

HEALTHEAST MEDICAL TRANSPORTATION MEDICAL OPERATIONS MANUAL

4A TRAUMA CARE

PATIENT CARE GOALS

- Identify and treat potential life threats and maintain adequate airway, ventilation, oxygenation, and perfusion.
- Limit on-scene time to 10 minutes or less for all critical patients unless safety, access, extrication, or immediate life-saving interventions require more time.
- Provide effective, rapid immobilization of suspected spinal and other orthopedic injuries.
- Provide early notification to the receiving hospital for serious injuries, multisystem trauma, and urgent conditions.
- Continue reassessments and treatment procedures during patient transport.
- Manage injury-related anxiety and pain as measured using the patient's perception of changes in pain level.

EMT

General Assessment and Care

1. On arrival at scene, size up the incident and assure hazard control and safety of all personnel. Perform triage for level of urgency and multiple patients. Identify and prioritize immediate interventions needed per **A2 General Assessment and Care**.¹
2. Perform initial patient assessment to determine mechanism(s) of injury (MOI), identify life-threatening problems, and form an impression of the patient's condition.
 - Perform **7L Selective Spinal Precautions** if indicated. For motorcycle accidents or athletic injuries remove helmet and protective athletic equipment per **7Y Helmet and Athletic Equipment Removal**.
 - Assess the patient's responsiveness (AVPU).
 - Perform **7M Bleeding Control** if indicated.
 - Assess adequacy of airway, breathing, and circulation (ABCs), and provide treatment of immediate life threats as they are indicated.
 - Continue rapid trauma assessment or provide a focused assessment as appropriate.
 - Determine if patient meets Level One Trauma Team Activation Criteria per **7K Level One Trauma Triage and Transport**.
3. Following the initial primary assessment and treatment of life threats, perform a detailed head-to-toe exam for secondary injuries. If time permits, complete the head-to-toe exam for critical patients while en route to the hospital.
4. As soon as possible, transport patients with continuing emergent or life-threatening conditions.
 - Limit scene time to less than 10 minutes whenever practical. Limit medical interventions on scene to those that are immediately life-saving or will not delay access to interventions only available in the hospital.²
 - Alert the receiving hospital about urgent patients at the earliest opportunity

Hypotension or Hypovolemic Shock Following Trauma

1. Start two or more large-bore IVs with normal saline. Obtain IO access if IV access cannot be

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obtained.³

2. If systolic blood pressure drops below 90 mmHg with signs of progression to shock, give IV fluids at a rate to maintain systolic blood pressure at 90 to 100 mmHg.
3. For pediatric patients, IV fluid boluses should be administered according to the **Handtevy Pediatric Guidelines**⁴ with careful monitoring of blood pressure after each bolus.

Cardiothoracic Trauma

1. If penetrating chest injury is present, transport immediately while performing treatments en route to the hospital.
2. Treat open chest wounds with a three sided occlusive dressing to allow air to escape but not to enter the wound.
3. Stabilize flail segments by securing a towel roll or pillow over the affected area. If possible, transport the patient lying on the injured side.
4. Stabilize impaled objects.

Head Trauma

1. Provide cervical and spinal motion restriction for patient with head injury unless **all** exclusion criteria for spinal motion restriction are met.
2. Transport patient with head elevated 30 degrees unless signs of shock are present. If signs of shock are present, the patient should be transported supine.
3. In adult patients with severe head injury, give IV fluids to maintain systolic blood pressure of at least 110 to 120 mmHg, even if there is other associated major trauma.³
4. Ensure adequate oxygenation and avoid hypoventilation of patients who show signs of neurologic deterioration following head injury.
5. Use hyperventilation judiciously and only for unconscious patients with clear signs of increasing intracranial pressure.
 - Adjust ventilations to keep the EtCO₂ reading at 35-45 mmHg. If signs of herniation develop, target EtCO₂ should be reduced to 30-35mmHg.
6. Always check and correct airway, oxygenation, and blood pressure before attributing deterioration to a neurologic cause.

Musculoskeletal Trauma

1. Apply manual stabilization during assessment, control bleeding, and dress open wounds.
2. Determine the patient's perception of level of pain utilizing a 0 to 10 assessment scale. Document the patient's pain levels before and after treatment.
3. Use progressive pain management techniques to reduce the patient's anxiety and decrease pain level.
4. Assess and document circulation-motor-sensory (CMS) of injured extremities before and after repositioning, immobilizing, and splinting procedures.
5. Immobilize and splint extremities as appropriate.
6. Apply a traction device and splinting to angulated or displaced mid-shaft femur fractures.

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7. Wrap amputated parts in dry sterile dressings, seal in plastic bag and place in ice water.
8. Apply cooling or ice packs as needed for pain or swelling.

Management of Pain and Anxiety

1. Assess the patient's level of pain associated with any injury, using a scale of 0 to 10.
2. Treat pain and anxiety per **A3 Pain and Nausea Management** and **A4 Anxiety and Sedation Management** in addition to providing the following:
 - Reassurance, calming, appropriate touch, gentle handling and transport.
 - Repositioning, stabilization, padding, immobilization and splinting.
 - Ice and cooling applied to injured areas.

PARAMEDIC

General Assessment and Care

1. Consider **7F Advanced Airway Management** for any patient with GCS less than 9, poor gag reflex, or other condition that compromises ability to protect the airway.

Cardiothoracic Trauma

1. Perform **7P Chest Decompression** if signs and symptoms of tension pneumothorax are present or if in cardiac arrest.

Musculoskeletal Trauma

1. For crush injuries with prolonged extrication (four hours or more from time of injury) administer **sodium bicarbonate 100 mEq mixed with 1 liter normal saline and infuse IV at a rate of 200 mL/hour**.

Management of Pain, Anxiety, and Nausea

1. Treat pain, anxiety, and nausea per **A3 Pain and Nausea Management** and **A4 Anxiety and Sedation Management** on standing orders taking the following into consideration:
 - Opiates may be given to a patient with mild hypotension and a normal level of consciousness.
 - Sedation should only be given once evidence of impending cardio-respiratory failure has been excluded.

DOCUMENTATION KEY POINTS

- Description of the physical position and location where the patient was found.
- Detailed assessment of mechanism of injury (MOI).
- Description of the situation and rationale when using rapid extrication.
- Techniques and equipment used to immobilize and move the patient.
- In delayed-access situations, actual clock time when access to the patient is obtained (recorded as "At patient side").

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- Actual clock time when extrication of a trapped patient is completed.
- For patients with major trauma, circumstances and actions that contribute to an on-scene time exceeding 10 minutes.
- Assessment finding that address criteria used to exclude spinal immobilization, where significant mechanism of injury has been present
- Serial recordings of vital signs and other assessment findings, including circulation and motor-sensory (CMS) status of extremities before and after immobilization.
- X-ray and laboratory finding from the referring facility.
- Time of injury/accident.
- Initial and ongoing assessments, monitoring, interventions, patient response, and complications (if any) encountered.

NOTES

¹ Identify early those patients who may have major or multiple system injuries as defined by the trauma triage criteria. These major trauma patients should receive priority for treatment and transport to minimize the time to receiving definitive care.

² Effective scene time management requires coordination with other responders. Do not delay transport by attempting a detailed exam or lower priority interventions on the scene that can be accomplished while en route.

³ **Handtevy pediatric fluid bolus guidelines:**

- **Patients up to 4 months old:** Administer a 10 ml/kg normal saline bolus.
- **Patients 4 months to 11 years old:** Administer a 20 ml/kg normal saline bolus.
- **Patients greater than 11 years old:** Administer a 1 Liter normal saline bolus.