

TRAUMA PATIENT TRIAGE DEFINITIONS

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 over-triage patients in order not to miss a potentially serious injury. Under-triage 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 over-triage 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

Priority 1 Trauma Patients are patients with blunt or penetrating injury causing physiological abnormalities or significant anatomical injuries. These patients have time sensitive injuries requiring the resources of a Level I or II Trauma Center. These patients may be transported directly to a Level I or II Trauma Center or may require initial stabilization in a Level III or IV Trauma Center and subsequent transfer depending on location of occurrence, and time and distance to the higher level Trauma Center. Alternatively these patients may be cared for in a Level III Trauma Center if appropriate services are readily available.

Physiological Compromise Criteria:

- Hemodynamic Compromise
- Respiratory Compromise
- Altered Mentation

Anatomical Injury Criteria

- Penetrating injury of head, neck, torso, and groin.
- Amputation above wrist or ankle.
- Paralysis.
- 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

Priority 2 Trauma Patients

These are patients who have potentially time sensitive injuries because of a high energy event or single system injury. These patients do not have physiological abnormalities or significant anatomical injuries and can be transported to a trauma facility with the resources to perform a trauma evaluation and provide appropriate care for their injury.

Significant Single System Injuries

- Neurology: Isolated head trauma with transient loss of consciousness or altered mental status but currently alert and oriented.
- Orthopedic: Isolated fractures or dislocations; skin wounds without extensive tissue damage large flaps or avulsions; suspected hip fracture
- Maxillofacial trauma: Significant facial lacerations, such as those requiring surgical repair or involving nerve, eye, nose or mouth; fractured facial bones; 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. Five to fifteen percent of these patients, despite normal vital signs and no apparent anatomical injury on initial evaluation, will have a significant injury discovered after a full trauma evaluation with serial observations. Determinates to be

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considered are direction and velocity of impact and the use of personal protection devices. Ejection from a vehicle, auto/pedestrian incidents, falls from high distance, or motorcycle crashes are all examples of a high-energy event. 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. High Energy Events:

- Ejection of the patient from an enclosed vehicle
- Adult auto/pedestrian or Adult auto/bike or Adult motorcycle crash with significant impact with the patient thrown or run over by a vehicle
- Falls greater than 20 feet
- Significant assault or altercations
- Other “high energy” events based on Paramedic discretion for example: patients involved in motor vehicle crashes with significant vehicular damage and not using personal safety restraint devices.

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 the following factors:

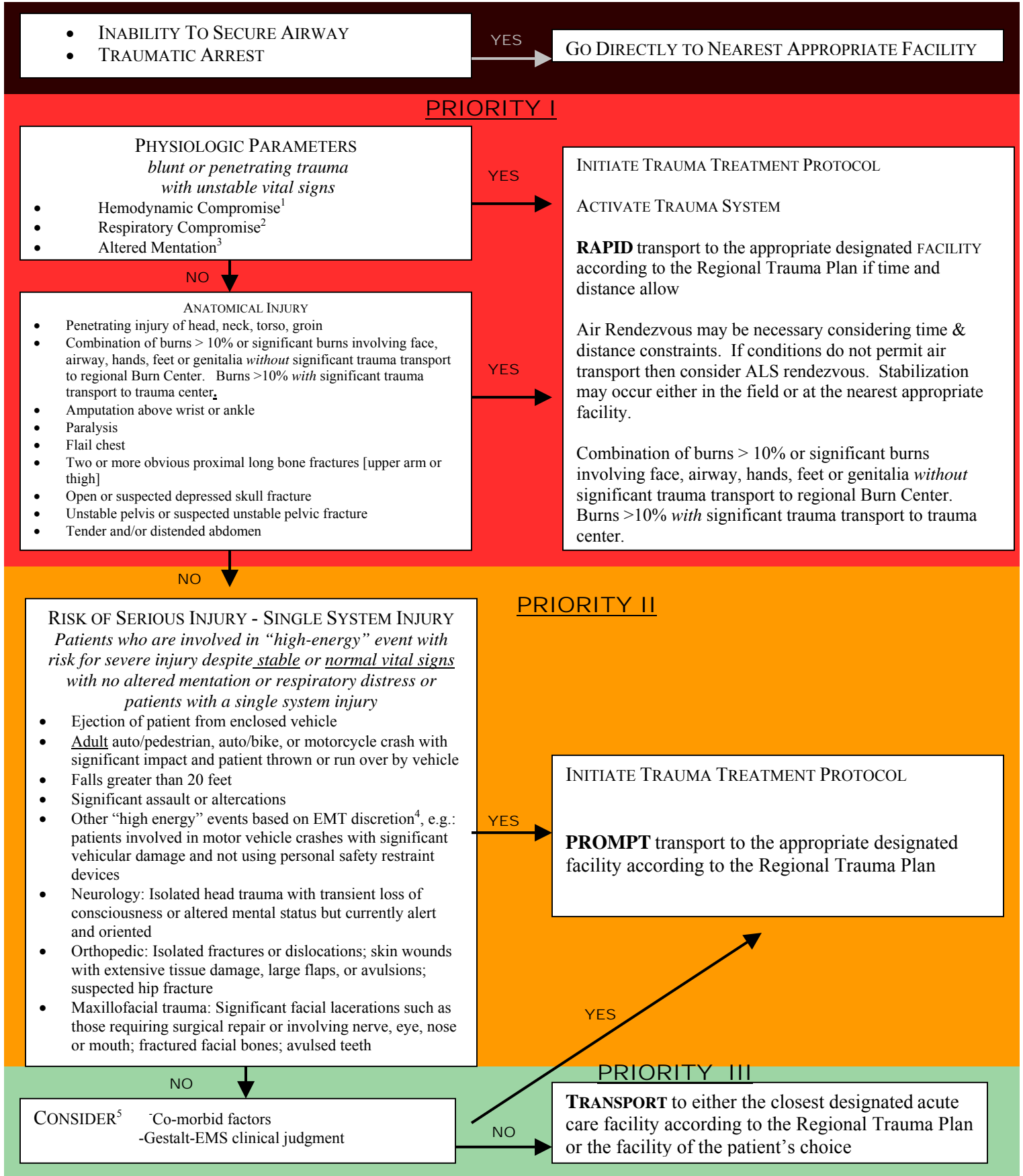
- Age greater than 55
- Age less than 5
- Extremes of environment
- Patient’s previous medical history
- Pregnancy
- Any low energy auto/pedestrian or auto/bike or motorcycle crash
- The following motor vehicle crashes when the patient has not used personal safety restraint devices:
- Extrication time greater than 20 minutes
- Death in the same passenger compartment
- Rollover
- High speed auto crash
- Auto deformity greater than 20 inches
- Compartment intrusion greater than 12 inches

Priority 3 Trauma Patients

These are patients without physiological instability, altered mentation, neurological deficit, or significant anatomical or single system injury that have been involved in a low energy event. These patients may be evaluated and treated at their hospital of choice or the closest appropriate hospital.

ADULT PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES

Oklahoma Model Trauma Triage Algorithm



Approved : OTSIDAC 02/01/06
 Revised: OTSIDAC 08/01/07; 02/06/08, 08/06/08
 Clarification Revision by MAC: 11/19/08

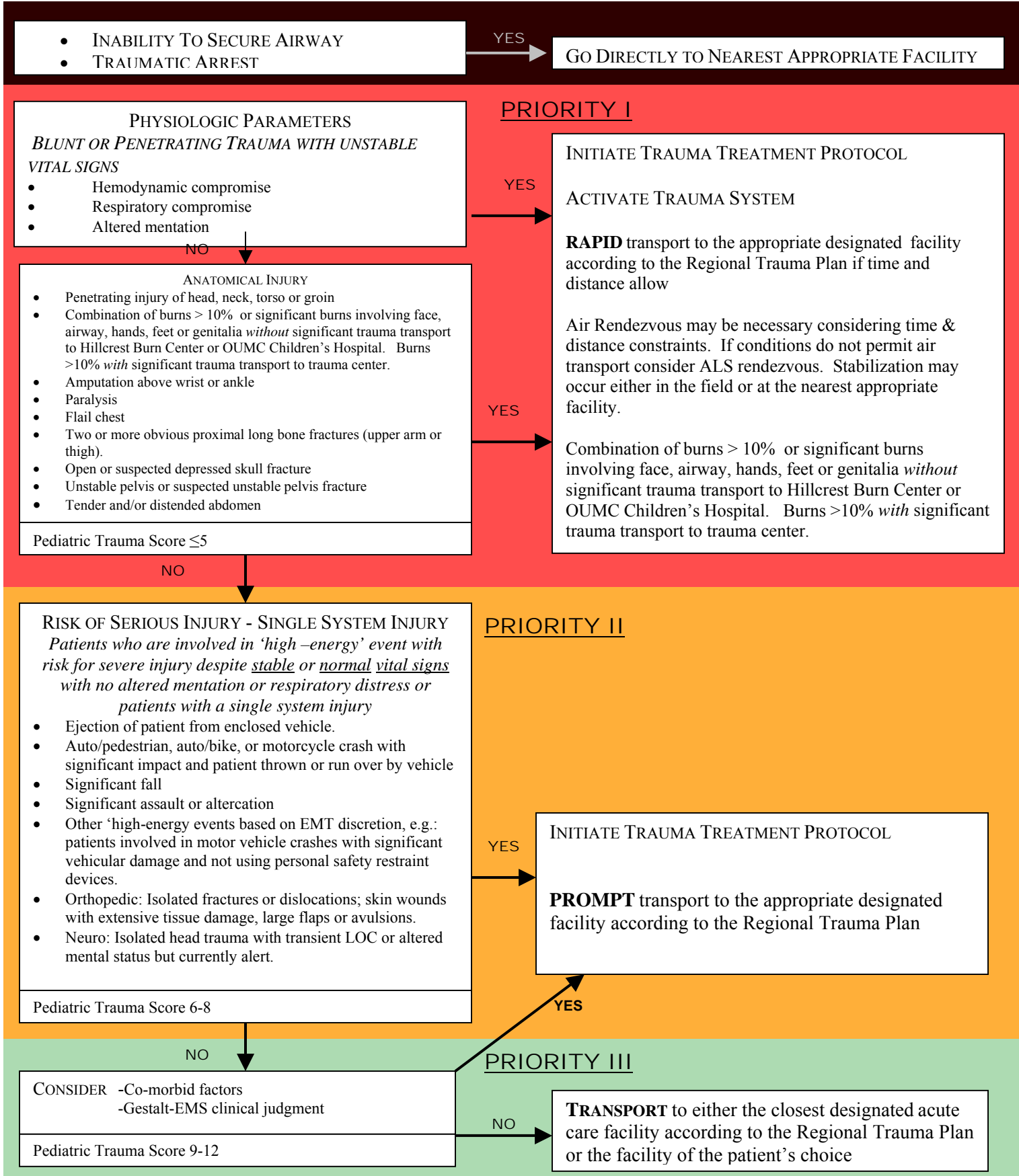
**ADULT PRE-HOSPITAL
TRIAGE AND TRANSPORT GUIDELINES**
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1. In addition to hypotension: pallor, tachycardia or diaphoresis may be early signs of hypovolemia
2. Tachypnea (hyperventilation) alone will not necessarily initiate this level of response.
3. Altered sensorium secondary to sedative-hypnotic 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. Clinical judgment must be exercised and may upgrade to a high level of response and activation. Age and comorbid conditions should be considered in the decision.

Based on American College of Emergency Physicians Guidelines.

PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL TRIAGE AND TRANSPORT GUIDELINES

Oklahoma Model Trauma Triage Algorithm



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**PEDIATRIC (≤ 16 YEARS) PRE-HOSPITAL
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Oklahoma Model Trauma Triage Algorithm

Pediatric Trauma Score (PTS)				
Components	+2	+1	-1	Score
Weight	>20 kg (44 lb)	10-20 kg (22-44 lb)	< 10 kg (< 22 lb)	
Airway	Patent *	Maintainable ^	Unmaintainable #	
Systolic (cuff) Or BP (pulses)	> 90 mm Hg Radial	50-90 mm Hg Femoral/Carotid	< 50 mm Hg None palpable	
CNS	Awake, no LOC	Obtunded Some LOC†	Comatose, unresponsive	
Fractures	None	Closed (or suspected)	Multiple open or closed	
Wounds	None	Minor	Major ‡, Burns or penetrating	
TOTAL	Range – 6 to +12			

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

ADULT INTERFACILITY TRIAGE AND TRANSFER GUIDELINES Oklahoma Model Trauma Triage Algorithm

PRIORITY I

Anatomy of the Injury

Penetrating injury of the head, neck, torso or groin.

Abdominal/Pelvic Injuries

- Hemodynamically unstable patient with physical evidence of abdominal or pelvic trauma
- Unstable pelvic ring disruption
- Pelvic fracture with shock or other evidence of continuing hemorrhage
- Open pelvic fracture
- Penetrating wound of abdomen with suspicion of penetration of the peritoneum
- Ruptured hollow viscous

CNS

- Penetrating Head Injury or Depressed skull fracture
- Open Head Injury
- GCS \leq 10 or deterioration of 2 or more points
- Lateralizing signs
- New neurological deficits
- CSF Leak
- Spinal cord injury with neurological deficits
- Unstable spinal cord injuries

Chest

- Widened mediastinum or other signs suggesting great vessel injury
- Major chest wall or pulmonary injury with respiratory compromise
- Cardiac injury (blunt or penetrating)
- Cardiac tamponade
- Patients who may require prolonged ventilation
- Suspected tracheobronchial tree or esophageal injury

Hemodynamic Instability

- Adult SBP consistently <90 following 2 liters of crystalloid
- Respiratory distress with rate <10 or >29

Major Extremity Injury

- Fracture/dislocation with loss of distal pulses
- Amputation of extremity proximal to wrist or ankle
- Pelvic fractures with hemodynamic instability
- Two or more long bone fracture sites
- Major vascular injuries documented by arteriogram or loss of distal pulses
- Crush Injury or prolonged extremity ischemia

Multiple System

- Head Injury combined with face, chest, abdominal, or pelvic injury
- Significant injury to two or more body regions
- 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.

Secondary Deterioration

- Prolonged mechanical ventilation
- Sepsis
- Single or multiple organ system failure (deterioration in CNS, cardiac, pulmonary, hepatic, renal or coagulation systems)
- Major tissue necrosis

YES

Initiate internal Trauma Treatment Protocol if definitive surgical care and critical care monitoring are available

If definitive surgical care or critical care monitoring are not available then immediate stabilization & transfer to appropriate designated facility according to regional plan. Stabilization may involve surgical intervention prior to transfer. Air transport may be necessary considering time & distance constraints.

NO

Proceed to Priority II Interfacility Transfer Criteria

**ADULT INTERFACILITY
TRIAGE AND TRANSFER GUIDELINES**
Oklahoma Model Trauma Triage Algorithm

PRIORITY II

Abdominal/Pelvic Injuries

- Stable pelvic fractures
- Hemodynamically stable isolated abdominal trauma
 - o diffuse abdominal pain/tenderness
 - o seat belt contusions
 - o visceral injuries
- Hemodynamically stable isolated solid organ injuries

CNS

- Head Injury with GCS > 10
- Head Injury with Transient loss of consciousness < 5 min
- Head Injury with Transient neurological deficits
- Spinal cord injury without neurological deficits

Chest

- Isolated Chest Trauma- pain, mild dyspnea
- Rib fractures, sternal fractures, pneumothorax, hemothorax *without* respiratory compromise
- Unilateral pulmonary contusion without respiratory compromise

Comorbid

- Age <5 or > 55
- Known cardiac, respiratory or metabolic disease
- Pregnancy
- Immunosuppression
- Bleeding disorder or anticoagulants

Major Extremity Injury

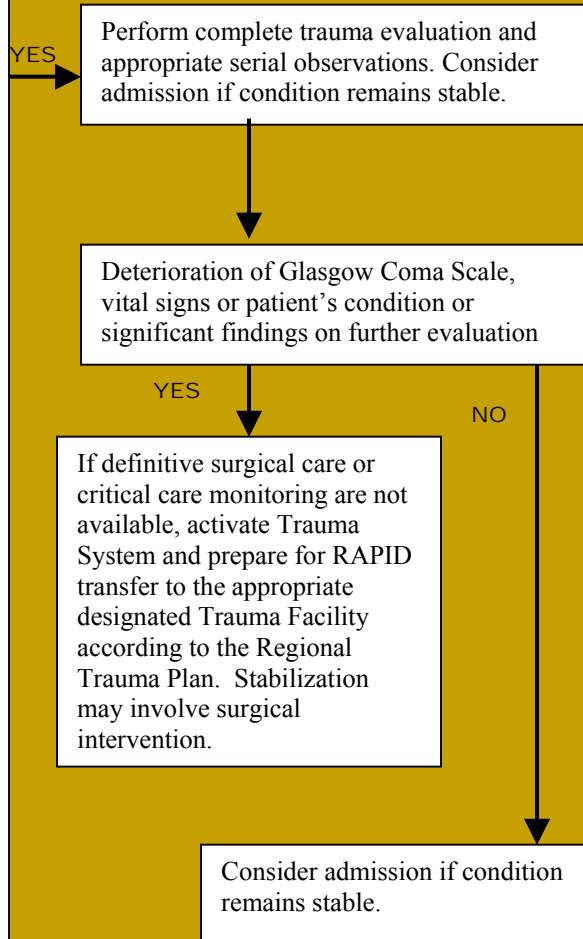
- Single proximal extremity fractures, including open
- Distal extremity fractures, including open
- Isolated joint dislocations-knee, hip, elbow, shoulder without neurovascular deficits
- Unstable joint (ligament) injuries without neurovascular deficits
- Degloving injuries without evidence of limb threatening injury

Mechanism

- Ejection of patient from enclosed vehicle
- Adult auto/pedestrian, auto/bike, or motorcycle crash with significant impact and patient thrown or run over by vehicle
- Falls greater than 20 feet
- Significant assault or altercations
- Other “high energy” events based on Paramedic discretion¹, e.g.: patients involved in motor vehicle crashes with significant vehicular damage and not using personal safety restraint devices

Other

- Isolated open facial fractures
- Isolated orbit trauma with or without entrapments, without visual deficits



NO

Priority III

Perform appropriate emergency department evaluation. Consider discharge or admit if condition remains stable.

Deterioration of Glasgow Coma Scale, vital signs or patient's condition or significant findings on further evaluation: Initiate Trauma Treatment Protocol- Activate Trauma System and prepare for RAPID transfer to the appropriate designated Trauma Facility according to the Regional Trauma Plan if definitive surgical care and critical care monitoring are not available.

Pediatric Interfacility Triage and Transfer Guidelines Oklahoma Model Triage Algorithm

PRIORITY I

Anatomy of the Injury

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Abdominal/Pelvic Injuries

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- Widened mediastinum or other signs suggesting great vessel injury
- Major chest wall or pulmonary injury with respiratory compromise
- Cardiac injury (blunt or penetrating)
- Cardiac tamponade
- Patients who may require prolonged ventilation
- Suspected tracheobronchial tree or esophageal injury

Hemodynamic Instability

- SBP consistently <90 following 20cc/kg of resuscitation fluid
- Respiratory distress with rate of:
 - Newborn: < 30 or > 60
 - Up to 1 yr < 24 or > 36
 - 1-5 yr < 20 or > 30
 - Over 5 yr < 15 or > 30

Major Extremity Injury

- Fracture/dislocation with loss of distal pulses
- Amputation of extremity proximal to wrist or ankle
- Pelvic fractures with hemodynamic instability
- Two or more long bone fracture sites
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- Crush Injury or prolonged extremity ischemia

Multiple System

- Head Injury combined with face, chest, abdominal, or pelvic injury
- Significant injury to two or more body regions
- 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

Secondary Deterioration

- Prolonged mechanical ventilation
- Sepsis
- Single or multiple organ system failure (deterioration in CNS, cardiac, pulmonary, hepatic, renal or coagulation systems)
- Major tissue necrosis

Pediatric Trauma Score ≤ 5

YES

Initiate internal Trauma Treatment Protocol if definitive surgical care and critical care monitoring are available

If definitive surgical care or critical care monitoring are not available then immediate stabilization & transfer to appropriate designated facility according to regional plan. Stabilization may involve surgical intervention prior to transfer. Air transport may be necessary considering time & distance constraints.

NO

Proceed to Priority II Interfacility Transfer Criteria

Pediatric Interfacility Triage and Transfer Guidelines Oklahoma Model Triage Algorithm

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Abdominal/Pelvic Injuries

- Stable pelvic fractures
- Hemodynamically stable isolated abdominal trauma
 - o diffuse abdominal pain/tenderness
 - o seat belt contusions
 - o visceral injuries
- Hemodynamically stable isolated solid organ injuries

CNS

- Head Injury with GCS > 10
- Head Injury with Transient loss of consciousness < 5 min
- Head Injury with Transient neurological deficits
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Chest

- Isolated Chest Trauma- pain, mild dyspnea
- Rib fractures, sternal fractures, pneumothorax, hemothorax *without* respiratory compromise
- Unilateral pulmonary contusion without respiratory compromise

Comorbid

- Known cardiac, respiratory or metabolic disease
- Pregnancy
- Immunosuppression
- Bleeding disorder or anticoagulants

Major Extremity Injury

- Single proximal extremity fractures, including open
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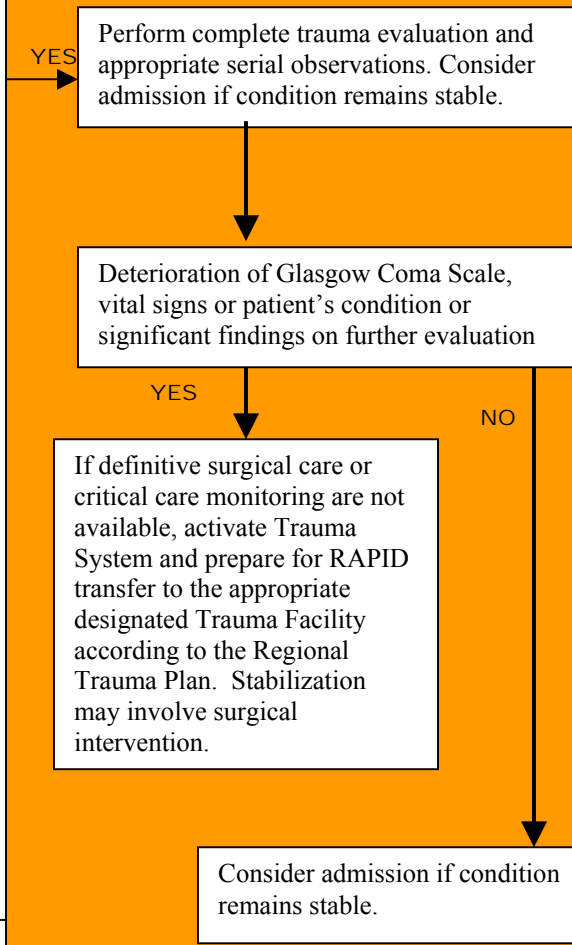
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Other

- Isolated open facial fractures
- Isolated orbit trauma with or without entrapments, without visual deficits

Pediatric Trauma Score 6-8



NO

Priority III

Perform appropriate emergency department evaluation. Consider discharge or admit if condition remains stable.

Pediatric Trauma Score 9-12

Deterioration of Glasgow Coma Scale, vital signs or patient's condition or significant findings on further evaluation: Initiate Trauma Treatment Protocol- Activate Trauma System and prepare for RAPID transfer to the appropriate designated Trauma Facility according to the Regional Trauma Plan if definitive surgical care and critical care monitoring are not available.