



Trauma Referral Center

Interfacility Trauma Triage and Transfer Guidelines Quick Reference Guide

OKLAHOMA'S TRAUMA REFERRAL CENTER

Oklahoma City, Region 8 (888) 658-7262
Tulsa, Region 7 (866) 778-7262



Oklahoma
Disaster
Institute



A collaborative effort between
Oklahoma Institute for Disaster and
Emergency Medicine and the
Oklahoma State Department of Health.

1st Revision: September 1, 2015

Instructions

& How to Use QRG

HOW TO DETERMINE PRIORITY OF PATIENT (FILL OUT WORKSHEETS)

1. Check any positive criteria on corresponding green worksheets:

Priority 1 Adult
Priority 2 Adult
Priority 1 Pediatric
Priority 2 Pediatric
Priority 3 Adult & Pediatric

2. If no criteria for Priority 1 is found, proceed to the Priority 2 or Priority 3 worksheet.
3. For single system injuries, go to corresponding worksheet.

Thermal Burn Patients
Maxillofacial Patients
Hand Injury Patients
Obstetric Patients

DIRECTIONS FOR ACCESSING TReC

1. Determine **PRIORITY OF PATIENT**

If a patient is identified as Priority 1, implement the following immediately.

- 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 per regional plan to appropriate designated facility.
- Stabilize life threatening conditions. **DO NOT delay transfer decision by performing unnecessary (non-therapeutic) diagnostic testing.**
- Consultation with receiving facility and/or physician is important as additional care may be necessary prior to transfer. Stabilization may involve surgical intervention prior to transfer.

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- **DO NOT delay transfer waiting for diagnostic studies to be completed**, however they can be continued while transfer protocol is activated.
2. Provide TReC with priority and geographic location of patient. TReC may assist with establishing the priority of the patient if necessary.
 3. TReC will determine closest facility with capability and capacity for patient assignment.
 4. TReC will inform caller of transfer destination and steps needed to complete referral process.
 5. TReC will transfer caller to receiving facility to give report and receive any recommendations regarding stabilization prior to transfer.
 - For unstable Priority 1 injured patients, either multi-system or potentially life or limb threatening single system, transferring the caller to the receiving facility should not interfere with the destination decision made by utilizing Oklahoma's Trauma System established criteria. In most instances, it should not unduly delay the stabilization and transfer of the patient. Exceptions for immediate transfers might exist if life threatening conditions can be temporarily managed at the referring facility. One example is surgical intervention to control hemorrhage.
 - In the case of non-life and non-limb threatening single system injuries, the patient might best be served by delayed transfer hours or days later.
 6. Questions regarding specific patients and specific injuries can best be answered by phone consultation with a trauma center physician. TReC can arrange a consultation if necessary.

Priority One Adult

Priority 1 Adult Definition: Patients with high energy blunt or penetrating injury causing physiological abnormalities or significant single or multi-system anatomical injuries.

Respiratory Distress and/or Hemodynamic Instability

- SBP consistently <90 or persistent tachycardia following 2 L crystalloid
- Respiratory distress with rate <10 or >29

Multi-System

- Significant injury to 2 or more body regions
- Head or spine injury combined with: face, chest, abdominal, or pelvic injury; or resulting from a positive mechanism of injury such as MVC, MCC, ATV, auto vs. pedestrian/bicycle, personal watercraft, aircraft, equine accidents with significant forces or velocity; falls from a significant height; or significant assault or altercation
- Burns associated with significant injuries

Penetrating Injury

- Head, neck, chest/abdomen or extremities proximal to elbow and knee

Spinal

- Suspected or diagnosed fracture with neurological deficit

Thoracic

- Major chest wall or pulmonary injury with respiratory compromise
- Wide mediastinum or suspected great vessel, tracheobronchial, or esophageal injury
- Cardiac injury (blunt or penetrating) including tamponade

Abdominal/Pelvic

- Hemodynamically unstable plus evidence of abdominal or pelvic trauma
- Ruptured hollow viscous
- Pelvic fracture plus shock or other evidence of continuing hemorrhage
- Open pelvic fracture or unstable pelvic ring disruption
- Rigid tender and/or distended abdomen

Central Nervous System

- GCS ≤ 10 or deterioration of 2 or more points
- Penetrating/open head, neck injury, or depressed skull fracture
- Neurological deficits/lateralizing signs
- CSF Leak

Skeletal

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

Clinical Deterioration

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

Priority Two

Adult

Priority 2 Adult Definition: 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

Spinal

- Any identified spinal fracture without neurological deficits

Thoracic

- Isolated chest trauma – pain, mild dyspnea
- Rib fractures, pneumothorax, hemothorax without respiratory compromise
- Unilateral pulmonary contusion without respiratory compromise

Abdominal/Pelvic

- Hemodynamically stable isolated abdominal trauma
- Hemodynamically stable isolated solid organ injuries
- Stable Pelvic Fractures

Head & CNS

- Head Injury GCS >10
- Head injury with LOC <5 minutes
- Head injury with transient neuro findings
- Isolated open facial fractures
- Isolated orbit trauma with or without entrapments

Skeletal

- Single proximal extremity fractures, (including open) from high energy event
- Distal extremity fractures, (including open) from high energy event
- Isolated joint dislocations – knee, hip, elbow, shoulder without neurovascular deficits
- Unstable joint (ligament) injuries without neurovascular deficits

Comorbidity Considerations (Potential upgrade from Priority 2 to Priority 1)

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

Mechanism of Injury Alone (No Priority 1 symptoms or findings)

- 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 >20 feet or distance 2-3 times height of patient
- Significant assault or altercations
- Other “high energy” events (e.g., patients involved with motor vehicle crashes with significant vehicular damage and not using personal safety restraints)
- ATV with significant forces
- Watercraft or aircraft with significant forces
- Equine or rodeo accidents with significant forces

Priority One

Pediatric

Priority 1 Pediatric Definition:

Patients, ages 16 and younger, with high energy blunt or penetrating injury causing physiological abnormalities or significant single or multi-system anatomical injuries

Pediatric Trauma Score (PTS)

- PTS Score ≤ 5

Respiratory distress and/or hemodynamic instability

- SBP consistently <90 or persistent tachycardia following 20 ml/kg crystalloid
- Respiratory distress with rate:
 - Newborn: <30 or >60
 - Up to 1 year: <24 or >36
 - 1 to 5 years: <20 or >30
 - Over 5 years: <15 or >30

Multi-System

- Significant injury to 2 or more body regions
- Head or spine injury combined with: face, chest, abdominal, or pelvic injury; or resulting from a positive mechanism of injury such as MVC, MCC, ATV, auto vs. pedestrian/bicycle, personal watercraft, and aircraft, equine accidents with significant forces or velocity; falls from a significant height; or significant assault or altercation
- Burns associated with significant injuries

Penetrating Injury

- Head, neck, chest/abdomen or extremities proximal to elbow or knee

Spinal

- Suspected or diagnosed fracture with neuro deficit

Thoracic

- Major chest wall or pulmonary injury with respiratory compromise
- Wide mediastinum or suspected great vessel, tracheobronchial, or esophageal injury
- Cardiac injury (blunt or penetrating) including tamponade

Abdominal/Pelvic

- Hemodynamically unstable plus evidence of abdominal or pelvic trauma
- Ruptured hollow viscous
- Pelvic fracture plus shock or other evidence of continuing hemorrhage
- Open pelvic fracture or unstable pelvic ring disruption
- Rigid tender and/or distended abdomen

Central Nervous System

- GCS ≤ 10 or deterioration of 2 or more points
- Penetrating/open head, neck injury or depressed skull fracture
- Neurological deficits/lateralizing signs
- CSF Leak

Skeletal

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

Clinical Deterioration

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

Priority Two

Pediatric

Priority 2 Pediatric Definition:

Patients, ages sixteen and younger, 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

Pediatric Trauma Score (PTS)

- PTS Score 6-8

Spinal

- Any identified spinal fracture of the vertebral column without neurological deficits

Thoracic

- Isolated chest trauma – pain, mild dyspnea
- Rib fractures, pneumothorax, hemothorax without respiratory compromise
- Unilateral pulmonary contusion without respiratory compromise

Abdominal/Pelvic

- Hemodynamically stable isolated abdominal trauma
- Hemodynamically stable isolated solid organ injuries
- Stable Pelvic Fractures
- Seat belt contusions
- Visceral injuries

Head & CNS

- Head Injury GCS >10
- Head injury with LOC <5 min
- Head injury with transient neuro findings
- Isolated open facial fractures
- Isolated orbit trauma with or without entrapments

Skeletal

- Single proximal extremity fractures, (including open) from high energy event
- Distal extremity fractures, (including open) from high energy event
- Isolated joint dislocations – knee, hip, elbow, shoulder without neurovascular deficits
- Unstable joint (ligament) injuries without neurovascular deficits

Comorbidity Considerations (Potential upgrade from Priority 2 to Priority 1)

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

Mechanism of injury Alone (No Priority 1 symptoms or findings)

- 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 >10 feet or distance 2-3 times height of patient
- Significant assault or altercations
- Other “high energy” events (e.g., patients involved with motor vehicle crashes with significant vehicular damage and not using personal safety restraints)
- ATV with significant forces
- Watercraft or aircraft with significant forces
- Equine or rodeo accidents with significant forces

Priority Three

Adult

Priority 3 Adult Definition: Patients without physiological abnormalities, altered mentation, neurological deficit, or a significant single system injury. These patients have generally been involved in a low energy event.

Head & CNS

- Head Injury GCS 14 – 15 plus normal CT brain

Orthopedic

- Closed without significant angulations, or neuro vascular compromise
- Proximal humerus
- Ankle/wrist
- Unstable finger joint
- Same level fall with extremity or hip fracture

Burns

- Not meeting American Burn Association Burn Unit referral criteria

Comorbidity Considerations (Potential upgrade from Priority 3 to Priority 2)

- Age >55
- Known cardiac, respiratory or metabolic disease
- Pregnancy >20 weeks
- Immunosuppression
- Bleeding disorder or anticoagulants

Priority Three

Pediatric

Priority 3 Pediatric Definition:

Patients, ages sixteen and younger, without physiological abnormalities, altered mentation, neurological deficit, or a significant single system injury. These patients have generally been involved in a low energy event.

Pediatric Trauma Score (PTS)

- PTS Score 9-12

Head & CNS

- Head Injury GCS 14-15 plus normal CT brain

Orthopedic

- Closed without significant angulations, or neuro vascular compromise
- Proximal humerus
- Ankle/wrist
- Unstable finger joint
- Same level fall with extremity or hip fracture

Burns

- Not meeting American Burn Association Burn Unit referral criteria

Comorbidity Considerations (Potential upgrade from Priority 3 to Priority 2)

- Age <5
- Known cardiac, respiratory or metabolic disease
- Pregnancy >20 weeks
- Immunosuppression
- Bleeding disorder or anticoagulants

Patient Preparation for Transport

Patient Preparation for Transport:

Arranging for the referring caregiver to speak to personnel at the receiving facility, as well as the receiving physician, is extremely important as specific recommendations may be made for further care prior to transfer

Anticipate Need

Anticipate and recognize quickly the need to transfer any patient needing care that exceeds the capability of your hospital

Contact Early

- Call TReC to arrange the transfer
- Provide TReC with the PRIORITY and the geographic location of the patient
- TReC will determine the closest facility with the means and staffing to handle your patient
- TReC will get you in contact with the receiving and/or accepting physician

Air vs. Ground Transport

Consideration should be given to the appropriate choice of air versus ground transport due to weather, patient condition and injuries, and distance to final destination. Refer to transport considerations in the trauma reference manual.

Stabilize

- Stabilize ABC's as per guidelines book
 - Ensure that the AIRWAY is protected
 - Stabilize breathing if necessary
 - Provide adequate hemorrhage control and fluid resuscitation if necessary
- Stabilize single system injuries as per guidelines book

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Talk to Receiving Facility

- Talk to the Receiving facility and the accepting doctor
- Accepting physician may have specific recommendations for transport and/or stabilization of patient. The accepting physician may need special staff for operative management of patient.
- For unstable Priority 1 injured patients, either multi-system or potentially life or limb threatening single system, transferring the caller to the receiving facility should not interfere with the destination decision made by utilizing Oklahoma's Trauma System established criteria. In most instances, it should not unduly delay the stabilization and transfer of the patient. Exceptions for immediate transfers might exist if life threatening conditions can be temporarily managed at the referring facility. One example is surgical intervention to control hemorrhage.
- In the case of non-life and non-limb threatening single system injuries, the patient might best be served by delayed transfer hours or days later.

Documentation

Ensure that complete documentation is transferred with the patient

- Copies of all notes, exams, and consults
- Copies of all lab results
- Copies of all EKG's
- Copies or CD's of all x-rays and CT scans
- Lab results and radiology reports can be faxed to the receiving hospital when they are available
- Recent H&P's, EKG's and x-rays for comparison would generally be helpful, if available

Cell phones and internet connected computers are capable of sending quality digital pictures to the referral physician

Thermal Burn Patients

Priority One

Burns requiring immediate care and/or consultation/referral by a burn specialist

- Inhalation injury
- Significant burns that involve the face, genitalia, perineum, or major joints
- Circumferential burns of an extremity
- Significant electrical burns
- Any patient with traumatic injuries, such as fractures, in which the burn injury poses the greatest risk of morbidity or mortality. (If the trauma poses the greater immediate risk, then the patient should be stabilized in the nearest appropriate trauma facility before being transferred to the burn unit.)
- Partial thickness burns greater than 10% total body surface area
- Full thickness burns greater than 5% of total body surface area in any age group
- Significant burn injury to the hands or feet

Priority Two

Injuries requiring urgent consultation/referral with a burn surgeon and potential transfer

- Partial thickness burns under 10% of total body surface area
- Full thickness burns under 5% of total body surface area
- Lightning injuries
- Significant chemical burns (burns with serious threat of functional or cosmetic impairment)
- Significant pre-existing medical disorders that would complicate management or affect mortality
- Moderate burn injury to hands or feet
- Burn injuries in patients who require special social, emotional, and/or long term rehabilitative support, including cases involving suspected child abuse

Thermal Burn Patients

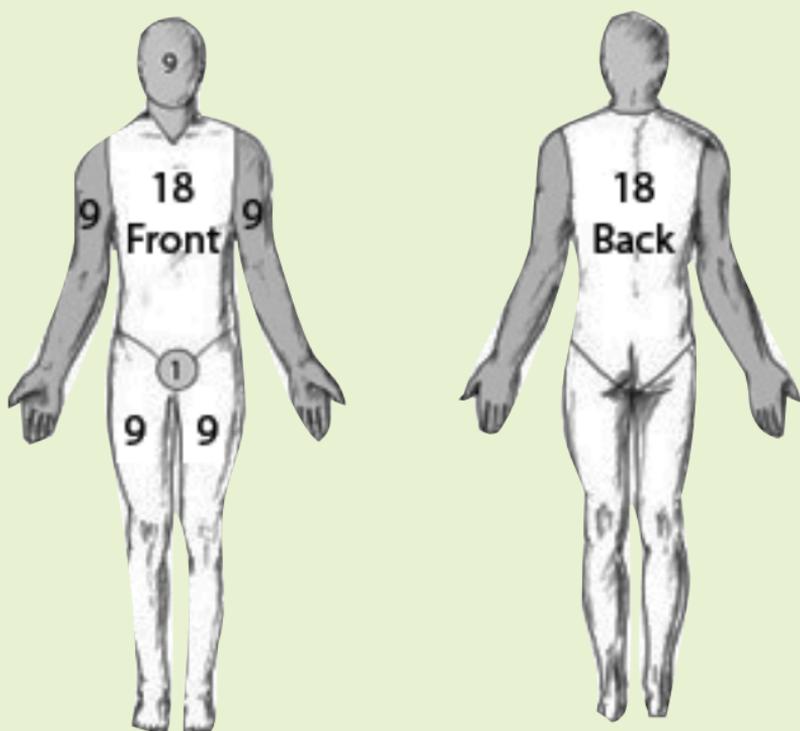
Priority Three

Injuries normally requiring initial and ongoing treatment by a physician and do not normally require consultation/referral with a burn surgeon

- All burn injuries not covered in above discussion

Above criteria are adapted from ABA recommendations

Rule of 9's



Maxillofacial Patients

Questions regarding specific patients and specific injuries can best be solved with phone consultation with a trauma center physician.

Priority One

Maxillofacial trauma requiring immediate care by a maxillofacial specialist

- Panfacial trauma with Lefort type (I, II, or III) or zygomaticomalar fracture with mandibular fracture
- Bilateral fracture of the mandible with flail symphyseal segment
- Multiple severe mandibular fractures with tracheostomy or intubation
- Depressed zygomaticomalar fractures with entrapment of the inferior rectus muscle or impingement on the optic nerve bundle
- Facial lacerations that involve major vessels, major branches of the facial nerve, or the parotid duct

Priority Two

Injuries requiring urgent consultation with a maxillofacial surgeon and potential transfer

- Open facial fractures
- Isolated orbit trauma with or without entrapments, without visual deficits
- Major facial lacerations

Priority Three

Injuries requiring consultation with a maxillofacial surgeon within a period of days

- Isolated anterior frontal sinus fracture
- Isolated naso-ethmoidal fracture
- Zygomatic arch fracture
- Mandible fracture
- Nasal [Closed or simple laceration, no septal hematoma]

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Hand Injury Patients

Priority One

Injuries requiring immediate consultation/referral with a hand surgeon

- Complete or near-complete amputation of a hand resulting in disruption of the vascular supply to the hand
- A severely crushed, degloved or mangled hand
- High pressure injection injury
- Compartment syndrome in hand or forearm (refer to orthopedic surgeon)
- A vascular injury distal to the elbow

Priority Two

Injuries requiring initial stabilization and consultation/referral to an orthopedic or hand surgeon within a few hours

- Moderate crush injuries
- Open fractures of carpals or metacarpals, proximal digits
- Multiple angulated and/or displaced fractures or dislocations $>30^\circ$
- Wrist dislocation
- Deep space infections of the hand, such as suppurative flexor tenosynovitis
- Nerve or tendon injury distal to the elbow (consider P3 depending on severity)

Priority Three

Injuries requiring initial stabilization and consultation/referral to an orthopedic or hand surgeon within a period of days

- 1-2 phalanges dislocated $<30^\circ$
- Flexor/extensor tendon lacerations and disruptions
- Collateral ligament injuries/unstable finger joint
- Isolated laceration requiring delayed closure
- Isolated [closed or open] nerve injuries to the wrist, hand or digits
- Closed, isolated carpal bone fractures
- Dislocations of IP joints reduced in the ED
- Any closed, simple hand fracture

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Obstetric Patients

Priority One

Trauma with non-reassuring fetal heart tones *ACOG: Category III FHR Tracing

- Involve on-site OB at local facility and trauma consultant at Level I or II receiving facility. If fetus can be delivered while awaiting proper transport and not compromising mother, consider emergent cesarean delivery.

Priority Two

Trauma with non-reassuring fetal heart tones *ACOG: Category III FHR Tracing

- Involve on-site OB at local facility and trauma consultant at appropriate trauma receiving facility. If fetus can be delivered while awaiting proper transport and not compromising mother, consider emergent cesarean delivery.

Priority Three

Trauma with or without reassuring fetal heart tones

- Requires fetal monitoring and/or delivery and should be kept at local hospital if labor and delivery resources are available or transferred to nearest facility with those resources.

Priority One & Two

Trauma with reassuring fetal heart tones

*ACOG: Category I FHR Tracing

- All Priority 1,2, Trauma with reassuring fetal heart tones should maintain fetal monitoring throughout transport process.

**American College of Obstetricians and Gynecologists (ACOG): Three-Tier Fetal Heart Rate (FHR) Interpretation System*



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