Prehospital Trauma Triage

Reference Manual
Introduction

Since the landmark white paper “Accidental Death and Disability: The Neglected Disease of Modern Society”, published in 1966 by the National Academy of Science and the National Research Council, there have been considerable improvements in the care of injured patients in the United States.\(^1\) Although unintentional injuries are still the leading cause of death among children and adults ages 1-44, and cost an estimated $117 billion per year in America\(^2\), the development of trauma systems across the country is significantly improving morbidity and mortality from injury. Inclusive trauma care systems are decreasing the number of preventable deaths by 15-20\%.

Since serious injury is a time-sensitive condition, a public health safety net in the form of a trauma system must already be in place at the time of injury to get the right patient to the right place in the right amount of time. Trauma systems, by their very nature, are designed to recognize, stabilize and deliver severely injured patients to definitive care in the shortest amount of time possible. By doing so, trauma systems have been shown to reduce injury related morbidity and mortality. A truly mature trauma system can also have a potentially positive impact through prevention initiatives.

Regionalization of trauma systems in a defined geographical area is essential to provide the highest level of care possible without unnecessary duplication of resources. Coordination of emergency medical services, hospitals and rehabilitation facilities in a unified approach is imperative. Establishing triage criteria for both primary (prehospital) and secondary (interfacility) patient severity levels ensures uniformity in the prioritization of injured patients and provides a common language for the trauma system. Categorizing all hospitals (Inclusive System) according to their resources allows injured patients to be delivered quickly to the appropriate level of care. The Model Trauma Care System Plan provides useful guidelines for trauma system development.\(^8\) Both the American College of Emergency Physicians and the American College of Surgeons Committee on Trauma have provided decades of leadership in the promulgation of trauma system development.

The ultimate goal of the mature regional trauma system is very simply to match the needs of injured patients to the closest hospital with the capability to provide definitive care in the most appropriate timeframe. Attention to undertriage as well as overtriage of injured patients is important. While overtriage may unnecessarily tax the resources of the higher level trauma
centers, undertriage can result in unnecessary morbidity or mortality to patients. Secondary interfacility overtriage, like delayed transfers, can be problematic in an immature trauma system. Delayed transfers may be due to stabilization attempts but also caused by unnecessary testing. Once injuries beyond the capability of a referring hospital are identified, non-therapeutic testing should be suspended and prompt transfer initiated. Reducing both prehospital times and interfacility transfer times are essential components of an efficient and effective regionalized trauma system.

Despite improvements in patient outcomes demonstrated by trauma system development over the past three decades, much of the United States remains outside any organized system of trauma care and many difficulties and challenges remain. Further regionalization of trauma care can only be accomplished by health care professionals working in collaboration with their public health colleagues at the local, state, regional and national levels in championing development. A survey conducted by HRSA in 2002 revealed that at least 34 states had passed enabling legislation allowing for trauma system development.

Despite the proven value of trauma systems, challenges remain to full implementation allowing all citizens immediate access to this lifesaving public health safety net. If fully incorporated into a system of injury prevention, acute care and rehabilitation, trauma systems not only serve those in need of acute care for injuries but also become the framework for disaster response as well as models and infrastructure for other acute time-sensitive conditions. Challenges to nationwide development and deployment include the need for provider education as well as educating the public and elected officials regarding the benefits of trauma systems. Adequate funding for both readiness and performance costs, and recognizing the need for all locales to organize into community wide on-call systems providing the maximum level of care for injured patients based on each respective area’s resources and capabilities are additional challenges that must be met.
Introduction

Oklahoma is divided into eight Trauma Regions each with its own RTAB. Each RTAB is charged with assessing the resources of its region and establishing a prehospital regional patient delivery plan for local emergency medical services based on OTSIDAC criteria. The care of most seriously injured patients begins with a 911 dispatched EMS unit. Each RTAB has developed a regional plan for delivering patients to the closest most appropriate facility depending on patient priority. Depending on time and distance, some patients may bypass closer lower level facilities to be delivered directly to a higher level trauma center. Likewise, some patients might require air transport, even air rendezvous with EMS, again, depending on time and distance.

If the initial receiving facility is unable to definitively manage the patient’s level of injury, then TReC will help facilitate an interfacility transfer based on a statewide plan utilizing common definitions for prioritization of patients and capabilities of trauma centers.

**Trauma Triage**

The word triage is derived from a French word meaning “to sort” and involves the initial evaluation of injured patients in either the prehospital setting or in a hospital emergency department. Proper triage in the prehospital setting should ensure that P-1 injured patients who are seriously injured are taken primarily to a trauma center capable of treating their injuries, or if in a rural setting and time and distance does not allow, to a Level III or IV Trauma Center for initial stabilization and secondary transfer. Most P-2 and P-3 injured patients can receive their definitive care at a Level III or Level IV Trauma Center unless there are occult or single system injuries requiring resources that exceed the hospital’s capabilities. Interfacility or secondary transfer of seriously injured patients will often be necessary if the initial receiving hospital does not have the resources to definitively care for the patient’s injuries. When this is the case, time should not be wasted in the performance of non-therapeutic testing, as time to definitive care has been proven to impact morbidity and mortality. Proper trauma triage should ensure that patients who are seriously injured are taken to a trauma center capable of treating their injuries in an appropriate timeframe.

One of the accepted performance standards of any trauma system is overtriage and undertriage rates. While overtriage may unnecessarily tax the resources of the higher level trauma centers, undertriage can result in unnecessary morbidity and mortality. The measurement of overtriage and undertriage rates is equally important in both the prehospital as well as the hospital setting.
Establishing triage criteria for both primary (prehospital) and secondary (Interfacility) patient severity levels ensures uniformity in the prioritization of injured patients and provides a common language for the trauma system. Physiologic and anatomical criteria are the most reliable in identifying P-1 injured patients most likely to benefit from care at a Level I, II or Regional Level III Trauma Center while reliance on mechanism of injury alone will result in overtriage. Prompt recognition of patients who are at immediate risk of life (loss of airway, hemorrhagic shock or traumatic brain injury) or who are in need of immediate operative or life saving intervention should be the primary goal of trauma triage.

Trauma Can Be a Time-Sensitive Disease
The goal of an organized trauma system should be to ensure that the seriously injured patient reaches the appropriate level of care in the appropriate amount of time. In order to accomplish this goal there must be a coordinated effort between emergency medical services and acute care hospitals within a geographical area using predetermined prehospital destination criteria (primary triage) and interfacility transfer guidelines (secondary triage). In a rural state like Oklahoma, it is not always possible for every P-1 seriously injured patient to be primarily delivered to a Level I, II or Regional Level III because of time and distance from the site of injury. If time allows it is best to bypass lower level trauma centers in order to deliver the seriously injured patient to a facility capable of providing definitive care. When it is necessary to deliver a seriously injured patient to a lower level trauma center it is imperative that only essential stabilizing care be provided before secondary transfer. It is not in the seriously injured P-1 patient’s best interest for time consuming diagnostic tests to be carried out if the facility does not have the necessary resources to care for the potential abnormal results. The performance of non-therapeutic diagnostic testing should be avoided as it will delay definitive care. Ground EMS should consider the use of air rendezvous at the scene or the lower level trauma center if weather permits in order to expedite transfer to a higher level of care.
Field Stabilization and Prioritization of Injured Patients

Minimizing scene time for seriously injured patients is extremely important. Managing the ABCs and determining the priority of the patient should occur simultaneously so that a destination decision can be made efficiently. Consideration should be given to the patient’s location within the region and time and distance to the trauma center so the patient can be delivered to the most appropriate level of care in the least amount of time. Other than securing a patient’s airway, controlling spinal alignment and stopping external hemorrhage, there is very little definitive care that can be delivered at the scene.

<table>
<thead>
<tr>
<th>History</th>
<th>Signs and Symptoms</th>
<th>Differential (Life threatening)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Time and mechanism of injury</td>
<td>- Pain, swelling</td>
<td>- Chest</td>
</tr>
<tr>
<td>- Damage to structure or vehicle</td>
<td>- Deformity, lesions, bleeding</td>
<td>- Tension pneumothorax</td>
</tr>
<tr>
<td>- Location in structure or vehicle</td>
<td>- Altered mental status or unconscious</td>
<td>- Flail chest</td>
</tr>
<tr>
<td>- Others injured or dead</td>
<td>- Hypotension or shock</td>
<td>- Pericardial tamponade</td>
</tr>
<tr>
<td>- Speed and details of MVC</td>
<td>- Arrest</td>
<td>- Open chest wound</td>
</tr>
<tr>
<td>- Restraints / protective equipment</td>
<td></td>
<td>- Hemothorax</td>
</tr>
<tr>
<td>- Past medical history</td>
<td></td>
<td>- Intra-abdominal bleeding</td>
</tr>
<tr>
<td>- Medications</td>
<td></td>
<td>- Pelvis / Femur fracture</td>
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<tr>
<td></td>
<td></td>
<td>- Spine fracture / Cord injury</td>
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<tr>
<td></td>
<td></td>
<td>- Head injury</td>
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<tr>
<td></td>
<td></td>
<td>- Extremity fracture / Dislocation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- HEENT (Airway obstruction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Hypothermia</td>
</tr>
</tbody>
</table>

### General Supportive Patient Care Protocol

- **Assessment Procedure** focusing on initial ABC and level of responsiveness
- **Spinal Immobilization Protocol**
- **Airway Protocol** if appropriate

<table>
<thead>
<tr>
<th>P-1 Injured Patient</th>
<th>Abnormal</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rapid Transport</strong> to appropriate destination using <strong>Regional Trauma Plan</strong></td>
<td>Limit Scene Time to 10 minutes Provide Early Notification</td>
<td></td>
</tr>
<tr>
<td>Chest Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Injury Protocol</td>
<td></td>
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</tr>
</tbody>
</table>

### Complete Assessment

- **Fractures Protocol**
- **External Hemorrhage Protocol**
- **Transport** to appropriate destination using **Regional Trauma Plan**
- Continually Reassess

- **Notify Destination or Contact Medical Control**

- **Transport Destination** is chosen based on the Regional Trauma Plan with EMS pre-arrival notification.
- Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly with little warning.
- In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
- Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient is the goal.
- Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained above 90%
Prehospital/Field Trauma Triage

Steps in Prioritization, Stabilization and Destination Determination
Prehospital trauma triage involves multiple steps that must be performed efficiently and quickly in order to achieve the best possible outcome when a patient’s injury is serious and time sensitive. Stabilizing the patient’s ABCs while simultaneously prioritizing the patient’s injury is essential in order to minimize the scene time for P-1 patients. P-1 patients have high energy blunt or penetrating injuries causing physiological abnormalities or have significant single or multisystem anatomical injuries and make up approximately 10% of all injured patients. Determining the closest facility capable of providing definitive care consistent with the region’s plan is the next step. If time and distance and the patient’s condition allow bypassing a closer lower level trauma center and primarily delivering P-1 patients to a Level I, II or Regional Level III should occur. Air rendezvous at the scene or at the initial receiving facility should be considered if weather conditions permit. A prompt encode with the patient’s condition to the receiving facility is imperative so that proper pre-arrival preparations can be made. If the facility is a Level III or IV a discussion should occur regarding the advisability of air rendezvous if the craft has not been activated from the scene.

In contrast to P-1 patients, a P-2 patient is more stable, not as time sensitive and can generally be cared for at a Level III hospital in the region. P-2 patients have potentially time sensitive injuries due to a high energy event or have a less severe single system injury, but currently are stable with no physiological abnormalities or significant anatomical injury and constitute approximately 20% of all injured patients. Interfacility transfer can occur after initial evaluation and stabilization if determined to be necessary.

P-3 patients do not have physiological abnormalities, altered mentation, neurological deficit, or a significant single system injury. These patients have generally been involved in a low energy event and make up approximately 70% of all injured patients. P-3 patients can be delivered to their hospital of choice or the closest hospital as determined by the regional plan.

Documentation of the patient’s priority and the reason a particular hospital was selected is essential for appropriate Continuous Quality Improvement (CQI).

Trauma Transfer Referral Center (TReC)
The Trauma Transfer and Referral Centers were created by statute (Senate Bill 1554, 2004) and were implemented on July 1, 2005. The purpose of TReC is to ensure that trauma patients transported or transferred to facilities in Region 7 or 8 are transported to the facility that provides the appropriate level of care based on the clinical needs of the patient. This should be done in a timely fashion with specific attention focused on preserving the highest level of care for major trauma patients.
Statewide training sessions were held throughout June 2005 to orient all providers to the use of TReC.

Ambulances entering Region 7 or 8 are required to call TReC in order to ensure appropriate destination. Likewise, hospitals may call TReC for assistance in identifying the appropriate destination for their trauma patients.

PREHOSPITAL TRAUMA TRIAGE

Trauma Triage
Since patients differ in their initial response to injury, trauma triage is an inexact science. Current patient identification criteria does not provide 100% percent sensitivity and specificity for detecting injury. As a result, trauma systems are designed to overtriage patients in order not to miss a potentially serious injury. Undertriage of patients should be avoided since a potentially seriously injured patient could be delivered to a facility not prepared to manage their injury. Large amounts of overtriage is not in the best interest of the Trauma System since it will potentially overwhelm the resources of the facilities essential for the management of severely injured patients.

Priority 1 Trauma Patients
These are patients with high energy blunt or penetrating injury causing physiological abnormalities or significant single or multisystem anatomical injuries. These patients have time sensitive injuries requiring the resources of a Designated Level I, Level II or Regional Level III Trauma Center. These patients should be directly transported to a Designated Level I Level II or Regional Level III facility for treatment but may be stabilized at a Level III or Level IV facility, if needed, depending on location of occurrence and time and distance to the higher-level trauma center. If needed these patients may be cared for in a Level III facility if the appropriate services and resources are available.

Physiological Compromise Criteria:
- Hemodynamic Compromise-Systolic BP < 90mmHg
  - Other signs that should be considered include:
    - Sustained tachycardia
    - Cool diaphoretic skin
- Respiratory Compromise- RR < 10 or > 29 breaths/minute or <20 in infant < 1 year
- Altered Mentation of trauma etiology- GCS < 14
Anatomical Injury Criteria

- Penetrating injury of head, neck, chest/abdomen, or extremities proximal to elbow or knee
- Amputation above wrist or ankle
- Paralysis or suspected spinal fracture with neurological deficit
- Flail chest
- Two or more obvious proximal long bone fractures (upper arm or thigh)
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected pelvic fracture
- Tender and/or distended abdomen
- Burns associated with Priority I Trauma
- Crushed, degloved, or mangled extremity

Priority 2 Trauma Patients

These are patients with potentially time sensitive injuries due to a high energy event (positive mechanism of injury) or with a less severe single system injury but currently with no physiological abnormalities or significant anatomical injury.

I. Significant Single System Injuries

- **Neurology:** Isolated head trauma with transient loss of consciousness or altered mental status but currently alert and oriented.
- **Orthopedic:** Single proximal and distal extremity fractures (including open) from high energy event, isolated joint dislocations-knee, hip, elbow, shoulder without neurovascular deficits, and unstable joint (ligament) injuries without neurovascular deficits.
- **Maxillofacial trauma:** Facial lacerations; such as those requiring surgical repair, isolated open facial fractures or isolated orbit trauma with or without entrapments, or avulsed teeth.

High Energy Event

Patient involved in rapid acceleration deceleration events absorb large amounts of energy and are at an increased risk for severe injury despite normal vital signs on their initial assessment. 5-15% of these patients, despite normal vital signs and no apparent significant anatomical injury on initial evaluation, will have a serious injury discovered after a full trauma evaluation with serial observations. Determinates to be considered are direction and velocity of impact and the use of personal protection devices. Motor vehicle crashes when occupants are using personal safety restraint devices may not be considered a high-energy event. Personal safety devices will often protect the occupant from absorbing high amounts of energy even when the vehicle shows significant damage.
Examples:
- Ejection of the patient from an enclosed vehicle
- Auto/pedestrian or auto/bike or motorcycle crash with significant (> 20 mph) impact with the patient thrown or run over by a vehicle
- Falls greater than 20 feet for adult, > 10 feet for pediatric or distance 2-3 times height of patient
- Significant assault or altercations
  - High risk auto crash
    - The following motor vehicle crashes particularly when the patient has not used personal safety restraint devices:
      - Death in the same passenger compartment
      - Rollover
      - High speed auto crash
      - Compartment intrusion greater than 12 inches at occupant site or > 18 inches at any site
      - Vehicle telemetry data consistent with high risk of injury

II. Medic Discretion
Since trauma triage is an inexact science and patients differ in their response to injury, clinical judgment by the medic at the scene is an extremely important element in determining the destination of all patients. If the medic is concerned that a patient may have a severe injury which is not yet obvious, the patient may be upgraded in order to deliver that patient to the appropriate level Trauma Center. Paramedic suspicion for a severe injury may be raised by but not limited to the following factors:

- Age greater than 55
- Age less than 5
- Extremes of environment
- Patient’s previous medical history such as:
  - Anticoagulation or bleeding disorders
  - End stage renal disease on dialysis
- Pregnancy (> 20 weeks)

Priority 3 Trauma Patients
These patients are without physiological abnormalities, altered mentation, neurological deficit, or a significant single system injury that has been involved in a low energy event. These patients should be treated at the nearest treating facility or the patient’s hospital of choice.

Example: Same level fall with extremity or hip fracture
**ADULT PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES**

**Oklahoma Model Trauma Triage Algorithm**

- **Inability To Secure Airway**
- **Traumatic Arrest**

**PRIORITY 1**

**Physiological Compromise Criteria**
- Hemodynamic Compromise: Systolic BP < 90mmHg
- Or signs that should be considered include:
  - Sustained tachycardia
  - Cool diaphoretic skin
  - Respiratory Compromise: RR < 10 or > 29 breaths/minute or < 20 in infant < 1 yr
  - Altered Mentation of trauma etiology: GCS < 14

**Anatomical Injury**
- Penetrating injury of head, neck, chest/abdomen, or extremities proximal to elbow or knee
- Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia without significant trauma transport to regional Burn Center.
- Burns >10% with significant trauma transport to trauma center.
- Amputation above wrist or ankle
- Paralysis or suspected spinal fracture w/neurological deficit
- Flail chest
- Two or more obvious proximal long bone fractures [upper arm or thigh]
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected unstable pelvic fracture
- Tender and/or distended abdomen
- Crushed, degloved, or mangled extremity

**Initiate Trauma Treatment Protocol**
**RAPID** transport to the designated Level I, II, or Regional Level III Trauma Center according to the Regional Trauma Plan but may be stabilized at a Level III or IV facility depending on location and time and distance to the higher level trauma center.

Air Rendezvous may be necessary considering time & distance constraints. If conditions do not permit air transport then consider ALS rendezvous. Stabilization may occur either in the field or at the nearest appropriate facility.

Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia without significant trauma transport to regional Burn Center. Burns >10% with significant trauma transport to trauma center.

**PRIORITY 2**

**Risk of Serious Injury - Single System Injury**

*Patients with potentially time sensitive injuries due to a high energy event (positive mechanism of injury) or with a less severe single system injury; but currently with no physiological abnormalities or significant anatomical injury*

- Ejection of the patient from an enclosed vehicle
- Auto/pedestrian or auto/bike or motorcycle crash with significant impact (> 20 mph) with the patient thrown or run over by a vehicle
- Falls greater than 20 feet or distance 2-3 times height of patient
- Significant assault or altercations
- High risk auto crash
- Neurology: Isolated head trauma with transient loss of consciousness or altered mental status but currently alert and oriented.
- Orthopedic: Single proximal and distal extremity fractures (including open) from high energy event, isolated joint dislocations-knee, hip, elbow, shoulder without neurovascular deficits, and unstable joint (ligament) injuries without neurovascular deficits.
- Maxillofacial trauma: Facial lacerations; such as those requiring surgical repair, isolated open facial fractures or isolated orbit trauma with or without entrapments, or avulsed teeth.

**Initiate Trauma Treatment Protocol**
**PROMPT** transport to the designated Level III Trauma Center or higher depending on location according to the Regional Trauma Plan

**PRIORITY 3**

- Consider:
  - Co-morbid factors
  - Gestalt-EMS clinical judgment

**TRANSPORT** to either the closest Level IV Trauma Center or higher depending on location according to the Regional Trauma Plan or the facility of the patient’s choice.
1. In addition to hypotension: pallor, tachycardia or diaphoresis may be early signs of hypovolemia.
2. Tachypnea (hyperventilation) alone will not necessarily initiate this level of response.
3. Altered sensorium secondary to sedative-hypnotic or medical conditions will not necessarily initiate this level of response.
4. High Energy Event signifies a large release of uncontrolled energy. Patient is assumed injured until proven otherwise, and multisystem injuries may exist. Determinants to be considered by medical professionals are direction and velocity of impact, use of personal protection devices, patient kinematics and physical size and the residual signature of energy release (e.g. Major vehicle damage). Motor vehicle crashes when occupants are using personal safety restraint devices may not be considered a high energy event because the personal safety restraint will often protect the occupant from absorbing high amounts of energy.
5. The following motor vehicle crashes particularly when the patient has not used personal safety restraint devices:
   a. Death in the same passenger compartment
   b. Rollover
   c. High speed auto crash
   d. Compartment intrusion greater than 12 inches at occupant site or > 18 inches at any site
   e. Vehicle telemetry data consistent with high risk of injury
6. Since trauma triage is an inexact science and patients differ in their response to injury, clinical judgment by the medic at the scene is an extremely important element in determining the destination of all patients. If the medic is concerned that a patient may have a severe injury which is not yet obvious, the patient may be upgraded in order to deliver that patient to the appropriate level Trauma Center. EMS provider suspicion for a severe injury may be raised by but not limited to the following factors:
   • Age greater than 55
   • Age less than 5
   • Extremes of environment
   • Patient’s previous medical history such as:
     o Anticoagulation or bleeding disorders
     o End stage renal disease on dialysis
   • Pregnancy (> 20 weeks)
PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES
Oklahoma Model Trauma Triage Algorithm

**PRIORITY 1**

**Physiological Compromise Criteria**
- Hemodynamic Compromise\(^1\): Systolic BP < 90mmHg or other signs such as:
  - Sustained tachycardia
  - Cool diaphoretic skin
- Respiratory Compromise\(^2\): RR < 10 or > 29 breaths/minute or < 20 in infant < 1 yr

**Anatomical Injury**
- Penetrating injury of head, neck, chest/abdomen or extremities proximal to elbow or knee
- Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia without significant trauma transport to Hillcrest Burn Center or OUMC Children’s Hospital. Burns >10% with significant trauma transport to trauma center.
- Amputation above wrist or ankle
- Paralysis or suspected spinal fracture w/neurological deficit
- Flail chest
- Two or more obvious proximal long bone fractures (upper arm or thigh).
- Open or suspected depressed skull fracture
- Unstable pelvis or suspected unstable pelvis fracture
- Tender and/or distended abdomen
- Crushed, degloved, or mangled extremity

**Pediatric Trauma Score ≤ 5**

**Initiate Trauma Treatment Protocol**

**RAPID** transport to the designated Level I, II, or Regional Level III Trauma Center according to the Regional Trauma Plan but may be stabilized at a Level III or IV facility depending on location and time and distance to the higher level trauma center.

Air Rendezvous may be necessary considering time & distance constraints. If conditions do not permit air transport consider ALS rendezvous. Stabilization may occur either in the field or at the nearest appropriate facility.

Combination of burns > 10% or significant burns involving face, airway, hands, feet or genitalia without significant trauma transport to Hillcrest Burn Center or OUMC Children’s Hospital. Burns >10% with significant trauma transport to trauma center.

**PRIORITY 2**

**Risk of Serious Injury - Single System Injury**

Patients with potentially time sensitive injuries due to a high energy event (positive mechanism of injury) or with a less severe single system injury, but currently with no physiological abnormalities or significant anatomical injury.

- Ejection of the patient from an enclosed vehicle
- Auto/pedestrian or auto/bike or motorcycle crash with significant impact (> 20 mph) with the patient thrown or run over by a vehicle
- Falls greater than 10 feet or distance 2-3 times height of patient
- Significant assault or altercations
- High risk auto crash\(^2\)
- Neurology: Isolated head trauma with transient loss of consciousness or altered mental status but currently alert and oriented.

**Orthopedic:** Single proximal and distal extremity fractures (including open) from high energy event, isolated joint dislocations-knee, hip, elbow, shoulder without neurovascular deficits, and unstable joint (ligament) injuries without neurovascular deficits.

**Maxillofacial trauma:** Facial lacerations; such as those requiring surgical repair, isolated open facial fractures or isolated orbit trauma with or without entrapments, or avulsed teeth.

**Pediatric Trauma Score 6-8**

**Initiate Trauma Treatment Protocol**

**PROMPT** transport to the designated Level III Trauma Center or higher depending on location according to the Regional Trauma Plan

**PRIORITY 3**

**Consider**
- Co-morbid factors and Gestalt-EMS clinical judgment

**Pediatric Trauma Score 9-12**

**TRANSPORT** to either the closest Level IV Trauma Center or higher depending on location according to the Regional Trauma Plan or the facility of the patient’s choice.
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3. Altered sensorium secondary to sedative-hypnotic or medical conditions will not necessarily initiate this level of response.
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   • Age less than 5
   • Extremes of environment
   • Patient’s previous medical history such as:
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     o End stage renal disease on dialysis
   • Pregnancy (> 20 weeks)
## Pediatric Trauma Score (PTS)

<table>
<thead>
<tr>
<th>Components</th>
<th>+2</th>
<th>+1</th>
<th>-1</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>&gt;20 kg (44 lb)</td>
<td>10-20 kg (22-44 lb)</td>
<td>&lt; 10 kg (&lt; 22 lb)</td>
<td></td>
</tr>
<tr>
<td>Airway</td>
<td>Patent *</td>
<td>Maintainable ^</td>
<td>Unmaintainable #</td>
<td></td>
</tr>
<tr>
<td>Systolic (cuff) Or BP (pulses)</td>
<td>&gt; 90 mm Hg Radial</td>
<td>50-90 mm Hg Femoral/Carotid</td>
<td>&lt; 50 mm Hg None palpable</td>
<td></td>
</tr>
<tr>
<td>CNS</td>
<td>Awake, no LOC</td>
<td>Obtunded Some LOC†</td>
<td>Comatose, unresponsive</td>
<td></td>
</tr>
<tr>
<td>Fractures</td>
<td>None</td>
<td>Closed (or suspected)</td>
<td>Multiple open or closed</td>
<td></td>
</tr>
<tr>
<td>Wounds</td>
<td>None</td>
<td>Minor</td>
<td>Major ‡, Burns or penetrating</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>Range – 6 to +12</td>
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Score: Possible Range –6 to +12, decreasing with increasing injury severity.

Generally:
- 9 to 12 = minor trauma
- 6 to 8  = potentially life threatening
- 0 to 5  = life threatening
- < 0     = usually fatal

* No assistance required.
^ Protected by patient but constant observation required for position, patency, or O₂ administration
# Invasive techniques required for control (e.g., intubation).
† Responds to voice, pain, or temporary loss of consciousness.
‡ Abrasions or lacerations