TRAUMA - ADULT (15 years of age and older)

I. FIELD ASSESSMENT/TREATMENT INDICATORS

- Any trauma patient meeting Trauma Triage Criteria requiring rapid transportation to the closest Trauma Center.
- Refer to ICEMA Reference #9040 - Trauma Triage Criteria and ICEMA Reference #9030 - Destination.
- Contact the Trauma Center as soon as possible in order to activate the trauma team.
  - ➢ If the closest Trauma Center is outside ICEMA region, and no base orders or consult is needed, EMS field personnel may contact the hospital they will be transporting the patient to.
  - ➢ In Inyo and Mono Counties, the assigned base hospital shall be contacted for determination of appropriate destination.

NOTE: EMS field personnel are not authorized to evaluate patients with suspected concussion for purpose of return to play clearance.

II. BLS INTERVENTIONS

- Ensure thorough initial assessment.
- Ensure patent airway, protecting cervical spine.
- Obtain oxygen saturation (if BLS equipped).
- Administer oxygen and/or ventilate as needed.
- Keep patient warm.
- For a traumatic full arrest, provide CPR, utilize the AED if indicated and transport to the closest most appropriate hospital.
- Mechanical cardiopulmonary resuscitation (mCPR) devices are contraindicated for trauma patients
- Transport to ALS intercept or to the closest receiving hospital.

A. <u>Manage Special Considerations</u>

- **Spinal Motion Restriction**: 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 motion restriction 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 motion restriction.

NOTE: The long backboard (LBB) is an extrication tool, whose purpose is to facilitate the transfer of a patient to a transport stretcher and is not intended, or appropriate for achieving spinal motion restriction. Judicious application of the LBB for purposes other than extrication necessitates that EMS field personnel ensure the benefits outweigh the risks. If a LBB is applied for any reason, patients should be removed as soon as it is safe and practical. LBB does not need to be reapplied on interfacility transfer (IFT) patients.

- **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.

  - When direct pressure or pressure dressing fails, control life threatening bleeding of a severely injured extremity with the application of a tourniquet.

- **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.

- **Determination of Death on Scene**: Refer to ICEMA Reference #14250 - Determination of Death on Scene.

III. LIMITED ALS (LALS) INTERVENTIONS

- Perform identified BLS interventions and additional 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.

- Establish IV access.

  - *Unstable*: If BP less than 90 mm Hg and/or signs of inadequate perfusion, start 2nd IV access.

  - *Stable*: Maintain IV if BP more than 90 mm Hg and/or signs of adequate tissue perfusion.

Blunt Trauma:

- *Unstable*: Establish IV NS administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml.

- *Stable*: Saline lock only, do not administer IV fluids.

Penetrating Trauma:

- Saline lock only, do not administer IV fluids.

Isolated Closed Head Injury:

- *Unstable:* Establish IV NS, administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml.

- *Stable*: Saline lock only, do not administer IV fluids.

Isolated Extremity Trauma:

- *Unstable:* Establish IV NS, administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml.

- *Stable*: Saline lock only, do not administer IV fluids.

- Transport to appropriate hospital.

A. **Manage Special Considerations**

- Consider Push Dose Epi for persistent shock due to trauma where cardiac arrest is imminent, per ICEMA Reference #11010 - Medication - Standard Orders.

- **Spinal Motion Restriction**: LALS personnel should remove LBB devices from patients placed in full spinal motion restriction 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?

- **Impaled Object**: Remove object upon Trauma base hospital physician order, if indicated.

B. **Determination of Death on Scene**: Refer to ICEMA Reference #14250 - 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" per ICEMA Reference #14250 - Determination of Death on Scene, 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 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 hospital 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.

IV. ALS INTERVENTIONS

- Perform identified BLS and LALS intervention and the additional 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 insert SGA or perform a successful needle cricothyrotomy (if indicated), **then** transport to the closest receiving hospital and follow ICEMA Reference #9010 - Continuation of Care (San Bernardino County Only).
- Monitor ECG.
- Establish IV/IO access.
  - *Unstable*: If BP less than 90 mm Hg and/or signs of inadequate perfusion, start 2nd IV access.
  - *Stable*: Maintain IV/IO if BP more than 90 mm Hg and/or signs of adequate tissue perfusion.

Blunt Trauma:

- *Unstable*: Establish IV/IO NS administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml.
- *Stable*: Saline lock only, do not administer IV fluids.

Penetrating Trauma:

- Saline lock only, do not administer IV fluids.

Isolated Closed Head Injury:

- *Unstable:* Establish IV/IO NS, administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml.
- *Stable*: Saline lock only, do not administer IV fluids.

Isolated Extremity Trauma:

- *Unstable:* Establish IV/IO NS, administer 250 ml bolus. May repeat one (1) time to a maximum of 500 ml (avoid placement on injured extremity).
- *Stable*: Saline lock only, do not administer IV fluids.

- Tranexamic Acid (TXA) administration for blunt or penetrating traumas:

- Must be within three (3) hours of injury and must have either:
  - Signs and symptoms of hemorrhagic shock with SBP less than 90 mm Hg.
  - Significant hemorrhage with heart rate greater than or equal to 120.
  - Bleeding not controlled by direct pressure or tourniquet.
  - Pediatric administration is not indicated.
- **Blunt Trauma**:
  - For signs of hemorrhagic shock meeting inclusion criteria above, administer TXA per ICEMA Reference #11010 - Medication - Standard Orders.
- **Penetrating Trauma**:
  - For signs of hemorrhagic shock meeting inclusion criteria above, administer TXA per ICEMA Reference #11010 - Medication - Standard Orders.

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

A. <u>Manage Special Considerations</u>

- As a temporary method for chest decompression, in the management of suspected tension pneumothorax, perform needle thoracostomy.
  - ***Clinical Indications:***
    - *Patients with hypotension (SBP less than 90), clinical signs of shock, and at least one of the following signs:*
    - *Jugular vein distention.*
    - *Tracheal deviation away from the side of the injury (often a late sign).*
    - *Absent or decreased breath sounds on the affected side.*
    - *Increased resistance when ventilating a patient*
- The midaxillary line at the 5th intercostal space is the preferred site.
  .
- Consider bilateral needle thoracostomy if no improvement or in traumatic cardiac arrest.

- **Pain Relief for Acute Traumatic Injuries**:
  - Administer an appropriate analgesic per ICEMA Reference #14100 - Pain Management. Document vital signs and pain scales every five (5) minutes until arrival at destination
  - Consider Ondansetron per ICEMA Reference #11010 - Medication - Standard Orders.

B. **Determination of Death on Scene**: Refer to ICEMA Reference #14250 - 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" per ICEMA Reference #14250 - Determination of Death on Scene, 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.

V. REFERENCES

Number	Name
9010	Continuation of Care
9030	Destination
9040	Trauma Triage Criteria
11010	Medication - Standard Orders
14050	Cardiac Arrest - Adult
14100	Pain Management
14250	Determination of Death on Scene