Trauma Triage & Transport Guidelines

I. Introduction

1.1 Texas Administrative Code, Title 25, Part 1, Chapter 157, Subchapter G, Rule §157.123 establishes the legal framework of the Emergency Medical Services (EMS) Trauma System in the State of Texas; which includes the creation of Regional Advisory Councils and their respective authority to develop an EMS/Trauma System plan based on standard guidelines for comprehensive system development, to include pre-hospital triage criteria, diversion protocols, bypass protocols, and regional trauma treatment guidelines. As such, the North Central Texas Trauma Regional Advisory Council (NCTTRAC) has developed, vetted, and approved the following Trauma Triage and Transport Guidelines for use by North Central Texas EMS providers licensed by the Texas Department of State Health Services (TDSHS).

1.2 These guidelines do not establish a legal standard of care, but rather are intended as an aid to decision-making in the care of trauma patients are not intended to supersede the physician's or caregiver's judgement.

II. Overview

A. For the trauma patient, as for other critically ill patients, assessment is the foundation on which all management and transportation decisions are based.

B. The survival of the trauma patient is dependent upon rapid recognition/management of life-threatening injuries and rapid transport to an appropriate trauma facility, as outlined on Page 2 of this document. Scene times should be kept to a minimum with only the necessary interventions made to correct immediate life threats. All secondary interventions should be performed en route to an appropriate facility or while awaiting Air Medical evacuation.

C. The first step in trauma assessment is the **Scene Assessment**/Scene Size-Up. As you approach the scene, assure safety for yourself and the patient while taking BSI precautions. Rapidly identify the number/type of patients and request additional resources as appropriate.
   1. Additional resources (e.g. Air Medical evacuation, special rescue, additional ambulances, police, hazmat) should be notified based off of dispatch information; and requested to proceed with arrival/landing on scene during scene assessment/scene size-up.
   2. Recognition of multi-patient incidents and mass-casualty incidents is critical. In these incidents, priority shifts from focusing all resources on the most injured patient to providing the greatest good to the greatest number of patients.

D. Once a brief scene assessment/scene size-up has been performed, which may include rapid triage of multiple patients, attention should focus on evaluating individual patients. Individual patients should be assessed/treated based off of initial triage priority.

E. The **Primary Assessment** begins with a simultaneous, or *global*, overview of the status of the patient's respiratory, circulatory, and neurological systems to identify obvious, significant problems with oxygenation, circulation, hemorrhage, or gross deformities; followed by a rapid focused assessment of Airway, Breathing/Ventilation, Circulation/Bleeding, Disability, and Expose/Environment.
   1. Make immediate interventions to correct life-threats in the order assessed. Progress from BLS (least invasive) to ALS (most invasive), utilizing the most appropriate intervention warranted in a given situation.
   2. **Assess the Patient's Mental Status:** If unresponsive, check for a pulse. If no pulse, initiate CPR per local protocol.

3. **Airway:** While simultaneously applying C-spine precautions (if able), the provider should establish/ensure a patent airway by opening (e.g., jaw-thrust), clearing (e.g., suction), assessing, and intervening with appropriate device.
4. **Breathing:** Ensure adequate oxygenation and ventilation of the lungs utilizing appropriate oxygen-delivery devices. If abnormal ventilation is present, expose the chest and visually assess for trauma while assessing breath sounds. If an open pneumothorax is present, cover with an occlusive dressing. If a tension pneumothorax is suspected, rapidly decompress the affected side.
5. **Circulation:** Control massive hemorrhage utilizing appropriate hemorrhage control devices. Observe the color, temperature, and moisture of the skin while rapidly assessing for the presence/location/quality of pulses (e.g., carotid, femoral, and radial) to estimate Blood Pressure and/or perfusion. IV access and fluid administration are secondary to initiation of Rapid Transport.
6. **Disability:** Rapidly assess Level of Consciousness, pupils, and motor/sensory responses. If Central Nervous System injury suspected, utilize appropriate devices to restrict spinal motion. Observe for increased ICP and signs/symptoms of impending brain-stem herniation (e.g., unequal pupils, bradycardia, hypertension, irregular respirations).
7. **Expose/Environment:** Rapidly extricate/remove patients from dangerous environments (e.g., fire, snow, pool, etc.). Remove patients clothing in order to fully assess for injury. After assessing, cover patient to maintain normothermia.

F. The **Secondary Assessment** begins after the recognition/management of life-threatening injuries found in the Primary Assessment, and after a transport decision has been made. The objective of the Secondary Assessment is to identify injuries not initially found.
1. Reassess/Confirm Airway, Breathing, and Circulation. Make appropriate interventions as necessary.
2. Obtain full, detailed vital signs utilizing available equipment.
3. Obtain vascular access and administer appropriate fluid boluses to restore/maintain a radial pulse and/or SBP > 90 mmHg. Do not over-resuscitate trauma patients. Do not attempt to restore baseline vital signs.
4. Perform a detailed head-to-toe physical examination.
5. Immobilize/Splint suspected fractures and dress secondary wounds. Reassess circulation, motor and sensory after intervention.
6. Obtain SAMPLE history if able.

G. Continuously reassess airway, breathing, circulation, and disability. Document vital signs frequently. Make appropriate interventions as necessary.

III. Transport Algorithm

See Attachment D-1-A: Adult Trauma Triage & Transport Algorithm and Attachment D-1-B: Pediatric Trauma Triage & Transport

IV. Special Considerations

A. **Air Medical Evacuation:** When requesting air medical assets, confirm the aircraft's Estimated Time of Arrival (ETA) to the scene, in addition to the aircraft's Total Time for transport (start-up, take-off, move to scene, land, load patient, take-off, move to hospital,

land).

1. If the aircraft's ETA is greater than the time it would take to transport by ground to the closest appropriate facility, initiate ground transport and direct the aircraft to change heading to the respective facility.
2. If the aircraft's Total Time is greater than the time it would take to transport by ground to a Level 1 or Level 2 Trauma Center, initiate ground transport.
3. Air medical assets may be utilized to deliver higher echelons of care and/or specialty services when indicated (e.g., need for advanced airway management, surgical amputation teams, delivery of blood products).

B. **Burns:** Life threatening traumatic injuries should be identified and treated prior to burns. The following patients generally require treatment at a verified Burn Center per the American College of Surgeons and the American Burn Association. In addition, treatment of these conditions at other facilities often results in transfer to a Burn Center and an overall delay in care.

1. >10% TBSA Partial-thickness burns
2. Full-thickness burns
3. Electrical burns including lightning injuries
4. Chemical burns
5. Inhalation injury
6. Burns to the face, hands, feet, genitalia, and/or major joints

C. **Cardiac Arrest:** If patients are found to meet one or more the following criteria, CPR may be withheld and the patient declared dead if in accordance with local protocol.

1. Pulseless and apneic in addition to signs incompatible with life (e.g., decapitation, dependent lividity, rigor mortis, and decomposition).
2. No pupillary reflexes, no spontaneous movement, and no organized cardiac rhythm on the ECG greater than 40 complexes per minute.

D. **Geriatrics:** Traumatic injury in the geriatric population is increasing in prevalence and is associated with higher morbidity and mortality rates compared with younger patients. The risk of injury/death starts to increase after age 55 years. Elderly patients can experience significant injury in spite of relatively trivial mechanism. Because of altered baseline vital signs due to changes associated with aging, preexisting disease (e.g., hypertension), or medications (e.g., beta-blockers), the physiologic response to injury might differ from that seen in younger patients. Alterations in mentation may be attributed to dementia or delirium, potentially leading to late recognition of shock or traumatic brain injury. These factors increase the risk for under-triage by both EMS and ED personnel.

E. **Pregnancy:** Trauma has become the leading cause of maternal death in the U.S.; therefore, the main principle guiding therapy must be aimed towards aggressive resuscitation of the mother.

1. Any pregnant woman who has reached 20 weeks gestation or more (palpable uterus at/above umbilicus), who has been involved in any trauma, especially a motor vehicular crash, regardless of the absence of any perceived contractions or pain, should be evaluated at the nearest trauma center that has OB capabilities.
2. Increased plasma volume may delay hypotension.
3. Pelvic fractures have increased risk for fetal demise.
4. Carbon monoxide exposure in a pregnant female should be considered a mandatory transport.

5. Stretching of the peritoneum during the third trimester of pregnancy blunts the normal perception of pain. Therefore, relying on complaints of abdominal pain in the pregnant woman to alert the care provider to possible injury is unreliable.
6. Treatment Recommendations:
   a. Perform Doppler fetal heart rates (FHR) – normal 110-160; every 5 min FHR checks for 30 seconds (if capable).
   b. Padded stretcher
   c. Displace the gravid uterus (lateral tilt)
   d. Normal Saline or Lactated Ringers preferred (500-1000 ml bolus) – refer to local protocol
   e. Oxygen – keep SpO2 > 95%
   f. Consider tocolytics (medical director protocol)

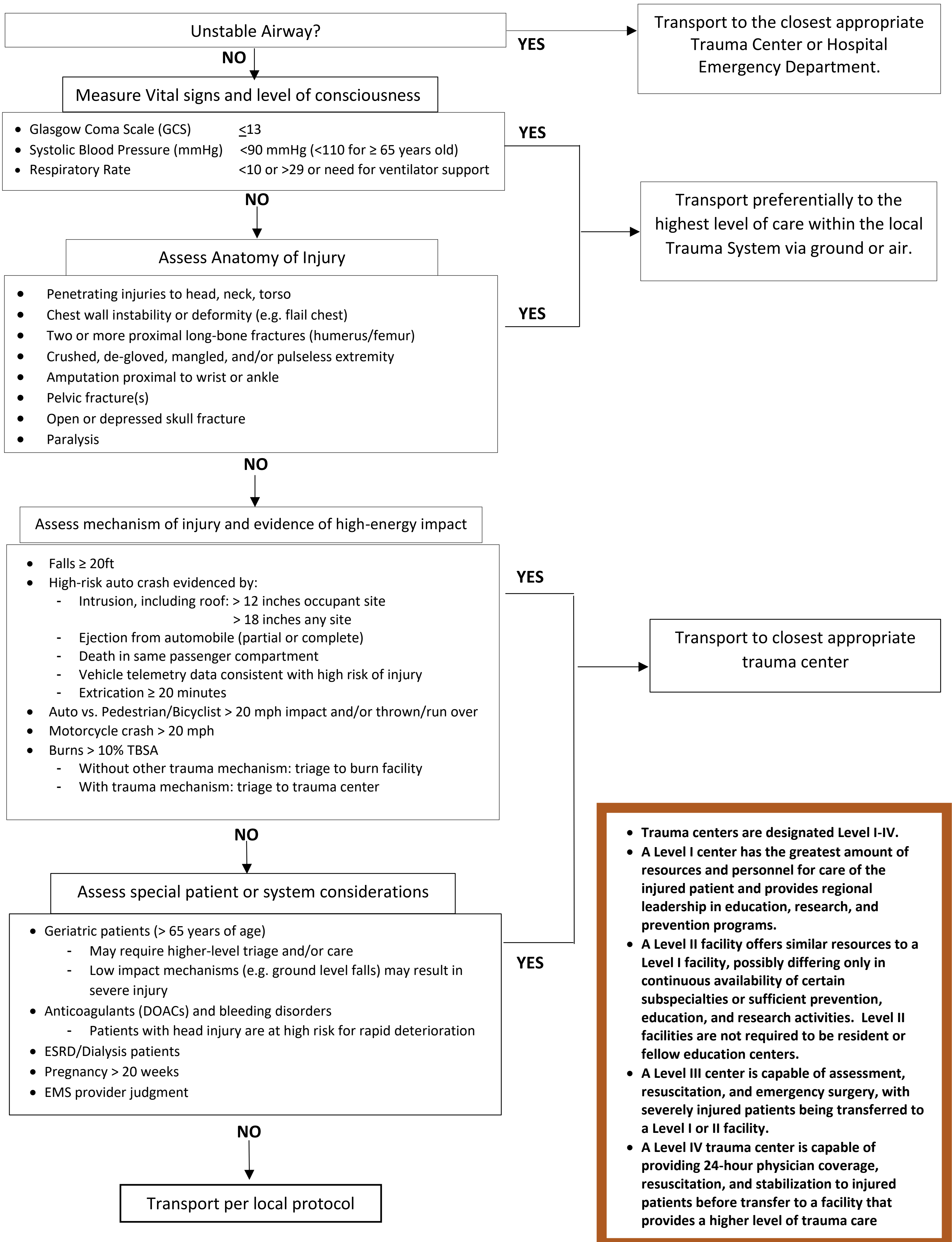
F. **Pediatrics:** Pediatric is defined by the American College of Surgeons and recognized by GETAC, and NCTTRAC as < 15 years of age. Pediatric patients should be triaged preferentially to a Pediatric Trauma Center.
1. If the term "lethargic" is used by the caregiver, the term needs to be described.
2. When evaluating a patient that has experienced a possible life-threatening event and the parents/guardians refuse medical treatment or transport, contact medical control.

G. **Special Needs Population:**
1. Have legal guardians or caregivers pre-notify EMS of the presence of a special needs patient in the area.
2. Inform legal guardians or caregivers to notify EMS of specific special needs and request the information be added to EMS call text records.
3. Be prepared and equipped for patient latex allergies.
4. General recommendations:
   a. Treat ABCs first (like any other patient)
   b. Ask for help from caregivers (they know the patient best)
      i. Assume ill or injured if affect or level of consciousness changes
      ii. Copy, scan, or take picture of the ready sheet from the caregiver
      iii. Inquire about additional supplies and bring with the patient
      iv. Look for USB bracelet with patient information
   c. If the emergency is secondary to the patient's equipment – USE YOURS
   d. Communicate with the patient based upon her/his developmental age, but do not underestimate their ability to communicate based on physical limitations.
   e. Clear, calm, SLOW, and helpful communication with the patient and caregivers is key to easing the patient's stress.
   f. Do not rush, if possible
   g. Never underestimate the strength of some of the special needs patients
   h. Stay at arm's length away from the agitated patient
   i. Only use restraints as a last resort
   j. Some patients respond to items that provide tactile feedback
5. Transport recommendations:
   a. A slow, careful transfer with two or more people may be required
   b. Position of comfort
   c. Do not attempt to straighten contractures as this may result in a fracture
   d. Transport family member or caregiver with you if possible; if not possible consider a comfort item (e.g., blanket, toy).
   e. Transport to the patient's medical "home" hospital if possible

H. **Bariatric:** Patient habitus does NOT change trauma field triage criteria
1. Agencies need to develop bariatric patient management guidelines
2. Mutual aid inter-agency agreements

3. Equipment:
   a. Wider stretcher, higher related construction for load handling
   b. More robust ambulance construction
   c. Ramp equipment or hoist to load patient into vehicle
   d. Air mattress for lateral transfers
   e. Diagnostic equipment to proper fit these patients

I. **Transfer of Patient Care Info:** The regional standard for Patient Care Report (PCR/ePCR) handoff communication is as follows:
   1. The receiving facility should be notified of patient and patient status prior to EMS arrival.
   2. At the time of transfer of patient care, at a minimum, verbal communication will occur, and a paper short-list and/or electronic draft-report will be delivered.
   3. A final written or electronic full care report will be available within one business day.
   4. *This regional standard expounds upon the minimum requirements set-forth in TDSHS EMS Rule §157.11(m).*



Centers for Disease Control and Prevention. (n.d.). *Guidelines for field triage of injured patients: Recommendations of the national expert panel on Field Triage, 2011*. Centers for Disease Control and Prevention. Retrieved June 8, 2022, from https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6101a1.htm

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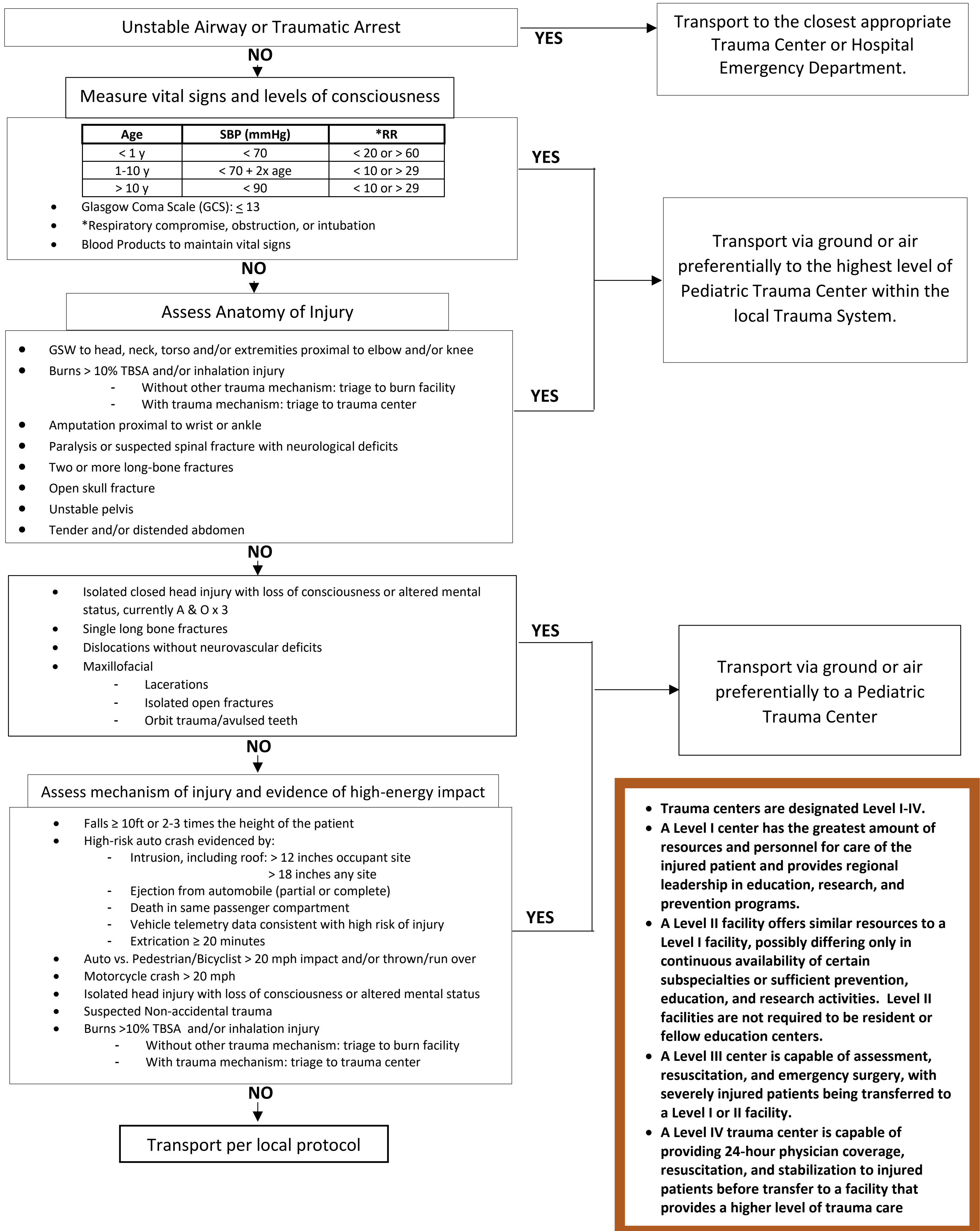

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