- **Non-Motorized Transportation (e.g., bicycles, skate boards, skis, etc.):**
  - with significant impact > 20 mph and/or
  - pedestrian thrown >15 feet or run over
  
- **Pedestrian:**
  - auto-pedestrian with significant impact > 10mph
  - pedestrian thrown >15 feet or run over
  
- **Blunt Trauma to:**
  - head
  - neck
  - torso

- **Extrication:**
  - 20 minutes with associated injuries
- **Death of Occupant:**
  - in same passenger space
- **Ejection:**
  - partial or complete ejection of patient from vehicle
- **Falls:**
  - **Adult**
    - $\geq 15$  feet
  - **Pediatric**
    - 3 times the child's height or  $> 10$  feet
- **Submersion with Trauma**

#### 4. Age and Co-Morbid Factors

If the patient does not meet any of the above criteria, make Trauma Base Station contact to determine if a Trauma Center should be the destination for the following patients:

- pediatric  $< 9$  years of age
- adult  $> 65$  years of age
- history of respiratory, cardiac, liver disease, or diabetes
- history of hematologic or immunosuppressive conditions
- isolated extremity injury with neurovascular compromise (time sensitive injury)
- pregnant ( $> 20$  weeks in gestation)
- inability to communicate, e.g., language, psychological and/or substance impairment

### C. Exceptions

The patient is identified as a CTP or a potential CTP, but presents with the following:

- **Unmanageable Airway:**
  - Transport to the closest receiving hospital when the patient **requires intubation:**
    - an adequate airway cannot be maintained with a BVM device; **and**
    - the paramedic is unable to intubate or if indicated, perform a successful needle cricothyrotomy.
  
- **Severe Blunt Force Trauma Arrest:**
  - Refer to ICEMA Reference #12010 - Determination of Death on Scene.
    - Severe blunt force trauma, pulseless, without signs of life and cardiac electrical activity less than 40 bpm)
    - If indicated, pronounce on scene.
  
  - If patient does not meet determination of death criteria, transport to closest receiving hospital.
  
- **Penetrating Trauma Arrest:**
  - Refer to ICEMA Reference #12010 - Determination of Death on Scene.
    - If the patient does not meet the “*Obvious Death Criteria*” in the ICEMA Reference #12010 - Determination of Death on Scene, contact the Trauma Base Station for determination of death on scene for those patients who suffer a traumatic cardiac arrest in the setting of penetrating trauma with documented asystole in at least two (2) leads, and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.
  
  - Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without Trauma Base Station contact.
  
  - If indicated, transport to the closest receiving hospital.

- **Burn Patients:**
  - Refer to ICEMA Reference #8030 - Burn Criteria and Destination Policy.
  - Burn patients meeting CTP, **transport to the closest Trauma Center.**
  - Burn patients not meeting CTP, **transport to the closest receiving hospital or a Burn Center.**
  
- **EMS Aircraft Indications:**
  - An EMS aircraft may be dispatched for the following events:
    - MCI
    - Prolonged extrication time (> 20 minutes)
    - **Do Not Delay Patient Transport** waiting for an en route EMS aircraft.
  
- **EMS Aircraft Transport Contraindications:**
  - The following are contraindications for EMS aircraft patient transportation:
    - Patients contaminated with Hazardous Material who cannot be decontaminated and who pose a risk to the safe operations of the EMS aircraft and crew.
    - Violent patients with psychiatric behavioral problems and uncooperative patients under the influence of alcohol and/or mind altering substances who may interfere with the safe operations of an EMS aircraft during flight.
    - Stable patients.
    - Ground transport is < 30 minutes.
    - Traumatic cardiac arrest.
    - Other safety conditions as determined by pilot and/or crew.
  
- **Remote Locations:**
  - Remote locations may be exempted from specific criteria upon written permission from the ICEMA Medical Director.

**D. Considerations**

- Scene time should be limited to 10 minutes under normal circumstances.

- Burn patients with associated trauma, should transported to the closest Trauma Center. Trauma Base Station contact shall be made.

**E. Radio Contact**

- If not contacted at scene, the receiving Trauma Center must be notified as soon as possible in order to activate the trauma team.
- CTP meeting all Trauma Triage Criteria (physiologic, anatomic, mechanism of injury, and/or age and co-morbid factors), a Trauma Base Station shall be contacted in the event of patient refusal of assessment, care and/or transportation.
- In Inyo and Mono Counties, the assigned Base Station should be contacted for CTP consultation and destination.