



Inland Counties Emergency Medical Agency

Serving San Bernardino, Inyo, and Mono Counties

*Virginia Hastings, Executive Director
Reza Vaezazizi, M.D., Medical Director*

DATE: August 16, 2011

TO: EMS Providers – ALS, BLS, EMS Aircraft
Hospital CEOs, ED Directors, Nurse Managers and PLNs
EMS Training Institutions and Continuing Education Providers
Inyo, Mono and San Bernardino County EMCC Members
Other Interested Parties

FROM: Virginia Hastings
ICEMA Executive Director

Reza Vaezazizi, M.D.
ICEMA Medical Director

**SUBJECT: PROTOCOLS FOR PUBLIC COMMENT ENDS
SEPTEMBER 14, 2011 AT 5 P.M.**

The following attached five (5) protocols have been reviewed and revised by the Trauma System Advisory Committee (TSAC), Protocol Education Committee (PEC) and Medical Advisory Committee (MAC) and are now available for public comment and recommendations:

Protocol Reference #:

- 11100 Burns-Adult
- 14070 Burns-Pediatric
- 15010 Trauma-Adult
- 15020 Trauma-Pediatric
- 15030 Trauma Triage Criteria and Destination Policy

ICEMA encourages all system participants to submit recommendations, in writing, to ICEMA during the comment period. **Written comments will be accepted until September 14, 2011 at 5 P.M.** Comments may be sent hardcopy, faxed to (909) 388-5825 or via email to Chris Yoshida-McMath, RN at c.yoshida-mcmath@cao.sbcounty.gov. Comments submitted and any revisions made will be presented at the September 2011 Emergency Medical Care Committee (EMCC) meetings in all three counties.

VH/CYM/mae

Enclosure

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BURNS – ADULT 15 Years of Age and Older

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.

FIELD ASSESSMENT/TREATMENT INDICATORS

Burn Criteria and Destination Policy #8030

ADULT TREATMENT PROTOCOL: BURNS Base Station Contact Shaded in Gray

BLS INTERVENTIONS	ALS INTERVENTIONS
<ul style="list-style-type: none"> • Break contact with causative agent (stop the burning process) • Remove clothing and jewelry quickly, if indicated • Keep patient warm • Estimate % TBSA burned and depth using the “Rule of Nines” <ul style="list-style-type: none"> ○ 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 <p><u><i>BLS Continued</i></u></p>	<ul style="list-style-type: none"> • Advanced airway as indicated <p>Airway Stabilization: Burn patients with respiratory compromise or potential for such, will be transported to the closest receiving hospital for airway stabilization</p> <ul style="list-style-type: none"> • Monitor ECG • IV/IO Access: Warm IV fluids when avail <p><i>Unstable:</i> BP<90mmHG and/or signs of inadequate tissue perfusion, start 2nd IV access.</p> <ul style="list-style-type: none"> ○ IV NS 250ml boluses, may repeat to a maximum of 1000ml. <p><i>Stable:</i> BP>90mmHG and/or signs of adequate tissue perfusion.</p> <ul style="list-style-type: none"> ○ IV NS 500ml/hour • Treat pain as indicated <p>IV Pain Relief: Morphine Sulfate 5mg IV slowly and may repeat every 5 minutes to a maximum of 20mg when the patient maintains a BP>90mmHG and signs of adequate tissue perfusion. Document BP’s every 5 minutes while medicating for pain and reassess the patient.</p>

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.

BLS Continued

Eye Involvement: Continuous flushing with NS during transport. Allow patient to remove contact lenses if possible.

ALS Continued

IM Pain Relief: Morphine Sulfate 10mg IM. Document vital signs and reassess the patient.

- Transport to appropriate facility: *CTP with associated burns:* transport to the closest trauma hospital.
- Burn patients with associated trauma, should be transported to the closest Trauma[YC1] Center. Trauma base station contacted shall be made.
- Insert nasogastric/oro gastric tube as indicated
- Refer to Burn Classification table[YC2].

MANAGE SPECIAL CONSIDERATIONS:

Electrical Burns: Monitor for dysrhythmias, treat according to [YC3]ICEMA protocols.

- Electrical injuries that result in cardiac arrest shall be treated as medical arrests.

ALS Continued

Respiratory Distress: Intubate patient if facial/oral swelling are present or if respiratory depression or distress develops due to inhalation injury.

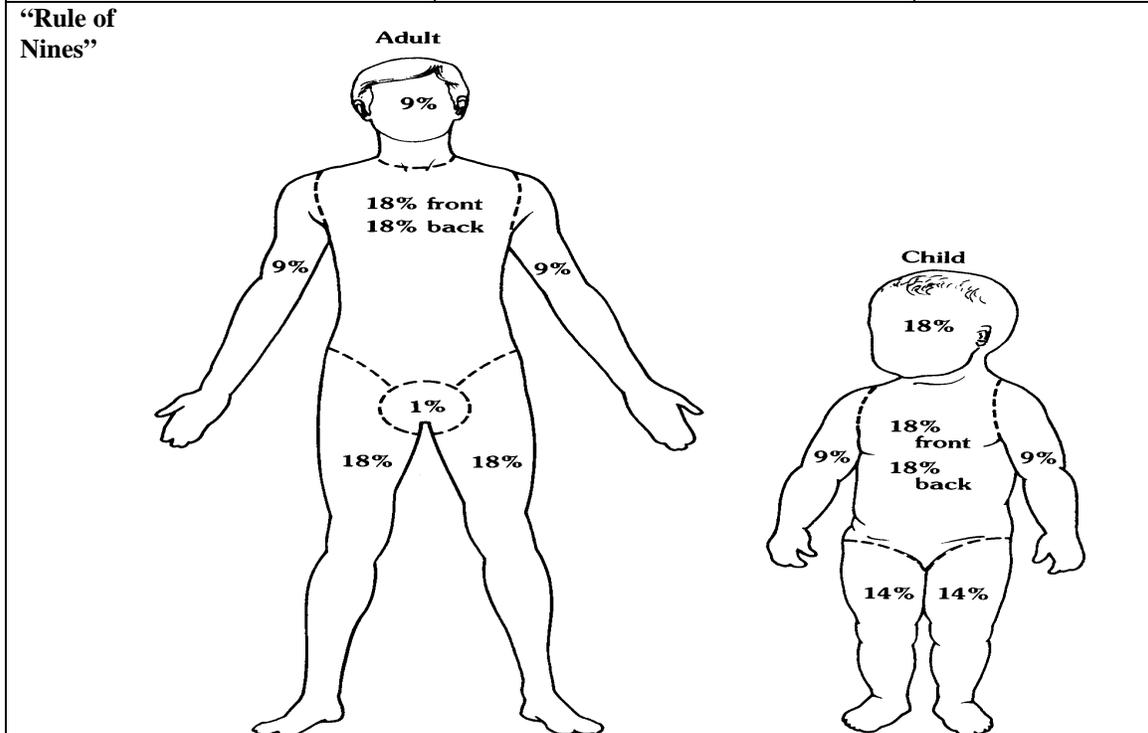
<p>Determination of Death on Scene: Refer to Protocol # 12010 Determination of Death on Scene.</p>	<ul style="list-style-type: none">• Nebulized Albuterol 2.5mg with Atrovent 0.5mg, may repeat two (2) times.• Administer humidified O2, if available• Consider capnography, if available. <p>Awake and breathing patients with potential for facial/inhalation burns are not candidates for nasal tracheal intubation. CPAP may be considered , if indicated, after consultation with base station hospital.</p> <p>Deteriorating Vital Signs: Transport to the closest receiving hospital. Contact base station.</p> <p>Pulseness and Apneic: Transport to the closest receiving hospital and treat according to and ICEMA policies. Contact base station.</p> <p>Determination of Death on Scene: Refer to Reference Protocol # 12010 Determination of Death on Scene.</p> <p>Precautions and Comments:</p> <ul style="list-style-type: none">• 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. <p>Base Station Orders: May order additional:</p> <ul style="list-style-type: none">• medications;• fluid boluses.
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REFERENCE PROTOCOLS

<u>Protocol Number</u>	<u>Protocol Name</u>
9010	General Patient Care Guidelines
10150	External Jugular Vein Access
10030/10040	Oral Endotracheal Intubation
10080	Insertion of Nasogastric/Orogastric Tube
10060	Needle Thoracostomy
10140	Intraosseous Infusion IO
10050	Nasotracheal Intubation
10070	Needle Cricothyrotomy
10160	Axial Spinal Stabilization
10010/10020	King Airway Device
11070	Adult Cardiac Arrest
15030	Trauma Triage Criteria and Destination Policy
12010	Determination of Death on Scene

BURN CLASSIFICATIONS

ADULT BURN CLASSIFICATION CHART		DESTINATION
<p><u>MINOR</u> – ADULT</p> <ul style="list-style-type: none"> • < 10% TBSA • < 2% Full Thickness 		<p>CLOSEST MOST APPROPRIATE RECEIVING HOSPITAL</p>
<p><u>MODERATE</u> – ADULT</p> <ul style="list-style-type: none"> • 10 - 20% TBSA • 2 - 5% Full Thickness • High Voltage Injury • Suspected Inhalation Injury • Circumferential Burn • Medical problem predisposing to infection (e.g., diabetes mellitus, sickle cell disease) 		<p>CLOSEST MOST APPROPRIATE RECEIVING HOSPITAL</p>
<p><u>MAJOR</u> – ADULT</p> <ul style="list-style-type: none"> • >20% TBSA burn in adults • > 5% Full Thickness • High Voltage Burn • Known Inhalation Injury • Any significant burn to face, eyes, ears, genitalia, or joints 		<p>CLOSEST MOST APPROPRIATE BURN CENTER</p> <p>In San Bernardino County, contact: Arrowhead Regional Medical Center (ARMC)</p>





BURNS - PEDIATRIC (Less Than 15 Years of Age)

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.

FIELD ASSESSMENT/TREATMENT INDICATORS

Burn Criteria and Destination Policy # 8030

PEDIATRIC TREATMENT PROTOCOL: BURNS

in Gray

BLS INTERVENTIONS	ALS INTERVENTIONS
<ul style="list-style-type: none"> • Break contact with causative agent (stop the burning process) • Remove clothing and jewelry quickly, if indicated • Keep patient warm • Estimate % TBSA burned and depth using the “Rule of Nines” <ul style="list-style-type: none"> ○ 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 <p><u>BLS Continued</u></p>	<ul style="list-style-type: none"> • Advanced airway as indicated <p>Airway Stabilization: Burn patients with respiratory compromise or potential for such, will be transported to the closest receiving hospital for airway stabilization.</p> <ul style="list-style-type: none"> • Monitor ECG • IV/IO Access: Warm IV fluids when avail <p><i>Unstable:</i> Vital signs (age appropriate) and/or signs of inadequate tissue perfusion, start 2nd IV access.</p> <ul style="list-style-type: none"> ○ Administer 20ml/kg NS bolus IV/IO, may repeat once. <p><i>Stable:</i> Vital signs (age appropriate) and/or signs of adequate tissue perfusion.</p> <p>≤ <u>5 years of age</u></p> <ul style="list-style-type: none"> ○ IV NS 150ml/hour <p>> <u>5 years of age</u> - < <u>15 years of age</u></p> <ul style="list-style-type: none"> ○ IV NS 250ml/hour <ul style="list-style-type: none"> • Treat pain as indicated

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.

BLS Continued

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.

ALS Continued

IV Pain Relief: Morphine Sulfate 0.1mg/kg IV/IO slowly, do not exceed 5mg increments, may repeat every 5 minutes to a maximum of 20mg IV/IO when the patient maintains age appropriate vital signs and adequate tissue perfusion. Document vital signs every 5 minutes while medicating for pain, and reassess the patient.

IM Pain Relief: Morphine Sulfate 0.2mg/kg IM, 10mg IM maximum. Document vital signs and reassess the patient.

- Transport to appropriate facility:

CTP with associated burns: transport to the closest trauma hospital.

- Burn patients with associated 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.

MANAGE SPECIAL CONSIDERATIONS:

ALS Continued

Electrical Burns: Monitor for dysrhythmias, treat according to PALS guidelines and ICEMA policies.

- Electrical injuries that result in cardiac

Determination of Death on Scene: Refer to Protocol # 12010 Determination of Death on Scene.

arrest shall be treated as medical arrests.

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 2.5mg with Atrovent 0.25mg, may repeat two (2) times.
- 1 year to < 15 years old – Albuterol 2.5mg with Atrovent 0.5mg, may repeat two (2) times.
- Administer humidified O2, if available.
- Consider capnography, 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 Reference Protocol # 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.

ALS Continued

- Do not apply cool dressings or allow environmental exposure, since hypothermia will result in a young child.

Base Station Orders: May order additional:

- medications;
- fluid boluses.

REFERENCE PROTOCOLS

<u>Protocol Number</u>	<u>Protocol Name</u>
9010	General Patient Care Guidelines
10150	External Jugular Vein Access
10030/10040	Oral Endotracheal Intubation
10080	Insertion of Nasogastric/Orogastric Tube
10060	Needle Thoracostomy
10140	Intraosseous Infusion IO
10050	Nasotracheal Intubation
10070	Needle Cricothyrotomy
10160	Axial Spinal Stabilization
10010/10020	King Airway Device
11070	Adult Cardiac Arrest
15030	Trauma Triage Criteria and Destination Policy
12010	Determination of Death on Scene

BURN CLASSIFICATIONS

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

“Rule of Nines”

Adult

- Head: 9%
- Front: 18%
- Back: 18%
- Arms: 9% each
- Groin: 1%
- Legs: 18% each

Child

- Head: 18%
- Front: 18%
- Back: 18%
- Arms: 9% each
- Legs: 14% each



TRAUMA - ADULT (15 Years of Age and Older)

Any critical trauma patient (CTP) requires effective communication and rapid ~~transportion~~ transportation to the closest trauma center [YC1]. 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.

FIELD ASSESSMENT/TREATMENT INDICATORS

Trauma Triage Criteria and Destination Policy #15030

ADULT TREATMENT PROTOCOL: TRAUMA Base Station Contact Shaded in Gray

BLS INTERVENTIONS	ALS INTERVENTIONS
<p>[YC2]</p> <ul style="list-style-type: none"> • Ensure thorough initial assessment • Ensure patent airway, protecting cervical spine • Axial spinal stabilization as appropriate • Oxygen and/or ventilate as needed, O₂ 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 <p><u>BLS Continued</u></p>	<ul style="list-style-type: none"> • Advanced airway as indicated <p>Unmanageable Airway: Transport to the closest receiving hospital when the patient and follow Continuation of Trauma Care Protocol Reference # 8100 [YC3]:</p> <p>REQUIRES INTUBATION:</p> <ol style="list-style-type: none"> 1. An adequate airway cannot be maintained with a BVM device; AND 2. The paramedic is unable to intubate or if indicated, perform a successful needle cricothyrotomy. <ul style="list-style-type: none"> • Monitor ECG • IV/IO Access: Warm IV fluids when avail <p><i>Unstable:</i> BP < 90mmHG and/or signs of inadequate tissue perfusion, start 2nd IV access.</p> <p><i>Stable:</i> BP > 90mmHG and/or signs of adequate tissue perfusion.</p> <p>Blunt Trauma: <i>Unstable:</i> IV NS open until stable or 2000ml</p>

MANAGE SPECIAL CONSIDERATIONS:

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.

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 re-evaluate 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:

maximum is infused

Stable: IV NS TKO

ALS Continued

Penetrating Trauma:

Unstable: IV NS 500ml bolus one time

Stable: IV NS TKO

Isolated Closed Head Injury:

Unstable: IV NS 250ml bolus, may repeat to a maximum of 500ml

Stable: IV NS TKO

- Transport to appropriate hospital.
- Insert nasogastric/orogastric tube as indicated.

MANAGE SPECIAL CONSIDERATIONS:

Chest Trauma: Perform needle thoracostomy for chest trauma with symptomatic respiratory distress.

Fractures:

BLS Continued

- **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.

Isolated Extremity Trauma: Trauma without multisystem mechanism.

ALS Continued

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 5mg IV slowly and may repeat every 5 minutes to a maximum of 20mg when the patient maintains a BP>90mmHG and signs of adequate tissue perfusion. Document BP’s every 5 minutes while medicating for pain and reassess the patient.

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 time.

IM Pain Relief: Morphine Sulfate 10mg IM. Document vital signs and reassess the patient.

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 (≥15 years of age) and significant facial trauma, trauma to the face or nose and/or possible basilar skull fracture are present, trauma base hospital contact is required.

Impaled Object: Remove object upon trauma base physician order, if indicated.

BLS Continued

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 Protocol # 12010 Determination of Death on Scene.

ALS Continued

Traumatic Arrest: Continue CPR as appropriate.

Follow Protocol # 11070 Adult Cardiac Arrest [YC4]

Determination of Death on Scene: Refer to Protocol # 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 the “*Determination of Death on Scene*” Protocol #12010, 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.

	<p><u>ALS Continued</u></p> <ul style="list-style-type: none"> ○ [YC5] Unsafe scene may warrant transport despite low potential for survival. ○ Whenever possible, consider minimal disturbance of a potential crime scene. <p>Base Hospital Station: May order additional:</p> <ul style="list-style-type: none"> • medications; • fluid boluses.
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REFERENCE PROTOCOLS

<u>Protocol Number</u>	<u>Protocol Name</u>
8100	Continuation of Trauma Care
9010	General Patient Care Guidelines
10150	External Jugular Vein Access
10030/10040	Oral Endotracheal Intubation
10080	Insertion of Nasogastric/Orogastric Tube
10060	Needle Thoracostomy
10140	Intraosseous Infusion IO
10050	Nasotracheal Intubation
10070	Needle Cricothyrotomy
10160	Axial Spinal Stabilization
10010/10020	King Airway Device
11070	Adult Cardiac Arrest
15030	Trauma Triage Criteria and Destination Policy
12010	Determination of Death on Scene



TRAUMA - PEDIATRIC (Less Than 15 Years of Age)

Any critical trauma patient (CTP) requires effective communication and rapid ~~transportion~~ transportation to the closest trauma center^[YC1]. 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 do not have trauma center designations and the assigned base station should be contacted for determination of appropriate destination.

FIELD ASSESSMENT/TREATMENT INDICATORS

Trauma Triage Criteria and Destination Policy #15030

PEDIATRIC TREATMENT PROTOCOL: TRAUMA Base Station Contact Shaded in Gray

BLS INTERVENTIONS	ALS INTERVENTIONS
<ul style="list-style-type: none"> • Ensure thorough initial assessment • Ensure patient airway, protecting cervical spine • Axial spinal stabilization as appropriate • Oxygen and/or ventilate as needed, O₂ saturation (if BLS equipped) • Keep patient warm and reassure • For a traumatic full arrest, an AED may be utilized, if indicated • Transport to ALS intercept or to the closest receiving hospital • . <p><u><i>BLS Continued</i></u></p>	<ul style="list-style-type: none"> • Advanced airway as indicated <p>Unmanageable Airway: Transport to the closest most appropriate receiving hospital when the patient and follow Policy# 8100 Continuation of Trauma Care^[YC3]:</p> <p>REQUIRES INTUBATION:</p> <ol style="list-style-type: none"> 1. An adequate airway cannot be maintained with a BVM device; AND 2. The paramedic is unable to intubate or if indicated, perform a successful needle cricothyrotomy (>2yrs old). <ul style="list-style-type: none"> • Monitor ECG • IV/IO Access: Warm IV fluids when avail <p><i>Unstable:</i> Vital signs (age appropriate) and/or signs of inadequate tissue perfusion, start 2nd IV access.</p> <ul style="list-style-type: none"> o Administer 20ml/kg NS bolus IV/IO, may repeat once.

MANAGE SPECIAL CONSIDERATIONS:

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.

Blunt 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 re-evaluate 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:

BLS Continued

- **Femur:** Apply traction splint if indicated.

Stable:

Vital signs (age appropriate) and/or signs of adequate tissue perfusion.

- o *Maintain* IV NS rate at TKO.

ALS Continued

- Transport to trauma hospital: PEDS patients identified as CTP will be transported to a pediatric trauma hospital when there is less than a 20 minute difference in transport time to the pediatric trauma hospital versus the closest trauma hospital.
- Insert nasogastric/oro gastric tube as indicated

MANAGE SPECIAL CONSIDERATIONS:

Blunt Chest Trauma: Perform needle thoracostomy for chest trauma with symptomatic respiratory distress.

Fractures:

- **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.

BLS Continued

Isolated Extremity Trauma: Trauma without multisystem mechanism.

ALS Continued

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 0.1mg/kg IV/IO slowly, do not exceed 5mg increments, may repeat every 5 minutes to a maximum of 20mg IV/IO when the patient maintains age appropriate vital signs and adequate tissue perfusion. Document vital signs every 5 minutes while medicating pain and reassess the patient.

***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 20ml/kg NS bolus IV/IO one time.

IM Pain Relief: Morphine Sulfate 0.2mg/kg IM, 10mg IM maximum. Document vital signs and reassess the patient.

Head and Neck Trauma: Immediately prior to intubation, consider prophylactic Lidocaine 1.5 mg/kg IV for suspected head/brain injury.

- Base Hospital Orders:

- When considering nasotracheal intubation (≥ 15 years of age) and significant facial trauma, trauma to the face or nose and/or possible basilar skull fracture are present, trauma base hospital contact is required.

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.

Pediatric Patients: If the level of the patient's head is greater^[YC2] than that of the torso, use approved pediatric spine board with a head drop or arrange padding on the board so that the ears line up with the shoulders and keep the entire lower spine and pelvis in line with the cervical spine and parallel to the board.

Traumatic Arrest: CPR if indicated. May utilize an AED if indicated.

Determination of Death on Scene: Refer to Protocol # 12010 Determination of Death on Scene.

ALS Continued

Impaled Object: Remove object upon trauma base physician order, if indicated.

Traumatic Arrest: Continue CPR as appropriate.

- Treat per Protocol # 14040 Pediatric Cardiac Arrest^[YC4].

Determination of Death on Scene: Refer to Protocol # 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 the "Determination of Death on Scene" Protocol #12010, 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)

	<p>leads, and no reported vital signs (palpable pulse and/or spontaneous respirations) during the EMS encounter with the patient.</p> <p><u>ALS Continued</u></p> <ul style="list-style-type: none"> • Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without trauma base station contact. <p>Precautions and Comments:</p> <ul style="list-style-type: none"> ○ Electrical injuries that result in cardiac arrest shall be treated as medical arrests. ○ Confirm low blood sugar in children and treat as indicated with altered level of consciousness. ○ Suspect child maltreatment when physical findings are inconsistent with the history. Remember reporting requirements for suspected child maltreatment. ○ Unsafe scene may warrant transport despite low potential for survival. ○ Whenever possible, consider minimal disturbance of a potential crime scene. <p>Base Hospital Orders: May order additional:</p> <ul style="list-style-type: none"> • medications; • fluid boluses.
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REFERENCE PROTOCOLS

<u>Protocol Number</u>	<u>Protocol Name</u>
8100	Continuation of Trauma Care
9010	General Patient Care Guidelines
10150	External Jugular Vein Access
10030/10040	Oral Endotracheal Intubation
10080	Insertion of Nasogastric/Orogastric Tube
10060	Needle Thoracostomy
10140	Intraosseous Infusion IO
10050	Nasotracheal Intubation
10070	Needle Cricothyrotomy
10160	Axial Spinal Stabilization
10010/10020	King Airway Device

14040	Pediatric Cardiac Arrest
15030	Trauma Triage Criteria and Destination Policy
12010	Determination of Death on Scene



TRAUMA TRIAGE CRITERIA AND DESTINATION POLICY

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.

AUTHORITY

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

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.

POLICY

A. TRANSPORTATION: For Patients Identified as a CTP

1. Adult patients will be transported to the closest YC1 trauma center.

2. Pediatric patients will be transported to a pediatric trauma center when there is less than a twenty (20) minute difference in transport time to the pediatric trauma center versus the closest trauma center.
3. Helicopter transport shall not be used unless ground transport is expected to be greater than thirty (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 Destination Policy #14054 (in San Bernardino County) is mandatory.
4. Patients with an unmanageable airway shall be transported to the closest receiving^[YC2] hospital for airway stabilization. Trauma base station contact shall be made.
5. Hospital trauma diversion status: Refer to Protocol #8060, San Bernardino County Hospital Diversion Policy.
6. Multi-Casualty Incident: Refer to Protocol #5050, Medical Response to a Multi-Casualty Incident Policy.
7. CTP meeting physiologic or anatomic criteria with associated burns will be transported to the closest^[YC3] trauma center.

B. CRITICAL TRAUMA PATIENT CRITERIA (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

<i>INDICATORS</i>	<i>ADULT</i>	<i>PEDIATRIC</i>
Glasgow Coma Scale (GCS) Level of Consciousness (LOC)	<ul style="list-style-type: none"> • GCS ≤ 13 • LOC > 3 minutes • nausea/vomiting^[YC4] in the setting of significant head trauma. 	<ul style="list-style-type: none"> • GCS ≤ 13 • any LOC • nausea/vomiting^[YC5] in the setting of significant head trauma
Respiratory	<ul style="list-style-type: none"> • requiring assistance with ventilation or • hypoxic = O₂ saturation that is consistently < 90% <u>and a</u> • RR < 10 or > 29 	<ul style="list-style-type: none"> • requiring assistance with ventilation or • hypoxic = O₂ saturation that is consistently < 90% <u>and a</u> • < 10 years: RR < 12 or > 40 • < 1 year: RR < 20 or > 60
Hypotension	<ul style="list-style-type: none"> • exhibits inadequate tissue perfusion 	<ul style="list-style-type: none"> • exhibits inadequate tissue perfusion

	<ul style="list-style-type: none"> • BP < 90mmHG • tachycardia 	<ul style="list-style-type: none"> • abnormal vital signs (according to age)
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2. Anatomic

Penetrating Injuries to:	<ul style="list-style-type: none"> • head • neck • chest • 	<ul style="list-style-type: none"> • abdomen/pelvis • • extremity proximal to the knee or elbow • [YC6]
[YC7]		•
Blunt Chest Trauma resulting in:	<ul style="list-style-type: none"> • ecchymosis • unstable chest wall 	<ul style="list-style-type: none"> • flail chest
Severe Tenderness to:	<ul style="list-style-type: none"> • head • neck • torso 	<ul style="list-style-type: none"> • abdomen • pelvis
Paralysis:	<ul style="list-style-type: none"> • traumatic • loss of sensation 	<ul style="list-style-type: none"> • suspected spinal cord injury
Abdomen:	<ul style="list-style-type: none"> • tenderness with firm and rigid abdomen on examination 	
Amputations:	<ul style="list-style-type: none"> • above the wrist 	<ul style="list-style-type: none"> • above the ankle
Fractures:	<i>ADULT</i>	<i>PEDIATRIC</i>
	<ul style="list-style-type: none"> • evidence of two or more proximal long bone fractures (femur, humerus) 	<ul style="list-style-type: none"> • open fractures • two or more long bone fractures
Skull Deformity [YC8]	•	•
Major Tissue Disruption [YC9]	•	•
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 [YC10] destination. In some cases, a trauma base station may direct a patient a non-trauma receiving hospital.

High Speed Crash:	<ul style="list-style-type: none"> • initial speed > 40mph 	<ul style="list-style-type: none"> • unrestrained passenger
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	<ul style="list-style-type: none"> major auto deformity > 18 inches intrusion into passenger space compartment > 12 inches 	<ul style="list-style-type: none"> front axle rearward displaced bent steering wheel/column starred windshield
Vehicle Rollover:	<ul style="list-style-type: none"> complete rollover rollover multiple times unrestrained 	<ul style="list-style-type: none"> restrained with significant injuries or high rate of speed
Motorcycle Crash:	<ul style="list-style-type: none"> > 20 mph and/or 	<ul style="list-style-type: none"> separation of rider from the bike with significant injury
Non-Motorized Transportation (e.g., bicycles, skate boards, ski's etc.	<ul style="list-style-type: none"> with significant impact > 20 mph[YC11] and/or[YC12] 	<ul style="list-style-type: none"> pedestrian thrown >15 feet or run over[YC13]
Pedestrian:	<ul style="list-style-type: none"> auto-pedestrian with significant impact > 10mph 	<ul style="list-style-type: none"> pedestrian thrown >15 feet or run over
Blunt[YC14] Trauma to:	<ul style="list-style-type: none"> head neck 	<ul style="list-style-type: none"> torso
Extrication:	<ul style="list-style-type: none"> > 20 minutes with associated injuries 	
Death of Occupant:	<ul style="list-style-type: none"> in same passenger space 	
Ejection:	<ul style="list-style-type: none"> partial or complete ejection of patient from vehicle 	
Falls:	<i>ADULT</i>	<i>PEDIATRIC</i>
	<ul style="list-style-type: none"> ≥ 15 feet 	<ul style="list-style-type: none"> > 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[YC15] the destination for the following patients:

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| <ul style="list-style-type: none"> pediatric < 9 years of age adult > 65 years of age have known underlying respiratory, cardiac, liver disease, or diabetes have known underlying hematologic or immunosuppressive conditions isolated extremity injury with neurovascular compromise (time sensitive injury) pregnant (greater than 20 weeks in gestation) inability to communicate, e.g. language, psychological and/or substance impairment |
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C. EXCEPTIONS

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

<p>Unmanageable Airway: <u>Transport to the closest receiving hospital when the patient:</u></p>	<p><u>REQUIRES INTUBATION</u></p> <ul style="list-style-type: none"> • 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. 	
<p>Severe Blunt Force Trauma Arrest:</p> <ul style="list-style-type: none"> • Refer to Protocol #12010 Determination of Death on Scene 	<ul style="list-style-type: none"> • <u>IF INDICATED:</u> Transport to the closest receiving hospital 	
<p>Penetrating Trauma Arrest:</p> <ul style="list-style-type: none"> • Refer to Protocol #12010 Determination of Death on Scene <p>• If the patient does not meet the “<i>Obvious Death Criteria</i>” in the “<i>Determination of Death on Scene</i>” Protocol #12010, contact the trauma base hospital 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.</p> <p>• Resuscitation efforts on a penetrating traumatic arrest victim are not to be terminated without trauma base hospital contact.</p>	<ul style="list-style-type: none"> • <u>IF INDICATED:</u> Transport to the closest receiving hospital 	
<p>Burn Patients:</p> <ul style="list-style-type: none"> • Refer to Protocol #8030 Burn Criteria and Destination Policy 	<p>Transport to the closest trauma center</p> <ul style="list-style-type: none"> • Burn patients meeting CTP 	<p>Transport to the closest receiving hospital or a Burn Center <small>YC16</small></p> <ul style="list-style-type: none"> • Burn patients not meeting CTP
<p>EMS Aircraft Indications:</p> <p><u>An EMS aircraft may be dispatched for the following events:</u></p>	<ul style="list-style-type: none"> • MCI • Prolonged extrication time (> twenty (20) minutes) • Do Not Delay Patient Transport waiting for an enroute EMS aircraft 	
<p>EMS Aircraft Transport Contraindications:</p> <p><u>The following are contraindications for EMS aircraft patient transportation:</u></p>	<ul style="list-style-type: none"> • 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 	

	<ul style="list-style-type: none"> • Traumatic cardiac arrest • Other safety conditions as determined by pilot and/or crew
Remote Locations:	<ul style="list-style-type: none"> • Remote locations may be exempted from specific criteria upon written permission from the EMS Medical Director.

D. CONSIDERATIONS

1. Scene time should be limited to ten (10) minutes under normal circumstances.
2. Burn patients with associated trauma, should_[YC17] transported to the closest trauma center_[YC18]. Trauma base station contact shall be made.

E. RADIO CONTACT

1. If not contacted at scene, the receiving trauma center must be notified as soon as possible in order to activate the trauma team.

CTP_[YC19] meeting all Trauma_[YC20] 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.
3. In Inyo and Mono Counties, the assigned base station should be contacted for CTP consultation and destination_[YC21].