



## General Trauma Management

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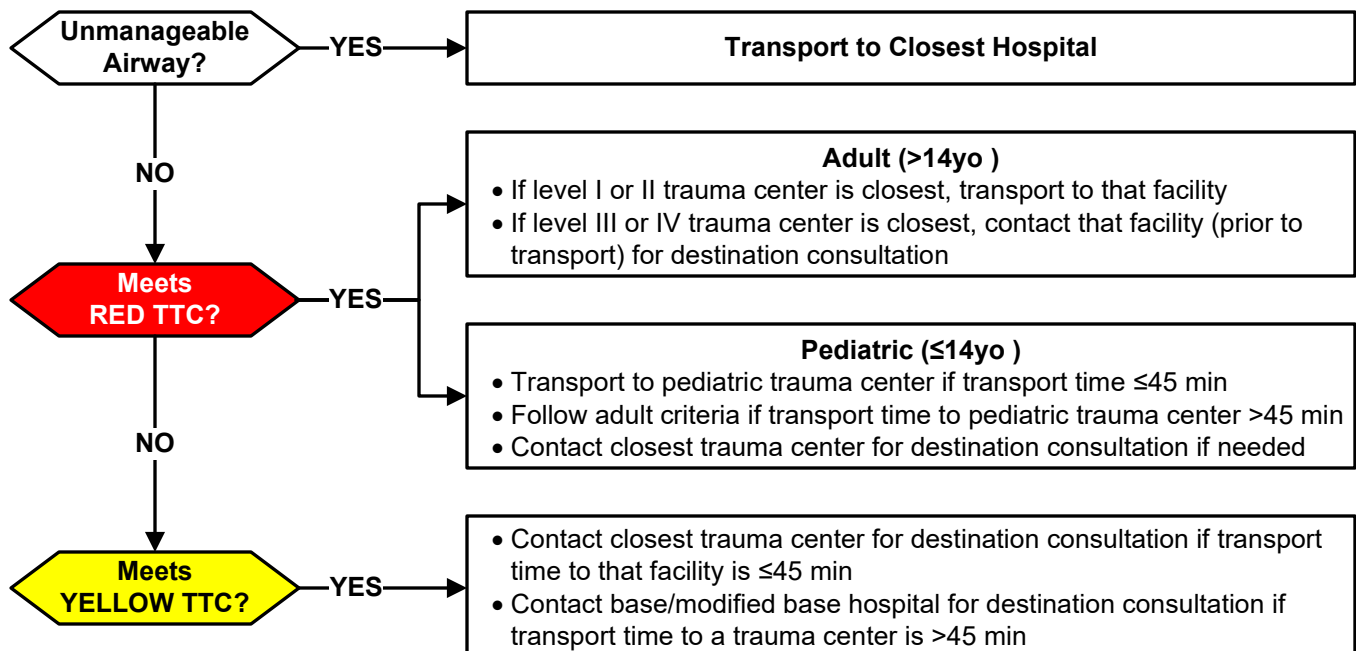
- Limit on scene procedures for pts meeting Field Trauma Triage Criteria to:
  - Pt assessment
  - Airway management
  - Hemorrhage control
  - Immobilization/splinting
  - SMR
- Transport pts with known/apparent third trimester pregnancy in left-lateral position.
- Notify receiving hospital of a 'Trauma Alert' as soon as possible for pts meeting Field Trauma Triage Criteria.

**BLS**

- Assess & support ABCs
- Assess V/S, including SpO<sub>2</sub>
- O<sub>2</sub> at appropriate rate if hypoxemic (SpO<sub>2</sub> <94%) or short of breath
- Control hemorrhage & immobilize/splint injuries as needed
- Initiate spinal motion restriction (SMR) if indicated (see page 3)
- Maintain body temperature, keep warm

**ALS**

- Consider advanced airway if indicated
- Consider EtCO<sub>2</sub> monitoring if indicated (see protocol T-3 LALS or T-3P LALS)
- Consider application of a pelvic binder if indicated (see page 2)
- Cardiac monitor (**AEMT II**)
- Establish vascular access if indicated (see page 2)
- Consider pain management if indicated (see protocol M-8 LALS or M-8P LALS)

**Field Trauma Triage Criteria (TTC) Pt Destination (see page 4 for TTC details)**



## General Trauma Management

## Vascular Access

Need or anticipated need for fluid or medication administration?

NO

Vascular access not indicated

YES

**IV/IO – NS or LR (AEMT IO use authorized for pediatric pts only)**

- Initiate vascular access on all pts meeting Field Trauma Triage Criteria
- Initiate second vascular access on adult pts presenting with hypotension (SBP <90 for pts <65 years of age, or SBP <100 for pts ≥65 years of age), or if thoracic/abdominal pain is present
- Fluid resuscitation guidelines (do not aggressively administer fluids – control volume resuscitation):
  - Adult pts:
    - For pts in hemorrhagic shock from trauma – target SBP 80-100
    - For pts in hemorrhagic shock with suspected moderate/severe TBI or spinal cord injury – target SBP >100
  - Pediatric pts:
    - Administer 20 mL/kg fluid boluses for signs of hypoperfusion/shock
    - Reassess hemodynamic parameters, respiratory status and lung sounds after each bolus
    - Titrate fluid boluses to age appropriate SBP (max cumulative: 60 mL/kg)

- Approved Commercial Pelvic Binders: Any commercial pelvic binder currently recommended by the Committee on Tactical Combat Casualty Care (CoTCCC).
- Utilization of a commercial pelvic binder is optional, and only approved for AEMT/paramedic personnel. ALS/LALS provider agencies must ensure that their personnel are appropriately trained on the application/use of the device, as misplacement of pelvic binders can significantly decrease the ability of the binder to reduce pelvic ring fractures.
- Physical exam findings which may indicate the presence of a pelvic ring fracture include, but are not limited to:
  - Crepitus when applying compression to the iliac crests
  - Perineal or genital swelling
  - Testicular/groin pain
  - Blood at the urethral meatus
  - Rectal, vaginal or perineal lacerations/bleeding
- When stabilizing a suspected pelvic ring fracture, care must be taken not to over-reduce the fracture. Over-reduction can be assessed by examining the position of the legs, greater trochanters and knees with the pt supine. The goal is to achieve normal anatomic position of the pelvis, so the lower legs should be symmetrical after stabilization.
- When clinically indicated and logistically feasible, the pelvic binder should be placed prior to extrication/movement.
- Pelvic binders should be placed directly to skin. Once applied, pelvic binders should not be removed.
- If possible, avoid log-rolling pts with a suspected pelvic fracture.

Mechanism of injury suggestive of a pelvic fracture?

NO

YES

Does pt present with one or more of the following?

- Physical exam findings suggestive of a pelvic fracture
- Hemodynamic instability: HR >100 & SBP <90 (or SBP <100 in pts ≥65 years of age)

NO

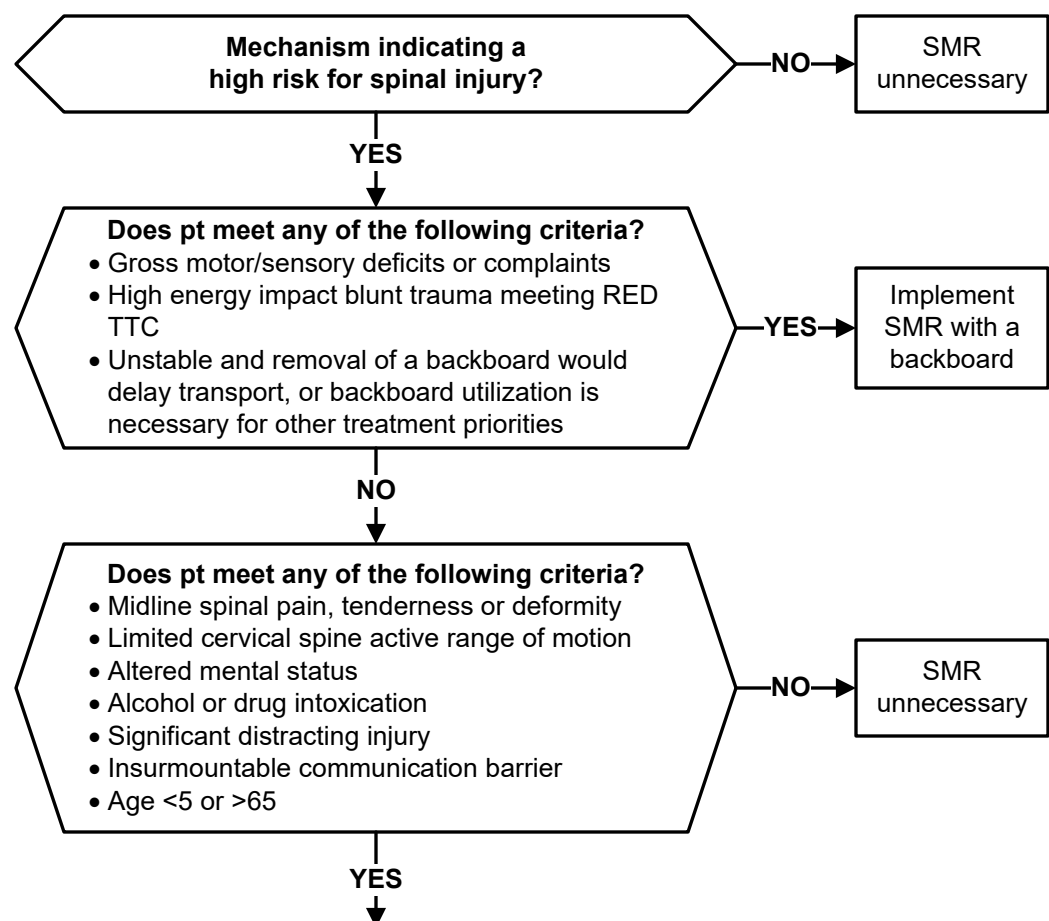
Pelvic binder not indicated

YES

Apply pelvic binder according to manufacturer instructions

**General Trauma Management****Spinal Motion Restriction (SMR)**

- A backboard shall not be utilized for pts with penetrating trauma to the head, neck or torso without evidence of spinal injury
- Helmet removal guidelines:
  - For pts who meet criteria for SMR with a backboard, football helmets should only be removed if they prevent adequate SMR or under the following circumstances:
    - If the helmet and chin strap fail to hold the head securely or prevent adequate airway control.
    - If the facemask cannot be removed.
  - Football helmets should be carefully removed to allow for appropriate SMR of pts who do not meet criteria for backboard utilization.
  - All other types of helmets (bicycle, motorcycle, etc.) should be carefully removed to allow for appropriate SMR.

**Implement SMR without a backboard as follows:**

- Alert & cooperative pts may be allowed to self-limit motion if appropriate with or without cervical collar
- Allow ambulatory pts to sit on the stretcher and then lie flat (no 'standing take-down')
- If necessary, move pt from the position found to the ambulance stretcher utilizing a device such as a KED, scoop stretcher, backboard, or if necessary, by having the pt stand and pivot to the stretcher – do not permit the pt to struggle to their feet from a seated or supine position
- Once on the ambulance stretcher, remove any hard backboard device & instruct the pt to lie still
- The head of the stretcher may be elevated 20-30° in a position of comfort
- Secure cross stretcher straps and over-the-shoulder belts firmly
- Pts with nausea &/or vomiting may be placed in the lateral recumbent position, maintaining the head in a neutral position using manual stabilization, padding, pillows, &/or the pt's arm



## General Trauma Management

## Field Trauma Triage Criteria (TTC)

## RED TTC (High Risk for Serious Injury)

| Injury Patterns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mental Status/Vital Signs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <ul style="list-style-type: none"><li>• Penetrating injuries to head, neck, torso, &amp;/or proximal extremities</li><li>• Skull deformity, suspected skull fracture</li><li>• Suspected spinal injury with new motor/sensory loss</li><li>• Chest wall instability, deformity, or suspected flail chest</li><li>• Suspected pelvic fracture</li><li>• Suspected fracture of two or more proximal long bones in a pt of any age, or one or more proximal long bone fracture in a pt <math>\leq 14</math> or <math>\geq 65</math> years of age</li><li>• Suspected open proximal long bone fracture</li><li>• Crushed, degloved, mangled, or pulseless extremity</li><li>• Amputation proximal to wrist or ankle</li><li>• Continued, uncontrolled bleeding despite EMS hemorrhage control measures</li></ul> | <p><b><u>MENTAL STATUS</u></b></p> <ul style="list-style-type: none"><li>• <b>&lt;65 years of age:</b><ul style="list-style-type: none"><li>◦ GCS <math>\leq 13</math></li></ul></li><li>• <b><math>\geq 65</math> years of age:</b><ul style="list-style-type: none"><li>◦ GCS <math>&lt; 15</math> (or decreased from baseline) with evidence/suspicion of a head strike</li></ul></li></ul> <p><b><u>RESPIRATORY STATUS</u></b></p> <ul style="list-style-type: none"><li>• <b>All pt ages:</b><ul style="list-style-type: none"><li>◦ RR <math>&lt; 10</math> or <math>&gt; 29</math> breaths/min</li><li>◦ Resp. distress or need for resp. support</li><li>◦ Room-air SpO<sub>2</sub> <math>&lt; 90\%</math></li></ul></li></ul> <p><b><u>CIRCULATORY STATUS</u></b></p> <p><b>0-9 years of age:</b></p> <ul style="list-style-type: none"><li>• SBP <math>&lt; 70</math> mm Hg + (2 x age years)</li></ul> <p><b>10-64 years of age:</b></p> <ul style="list-style-type: none"><li>• SBP <math>&lt; 90</math> mmHg <b>OR</b> HR <math>&gt;</math> SBP</li></ul> <p><b><math>\geq 65</math> years of age:</b></p> <ul style="list-style-type: none"><li>• SBP <math>&lt; 100</math> mmHG <b>OR</b> HR <math>&gt;</math> SBP</li></ul> |

## YELLOW TTC (Moderate Risk for Serious Injury)

| Mechanism of Injury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EMS Judgement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <ul style="list-style-type: none"><li>• High-Risk Auto Crash<ul style="list-style-type: none"><li>◦ Partial or complete ejection</li><li>◦ Significant intrusion (including roof)<ul style="list-style-type: none"><li>- <math>&gt; 12</math> inches occupant site; or</li><li>- <math>&gt; 18</math> inches any site; or</li><li>- Need for extrication for entrapped pt</li></ul></li><li>◦ Death in passenger compartment</li><li>◦ Child (0-9 years of age) unrestrained or in unsecured child safety seat</li><li>◦ Vehicle telemetry data consistent with severe injury</li></ul></li><li>• Rider separated from transport vehicle with significant impact (motorcycle, ATV, horse, etc.)</li><li>• Pedestrian/bicycle rider thrown, run over, or with significant impact</li><li>• Fall from height <math>&gt; 10</math> feet (all ages)</li></ul> | <p>EMS personnel should consider the following risk factors, and contact the closest trauma center or base/modified base hospital for destination consultation (see page 1), if transport to a trauma center is believed to be in the pt's best interest:</p> <ul style="list-style-type: none"><li>• Low-level falls in young children (<math>\leq 5</math> years of age) or older adults (<math>\geq 65</math> years of age) with significant head impact</li><li>• Anticoagulant use</li><li>• Suspicion of child abuse</li><li>• Special, high-resource healthcare needs</li><li>• Pregnancy <math>&gt; 20</math> weeks</li><li>• Burns in conjunction with trauma</li></ul> |